SAFER Annual Report 2024

Year 1 in SAFER Stage 6
January 1 – December 31 2024

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

SAFER Vehicle and Traffic Safety Centre at Chalmers is a collaborative platform to acquire and share knowledge to make a significant contribution to a safer road transport environment for all.

The knowledge generation platform is being realised through collaboration between universities, research institutes, industries, government authorities and other relevant actors. SAFER aims to contribute to the elimination of fatalities and serious injuries in the mobility system through multidisciplinary research, collaboration activities and knowledge exchange, and to make Swedish society, the academia and the industry into world leaders in safe transport. Chalmers University of Technology is our host and about 50 partners are participating in the collaboration.

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Preface

Welcome to SAFER's first annual report in Stage 6, a reflection on our journey in traffic safety research throughout 2024. This year has been one of transformation, collaboration, and renewed focus, marking the start of an exciting new phase for SAFER.

ONE OF THE MOST significant changes introduced in Stage 6 was the establishment of new working groups. Unlike the broader, more formal structures of previous stages, these groups were designed to be dynamic, focused, and inclusive. By narrowing the thematic scope and opening participation to anyone interested among our partners, we aimed to create communities of practice. The results speak for themselves.

From the outset, nine working groups were formed, some completely new and some based on existing forums, each making considerable progress in their respective domains. This collaborative effort has truly showcased the power of collective expertise. You can read more about their achievements on page 32.

At the heart of SAFER's mission lies our collected knowledge about the partner projects, which continues to be the cornerstone of our knowledge-building efforts. Collaborative projects serve as the primary means through which we work toward our shared vision of a safe road transport system for all. This year, we refined our approach to support project outcomes to be strategically disseminated to the SAFER community, but also help supporting knowledge-transfer to other actors in the eco-system. To support this, we introduced SAFER Research Days – focused mini-conferences designed to bring the network together around key themes. These events have proven to be a valuable platform for learning, exchange, and inspiration. On page 38, you can learn more about the insights during these gatherings.

Facilitation has always been a key component of SAFER's operational work, and in Stage 6, we took steps to make this process even more effective. By outlining a clear, structured approach and introducing an expanded set of facilitation tools, we created a framework that is both accessible and adaptable. Partners have engaged with unprecedented enthusiasm, submitting more than 50 research and knowledge buildning needs over the year. Detailed insights into our facilitation process and the outcome of the activities can be found on page 14.

» The foundation of SAFER's success is undoubtedly its network.

Building on the success of our previous pre-study program, we launched SAFER Idea Exploration Program in 2024. This initiative broadens the scope of our exploratory work, encouraging innovative thinking and the testing of new concepts. It has been met with interest and enthusiasm from our partners, with a total of seven projects successfully started this year.

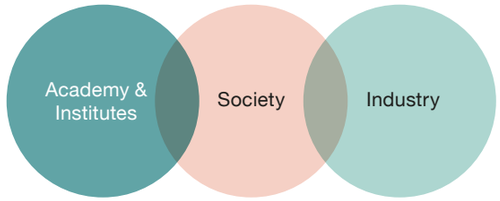
The foundation of SAFER's success is undoubtedly its network, i.e. the people. Our partners bring diverse perspectives, deep expertise, and a shared commitment to advancing road safety. The value of this network cannot be overstated – it is the driving force behind every achievement detailed in this report. From cross-sector collaborations to highly relevant research, the collective contributions of our community have made 2024 a milestone year.

As we look to the future, we remain mindful of the challenges ahead. The path toward a safer road transport system is complex, requiring continuous innovation, partnership, and persistence. Yet, with the momentum built during this first year of Stage 6, we are confident in our ability to meet these challenges head-on.

To everyone who has contributed to SAFER's journey this year, we extend our heartfelt gratitude. Your dedication, creativity, and collaborative spirit have been instrumental in shaping our progress. Together, we are not just envisioning a safer future; we are building it.

With appreciation and optimism,
SAFER's Operational team

Global traffic safety crisis: A call for collaborative action



Why SAFER matters

Every year, 1.19 million lives are lost in traffic accidents, making road injuries the leading cause of death for those aged 5–29. Nine out of ten fatalities occur in low- and middle-income countries, highlighting global inequities and the urgent need for action. With vulnerable road users on the rise and costs escalating, SAFER plays a vital role in driving collaborative research and solutions. Europe's goal of zero road fatalities by 2050 underscores the need for intensified efforts and partnerships to save lives.

SAFER's role in advancing traffic safety research

SAFER Vehicle and Traffic Safety Centre at Chalmers is Sweden's leading hub for collaborative traffic safety research, uniting partners from society, academia, and industry to achieve Vision Zero. By sparking innovative ideas and enabling funded projects, SAFER tackles today's complex road safety challenges far beyond the capacity of any single actor. The platform nurtures knowledge exchange and drives progress across national and European initiatives, delivering insights that enhance safety globally.

SAFER is not just a research collaboration; it's a networking arena and a thought leader in safe mobility, where research results and shared knowledge empower our partners to develop safer products and support societal actors in shaping policies, legislation, and infrastructure for smarter, sustainable transport systems.

Partners driving traffic safety together

Achieving safe and sustainable mobility requires collective expertise and a shared vision. SAFER's unique platform enables partners to exchange knowledge and deliver real-world results. In Stage 6, 43 partners joined forces, with 3 more welcomed during this year; each contributing to our shared mission.

SAFER Partners – Together for safe mobility

Academy & Institutes

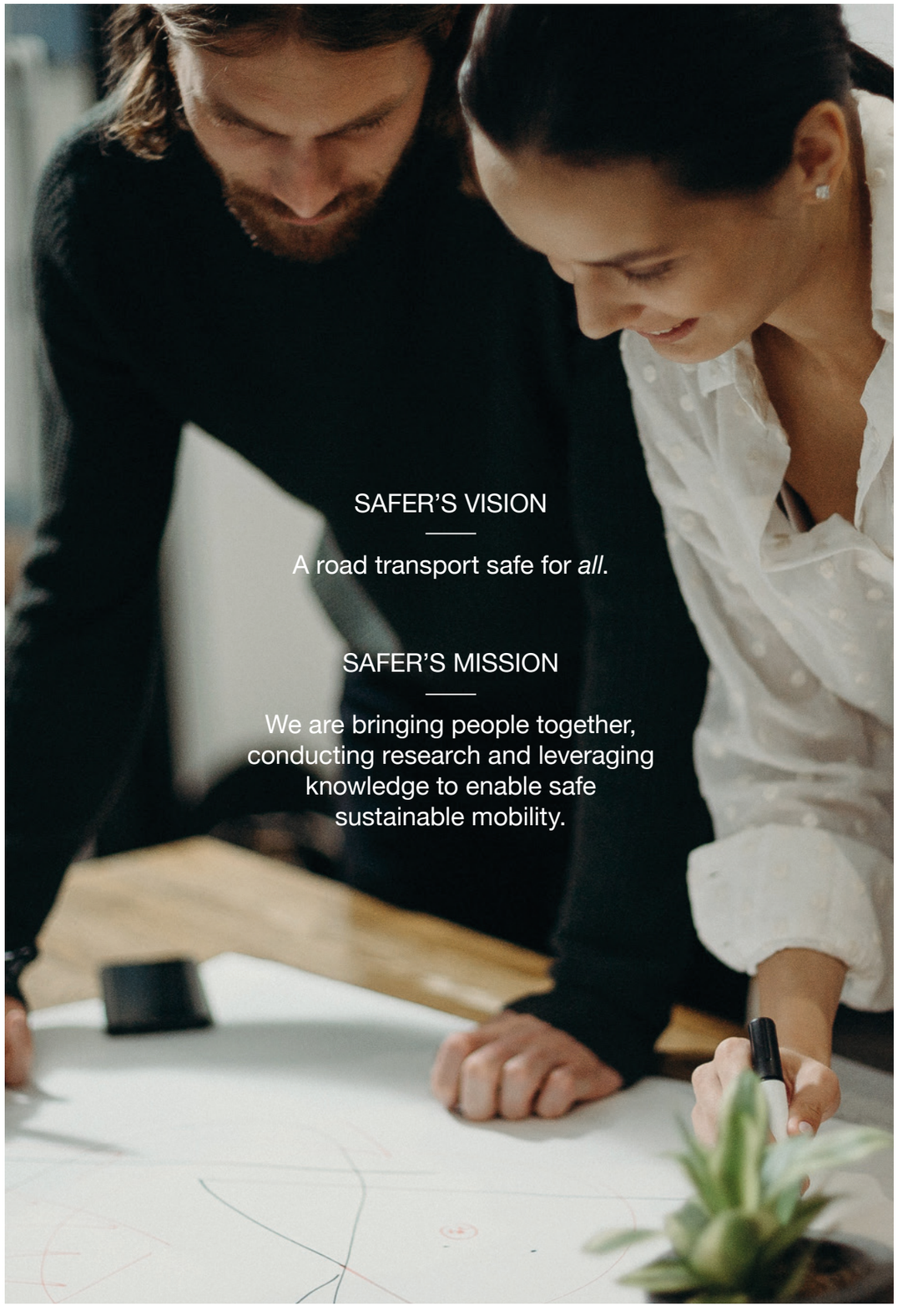
Chalmers University of Technology
Chalmers Industriteknik
Halmstad University
Jönköping University
Linköping University
Lund University
Research Institutes of Sweden (RISE)
Swedish National Road and Transport Research Institute (VTI)
University of Gothenburg
University of Skövde

Society

City of Gothenburg
NTF Väst
Swedish Transport Administration
Swedish Transport Agency

Industry

Aptiv
Axkid
ASTUS
Asymptotic
Autoliv
BETA CAE
Boid
CAE Value
Cognitian
Combitech
Consenz
Cycleurope
DuWill
Dynami Research
Folksam
Guidance to Zero
If Insurance
Magna Electronics Sweden
Malmeken
Pionate
Qualcomm
Qualisafe
Scania
Smart Eye
Strandroth Consulting
Svanberg & Svanberg
Univrses
Viscando
Volvo Car Corporation
Volvo Group
Zenseact
Zeekr



SAFER's Value Proposition

SAFER Asset	Value/Benefit
Unique network	The SAFER network gathers all relevant stakeholders who interact through the diverse set of networking activities. Our community consists of a diverse mix of researchers and experts from industry, academia, research institutions, and government bodies. As a partner, you enjoy opportunities to: • **Establish relationships** with people across partner organisations. • **Share insights and expertise** with peers and visiting external experts. • **Collaboratively initiate and lead research** projects, inspire innovative solutions based on identified needs and concepts. • **Identify suitable collaborators** for ground-breaking projects. • **Gain access** to important national and international programs and platforms, e.g. Drive Sweden and ERTRAC. • **Access experienced peers:** who can help shape your research towards its most valuable impact, guide formative ideas or help build your network for the next project proposal.
Joint resources	SAFER is a node for accumulated knowledge about road safety and has physical resources that the parties can use. Via SAFER, you as a partner get access to: • **Proactive facilitation:** a dedicated centre management team committed to initiating collaborative projects and sharing knowledge. • **Expansive knowledge repository:** A continually growing wealth of research findings and publications, databases, models, methods, and demonstrators for seamless integration into your organisation. • **Dynamic working groups:** Agile working groups treating different aspects of traffic safety from research to deployment perspectives, which cannot be addressed by partners on their own. • **Collaboration facilities:** Premises with co-creation areas and office workplaces and suitable AV equipment and collaboration tools, supporting centre collaboration and knowledge exchange. • **Research resources:** Associated research assets that facilitate and support the implementation of research projects, e.g. AstaZero, SAFER HBM, Revere and relevant datasets. • **Dissemination channels:** Well-established channels and tools that facilitate the dissemination of research outputs to the community.
Strategic influence	SAFER's renowned brand and its role as a communication platform provide parties with a unified, highly credible communication channel. As a partner, you can utilize SAFER to connect and engage with: • **Targeted audiences:** effectively reaching specific target groups. • **Communicate with research funders** to shape forthcoming research programs. • **Decision makers** in politics and authorities, both nationally and internationally, to influence road safety agendas, policies, and legislation.
Funding opportunities	As a partner in SAFER, you can get funding through our internal calls. These funds can finance exploratory pre-studies, investigating research questions before seeking external financing, as well as other idea exploration activities. The financial contribution to SAFER is multiplied in the project portfolio. Additionally, SAFER offers guidance and assistance in national and international project funding opportunities.

Our collaborative research agenda and work plan

The challenges we want to address

Globally, 1.19 million people lose their lives in road accidents each year, with countless more injured. This stark reality highlights significant inequities and knowledge gaps, compounded by rapid changes in mobility. In many regions, including Sweden, keeping road safety on the political agenda is a challenge amid competing priorities. Addressing these multifaceted issues remains at the heart of SAFER's mission.

Together, we want to create new knowledge and research findings that enable a safe, user focused, sustainable, trustworthy, and inclusive transport system accessible to all. Vision Zero is our guiding star and we want to make significant contributions to this bold vision; to the saving of lives and reduction of risk factors and injuries in traffic. The research and knowledge we provide is intended to be used as a scientific base for products, services, public information, policies and legislation that enable safe road transport from a door-to-door perspective.

1.19 million people killed and many more injured

A rapidly changing road mobility landscape

Keep road safety on the political agenda

Risky behaviour and gaps in traffic safety knowledge

Large differences globally and lack of equity

The Impact Areas – content and strategic focus

We have outlined three main headings where the clear benefit from the SAFER collaboration will be obvious, based both on the current strengths as well as projected future needs. We use these to put different activities into a context, e.g. clustering projects, working groups and dissemination activities:

Human Body and Mind

This impact area focuses on understanding human tolerance to mechanical loading and behavior in traffic, ensuring safety across all modes of transport. Research includes modeling human behavior, injury mechanisms, in-crash protection, and driver monitoring, addressing challenges such as individual differences, varying transport modes, and increasing automation. SAFER partners contribute with advanced tools, interdisciplinary expertise and collaborative projects to enhance protection and reduce injuries for all road users.

Safety Performance Evaluation

This impact area focuses on advancing vehicle and traffic safety through innovative analysis and real-world data. SAFER partners develop scalable, transparent models and methods to evaluate safety systems, fostering trust in emerging technologies. By addressing challenges like data quality, trend prediction, and system-level analysis, SAFER plays a key role in shaping safer mobility solutions for the future.

Safety Principles

This impact area targets reducing road fatalities and injuries by addressing safety at both the component and system levels, focusing on vehicles, infrastructure, and their interactions. SAFER partners advances research on Advanced Driver Assistance Systems (ADAS), Automated Vehicles (AVs), and sensor technology while integrating manually driven and automated vehicles into a cohesive mobility system. By tackling these challenges, SAFER drives progress toward Vision Zero and a safer, more efficient future for all road users.

SAFER is located at Lindholmen Science Park in Gothenburg.

