

Annual Report to Shareholders

Operative Year # 8

April 1st, 2013 – March 31st, 2014



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Reflections on year 8

The year has been characterized by international interactions, the efforts to create a research and innovation agenda for traffic safety and the fast growing attention to safety for vulnerable road users and automated, cooperative driving.

It is evident that SAFER partners and researchers hold a strong international position and are somewhat of a spider in the global web, e.g. in collection and analysis of driving data, child safety and human body models. In September more than 400 safety researchers came to Gothenburg for two consecutive conferences: the 3rd International Conference on Driver Distraction and Inattention (DDI) and the International Research Council on Biomechanics of Injury (IRCOBI). SAFER has been trusted to arrange the 24th ESV conference in Gothenburg in June 2015. This was announced at the last ESV conference in May 2013 where we presented SAFER and gave a keynote speech on “Global collaboration for vehicle safety research”. In Europe, the new research program Horizon 2020 has released its first call and SAFER researchers are in the game. Our active engagements in EU through different bodies create good opportunities for cooperation. In US we have expanded our collaborations and receive recognition for the research at SAFER by e.g. by having been awarded prestigious research contracts. The CTS (China Sweden research centre for traffic safety), where SAFER is the Swedish research platform, is in good progress.

In line with the decision to act more pro-actively SAFER took the responsibility to create a strategic research and innovation agenda for traffic safety. The aggregation of knowledge and experience of more than 100 persons at SAFER and complementing actors resulted in the agenda “Safe Future” - 18 ambitions towards a vision of accident free traffic. The insights from creating the agenda inspired to intensive strategic activities concerning the development of traffic safety as a strategic innovation area.

Safety for vulnerable road users – pedestrians, bikers etc, - is addressed by applying competences and methods developed in projects for automotive safety. This approach has proven to be successful. In parallel, big efforts are made to cover different issues related to automated driving. Here SAFER is responsible for a pre-competitive project “Boundary conditions for automation”. Irrespective of safety ambition, road user behaviour is becoming more and more important.

We are guided by our vision and Wanted Position 2016. Thus, the board has taken the decision to allocate funding to 10 strategically important projects, a senior competence in driver behaviour, a new Competence Area “Human Monitoring” and a new Focus Topic “Care & Rescue”. This, together with all ongoing projects, activities, collaborations and old and new partners, is a great start for the coming two years and the preparation for the stage beyond.

Lindholmen in May 2014

Anna Nilsson-Ehle
Director

1. LONG-TERM VISION, MISSION AND STRATEGY

Vision

SAFER provides **excellent multi-disciplinary** research and **collaboration** to eliminate fatalities and serious injuries, making Swedish **society, academy and industry** a **world leader** in vehicle and traffic safety.

Mission

- Run collaborative research projects with excellent academic publications and high relevance to society and industry. Explore new research areas through pre-studies and participation in international networks.
- Combine the multi-disciplinary scientific competence available within SAFER to enhance scientific excellence as well as innovation capability.
- Serve as an open innovation centre for partners and international researchers and provide the prerequisites for creative and productive research collaboration.
- Develop world-class competence, including research tools and methods, in SAFER Focus Topics.
- Inspire students, researchers and product developers to be devoted to the area of traffic safety.
- Disseminate results and knowledge to society.

Strategy

To significantly contribute to the vision and become a well renowned international centre of excellence SAFER has to deliver results, build competence and create strong networks in selected areas.

The strategy is built on the pillars **Excellent competence, Multi-disciplinary research and Collaboration**. The strategic plan is to build long-term competence in defined Competence Areas necessary to achieve outstanding research and innovation in chosen Focus Topics. The Focus Topics together form a framework for project content and for development of competences and collaborations. From 2014 a new Focus Topics has been added: Care & Rescue. It encompasses quick and correct response to an accident, care and prioritization of victims at the accident scene and in transport, quick and safe rescue service operations “on-scene”, and elimination of secondary effects of a traffic accident such as additional incidents and accidents.

Presently the seven Focus Topics are:

- **Incidents and accidents – priorities and effect analysis**
- **Driver state/action/reaction**
- **Prediction for accident prevention**

- **Methods for evaluation of vehicle and traffic safety**
- **Safety for novel vehicles and vehicle combinations**
- **Human body models and Biomechanics**
- **Care & Rescue**

The strategy also includes a common **work environment**, **seminars** and work **methods**, and a **uniting name** – SAFER. Multi-disciplinary research and collaboration are supported by the SAFER environment where researchers and project members can meet and work side by side. This creates an atmosphere of true collaborative research and an ongoing dialogue involving many different actors within the safety area.

Wanted Position 2016

1. Visible and measurable results in practice
2. Hub for Swedish traffic safety research
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

Values

SAFER is guided by its vision, strategy and values. The essence and ultimate purpose of SAFER is to create a setting where “World class expertise in traffic safety collaborates to save lives”. The hallmark for SAFER should be values to support that. The atmosphere should express: Open minds, respect for each other, cooperative spirit, high aspirations, curiosity and joy.

Financing

According to the partner agreement for Stage 3, running from April 1st 2012 to March 31st 2016, SAFER has a funding of 126 MSEK. Of these 126 MSEK, VINNOVA is providing cash 40 MSEK, while the partners contribute 86 MSEK whereof cash 10 MSEK and the rest in inkind.

Chalmers Transport Area of Advance receives Swedish national strategic research funding for Traffic Safety for the years 2010-2015. The amount of this grant is well in the order of Chalmers’ inkind commitment in SAFER and the research grants play an important role for the development towards a world class research centre.

The common costs for SAFER are approximately 70% of the cash funding. 81% of the common costs are paid by SAFER while 19% are inkind from partners. As SAFER grows and develops, so do the common costs. Thus, the ability to attract external funding for

projects is increasingly important as well as finding complementary cash funding for centre activities.

Project finances

Projects in the SAFER environment are split in two categories. "Own projects" governed according to SAFER financial rules and project procedures. "Associated projects" have external grants and governance but are part of the total project portfolio and follow-up. The total project turnover, including all projects, own and associated, in the SAFER environment is monitored regularly. The goal for SAFER is to reach an *annual* project (both own and associated projects) portfolio turnover of 200 MSEK by year 2016. When SAFER started in 2006 the existing annual project portfolio was estimated to 60 MSEK. The estimation for the annual project portfolio turnover year 8 is 170 MSEK, whereof SAFER's own projects are 47 MSEK. Most projects run over several years. The total value of the project portfolio (e.g. the ongoing/decided 84 projects) is slightly below 500 MSEK.

The growth of the project portfolio reflects the outcome of SAFER efforts, but also the effect of changes in national and international research programs for automotive and transport research. The European 7th framework program for research has come to an end and the new program named Horizon 2020 has just opened. The first call closed in March 2014. Only one topic addressed safety research explicitly although traffic safety is part of the Horizon 2020 scope and mentioned in contexts like "green, safe and efficient mobility".

2. ORGANISATION AND MANAGEMENT OF THE CENTRE

Partners and Shareholders meeting

The partners in SAFER are:

AB Volvo, Acreo Swedish ICT, Autoliv, City of Gothenburg (Traffic and Public Transport Authority), Chalmers University of Technology, Folksam, Halmstad University, If Insurance, KTH Royal Institute of Technology, Lindholmen Science Park, Lund University, Region Västra Götaland, Scandinavian Automotive Suppliers, Scania, SP Technical Research Institute of Sweden, Sweco, Swedish Transport Administration, Swerea IVF, Swerea SICOMP, TÖI – the Norwegian Institute of Transport Economics, University of Gothenburg, Viktoria Swedish ICT, Volvo Car Corporation, VTI Swedish National Road and Transport Research Institute, and ÅF (former Epsilon).

During SAFER's operative year 8, University of Borås and University of Skövde have joined as associated partners.

All partners hold a place in the Shareholders meeting. VINNOVA is the main funder.

Board

The executive board of SAFER consists of representatives from the large partners. Year 8 the board has consisted of 9 members: Jan Olsson, Autoliv; Magnus Olsson, Volvo Cars; Magnus Rilbe, AB Volvo; Jan Andersson, VTI Swedish National Road and Transport Research Institute; Claes Tingvall, Swedish Transport Administration; Mikael Nybacka, KTH; and Anna Dubois, Per Lövsund and Jan Smith, Chalmers. Eric Wallgren, VINNOVA, is an adjunct member. Karin Svensson, AB Volvo, is independent chair person without suffrage.

There have been nine board meetings during year 8, including one longer strategy meetings in August 2013.

Reference Groups

The research at SAFER is conducted in four research programmes, each led by a Reference Group Leader. Projects are initiated, discussed and recommended to the board by Reference Groups for each programme. These groups include representatives from all SAFER partners that have an interest to participate and are the base for establishing world class competitive project portfolios. Each programme is host for a mix of projects: previously established by other parties, newly established and pre-studies for future projects.

The four research programmes are: *Pre-Crash* which handles projects on accident prevention (accident avoidance and crash mitigation), *Crash* covers projects concerning injury prevention, *Post-Crash* handles projects on mitigating consequences of accidents and *Traffic Safety Analysis* concerns projects aiming at understanding traffic and the causation and dynamics of accidents and injury occurrence.

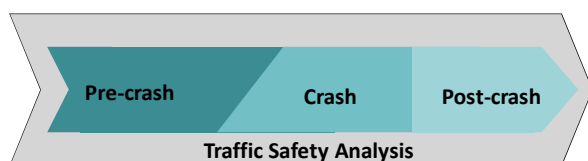


Figure 1: The four research programmes

In September 2013 the Reference Group Leader for **Pre-Crash** since the start of SAFER Dr Yngve Håland, Autoliv, retired and was succeeded by Dr Christian Grante, AB Volvo. The secretary is Ms Daniela Michael. Five meetings were held during year 8, with in average 16 participants at each meeting.

Leader of the **Crash** Reference Group is Dr Lotta Jakobsson, Adjunct Professor in Vehicle Safety at Chalmers and Senior Technical Leader, Injury Prevention at Volvo Car Corporation. The secretary is Dr Fredrik Törnvall, AB Volvo. 7 meetings were held, with in

average 11 participants, ranging from 8 to 14. In total 15 partners are on the distributions list, whereof 13 attended meetings during year 7.

Leader of the Reference Group **Post-Crash** is Dr Bengt Arne Sjöqvist, Professor of Practice at Chalmers. During the year 8, four reference group meetings were held. In average 8-10 participants attended the meetings.

The Traffic Safety Analysis Reference Group is led by Dr Robert Thomson, Associate Professor in vehicle safety at Chalmers and researcher at VTI. The secretary is Ms Daniela Michael. 6 meetings with 6-11 participants per meeting were held with and 6-8 unique SAFER organisations are active in the group.

Competence areas

The competence areas at SAFER are: Field Data, Behaviour in Accident Causation, Human Factors Design, Driving Simulator Applications, Sensors and Communication, Functional Safety, Vehicle Dynamics, Road Infrastructure, Structures and Materials, Biomechanics and Protective Systems, Traffic Systems, and Human Monitoring. The AstaZero research council is considered equivalent to a competence area. In 2014, SAFER added a 12th competence area: Human Monitoring. Human Monitoring focus' on methods to measure, record and analyse human vital signs and physiological information.

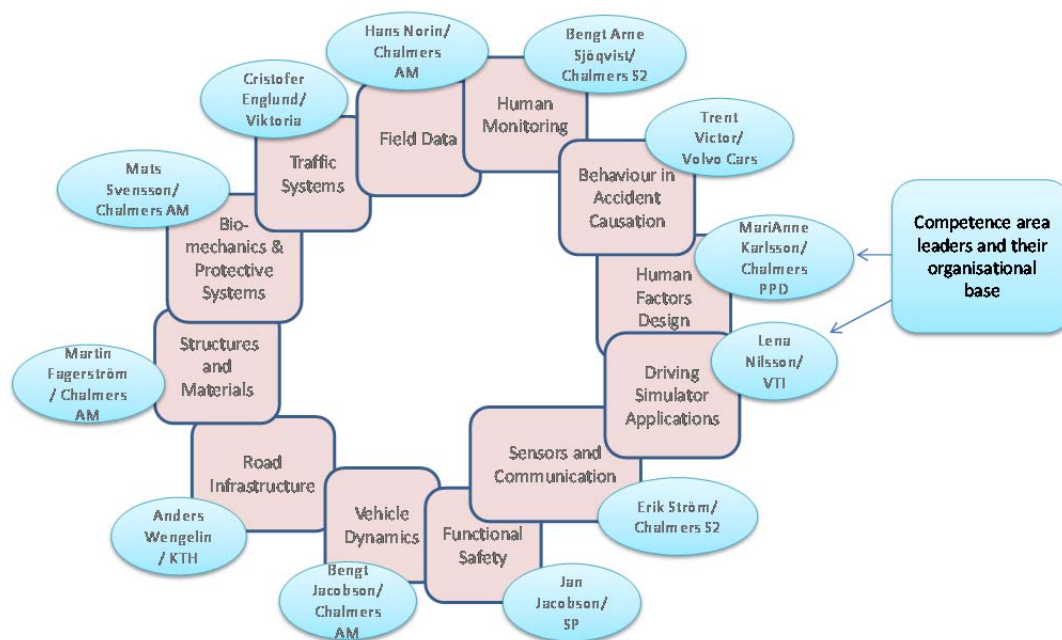


Figure 2: The Competence Areas and their leaders

Each area is led by a Competence Area Leader (CAL) who gathers key persons from SAFER partners with their main research interest in the competence area. It is the responsibility of each competence area to know state-of-the art of global research and what's perceived as world-class research. Each should have a short and a long-term plan for the development of their specific competence at SAFER.

Centre Director and Management groups

In order to strengthen SAFER's management a financial officer/controller was recruited to enhance the economic function in February 2013 and a deputy centre director was appointed in May 2013. SAFER has two management groups. The Operative Management Group consists of the Director, Deputy Director, the Reference Group Leaders, the Communications Officer and the Financial Officer. The Extended Management Group includes besides the Operative Management Group also the Competence Area Leaders, and "Large project" leaders. The Scientific Leadership for SAFER is distributed to the Competence Area Leaders and Reference Group Leaders.

