PRE STUDIES AND SEED PROJECTS IN SAFER STAGE V

INFORMATION TO SAFER PARTNERS

PURPOSE

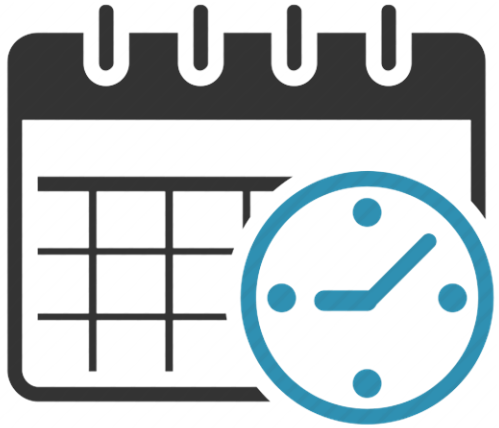
Pre-studies on emerging or entirely new topics and strategic areas are needed to develop SAFER according to partner needs. Funding will proactively stimulate **project generation** to maximize the benefits of our multi-disciplinary platform and obtain a broad commitment, both between partners and within research areas.

The funding is for getting started with **strategic knowledge creation** that can be leveraged e.g. by using **the unique, new competence as a basis for national funding or an entry ticket to prestigious international collaborations.**

We also welcome proposals that are of a different nature, for instance for finalization of publications from a completed project or investigation of a new area.

Simply put, projects that lead SAFER forward and contribute to the continued **development of our joint collaboration platform.**

PROCESS & TIMELINE # 1 2021



- **Nov 18:** Research area day – dialogue about ideas (recommended).
- **Until Nov 29:** Fill in the pre-study application and **submit** here: https://tinyurl.com/saferprestudy
- **Dec 3**: The Scientific Council (research area directors and part of the SAFER management team) evaluates and ranks all pre-study applications.
- **Dec 8**: The SAFER Board decides about funding.
- **By end of December**: Decision Letters are sent out.
- Start reports and final reports are due **one month** after projects start resp. end date.

Four opportunities per year are planned (or until the pre-study budget is used up).

FINANCING PRINCIPLES

- The maximum amount to apply for is **100 ksek per project**.
- We encourage a high ratio between in-kind and cash contribution. **Minimum in-kind is 50%***, there is no maximum in-kind.
- **Level 1 and 2 partners are eligible for funding**, however, industry partners need to motivate if they apply for cash funding.
- The first payment (50% of the granted funding) is made once the Start report has been submitted and approved. The second payments (50% of the granted funding) is made once the Final report has been submitted and approved.
- Part of the cost for the pre-study are to be taken from the SAFER budget and part by the partners involved in the project (or through external funding, or a combination).
- About 600 kSEK per year will be dedicated to pre-studies.

** e.g. a project what is approved with 100 ksek cash needs to have 100 ksek inkind, i.e. a total budget of 200 ksek.*

EVALUATION CRITERIA

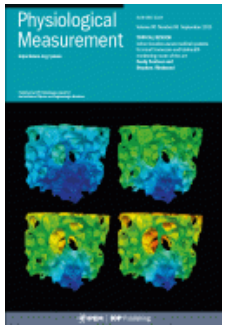
- Support fulfilling SAFER's vision, Vision Zero and also support the UN Sustainable Development Goals.
- Support reaching SAFER's research targets *(see slide 9-12).*
- Possibility to lead to something more – a bigger purpose, e.g. a larger project and other activities.
- The project should clearly be a collaboration project with several partners to continue develop our joint collaboration platform.
- Balance between partners (academy/institutes/industry and society).
- Stimulation of partners that currently are not involved in many projects.

OTHER REQUIREMENTS

- The result should be presented to the SAFER community and communicated in SAFER's communication channels.
- The physical meetings related to the project should be held at SAFER's premises.
- The project should be reported within one year after the project starts.
- Start reports and final reports are due one month after start respective end of the project (report templates: https://secure.webforum.com/safer/doc?dfRefID=1944).

We require the projects to meet **at least one** of the following criteria:

- The results are to be demonstrated through one or more of the connected research resources, e.g. Revere, AstaZero, VTI's simulators or other test beds.
- The seed project / pre-study should generate a larger successful project application.
- The results should be presented in an article that is planned for submission to a prestigious journal or a scientific conference.



FUNDED PRE-STUDIES

First call – *projects approved in November 2019*

- Smart-Loop: Design of multi-modal human-machine-interaction system for keeping the driver in-the-loop in automated driving systems (Chalmers, VTI) – *Project leader: Pinar Boyraz Baykas, Chalmers*
- Human factors related to remote control of automated heavy vehicles (RISE, Scania) – *Project leader: Linda Meiby, Scania*

Second call – *projects approved in February, 2020*

- SAFER cycling (Chalmers, Folksam, VTI, University of Borås) – *Project leader: Helena Stigson, Folksam*
- Safety Culture for automation (TØI, VTI, Volvo) – *Project leader: Christina Stave, VTI*
- The role of road design for vulnerable road users at intersections (University of Gothenburg, VTI) – *Project leader: Debora Lombardi, GU*