Flourishing in a vital ecosystem for traffic safety innovation

SAFER is deeply embedded in a multidisciplinary ecosystem that plays a fundamental role in advancing traffic safety and sustainable mobility. This ecosystem, encompassing industry, academia, institutes, and the public sector, promotes collaboration and innovation on both a national and global scale.

Located at Lindholmen Science Park in Gothenburg, a dynamic hub for automotive and mobility research, SAFER provides partners with access to 290 sqm of collaboration spaces. These include venues for co-creation, meeting rooms, workstations, and secure facilities for analysing sensitive naturalistic driving data, all designed to drive and facilitate interdisciplinary collaboration.

Internationally, SAFER connects with global research communities, actively contributing to initiatives that shape the political traffic safety agenda and promote sustainable mobility solutions worldwide. This ecosystem is fundamental to SAFER's mission, and in Stage 6, we aim to maximise its potential to further amplify the impact of our partners' efforts when we see joint interests. Discover more about our ecosystem and collaborations on our website.

Main Achivements 2024

SAFER continues to make a significant difference in road safety research, knowledge creation and collaboration activities. Here are some key highlights from an extraordinary year:

1. **Launching Stage 6 with success:** Enhanced facilitation, improved support, and a sharper focus on collaboration have defined the start of SAFER's sixth phase.

2. **Working Groups driving results:** SAFER's new working group structure is a true success, with nearly all groups delivering on their plans - an inspiring testament to partner engagement.

3. **A growing network:** Over 700 members now form the SAFER community, with increased engagement across partner organisations, unlocking new opportunities for collaborations and knowledge exchange.

4. **Expanding influence in the US:** SAFER hosted the 9th International Conference on Driver Distraction and Inattention in the US for the first time, strengthening global networks and influencing a key market.

5. **Leading at TRA:** Moderating a pivotal session at Transport Research Area (TRA) in Dublin showcased SAFER's ability to connect science and policy on the European stage.

6. **New national traffic conference:** Following a pre study conducted during 2024, SAFER proudly takes on the prestigious role of hosting Sweden's new national traffic safety conference, Sveriges Trafiksäkerhetsdagar 2025, succeeding historic events like Tylösandsseminariet.

7. **Advancing research in critical areas:** Major steps in organisational safety, traffic safety as a workplace issue, and equality. Significant progress in driver behavior models and autonomous vehicle safety has led to key publications, standards contributions, and future-ready solutions.

Key facts

	2024
Total number of ongoing partner projects[1]	76
New partner projects	33
Finalised partner projects	30
Number of SAFER partners per project[2]	No.
Publication volume from partner projects	60
Number of active Working Groups	9
Visibility/references in conferences[3]	21
Number of co-creation events, seminars and other knowledge sharing activities[4]	71
Gender balance in SAFER Board and Research Council (women:men)	11/11
Number of partners	45
Partner Satisfaction Index[5]	4.96
Number of SAFER doctors graduated	2

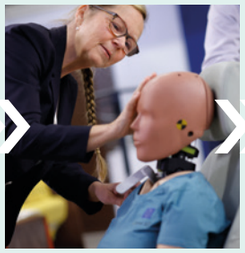
1. Read more about our project portfolio on page 18 and all the projects are listed in appendix 1 and 2.
2. See figure on page 19.
3. See complete list in appendix 4.
4. See complete list of activities in appendix 3.
5. A survey was performed among the partners to answer the question "The overall benefit of the partnership?". The scale was 1–6, 6 was very good.

Collaboration Process and Toolbox

SAFER's key building blocks

Gathers needs, forms constellations, and facilitates co-creation

- Catalyse research,
- projects and knowledge building



Host and nurture a project portfolio of high scientific quality

- Working Groups
- Knowledge
- Data
- Models and methods
- Demonstrators

Provides dissemination, science outreach and utilization

- Influence
- Convey
- Spread

The society with its actors and stakeholders

- Safe road users
- Safe vehicles
- Safe roads and traffic environment

The collaboration process

Contributing to our vision and the global road safety agenda to address the identified challenges, as well as being a well renowned national centre of excellence, we bring people together and base our strategy on three blocks in our facilitation process that direct and form the basis and foundation of our activities; Gathering needs, forming constellations and nurturing a project portfolio of high scientific quality as well as providing dissemination, science outreach and utilization.

The facilitation process and toolbox

SAFER offers a streamlined process for partners to present traffic safety challenges, request support and reach out to find collaboration partners. Through working groups, the operational team, and the Research Council, we address these needs using versatile facilitation tools, advancing innovation and enhancing road safety.

Our facilitation toolbox includes:

- Arranging knowledge-building seminars
- Roundtable dialogue to find state-of-the-art solutions
- Workshops for project creation
- Initiating new Working Groups
- Inviting external experts
- Gaining insights through meetings with experts within the platform
- Utilizing existing knowledge in SAFER's knowledge bank
- Support during the project application phase
- Leveraging the SAFER Idea Exploration program
- Organising study tours to partners or other sources of knowledge
- Addressing matters within different parts of the ecosystem
- Conducting demonstrations, e.g. utilizing a Connected Research Resource

» Within this network, SAFER partners collaborate to facilitate dialogues, promote, and support project generation, develop networks and partnerships as well as act as a catalyst for joint projects.

Gathering needs, forming constellations and facilitating co-creation

Gathering partners from industry, academia, research institutions, and governmental bodies, SAFER constitutes a unique set of partners and competences. Within this network, SAFER partners collaborate to facilitate dialogues, promote, and support project generation, develop networks and partnerships as well as act as a catalyst for joint projects. As such, SAFER can find, interact with, and influence funding partners as well as framework programs, roadmaps, and research agendas. This is based on the following activities:

- **Project facilitation and funding opportunities:** Initiating, co-creating, and facilitating multidisciplinary project creation from idea to execution, as well as seeking and promoting funding opportunities.
- **Networking and partnership development:** Cultivating and nurturing the network and partnership. Identifying key stakeholders for dialogues, knowledge exchange, and project generation.
- **International influence and advocacy:** Influencing the international research agenda, funding opportunities, and policies. Accessing national and international programs and platforms. Advancing the global traffic safety agenda through research, innovation, and funding advocacy.
- **Collaboration facilities:** Co-creation areas and office workplaces and suitable AV equipment and collaboration tools, supporting centre collaboration and knowledge exchange.

Co-creation highlights from the year

This year, SAFER has truly embraced its role as a facilitator of traffic safety research! With our updated facilitation process and versatile toolbox, we have handled nearly 50 different needs from our partners, organised numerous project-creation activities, connected key stakeholders, and influenced research programs. These efforts have driven collaboration and strengthened our mission to improve road safety for all. See some of the year's highlights – find the full list on page 49:

Synergies between traffic safety and occupational health: In January, during Transportforum in Linköping, SAFER hosted a workshop exploring the connections between traffic safety and workplace safety. With a large group of participants, including those outside the SAFER community, the session highlighted how established workplace safety processes can integrate traffic safety aspects to enhance both areas. The workshop raised awareness, inspired systematic approaches, and encouraged participants to leverage these synergies in their own organisations.

STRADA improvements: SAFER researchers provided vital input on enhancing Sweden's traffic accident database, STRADA. These recommendations are shared with the Swedish Transport Agency, and some will be implemented to improve the quality and usability of this critical resource.

Data for traffic safety research: A spring SAFER Research day focused on data ethics, accessibility, and bias generated nearly 30 ideas for multidisciplinary research. These were refined during an August workshop into concrete project proposals, many of which are now advancing in the SAFER pipeline.

Safety in shared mobility applications. This topic was addressed twice during the autumn, primarily at the research day in September where a panel of experts and practitioners gave examples of challenges and potential solutions, focusing primarily on child safety. The topic was also brought to EARPA's Autumn meeting in Brussels (European Automotive Research Partner Association), establishing connections to relevant actors on the European arena.

Long-term Impairment data workshop: In September, SAFER brought together experts to address long-term impacts of traffic injuries. The workshop identified data gaps, research needs, and collaborative opportunities, positioning this area as a priority for SAFER going forward.

Equity in occupant protection: In October, a workshop focused on gender equity in crash safety. Partners discussed ongoing challenges, contributed to international UN initiatives, and developed a funded pre-study project to advance this critical area.

Horizon Europe funding preparations: November's Horizon Europe workshop prepared partners for upcoming funding opportunities, identifying three promising calls and forming strong consortia for competitive applications in 2025.

Driver Monitoring Systems for impairment detection: Held in December, this workshop gathered about 50 participants to address the issue of alcohol and drug-impaired driving. The event generated numerous ideas and project proposals, building momentum for SAFER's 2025 initiatives.

Hosting and nurturing a project portfolio of high scientific quality

SAFER gathers multidisciplinary scientific competence, and offers guidance and support to projects. The SAFER research platform pushes the boundaries and facilitates the collaborative research, serving as a hub for research excellence:

- **Expansive knowledge repository:** Access to a continually growing wealth of research findings, publications, databases, models, methods, and demonstrators for a seamless integration into your organisation. Everyone is welcome to explore our extensive knowledge base, the SAFER's publication library, for research findings in vehicle and traffic safety since 2006.
- **Efficient project portfolio management:** The partner project portfolio is one of the foundation of SAFER's collaboration, addressing strategic research issues. It is curated and expanded through joint efforts among the SAFER partners and supported when needed by the operational team. You can read more about the project portfolio on our website and in Appendix 1 and 2.
- **Connected Research Resources:** Utilize associated research assets like AstaZero, the SAFER Human Body Model, Revere, Driving simulators, Stora Holm and relevant datasets to support research project execution and implementation.

SAFER's working groups – the main forum for inspiration and idea incubation

Introduced as part of the new structure in Stage 6, SAFER's working groups have replaced the previous Competence Networks and Reference Groups- and we couldn't be more pleased with the level of engagement! Nearly 200 members of our network signed up for one or more working groups at the start of this stage.

These working groups serve as the main forum for inspiration and the cultivation of novel ideas, which subsequently evolve into projects or other activities. Within the groups, partners actively engage in focused discussions centered around specific research or demonstration/innovation themes. The groups operate with a strong sense of autonomy, launching activities based on their identified needs while maintaining close collaboration with the Research Council. Leaders from each group participate regularly in council meetings to report progress, seek feedback, share best practices, and address cross-thematic issues.

Clear and well-defined outcomes are essential for each group and should be established at the outset. These can range from identifying research questions, developing large project proposals, and exploring specific areas in-depth, to producing contributions like conference papers, white papers, or building knowledge in emerging fields.

Working groups align closely with SAFER's Research Days, which provide opportunities for collective learning, networking, and knowledge-sharing through guest speakers and engaging activities.

The groups are entirely based on partner needs, and we are always open to launching new groups as interests and priorities evolve. For example, two new groups, *Remote Operations* and *Connected Safety*, will start in the beginning of 2025.

AstaZero, a connected research resource to SAFER, is among the world's most advanced full-scale test environments for and connected and automated vehicles.

» The working groups serve as the main forum for inspiration and the cultivation of novel ideas, which subsequently evolve into projects or other activities.

Our working groups at the end of 2024

- Alternative fuel powertrain safety
- Long-term impairments from injuries in traffic environment
- Post crash (in collaboration with PICTA)
- Road accident statistics
- Road user behaviour
- Safe infrastructure
- Safety of automated driving systems
- Safety of complex systems and emerging technologies
- To identify and improve your companies work within traffic safety

SAFER's Partner Project Portfolio: Catalysing collaboration and enhancing impact

SAFER'S PARTNER PROJECT PORTFOLIO is at the heart of our mission to advance traffic safety through collaborative research and knowledge building. By integrating projects into this portfolio, we create a platform that brings together diverse expertise, addresses critical knowledge gaps, and positions partners' initiatives within a broader, system-level context. This connected approach not only enhances the value of each project, but also strengthens the collective impact of our efforts towards safer roads and sustainable mobility.

The portfolio offers more than a source of research; it is a strong tool for promoting collaboration, spreading knowledge, and identifying critical knowledge gaps, that can be further addressed through the platform. Benefitting from this, projects gain access to a vast network of partners and experts, facilitating complementary studies, joint workshops, and real-world applications of findings. By uncovering these gaps, the SAFER platform enables partners to address them collectively, paving the way for new research initiatives and targeted innovations.

At the same time, SAFER provides support for dissemination, ensuring that research outcomes reach partners and other key stakeholders. From visibility on our website and social media to dedicated news articles, seminars, and newsletters, SAFER amplifies the reach of every connected project. This combination of collaboration, knowledge-sharing, and targeted gap identification makes SAFER an invaluable platform for advancing road safety.

In this way, SAFER does not just connect projects – it connects people, ideas, and innovations, building a community dedicated to transforming traffic safety research into meaningful, actionable results.

Partner project funding

Project funding comes from a diverse range of sources. Key contributors include national programs such as the FFI program (Strategic Vehicle Research and Innovation) funded by Vinnova, Trafikverket, and Energimyndigheten, as well as strategic innovation programs such as Drive Sweden. On the European level, the Horizon Europe program, which started in 2021, is a significant funding source.

» The leverage gained through partnerships, especially in accessing European expertise and funding, strengthens SAFER partners' ability to deliver cutting-edge research.

In addition to external funding, internal contributions from SAFER's partners, whether academic, industrial, or research institutes play a crucial role in driving projects forward.

This collaborative funding approach demonstrates clear benefits for partners, offering a high success rate in competitive funding programs and maximizing the impact of collaboration projects. The leverage gained through partnerships, especially in accessing European expertise and funding, strengthens SAFER's ability to deliver cutting-edge research.

By consolidating world-class research under one platform, SAFER enhances its attractiveness for future funding and partnerships while delivering valuable, actionable insights for decision-makers and society.

Total number of partner projects

Our knowledge repository spans research findings, publications, databases, methods, and models developed since 2006. With 46 ongoing partner projects, 33 newly added, and 30 completed this year, SAFER enters its 20th year as a hub for multidisciplinary research excellence, providing guidance, support, and a quality stamp to associated projects.

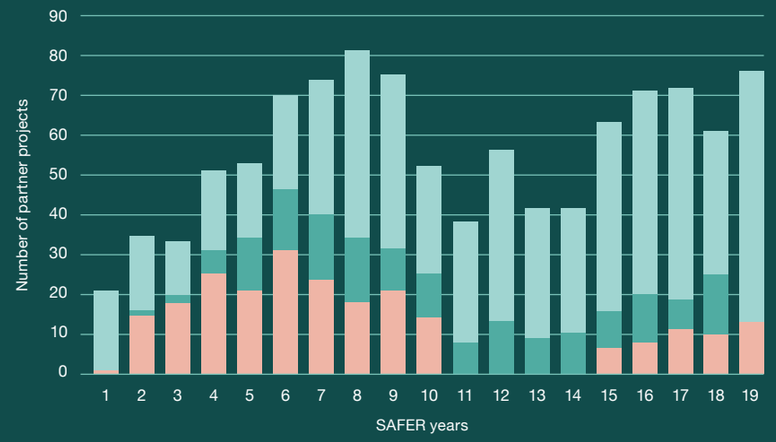


Figure 1
Number of partner projects in SAFER's project portfolio.