Participants in the Operative Management Group per March 2014 are: Anna Nilsson-Ehle, director of SAFER; Ingrid Skogsmo, deputy director; Christian Grante, Reference Group Leader Pre-Crash; Lotta Jakobsson, Reference Group Leader Crash; Bengt Arne Sjöqvist, Reference Group Leader Post-Crash; Robert Thomson, Reference Group Leader Traffic Safety Analysis, Lisa Knutsson, communications officer, and Pia Nilsson, financial officer/controller

Participants in the Extended Management Group are per March 2014 additionally (see Figure 2): Cristofer Englund, Viktoria Swedish ICT; Martin Fagerström, Department of Applied Mechanics, Chalmers; Helena Gellerman, area manager FOT/NDS, SAFER; Jan Jacobson, SP; Bengt Jacobson, Department of Applied Mechanics, Chalmers; MariAnne Karlsson, Department of Product and Production Development, Chalmers; Lena Nilsson, VTI; Hans Norin, Department of Applied Mechanics, Chalmers; Erik Ström, Department of Signal and Systems, Chalmers; Mats Svensson, Department of Applied Mechanics, Chalmers; Trent Victor, Advanced Research and Technology, AB Volvo; Anders Wengelin, KTH; Christian Berger, Department of Computer Science and Engineering and AstaZero research council and Jac Wismans, guest researcher at Chalmers and SAFER.

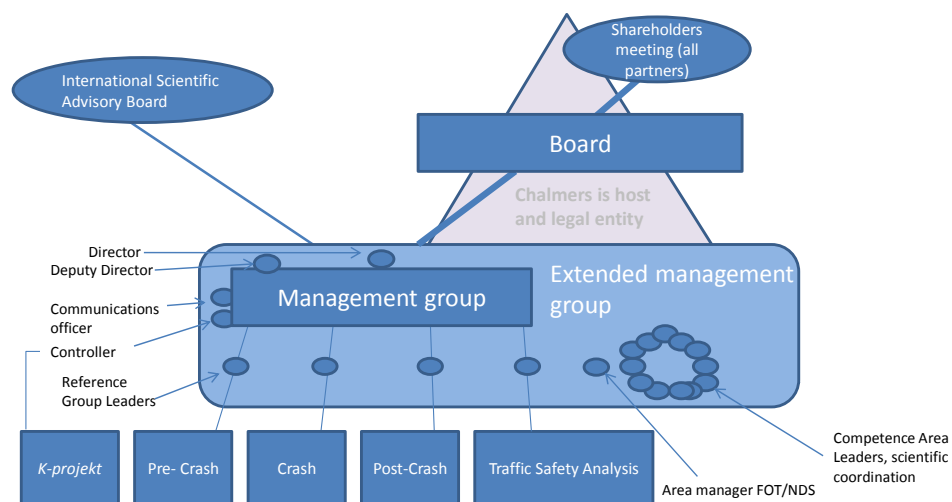


Figure 3: The organisation of SAFER and relation to Chalmers

Chalmers is the host for SAFER and SAFER is the core of the research profile Traffic Safety within the Transport Area of Advance at Chalmers (Styrkeområde Transport).

International Scientific Advisory Board (ISAB)

Based on written material, presentations and interviews the ISAB provides advice about the quality, scientific relevance and organization of the research at SAFER in an international context. The advice concerns both the research carried out as well as future plans. The SAFER ISAB consists of five members. Dr Joseph Kaniyathra, USA, Dr Kazuya Takeda, Japan, Dr Anne Guillaume, France, Dr Martin Baumann, Germany, and Dr Marika Kolbenstvedt, Norway. A first Scientific review meeting was held in February 2011 and a second meeting, covering the years 2011- 2013, will be held in May 2014.

3. WANTED POSITION RESULT YEAR 8, STATUS

1. Visible and measurable results in practice

The Strategic Research and Innovation Agenda, “Safe Future”, released in August 2013, can be seen as an output of the aggregated competence of SAFER and complementing actors. The Agenda states 18 ambitions towards a vision of accident free traffic. The agenda work involved over 100 persons from more than 45 organizations, including all SAFER partners.

In addition SAFER has continued building competence in especially bicycling safety and automated or connected traffic. This includes basic research as well as applications into products and innovations. One example of the latter is the app Jalp! – a smartphone app developed by a team at SAFER. It is foreseen to contribute to injury severity mitigation for bicyclists by utilizing the biker’s mobile phone to automatically give notification to a contact in case of accident.

The project EU project ASSESS contributed to developing the requirements for tests of automatic braking systems and contributed to the resulting EuroNCAP test procedures, even if the final vehicle target system chosen was the ASSESS target. Ongoing projects like SHRP2 Safer Glances is providing important information to both develop legal requirements for driver operations related to infotainment as well as input to development of future active safety systems.

Thanks to its research and built up knowledge SAFER has been a contributing to, and invited to, several activities addressing future urban traffic, e.g. cycling in Gothenburg, providing input to how to make it accident free. In addition, SAFER has been involved in several demonstrators related to connected vehicles in 2013, providing safety aspects.

2. Hub for Swedish traffic safety research

As mentioned above, SAFER has been the coordinator for “Safe Future” – the research and innovation agenda for traffic safety. Following its release SAFER is now leading the work on identifying how to progress the different topics, including and involving the appropriate channels, actors, and future traffic safety stakeholders. This work will continue during year 9.

SAFER also lead the development of an application to Vinnova’s call for “SIO” - Strategic Innovation Areas - submitted in November 2013 (first round) and March 2014 (second round). “SIO TS-Future” (TS=Traffic Safety) involved 20 co-applicants, including several SAFER partners but also new actors. SAFER furthermore has exercised the hub role in coordinating an application to Vinnova’s call for creating national advocacy platforms for Horizon 2020. Vinnova’s decisions on both applications are expected in May.

In late 2013 SAFER established a new Focus Topic: “Care and Rescue”. Under this umbrella several activities in this field have taken place during the year, involving a large number of different disciplines and actors including several SME’s. This can be seen as a continuation of the post-crash efforts in year 7, when the new competence area “Human Monitoring” was set up.

FFI (Programmet för Fordonsstrategisk Forskning och Innovation; Swedish program for automotive-related research and innovation) heavily involves several SAFER partners. It spans the areas energy & environment, vehicle safety, vehicle development, sustainable production technologies and transport efficiency. SAFER has during the year acted as a coordinator of academic input to the update of FFI’s road map in vehicle and traffic safety.

In the fast growing area of research addressing automated driving SAFER responded to a call from FFI and applied for a collaborative project on “the boundary conditions for automated driving” - ARV. A one year project was granted (SAFER, Volvo, Scania, Volvo Cars and Autoliv) and has resulted in exploratory workshops, a white-paper, three pre-studies and a second stage of the project to continue the forming of a collaborative platform for the many pre-competitive issues connected to automated driving. Victoria – Swedish ICT has supplied the SAFER project leader.

SAFER plays a key coordinating role in the EU 7th Framework Program project PROS (Priorities for Road Safety Research in Europe) running 2012-2014. Here SAFER is advocating topics of Swedish interest into discussions on the European level.

On both the Swedish and international arena SAFER has initiated and coordinated seminars and workshops that have attracted a committed and renowned audience. Examples are NTF / SAFER events on elderly road users and a child safety seminar in conjunction with the international IRCOBI conference.

3. Acknowledged as a world leader in traffic safety research

An extensive report about research at SAFER has been prepared for the International Scientific Advisory Board meeting May 15-16, 2014. The report covers the calendar years 2011 – 2013 i.e. approximately SAFER year 6, 7 and 8. During this period SAFER researchers have been engaged in 129 projects, of which 85 were ongoing by the end of 2013. More than 300 publications have been published. Information about these projects and the publications are available on the SAFER website (www.chalmers.se/safer).

In 2016 SAFER should have a critical mass for each competence area. During year 8 the competence areas have become stronger and more visible through arranging Thursday seminars and external seminars with national outreach. The competence area “Structure and Materials” collaborates with the SIO Lighter and “Road Infrastructure” is linked to the KTH competence centre Road 2Science. A new competence area “Human monitoring” has been added. To further strengthen the competences in behaviour in accident causation the SAFER board has allocated funds for a senior researcher on driver behaviour. Special attention is given the competences regarding research infrastructure. The established competence area “Driving simulator applications” is closely connected to the VIP competence centre. AstaZero proving ground will be inaugurated in August 2014. To establish a strong link between SAFER and AstaZero, SP and the coordinator of the AstaZero research council@Chalmers, adjunct to SAFER extended management team, have in close collaboration initiated seminars, workshops and project applications. Other infrastructure initiatives, such as MITS (Människan I Trafiksystemet), have engaged SAFER researchers and competence leaders during the year.

In 2016 SAFER should be at the cutting edge in specific research subjects within all Focus Topics. Presently the position is:

Incidents & Accidents: The Focus Topic is a backbone for future safety research. In the recent Horizon 2020 EU call specifically addressing Traffic Safety Analysis, SAFER partners have been part of no less than seven project proposals that contain elements in this Focus Topic, highlighting that SAFER is a sought after research platform for international researchers. There are a number of researchers, distributed among the SAFER partners, with high international reputation and there is a world leading group of researchers connected to the naturalistic data activities. The crash data collection and analysis at SAFER also have a good reputation. An example is the collaboration with UMTRI on a project with the purpose to understand if cars’ real world safety level in Europe and US is equivalent although standards are different.

While there are a reasonable number of researchers engaged in this Focus Topic, there should be more PhD activities and this would encourage more publications and analysis of the data.

Driver State/Action/Reaction: The topic grows in importance and interacts increasingly with the other Focus Topics. In many projects it is closely connected to naturalistic driving studies. The SHRP2 funded project “SAFER glances”, where the SAFER research group is the only non-US group and 1 of three granted funding, is very promising. Driver state estimation and complete risk management for drivers are

emerging areas as well, as are VRU behaviour and elderly. Projects like BikeSAFE, BikeSAFER, e-BikeSAFE, and DREAMi are examples where other road users (cyclists and pedestrians) have been the focus of behavioural issues and where SAFER researchers have achieved good recognition.

Prediction for Accident Prevention: This broad Focus Topic is growing and expanding due to the fast development of active safety systems, semi-automatic and automatic vehicles and a connected traffic system. The outcome of projects is taking Swedish partners to the fore-front in several important areas. As an example, the project “NG-test” focus on true-positive testing and evaluation of known fault-positive scenarios in specific test environments and the project QUADRA is the first project ever that aims at developing driver behaviour models to be used in computer simulations and automated test track scenarios to evaluate active safety systems. This new type of evaluation tool is essential to go towards virtual verification and validation of active safety system and semi-automation. The project “Enhanced/Robust Stability Control” studies how disturbances can be detected, analysed and handled, for example by other vehicle control inputs such as steering, to work in conjunction with brake-based ESC systems. This work can form the basis for the next generation of ESC systems. Several projects, national and European, are run within the area of functional safety and the SAFER researchers are among the leaders. Other projects within SAFER deal with accident avoidance and future possibilities of autonomous driving and results feed into vehicle system development at SAFER partners as well as increase knowledge in the academic world about vehicle electronics and safety. Results from “Non-hit Car and Truck” will be reached in sensor fusion techniques and collision avoidance algorithms which include escape path planning in complex traffic situations. During year 8, two PhD students were added to the research area through a FFI- funded project.

Methods for Evaluation of Safety systems: SAFER has taken some vital steps to pro-actively promote methods development for infrastructure (Gulliver, “Scenario-Based Testing of Pre-Crash Systems”, “Research at AstaZero”, “Simulator Lab at SAFER” etc.). While the project activities are building up, it is obvious that there is world leading expertise and infrastructure available within the SAFER partners. During the spring of 2014 a number of new projects have been started at SAFER with the aim to promote infrastructures for novel vehicle dynamics and for self-driving cars. Including a vehicle laboratory that is more open to the academic researchers than industrial facilities. Several of these efforts are expected to result in world leading capabilities for evaluation of safety systems.

Novel vehicles and vehicle combinations: This Focus Topic contains a variety of activities, which in several cases address the need to up-front integrate a safety perspective in new green and efficient mobility solutions.

The SEVS2 (Safe, Efficient, Vehicle Solutions) project, succeeding SEVS1, was finalized during year 8. The project has engaged 13 partners with a broad multi-disciplinary competence from social as well as technical sciences. It has resulted in a Driving Force Model for a sustainable transport system which can be used for the analysis of this complex system in four different future scenarios, each with a detailed description. Further results are analysis of different use cases for personal and goods transports in

urban environments, including a method for measuring sustainability for the respective use case. As a result of the unique methodology to handle and analyse complex systems, such as the transportation system, a handbook is being created.

The safety aspect on the High Capacity Transport (HCT) programme was initiated in collaboration with Swedish Transport Administration during year 8. VTI supplies SAFER with a programme leader and several projects have been initiated. They cover analysis of larger vehicle in traffic and encompass research on vehicle dynamics for long vehicle combinations.

At the other end of Novel vehicle concepts, a research pre-study “Urban Personal Vehicles” has recently been granted funding and will predict the technical developments of these types of small electrical vehicles and investigate the properties and performance, mechanical as well as control technology.

The developments in the area of CAE tools for composite body concept assessment is of high importance for effective composite development in vehicle design and also exemplifies SAFER's strength at combining large and small projects to address the different needs of the partners.

Human Body Models and Biomechanics: SAFER now has a strong core group of activities in the area of human body modelling, involving researchers in several major projects. Becoming more important with increased penetration of e.g. pre-crash braking systems, the low-g activities on adult sized THUMS were in year 8 complemented with a Post Doc position on child human body model focusing implementation of active muscles. Important steps in pedestrian model improvements such as integration of active muscles and creation of validation data were taken, e.g. by completion of a project focusing head injury details.

Within the EU project “ADSEAT”, a virtual female sized version of the BioRID was presented this year. The success of this project, together with the human body modelling capabilities and strong history of whiplash research and world first innovations by SAFER partners has attracted new funding from Vinnova for 2014-2016. In the area of Child Safety, SAFER research and activity has attracted a wide international audience. In Sept 2013 SAFER invited 11 international child safety experts for a project workshop and an open seminar. This was summarized and presented at the annual international child safety conference, contributing to setting the global agenda in child safety. The good progress and the world-class level of research were manifested when visiting professor Kristy Arbogast was appointed Honorary Doctor at Chalmers in March 2014.

4. A broad set of partners and collaborations in order to ensure the strategy and explore new needs and countermeasures

During year 8 SAFER has held discussions with several prospect partners. As a result the Stakeholder meeting in May 2014 will welcome Swedish Transport Agency (Transportstyrelsen) (SAFER partner) and iResq (associated partner). Earlier during the year, University of Skövde was accepted as associated partner. The dialogue with additional potential partners is continuing into year 9.

As seen in WP 2 (Hub for Swedish traffic safety research) the efforts in the Post-Crash, human monitoring, and Care & Rescue areas have paved the way for several new actors and collaborations.

During the Agenda and SIO work, great care was taken in setting up workshops that could broaden the safety scope. Several actors with interest and contribution potential were identified and invited to get familiar with SAFER and, in some cases, the traffic safety subject. Another form of collaboration was enabled by participating in the development of other agendas and SIO, such as GIMI (Green Infrastructure Material Innovation) and InfraSweden 2030 (road infrastructure focus), Lighter, Transport 2050, Models and Systems simulation, and the agenda for the aging population.

