

# Next Generation Test Methods for Active Safety Functions NG-Test

collaboration project funded for 3 years with MSEK 54.5 by Vinnova FFI



CAISR  
Centre for Applied Intelligent Systems Research

SUPPORTED BY  
Knowledge Foundation

## Summary

Today, **verification** and **validation** of **passive safety systems** are mainly performed using cost efficient **computer simulations**. These simulations are in turn validated using a few controlled physical crash tests. **NG TEST** aims to move parts of the verification and validation of **active safety functions** from the proving ground to a complete or partly **virtual environment**.

## Halmstad University Role

The project is highly synergistic with our core competences, particularly in **CERES+** and **CASIR**, both part of **EIS**. Researchers from **IS-lab** and **CC-lab** will collaborate with other projects on two key aspects: **Integrative modelling method** tailored to the early stages of R&D. Accurate positioning of **real-world test** involving high speeds on **curved roads**.



Volvo Car Corporation



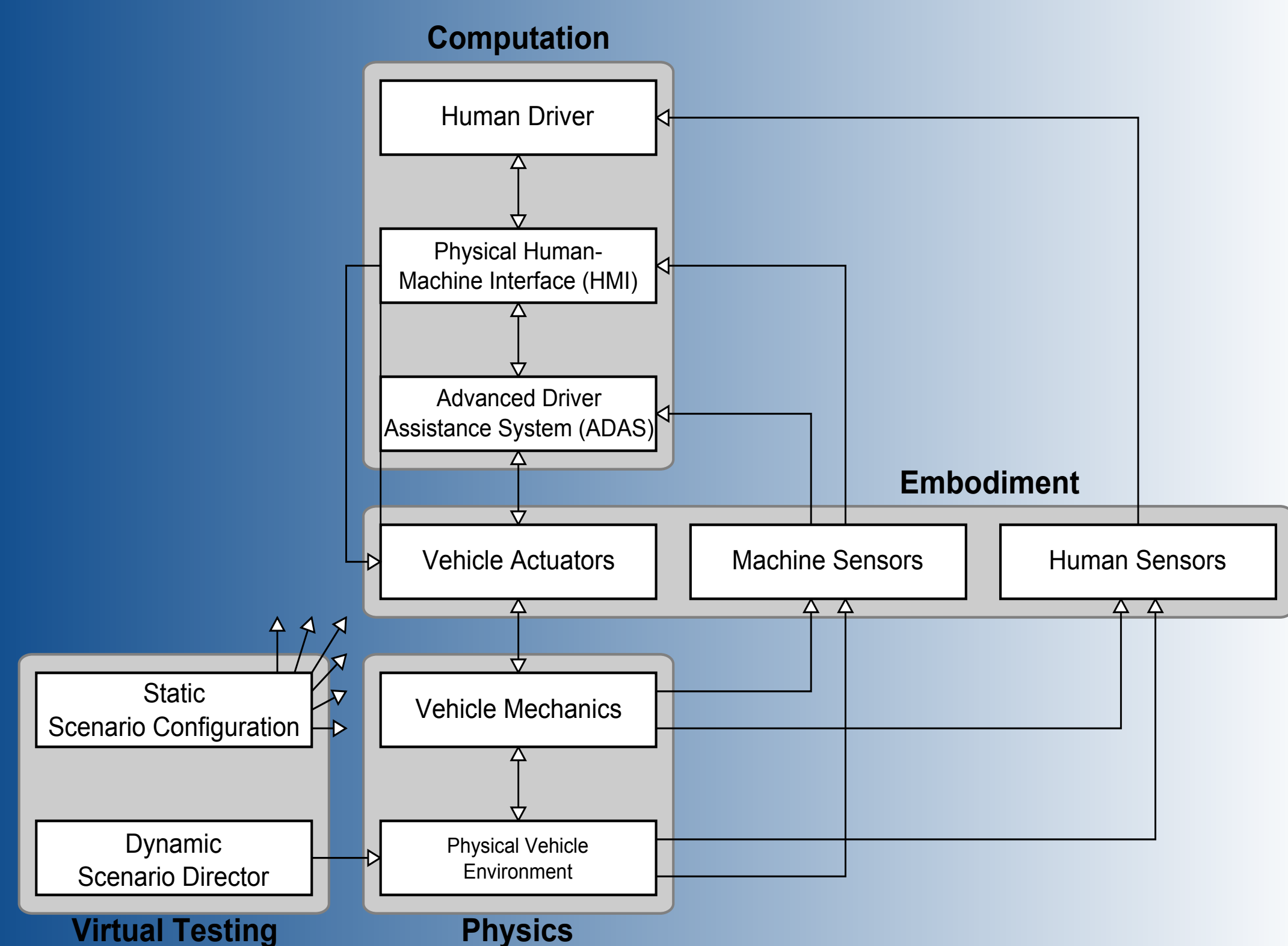
Volvo Group Technology

## Background

**Passive safety systems** have significantly increased road safety during past decades. Their **verification** is to large extent done **virtually** with the help of **simulations**.

