



Annual Report to Shareholders

Operative year #2

2007-04-01 - 2008-03-31

SAFER Vehicle and Traffic Safety Centre at Chalmers
PO BOX 8077
SE-402 78 GÖTEBORG, SWEDEN
Visitors: LINDHOLMSPIREN 5
Phone: +46 31 764 70 00
E-mail: safer@chalmers.se
www.chalmers.se/safer

Formal issues

The SAFER agreement is running from 060401 which is the formal signing date. The first phase is covering three years and ends 090331. SAFER was inaugurated on June 7 2006 by the Minister of Industry and Trade.

The vision of SAFER is:

To enable Sweden to reach world leading competitiveness, by:

- Providing countermeasures to considerably reduce both the number of traffic accidents and the number of fatalities and serious injuries
- Using the multi-disciplinary scientific competence available within SAFER
- Making SAFER a hub for excellence within the international field of vehicle safety

This can be visualized with the picture below showing how participation in projects build competence leading to more advanced research projects and recognition as a centre of excellence.

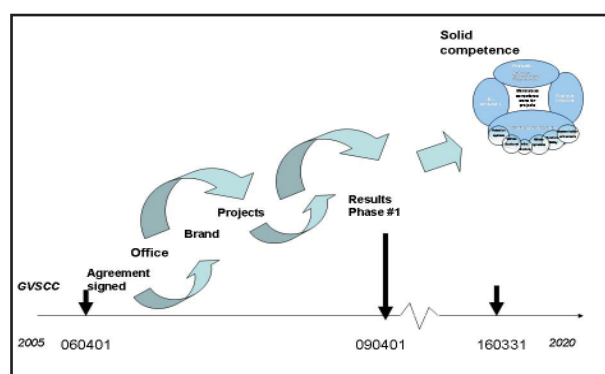


Fig 1 Projects and competence interact towards outstanding results and scientific excellence

Values

SAFER is guided by its vision and its values. The essence of SAFER is that “World class expertise in traffic safety collaborate to save lives”. The values supporting this are shown in the following picture:

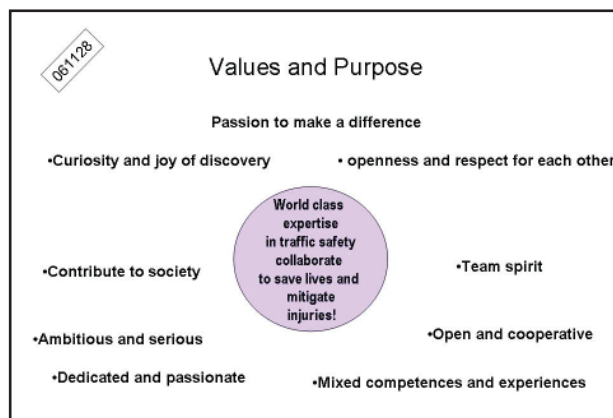


Fig 2. SAFER values

Partners

During the year two new partners have joined SAFER: TÖI – Institute of Transport Economics and Viktoria Institute. They are now part of the shareholder group together with the 20 founding parties:

AB Volvo, Autoliv Development, Chalmers, Epsilon, Folksam, Imego, Lindholmen Science Park, Region Västra Götaland, Saab Automobile, Saab Microwave Systems, Scandinavian Automotive Suppliers, Scania, Sicomp, SP Technical Research Institute of Sweden, Swedish Road Administration, Telia Sonera, University of Gothenburg, VINNOVA, Volvo Car Corporation and VTI Swedish National Road and Transport Research Institute.

Board

The board of SAFER consists of seven members: Jan-Eric Sundgren (Chairman), AB Volvo, Hans Nyth, Volvo Cars, Per Lenhoff, Saab Automobile, Jan Olsson, Autoliv Development, Pontus Matstoms, VTI Swedish National Road and Transport Research Institute, Ove Pettersson and Anna Dubois, Chalmers.

The board has had six meetings during the second year.

Management

The management structure has been further developed during the second year, taking into consideration the need to handle both projects and competences. SAFER has two management groups, one small operative which consists of the director Anna Nilsson-Ehle, the coordinators Hans Norin, Yngve Håland, Lotta Jakobsson and Prof Per Lövsund, and an extended management group also including the Competence Area Leaders Trent Victor, Erik Ström, Jan Jacobsson, Mathias Lidberg, Mats Svensson and Hans-Erik Pettersson. Meetings for the operative group are held every other week and once a month for the extended.