International partners and collaborations are detailed in the Internationalization section below (chapter 6). However, extra efforts have been made during the year to support the first year of the China- Sweden research centre for Traffic Safety (CTS) inaugurated in 2012. Collaboration partners are Volvo, Volvo Cars, RIOH and Tongji University, with SAFER as the Swedish platform. Three projects are ongoing.

In year 8 there have also been several national and regional efforts in developing test beds, and linking them to international consortia and clusters. This provides additional opportunities for collaboration. SAFER is involved in e.g. SAGE (see chapter 6) and AstaZero. Furthermore SAFER is hosting, co-hosting or participating in bidding teams for several international safety related conferences, which further increases visibility and can open up for new collaborations. The 24th International Technical Conference on the Enhanced Safety of Vehicles (ESV) 2015 and the International Cycling Safety Conference 2014 are two examples.

The intensified focus on bicycles and automated driving has identified new actors and areas that are, or should be, involved in the development of the research strategies for the future.

5. A balanced project portfolio and a long term financing of the core operations

During this year the management team and board have increased the attention on how to develop SAFER beyond stage 3. The application for a Strategic innovation area (SIO) has been a good opportunity to discuss different possible paths to take, based on the strategic decision a year ago to continue with SAFER with its present framework. At the board strategy meeting in August 2013 it was decided to spend the remaining available SAFER cash in a way that would enhance the possibility to achieve results in line with Wanted Position 2016 and at the same time stimulate the partner's inkind contribution. A "call" was launched late 2013 and the reference groups engaged in finding good projects. 18 projects were finally presented to the management team and 10 have been decided by the board. The allocated funding is 4 MSEK and 8,5 MSEK inkind. With this decision taken, the SAFER own funding for Stage 3 is allocated while inkind is still available.

Most of the funding of SAFER projects is external, actually SAFER own funding (cash + inkind) is about 10 % of the total project portfolio. The distribution of own and external funding varies between the different portfolios due to the availability of research grants for different topics.

The Pre-Crash portfolio corresponds to 58% of the total while Crash and Traffic Safety Analysis make up 20% each. Post-Crash is merely 1% but growing. Research on automated vehicles, driver behaviour and vulnerable road users are growing. However, the analysis in the agenda “Safe Future” points to the need of new research in areas we have hardly started to explore. The input from SAFER International Scientific Advisory Board will be very valuable for the coming discussions on a future balanced project portfolio.

4. RESEARCH PROGRAMME

The research projects are addressed to one of four project portfolios that together make up the research programme. The projects build the road maps for the seven Focus Topics. Some projects fit into several Focus Topics.

Projects present at SAFER can be initiated at SAFER **or** be started by SAFER partners in another context and wish to be associated to the SAFER environment. SAFER initiated projects can be financed in several ways, by national/international funders or by SAFER and SAFER partners. Often there is a mixed financing, where SAFER finances a pre-study which evolves to a pre-project, partly SAFER financed, and eventually a full project with external financing.

SAFER keeps track of all projects and their progress and turn-over and takes the full project responsibility for projects with SAFER financing and for projects where SAFER is project manager towards an external funder. This is the case for instance when SAFER acts as Joint Research Unit (JRU) in EU programmes but also in several national projects. Projects, for which SAFER takes full responsibility, are named “own” while all other projects are named “associated”. A list of all projects, own and associated, are continuously updated and presented to the SAFER board at each meeting. March 2014, 84 projects and pre-studies were decided and/or ongoing, out of which 45 are “own” projects and 39 are “associated” (see Enclosure 3).

5. FOCUS TOPICS – SCOPE, OBJECTIVES AND ROADMAP

Vehicles in this document are defined as vehicles with two or more wheels such as bikes, mopeds, cars, trucks and buses with a driver for transport of people and goods on roads.

Incidents and Accidents – Priorities and effect analysis

Projects addressing the collection, processing, and analysis of traffic safety data are grouped in the Focus Topic *Incidents and Accidents – priorities and effect analysis*. The areas that are covered include:

- Methods to collect and document road incidents and accidents such as vehicle instrumentation, interview techniques, accident reconstructions, etc.
- Processing and preparing data to prepare for analyses such as linking map data with vehicle usage, identifying safety critical events in naturalistic driving data, or extracting information from video records.
- Developing and conducting different analytical approaches to establish the relationships between variables describing the traffic system and the parameters defining an incident or accident outcome.

Information regarding incidents and accidents is a critical component of the research activities at SAFER, both in terms of infrastructure – databases, data collection experts, data processing tools – as well as analysis activities. The area of accident investigation has been a high priority activity in Sweden for many years and the expansion into collecting naturalistic driving data, with a focus on active safety and driving behaviour became a natural extension, of this expertise. All projects in this Focus Topic deal with real world data to some degree although the data and its associated analyses may not be the main topic of the project. Many projects have an element of accident or incident analysis for identifying priorities for a new countermeasure but this may be only a small part of the total project activity. Conversely, some projects in the Focus Topic only deal with the collection of field data. By grouping SAFER projects that address *Incidents and Accidents*, SAFER management can identify the synergies in the projects and partners and identify future needs and priorities. The goal is to maintain a leading position in the area and continue to be an internationally attractive research partner.

The typical questions that are being answered in the projects included in the Focus Topic are:

- How do we collect data?
- How do we process and enrich collected data?
- How do we perform analyses and integrate data from different sources?
- What do we learn from the analysis resulting in recommendations for safety improvements and effectiveness of measures (for example cost-benefit)?

The collection and review of ongoing projects in the Focus Topic help identify issues that must be better understood but have not yet been properly addressed in the ongoing activities. The questions listed above are not always answered and it is useful to identify why they are difficult to address and what actions are needed to correct this. This

develops areas for prioritisation for *Incidents and Accidents* to ensure that the state of the art moves forward. One example is the leveraging of data collected in FOT and accident databases to both integrate national datasets with international data, as well as combine datasets with different content (for example police reports and road information). This leads to another priority to develop tools to better extract data from large datasets like FOT/NDS. Once data extraction tools are better developed, the methods that can link different databases independent of the data type and application can begin working with better data quality and quantities. Eventually, evaluation of how future transport concepts perform in real traffic can be done.

The roadmap in Figure 4 illustrates the main project clusters and sub-themes within the Focus Topic as well as a milestone for the topic. The green areas illustrate that there is some level of project activity ongoing. The yellow areas cover ongoing projects and illustrate planned activities and projects where applications have been submitted or are already in the start-up phase. The white area indicates future research needs identified by SAFER partners. There is a milestone identified with the red box and it is positioned to show that it applies to two project clusters.

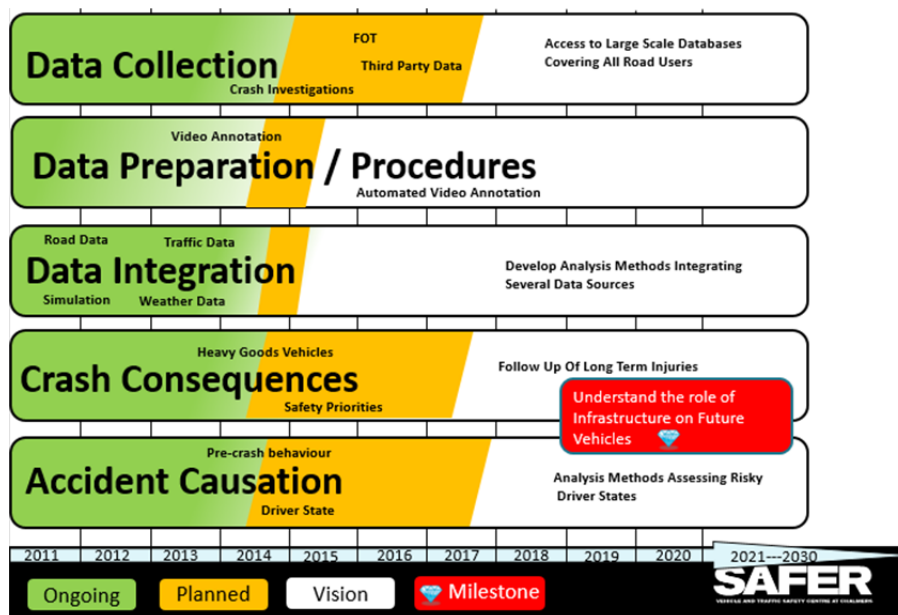


Figure 4: Roadmap of the Focus Topic Incidents and Accidents

The projects are grouped into five clusters where the first three address the collection and processing of data while the latter two involve the analysis.

Driver State/Action/Reaction

The Focus Topic *Driver state/action/reaction* covers how drivers (from bikes to trucks) and Vulnerable Road Users (VRUs) actually behave in traffic, not just how we are supposed to behave. It covers permanent and temporary states of the driver, such as fitness for driving (including impaired drivers), why and how we take risks and what we do to compensate for risks. It also covers the driver's interaction with in-vehicle information systems

(including nomadic devices) and interaction with advanced driver assistance systems, how the driver reacts to and accepts warnings as well as automatic interventions of active safety systems such as emergency braking. An emerging area affecting *Driver state/action/reaction* is automation. Risk management is another emergent area within the Focus Topic. It implies that SAFER's research is not limited to vehicle on-board systems but also addresses planning before the trip, back office support during the trip and feedback for improvement after the trip.

Important research questions for the Focus Topic are:

- How do drivers behave in traffic?
- How can driver distraction and inattention be minimised?
- How can semi- and fully autonomous driving prevent driver mistakes?
- How should the handover between automated vehicle functions and the driver be conducted?

The roadmap in Figure 5, illustrates the main project clusters and sub-themes within the Focus Topic. The green areas illustrate that there is some level of activity. The yellow areas cover ongoing projects and illustrate planned activities and projects where applications have been submitted or are already in the start-up phase. The white area indicates future research needs by SAFER partners.

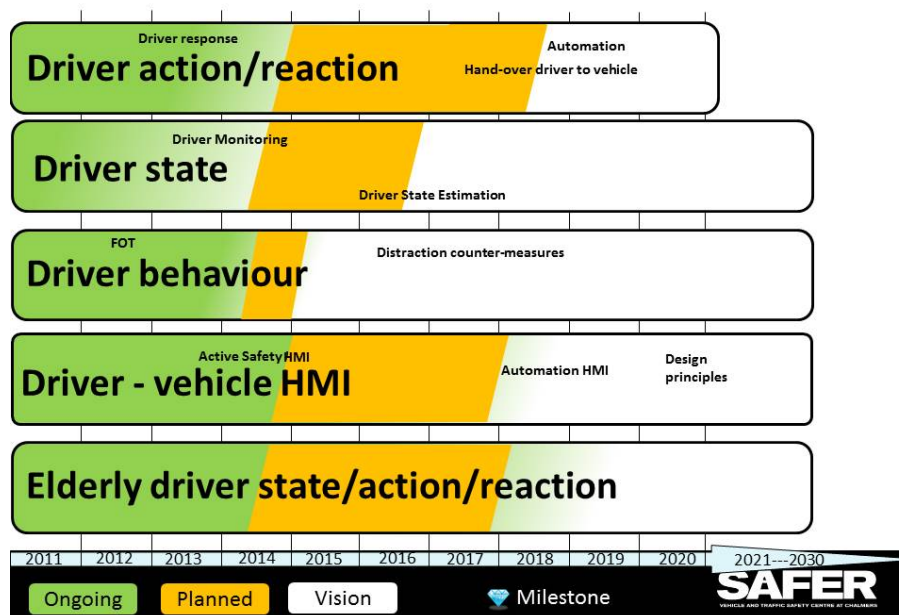


Figure 5: Roadmap of the Focus Topic Driver state/action/reaction

Prediction for accident prevention

The Focus Topic *Prediction for Accident Prevention* covers how different systems can predict a potential crash, and give input to the control of the vehicle to avoid it. Technologies concerned are, for instance, real-time wireless communication (V2V and V2I), sensing of own vehicle's motion and behaviour and sensing of the surrounding traffic, signal/image processing and algorithms, functional safety, vehicle dynamics control systems, and the vehicle dynamics during automatic intervention of a crash avoidance system.

Important research questions for the Focus Topic are:

- How can different systems predict a potential crash, and give input to the control of the vehicle to avoid it. How can vehicles be partial or fully automated to eliminate driver mistakes that causes accidents?
- How can a potential crash be predicted early enough in a reliable way to permit automatic avoidance of the crash?
- How can potential hazardous situations be avoided by automation?
- How can infrastructure, vehicles and VRUs interact to improve performance of active safety systems?

The naming of this topic is under discussion since the intention is to cover research for technologies that can prevent an accident. Eight years ago, when the topic was established, the focus was on active safety systems and their main challenge in the threat assessment. The longitudinal threats were first addressed but also a next generation of V2X communication and lateral support (i.e. keep the vehicle in its intended lane). However, the insight of working with lateral support have shown that it will probably mainly be improved by continuous support – automation rather than active safety intervention. The area has thus evolved and is now also addressing how potential hazardous situations can be avoided both by vehicle automation and functional safety. Interest in Automation has grown due to the potential of transport efficiency but even more because of the potential to eliminate tedious tasks of driving that lead to fatigue and distraction, common root causes for traffic accidents. Functional safety is a key requirement when designing these active and automated systems that should fulfil the new safety functions thus research in these areas has high importance for SAFER partners. It is also shown that vehicle dynamics play a significant role in accident avoidance, a fact that ought to be reflected in the naming of this topic.

Due to the fast evolution within this area of research, several new Competence Areas have expanded such as Human Factors Design, Driving Simulator Applications, Sensors and Communication, Functional Safety, Vehicle Dynamics, and Traffic Systems.

The roadmap in Figure 6, illustrates the main project clusters and sub-themes within the Focus Topic as well as a milestone. The green areas illustrate that there is some level of activity. The yellow areas cover ongoing projects and illustrate planned activities and projects where applications have been submitted or are already in the start-up phase. The white area indicates future research needs by SAFER partners.