Figure 2
The number of partners in projects during stage 6.

Research Impact 2024

THE YEAR 2024 has been a significant progress for SAFER partners, with research delivering tangible results across critical areas of traffic safety. From enhancing data accessibility and addressing gender equity in crash testing to advancing human factors and driver behavior models, SAFER's connected projects showcase the power of collaboration.

These efforts have strengthened Sweden's role as a global leader in road safety research, providing actionable solutions and valuable insights to tackle key challenges. SAFER continues to drive progress in creating safer roads and advancing the future of mobility through impactful research and knowledge sharing; see some highlights below.

Databases and accessibility

Significant progress has been made in providing an overview of existing databases with accident statistics, their possibilities and limitations in the project *Mapping of accident databases worldwide*. This work has given partners valuable insight into available data and how it can be utilized effectively. Additionally, we identified areas where further data collection is needed. One of the achievements connected to this is the expansion of the SAFER Data Cataloge, which now includes many more datasets, enhancing the ability to support future cutting-edge research. A major milestone this year was our extensive collaboration with the Swedish Transport Agency to gather input for the development of the national STRADA database. Through workshops and consultations, SAFER provided valuable insights on how STRADA can be improved to better serve future traffic safety research, ensuring high-quality data and usability for diverse stakeholders.

Gender equity in crash safety

Remarkable advancements have been achieved in developing the *SAFER Human Body Model* (HBM), a state-of-the-art simulation tool that incorporates a gender perspective to enhance product safety, design injury prevention strategies, and deepen understanding of injury mechanisms. This powerful tool has been instrumental in advancing research and enabling the development of safer and more inclusive vehicles and road systems.

In 2024, SAFER also hosted a dedicated workshop on gender equity in crash testing, highlighting critical gaps in data and design. The event, conducted in collaboration with the Swedish Transport Agency and Autoliv, focused on ensuring that crash test dummies and simulations better represent diverse populations, including differences in gender, size, and anatomy. This approach aims to create more inclusive safety standards and reduce the risk of injuries for all road users.

The integration of gender equity is a prominent focus across several SAFER projects. For example, the *ViDCoM* project explores how physiological and behavioral differences, including gender-related factors, influence driver monitoring systems, contributing to more inclusive and effective safety solutions. Similarly, the *Collision Matrix for Heavy Goods Vehicles* investigates how crash safety measures account for diverse occupants.

Advancing remote operations for automated vehicles

The field of remote operations has made remarkable progress this year, building on a SAFER pre-study initiated in 2020; *Human factors for remote control*. This groundwork has evolved into impactful FFI projects such as *HAVOC*, *REDO 1* and *2*, and *RemoSafe*, creating a strong Swedish cluster now gaining traction in CCAM funding calls. Remote teleoperations are emerging as a critical enabler for future mobility, ensuring the safe and efficient transport of goods and people, especially in complex or unforeseen scenarios.

Technical advancements are pushing the boundaries of automated transport systems, but fully autonomous driving remains more challenging than anticipated. Humans, supported by remote teleoperations, are still essential for monitoring and controlling vehicles when necessary. This approach ensures functionality and safety in scenarios where automation alone falls short.

To tackle these challenges and harness emerging opportunities, SAFER is establishing a dedicated Working Group on Remote Operations, set to launch in January 2025. This initiative aims to drive collaboration and innovation in the field, ensuring remote operations are developed and implemented with a strong focus on safety and reliability. The team will bring together Swedish companies, academia, and research institutes to strengthen collaboration and position Sweden as a leader in this field. Activities will include seminars, sharing research findings, and developing new project proposals. The group will also address key issues like those outlined in The Federal Highway Research Institute (BASt) recent report of over 80 critical research questions and the EU's 2025 CCAM calls. By uniting stakeholders, this initiative seeks to keep Sweden competitive on the international stage and establish remote operations as a cornerstone for safer and more efficient future mobility solutions.

16%

Research revealed that approximately 16% of pregnant women incorrectly use seatbelts, often influenced by so called comfort products.

Belt use by pregnant women

Ensuring traffic safety for pregnant women is a critical and often overlooked area where a collaborative platform like SAFER can make a significant difference in building and disseminating knowledge. A recent partner project addressed the improper use of seatbelts by pregnant women and the impact of unregulated comfort products on crash safety. Research revealed that approximately 16% of pregnant women incorrectly use seatbelts, often influenced by these comfort products.

> Research underscores the urgent need for clear guidelines and potential regulation of comfort products to protect pregnant women and their unborn children.

The study, *Pregnant Women's Seatbelt Use: Impact of Comfort Products in Collisions*, found that most such products reduce seatbelt performance, with only one meeting safety standards. The project developed virtual models of pregnant women and comfort products to better understand safety dynamics, providing evidence-based recommendations.

This research underscores the urgent need for clear guidelines and potential regulation of comfort products to protect pregnant women and their unborn children. By leveraging SAFER's neutral platform, this knowledge can be further developed and shared with key stakeholders, advancing road safety for this vulnerable group.

Safer shared mobility

During SAFER's Research Day in September 2024, critical safety gaps in shared mobility services were highlighted, such as low seatbelt use and risks to child safety. Proposed solutions included updating driver behavior models and integrating child-friendly safety standards in carpooling services to address these challenges. The *Car Passenger Protection – To the Next Level* project strongly complements this focus. It advanced passenger safety by developing new knowledge and tools for real-world seatbelt interactions, addressing challenges from diverse populations, car automation, and shared mobility. The project used crash data and virtual human body models, focusing on passengers aged 4 and older. Two doctoral students contributed by developing human models and assessing seating comfort and postures. This research strengthens the SAFER HBM platform and enhances Sweden's leadership in road safety by linking human factors with injury protection in crashes.

Alcohol and drug detection

This rapidly evolving area, driven by requirements from rating agencies and legislation, saw significant advancements in 2024. A key milestone was the final event of the *PANACEA* project in September. *PANACEA* developed a holistic system for assessing driving ability in commercial drivers, covering pre-driving, during-driving, and roadside evaluations. It featured touchless health monitoring solutions capable of detecting alcohol, drugs, fatigue, stress, and cognitive load, paired with cloud-based countermeasures and coaching for drivers deemed unfit.

In December 2024, SAFER hosted a workshop on Driver Monitoring Systems targeting alcohol and drug use. Experts from traffic safety, medicine, and technology addressed impaired driving, explored detection technologies and identified gaps for future research.

Driver behavior models

Driver behavior modeling remained a central theme at SAFER in 2024, highlighted during one of this autumn's Research Days. Key projects such as *QUADRIS* and *V4SAFETY* are advancing our understanding of driver behavior in complex traffic scenarios, paving the way for safer mobility solutions.

The *QUADRIS* project (2021–2025) builds on the successes of *QUADRA* and *QUADRAE,* focusing on enhancing safety assessment methods for ADAS and automated driving systems. Its work includes developing representative simulated collisions, validated driver models for run-off-road accidents, and reference-driver models for self-driving cars. These advancements aim to improve safety benefit assessments, strengthening Sweden's automotive competitiveness as automation becomes a key factor in brand success.

Meanwhile, *V4SAFETY* is creating a reliable framework for evaluating safety measures within CCAM. By integrating driver models into virtual safety assessments, the project analyses how human behavior and safety technologies affect traffic safety. This approach supports data-driven decision-making for developers, policymakers, and consumers, helping move closer to Vision Zero by saving lives through simulation-based safety assessments.

Enhancing safety through human factors research

2024 marked significant progress in SAFER's efforts to advance automotive safety through human factors research, focusing on driver interaction, safety, and the integration of automation. Notable results from key projects have provided a deeper understanding of driver behavior, safety culture, and innovative HMI designs.

The *SCREENS II* project delivered actionable insights into how digitalisation impacts traffic safety. By exploring technologies like Augmented Reality Head-Up Displays and eye-tracking, it developed methodologies for evaluating new driver environments and provided design recommendations to improve safety, comfort, and health in multimodal contexts.

The *RE-ENGAGE* project concluded with breakthroughs in understanding driver re-engagement during transitions between automated and manual driving. Using machine learning and UX design, it explored safe strategies for regaining control and tailored interaction patterns based on driver activities, such as reading or napping.

Additionally, the *Safety Culture & Automated Vehicles* project developed methods to address risks associated with automation and introduced a process model to integrate safety culture into organisational practices. Case studies on buses and forklifts emphasised the importance of fostering safety culture during automation's implementation.

From responsibility to action: How organisations can drive traffic safety

IN THE WAKE OF the 2020 UN Conference on Road Safety in Stockholm the shift towards organisational responsibility for traffic safety has opened new avenues for impactful change. SAFER has taken a leading role in transforming this vision into actionable solutions, focusing on how organisations can embed traffic safety into their sustainability frameworks. Through a range of projects, SAFER partners have tackled the issue from multiple dimensions, enabling organisations to measure, monitor, and improve their traffic safety footprint.

Our *Traffic Safety Footprint Think Tank* brought together key partners – Autoliv, VTI, Volvo Group, the Swedish Transport Administration, and Folksam – to explore and define strategies for organisations to take the lead in traffic safety by using the concept of Traffic Safety Footprint. This initiative laid the groundwork for identifying research priorities and practical activities to accelerate progress. In the *Traffic Safety Footprint I* and *II* projects, SAFER partners developed indicators to help organisations assess their impact on traffic safety.

New tools for traffic safety

Building on this foundation, SAFER concluded the *Development of Tools for Traffic Safety Improvement* project in 2024. This initiative addressed the growing demand for integrating traffic safety into sustainability efforts across sectors. The result? A flexible, modular tool that helps organisations to:

- Identify key traffic safety impact areas.
- Set goals and monitor progress using tailored indicators.
- Prioritise actions and align efforts with sustainability reporting requirements.

Developed through collaboration with Chalmers University, Lund University, DuWill and Sweco, the tool empowers organisations to transform their traffic safety ambitions into tangible outcomes. It serves as a comprehensive guide for integrating traffic safety into procurement, employee engagement, and community relations. The tool and final project report are now available for download, offering a practical pathway for organisations to demonstrate leadership in road safety.

> The message is clear: organisational responsibility is important to create safer roads.

The road ahead

As SAFER continues its work through dedicated working groups and ongoing projects, the message is clear: organisational responsibility is important to create safer roads. To learn more about our efforts, see page 35 of this report.

AfroSAFE: Building Expertise for Safer Roads in Africa

ONE OF THE STANDOUT lessons from the Global Ministerial Conference on Road Safety 2020 was clear: the global traffic safety community needs to do more to transfer knowledge effectively to the countries that need it the most. At SAFER, we have embraced this challenge and during 2024, much of our focus has been on Africa and India. One of our flagship projects, *AfroSAFE,* is proving that when collaboration meets creativity, real change happens.

Why Africa?

The statistics speak for themselves: Africa accounts for just 4% of the global vehicle fleet yet suffers over 10% of the world's traffic fatalities. That's more than four times the European average. The AfroSAFE project, launched in 2022, tackles this issue head-on by adopting the Safe System approach, which prioritizes:

- Safe speeds: Roads designed to forgive human mistakes.
- Human-centered design: Acknowledging errors and creating safer systems.
- Shared responsibility: Encouraging road designers to step up and deliver safer environments.

AfroSAFE focuses on vulnerable road users, particularly pedestrians and cyclists, and aims to create lasting improvements in public health, sustainability, gender equality, and livable cities.

From vision to action

The project isn't just about implementing quick fixes – it is about building local expertise to ensure sustainable change. AfroSAFE uses a "train-the-trainer" approach, empowering local practitioners and decision-makers to adapt global road safety knowledge to African conditions. This model ensures that road safety improvements aren't just imported – they are owned by the communities they are designed to serve.

Thanks to funding from Horizon Europe and support from partners like Lund University, VTI, Volvo Group, Autoliv, and Chalmers Industriteknik, AfroSAFE is laying the groundwork for long-term, transformative change. The project idea was sparked during a SAFER workshop back in 2021.

10%

The statistics speak for themselves: Africa accounts for just 4% of the global vehicle fleet yet suffers over 10% of the world's traffic fatalities. That's more than four times the European average.

Enter the AfroSAFE Academy

AfroSAFE Academy is the project's beating heart – a platform where researchers, practitioners, and educators come together to:

- Exchange knowledge and best practices through webinars and conferences.
- Develop educational materials tailored to African needs.
- Create a master-level curriculum for traffic safety education, targeting university lecturers in Africa.

By investing in local capacity building, AfroSAFE Academy is addressing one of the biggest roadblocks to progress: the lack of trained traffic safety experts in many low- and middle-income countries.

Why this matters

As highlighted by researchers like Godthelp et al. (2024), the problem is not just a lack of knowledge, it's a shortage of people equipped to apply it. Handbooks and demo projects are great, but they won't drive change without local champions who can adapt solutions to their context and advocate for them effectively. AfroSAFE is filling this gap, creating a new generation of road safety leaders who can turn evidence-based insights into real-world impact.

Want to learn more?

Check out our website to explore AfroSAFE and other initiatives, like the SITIS project in India, driving global traffic safety forward.

» One of the flagship projects, AfroSAFE, is proving that when collaboration meets creativity, real change happens. The project's beating heart is a platform where researchers, practitioners, and educators come together.

Pioneering the future of cycling safety

CYCLING IS VITAL for sustainable transport, but challenges like unsafe infrastructure and limited protection remain. SAFER's partners are creating innovative tools to improve cyclist safety, addressing issues like rural road safety and single bicycle crashes. These efforts enhance safety, comfort, and infrastructure design, supporting a more inclusive transportation system, see some examples of the research activities below.

Advancing cycling research: VTI's simulator "How We Roll"

Supported by the SAFER funding program, the *How We Roll* project has revolutionised cycling research with an innovative simulator offering a more realistic cycling experience. Launched in 2023, it uses a two-meter-wide free roller system with virtual reality or a large screen, prioritising simplicity and functionality. The simulator integrates speed and position data into the virtual environment, supported by a safety system for confident cycling. Adopted in research, it provides opportunities to study cyclist behavior under more realistic conditions, paving the way for advancements in safety, comfort, and infrastructure design.

Removing barriers for rural cyclists

Cycling on rural roads often involves challenges like narrow shoulders, high-speed traffic, and unsafe overtaking, discouraging many from choosing this sustainable option. A SAFER-connected project addressed these issues by identifying barriers and proposing solutions to improve safety and accessibility.

Using crash analysis, data collection, and innovative tools, researchers gained critical insights into cyclist-motorist interactions. A custom-built logger and a cycling simulator allowed for realistic assessments of comfort and safety during overtaking scenarios. Workshops and surveys further shaped practical recommendations to adapt rural road networks for cyclists. These efforts emphasised the importance of integrating cyclists' experiences into transport design, supporting sustainability, public health, and eco-friendly mobility.