**Active safety systems** plays an important role for mitigating or **avoiding accidents**. Today they are going from research and limited implementation towards broad implementation where they need to address **increasingly complex situations**. It require extensive testing during **design, validation** and verification stages.

## Generic ADAS Architecture



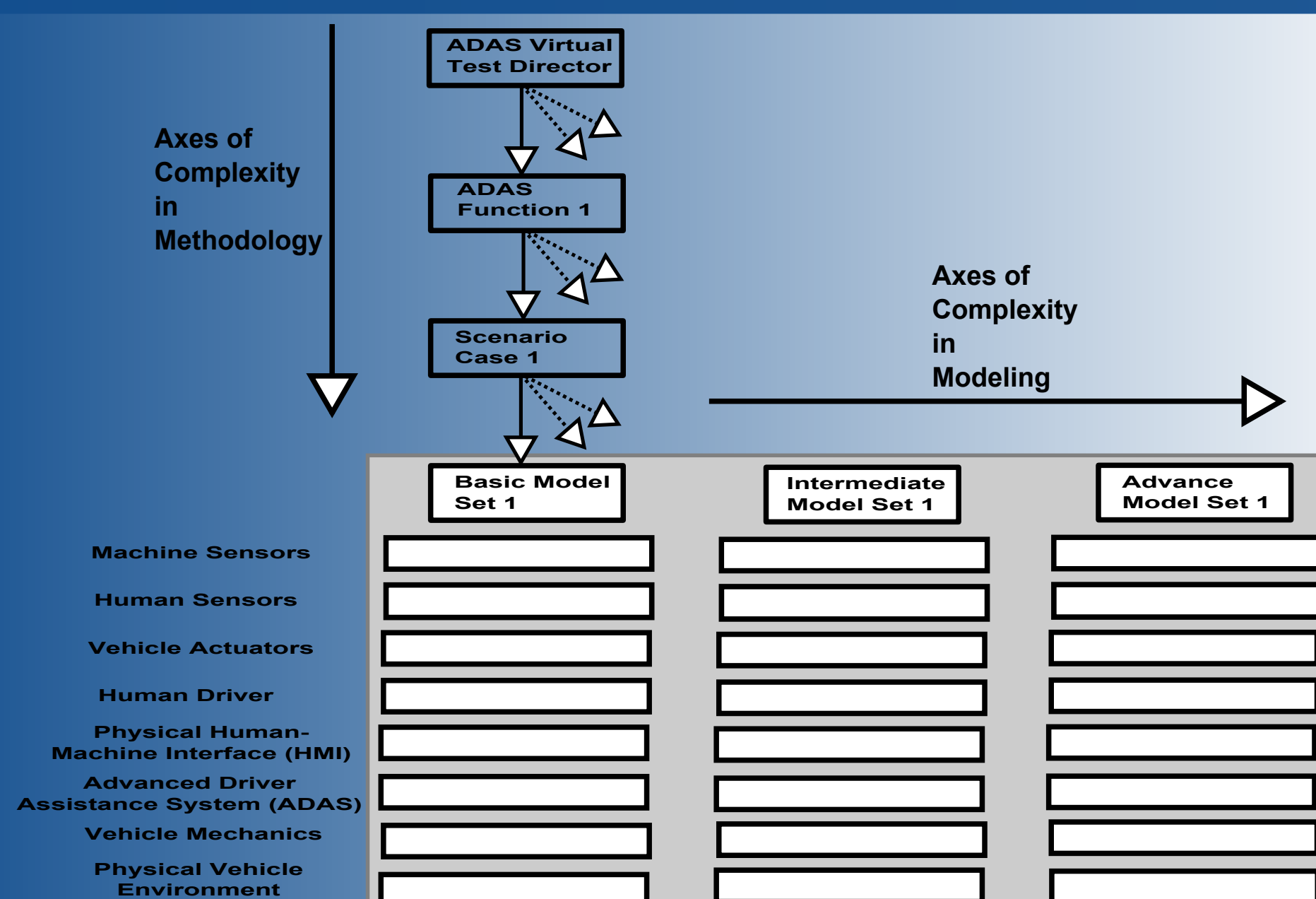
Autoliv Research AB

**CHALMERS**  
Department of Applied Mechanics

## Objective

**Improving efficiency** and **robustness** in the testing by extending the share of simulations. Establish an **integrated toolchain** to streamline **active safety systems validation** and **verification** throughout the process from **conceptual design** to operational tests. This framework shall become the **benchmark** for maintaining the safety-related forerunner position of the **Swedish automotive industry**.

## Axes of Complexities



Swedish National Road and Transport Research Institute



SP Technical Research Institute of Sweden

## Approach

Methodology for **high-fidelity** virtual testing:

- 1- Need to stay broad and cover all major aspects.
- 2- Generate series of increasingly complex models.

