

SAFER SUCCESS STORY: Vehicle Dynamics Competence Area and cooperation around test vehicles

"A close collaboration between academia and the industry is, of course, of great importance to our region. When we see a possibility to strengthen the bond between these two, we try to take that opportunity, as with the ReVeRe lab."

Johnny Magnusson, President
Regional Executive Board
Region Västra Götaland

- **A complete research infrastructure – spanning from computer simulations, driving simulators, full scale vehicles, to the AstaZero proving ground**
- **A well-functioning research community – the Vehicle Dynamics Competence Area**

SAFER started to form Competence Areas as a way to create communities gathering experts within the partner organizations. Vehicle Dynamics started in 2008 with core partners from Chalmers, KTH, Scania, Volvo, Volvo Cars and Saab Automobile. In 2009, Saab Automobile contributed a first test vehicle (as inkind to SAFER) to Vehicle Dynamics Competence Area. That vehicle has been used in many research project and many courses. It has been the embryo for fostering a flourishing experimental vehicle research. The build-up of workshop facilities enabled to expand with a Volvo S60 and, through another SAFER project, a truck converter dolly. This encouraged SAFER to spend resources on a pre-study for a full-scale vehicle laboratory that should enable independent research and education experimentation for active safety systems and automated driving. In November 2015 the result is a laboratory at Lindholmen, ReVeRe, with two new test vehicles - a Volvo XC90 and a Volvo FH tractor 6x2. In the overall context with the unique test track AstaZero close to SAFER, this lifts the automotive research significantly.

Benefit to the project partners and impact on society:

- SAFER's researchers have the capacity to perform experimental complete vehicle tests, primarily on AstaZero test track but also in real traffic. This leads to innovative cutting edge research.
- Complete vehicle experiments
  - help to find the right problems, bringing in real life aspects of imperfect tyre/road, sensors/actuators, traffic, driver, weather and other road users, and bringing in integration aspects in a vehicle.
  - are valuable for development and validation of computer simulations and results from driving simulators.
  - bring researchers together to cooperate with a common test object.
  - enhance the learning experience for students.

Approach:

The strategy for vehicle and laboratory expansion has been to be responsive to the needs in projects and education. The Competence Area strategy is to be as collaborative as possible and to create a welcoming community. The regular meetings are thus moved between the partners' different geographical sites. A common road map for competence development is openly shared. Open seminars in collaboration with other stakeholders have been held on a yearly basis.

Measurable results:

- The first Saab 93 is still alive and used in research and education.
- The ReVeRe full-scale vehicle laboratory is inaugurated.
- The infrastructure contains Volvo S60, Volvo, XC90, a converter dolly for semi-trailers, a Volvo FH tractor and a driving simulator.

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

Funding: 14,5 MSEK SAFER internal (cash and inkind) and 64,6 MSEK external

Partners: AB Volvo, Autoliv, Chalmers, CPAC Systems, Kapsch TrafficCom, KTH, Mälardalen University, NEVS, Parator, Region Västra Götaland, Parator, Saab Automobile, SP, Swedish Hybrid Center, Swedish ICT, Swedish Transport Administration, Volvo Cars, VTI, ÅF

Funders: SAFER, VGR, FFI, VINNOVA

Period: 2008-ongoing

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