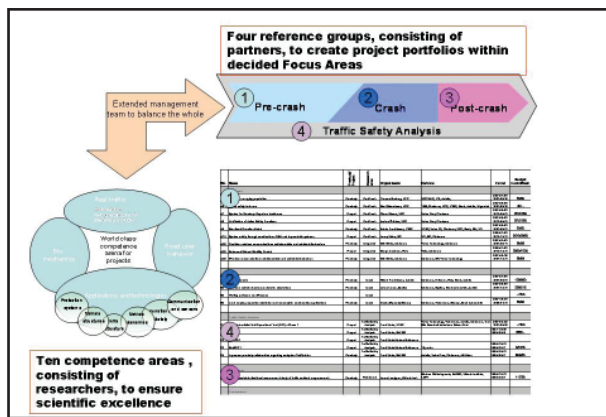


Fig 3. Organisation and management

The project management model that was established has been implemented during the year and projects are prepared, decided on and followed up accordingly.

SAFER research environment

SAFER is renting an office in floor five, Lindholmen Science Park, Lindholmospiren 5, to be in an area equally open to all of the partners. The office has been expanded somewhat with four new rooms and covers approximately 825 sqm. It has 74 workplaces, three conference rooms and four small rooms for concentrated work, phone-calls or spontaneous discussions.

130 people are working in the area part or full time, 45 have this as their only work place. The definition of "belonging to SAFER" is to have your own key and your portrait in the hallway.

SAFER is participating in the planning of next step of the facilities at Campus Lindholmen and Lindholmen Science Park. The assumption is that SAFER will grow according to the statement in the agreement and eventually need around twice the space of today.

SAFER people

Each person belonging to SAFER is employed by a partner. 63 of the 130 "key-holders" are employed at Chalmers, the rest are from the other partners. 27 percent are women.

Of the "key-holders" 23 are academic PhD students and 12 are industrial PhD students thus making the PhD students close to 27 percent of the total staff.

Reference groups

SAFER has four reference groups, one for each project portfolio. Members of the reference groups are knowledgeable persons representing each partner (that wishes to participate). The reference groups have been slightly changed during the year. It was found to be more useful to have all accident and real traffic investigation projects in one portfolio as they serve the whole time span from Pre- to Post crash.

This new reference group and portfolio is named Traffic Safety Analysis. At the same time the project portfolio “Integrated Safety” was incorporated in the Pre-Crash reference group.

Lotta Jakobsson, Volvo Cars, has been appointed coordinator for Crash reference group, Hans Norin, Chalmers, for Traffic Safety Analysis and Yngve Håland, Autoliv, for Pre-Crash. Anna Nilsson-Ehle is acting coordinator for Post-Crash.

Strategy

The board has formed a strategy to reach the vision of “enabling Sweden to reach world leading competitiveness”. The plan is to build long-term competence in defined Competence Areas necessary to achieve outstanding results in chosen Focus Areas. The Focus Areas together form a framework for the projects to be formulated and shaped in the four reference groups.

Presently the six Focus Areas are:

- Incidents and accidents – priorities and effect analysis
- Driver state/action/reaction
- Prediction for accident prevention
- Methods for evaluation of safety systems
- (Safety for) Novel Electric Vehicles and Vehicle Combinations
- Human Models and Biomechanics for all people

Defined Competence Areas are: Real Traffic, Biomechanics, Road User Behaviour and within the common scope “safety system applications and technologies” Communication & Sensors, Functional Safety, Vehicle Dynamics, Vehicle Structures, Infrastructure and Protective Systems. The competence areas develop through strong projects, international collaboration, visiting professors and researchers and the participation from all partners.

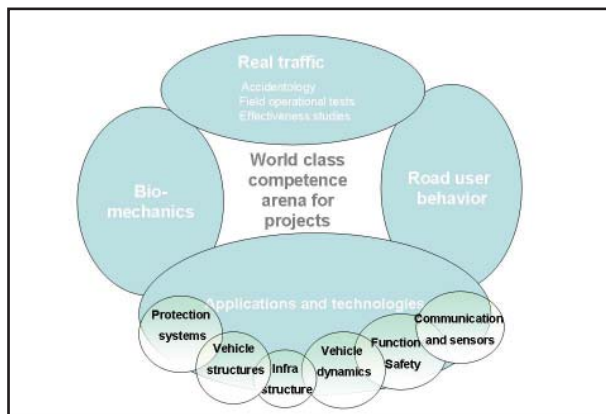


Fig 4. SAFER Competence Areas

SAFER is mainly focusing on pre competitive research such as understanding injury and accident/incident mechanisms, designing models, principals and concepts for counter-measures. When projects move into the competitive phases of system solutions and products SAFER is not involved in projects but supplies good researchers to the industry.