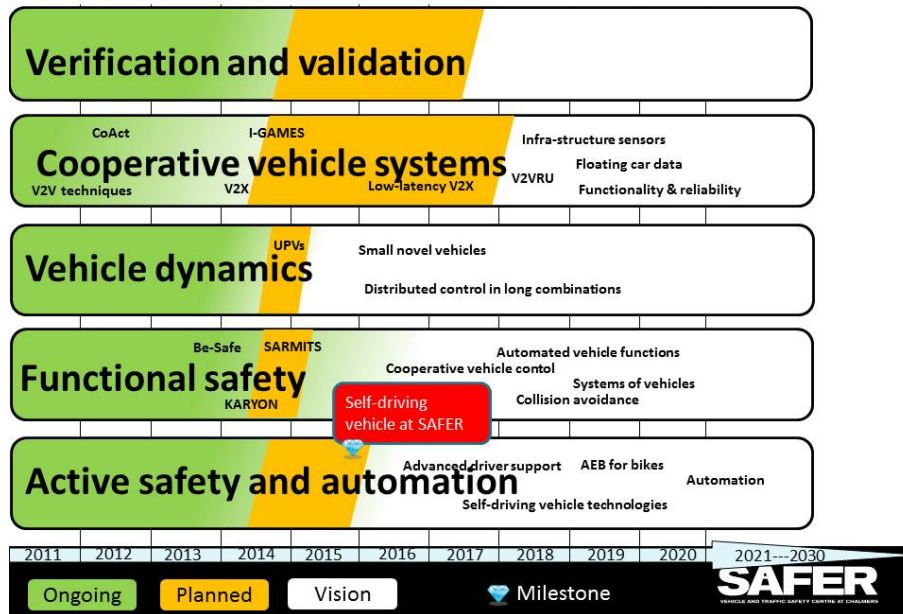


Figure 6: Roadmap of the Focus Topic Prediction for Accident Prevention

Methods for evaluation of vehicle and traffic safety

The Focus Topic *Methods for Evaluation of Vehicle and Traffic Safety* is complementary to *Incidents and Accidents* as it should both develop methods to process and analyse field data, in new and innovative ways, as well as identify other assessment procedures using data from both real and virtual environments. The Focus Topic addresses: methods to be used in active safety test areas (e.g. AstaZero proving ground); methods for driving simulators including human behaviour simulation models; development of improved passive safety analyses using physical and numerical methods; evaluation of various accident avoidance systems (vehicle as well as infrastructure based) in real traffic environments; and evaluation of in-vehicle information systems and nomadic devices. This topic is integrated in all other Focus Topics. This has become a challenge for the *Methods for Evaluation* Focus Topic as many projects may not be easily identified as primarily a *Methods for Evaluation* project but more belonging to another Focus Topic with aspects of method development.

The questions that projects are trying to answer are: What parameters describe system performance?; and How do we collect the information?. The priorities for new project areas include:

- Effect analyses using different research platforms (AstaZero, driving simulators, FOT/NDS, etc.).
- Transfer data across research platforms (simulator, tests, etc.).
- Develop predictive evaluation tools for new safety systems.

The roadmap in Figure 7, illustrates the three main project clusters and sub-themes within the Focus Topic. The green areas illustrate that there is some level of activity. The yellow areas cover ongoing projects and illustrate planned activities and projects where

applications have been submitted or are already in the start-up phase. The white area indicates future research needs identified by SAFER partners. A red box is used to identify milestones for activities considered important for the Focus Topic. The three project clusters each encompass diverse project activities. However, the general methodology or research concept is similar for the projects within each cluster.

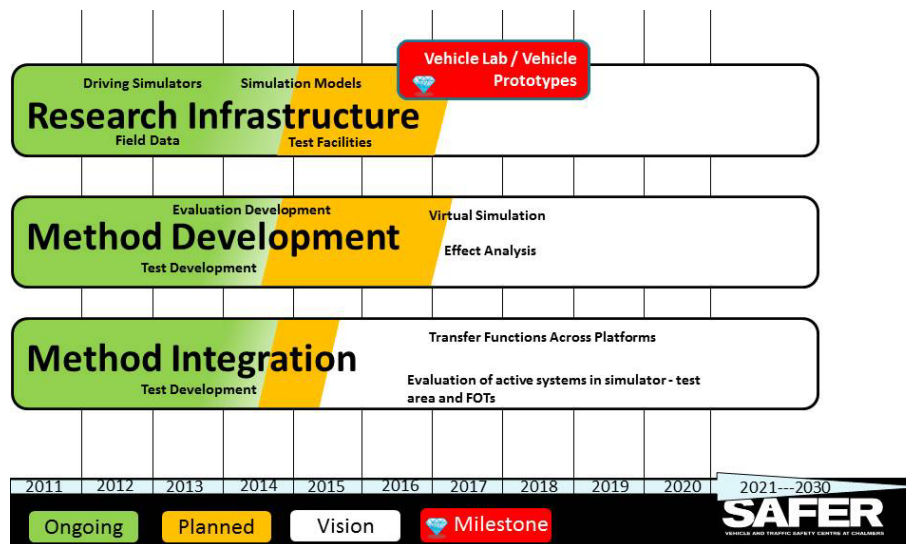


Figure 7: Roadmap of the Focus Topic Methods for Evaluation of Vehicle and Traffic Safety

Safety for novel vehicles and vehicle combinations

The Focus Topic *Safety for Novel Vehicles and Vehicle Combinations* covers the safety challenges and opportunities due to new vehicle designs. It includes vehicle dynamics and energy management; structural requirements and design guidelines regarding crashworthiness (self and opponent protection) for new safe lightweight designs, including protection of batteries/capacitors; adaptive structures for improved crashworthiness at lowered or maintained weight; development of design and crashworthiness assessment tools (mathematical models and virtual testing) and system design optimisation for novel vehicles. Also, the area of hazards related to new vehicle concepts (e.g. fire and electrical safety incl. post-crash rescue and extrication) is included. SAFER has the ambition to be a major actor identifying safety aspects of future vehicles strategies, mainly by understanding consequences of future transportation scenarios.

Future prioritised areas within the Focus Topic address the question “How to proactively develop principles and prerequisites for crashworthiness and dynamics of novel vehicles and vehicle combinations put in a real-world context?”. This is to be handled by focused activities within:

- Improved manoeuvrability through distribution of propulsion between wheels and axles, passenger cars and Urban Personal Vehicles (UPV)
 - influence in driver command situations
 - influence on automatic manoeuvres

- especially when combined with friction brake, e.g. regenerative braking stability
- Electrical propulsion on towed units/dollies in long heavy truck combinations
- Improved state estimations through electrical machines in propulsion systems
- Eco-driving support, with maintained manoeuvrability, incl. safety
- Material and structural models and methods to model failure in structural composites and laminated safety glass
- CAE tools for assessing the crashworthiness of structural joints between 'new' lightweight materials (e.g. Composite-Composite, Composite-Metal)
- Methods to assess fire resistance of composite automotive structures and means to improve fire resistance of the same
- Development of concepts for structures for maintained (or improved) safety of new lightweight vehicle structure solutions
- Material test data for development and calibration of material models for progressive damage development in fibre reinforced composites

Compared to other Focus Topics, *Safety for Novel Vehicles and Vehicle Combinations* is a relatively novel area. Although the research within areas such as material and vehicle dynamics was strong at individual partners, the packaging and focus on novel vehicle application, and doing this in a SAFER partner context, was weak at the start of SAFER. With this perspective in mind, the progress towards the ambitions is impressive. Especially in the area of vehicle lightweight structure and material research, strong progress has been made. Within the area of vehicle dynamics, advanced research at partners is performed, however further collaboration among partners will strengthen the applied research, i.e. achieving tighter connection between academic research and industrial implications. Some of the targeted areas, such as fire and electrical safety (hazard) are not yet addressed.

The roadmap in Figure 8, illustrates the main project clusters and sub-themes within the Focus Topic. The green areas illustrate that there is some level of activity. The yellow areas cover ongoing projects and illustrate planned activities and projects where applications have been submitted or are already in the start-up phase. The white area indicates future research needs by SAFER partners.

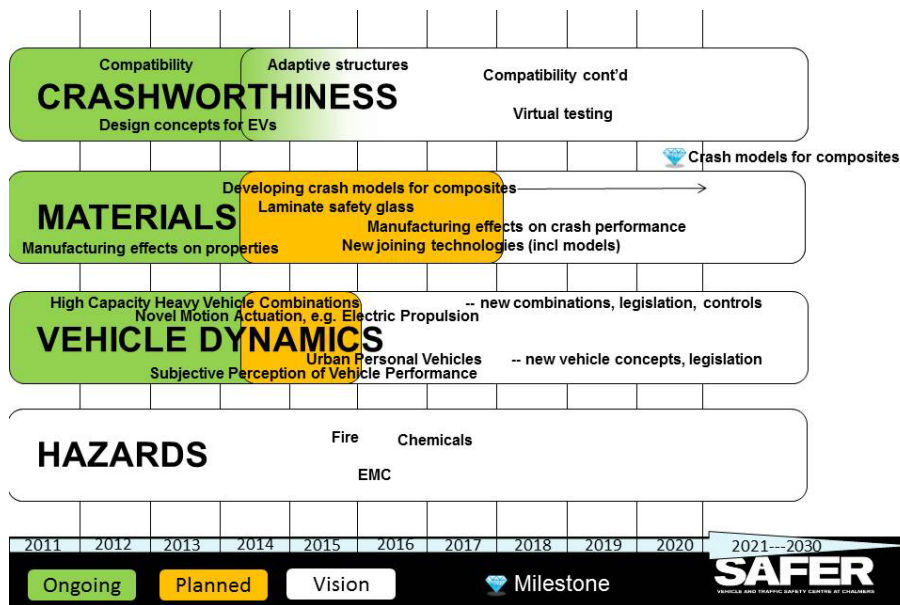


Figure 8: Roadmap of the Focus Topic Safety for Novel Vehicles and Vehicle Combinations

Human body models and Biomechanics

The Focus Topic *Human Body Models and Biomechanics* covers biomechanical injury mechanisms, responses and consequences, the principles for protection including safety system usage and pre-sensing input as well as mechanical and mathematical occupant and unprotected road user models for complete crash sequences.

Examples of future prioritised questions within the Focus Topic are; "How to model and measure injury consequences for humans in a crash, including preceding events?" and "How do pre-crash factors and individual differences influence injury outcome?". This is to be addressed by focused activities within:

- HBM developments (occupants/VRU) including scaling and tuning, variety of acceleration levels and omnidirectional injury risk prediction
- Biomechanical research supporting HBM validation data and injury prediction, focus on gender, age and other individual differences
- Pre-crash factors' influence on injury outcome
- Injury mechanisms and consequences, including a special focus on long term consequences

The Focus Topic *Human Body Model and Biomechanics* is a relatively mature area within SAFER, building on decades of joint research tradition. Nevertheless, SAFER has boosted and influenced the development substantially. Child Safety and Human Body Modelling are two areas that have benefited particularly from the collaboration within SAFER. Several SAFER partner organisations have joined forces under the SAFER umbrella and this has very clearly enhanced progress. In general, the formation of SAFER has increased the dialogue and interaction between the partners that previously worked and collaborated in the fields of biomechanics and protective systems, as well as added new researchers and contacts. The formation of SAFER has also brought experts from the

partner organisations closer and in particular allowed for an expansion of Chalmers activities that are fully integrated in the SAFER office. This has helped to build a critical mass of researchers that have the SAFER office as their common arena.

The Focus Topic also encompasses research needed to understand and develop safety measures (including active safety technology) throughout the whole sequence, aiming at injury prevention. Additionally, important aspects on future research comprise occupant kinematics, behaviour and other influencing factors in the pre-crash events. In this area, SAFER has pioneered, and will continue the journey. The main threat is the limited funding available for fundamental biomechanics research. This is critical, since fundamental biomechanics research is essential for reaching a high level of applied research.

The roadmap in Figure 9, illustrates the main project clusters and sub-themes within the Focus Topic. The green areas illustrate that there is some level of activity. The yellow areas cover ongoing projects and illustrate planned activities and projects where applications have been submitted or are already in the start-up phase. The white area indicates future research needs by SAFER partners.

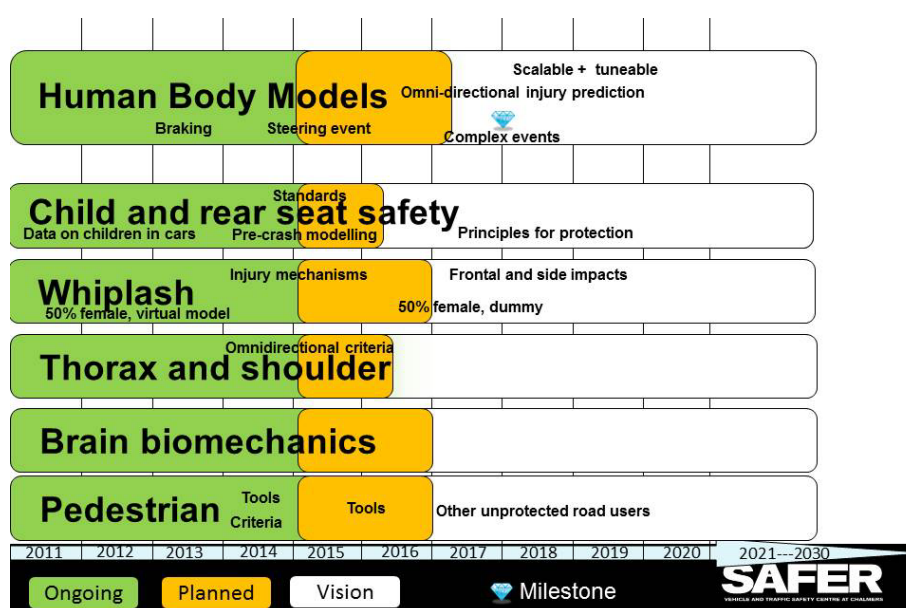


Figure 9: Roadmap of Focus Topic Human Body Models and Biomechanics

Care & Rescue

The Focus Topic “Care and Rescue” was introduced in the SAFER portfolio 2014, and it covers cross-disciplinary triple-helix research and development involving a broad spectrum of stakeholders. It focuses on methods and solutions to reduce casualties as well as the severity of short and long-time injuries occurring after a traffic accident is a fact. The stakeholders include SAFER’s existing partners but will also attract new actors representing various aspects of areas like rescue services, healthcare and insurance as well as ICT and Medtech industry.

The Care & Rescue Focus Topic involves areas like quick and correct response to an accident (“eCall” and “on-call” applications, dispatch prioritizing, etc.), care and prioritizing of victims at scene and in transport (prehospital/ambulance/emergency care and processes), quick and safe rescue service operations “on-scene” (extrication, handling of vehicles and accident scene, etc.) and secondary effects of a traffic accident with potential to result in additional incidents and accidents involving humans. This Focus Topic is primarily connected to research within the Post-Crash area, but also Traffic Safety Analysis. Several competence areas are addressed including the new (2014) competence area “Human Monitoring”.

The objective is to become a significant international player in the forefront within research and development of methods and solutions aiming at traffic accident related care and rescue. Particular focus shall be given on establishing a multi-stakeholder cross-disciplinary collaboration environment and a platform for real-life/“living lab” development and evaluation, since this will be a unique selling point (USP) for participation in various national and international collaboration projects.