Improving safety for single bicycle crashes

In 2024, the *Surrogate Measures of Safety for Single Bicycle Crashes (SMoS4SBC)* project, funded by Skyltfonden, started to address single bicycle crashes (SBCs), which account for over 80% of serious cyclist injuries in Sweden. Historically overlooked, these incidents are now being proactively studied using video-based analysis. The project is developing a cyclist tracking algorithm that combines computer vision and mathematical modeling, enabling more accurate assessments of infrastructure-related risks and improving cyclist stability and safety.

SAFER's partners also made significant progress in the *Advanced Tool for the Development and Evaluation of Protection Systems for Bicyclists* project, funded by the Swedish Transport Administration. This initiative focuses on shoulder impacts, the most common injury type among cyclists. By refining the SAFER Human Body Model, the project is creating tools to assess injury risks for individuals of different sizes, sexes, and ages. Anticipated outcomes include virtual assessment methods, improved protective gear designs, and realistic physical test methods, all contributing to enhanced cyclist safety and better infrastructure evaluation.

Flying solutions – how drones are saving lives and shaping future mobility

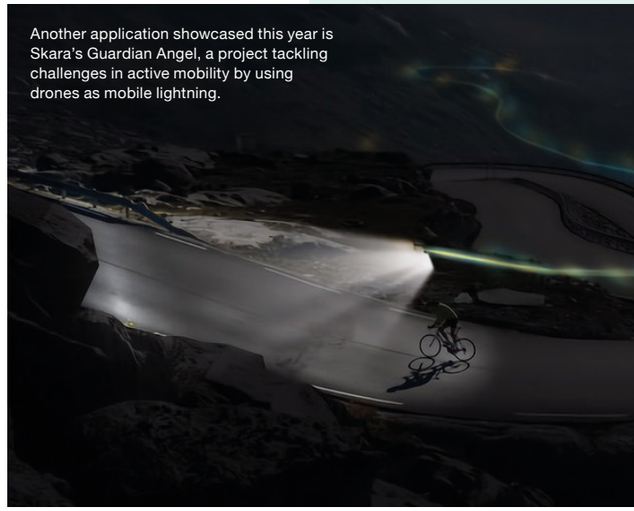
ONCE SEEN AS futuristic gadgets, drones have become tools in transportation research, revolutionising safety, mobility, and emergency response. By integrating cutting-edge technology into traffic systems, drones are reshaping how we address critical challenges, paving the way for safer and more efficient transportation networks.

One groundbreaking initiative is the *PreViS* project (Prehospital Video in Collaboration), developed in partnership with PICTA. This innovative effort explores the use of autonomous drones to livestream accident scenes, transforming emergency calls into real-time video feeds. By providing first responders with situational awareness, these drones enable more precise resource allocation and faster life-saving decisions. With another 1.5 years of research left, PreViS holds immense potential for spin-off projects and new applications in emergency care.

Drones are also proving transformative in delivering life-saving equipment. For example, rapid deployment of defibrillators to cardiac arrest patients can make the difference between life and death. Drones offer unparalleled speed and accessibility, particularly in remote or hard-to-reach locations, highlighting their critical role in the future of emergency healthcare.

Another application showcased this year is *Skara's Guardian Angel*, a project tackling challenges in active mobility. In many Swedish municipalities, darkness and inadequate lighting on cycling and walking paths block sustainable travel, even where infrastructure exists. Using drones as mobile lighting systems and companions, this initiative is testing innovative, cost-effective ways to improve safety and comfort for cyclists, encouraging active and eco-friendly travel habits.

An important area for potential collaboration and exploration is understanding the risks associated with drones flying over roads. This includes investigating how drone operations could distract drivers and impact traffic safety, as well as developing strategies or guidelines to mitigate these risks. Ensuring the seamless integration of drones into transport systems without compromising road safety represents a valuable opportunity for joint efforts and future innovation.



Another application showcased this year is Skara's Guardian Angel, a project tackling challenges in active mobility by using drones as mobile lightning.

Further demonstrating the potential of drones in healthcare, SAFER's Connected Research Resource, Revere, is developing a drone capable of transporting a person in need of emergency care. This project, represents a bold step toward integrating drones into critical care logistics, showcasing their versatility and importance in future transport systems.

SAFER has actively contributed to the drone ecosystem by providing input to mapping projects within Drive Sweden and CLOSER. A highlight of this work is the *Drönarkartläggning 2024* project, presented at the Air Mobility Day at Lindholmen Science Park in December. Future research may explore how drones can improve transport efficiency and address "last mile" challenges. By reducing barriers, enhancing safety, and optimising resources, drones are not just tools – they are transformative agents for building a safer, smarter, and more sustainable transportation future.

From virtual worlds to real impact: SAFER's partners in ADAS testing

THE QUEST TO implement advanced driver assistance systems (ADAS) and self-driving vehicles presents substantial challenges, requiring collaborative efforts and innovative approaches. Over the past half-decade, SAFER's partners have been at the forefront of addressing these challenges, and 2024 was no exception. By focusing on accident prevention and advancing automated driving technologies, they are driving critical developments in the testing, validation, and deployment of ADAS and autonomous driving (AD) systems.

Expanding the scope of testing

ADAS systems hold immense potential to save lives in the coming decade, but their safety depends on moving beyond traditional test cases. Projects like *VERDAS* and *ASSERTED* are creating robust testing frameworks that simulate real-world accident scenarios. These initiatives incorporate diverse pedestrian profiles and complex environmental conditions, ensuring ADAS systems perform reliably in varied contexts.

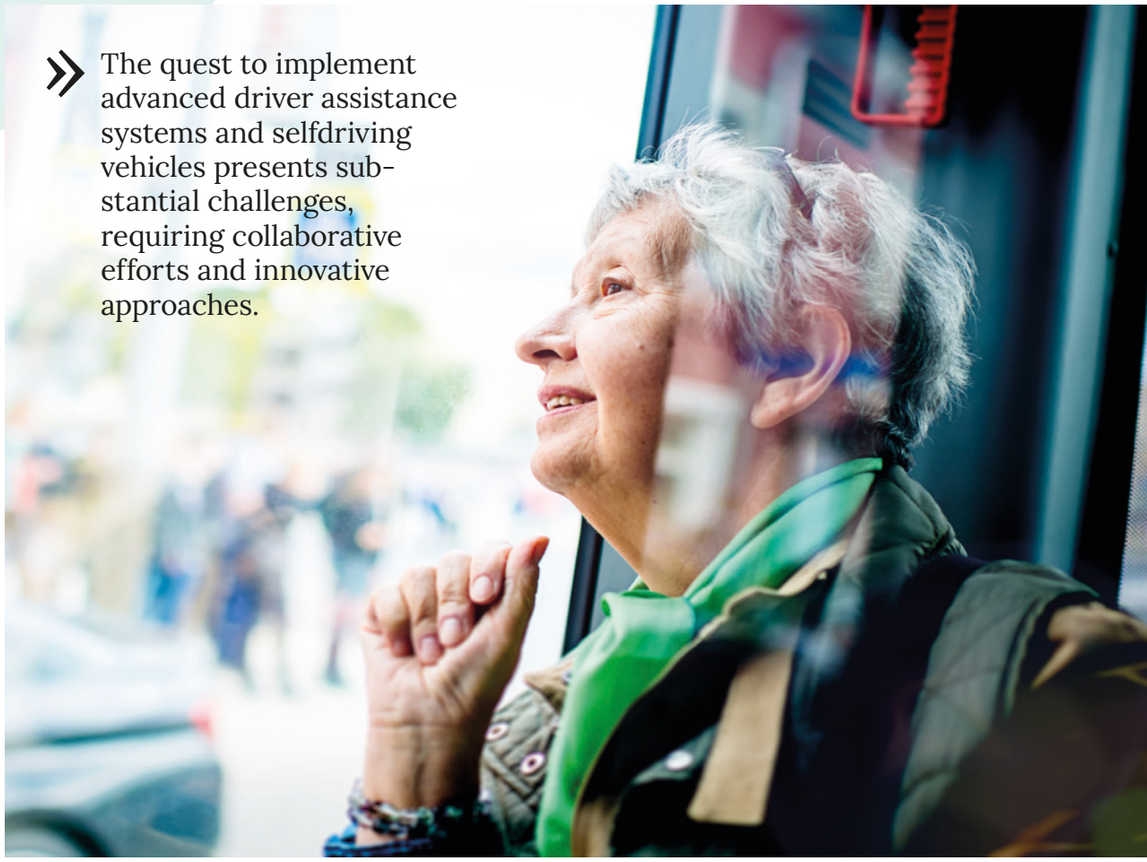
Other projects, such as *SEVVOS*, which replicated water spray effects for optical sensors, and EVIDENT, which advanced virtual validation methods, demonstrate the commitment of SAFER partners to integrating physical and virtual testing environments. These innovations streamline ADAS evaluations, align with regulatory standards like Euro NCAP, and reduce development costs.

Innovations in automation and safety

The *ROADVIEW* project, a Horizon Europe initiative originating from a SAFER workshop, addresses the challenges of automated vehicles in extreme weather conditions. By enhancing perception and response capabilities through advanced AI systems, the project ensures reliable performance in adverse weather scenarios. It unites industry leaders and universities to support safer, weather-resilient autonomous vehicles, aligning with the European CCAM Partnership's vision.

The ROADVIEW project, a Horizon Europe initiative, addresses the challenges of automated vehicles in extreme weather conditions.

Several partner projects integrate diverse pedestrians and environments to ensure reliable ADAS performance.



» The quest to implement advanced driver assistance systems and selfdriving vehicles presents substantial challenges, requiring collaborative efforts and innovative approaches.

Meanwhile, *FAMER* reimagines how safety requirements for AI-based systems are defined and managed, promoting clarity and consistency across the development of autonomous technologies.

Adding to this innovation is the *TADDO2 project*, which introduces a "trustworthy DevOps" framework. By combining rapid, flexible software development with stringent safety standards, it transforms how software updates are integrated into self-driving systems, ensuring both agility and reliability.

Human factors and multimodal safety

As automation becomes more integrated, projects like *MICROVISION* focus on enhancing safety for micromobility users through real-time ADAS tailored for e-scooters, while *Human factors, risks and optimal performance in CCAM* explores safety and efficiency in mixed-traffic environments. These efforts address the complexities of interactions between automated systems and diverse road users.

Contributions from other key projects

The *Self-Driving Bicycle for Active Safety Tests project* developed autonomous bicycles to facilitate the testing and validation of vehicle safety systems for cyclists. By creating crash-worthy prototypes and portable equipment for any bike, the project advanced repetitive, human-like validation methods, providing valuable tools for safer cycling systems.

CLOUDIA introduced methods for efficiently searching large-scale data repositories to pinpoint specific events, benefiting ADAS analysis and development. This project provided tools for vehicle manufacturers, insurers, and urban planners to refine their operations using high-resolution data from connected vehicles, improving system performance and decision-making.

SAFER Idea Exploration Program

THE IDEA EXPLORATION PROGRAM is SAFER's internal funding initiative designed to foster collaboration among its partners, and aiming to develop projects that enhance traffic safety. Throughout 2024, the programme opened three calls for ideas, encouraging partners to submit proposals that address critical road safety challenges. Seven out of 14 submitted proposals have been granted with a total of 700 KSEK, adding up to a total of 39 funded pre-studies since SAFER started to fund pre-studies in the fall of 2019. Detailed information, reports and a complete list of pre-studies are available on SAFER's website: https://www.saferresearch.com/content/safers-idea-exploration-programme.

Mapping of accident databases worldwide

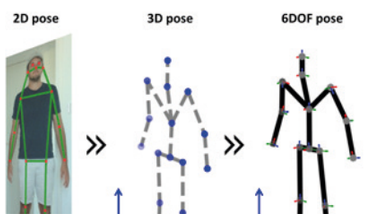
Partners: DuWill, Autoliv, Folksam, If, Scania, Volvo Group

A significant number of accident databases is available worldwide however their nature can vary depending on how the accident data is collected: on-scene investigation, insurance databases, retrospective investigation, national statistics and European projects databases. As a SAFER infrastructure a mapping of accident databases available by at least one SAFER partner is available since 2014. The mapping contains about 60 databases. The goal of the project was to update the information regarding database and parameters documented. An updated excel file with all global accident databases that SAFER partners have access to was delivered. Moreover, this information was secured into the SAFER data catalogue to ensure that SAFER partners can use this valuable tool in their research.

Vision Zero Knowledge Transfer

Partners: Guidance To Zero, City of Gothenburg

Soon celebrating its 30th anniversary, Vision Zero has made road safety a crucial aspect of transport and urban planning. Yet as its founders retire, the new generation often lacks the fundamental knowledge that shaped this approach. With road safety now an integral part of the 2030 Agenda and sustainability, it is important to understand its role beyond the policies. Wrong priorities can arise if the rationale for safety measures is not understood, such as ensuring safe conditions for pedestrians and cyclists to encourage active travel. This pre-study aimed to identify knowledge gaps in municipal organisations, integrate new research and practices and explore effective ways to communicate this knowledge to transport planners, urban planners and public clients.



Advancements in the 'kinepose' framework

Partners: Lund University, Chalmers University, Trinity College Dublin (external)

Human body models (HBMs) are critical for analyzing injury mechanisms and testing prevention strategies. Accurate representation of pose, motion, and active responses is essential for reliable predictions. While lab-based data collection poses ethical challenges, real-world data from sources like surveillance footage provides an alternative. This project aimed to extend the KinePose pipeline to reposition HBMs like OpenSim and VIVA+ through a literature review. In additon, the researchers developed open-source tools to integrate pose and active responses into HBMs. These efforts addressed challenges in modeling and encourage collaboration within the SAFER network. All tools and algorithms are open-source to support broader accessibility and innovation.

Collision matrix for heavy goods vehicles worldwide

Partners: DuWill, Scania, Swedish Transport Agency, Volvo Group, VTI

The private sector wants to accelerate its efforts to reduce road deaths while increasing its focus on sustainability. A new methodology, the 'Traffic Safety Footprint', requires organisations, particularly in the transport and vehicle sectors, to assess their impact on road deaths and injuries. This requires new data collection. Since 2019, the EU has been producing a matrix showing vehicle collision fatalities by type of road user. This study involved stakeholders such as WHO, APRSO, IRTAD and others to examine the availability of data on collisions involving heavy-duty vehicles (HGVs) and identify methods to fill data gaps. It prioritised markets where industry partners operate.