SAFER projects also address evaluation of systems in real traffic and SAFER should develop high competence in the area of traffic systems and prediction of impact from different counter-measures.

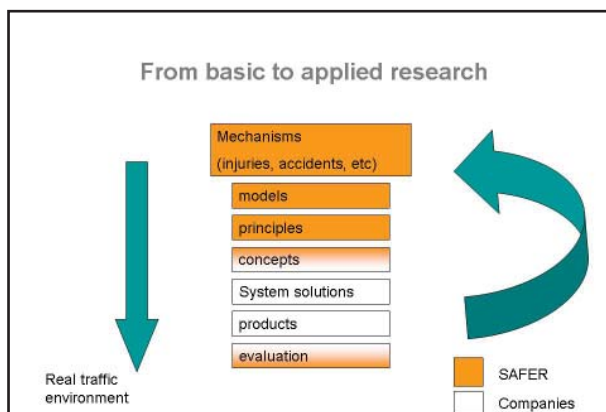


Fig 5. SAFER involvement in R&D process

Projects

The SAFER research environment contains both projects that had started before 060401 (associated) and projects that are initiated after SAFER was founded. In total, more than 50 research projects are connected to SAFER (associated 32 and SAFER 23). During SAFERs second year the board of SAFER has decided to approve 12 pre-studies and projects. SAFER-researchers are engaged in several applications for projects within EU 7th frame programme and have during the year been granted four projects.

To develop the competence areas in SAFER three projects have been started. These are named K# and their purposes are to support activities enhancing the forming of competence or collaboration.

Pre-studies decided during year #2:

- A9 Emotional Reaction Model
- AD4 Wireless communication vehicle-vehicle and vehicle-infrastructure
- B4 Load carrying capacitors for crash-worthy applications
- C4 Japanese pre-study collaboration regarding analysis of traffic data
- E1 Sensor assisted situational awareness

Projects decided during year #2:

- A7 Systems for roadway departure avoidance
- A8 Verification of active safety functions
- A10 System safety through combination of HMI and dependable systems
- AD3 Enhanced/Robust stability control
- C1 FESTA
- C2 EuroFOT
- C3 SemiFOT

Competence areas:

K1 BasFOT

K2 Establishment of Road User Behaviour activities at SAFER

K3 Vehicle Dynamics

Pre-studies and projects decided during year #1 are:

A1 Establishment of Field Operational Test (FOT) Activities at Safer

A2 System safety through combination of HMI and dependable systems

A3 TSS Naturalistic Field Operational Test (FOT) - Phase 1

A4 Safety for an ageing population

A5 Active safety test area

A6 Positioning system for outdoor safety testing

B1 Multiple events

B2 Common vehicle structure models for simulations

D1 Enhanced/Robust electronic stability control

D2 Real-time wireless communications vehicle-vehicle and vehicle-infrastructure

Other: Visiting professor in the area of human modelling, 3 years part time

IVSS-financed project INTACT

International cooperation

SAFER is to find and encourage different ways of cooperation. One obvious is within the research projects which, according to guidelines from the SAFER board, always should involve at least one academic and one industrial part.

SAFER has during the year started to build competence and a broad project cluster in the area of Naturalistic Driving studies (NDS) and Field operational Tests (FOT) which both

needs and drives international collaboration. SAFER is involved as partner in two 7FP projects– FESTA and EuroFOT. Furthermore, Chalmers and SRA are partners in 7FP project TeleFOT involving people belonging to the SAFER group. SeMiFOT – a Swedish/American collaborative SAFER project was approved in December-07. All in all, The SAFER partners part of these projects and the already completed SAFER projects on NDS/FOT amount to more than 100 MSEK.

SAFER researchers are part in approved 7 FP projects on Child Safety (Kasper) and Development of dummy chest for frontal impact (Thorax).

SAFER is active on the European scene through the membership in EARPA and other networks and is also actively supporting the establishing of an European virtual institute on passive safety.