The activities within Care & Rescue are to a large extent equal to the present initiatives and strategy of the Post-Crash reference group. Therefore the main focus now is to establish a relevant project portfolio, involve further SAFER partners and other stakeholders in the on-going activities, “marketing” of the Focus Area and the SAFER “offerings” as such to relevant stakeholders, and preparations and start-up of a more active internationalization process. Basis for these activities are primarily on-going Post-Crash projects, an existing strong and unique regional and national network involving all relevant stakeholders including academia (technology, medicine, nursing etc.), institutes, complementary triple-helix organizations, industry and public services like health and rescue. The roadmap below, Figure 10, illustrates the present roadmap for Care & Rescue, mainly inherited from Post-Crash.

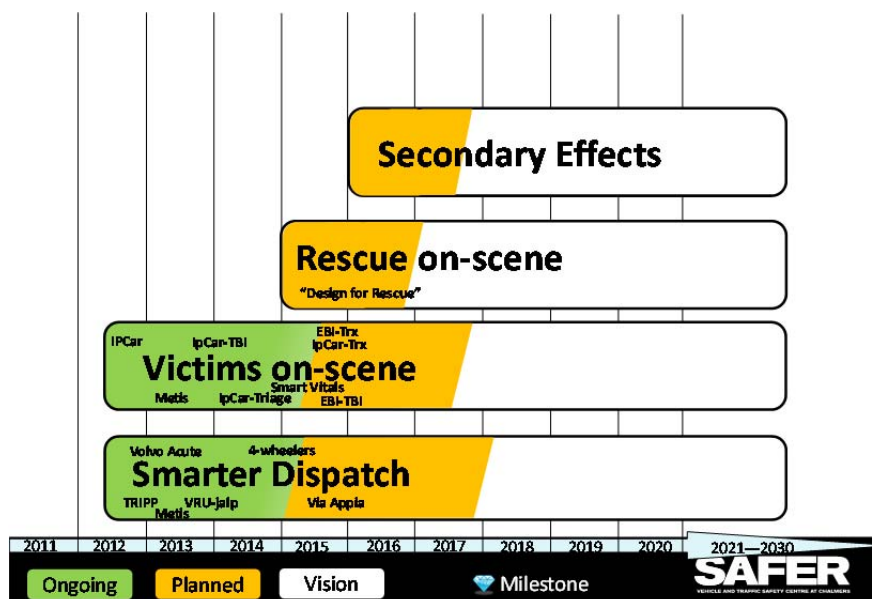


Figure 10: Roadmap of Focus Topic Care & Rescue

6. THE RESEARCH ENVIRONMENT, OPEN INNOVATION AND INTERNATIONAL COOPERATION

The research environment

SAFER is a meeting place with a physical work area of 1500 sqm situated on the 2nd floor in the main building of Lindholmen Science Park. It is connected to other open innovation activities such as Security Arena, Closer, Open Arena Lindholmen, Visual arena and Test Site Sweden (TSS).

The space is a mix of workplaces (approx. 100), small meeting/dialogue rooms, conference rooms and project areas. 45 persons have this as their permanent work place while all other SAFER people use the facilities temporarily. Reference group meetings and project meetings are taking place within the facility as well as informal lunch seminars. This makes SAFER a multidisciplinary and diverse meeting place.

SAFER people

Each person belonging to SAFER is employed by a partner. People who need access to SAFER environment on a more regular basis may get a key to the facilities. Presently SAFER has 280 “key people”. Of this 36% are employed at Chalmers, and 64% are from other partners. Of these “key-people” 14 are academic PhD students and 14 are industrial PhD students thus making the PhD students 12% of the total staff. One third of the key people are women. The number of master students is currently 18.

Open innovation

SAFER has been studied by a research project “Management of Open Innovation” since 2008. The study has been conducted by three senior researchers at Chalmers and one full time PhD student, Anna Yström. The dissertation was in 2013 and the thesis was named **Managerial practices for open innovation collaboration: Authoring the spaces "in-between"**.

A general finding is that all interviewed partners value the partnership and SAFER as such, but want to more actively utilize SAFER's full potential. SAFER is said to give an increased credibility for the partner through its affiliation. Although several of the partners meet in other constellations, they find that SAFER has a unique value and an important role to play as an open innovation centre where collaborative multi-stakeholder research enhances the partner organisation's competitiveness and ability to contribute to a transport system with “near zero” fatalities and serious injuries. Furthermore, many partners appreciate the possibility to influence the perspectives on future transport systems and also find it politically important to be able to influence and have insight into the “safety agenda”. The findings in the thesis work also show that achieving collaborative advantage in open innovation collaboration is not easy, due to a number of contextual challenges that needs to be managed. Expectations and intentions need to be adjusted as

managers interact with people they do not have vicarious liability for. Additionally, it appears that managers need to appreciate and embrace disorder and unpredictability that comes with the open innovation context, which is important, as it implies a fundamental shift from striving for control over people and resources to having control in the environment.

This research, the complete thesis work as well as complementary experiences are important input to the further development of SAFER in a next stage.

Internationalisation

SAFER has a strategy for creating global links, including an action plan for the first phase of the execution of the strategy. The basic idea is that by creating strong connections to world class research environments, and nurturing an international reputation for outstanding collaboration between industry and academy, it should be possible to influence the international research agenda. Starting in year 8, these ambitions are given regular attention by being a standing point on every extended management meeting. Three persons in SAFER's management team dedicate part of their time to international strategies and/or coordination.

At present the current European scene is very much dominated by Horizon 2020 launched in 2013. Its first calls were due in March 2014, and Traffic Safety was mainly addressed through calls related to Vulnerable Road Users and Traffic Safety Analysis. A number of the SAFER partners have been engaged in project crafting in several call areas. SAFER is also involved in projects under discussion for the 2015 calls. In addition SAFER is leading work packages in the EU project "PROS – Priorities for Road Safety Research in Europe" which aims at influencing the European Commission in upcoming Horizon 2020 calls.

In Asia, SAFER has continued to develop its collaborations. The China Sweden Research Centre for Traffic Safety (CTS), with Swedish partners Chalmers, Volvo Cars and Volvo and Chinese partners Tongji University and RIOH Institute for Highway Safety has three research projects running and several in preparation. SAFER constitutes the Swedish research platform in this collaboration.

In Malaysia SAFER has acted as a supervisor in a project on "Innovative Solutions To Reduce Crashes Between Trucks & Motorcycles" (ISTREC) involving among others the University Putra Malaysia, AIM (the Malaysian counterpart of Vinnova) and SAFER partner AB Volvo. The project focused motorcycle accidents with trucks and has resulted in discussions on future collaboration areas.

The University of Nagoya Green Mobility Centre (GREMO) has research in several areas of interest to SAFER, e.g. driver modelling, signal processing, human models and biomechanics but also autonomous small vehicles and sensors. Projects for materialization of the MoU are in planning.

Projects in US with SAFER leadership or involvement are progressing well. SAFER leads the driver distraction research project ("Safer glances") funded by federal strategic highway

research program SHRP2. A joint project on mild brain injuries in teenagers is being undertaken at the Children's Hospital of Philadelphia (CHOP) and its collaborative Centre for Child Injury Protection (cChips). SAFER researchers have established contacts with Stanford and Berkeley which are in the forefront in issues of self-driving cars.

SAFER represents Chalmers in the EU FP7 project SAGE (Safe and Green Vehicles) which focuses five regional clusters in Europe. Possibilities to develop an international collaboration strategy are under evaluation following on-site discussions with different Asian regions. SAFER is leading the work with Nagoya. SAGE furthermore aims at promoting competence/personal mobility and to investigate the potential for a future European KIC (Knowledge and Innovation Community).

SAFER continues to be an active member in EARPA, both in the safety group and in the board via prof. Per Lövsund. In addition, efforts are being made to cover other task forces with relation to safety (electronics, materials, modelling, urban mobility).

SAFER and its partners also actively participate in EUCAR, ERTRAC and ERTICO. This has enabled a high engagement for SAFER and partners in EU's 7th framework projects. The aim is to continue activities related to both influencing and participating in order to promote SAFER's research agenda and thereby its scientific level.

7. EDUCATION, COURSES, SEMINARS AND CONFERENCES

Chalmers Area of Advance

SAFER is part of the Chalmers Transport Area of Advance (AoA) and the director is part of the AoA Transport management team. The active research fields within the profile Traffic Safety are very close to the Focus Topics and the Chalmers researchers within traffic safety are encouraged to contribute to these fields. Presently some 66 senior researchers at Chalmers are active within Traffic Safety and get strategic research funding and all together more than 140 researchers and PhD students at least eight departments engage in traffic safety related research.

Education is primarily the responsibility of the universities within SAFER. In average 15 Master students work and study at SAFER every year, and the number of PhD Students is in average 35. In total, six dissertation theses and five licentiate theses were written during operational year 8.

SAFER Insight

SAFER Insight is the first comprehensive web-based portal in advanced traffic safety education on an international level (www.saferinsight.se). The purpose of SAFER Insight is to provide students and professionals with courses and seminars in vehicle and traffic

safety. During year 8, SAFER Insight has been developed and implemented and encompasses today nearly ten training providers and 35-50 courses.

The training providers are the SAFER partners which are providing courses or seminars. The extended management group at SAFER functions as a guarantee for quality of the courses. During Operative year 8, University of Michigan in USA has joined as training provider in SAFER Insight. Other organisations with which SAFER has MoU with have been approached and offered to publish courses in the SAFER Insight web portal.

Guest researchers

During SAFER year 8, SAFER has had several guest researchers and visitors from all over the world; USA, Asia, Europe. Most of these researches have given an open SAFER seminar (listed in Enclosure 1), which is excellent knowledge sharing.

Dr Jac Wismans is continuously a part-time guest professor and active within biomechanics and novel vehicles. Professor Michael Regan from UNSW in Sydney, Australia, is yet again highly involved in the Driver Distraction and Inattention Conference which took place in September 2013.

Dr Kristy Arbogast from Children's Hospital of Philadelphia (CHOP) has visited SAFER seven times in total, one time during SAFER year 8, and had fruitful discussions within the child safety projects (B5, B20) and also in organising the seminar "Child occupant protection - Latest knowledge and future opportunities".

Professor Tim Gordon, University of Michigan, USA, is strongly connected to the vehicle dynamics competence area and visits SAFER regularly. Dr John Lee, University of Wisconsin-Madison, USA, has visited SAFER a couple of times during year 8. Also, Dr Carol Flannagan from UMTRI has been at SAFER in conjunction with the SHRP2 project.

Several Chinese researchers, among them Lin Li from Tongji University and Juan Zeng from Wuhan University, visit SAFER regularly.

Seminars and conferences

Internal

SAFER has arranged Thursday seminars every second week for internal cross-fertilization and exchange of knowledge and ideas. From January 2013, the SAFER competence leaders and Reference Group Leaders are responsible for the content and also the frequency of the seminars was increased to take place every Thursday. During operational year 8, 33 seminars with 53 speakers were conducted.

External

SAFER organises a vast amount of seminars and workshops. They are appreciated as efficient means to enhance knowledge and offer a great opportunity to network. SAFER is

now acknowledged as a meeting place for competence and knowledge and serves as a centre for sharing competence.

A list of conducted seminars can be found in the Enclosure 1.

Annual Report #8 – Enclosure 1

Seminars & Conferences

Conducted external SAFER seminars during year #8 include:

- Seminar: MULTIMODALITY in INTERACTION DESIGN
- Seminar: Topics on automatic and cooperative driving.
- SAFER Seminar: Distributed consensus strategy for platooning
- Docent lecture: Injury biomechanics - human thresholds, by Johan Davidsson, Vehicle Safety.
- SAFER-NTF West Seminar: Framtidens trafik - säker och hållbar?
- Adj prof inauguration lecture: Challenges ahead within developing the next generation of productive commercial heavy vehicles Leo Laine, Volvo Group Trucks Technology.
- VTI, NTF & SAFER Seminar: Säker mobilitet för äldre bilförare
- SAFER/MedTechWest workshop: "Oskyddade trafikanter på 2 hjul"
- SAFER-SVEA Seminar: Vehicle Dynamics Challenges
- SAFER Project Day 2013
- Seminar at Gothenburg Science Festival: Framtidens trafik - säker och hållbar?
- SAFER-NTF West Seminar: Normala förare - finns de?
- V2X Communication Workshop

Conferences

- Exhibitor together with other Swedish safety organisations at International Transport Forum in Leipzig April 2013.
- SAFER was an exhibitor at the International Technical Conference on the Enhanced Safety of Vehicles (ESV) in Seoul, South Korea May 27-30, 2013.
- The EU project DRIVE C2X held a major demo event at the Test Site Sweden (TSS), in Gothenburg June 2013. SAFER was heavily involved.
- 3rd International Conference on Driver Distraction and Inattention, September 4-6, 2013. Organised by SAFER and UNSW.
- Pre-workshop on bike safety in conjunction with the 3rd International Conference on Driver Distraction and Inattention, September 3, 2013.
- "Child occupant protection - Latest knowledge and future opportunities", September 9, 2013. SAFER organised the second whole-day child safety seminar with 15 researchers from USA, Australia and Europe.
- September 11-13, 2013, the IRCOBI conference was held in Gothenburg, hosted by Chalmers. SAFER was an exhibitor and many SAFER researchers gave paper presentations.

- Pre-workshop "Collision avoidance and driver assistance systems - Field data, what do we have and what do we need for future research?", arranged by SAFER September 10, 2013.
- SAFER attended 2nd International FAST-zero Symposium (Future Active Safety Technology – Toward zero traffic accidents) in September 2013, in Japan.
- “Transportforum” in January 2014. SAFER led a session on bike safety.
- ”BARN, LIV OCH TRAFIK” March 6, 2014. A one-day conference initiated and arranged by SAFER, NTF Väst and City of Gothenburg. A follow up from 2012 and 2013 conferences.

Annual Report #8 – Enclosure 2

The following PhD Students working in the SAFER environment have written their dissertation thesis during operational year 8 (April 1, 2013 – March 31, 2014):

Nilsson, Jonas (2014) [Computational Verification Methods for Automotive Safety Systems](#). Dissertation thesis, Department of Signals and Systems, Chalmers University of Technology, Gothenburg.

Wege, Claudia (2014) [Adaptive Eyes – Driver Distraction and Inattention Prevention Through Advanced Driver Assistance Systems and Behaviour-Based Safety](#). Dissertation, Fakultät für Human- und Sozialwissenschaften, Technische Universität Chemnitz.

Mellegård, Niklas (2013) [Improving Defect Management in Automotive Software Development](#). Dissertation thesis, Department of Computer Science and Engineering, Chalmers/University of Gothenburg.

Wågström, Linus (2013) [Structural Safety Design for Real-World Situations](#). Dissertation thesis, Department of Applied Mechanics, Chalmers University of Technology, Gothenburg.

Yström, Anna (2013) [Managerial practices for open innovation collaboration: Authoring the spaces "in-between"](#). Dissertation thesis, Department of Technology Management and Economics, Chalmers/University of Gothenburg.