Future Driver Training

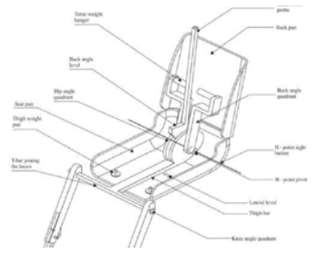
Partners: University of Skövde, Autoliv, Folksam, Linköping University, Smart Eye, VTI, STR (external)

In Sweden, driving theory education relies on text-based materials, unlike immersive vehicle simulations for risk training. Game-based learning could complement traditional methods, fostering deeper understanding and long-term recall, improving safety behavior, and supporting Vision Zero. Simulation games like Scania Truck Driving Simulator show potential as both educational tools and research platforms for testing vehicle interface innovations. This pre-study involved stakeholders from road safety, HMI, game design, and pedagogy to develop a lo-fi prototype, starting as a board/card game and evolving digitally. The prototype will guide future applications, disseminate research results, secure funding, and explore mixed reality and sensor technologies like eye-tracking.

Exploring a novel dataset for investigating and modelling driver behavior on 2+1 roads

Partners: VTI, Viscando

The construction of oncoming separated rural roads with intermittent overtaking sections, so called 2+1 roads, has the potential to improve safety by minimizing the risk of head-on collisions. It is considered an important part in achieving Vision zero by 2030 and the ambition is therefore to build 150-200 km of 2+1 roads every year. In several respects, overtaking behavior is unique on 2+1 roads. Current traffic simulation models, developed primarily for urban streets and highways, lack proper calibration for 2+1 roads, which limits their reliability. Using a novel visual data collection method from a previous study, one or two manuscripts have been prepared. The first presents the method for data collection and analysis; the second evaluates the RuTSim and SUMO simulators on real data. Further research will investigate extending the methodology to other 2+1 roads and improving driver behavior models to replicate unique 2+1 road conditions.



Analysis of the 3D H-point machine in relation to diversity

Partners: Autoliv, The Swedish Transport Agency, Chalmers University

The 3D H-point machine (HPM) is a three-dimensional reference system, which represents an average male person, and is used to define and locate the standard seating reference point as well as the headroom, leg, shoe and pedal reference points to provide measurements for cabin dimensions and layout design. This pre-study aimed to explore how HPM impacts vehicle design and safety for diverse road users and examining the HPM's role in safety standards and regulations.

Results from SAFER's Working Groups

Alternative Fuel Powertrain Safety

This working group is dedicated to enhancing safety in alternative fuel powertrains, with a particular focus on electric, gas, and hydrogen-powered vehicles. The group addresses a wide range of challenges, including accident response, storage, firefighting, and safety during transport, all with the overarching goal of improving safety for both emergency responders and the public. Their collaborative efforts involve dialogue, knowledge exchange, and identifying potential research needs to advance both team and societal understanding.

The team comprises a diverse range of members, including representatives from academia, vehicle manufacturers, authorities, and the insurance industry. Throughout the year, the group has convened several meetings, most of them featuring discussion topics introduced by a guest lecturer. These topics are carefully selected to align with the group's interests and to serve as a foundation for insightful discussions, showcasing the varied perspectives of its members. This approach allows the group to gain a broader understanding of relevant issues and adapt to emerging trends. During these meetings, members also share relevant information, such as updates on standardisation activities, upcoming calls for proposals and other key observations.

A few examples of presentations held in 2024 include:

The Future of Drivetrains in the Truck Industry
At one meeting, Scania presented upcoming trends in the truck industry and shared their insights. A notable shift in the industry was highlighted: while fuel cell vehicles were previously seen as the next step, they are now likely to be postponed in favor of internal combustion engine (ICE) vehicles using gaseous fuels as a replacement for diesel, rather than transitioning entirely to fully electric drivetrains. This represents a significant change compared to trends from just a few years ago.

Emerging Risks from New Battery Cell Chemistries
Inspired by a discussion within the working group, a researcher from RISE, Maria Quant, was invited to speak on the risks associated with new battery cell chemistries. Maria shared her unique experience from practical testing and her role as a fire researcher. She provided valuable insights into emerging trends, including those not yet fully commercialised. One key takeaway was that while newer cell chemistries may introduce hazards such as hydrogen cyanide, they do not necessarily create a significant difference in full-scale EV fires compared to fires involving ICE vehicles, as the chemistry's effects extend beyond the battery itself.

Road Accident Statistics

The Road Accident Statistics working group focuses on leveraging traffic accident data to answer critical questions about accident types, involved road users, and frequency. By developing methodologies and improving access to global databases, the group identifies data gaps, enhances research capabilities, and supports efforts to reduce road fatalities and achieve Vision Zero targets by 2030.

In 2024, SAFER's Road Accident Statistics working group has made significant progress in improving knowledge about traffic accidents and their global impact, contributing to enhanced road safety. Through three key initiatives, the group has delivered valuable outcomes for research and safety development.

Study on accident databases
The first study, funded by SAFER's Idea Exploration Program, updated the mapping of accident databases accessible to SAFER's partners. With approximately 60 databases identified since 2014, the project updated the information and delivered a comprehensive excel file documenting parameters and global database sources. This information has been integrated into SAFER's data catalog to ensure it is available to partners as a tool for research projects. The value and outcome were improved access to accident data allows partners to conduct deeper analyses, identify data gaps, and develop more effective measures to reduce accidents.

Study on a collision matrix for heavy goods vehicles
The second study focused on the *EU collision matrix for heavy goods vehicles (HGV)* and how this methodology could be applied in other regions. The study engaged global stakeholders such as WHO, APRSO, and IRTAD in discussions about data availability and methodology development. It also introduced the concept of a "traffic safety footprint," helping organisations identify their impact on road safety. The study laid the groundwork for collecting new types of data and increased engagement from global actors. It concluded with a webinar that drew significant international attention, highlighting its importance.

Enhancing the STRADA database
A workshop was initiated to gather feedback from users of STRADA, Sweden's primary traffic accident database. SAFER's partners identified 65 improvement proposals, which have been submitted to the Swedish Transport Agency. The workshop aimed to enhance the quality and usability of the database to enable more robust research and safety improvements. The workshop not only delivered concrete proposals, but also promoted collaboration among stakeholders and strengthened national research capacity.

The working group's efforts in 2024 have resulted in advancements in accident statistics, global collaborations, and national improvements to data infrastructure. These initiatives strengthen SAFER's position as a leading player in road safety research which contribute directly to Vision Zero and the 2030 targets.

Safe Infrastructure

In its inaugural year, the working group on Safe Infrastructure has made significant strides in fostering collaboration and advancing discussions on road infrastructure and safety. The Working Group has successfully engaged key industry partners, including Volvo Cars, Volvo Safety Solutions, and Chalmers Industriteknik, alongside leading research centers such as VTI and RISE, as well as the Swedish Transport Administration and Lund University. This broad participation has strengthened the group's foundation, ensuring a multi-disciplinary approach to infrastructure safety.

One of the core objectives set for 2024 was the development of new project ideas. In line with this, the group has initiated two projects focused on vulnerable road users and infrastructure safety. These projects are currently in preparation, aiming to address critical safety challenges through innovative solutions. The team has actively facilitated idea generation based on real safety needs in Sweden, providing crucial support for project development and funding opportunities.

> The Road Accident Statistics working group's efforts in 2024 have resulted in advancements in accident statistics, global collaboration, and national improvements to data infrastructure.

Structured and effective collaboration
The working group has adopted an efficient working model, balancing regular meetings with ongoing work conducted between sessions to maximize effectiveness. A particularly valuable aspect of this model is the rotating hosting of meetings by partner organisations, which has encouraged deeper engagement and knowledge exchange. In 2024, REVERE and Volvo Cars hosted meetings, demonstrating the commitment of industry partners to the group's objectives.

Expanding participation and strengthening objectives
An important achievement this year has been the growing participation of industry and research institutions, reinforcing the group's role as a key platform for collaboration. The group maintains a clear focus on fostering new ideas, facilitating proposal writing, and building strong partnerships to secure funding opportunities. This structured approach ensures that the group not only generates innovative concepts but also provides the necessary support to translate them into funded projects.

Looking ahead
As the working group moves forward, it aims to expand its network, engage additional stakeholders, and further develop collaborative frameworks that enhance infrastructure safety for all road users. The successes of 2024 lay a strong foundation for continued progress in the coming years, with a focus on practical solutions, research-driven insights, and industry engagement to drive meaningful improvements in road safety.

The Safety of Automated Driving Systems has provided a structured platform for knowledge sharing, problem identification, and the formulation of best practices for safety assurance in complex systems.

Safety of Automated Driving Systems

This working group focus on how to design and verify automated driving systems such that they can be shown to operate safely. The question is challenging for several reasons: First, this is a maturing application that has not been applied in large-scale operations yet. Second, safety needs to be shown prior to system launch with achieveable amount of verification data. Third, replacing a human operator in a such a complex environment as the traffic system, with large variations across the globe, poses new challenges to the automotive industry that is not only technical. More specific challenges concern methods for measuring and comparing safety.

The work set out to address these and other questions by means of pre-competitive discussions based on trust, expertise, and friendliness. The working group provides a platform for sharing thoughts and challenges where members can benefit from competence beyond own organisations and technical areas. In our tri-weekly meetings we typically set aside part of the time to share observations members have made external to SAFER. This includes reports from conferences, standardisation activities, experiences in legislation and homologation, and market and product observations, to name a few.

During 2024 we have met at nine occasions, and each meeting is characterised by a sharing session and a focus topic. Examples of the latter include reviewing published approaches to arguing ADS safety, evolution of standards such as ISO 26262 and ISO TS 5084, analysis of ADS accidents where investigations have been made public, and research initiatives in which members participate.

Experts attending the meeting represent a wide range of companies and academia, including OEMs, suppliers, established universities and independent researchers. A typical meeting would have 8–12 participants from almost as many organisations.

Safety of Complex Systems and Emerging Technologies

Throughout 2024, this working group has focused on strengthening collaboration between industry, academia, and regulatory bodies to address emerging safety challenges in transport systems, particularly in relation to new technologies such as AI, electrification, and connectivity. The group has provided a structured platform for knowledge sharing, problem identification, and the formulation of best practices for safety assurance in complex systems.

Key outcomes

- Definition of Best Practices: The group has discussed and identified key aspects of safety assurance in emerging technologies, including human factors, risk assessment, and regulatory alignment.
- Knowledge sharing and research exchange: New research questions have been raised, resulting in collaboration opportunities between universities, industry players, and authorities.
- Deepened collaboration: The working group has facilitated joint research applications, thesis projects, and new partnerships, contributing to the growing body of safety-related research.
- Standardisation contributions: Members have actively engaged in discussions related to ISO/CD PAS 8800, ISO 21448, and the EU AI Act, supporting ongoing efforts to shape future safety standards.

Summary of Working Group meetings

Meeting 1: Handling complexity in safety assurance

- Reviewed the scope and goals of the working group.
- Discussed SAFER pre-study and Vinnova funding opportunities.
- Focused on safety cultures in industry partnerships and supplier interactions.
- Agreed to explore structured requirements management for safety-critical product development.

Meeting 2: Safety standards & Human Factors in AI

- Discussed AI in safety assurance, particularly statistical inference and the PAS 8800 standard.
- Examined modelling human driver behavior for improved passive safety.
- Clarified definitions of automated driving levels (J3016) and the difference between Use Cases and ODDs (ISO 5083).
- Explored challenges in developing complex systems in large organisations, particularly lifecycle management and communication.
- Identified the need for an overview of relevant safety standards and regulations.

Meeting 3: Safe AI for road transport

- Discussed use cases of AI, including driver monitoring, traffic detection, and product development.
- Addressed key challenges such as explainability, bias detection, data integrity, and risk levels.
- Reviewed recent EU AI Act regulations and their implications for the automotive sector.
- Explored AMLAS methodology for assuring machine learning in autonomous systems.
- Highlighted the need for stronger integration between AI and HMI (Human-Machine Interaction) to enhance user predictability and safety assurance.

Future directions

The group will continue to explore how to balance problem understanding with solution development. A focus for 2025 will be to:

1. Expand safety research collaborations through new projects and funding opportunities.
2. Further engage in shaping safety standards and regulations.
3. Develop a structured repository of safety-related best practices, methodologies, and regulatory insights for industry use.

To identify and improve your organisations work within Traffic safety

This working group was established based on the recommendations from the Third Ministerial Conference on Road Safety, held in Stockholm in 2020, and the UN Resolution 74/299, which calls upon businesses and industries of all sizes and sectors to contribute to the achievement of road safety-related Sustainable Development Goals.

A key aspect of this effort is recognising and addressing the traffic safety footprint of organisations. Traffic safety is not only a societal concern but also an essential part of corporate sustainability and social responsibility. Companies have a significant influence through their operations, procurement processes, supply chains, and employee mobility policies. By identifying and mitigating traffic safety risks within their sphere of influence, organizations can contribute meaningfully to Vision Zero – the ambition to eliminate road traffic fatalities and serious injuries.

The purpose of this working group is to support organisations, track developments in the field, and identify key research questions related to corporate road safety. We see a great potential for a platform like SAFER to lead this effort, fostering knowledge-sharing and providing practical guidance on how organisations can implement the recommendations from the Ministerial Conference and the UN resolution effectively.

The working group includes representatives from Autoliv, Chalmers University of Technology, Combitech, DuWill, Folksam, Guidance to Zero, Lund University, Scania, the Swedish Transport Administration and VTI.

Throughout 2024, the working group held five meetings with the main objective of deepening the understanding of corporate road safety and preparing a workshop with companies both within and outside the SAFER network.

Meeting 1: Establishing the key areas of organisational traffic safety
The initial discussion was based on the FIA Road Safety Index, covering:

- How to define and manage an organisation's sphere of influence regarding road safety.
- What organisational commitments should include.
- What data is required to assess an organisation's traffic safety footprint.
- How to monitor safety performance indicators effectively.
- Essential elements in fostering a strong safety culture within organisations.

Meetings 2 & 3: Identifying key workshop questions
The group focused on formulating the core questions to be addressed during the planned workshop, ensuring that discussions would be relevant and actionable.

Meetings 4 & 5: Workshop planning
The final meetings centered on refining the workshop structure, selecting discussion topics, and identifying suitable participants. By the end of 2024, 14 companies that actively engage in traffic safety were identified and invited to participate.

The workshop will take place at SAFER on January 29, 2025. The primary goal is to facilitate knowledge exchange, share best practices, and explore how companies can better integrate traffic safety into their sustainability strategies.

Longterm impairments from injury in traffic environment

This working group was established in the beginning of the year, with roots from the research area Human Body Protection. The challenges are to understand the patterns of and prediction needs for non-life-threatening injuries with long term impairment. The knowledge will contribute to development of risk analysis, protection against injuries with long term impairment, prediction of injuries and impairments.

The scope is long term impairment that last more than 6 months, (begin with focus on physical impairments), from injuries in traffic environment for vehicles and vulnerable road users. The aim is to develop knowledge, understanding and competence for prevention and mitigation of impairments.

The working group has met mostly online, in the large group and in smaller groups for specific tasks. The members represent several partners and are involved in various projects more or less related to the scope or see the future possibilities for collaboration.