The findings from the study tour to Japan in 2007 has materialized into three activities. The Japanese institutes ITARDA and JARI will be visited during Spring/early summer to establish contact/collaboration on accidentology and naturalistic driving studies and in the fall researchers in the area of Vehicle dynamics will meet with University of Tokyo researchers.

SAFER as JRU (Joint Research Unit)

An important pre-requisite for collaboration is that SAFER, in spite of its character as competence centre with no legal status of its own, can be a partner in projects. This has been solved during the year and SAFER is in EU 7FP accepted as a JRU – a Joint Research Unit.

This means that SAFER *has the possibility to* draw on the competence from its 22 partners and that in a given EU-project partners that so wish can act together as SAFER with Chalmers as the legal host. EU project partners within the JRU SAFER have to be explicitly identified.

In some EU projects you will find SAFER partners as independent partners (e.g. Volvo Cars, Chalmers and VTI can enter into EU projects as separate partners), and yet in other EU projects you will find specifically identified SAFER partners as part of the JRU SAFER (e.g. SP and VTI as 3rd party partners to Chalmers).

Economy

The agreement clearly states each partners undertaking. The project model established for SAFER monitors the resources used, both cash and in-kind. Each partner has to sign-off resources used. A procedure has been established. The first year had some extra costs for establishing the office but little expenditure on projects. After this second year projects are increasing and the completed phase #1 will have used or booked all its allocated resources.

Uptil 070331 65 MSEK (cash + inkind) have been decided on and within these 28 MSEK have been used.

Seminars and conferences

SAFER has established weekly lunch seminars for internal cross-fertilization of knowledge and ideas. 25 seminars with 48 speakers have been conducted so far. Four half day workshops with all staff have been held in June, October, December 2007 and one in 29 February 2008 at SP. Workshops of this kind will be held regularly a couple of times a year.

SAFER also has the ambition to hold external seminars. During SAFER year #2 eight external seminars have been held. The seminars were for example about functional safety, crash-worthiness, FOT and sensor data fusion. Amongst others, Steve Ridella from NHTSA was invited to give a talk and so was also Prof. John Lee from University of Iowa.

In October, SAFER in collaboration with SVEA (Swedish Vehicular Engineering Association) arranged a highly appreciated conference about Trends and visions within Active Safety, where influential actors from the vehicle industry and public authority presented their point of view. One hundred participants from the field of vehicle and traffic safety attended the conference.

SAFER had a session at the conference "Elektronik i fordon" in April 2007 and a booth at the ESV conference in Lyon in June. SAFER also had a seminar session at the yearly Tylösand Conference in August. In January 2008, SAFER had a session at Transportforum in Linköping, with the theme Active safety systems and Field operational tests.

The conference, which is one of the tasks for SAFER according to the agreement, has not yet found its form. An application is under preparation regarding the possibility to host one of the coming ESV conferences (2011 or 2013). SAFER will participate in the international ITS 2009 conference in Stockholm.

Communication

SAFER has also year #2 been written about in news papers and partners magazines. Examples are VINNOVA Nytt, Vägverkstidningen, Chalmers magasin, Lindholmen Science Park's newsletter and VTI Aktuellt. Other papers in which SAFER has been mentioned are Göteborgs-Posten, Ny Teknik and Elektroniktidningen.

Two reports about SAFER have also been sent on the radio. Anna Nilsson-Ehle was interviewed by Swedish Radio "Vetenskapligt" in December 2007 and Trent Victor was interviewed on SR Ekot about the Semifot project in January 2008.

The SAFER web site is placed within Chalmers. The web has been updated and extended and now includes a calendar with news and events, vacancies, research reports, publications, press releases etc.

Visit www.chalmers.se/safer

Research reports

Dissertation and licentiate thesis

During SAFER's operative year # 2, the following PhD Students working in the SAFER environment have written their dissertation thesis:

Leo Laine, Department of Applied Mechanics, Chalmers: "Reconfigurable Motion Control Systems for Over-Actuated Road Vehicles" (2007).

During SAFER's operative year # 2, the following PhD Students working in the SAFER environment have written their licentiate thesis:

Sunan Huang, Department of Applied Mechanics, Chalmers: "Analysis of Sensing Systems for the Detection of Pedestrian Impacts" (2008).

Matthijs Klomp, Department of Applied Mechanics, Chalmers: "On Drive Force Distribution and Road Vehicle Handling - A Study of Understeer and Lateral Grip" (2007).

Martin Ivarsson, Department of Computer Science and Engineering, Chalmers: "Software process improvement applied to requirements engineering" (2007).