Bohman, Katarina (2013) [Car Safety for Children Aged 4-12. Real world evaluations of long-term injury outcome, head injury causation scenarios, misuse, and pre-crash maneuver kinematics](#). Dissertation thesis, Division of Insurance Medicine, Karolinska Institutet, Stockholm.

The following PhD Students working in the SAFER environment have written their licentiate thesis during operational year 8 (April 1, 2013 – March 31, 2014):

Sundbom, Malin (2014) [Towards Driver Adaptive Active Safety Systems](#). Licentiate thesis, Department of Signals and Systems, Chalmers University of Technology, Gothenburg.

Nilsson, Julia (2014) [On decision-making and control for automated highway driving](#). Licentiate thesis, Department of Signals and Systems, Chalmers University of Technology, Gothenburg.

Dabiri, Azita (2014) [Incident Traffic Flow Models](#). Licentiate thesis, Department of Signals and Systems, Chalmers University of Technology, Gothenburg.

Gkouskos, Dimitrios (2014) [Joyride! Towards User Experience Design for In-Vehicle Systems](#). Licentiate thesis, Department of Applied IT, Chalmers University of Technology, Gothenburg.

Markkula, Gustav (2013) [Evaluating vehicle stability support systems by measuring, analyzing, and modeling driver behavior](#). Licentiate thesis, Department of Applied Mechanics, Chalmers University of Technology, Gothenburg.

PRE-CRASH

Proj nr	Projektbenämning	Finanssär	Period	Totalbelopp (i TSEK)			Partners	Projektledare	PhD students and/or p
				SAFER	ASSOC.	Övr finansörer			
Avslutade egna projekt									
A2	System safety through combination of HMI and dependable systems		2007	150			VTI, SP, Chalmers	Jan Jacobson (SP)	
A4	Safety for an aging population 1	SAFER	2007	100			VCC/FMC, VTI, Autoliv	Thomas Broberg (VCC)	0
A5	Active safety test area		2007	40			TSS, Chalmers, Volvo Technology, VCC, Saab, Autoliv, Vägverket	Eva Rickardsson (VCC)	
A6	Positioneringssystem för säkerhetsprovning utomhus	TSS	2007	240			TSS, Chalmers, VTI, AB Volvo, VCC, Saab, Autoliv, SP, Imego	Robert Thomson (Chalmers)	0
AD1	Enhanced/Robust electronic stability control	SAFER	2007	100			VCC, Chalmers	Bengt Jacobson (VCC)	0
AD2	Real-time wireless communications vehicle-vehicle and vehicle-infrastructure		2007	160			Volvo Technology, Chalmers	Erik Ström (Chalmers)	
AD4	Wire-less communication V2V and V2I		2007	112			Volvo Technology, Chalmers, SP	Erik Ström (Chalmers)	
A13	Scenario-Based Testing of Pre-Crash Systems		2008-2010	3 500			Autoliv, VTI, Chalmers	Stig-Håkan Nilsson (Autoliv)	
A22	Simulator Lab at SAFER		2010	100		160	Chalmers, VCC, VTI, Volvo Technology	Fang Chen (Chalmers)	0
A16	Grand Cooperative Driving Challenge pre-study	IVSS	2009-2010	220			Viktoriatitutet, Chalmers, VCC, Volvo Technology, Autoliv, Denso	Christian Grante (Viktoriatitutet)	0/0
A21	PreEval	SAFER	2010	150		250	Chalmers, VTI, Vägverket, TSS, Geveko, Luleå Universitet	Anna Arvidsson (VTI)	0
A12	SAFER Electric Vehicles	Nationellt	2008-2009	642			Chalmers, Swedish Hybrid Center, Saab, AB Volvo, VCC, VTI	Mathias Lidberg (Chalmers)	0
A17	Utveckling av mÅl för prov av bakifrånkollision		2009-2010	600			Autoliv, SP, VTI	Jan Jacobson (SP)	
A24	ProACT	SAFER	2010	897			SP, Viktoriatitutet, Chalmers	Kristian Karlsson (SP)	0
A7	Systems for Roadway Departure Avoidance	SAFER, Vinnova	2007-05-01 - 2010-04-30	3 450			VCC, Chalmers	Claes Olsson (VCC)	1/0
A18	Funktionssäkerhet för system av vägfordon		2009-2010	500			SP, Viktoriatitutet	Jan Jacobson (SP)	0
A8	Verification of Active Safety Functions	FFP, FFI, SAFER	2007-2010	3 450			VCC, Chalmers	Anders Ödblom (VCC)	1
A10	System Safety Through Combination of HMI and Dependable Systems (SHADES)	SAFER	2008-07-01 - 2011-06-30	6 060			VTI, SP, Chalmers	Jonny Vinter (SP)	2/0
AD3	Enhanced/Robust Stability Control	SAFER	2009-01-01 - 2011-12-31	3 000			VCC, Chalmers	Mats Jonasson (VCC)	1
A29	MASCOT pre-study	SAFER	2011-06-01 - 2011-08-31	145			Chalmers, Göteborgs stad, AB Volvo	Marco Dozza, (Chalmers)	0/0
A33	Strategisk transportforskning inom aktiv säkerhet mellan SP och Chalmers, förstudie	SAFER	2010-10-15 - 2011-09-30	1 000			Chalmers, SP	Jan Jacobson, (SP)	0
A35	CoACT 2012 - prestudy (enl. ansökan "CoSafe 2012")	SAFER	2011-09-01 - 2011-12-31	300			Viktoriatitutet	Jonas Didoff (Viktoriatitutet)	0/0
A37	CoACT 2 - förstudie SP	SAFER	2010-09-01 - 2011-12-31	200			SP, Chalmers	Josef Nilsson (SP)	0/0
	Drive CXZ förstudie?							Christian Grante (Viktoriatitutet)	
A25	CoACT - Cooperative Autonomous Car Train	IVSS	2010-09-01 - 2011-08-30	250		13 980	14 230 Viktoriatitutet, Chalmers, VCC, Volvo Technology, Autoliv, Denso	Jonas Didoff (Viktoriatitutet)	1/0
A31	Gulliver	SAFER	2011-09-01 - 2012-03-31	1 000			Chalmers	Elad Schiller (Chalmers)	2/1
A32	MASCOT 2	SAFER	2011-08-01 - 2011-12-31	570			Chalmers, Göteborgs Stad/Trafikkontoret, SP, AB Volvo	Marco Dozza, Chalmers	0/0
A23	PDVW - Principal Other Vehicle Warning	SAFER, VIP	2011-01-01 - 2012-08-31	936		500	1 436 VTI, VCC	Birgitta Thorslund (VTI)	1
A30	ADAS Education - how do drivers learn their support systems?	SAFER	2011-11-01 - 2012-06-30	368			VTI, Chalmers, VCC	Christina Slave, (VTI)	1/0
A39	Forskningsplan AstaZero	SAFER	2012-01-01 - 2012-06-30	500			SP	Jan Jacobson (SP)	0
A41	Förstudie simulatorsamordning	SAFER	2010-12-01 - 2012-06-30	500			VTI	Martin Fischer (VTI)	0
A38	Sleep EYE II	SAFER	2011-10-01 - 2012-12-31	553		720	1 273 VCC, VTI, Chalmers, AB Volvo	John-Fredrik Grönvall (VCC)	
							Viktoriatitutet, Chalmers, KTH, Linköping University, Volvo Car Corporation, AB Volvo, Scania, Denso, Fenco	Jonas Didoff (Viktoriatitutet)	0
A36	CoACT 2012 - demonstrator	SAFER	2012-01-01 - 2012-12-31	150				Helen Fagerlind (Chalmers)	0
A11	ASSESS - Assessment of Integrated Vehicle Safety Systems for Improved Vehicle Safety (EU)	EU, SAFER	2009-07-01 - 2012-12-31	986		3098	4 084 SAFER IRU (Chalmers, VTI)	Mathias Lidberg (Chalmers)	0
A40	Overspeed in curves	SAFER	2012-02-01 - 2013-12-31	379		12	391 Chalmers, AB Volvo, VCC, Autoliv	Thomas Broberg (VCC)	1
A14	Safety for an Ageing Population 2	SAFER	2009-01-01 - 2013-12-31	6 132			VCC, Chalmers, VTI		
				37 440		18 720			
Avslutade associerade projekt									
	OPTIVE - Optimized System Integration for Safe Interaction in Vehicles	IVSS	2005-2009		32 000		VCC, Luleå University of Technology, Chalmers, IT University of Gothenburg	Patrik Palo (VCC)	
	CEDES (DoT)	IVSS	2004-2008		29 847		VCC, AB Volvo, Autoliv Electronics AB, Chalmers, SP	Håkan Edler (SP)	
	Intersection accidents - analysis and prevention (IVSS)	IVSS	2005-2009		24 700		Autoliv, VCC, Saab, Chalmers, Linköping University	Jonas Bårgman (Autoliv)	
	IBS-Truck Integrated Braking & Steering for Active Safety of Heavy Vehicle Combinations	IVSS	2006-2011		9 795		AB Volvo, Chalmers	Mathias Lidberg (Chalmers)	1/0
	ASIS - Algorithms and Software for Improved Safety	IVSS	2007-2011		38 000		Chalmers, VCC	Linda Wahlström (VCC)	4/0
	VISAS - Volvo Infotainment Support for Automotive Safety	V-ICT	2006-2012		30 000		Chalmers, VCC, Autoliv	Johan Davidsson (Chalmers)	1
	Systems for Roadway Departure Avoidance	FFI	2009-2012		10 892		VCC, Chalmers	Claes Olsson (VCC)	1/0
	VICS - Verified Information in Cooperative Systems	RISE	2012-2013		400		SP, Viktoria	Cristofer Englund (Viktoriatitutet)	0
	BikeSAFER	Vinnova	2012-2013		716		Chalmers	Marco Dozza (Chalmers)	0
	Interactive	EU	2010-2013		30 000		Volvo Technology, Chalmers	Mathias Lidberg (Chalmers)	0/0
	EFESOS - Environmental Friendly Efficient Enjoyable and Safety Optimized Systems	FFI	2009-2013		88 000		VCC, Chalmers, LTU, LIU, VTI, Viktoriatitutet, Semcon, (HIQ)	Claes Edgren (VCC)	4
	Verification of Active Safety Functions	FFI	2010-2013				VCC, Chalmers	Anders Ödblom (VCC)	1
	ADAPTATION - Drivers' adaptation processes in response to ADAS use	EU	2010-2013		2 681		Volvo Technology and 9 other academic and industrial partners in Europe	Trent Victor (Volvo Technology)	1
					297 031				
Egna proj									
A15	QUADRA - Quantitative Driver Behavior Modeling for Active Safety Assessment	FFI, SAFER	2010-01-01 - 2014-08-31	2 308		20540	22 848 AB Volvo, VCC, VTI, Chalmers	Lennart Cider (Volvo Technology)	2/0
A19	Physical Layer Techniques for Vehicle-to-Vehicle Communications	SAFER	2011-04-01 - 2016-04-01	1630			Chalmers	Erik Ström (Chalmers)	1
A20	Workshop on Cognitive Neuroscience and Driver Attention	SAFER		94			SAFER-partners	Trent Victor (Volvo Technology)	0
A26	Smart Automotive Sensing	VGR, Vinnova, MOVEC	2010-2012		8 000		SAFER, MOVEC	Jan Jacobson (SP)	0
A27	SAFE MOVE for older drivers	VGR, Vinnova, MOVEC	2011-12-06 - 2015-06-01		11 328		SAFER (VTI, VCC), MOVEO	Björn Peters (VTI)	1
A28	System Safety Through Combination of HMI and Dependable Systems (SHADES), Phase II	SAFER	2011-07-01 - 2014-06-30	7 041			VTI, SP, Chalmers, AB Volvo, VCC	Jonny Vinter (SP)	2/0
A34	Driver response to transient disturbances on vehicles in safety critical situations	SAFER	2011-07-01 - 2014-12-31	7 500			Chalmers, VTI	Bengt Jacobson, Chalmers	0/3
A42	Driving while fatigued in slippery road conditions - a neglected issue	SAFER	2013-01-01 - 2013-08-31	760		290	1 050 Chalmers, AB Volvo, Trafikverket	Igor Radun (Chalmers)	0
A43	Promoting research at AstaZero	SAFER	2012-12-15 - 2015-03-31	800			SP	Jan Jacobson (SP)	0
A44	SAFER advisory role to iSTREC project (Malaysia)	Vinnova, SAFER	2013-01-02 - 2014-01-31	TBD		350	SAFER (Lunds Universitet, AB Volvo, Chalmers, VTI, TDI)	András Varhelyi (Lunds Universitet)	0/0
A45	Boundary conditions for vehicle automation	FFI/Vinnova	2013-04-01 - 2014-03-31		2 000		Viktoriatitutet, VCC, Scania, Volvo AB, Autoliv	Jonas Didoff (Viktoriatitutet)	0
A46	WITag pre-study	SAFER	2013-10-01 - 2014-04-15	350			SP, LTH	Henrik Eriksson (SP)	0
A47	VICtig - Vehicle ICT Innovation Methodology	SAFER	2013-11-01 - 2016-03-31	3 150			VTI, Halmstad University	Tony Larsson (Halmstad University)	1
A48	Active Dolly Build-Up	SAFER	2014-04-01 - 2015-03-31	2 140			Chalmers, AB Volvo, Parator	Bengt Jacobson, Chalmers	0/1
A49	Pre-study for ReVeRe (Research Vehicle Resource)	SAFER	2014-04-01 - 2014-10-01	810			Chalmers, AB Volvo, VCC, AstaZero/SP	Ingrid Skogsmo (SAFER)	0
A50	CarLive at SAFER	SAFER	2014-02-10 - 2014-08-17	1 359			Chalmers, VCC, AB Volvo, Autoliv, ÅF, VTI, Swedish ICT, (SP)	Christian Berger (Chalmers)	0
A51	Hazard Classification	SAFER	2014-04-01 - 2014-09-30	1 756			AB Volvo, Autoliv, Chalmers, SP, VTI, VCC	Per Johannessen (AB Volvo)	0
A52	CoAct 2014-2015	SAFER	2014-02-25 - 2015-12-31	1 320		240	Viktoriatitutet, Chalmers, KTH, Högskolan i Halmstad, (Linköpings Tekniska)	Jonas Didoff (Viktoriatitutet)	0
A53	ARV 2	FFI	2014-04-01 - 2014-12-31				AB Volvo, VCC, Scania, Autoliv, SAFER	Jonas Didoff (Viktoriatitutet)	0
A54	AstaZero Sim	FFI	2014-01-07 - 2014-12-31				SP, VTI, AstaZero, KTH, Autoliv Research, Chalmers, Skaraborgs Sjukhus	Martin Skoglund (SP)	0
A55	SARIMTS - Systematic Approach to Risk Management in ITS Context	SAFER	2014-05-12 - 2015-01-01	1 200			SP, KTH, VTEC	De-Jiu Chen (KTH)	0
A56	UPV	SAFER	2014-04-01 - 2014-09-30	765			Chalmers, VCC, VTI, Trafikverket	Jonathan Rice (Chalmers)	0
				32 983		42 748			
Associerade projekt									
	Non-hit car & truck	FFI	2010-2014		79 775		VCC, Volvo Technology, Chalmers, (HIQ), Epsilon, (Delphi/Mecel AB)	Anders Almevad (VCC)	2
	Balancing Active and Passive Safety	FFI	2011-2013		4 500		Autoliv, VCC, (Saab), VTI, Chalmers, Semcon	Ola Boström (Autoliv)	0/1
	BeSafe - Benchmarking of Functional Safety	FFI	2011-2014		17 550		SP, AB Volvo, VCC, Scania, Chalmers, Qrtech	Mats Olsson (AB Volvo)	0
	KARYON - Kernel-Based Architecture for safety-critical cONtrol	EU	2011-2014		27 189		Chalmers, SP	Elad Schiller (Chalmers)	1/2
	PISC - Post Impact Stability Control	FFI	2012-2013		1 600		VCC, Chalmers	Mats Jonasson (VCC)	1/0
	ITS-VIU	Norges Forskningsråd	2013-2015		3 841		TDI	Truls Vaa (TDI)	0/0
	EyesOnRoad	FFI (Vinnova)	2013-2015		12 358		Autoliv, VCC, ÅF	Ola Boström (Autoliv)	0/0
	NGTEST - Next Generation Test Methods for Active Safety Functions	FFI (Vinnova)	2012-2014		54 500		AB Volvo, Autoliv, Chalmers, Halmstad Högskola, SP, VCC, VTI	Anna Wrige Berling (AB Volvo)	0/1
	FUSE - Functional Safety and Evolvable architectures for autonomy	FFI	2013-10-01 - 2016-09-30		13 230		SP, Volvo Cars, KTH och Semcon (och Comenter och Qamcom)	Rolf Johansson (SP)	
					214 543				
				70 423	511 574				
					581 997				