The group has defined and worked mainly with three themes and planned for workshops to explore:

- *Long-term Impairment Data* – e.g. what is available through current registers, what data is missing, how can we make use of available data?
- *Injury Mechanisms* – e.g. biomechanics of injuries in macro and micro level, chain of events developing different types of injuries, modelling and simulation of behaviour of human body to predict risk of injury and impairment.
- *Survivors' perspectives* – e.g. how are persons affected in long-term by injuries acquired in traffic environment, identify impairments of high importance for daily life, how to address reduction of the injuries and impairments of most importance to survivors.

Results

The results of this year focus mainly on exploring the scope to identify what we know, needs for research, and widen our network. A collection of registers in Sweden with data related to the scope was created. A workshop, Long-term Impairment Data, was held in hybrid format for the SAFER community, where four national registers with related examples of research were presented and group discussions held. Plans for workshops on the two other themes were developed and will be finalized during next year. The network has broadened, e.g. with national registers and EqOP (Equitable Occupant Protection), a UN informal working group. Research questions and aspects have been gathered for further analysis and collaboration initiatives. Five pre-study/project ideas have been developed during the year and will be addressed further for applications.

The members have decided to continue with the working group in 2025.

Road User Behaviour

Traffic safety depends largely on the behaviour of the humans in the transport system. Safe behaviour is not limited to ensuring road users follow rules and regulations, it is also about supporting humans in and outside of vehicles to make safe decisions and actions. Road User Behaviour (RUB) has been a prioritised research area at SAFER since 2017. Originally, the RUB group was a reference group with one member from each core partner, but since the start of 2024 the group has been changed into a working group open for all SAFER partners. The RUB research area is multidisciplinary in its nature and the group brings together researchers from a wide range of disciplines and organisations. The overall long-term expected outcome is to maintain a strong network around road user behaviour, where partners can bring current research challenges, find collaboration partners, and share insights to advance knowledge in the field.

In 2024, the group had six meetings, including a kick-off meeting in February, a workshop in May and a seminar and panel discussion in December that was open for anyone connected to SAFER to join. Participants from more than ten different SAFER partners have regularly joined the meetings. The topic for the workshop in May was to identify and discuss research needs addressing how we can make interactions between road users safer. An overview of the most problematic traffic situations based on collision statistics was given and it was discussed how current and future ADAS can support the driver in interacting with other road users through warnings or collision avoidance. Insights from the *Rural Cycling, MICA2* and *eSAFER* research projects were also presented.

RUB partners approach this research area from different starting points and ongoing and future research at partners range from studies on how to make active modes of transport safer and more attractive to use, to the development of Human Machine Interfaces (HMI) to effectively communicate with road users inside and around vehicles. The seminar and panel discussion on Driver Monitoring Systems Targeting Alcohol and Drug Use in December brought together experts from traffic safety, medicine, regulatory expertise, and sensor technology to address a critical issue: the detection and mitigation of impaired driving. Invited speakers provided insights into the prevalence of impairment-related crashes, recent advances in detection technologies, regulatory aspects, and the challenges of integrating monitoring systems into vehicles. The RUB group will continue to focus on various challenges and opportunities with driver monitoring in 2025.

Two pre-studies related to RUB were financed via the idea exploration in 2024, one exploring a novel dataset for investigating and modelling driver behavior on 2+1 roads and one on future driver training, working towards an open research platform for immersive simulation gaming for improving safe driving behavior and interaction. Taken together, we saw a large engagement in RUB meetings from many different SAFER partners in 2024 and the working group will continue to arrange activities based on partners' research interests in 2025.

> The overall long-term expected outcome for the Road User Behaviour group is to maintain a strong network around road user behaviour, where partners can bring current research challenges, find collaboration partners, and share insights to advance knowledge in the field.

Post Crash

The Post Crash working group is run jointly between PICTA (Pre-hospital Innovation Arena) and SAFER, which means that we cover a wide range of actors, all relevant to meet the challenges in this area. Some key issues that the group addresses are:

- Technologies for more effective and precise ways to detect, assess, prioritize and monitor (and sometimes predict) incidents for appropriate response and resources dimension and preparedness for larger complex events – while also maintaining basic capacity.
- Managing the accident scene and ensuring the best outcome for victims/patients.
- Preparedness and competence among the people working in alarm/dispatch centres, response vehicles and on accident scenes.
- The safety of first responders – while driving, working on-site or during transport.

During 2024 the team has had different activities, here is a selection: preparation of the *TEAPaN 2* proposal, ambulance simulator at VTI, starting an inventory of ideas for master's thesis projects, cognitive ergonomics in ambulances, drone applications including streaming video to alarm/dispatch centres, early mapping of data and datasets within the post-crash phase and across domains of other SAFER Working Groups. Also, the working group is constantly monitoring and reporting from relevant external activities, such as conferences.

Science outreach and utilization

SAFER OFFERS an arena and channels for dissemination of research findings enhancing the voice of all partners reaching out to relevant stakeholders, including key financiers and decision makers, both nationally and internationally.

- **Effective communication:** We use our expertise and established channels to share research findings widely, supporting new funding opportunities and advancing road safety toward zero fatalities.
- **Engaging events:** Our workshops, seminars, and conferences foster collaboration and inspire action, driving progress in road safety.
- **Trusted platform:** SAFER's strong reputation and unified communication bring stakeholders together, offering a credible channel for insights and collaboration toward our shared goals.

This year, we have communicated more than ever! With a strong and continuously updated project portfolio, we have had even more to share with our partners and we have embraced every opportunity to do so. All in all, 71 knowledge sharing activities have been performed. Nearly all our activities are accessible online, making it easier for our partners not located in the Gothenburg region to join. For more details about our activities, visit our website which is continuously updated, or see the complete list for 2024 in Appendix 3.

We launched the new phase; SAFER Stage 6, with a well attended and inspiring kick-off event in January. SAFER gathered over 100 participants from its partner organisations at Lindholmen Science Park, both on-site and online, to officially launch a new phase of collaborative traffic safety research. The event provided an opportunity to review SAFER's shared research agenda, address key traffic safety challenges, and explore how partners can best utilize the platform for facilitation and project creation.
A key part of the day was the introduction of SAFER's nine working groups, where the leaders outlined their focus areas, ranging from biomechanics and human behavior to advanced technologies and system-level safety strategies. These presentations set the stage for discussions and provided insight into the planned research outcomes for the coming phase. The event also served as a platform for exchanging ideas, building connections, and strengthening collaboration among participants.

Top: A landmark moment – SAFER celebrates the start of a new phase. Below: DDI was arranged in the US for the very first time 2024.

SAFER Research Days: Our new concept of Research Days has been a resounding success. These events provide an excellent platform for gathering the network around focused themes, deepening the dialogue, and strategically looking ahead to promote continued co-creation. A truly successful initiative that we plan to continue. Over the year, we organised six mini-conferences, each attracting great participation. Themes varied, including shared mobility safety, behavior models, advanced testing and verification in ADAS, traffic safety data and risk identification. These days also offer a valuable opportunity to present project results to the network.

SAFER Thursday Lunch Seminars: A continued winning concept that remains highly appreciated by our partners. Held almost every semester week, these 45-minute sessions include a presentation, a discussion, and a joint networking lunch. The aim is to share insights into road safety research, explore new topics, and enhance collaboration within the community. These seminars inspire new ideas, stimulate project creation, and strengthen partnerships.

Other ways we share knowledge:

- **SAFER Knowledge Library:** Our digital library contains most of the SAFER project publications produced since 2006.
- **Saferresearch.com:** On our website, you can explore our project portfolio, event calendar, news, contact details, research publications, annual reports, ecosystem, and funding opportunities etc.
- **Newsletters:** A monthly public newsletter reaching about 3000 subscribers, featuring updates on projects, research results, and other SAFER news.
- **SAFER Update Webinars:** Regular webinars provide partners with brief updates on collaboration opportunities, events, and relevant news.
- **LinkedIn:** Our steadily growing follower base helps us gain broader visibility and reach within the traffic safety community.
- **Podcast – Liv och Trafik:** A podcast about traffic safety, featuring interviews on road safety research, successful practices and and policies. Published in collaboration with NTF Väst.

The conclusion of SAFER Stage 5 was celebrated with great energy and enthusiasm on March 8, read more in the dedicated article on page 42.

We also had the honor of co-hosting three standout conferences this year that we are particularly proud of: Barn, Liv och Trafik, Child Occupant Protection: Latest Knowledge and Future Opportunities, and the 9th International Conference on Driver Distraction and Inattention. These events brought together leading experts to share insights, spark dialogue, and shape the future of traffic safety.

Global experts unite for 7th child occupant protection conference

The 7th Child Occupant Protection conference, part of the FFI project *Car Passenger Safety – to the Next Level* took place on May 31, 2024, bringing together 74 participants from 12 countries and 32 organisations. Attendees included representatives from academia, car and child seat manufacturers, crash test dummy developers, consulting firms, insurers, retailers, bloggers, and traffic safety organisations. The event featured nine insightful presentations spanning five countries and three continents, showcasing the latest advancements in car passenger safety. This long-standing biannual conference, established in 2009, continues to serve as a critical platform for advancing child safety in vehicles.

Barn, Liv och Trafik

March was packed with communication activities! Nearly 200 guests, primarily from municipal organisations, gathered for a one-day conference to discuss safe mobility for children and young people. The event serves as a meeting place for professionals working in urban planning, traffic environments, mobility, public health, and education. Attendees had the opportunity to connect with colleagues, researchers, and experts from across Sweden.

130 delegates from **20** countries

The International Conference on Driver Distraction and Inattention took place in Ann Arbor, Michigan, with 130 delegates from over 20 countries.

The conference, organised in collaboration with NTF Väst and the City of Gothenburg, received highly positive feedback, and we are excited to announce that it will return in March 2026!

The 9th International Conference on Driver Distraction and Inattention

Hosted by SAFER, Chalmers University, Université Gustave Eiffel, and UNSW Sydney, DDI2024 took place in Ann Arbor, Michigan, with 130 delegates from over 20 countries. The conference explored "Advances in the understanding and management of distraction and inattention for all road users" through keynotes, panels, and nearly 50 presentations. Keynotes and panels explored critical topics like cognitive load, attention management, and strategies to address distraction through technology, education and enforcement. Guided tours of Mcity, Michigan Stadium, and extensive networking strengthened global collaboration. The 10th anniversary event will be held in Gothenburg in October 2026.

The Vision Zero International Course

In September 2024, SAFER supported the Swedish Transport Administration's Vision Zero International Course at Lindholmen Science Park. Over 40 participants from around the world explored Sweden's Vision Zero approach through lectures and study visits, gaining insights into policy innovation, safer transport strategies, and tools to improve road safety globally.

Cagri Kaya from Chalmers University was awarded for the best poster award by Prof. Philip Koopman, Carnegie Mellon University, at the tech symposium "Safety challenges for deploying self-driving cars" at SAFER in September.

Exploring safety challenges for self-driving cars

On September 26, SAFER hosted one of the year's most well-attended events, featuring Professor Philip Koopman from Carnegie Mellon University. The seminar, attended by around 60 participants onsite and many more online, focused on critical safety challenges in deploying self-driving cars.

Professor Koopman emphasised the need for new safety definitions to address edge cases, legal constraints, and ethical considerations, highlighting that true safety requires a holistic evaluation beyond regulatory compliance.

Oana Robescu from Volvo Autonomous Solutions added insights into Volvo's approach, stressing harmonisation, collaboration, and integrating safety knowledge into software development.

The day concluded with a panel discussion moderated by Professor Christian Berger, University of Gothenburg, exploring the complexities of ensuring safety in autonomous vehicles. This seminar was a key moment in SAFER's calendar, reinforcing the importance of dialogue and innovation in advancing road safety.

Publication volume

During the first year in SAFER Stage 6, our connected research projects generated about 60 publications, showcasing the breadth and depth of SAFER partners' contributions to traffic safety research.

These include peer-reviewed journal articles (14%), conference papers and posters (28%), reports (21%), master's theses (16%), doctoral/licentiate theses (9%), and others including books or book chapters (12%). Publications still listed as "in preparation/ in press," such as accepted papers for upcoming conferences, are not included in these figures.

Additionally, the numbers do not account for publications from SAFER-affiliated research outside specific projects, such as certain PhD and post-doc work, and some underreporting may also be present.

For access to most of SAFER's publicly available partner project publications since our inception in 2006, visit the SAFER Knowledge Library at www.saferresearch.com/library.

SAFER Doctors

Five students successfully completed their licentiate or doctoral theses within the SAFER environment in 2024. A SAFER Doctor contributes to our partner projects, is affiliated with one of SAFER's partners, and actively participates in collaborative activities and co-creation events. These students are a vital part of our platform, offering great value to our partners as a recruitment pool. Each SAFER Doctor is celebrated with a golden SAFER hat at their dissertation and has the opportunity to showcase their research within the network. We aim to make their time at SAFER enriching, enjoyable, and valuable for building strong networks with traffic safety researchers across Sweden.

Licentiate theses

- Accelerating the design phase: Towards devsafeops for autonomous driving software, Ali Nouri, Volvo Cars, and Chalmers University of Technology, September 27, 2024
- Towards More Reliable Pre-Crash Virtual Safety Assessment: The impact of the choice of data types and reference driver models on the assessment of vehicle automation, Pierluigi Olleja, Chalmers University of Technology, October 18, 2024
- Towards Safer Powered Two- and Three-Wheeler Riders: Enhancing Human Body Models for Thoracic Injury Assessment, Linus Lundin, Chalmers University of Technology, December 17, 2024

Doctoral theses

- Heterogeneity in Car Occupant Safety - Using Numerical Simulations to Address Real-world Safety, Alexandros Leledakis, Volvo Cars and Chalmers University of Technology, February 23, 2024
- On optimization-Based Coordination of Automated Vehicles in Confined Sites, Stefan Kojchev, Chalmers University of Technology and Volvo Group, May 22, 2024

Strategic impact on the global road safety agenda

SAFER'S STRONG REPUTATION and role as a trusted communication platform enables partners to engage effectively with key stakeholders. By leveraging the SAFER collaboration, partners can reach targeted audiences, engage with research funders to shape future programs, and influence decision-makers nationally and internationally to drive road safety policies and legislation.

In 2024, SAFER partners actively contributed to shaping the global traffic safety agenda within the Horizon Europe framework. Through collaborations within organisations such as ERTRAC, EARPA, EUCAR, ECTRI, and CLEPA where different SAFER partners play key roles, we supported key initiatives, including the CCAM partnership and shaping one of the key safety sessions at the TRA conference in Dublin. During 2024 we also provided coordinated input to the update of the overall ERTRAC long term vision through the involvement in a series of workshops. This will be one of the influencing factors for the upcoming framework program, starting 2028.

» SAFER's strong reputation and role as a trusted communication platform enables partners to engage effectively with key stakeholders.