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

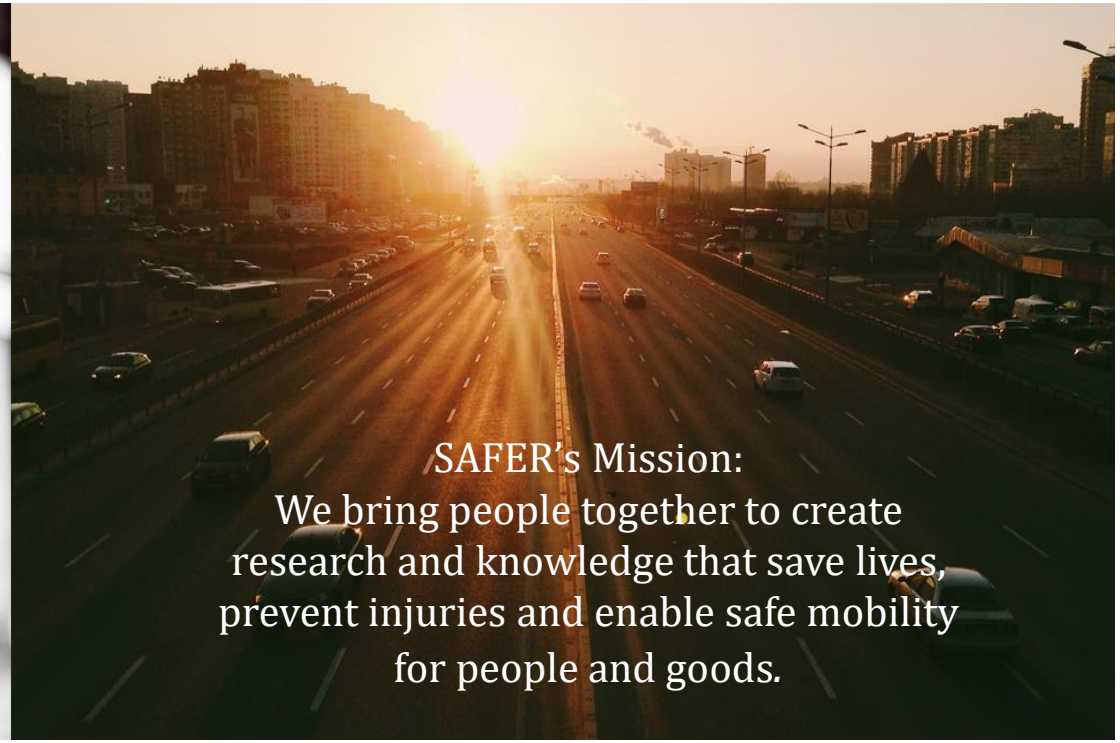
FUNDED PRE-STUDIES

Third call– *projects approved in September 2020*

Multimodal data for Road user behaviour analysis to support Safe driving patterns (University of Skövde, Smart Eye)
Project leader: Yacine Atif, University of Skövde

Task force hygiene procedures in test with research persons (VTI, AB Volvo, Autoliv, Veoneer, RISE, Scania)
Project leader: Arne Nåbo, VTI

VISION AND MISSION



RESEARCH TARGETS

IN FIVE YEARS, 2024, THE ACHIEVEMENTS WILL BE:

- We can evaluate different ways to act in the traffic situation and decide upon how to progress safe and efficiently.
- We have developed a methodology to verify and validate assisted and automated systems in cooperation with international researchers in this area.
- We have developed prediction models for human cognition and behaviour in the areas of "driver engagement", transitions between manual and automatic driving, and interaction between human and ADAS features.
- We have obtained knowledge essential for development of new perception components that enable high-performance, reliable information about the vehicle environment and the driver/riders in the vehicle.

SYSTEMS FOR ACCIDENT PREVENTION
AND AUTOMATED DRIVING

RESEARCH TARGETS

IN FIVE YEARS, 2024, THE ACHIEVEMENTS WILL BE:

- Study road user behaviour in their door to door travels.
- Monitor driver and passenger position, state and behaviour.
- Diagnose driver fitness based on monitoring data.
- Ensure safe interactions between automated vehicles and other road users, including vulnerable road users.
- Develop and evaluate novel interaction principles, including nudging.
- Define and measure user experience indicators related to safety.

ROAD USER BEHAVIOUR

RESEARCH TARGETS

IN FIVE YEARS, 2024, THE ACHIEVEMENTS WILL BE:

- An increased understanding on how **shared mobility** and increased variations of sitting postures and activities in passenger cars will influence occupant protection needs.
- Human body models with enhanced **omnidirectional injury prediction capability**, and posture adjustments, capable of serving as an industrial and research tool addressing the needs in the increased automated context.
- Methods to **scale and tune** human body models, accommodating simulation of a variety of humans in a crash, including preceding events.
- An increased understanding of how pre-crash factors and **individual differences** influence injury outcome, by monitoring and quantifying sitting postures and behaviour in vehicles and other road users together with the research area Road User Behaviour.
- **Biomechanical investigations** addressing future challenges which require more in-depth understanding of injury occurrence and tolerances. For car occupants, the **pelvis area** is one key area in which significant steps will be taken.
- Modelling **challenging materials**, e.g. fat tissues and composites.
- Expanding the application of tools and knowledge on road users beyond vehicle occupants, such as **pedestrian in different interactions**, two-wheelers, boards and “wheels on feet”.

HUMAN BODY PROTECTION

RESEARCH TARGETS

IN FIVE YEARS, 2024, THE ACHIEVEMENTS WILL BE:

- Identified safety gaps, e.g. long-term injury types.
- Identified critical use cases, e.g. driving a heavy truck in fog among vulnerable road users.
- Identified new critical load cases, e.g. multiple impact car crash.
- Evaluation of implemented safety systems performance, i.e. safety benefit analysis.
- Prediction of safety benefits of new safety systems.
- Prediction of future safety critical scenarios, automation included.
- Determination of required safety level for automated drive.

SAFETY PERFORMANCE EVALUATION