CRASH

Proj nr	Projektbenämning	Finansiär	Period	Totalbelopp (i TSEK)			Partners	Projektledare	PhD students and/or postdocs
				SAFER	ASSOC.	Övr finansiärer			
Avslutade egna projekt									
B1	Multiple events	SAFER	2007-2008	536			Autoliv, VCC, Saab, Folksam, Chalmers	Rikard Fredriksson (Autoliv)	0
B2	Gemensamma simuleringsmodeller	SAFER	2007	451			Epsilon, Chalmers, Autoliv, Saab	Johan Iraeus (Epsilon)	0
B4	Load carrying capacitors for crash-worthy applications	SAFER	2007-2008	110			Sicomp, VCC, Saab	Maciej Wysocki (Sicomp)	0
B6	Understanding factors influencing WAD outcome	SAFER	2008-2009	216			Epsilon, Autoliv, VCC, Saab, VTI, Folksam, GU, Chalmers, SP SAFER, SHC, Autoliv, VCC, Saab, Swerea-Sicomp, Volvo Technology, Scania, SP,	Johan Iraeus (Epsilon)	0
B12	SEVS - Safe, Efficient Vehicle Solutions	SAFER + FFI	2009-2010	1 125		5 198	6 323 VTI, KTH, LU	Else-Marie Malmek (Malmeken AB)	0
B15	CAE Tools for Composite Body Concept Assessment	SAFER	2010-04-01 - 2010-12-31	1 225			Sicomp, VCC, Chalmers, Volvo Technology, SP, Epsilon, Saab	Magnus Oldenbo (Swerea)	0/1
B3	Visiting professor J. Wismans	SAFER	2007-2010	600				Anna Nilsson-Ehle (SAFER)	0
B16	Pre-study SEVS2	SAFER	2011-05-15 - 2011-10-15	500			SAFER	Else-Marie Malmek (Malmeken AB)	0/0
B5	Rear Seat Safety for Short Occupants	SAFER + FFI	2008 05 01 - 2012 03 31	2 629		14 427	17 056 Autoliv, VCC, Saab, Chalmers	Katarina Bohman (Autoliv)	3/0
B8	Development of Active HBM in Frontal Impact Situations	SAFER	2009-2011	3 492			Autoliv, VCC, Saab, AB Volvo, Chalmers	Bengt Pipkorn (Autoliv)	1
B17	Humanmodellering för skadeprevention	SAFER	2011-10-01 - 2011-12-31	200			Chalmers	Karin Brolin (Chalmers)	0/0
B10	FIMCAR - Frontal Impact and Compatibility Assessment Research (EU)	EU	2009-10-01 - 2012-09-30			7 378	SAFER IRU (VTI, Chalmers), VCC	Robert Thomson (SAFER)	1
B19	CompMeth Glass (pre-study)	SAFER	2012-02-01 - 2012-09-30	491			Chalmers, VTI, Volvo AB, VCC, SP, Swerea	Martin Fagerström (Chalmers)	0
B21	Pre-study, Active HBM EU project application - VIRTRIS	SAFER	2012-05-01 - 2012-11-14	171			VCC, Chalmers, Autoliv, VTI	Jonas Östh (Chalmers)	0/0
B7	Improved Injury Prediction Using HBM	SAFER	2009-06-01 - 2013-03-31	3 218			Autoliv, VCC, AB Volvo, Chalmers	Karin Brolin (Chalmers)	1/0
B14	ELVA - Advanced Electric Vehicle Architectures (EU)	EU	2010-12-01 - 2013-05-31			4 677	SAFER IRU (VCC, Volvo Technology, Sicomp, SP, Chalmers) SAFER, Chalmers, GU, KTH, Scania, AB Volvo, VCC, VTI, SP, Autoliv, Trafikkontoret,	Jac Wismans (SAFER/Chalmers)	0
B18	SEVS (Safe Efficient Vehicle Solutions), Phase 2	FFI	2012-01-01 - 2013-12-31			15 254	JSP, Bisek	Else-Marie Malmek (Malmeken AB)	0/0
B9	Scalable and Tuneable Human Body Models, THUMS	SAFER	2009-04-01 - 2013-06-30	1 674			Autoliv, Chalmers	Bengt Pipkorn (Autoliv)	1
B13	Pedestrian	SAFER, FFI	2011-01-01 - 2013-12-31	850		5 905	6 755 Autoliv, VCC, Chalmers, KTH	Johan Davidsson (Chalmers)	1
				17 488		52 839			
Avslutade associerade projekt									
	Krockdocka för sneda kollisioner	PFF	2005-2007			2 000	Autoliv, VCC, Chalmers	Yngve Håland	1
	Matematiska åkandemodeller i sidokollision	IVSS	2006-2007			2 900	Autoliv, VCC, Saab, Chalmers, KTH	Bengt Pipkorn	0
	CHICC	PFF	2003-2007			2 000	Autoliv, VCC, Saab, Chalmers	Magnus Holmquist (Saab)	1
	IMPROVER	EU	2004-2006			233	Chalmers	Robert Thomson (Chalmers)	0
	RANKERS - Ranking for European road safety	EU	2005-2008			2 057	Trafikverket	Robert Thomson (Chalmers)	1
	RAPSS	Nationellt	2005-2008			23 060	Saab, Autoliv, Chalmers	Jikuang Yang (Chalmers)	1
	APROSYS - Integrated Project on Advanced Protection Systems (EU)	EU	2004-2009			3 300	Chalmers	Jikuang Yang (Chalmers)	1
	VC COMPAT	EU	2003-2006			235	Volvo AB, Scania	Robert Thomson (Chalmers)	1
	Compatibility between Vehicles	PFF	2006-2009			8 000	Autoliv, Saab, Scania, Chalmers, VCC, AB Volvo	Anders Kling (VCC)	1
	Förutsättningar för förbättrat sidoskydd i framtidens trafik - bil mot bil krockar med WorldSID	FFI	2009-2010			9 533	Chalmers, Volvo, Autoliv, Folksam	Cecilia Sunnevang (Autoliv)	0
	CASPER - Child Advanced Safety Project for European Roads (EU)	EU	2009-2012			3 116	Chalmers	Jikuang Yang (Chalmers)	1
	Heavy Vehicle Biomechanics	FFI	2006-2012			2 900	AB Volvo, Chalmers	Fredrik Törnvall (AB Volvo)	1/0
	THORAX - Thoracic Injury Assessment for Improved Vehicle Safety (EU)	EU	2009-2013			7 930	Chalmers, Autoliv	Johan Davidsson (Chalmers)	(1)
	ADSEAT - Adaptive Seat to Reduce Neck Injuries for Female and Male Occupants (EU)	EU	2009-2013			11 768	VTI, VCC, Chalmers, Folksam	Astrid Linder (VTI)	1
						79 032			
Egna projekt									
B11	Injury Criterion for Rotational Acceleration and Moderate Brain Injury	SAFER, KI	2009-06-01 - 2014-06-30	546		450	996 Chalmers	Johan Davidsson (Chalmers)	0
B20	Rear Seat Safety for Short Occupants, phase II	SAFER	2012-04-01 - 2014-12-31	2 166			Chalmers, Autoliv, VCC	Katarina Bohman (Autoliv)	2/0
B22	Vehicle model development for validation of pedestrian Human Body Models	SAFER	2013-07-01 - 2014-04-30	266			Chalmers, Autoliv	Johan Davidsson (Chalmers)	0
B23	CompMethGlass	Vinnova	2014-04-01 - 2016-06-30			3 000	Autoliv, Chalmers, GLAFO (SP), VCC, Swerea IWF, and additional non-SAFER	Jerry Eriksson (Glafo/SP)	0
B24	Female Impact Biomechanics – Pre-study	SAFER	2013-04-01 - 2014-03-31	544			Autoliv, Chalmers, Folksam, Volvo Cars, VTI, GU	Mats Svensson (Chalmers)	0
B25	Oblique loadings thorax	SAFER	2014-04-01 - 2015-03-31	1 430			Autoliv, Chalmers, UNIZAR	Cecilia Sunnevang (Autoliv)	0
B26	Composite Material Optimization Toward Maximizing Crash Behaviour	SAFER	2014-04-01 - 2016-01-31	1 520			Swerea SICOMP, Chalmers, VCC, ÅF	Mohammad Rouhi (Chalmers)	0
B27	Injury prediction using HBM	SAFER	2014-04-01 - 2016-03-31	1 227			VCC, Autoliv, Chalmers, VTI, SU, Folksam, KTH, ÅF, Umeå University, University of V Lotta Jakobsson (VCC)		0
				7 699		3 450			
Associerade projekt									
	Active human body models for virtual occupant response, step 2	FFI	2011-2014			11 281	Autoliv, VCC, AB Volvo, Chalmers	Bengt Pipkorn (Autoliv)	2
	Active child models for traffic safety research	ksams forskningsfond/	2012-2014			850	Chalmers	Karin Brolin (Chalmers)	0/1
	Compcrash	Energimyndigheten	2012-2016			4 511	Swerea SICOMP, Chalmers	Robin Olsson (Swerea SICOMP)	1/0
	ENLIGHT - Enhanced lightweight design	EU	2012-2016			8 300	AB Volvo, Swerea SICOMP	Angelika Bachinger (SICOMP)	0/0
	MATISSE - Modelling And Testing for Improved Safety of key composite StructurEs in alternatively	EU	2012-2015			5 650	Autoliv, Chalmers	Martin Fagerström (Chalmers)	0/1
	SafeEV - Safe Small Electric Vehicles through Advanced Simulation Methodologies	EU	2012-2015			3 212	Chalmers	Mats Svensson (Chalmers)	0/1
	ALIVE	EU	2012-2016			2 400	AB Volvo	Stefan Thorn (GTT Volvo)	0
	Improved injury prediction using HBM, step 2	FFI	2013-2014			3 250	Chalmers, VCC, GTT Volvo, Autoliv	Karin Brolin, CTH	1
	Småfolk, part 2 (FFI)	FFI	2013-2015			8 563	VCC, Chalmers, Autoliv	Lotta Jakobsson (VCC)	2
	Child Safety in Cars - 2011 ARC Lincage Project - 110200334	stralian Research Cour	2012-2014			103	Chalmers, Autoliv (inkl. parter i Australien, USA och Canada)	Mats Svensson (Chalmers)	1/0
	Composite Crash Behavior	FFI	2013-2016			10 083	Chalmers, Autoliv, AB Volvo, VCC, ÅF, Semcon, Escenda, Altair, DYNAMore Nordic,	Ragnar Larsson (Chalmers)	1/0
	FFI-Lateral THUMS	FFI	2013-2015			9 000	Autoliv, VCC, Umeå univ, Univ of Virginia	Cecilia Sunnevang, Autoliv	2/0
	VIVA - Virtual Vehicle - Safety Assessment: Open source HBM addressing gender diversity	Vinnova	2014-2016			4 992	VTI, Chalmers, VCC, Folksam	Astrid Linder, VTI	0/0
	Experimentell whiplash studie länkad till kliniska fynd - PET och MRI undersökning	Folksam Forskningssti	2013 - 2014			300	Chalmers, KI, AK	Mats Svensson (Chalmers)	0/0
	Whiplash - "Kapsylen"	Folksam Forskningssti	2013-2014			300	Chalmers, Folksam	Mats Svensson (Chalmers)	0/0
	Krockdocka som testar whiplashskyddet för kvinnor	Skyttfonden	2013-2014			350	Chalmers	Mats Svensson (Chalmers)	0/0
	FFI THOR project 2013-02643	FFI	2013 - 2014			3 369	Autoliv, VCC, Chalmers	Cecilia Sunnevang (Autoliv)	0/0
	FFI Pedestrian - head and neck, part 2	FFI	2014 - 2016			7 350	Autoliv, VCC, KTH	Bengt Pipkorn (Autoliv)	2
						83 864			
				25 187		162 896			
						188 084			