Closing Stage 5: Celebrating progress and looking ahead

ON MARCH 8, SAFER celebrated a significant milestone with the final event for Stage 5, hosted at Lindholmen Science Park in Gothenburg. Nearly 200 members of SAFER's extensive network gathered for a festive lunch event that truly felt like a party. The atmosphere was filled with energy, team spirit, and pride as participants reflected on five years of research and collaboration dedicated to enhancing road safety and reducing traffic-related injuries.

The event showcased the impressive scope of SAFER's work, featuring over 50 partner projects and initiatives that highlighted innovative technologies, advanced methodologies, and real-world applications. Each presentation underscored SAFER's commitment to pushing the boundaries of traffic safety research and the power of its multidisciplinary approach.

The celebration also provided an opportunity to thank the many individuals and organisations that have contributed to SAFER's success. Anna Nilsson-Ehle, representing Vinnova and was SAFER's director from 2006 to 2017, expressed heartfelt gratitude for the consortium's efforts, emphasising the importance of the work achieved during Stage 5. Anna Hafström Kovats, speaking on behalf of Lindholmen Science Park, also shared her appreciation for SAFER's impact on traffic safety and its role in enabling collaboration across sectors. Their words of recognition added to the celebratory spirit of the day.

» Nearly 200 members of SAFER's extensive network gathered for a festive lunch event that truly felt like a party.

The lively lunch event was not only a chance to reflect on accomplishments but also a moment to connect and strengthen the bonds within SAFER's extensive community. Attendees shared ideas, celebrated successes, and looked forward to the next stage of innovation and progress.

For those eager to dive deeper into the outcomes of Stage 5, a comprehensive report is available, detailing the projects, research results, and key achievements of this phase. As we close this chapter, SAFER was poised to enter the next stage with even greater ambition, building on the strong foundation of collaboration and innovation established over the past five years. Together, we move forward with a shared vision of making roads safer for everyone!

» Attendees shared ideas, celebrated successes, and looked forward to the next stage of innovation and progress.

Appendices

Appendix 1: Projects in SAFER's Idea Exploration Program

Project	Project Manager	Start	End	Partners
SAFER PRE-STUDY: RURAL CYCLING IN FOCUS	Katja Kircher	2023-04-01	2024-03-31	VTI, If
SAFER Pre-Study: VIDCOM – Video-based Driver Condition Monitoring for Safe Driving	Tayssir Bouraffa	2023-09-01	2024-03-31	Chalmers, AstaZero, Smart Eye
SAFER Pre-Study: HUMAN FACTORS, RISKS AND OPTIMAL PERFORMANCE IN CCAM	Elena Haller	2023-09-01	2024-09-30	Halmstad University, VTI, RISE
SAFER Pre-Study: Safety performances of instrumented micro-mobility modes by leveraging microscopic driving behavior data	Kinjal Bhattacharyya	2024-01-01	2024-06-30	VTI, Halmstad University, VOI
SAFER Pre-Study: EDR-V feasibility	Jonas Bärgman	2024-01-01	2025-03-31	Chalmers, Autoliv
SAFER Pre-Study: REMOSAFE – REMOte operator state monitoring for traffic SAFEty	Jonas Andersson	2024-01-15	2024-06-30	RISE, Smart Eye, AstaZero, Einride, CDE
Advancements in the 'KinePose' framework for computer vision-aided reconstruction of pose and motion in computational human body models	Kevin Gildea	2024-05-01	2025-04-30	Lund University, Chalmers, Trinity College Dublin
SAFER Pre-Study: KNOWLEDGE TRANSFER from the founders of Vision Zero to new generations, on the three dimensions ethics, responsibility, and solutions	Sanna Eveby	2024-05-02	2024-11-30	Guidance to Zero, City of Gothenburg
SAFER Pre-Study: MAPPING OF ACCIDENT DATABASES WORLDWIDE	Tania Dukic Willstrand	2024-06-01	2024-09-30	DuWill, Autoliv, Folksam, If, Scania, Volvo Group
SAFER Pre-Study: COLLISION MATRIX FOR HEAVY GOODS VEHICLES WORLDWIDE	Tania Dukic Willstrand	2024-06-01	2024-09-30	DuWill, Scania, Swedish Transport Agency, Volvo Group, VTI
SAFER Pre-Study: EXPLORING A NOVEL DATASET FOR INVESTIGATING AND MODELLING DRIVER BEHAVIOR ON 2+1 ROADS	Johan Olstam	2024-06-01	2025-02-28	VTI, Viscando
SAFER Pre-Study: FUTURE DRIVER TRAINING – towards an open research platform for immersive simulation gaming for improving safe driving behavior and interaction	Paul Hemeren	2024-09-01	2025-08-31	University of Skövde, Autoliv, Folksam, Linköping University, Smart Eye, VTI, STR: Sveriges Trafikutbildares Riksförbund (external)
Analysis of the 3 D H-point machine in relation to diversity	Pernilla Bremer	2024-11-25	2025-05-30	Autoliv, Chalmers, the Swedish Transport Agency

Appendix 2: SAFER Partner Projects in Stage 6

Project	Project Manager	Start	End	Funder	Partners
HUMAN BODY PROTECTION					
ADOPTIVE – Application for Automated Design & Optimization of Vehicle Ergonomics	Erik Brolin	2021-03-01	2024-02-29	KK-Stiftelsen	University of Skövde, Volvo Group, Scania, Volvo Cars, CEVT, Fraunhofer-Chalmers Research Centre for Industrial Mathematics (FCC)
CAR PASSENGER PROTECTION – To the Next Level / Passenger Safety, part 2	Lotta Jakobsson	2020-11-01	2024-06-15	FFI, TSAF	Volvo Cars, Autoliv, Chalmers
BELT USE BY PREGNANT WOMEN IV – Simulation	Anna Carlsson	2023-07-01	2024-06-30	Skyltfonden	Chalmers Industriteknik, Folksam, Chalmers, Autoliv
BELT USE BY PREGNANT WOMEN III – Who owns the issue?	Anna Carlsson	2022-01-01	2024-12-31	Skyltfonden	Chalmers Industriteknik, Folksam, BOID
UTMOST – Modelling of biocomposites in occupant safety analyses	Renaud Gutkin	2022-05-01	2024-12-31	FFI	Volvo Cars, IAC Group (International Automotive Components), Chalmers, Beta CAE
GLOBAL SAFER HBM – Taking SAFER HBM to the global arena; focusing the cervical and thoracic spine	Jonas Östh	2022-11-01	2024-12-31	FFI	Autoliv, Chalmers, University of Gothenburg/ Sahlgrenska, Volvo Cars
MOTORCYCLE RIDER MODEL FOR PREDICTION OF INJURY RISK	Jolyon Carroll	2021-06-01	2025-05-31	FFI	Autoliv, Chalmers, MIPS, Beta CAE
SURROGATE MEASURES OF SAFETY FOR SINGLE BICYCLE CRASHES	Kevin Gildea	2024-02-01	2026-02-01	Swedish Transport Administration	Lund University, VTI
HBM SHOULDER – Advanced Tool for the Development and Evaluation of Protection Systems for Bicyclists	Bengt Pipkorn	2023-06-01	2026-05-31	Swedish Transport Administration	Autoliv, Volvo Cars, Chalmers, Folksam
SAFER HBM NECK INJURY PREDICTION – Advancing Neck Injury Prediction in Car Crashes using the SAFER HBM	Jonas Östh	2023-11-01	2027-01-31	FFI	Autoliv, Chalmers, Folksam, Volvo Cars
I-HBM V – Enhancing Female and Male SAFER HBM Torso Injury Prediction	Karl-Johan Larsson	2024-02-01	2027-01-31	FFI	Autoliv, Chalmers, Volvo Cars
PREKO 2 – Proactive assessment of cognitive work environment in ambulance healthcare	Cecilia Berlin	2024-09-01	2027-04-30	AFA, VINNOVA	Chalmers, PICTA
ROAD USER BEHAVIOUR					
SCAV – Safety culture & automated vehicles	Johanna Larsson	2022-04-01	2024-03-31	FFI	VTI, RISE, Toyota, Combitech & Volvo Group, RISE
PANACEA – Practical and effective tools to monitor and assess commercial drivers' fitness to drive	Anna Anund	2021-05-01	2024-04-30	EU H2020	VTI, Chalmers, SENSEAIR, Transdev, other EU/ international partners
CARDIO – Detection of sudden cardiovascular sickness in drivers, a feasibility study	Anna Sjörs Dahlman	2023-09-01	2024-08-31	Skyltfonden	Chalmers, VTI
CYCLING ON RURAL ROADS – removing barriers	Katja Kircher	2023-11-01	2024-10-31	VINNOVA	VTI, If, Ramboll (external), POC (external)
QUADRIS – Improved quantitative driver behavior models and safety assessment methods for ADAS and AD	Mikael Ljung Aust	2021-04-01	2025-03-31	FFI	Volvo Cars, Chalmers, Volvo Group, Autoliv, VTI
MEGABITS – Mobilizing Europe's Green Ambition through Bicycles and Intelligent Transport Systems	Pontus Wallgren	2023-05-01	2025-04-30	North Sea Interreg	Chalmers, other EU/ international partners

Project	Project Manager	Start	End	Funder	Partners
ENHANCED ADAS II – Improving drivers' experience, acceptance and trust in assistance systems	Niklas Strand	2022-11-01	2025-10-31	VINNOVA	Aptiv, RISE, Smart Eye
NOAI – No AI About Us Without Us: Enhancing Safety for Vulnerable Road Users (VRUs) with Reduced Mobility	Yinan Yu	2023-10-01	2025-12-31	VINNOVA	Chalmers, Chalmers Industriteknik, University of Gothenburg, BOID
REDO2 – Remote automated vehicle operation 2	Maytheewat Aramrattana	2022-11-01	2025-12-31	VINNOVA	VTI, Carmenta, CDE, Einride, Ictech, Innobrain, KTH, RISE, Scania, ABC Connect AB
SCREENS II - Safe chauffeurs in safe and healthy multimodal driver information environments	Kjell Brunnström	2023-09-01	2026-08-31	FFI	RISE, Scania, Smart Eye, Volvo Cars, Volvo Group
SAFETY PERFORMANCE EVALUATION					
SAFE AND SECURE TRANSPORT CORRIDORS IN INDIA – SITIS Project #1 (SSTCI)	John-Fredrik Grönvall	2021-01-01	2024-03-31	FFI	Chalmers, VTI, RISE, Volvo Group, Autoliv, Ericsson and Saab (TechMahindra, ARAI, Altair, IIT, IISC, Manipal)
TRAFFIC SAFETY FOOTPRINT II – Development of the Traffic Safety Footprint concept to enable a broad application in the private and public sector	Carlos Viktorsson	2023-08-15	2024-05-31	Skyltfonden	Lund University, Chalmers/SAFER, Sweco
GOOD EXAMPLES OF REPORTING ON SAFETY CULTURE WITHIN COMPANIES AND ORGANISATIONS	Sanna Eveby	2023-12-15	2024-09-15	Skyltfonden	Guidance to Zero, Arfors Management
COGNIDRIVE – Support cognitive abilities for predictive processing through driver monitoring	Paul Hemeren	2023-11-01	2024-10-31	VINNOVA	University of Skövde, Smart Eye
DAIMOND – Data and AI for decision making support in traffic infrastructure development	He Tan	2023-11-06	2024-10-31	VINNOVA	Jönköping municipality, Jönköping University, Viscando
HI-DRIVE – Designing Automation	Ines Heinig	2021-07-01	2025-06-30	EU H2020	SAFER JRU (Chalmers, Svanberg & Svanberg, Chalmers Industriteknik), Volvo Cars, Volvo Group, other EU partners
FAME – Framework for coordination of Automated Mobility in Europé	John-Fredrik Grönvall	2022-07-01	2025-06-30	EU Horizon Europe	Chalmers, Volvo Group, other EU partners
VIASAFETY – Road Traffic Safety for Electric Micro Vehicles	John-Fredrik Grönvall	2023-07-01	2025-06-30	VINNOVA, Drive Sweden program	SAFER (Chalmers), CLOSER, Ciklio, Vialumina, Vianova
VIA TAXI	Johan Ljungström, John-Fredrik Grönvall	2024-04-01	2025-06-30	VINNOVA, Drive Sweden program	Cabonline, Chalmers Industriteknik, EIT Urban Mobility Innovation Hub North, KTH, Nollzon
STRATEGIC RECOMMENDATIONS FOR IMPROVED TRAFFIC SAFETY THROUGH ENHANCED CITIZEN PERSPECTIVE	Malin Levin	2025-01-01	2025-07-31	Skyltfonden	Chalmers, DuWill, NTF Väst
SUNRISE – Safety assUraNce fRamework for connected, automated mobIlity SystEms	John-Fredrik Grönvall	2022-09-01	2025-08-31	EU Horizon Europe	SAFER JRU (Chalmers, RISE), other EU partners
V4SAFETY – Vehicles and VRU Virtual eValuation of Road Safety	Ulrich Sander, Jonas Bärgman	2022-10-01	2025-09-30	EU Horizon Europe	Chalmers, Volvo Cars, other European partners