POST-CRASH

Proj nr	Projektbenämning	Finansiär	Period	Totalbelopp (i TSEK)			Partners	Projektledare	PhD students and/or postdoc
				SAFER	ASSOC.	Övr finansiärer			
Avslutade egna projekt									
E1	Sensor Assisted Situational Awareness	SAFER, Security	2008	186			Viktoria, LSP, Vägverket, VGR	Jonas Landgren (Viktoraiinstitutet)	0
E2	Sensor Assisted Situational Awareness: A Study of Traffic Accident Response Work, Liverespons 1	SAFER, Security	2008-2009	690			Viktoria, LSP, Vägverket, VGR	Jonas Landgren (Viktoraiinstitutet)	0
E3	Sensor Assisted Situational Awareness: A Study of Traffic Accident Response Work 2, Liverespons 2	SAFER, Security	2009	185			Viktoria, LSP, Vägverket, VGR	Jonas Landgren (Viktoraiinstitutet)	0
E4	Liveresponse 3	SAFER, Security	2009-2010	512			Viktoria, LSP, Vägverket, VGR	Jonas Landgren (Viktoraiinstitutet)	0
E6	Improving the pre-hospital care process for victims in road traffic accidents	SAFER	2011-06-13 - 2013-08-31	1 595			Chalmers, SAFER	Stefan Candefjord (Chalmers & MedTech West/Sahlgrenska Universitetssjukhus)	0/1
E9	Vulnerable Road Users: An eCall service for two-wheel vehicle users	SAFER	2013-02-01 - 2013-11-30	134		128	262 Chalmers, SAFER	Leif Sandsjö (MedTechWest/Chalmers)	0/0
				3 302					
Avslutade associerade projekt									
Egna projekt									
E5	Rescue principles collaboration with INDIA	VGR, TRIPP	yymmdd - 2012-12-31	NA			VGR, TRIPP	Per Örtenwall (SAFER)	0
E7	Strategies and methods for increased traffic flow at traffic accident sites	SAFER	2012-02-02 - 2012-06-15	138	51		189 Chalmers, VGR, Trafikverket	Jonas Landgren (Chalmers)	0
E8	Volvo Acute - Algorithm for enhanced automatic crash notification system	SAFER	2012-09-18 - 2013-12-01	959	28		987 Chalmers, VCC	Anders Westerlund (VCC)	0
E10	IPCaR-TBI/SAFER (Traumatic brain injury)	SAFER	2013-10-01 - 2014-12-31	349	40		389 Chalmers, Sahlgrenska University Hospital, Gothe	Stefan Candefjord (Chalmers)	0
E11	Care & Rescue - pre-study on international strategy for new SAFER focus topic	SAFER	2013-10-01 - 2014-05-31	221			Chalmers	Stefan Candefjord (Chalmers)	0
				1 667	119				
Associerade projekt									
	Metis 1	Vinnova, VGR	2012-11-01 - 2014-04-30		2 670		VGR, LSP, SAFER, GU, University of Borås, AB Voh Bengt Arne Sjöqvist		0
	IPCaR-TBI/Vinnova	Vinnova	2013-11-01 - 2014-12-31		750		CTH, SA/GU	Stefan Candefjord (Chalmers)	
	IPCaR-TBI/IKV	IKV	2014-04-01 - 2014-12-31		200		CTH, SA/GU		
	4-wheelers	Länsförsäkringar	2014-04-01 - 2014-12-31		724		CTH, HB	Stefan Candefjord (Chalmers)	
					4 344				
				4 969	4 344				
					9 313				

TRAFFIC SAFETY ANALYSIS

Proj nr	Projektbenämning	Finansiär	Period	Totalbelopp (i TSEK)			Partners	Projektledare	PhD students and/or p
				SAFER	ASSOC.	Övr finansiärer			
Avslutade egna projekt									
CA1	Establishment of Field Operational Test (FOT) Activities at SAFER	SAFER	2006-2007	700			Volvo Technology, VCC, Chalmers, Saab, VTI, Scania, SP, Autoliv, Lindholmen Science Park	Trent Victor (Volvo Technology)	0
CA3	TSS-FOT Test Site Sweden Naturalistic Field Operational Test	TSS, SAFER	2007	300	2 500		Volvo Technology, VCC, Autoliv, Chalmers, TSS/Lindholmen Science Park	Trent Victor (Volvo Technology)	0
C4	Japanese Pre-Study Collaboration regarding Analysis of Traffic Data	SAFER, Vinnova	2008-2009	256	176		432 VCC, Chalmers, Autoliv, Vinnova	Åsa Valadi (SAFER)	0
C1	FESTA Field operational test support action (EU)	EU	2007-2008	1 500			Chalmers	Trent Victor (Volvo Technology)	0
C3	SeMIFOT - Sweden Michigan Naturalistic Field Operational Test	SAFER, Vinnova, UMTRI	2008-2009	1 515	16 686		18 201 AB Volvo, Autoliv, Chalmers , Länsförsäkringar, Michigan Department Of Transportation (MDOT), Saab , Scania,Vinnova, Vägverket, VTI, SP, TSS, UMTRI, Volvia, VCC	Trent Victor (SAFER/Volvo Technology), H	0
C8	Field Data Acquisition and Analysis Methods for Car Safety Development	SAFER	2008-2009	816			VCC, Chalmers	Lotta Jakobsson (VCC)	1
C10	Utredning om fortsättning av INTACT	SAFER	2009	200			Autoliv, Chalmers, VCC, AB Volvo, Saab, Scania, VTI, Vägverket, Folksam, Göteborgs Universitet	Torbjörn Andersson (Autoliv)	0
C7	Analysis of Accidents and Dangerous Incidents in Transport: Method Development and Opportunities for Learning	Norges Forskningsråd	2008-2010	2 563			VTI, Chalmers, TÖI	Fridulv Sagberg (TÖI)	0
C14	INTACT in production	SAFER	2010	148			Autoliv, Chalmers, VCC, AB Volvo, Saab, Scania, VTI, Vägverket, Folksam, Göteborgs Universitet (eller VGR)	Helen Fagerlind (Chalmers)	0
C6	FOT-net (EU)	EU	2008-2010	603			SAFER Chalmers	Helena Gellerman (SAFER)	0
C17	Comparative Analysis of Driver Behavior between US and EU based on Naturalistic Field Operational Test Data TUAT NDM (International Collaborative Study on Naturalistic Driver Model and Human Error Analysis Using Continuous Sensing Drive Recorders)	SAFER	2011-07-01 - 2011-09-01	234			Chalmers	Marco Dozza (Chalmers)	0/0
C24	Human Monitoring (prestudy)	IST	2011	79	67		SAFER, TUAT, VCC	John-Fredrik Grönvall (VCC)	0
C11	SeMIFOT ND database (prestudy)	SAFER	2010-04-21 - 2011-10-27	300			VCC, VTI, Chalmers, Volvo Technology	Henrik Wiberg (VCC)	0
C21	EDR – Electronic Data and Reconstruction SHRP 2 S08 - Analysis of the SHRP 2 Naturalistic (prestudy)	SAFER	2011-07-01 - 2011-12-31	100			SAFER	Erik Svanberg (SAFER)	0
C22	SHRP 2 S08 - Analysis of the SHRP 2 Naturalistic (prestudy)	Trafikverket, SAFER	2011-08-01 - 2012-03-31	346			Trafikverket, VTI, Chalmers, VCC, Saab Automobile	Robert Thomson (VTI)	0
C19	Driving Study Data	SAFER	2011-06-13 - 2012-06-30	75			SAFER, Chalmers, AB Volvo, VTI, VCC, GU	Trent Victor (Volvo Technology)	0/0
C2	EuroFOT - European Field Operational Test on Active Safety Systems (EU)	EU	2008-05-01 - 2012-06-30	7 875	66 585		74 460 SAFER JRU-Chalmers (Chalmers, VTI, SP), VCC, AB Volvo	Selpi (SAFER/Chalmers)	0
C9	DaCoTa - referensgrupp inkind	SAFER	2010-01-01 - 2012-06-30	510			AB Volvo, Autoliv, VCC	Helen Fagerlind (Chalmers)	0
C26	Accident Data Collection Scheme Comparison	SAFER	2011-12-01 - 2012-01-31	56			Chalmers, VCC, Autoliv	Helen Fagerlind (Chalmers)	0
C5	DaCoTa - Road Safety Data Collection, Transfer and Analysis (EU)	EU	2010-01-01 - 2012-12-31	862	2 790		3 652 SAFER JRU-Chalmers	Helen Fagerlind (Chalmers)	0
C20	Global Inattention Taxonomy Definition (prestudy)	SAFER	2011-06-01 - 2012-12-31	200			Chalmers, VTI, AB Volvo, TÖI	Johan Engström (Volvo Technology)	0
C30	BikeSing: Exploring single-bike crashes from multiple data sources	SAFER	2012-09-31 - 2013-05-31	380			Chalmers, IF, Göteborgs Stad	Marco Dozza (Chalmers)	0/1
C12	SeMIFOT2	Vinnova	2009-12-01 - 2013-06-30		3 950		SAFER partner (Chalmers, Lindholmen Sciencepark, VCC, AB Volvo, Saab , Scania, Autoliv, SP, VTI, SRA), Volvia, Länsförsäkringar, UMTRI	Trent Victor (VCC)	0
C25	ND plattform för internationell trafiksäkerhetsforskning	Vinnova	2011-12-10 - 2013-09-30		1 670		SAFER	Helena Gellerman (SAFER)	0/0
C13	DREAMI	Vinnova	2009-12-01 - 2013-10-30		1 000		SAFER partner (Chalmers, VCC, Autoliv, VTI, Volvo), JARI externt parallellprojekt	Jonas Bärgrman (Chalmers)	0/0
				19 618		95 424			
Avslutade associerade projekt									
FICA		PFF	2002-2007		12 000		Chalmers, LIU, VCC, Saab, Volvo, Vägverket, Autoliv	Håkan Gustavsson (VCC)	2
FICA 1,5		PFF	2006-2007		3 750		Chalmers, LIU, VCC, Saab, Volvo, Vägverket, Autoliv	Håkan Gustavsson (VCC)	2
PENDANT (Eu)		EU	2003-2006		3 000		Chalmers	Hans Norin (Chalmers)	1
SafetyNet (Eu)		EU	2004-2008		3 619		Chalmers	Helen Fagerlind (Chalmers)	1
INTACT		IVSS	2007-2010		32 621		Chalmers, Saab, Scania, VCC, AB Volvo, Autoliv, Vägverket, GU	Helen Fagerlind (Chalmers)	0
UnEye		FFI	2009-2010		4058		VCC, Smart Eye, AB Volvo, Räven Produktion AB, Chalmers	John-Fredrik Grönvall (VCC)	0
FICA 2 - Factors Influencing the Causation of Accidents and Incidents		FFP/PFF	2006-2010		8 790		Chalmers, LIU, VCC, (Saab), Volvo, Vägverket, Autoliv	Håkan Gustafsson (VCC)	2
preBikeSAFE		Trafikverket	2011-2012		200		Chalmers	Marco Dozza (Chalmers)	0/1
VHM - Volvo Human Monitoring		FFI	2009-2012		16 670		VCC, SU, SAFER	Henrik Wiberg (VCC)	0
BikeSAFE		Vinnova	2012-2013		400		Chalmers	Marco Dozza (Chalmers)	0/1
e-BikeSAFE		Trafikverket	2013		350		Chalmers	Marco Dozza (Chalmers)	0/1
					85 458				
Egna projekt									
C15	FOT-net2 (EU)	EU	2011-01-01 - 2014-03-31		1 793		SAFER, Chalmers, VCC	Helena Gellerman (SAFER)	0/0
C16	DRIVE C2X - Driving Implementation and Evaluation of C2X Communication Technology in Europe (EU)	EU	2011-01-01 - 2014-07-31		15 639		SAFER JRU (Chalmers, Lindholmen Science Park, Trafikverket), VCC	Ines Heinig, SAFER	0
C18	ANNEXT - Analysis of Naturalistic External Datasets	Vinnova	2010-11-29 - 2015-12-31		700		Chalmers, VTEC	Jonas Bärgrman (Chalmers)	0/2
C23	Field data analysis platform	SAFER	2012-01-01 - 2014-12-31	2 400			Chalmers	Helen Fagerlind (Chalmers)	0
C27	SHRP2 S08 Safer Glances	NHTSA	2012-02-01 - 2014-06-30		5 475		SAFER JRU (Chalmers, VTI, AB Volvo, VCC)	Trent Victor (VCC)	0
C28	INTACT-II Support	SAFER	2012-01-01 - 2014-12-31	900			Chalmers	Helen Fagerlind (Chalmers)	0
C29	UDRIVE - eUropean naturalistic Driving and Riding for Infrastructure & Vehicle safety and Environment	EU	2012-10-01 - 2016-09-30		17 672		SAFER JRU (Chalmers, Epsilon, VTI, TÖI, VCC), AB Volvo	Jonas Bärgrman (Chalmers)	0/0
C31	Forskningsinfrastruktur för naturalistisk trafikdata (förstudie)	VR	2013-01-01 - 2014-12-31		600		SAFER/Chalmers	Selpi (Chalmers)	0/0
C32	BikeSING 2			1 080					
C33	Identification and analysis of lane change manoeuvres with heavy vehicles from naturalistic driving data – a pre-study	SAFER	2014-01-01 - 2014-06-30	700			VTI, AB Volvo	Omar Baghdadi (VTI)	0
C34	FOT-Net Data	EU	2014-01-01 - 2016-12-31		2 371		SAFER JRU (Chalmers, VCC)	Helena Gellerman	0/0
C35	MTS - Människan i Trafik och Samhälle	LSP	2013-11-01 - 2014-02-28		38		SAFER	Helena Gellerman (SAFER)	0/0
C36	MRMD - Mutual Recognition Methodology Development	liance of Automobile Mani	2014-01-01 - 2014-12-31		2 107		Chalmers, Autoliv, VTI, UMTRI	András Bálint (Chalmers)	0/0
C37	Developing methods for calculating key performance indicators for safe driving based on data mining on large naturalist	SAFER	2014-02-17 - 2014-09-30	600			Chalmers, TÖI, AB Volvo	Selpi (Chalmers)	0/1
				5 680		46 395			
Associerade projekt									
	Field Data Acquisition and Analysis Methods for Car Safety Development	FFI	2008-2014		13 286		VCC, Chalmers	Emma Tivesten (VCC)	1/0
	Improving the knowledge base for systematic management of fatigue and reduced vigilance in transport operators (TRANSIKK)	Norges forskningsråd	2011-2015		8 300		TÖI	Ross Phillips (TÖI)	1/0
	INTACT-II	VR	2012-2014		6 100		Chalmers	Helen Fagerlind, Chalmers	
	DCBIN - Driver Comfort Boundaries in Intersection Negotiation	FFI	2012-2015		14 987		VCC, Chalmers, Autoliv	Mats Petersson (VCC)	1/1
	NCHRP 17-43: Long Term Roadside Crash Data Collection	TRB	2011-01-01 - 2014-03-31		163		VTI	Robert Thomson (VTI)	0/0
	Säkrare sidoområde från ett MC perspektiv - Safer Roadsides for Motorcyclists	Länsförsäkringar	2013-02-01 - 2014-07-31		675		VTI, Sveriges Motorcyklister, Svevia	Robert Thomson (VTI)	/0
	Handbook of Road Safety Measures	tet, Samferdselsdepartem	fortlöpande		619		TÖI	Alena Höye (TÖI)	0
	e-BikeWay	Trafikverket	2013-2014		300		Chalmers	Marco Dozza (Chalmers)	0/0
					44 430				
				25 298	174 318				
					199 616				