Project	Project Manager	Start	End	Funder	Partners
I2CONNECT – Intelligent, interactive and connected next generation real time driver assistance system	Paul Hemeren	2023-12-01	2026-05-31	FFI	University of Skövde, Scania, Smart Eye, Viscando
TWIN-SAFE – Advancing Road Safety through Twinning	Carmelo D'Agostino	2024-05-01	2027-04-30	EU Horizon Europe	University of Zagreb (Croatia), Hasselt University (Belgium), Lund University
SYNERGIES – Real and synthetic scenarios generated for the development, training, virtual testing and validation of CCAM systems	Fredrik Warg	2024-06-01	2027-05-31	EU Horizon Europe	RISE
HANDBOOK OF ROAD SAFETY MEASURES	Alena Hoye	2013-01-01	no	Norwegian Public Roads Administration	TØI
SYSTEMS FOR ACCIDENT PREVENTION AND AUTOMATED DRIVING					
SAFESMART – Safety of Connected Intelligent Vehicles in Smart Cities	Alexey Vinel	2019-09-01	2024-02-29	The Knowledge Foundation	Halmstad University, AstaZero, Scania, H&E Solutions, Terranet, Gutec, Quviq, KPIT
CLOUDIA – Methods for efficient searching of events in large volumes of data for analysis and development of ADAS	Fredrik von Corswant	2021-11-01	2024-04-30	FFI	Veoneer, Arriver, Folksam, Pionate
SELF-DRIVING BICYCLE FOR ACTIVE-SAFETY TEST	Jonas Sjöberg	2021-03-15	2024-09-30	FFI	Chalmers, Mälardalens Universitet, Volvo Cars, Veoneer, Autoliv, Cycleurope, AstaZero
EVIDENT – Enabling VIrtual valiDation and vErificatioN for ADAS and AD feaTures	Mari Eriksson	2022-04-01	2024-12-31	VINNOVA	AstaZero, Asymptotic, CEVT, Einride, University of Gothenburg, Chalmers (REVERE), RISE, Veoneer, VTI
SEVVOS – Simulering och Emulering av Vattenspray för Validering av Optiska Sensorer	Mari Eriksson	2022-01-01	2024-12-31	VINNOVA	AstaZero, Veoneer, Chalmers, RISE
5G LEO – Coordinated 5G LEO-5G cellular positioning for improved safety functions in heavy vehicles	Henk Wymeersch	2024-01-15	2025-03-31	VINNOVA	Chalmers, Volvo Group
UNCERTAINTY-AWARE AND SAFETY-ENHANCED MANAGEMENT OF CAVS FOR SAFER MIXED TRAFFIC	Kun Gao	2024-08-01	2025-04-30	FFI	Chalmers, Alkit
VERDAS – VErification methods for Robust Driver Assist System performance	Mats Petersson	2024-05-25	2025-05-23	VINNOVA	AstaZero, If, Folksam, Trafikverket, Volvo Cars, Toyota, Zenseact, Aptiv, Terranet and Viscando
MICROVISION – Development, Testing, and Demonstration of a Real-Time Support System for Electric Vehicle Riders	Da Wang	2023-09-01	2025-08-31	VINNOVA, Drive Sweden program	Autoliv, Chalmers
ASSERTED – Assuring Safety for Rapid and Continuous Deployment for Autonomous Driving	Ali Nouri	2021-11-01	2025-10-31	FFI	Volvo Cars, Chalmers, Zenseact
HERE I GO – advanced functions for VRU-awareness protocols in C-ITS	Elena Haller	2024-01-01	2025-11-30	Skyltfonden	Halmstad University
ROADVIEW – Robust Automated Driving in Extreme Weather	Eren Erdal Aksoy	2022-09-01	2026-08-31	EU Horizon Europe	Halmstad University, VTI, RISE, other EU partners
FAMER – Facilitating Multi-Party Engineering of Requirements	Eric Knauss	2023-09-01	2026-08-31	FFI	University of Gothenburg, Kognic, RISE, Volvo Cars, Zenseact

Project	Project Manager	Start	End	Funder	Partners
PREDICTIVE THREAT ASSESSMENT FOR ENHANCED STABILITY OF MULTI-UNIT HEAVY VEHICLES	Leon Henderson	2023-11-01	2026-12-31	FFI	Volvo Group, Chalmers
TADDO 2 – Trustworthy Automated Driving DevOps	Mollie Hasselberg, Martin Lehto	2024-06-01	2027-05-31	FFI	Astus, CAG Syntell, Einride, KTH, Magna Electronics, Qamcom, Scania
DEEP MULTIMODAL LEARNING FOR AUTOMOTIVE APPLICATIONS	Maryam Fatemi	2023-09-01	2027-08-31	VINNOVA	Zenseact, Volvo Cars, Chalmers
COMPETENCE PROJECTS					
SHAPE-IT – Supporting the interaction of Humans and Automated vehicles: Preparing for the Environment of Tomorrow	Jonas Bärgman	2019-10-01	2024-03-31	EU H2020	Chalmers, GU, TU Delft, TU Munich, University of Leeds, and University of Ulm, other associated partners
NATIONAL TRAFFIC SAFETY CONFERENCE	Malin Levin	2024-04-01	2024-09-30	Skyltfonden	Chalmers/ SAFER
STRENGTH_M – Stimulating road Transport Research in Europe and around the Globe for sustainable Mobility	Verena Wagenhofer (AVL)	2022-09-01	2025-08-31	EU (CSA type of project)	Volvo Group, Chalmers Industriteknik, other EU partners
IGLAD Phase 5 – Initiative for the global harmonisation of accident data	Ines Heinig	2023-01-01	2025-12-31	Consortium financed	SAFER/Chalmers, Autoliv, Volvo Cars, Volvo Group, Asymptotic, other EU/ international partners
CCAM Sweden	Rodrigue Al Fahel	2024-05-01	2026-04-30	VINNOVA, Drive Sweden program	LSP (Coordinator), VTI, RISE, Chalmers (Core), Autoliv, Volvo Cars, Volvo Group, Scania, City of Gothenburg, Trafikverket, Transport Administration, other
AFROSAFE - Safe System for radical improvement of road safety in low – and middle-income African countries	Aliaksei Laureshyn	2022-09-01	2026-08-31	EU Horizon Europe	Lund University, VTI, Autoliv, Volvo Group (GTT), Chalmers Industriteknik, Institute of Transport Economics, Norway, University of Education, Winneba, Ghana, NTU International, Denmark, Technical University of Delft, Netherlands, University of Dar es Salaam, Tanzania, Zambian Road Safety Trust, Zambia
REALLOCATE – Rethinking how we move	Suzanne Falk	2023-05-01	2027-04-30	EU (CIVITAS)	City of Gothenburg, Halmstad University, Chalmers, other EU partners
EVOROADS – Evolutionary Solutions for Realising a Holistic Safe System Approach for All Road Users	Ellen Grumert	2024-05-01	2027-04-30	EU Horizon Europe	ERTICO (coordinator), FRONTIER INNOVATIONS, EURECAT, INLECOM INNOVATION, DTU, VTI, IDIADA, WEAREDOTS, CEA, CTAG, INDRA, CEFRIEL, LINKS FOUNDATION, BEIA, CSI, ALBA, UCY, RIGA, MITMA, IRF
SUPERSAFE – SUrrogate measures for SAFE autonomous and connected mobility	Carmelo D'Agostino	2023-01-01	2027-12-31	EU Horizon Europe	Lund University and other European partners

Appendix 3: Collaborative knowledge sharing and project creation activities

Concluded SAFER seminars, conferences, workshops and other events during year 19 include:

- SAFER seminar with Dr Scott Gayzik: Extending the Application of Human Body Models: Evaluation of Model-Based Candidate Injury Metrics, January 10, 2024
- SAFER engagement at Transportforum: Trafiksäkerhet möter arbetsmiljö, en synergiverkstad, January 18, 2024
- SAFER seminar with Prof. Emeritus Arend L. Schwab, Delft University of Technology, The Netherlands, presented On the Art and Science of Cycling, January 24, 2024
- SAFER Stage 6 Kick off event, January 25, 2024
- Breakfast seminar hosted by Combitech; An introduction to System Theoretic Process Analysis (STPA) – a complementing approach to manage the safety challenges for complex and autonomous systems, January 26, 2024
- SAFER Update #1, February 1st, 2024
- SAFER Thursday lunch seminar: WHO: The Global status report on road safety, Matts-Åke Belin, February 1st, 2024
- SAFER Thursday lunch seminar: 802.11p/bd versus 4G/5G/6G — The continuing saga of wireless standards for V2X, Episode IV, Erik Ström, Chalmers University, February 22nd , 2024
- SAFER Seminar – Presentation of research activities at University Pontificia Comillas, Fransisco Jose Lopez Valdes, February 22nd, 2024
- Alexandros Leledakis's Doctoral Defence. February 23rd, 2024
- SAFER Thursday lunch seminar: New SAFER Partners Linköping University and Axkid, February 29th, 2024
- Conference Barn, Liv och Trafik, March 6th, 2024
- SAFER Stage 5 Final Event, March 8th, 2024
- SAFER Project Result Day #1, March 19th, 2024
- Final Presentation ADOPTIVE Research Project, March 25th, 2024
- Workshop – Small and safe vehicles, March 26th, 2024
- SAFER Update #2, April 11th, 2024
- SAFER Thursday lunch seminar: New SAFER Partners: Guidance to Zero and QualiSafe, April 11th, 2024
- Session From Research to Evidence-based Transport Safety Strategies – Towards Vision Zero, Transport Research Arena in Dublin, April 16, 2024
- SAFER Thursday lunch seminar: Risk factors as causes of accidents, Rune Elvik, TOI, April 18th, 2024
- SAFER Research Day: Exploring Traffic Safety data Openness and Accessibility, April 24th, 2024
- SAFER Thursday lunch seminar: The TFL Bus Safety Standard: Enhancing safety for both pedestrians and passengers, April 25th , 2024
- SAFER Thursday lunch seminar: Combitech – Systems Safety For Complex Vehicles, May 2nd, 2024
- Workshop from Implementation of Strada in-depth module, May 2nd, 2024
- Webinar – 2 years later: Reflecting on FFI's New roadmap for safe and sustainable transportation, May 16th, 2024
- SAFER Thursday lunch seminar: CCAM - Latest Updates from the CCAM partnership and other organisations, May 16th, 2024
- Workshop – Enhancing Strada: Workshop on improving accident database quality and usability for research, May 22nd, 2024
- Stefan Kojchev's Doctoral defence, May 22nd , 2024
- SAFER Project Result Day #2, May 24th, 2024
- Seminar with NTF: Ungas användning av A-traktorer – Vad kan vi göra för att öka säkerheten, May 30th, 2024
- Child Occupant Protection: Latest Knowledge and future opportunities seminar, May 31st, 2024
- SAFER Update #3, June 5th, 2024
- Webinar: Vision Zero by Sweden – A global Road Safety Program, June 11th, 2024
- Final event: Reporting as part of organizations' sustainability agenda – methodology for measurement and improvement, June 12th, 2024
- Project creation workshop about data accessibility, August 20, 2024
- Lunch seminar with Revere: The vehicle lab's new strategy and opportunities for SAFER-connected researchers, August 29, 2024
- PANACEA Final event: A holistic approach to fitness to drive. September 10th, 2024
- SAFER Update Webinar: Latest opportunities within the platform, September 11th, 2024
- SAFER Thursday lunch seminar: Volvo Group Sustainability Strategy focusing on traffic safety, September 12, 2024
- SAFER Research day: Theme Human body and Mind, September 18, 2024
- Event about driver behaviour models, September 18th, 2024
- Passenger Safety in Shared mobility, September 18th, 2024
- SAFER Thursday lunch seminar: Adaptive Collision free trajectory tracing control, September 19th, 2024
- Vision Zero International Course, September 16th -20th , 2024
- SAFER Workshop on long-term impairment data, September 25th
- Seminar with Prof Phil Koopman about automation in transport and way forward, September 26, 2024
- Safe automation in transport – poster session and Best poster award, September 26th, 2024
- Lindholmen Open Day seminar, September 26th, 2024
- SAFER Thursday lunch seminar: Protecting pedestrians and drivers: Gothenburg's traffic safety agenda and research opportunities, October 3, 2024
- SAFER Thursday lunch seminar: Magna Electronics – Magna Electronics journey to safer ADAS, October 10, 2024
- SAFER Thursday lunch seminar hosted by AstaZero, October 17, 2024
- Project creation workshop: Equity in Occupant Protection, October, 17
- 9th International Conference on Driver Distraction and Inattention, October 21st – 23rd, 2024
- SAFER Thursday lunch seminar: To put Science into practice, October 24th, 2024
- Shaping the future of STRADA: Next steps presented by The Swedish Transport Agency, November 4th, 2024
- SAFER Webinar: Collision Matrix as a traffic safety tool, November 5th, 2024
- SAFER Update, November 6th, 2024
- SAFER Thursday lunch seminar: Safety assurance in automation, November 7, 2024
- SAFER Thursday lunch seminar: A summary of DDI 2024, November 14, 2024
- SAFER Thursday lunch seminar: SAFER Human Body Model for Virtual Testing, Current Status and Future Possibilities, November 21, 2024
- SAFER Seminar – Modelling driver behaviour with intelligent vehicle systems in motorways and urban environments, November 26th, 2024
- SAFER Research day- Safety Performance Evaluation, November 27, 2024
- Mini-workshop: Horizon Europe traffic Safety calls preparations – WP 2025. November 27th, 2024
- Incidents: Increased safety and sustainability in transport of dangerous goods, November 28th, 2024
- Workshop: Driver Monitoring Systems Targeting Alcohol and Drug Use, December 2nd, 2024
- SAFER Thursday lunch seminar: Exploring the societal impacts of autonomous vehicles: Insights from Erik Almlöf's research, December 5, 2024
- SAFER Thursday lunch seminar: Large language models – how can these help us in research, December 12, 2024
- SAFER Research day: Deep Dive into the future of ADAS – Advanced testing and Verification, December 18, 2024
- SAFER Christmas breakfast, December 18, 2024
- Final event for the EVIDENT Project, December 18, 2024
- Mini-project creation workshop: Defining research priorities in ADAS testing and verification for CCAM, December 18, 2024

Appendix 4: Visability/references in conferences

Conference contributions from SAFER partners during year 19 include visability/ references in conferences:

- Transportforum 2024, Linköping, Sweden, January 2024
- RTR2024 – Road Transport Research conference, Brussels, Belgium, February 2024
- IHSI 2024 – 7th International Conference on Intelligent Human Systems Integration: Integrating People and Intelligent Systems, Palermo, Italy, February 2024
- BIOSTEC 2024 – 17th International Joint Conference on Biomedical Engineering Systems and Technologies, Rome, Italy, February 2024
- Barn, Liv och Trafik – Säkrare trafikvardag för barn och unga, Gothenburg, Sweden, March 2024
- CAIN 2024 – IEEE/ACM 3rd International Conference on AI Engineering – Software Engineering for AI, Lisbon, Portugal, April 2024
- TRA 2024 – 10th Conference of the Transport Research Arena, Dublin, Ireland, April 2024
- 7th child occupant protection conference, Gothenburg, Sweden, May 2024
- ESWC 2024 – 21th European Semantic Web Conference, Heraklion, Greece, May 2024
- IEEE IV 2024 – 35th Intelligent Vehicles Symposium, Jeju Island, Republic of Korea, June 2024
- RE 2024 – 32nd IEEE International Requirements Engineering Conference, Reykjavik, Iceland, June 2024
- HCII 2024 – 26th International Conference on Human-Computer Interaction, Washington, USA, June 2024
- IRCOBI 2024 – International Research Council on the Biomechanics of Injury Europe Conference, Stockholm, Sweden, September 2024
- CRBAM 2024 – 8th Annual Meeting of the Cycling Research Board, Zurich, Switzerland, September 2024
- Vision Zero International Course, Gothenburg, Sweden, September 2024
- DDI 2024 – 9th International Conference on Driver Distraction and Inattention, Michigan, USA, October 2024
- SweCog 2024 – 9th conference of the Swedish Cognitive Science Society, Stockholm, Sweden October 2024
- POLIS 2024 – Annual POLIS Conference, Karlsruhe, Germany, November 2024
- CARHS 2024 – 10th Symposium Human Modeling and Simulation in Automotive Engineering, Marburg, Germany, November 2024
- AIRBAG 2024 – 16th International Symposium on Integral Car Safety Systems, Mannheim, Germany, November 2024
- ICPR 2024 – International Conference on Pattern Recognition, Kolkata, India, December 2024

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VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS