

Newsletter 2024-2

DEAR READERS,

once again, we can describe the year that is soon coming to an end as “eventful” and “extraordinary” without exaggeration. Both regionally - with bridge collapses and closures - and nationally with the premature end of the current governing coalition, memorable things have happened that seemed unthinkable or at least unlikely at the beginning of the year.

On the opposite, the GIDAS project celebrated its 25th birthday this year as planned and without any surprises. For us at VUFO, this event was certainly one of the highlights of the year. The successful celebration at the Ministry of Transport and Digital Infrastructure (BMDV) took place after months of planning with the cooperation partners and project initiators, many supporters and representatives of the authorities. Appearances and speeches by the Federal Minister of Transport, the VDA President and the BAST President underlined the importance of this unique project for road safety, not only in Germany.

With this newsletter we would like to take the opportunity to once again thank all partners, customers, and supporters of VUFO! We wish everyone a peaceful Christmas, a successful New Year and a good start to 2025. May everyone find enough time to pause with their family, switch off and gather strength and inspiration for the challenges ahead.

Many greetings, on behalf of the entire VUFO team from Johann Ziegler, Thomas Unger and Henrik Liers

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Memberships and Commitments of VUFO

We are increasingly contributing our expertise from more than 20 years of accident research and accident analysis and the findings from over 500 projects in the field of traffic and vehicle safety to committees, boards and traffic safety initiatives. We carry out most of these activities on a voluntary basis and in addition to our “day-to-day business”, investing time in presentations and analyses as well as financial resources in attending meetings.

In addition to expanding the network, it is also important to us to bring objectivity, interdisciplinarity and data-driven insights into debates, regulations and developments.

Below is a brief overview of VUFO’s current activities and commitments:

- VDI working group for the preparation of VDI guideline 5900 Blatt 3.2 (Accident investigation)
- Member of ISO/TC22/SC36/WG7
- Membership of the DVR Committee on Traffic Medicine
- Program committee member of crash.tech
- Program committee member of ESAR
- Advisory Board Member SIVAS (Safety of Connected and Automated Driving)

We have recently become a member of the advisory board of the Saxony State Road Safety Association and look forward to strengthening and supporting regional road safety work.

The VUFO is also a member of various associations and organizations, including:

- ASAM (Association for Standardization of Automation and Measuring Systems)
- EVU (European Association for Accident Research and Analysis)
- CMC (Connected Motorcycle Consortium)
- ERSC (European Road Safety Charter)

In a nutshell

Here you will find information, anecdotes and news that are too small for a detailed article, but are simply too good to leave out.

+++ Current number of employees: 31 permanent employees and 25 marginal employees +++ In 2024 we gave 24 lectures at conferences and congresses - a new record for us (list with selected publications at the end of the newsletter) +++ In addition, we appeared with articles about our work in various publications, including the DEKRA road safety report and the NEXT magazine of the industry association Silicon Saxony +++ On July 30th, we recorded the 24,000th case of the Dresden GIDAS investigation team since the project start in 1999: a bicycle-car accident with minor injuries +++ Current number of GIDAS cases that have already been transferred to OpenSCENARIO and OpenDRIVE: 1067 +++ In August we celebrated our traditional summer and alumni party with more than 140 team members and alumni including their partners and children as well as supporters from authorities and institutions +++ In 2024 we tried to read the Event Data Recorder (EDR) from around 40 cars - we were successful in 22 of these cases +++ We were able to get the AARU (Audi Accident Research Unit) psychology team on board to provide our investigation staff members with comprehensive interview training +++ Work on GIDAS 4.0 is still not finished: There are currently two BAST projects underway in which we are involved as research contractors or subcontractors: one on coding the causes of injuries and one on adaptive interview options +++ And then there was this one case ... in which the wild boar that had been hit by a car and was seriously injured fled into the forest, but was eventually put down by the wolf:

Es kommt zum Zusammenstoß mit einem Wildschwein. Dieses läuft verletzt zurück in den Wald und bleibt liegen, wurde durch PM Wolf mit drei Schuss erlegt. Sachschaden 1.000€.

(Extract from the police report, which states that the policeman named "Wolf" shot the wild boar with 3 shots.)

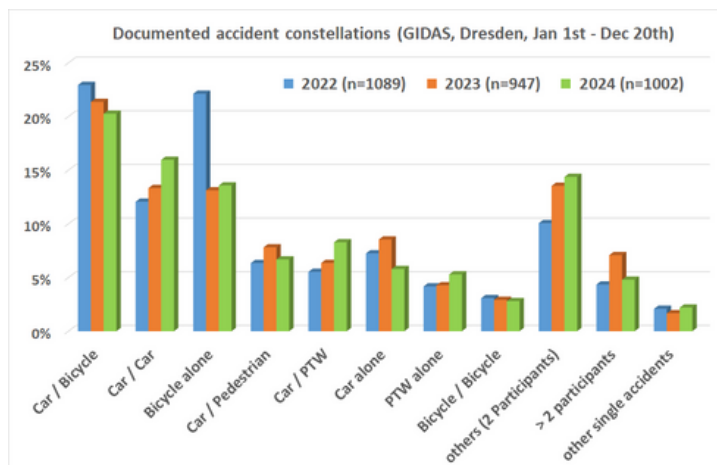
Review of the accident year 2024

The number of traffic fatalities on German roads will only fall minimally in 2024. Based on the accident figures for the first 10 months, we expect **around 2,790 fatalities**. Compared to the 2,839 fatalities in the previous year, this decline is not as large as hoped, although mileage has increased again in 2024.

After the 960 cases last year, our GIDAS investigation team will this time record more accidents than the average of recent years. We **already reached the target of 1,000 cases** on December 18th - target achieved! The case number forecast for our investigation team is currently around 1,030 cases.

Once again, the **car-bicycle accident** was the most frequently documented accident constellation. In second place are **car-car accidents**, of which we were able to record even more this year than in previous years. In third place among the accident constellations are once again single bicycle-only accidents. Accidents between cars and motorized two-wheelers and single accidents of motorcycles were recorded somewhat more frequently than in previous years. Single accidents of cars decreased slightly.

The following graphic shows the accident constellations recorded from 2022 to 2024 (not weighted, grouped, regardless of causation).



Comparison of the documented accident scenarios in the Dresden investigation area in 2022, 2023 and 2024

Following adjustments to the GIDAS investigation methodology in 2023, there were no changes to the statistical sampling plan this year. Instead, since the middle of the year we have been benefiting from a **new case processing system in the command and control center** of the Dresden Police Department, from which we receive the majority of our accident reports. Thanks to this system, we now also receive information about accidents that were initially reported without personal injury but which turn out to be accidents with injuries during the course of the police action. This helps us to further **improve the representativeness of case selection**.

New investigation vehicle

After we sent our technician's vehicle, a Mercedes Vito, into well-deserved retirement in the middle of the year, we can now call a new vehicle our own. It is again a Mercedes-Benz Vito Tourer 116 CDI with a long wheelbase, so that we could once again use our existing installation for the measuring, security and documentation equipment.



For the first time, this vehicle will soon be equipped with a **V2X communication module** for productive operation. This will enable us, for example, to transmit our position to other road users in the future, making trips with flashing blue lights and the work at the accident scene even safer, and to test and use V2X applications in real traffic.

Anniversary event: 25 years of GIDAS

On November 5, 2024, the Federal Ministry for Digital and Transport (BMDV) hosted the celebration of the 25th anniversary of the German In-Depth Accident Study (GIDAS) - a significant moment for road safety in Germany and beyond!

Federal Minister Dr. Volker Wissing opened the event and underlined the importance of accident research data: "Data helps save lives. GIDAS is an indispensable part of our work to continuously improve road safety." He was followed by a speech by **VDA President Hildegard Müller**, who highlighted the role of GIDAS for companies in the automotive industry to around 150 guests: "The German automotive industry is proud to be a world leader in accident research. The data obtained helps to develop the safest vehicles and increase safety on the roads."



The keynote speeches were followed by a varied program in which the project initiators and operators from BAST and FAT had their say. Representatives from ministries, authorities and companies presented **activities, findings and successes** that they have achieved on the basis of GIDAS.

In 25 years of the project, an impressive list of **technical systems, innovations and legislative measures** has been created that are largely due to the use of GIDAS data.

We as investigation teams were also able to provide insights into our work and the challenges and peculiarities associated with it, but also the special appeal of our work.

A special moment was the **signing of the BAST-FAT cooperation agreement**, which renews the previous trusting and successful cooperation between both actors and puts it on a secure footing for the future.



Intensive discussions during the breaks, networking opportunities and an exciting exhibition, which was organized by the investigation teams and gave interested parties an insight into our work, rounded off the event. But it was not just about celebrating what had been achieved, but also about looking to the future. There was consensus among the participants that there is still a long way to go before **Vision Zero** can be achieved, which **requires joint efforts and must also be consistently accompanied by in-depth accident research** and the GIDAS project.

With the continuous development of GIDAS, including the establishment of the third investigation area and the reading of electronic vehicle data from accident vehicles, the GIDAS database will remain a central instrument of road safety work in the future.

We are looking forward to the next 25 years of GIDAS! There are enough challenges in the context of increasingly digital, connected, electrically powered and automated mobility!

Safety in Motorsport

VUFO is currently working on the joint project “Motorsport networked – safety and sustainability in sight” of the DMSB (German Motor Sport Association) and the ADAC Foundation. The project will show the current status of accident documentation and monitoring systems in motorsport and **develop a cross-series system for continuous monitoring of motor-sport series.**

After the concept was designed and implemented in an app, the methodology has been tested at selected racing events in 2024. The team from the “Sicherheit im Sport” foundation accompanied a rally event in order to further advance the project on site and to examine the practical suitability of the results obtained so far. Other events were accompanied, for example, at the Nürburgring (touring cars) or in Zschopau (enduro sport).



The aim is to establish structured accident monitoring for motorsport events. On the basis of this data, security gaps can be identified in the future and measures can be developed to prevent them in order to increase safety for people on and off the race track. Accident prevention is thus optimized on a scientific basis.

The DMSB is the first leading association in German sport to take this path and we are pleased to be able to support it with our expertise in the development, operation and analysis of accident databases.

FIA project "Elderly Road Users"

The Vision Zero policy framework has been proven to be a strategy for improving safety in transport systems. At the heart of the Vision Zero concept is the belief that road deaths and serious injuries can be reduced to zero. It assumes that it is the duty of transport planners and decision makers to create safe environments for all road users, with safety taking priority over speed and convenience when designing roads and transport systems.

In the now completed research project, VUFO, on behalf of the FIA, looked at a **Vision Zero strategy for mobility clubs and other interest groups in the mobility sector** that particularly addresses elderly road users as their number is increasing in Europe.

The study included examining the benefits and challenges associated with adopting the Vision Zero approach and exploring strategies, measures and technologies that can be used to increase the safety of elderly people.

A central aspect concerned the special needs of older (car) passengers and the potential impact of age-related impairments in vision, hearing and cognitive performance on road safety. The high level of experience and compensation strategies of older road users were also taken into account.

The study with the recommendations and procedures is available on the FIA website at the following link:

<https://www.fiaregion1.com/expert-study-vision-zero-the-ageing-population-and-rapidly-evolving-vehicle-infrastructure-and-digital-transformation/>

VUFO goes OpenX: GIDAS accident scenarios in new formats

Automation is a promising approach on the way towards more road safety and the Vision Zero. This requires the development of increasingly complex assistance and control systems for vehicles. This involves expanding the scope of previously planned safety measures. However, due to the complexity and extremely high variance of relevant scenarios, this cannot be achieved without the use of simulations.

For this reason, we have been working for several years on **transferring and converting the valuable GIDAS-PCM accident scenarios into other simulation-capable formats**. After establishing both automated and manual processes for this, the focus this year was on quality assurance and scaling as well as increasing the number of cases.

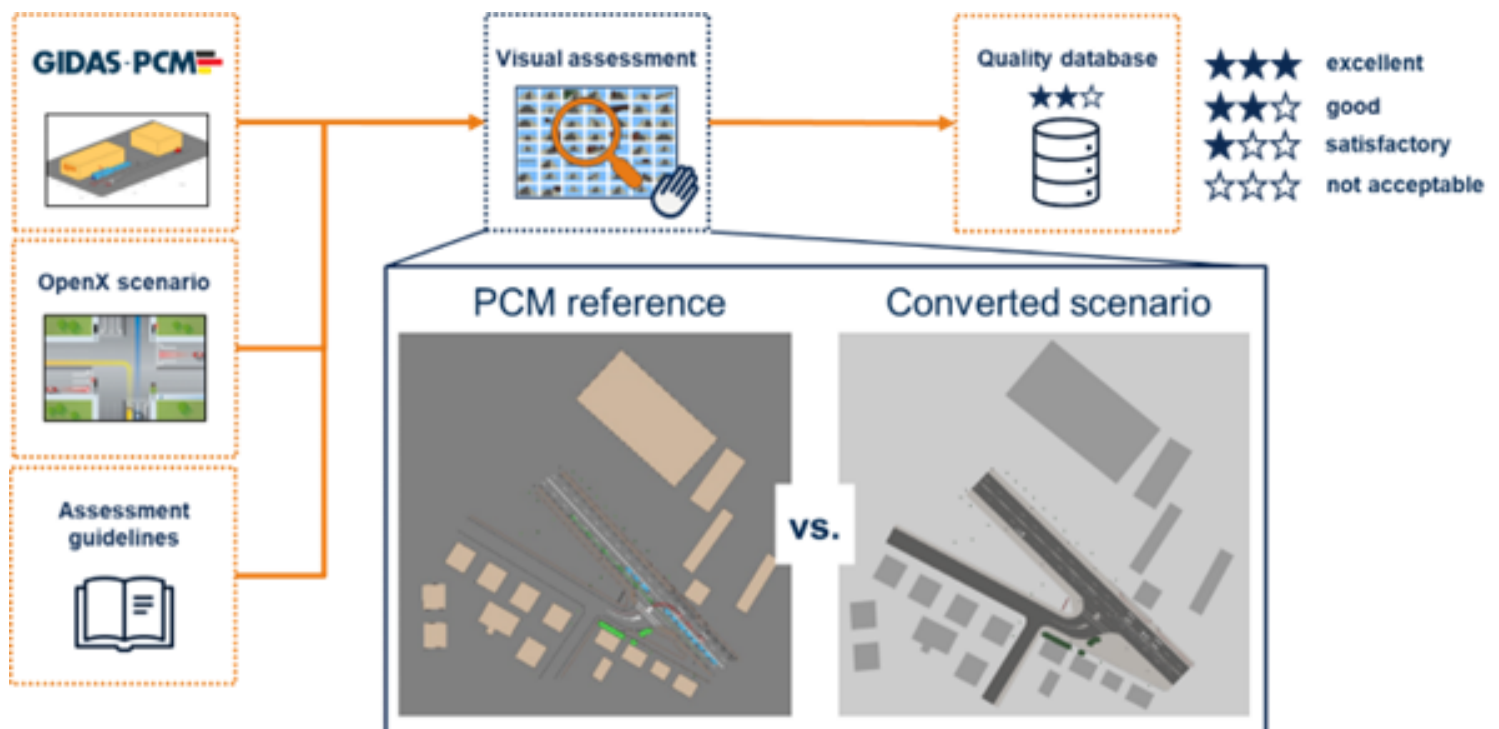
Due to the level of detail in our data, converting it into other formats presents a number of challenges. As with any conversion, the processes we use may result in a loss of information.

The aim of our internal R&D activities in 2024 was to continuously reduce conversion-related information losses through optimization. To this end, we developed a **metric to assess the quality of the conversion results**.

This enables us to respond to different customer requirements and identify scenarios that are suitable for interested parties. Experience has shown that different players require different levels of complexity and detail in the used data bases. Based on our quality metrics, we can provide very precise scenario data (usually less in terms of numbers) or, with acceptable compromises on the level of detail, provide a large number of simulation scenarios.

We recently presented the methodology and our processes for creating OpenX scenarios at the ASAM International Conference 2024.

As of now, we can already provide **over 1,050 real accident scenarios in the OpenSCENARIO XML and OpenDRIVE simulation formats**, which can be used immediately with suitable software.



Overview of the quality assessment of OpenX scenarios based on the GIDAS PCM scenarios

Review 2024

Our further education courses and accident analysis seminars were also well received in 2024.

We successfully ran our “classic” **Accident reconstruction basic course**, which consists of three four-day modules, in both spring and autumn. Some participants took advantage of the opportunity to attend an accompanying introductory training course on the PC-Crash reconstruction software.

Our 1-day seminar on **3D accident site investigation**, in which we convey the basics and our extensive experience from hundreds of accident site documentations with laser scanners, photogrammetry and drones, was also well received.

The **Electronic Vehicle Data** seminar, which deals in particular with the reading and interpretation of data from the Event Data Recorder (EDR) and the vehicle diagnostic system, was also held.

There was also renewed demand for **GIDAS training courses**, in which we give employees of GIDAS partner companies detailed insights into the methodology, content, evaluation options, and limitations of the GIDAS data. We often combine this training with an introduction to the GIDAS PCM. Such a “basic introduction” is usually rounded off with a hospitalation in the GIDAS investigation process in one or two investigation shifts in order to deepen the understanding of the data origins and reliability of the more than 2,500 different GIDAS variables.

At the same time, we continued our collaboration in the VDI working group to create Blatt 3.2 (accident investigation) within the framework of VDI guideline 5900. The fourth physical meeting of the working group took place in September at the VUFO.

Seminar catalogue and dates 2025

In the coming year we will hold at least the following training events:

BASIC COURSE IN ACCIDENT RECONSTRUCTION

- Module 1: Accident recording, special aspects and expert work
Spring: April 2nd – April 5th, 2025
Autumn : November 5th – November 8th, 2025
- Module 2: Theoretical Foundations
Spring: May 07th – May 10th, 2025
Autumn: November 26th – 29th, 2025
- Module 3: Practical Reconstruction
Spring: May 21st – May 24th, 2025
Autumn: December 10th – December 13th, 2025

BASICS OF THREE-DIMENSIONAL INVESTIGATION OF ACCIDENT SITES

- Date 1: June 13th, 2025
- Date 2: September 05th, 2025

BASICS OF ELECTRONIC VEHICLE DATA

- Date 1: June 12th, 2025
- Date 2: September 04th, 2025

If you are interested in an event, please contact us for further information and appointment requests. Our training coordinator is available by phone at +49 351 43898931 or by email at weiterbildung@vufo.de.

Our 2025 seminar catalogue provides a detailed overview of the seminars offered in 2025. It summarizes all the seminars planned for the coming year with content, dates and registration modalities. The catalogue (i German language only) can be downloaded from our VUFO website.

If you are interested in **English seminars** please contact us as well.

Reevaluation des Notarzteinsatz-**Indikationskataloges nach Verkehrsunfällen**

M. Hetz, S. Babisch, T. Unger, K.-D. Schaser, C. Kleber
// In „Die Unfallchirurgie“, Vol. 127, S. 364-373 (2024)

Ungeschützte Verkehrsteilnehmer im überfüllten Verkehrsraum

T. Unger, H. Liers // „ADAC Sachsen Sachverständigen-Tagung 2024“, 23.01.2024, Dresden

Untersuchung von Fahrrad-PKW-Unfällen an Knotenpunkten

A. Shishkov, T. Unger, H. Liers // „crash.tech 2024“, 14.-15.03.2024, Ingolstadt

Use of in-depth accident data and scenario databases for enhancing road safety

H. Liers // SAFER's Research Day, Chalmers University, 24.04.2024, Gothenburg

Mobilität im Wandel – Erkenntnisse aus der Unfallforschung mit dem Fokus auf Radverkehr

H. Liers // „Forum Rhein-Main“, 26.04.2024, Mainz

Real world accident scenario simulation

L. Dulewicz, M. Petzold, T. Unger // „ADAS & Autonomous Vehicle Technology Expo“, 04.06.2024, Stuttgart

Potentialbewertung zukünftiger V2X-Lösungen in PKW-Fahrrad-Unfällen

M. Petzold, K. Reisinger // „37. VDI-Tagung Fahrerassistenzsysteme und Automatisiertes Fahren“, 25.-26.06.2024, Aachen

Überführung realer Unfall- und Verkehrssituationen in eine Szenariendatenbank zur Entwicklung und Absicherung von AD und ADAS

H. Liers, C. Erbsmehl (WHZ), A. Rauschert (Fraunhofer IVI) // „37. VDI-Tagung Fahrerassistenzsysteme und Automatisiertes Fahren“, 25.-26.06.2024, Aachen

Analysis of bicycle to car accidents at junctions

A. Shishkov, T. Unger, H. Liers // “19th Praxiskonferenz Fußgängerschutz”, 03.-04.07.2024, Bergisch Gladbach

RAVE Checklist: Recommendations for Overcoming Challenges in Retrospective Safety Studies of Automated Driving Systems

J. M. Scanlon, E. R. Teoh, D. G. Kidd, K. D. Kusano, J. Bärnman, G. Chi-Johnston, L. Di Lillo, F. Favaro, C. Flannagan, H. Liers, B. Lin, M. Lindman, S. McLaughlin, M. Perez, T. Victor // Preprint, listed under <https://arxiv.org/abs/2408.07758> // Peer-Review finished by Traffic Injury Prevention

Möglichkeiten zur Validierung von EES-Werten – Systematische Qualitätsuntersuchung einer Fallstichprobe

Y. G. Schmidt (WHZ), K.-D. Brösdorf (WHZ), E. Sinen, T. Unger // „13. CTS-Sachverständigenseminar“, 29.08.2024, Münster

How and where to find the right scenarios for test and development of ADAS and AD functions?

M. Petzold, K. Reisinger, T. Unger // “carhs - The ADAS experience”, 18.-19.09.2024, Penzing

Analysis of bicycle to car accidents at intersections

A. Shishkov, T. Unger, H. Liers // “Freiberger_Crashworkshop”, 26.09.2024, Freiberg

Unfälle mit Nutzfahrzeugen

R. Rößler, T. Weber, T. Unger, H. Liers // „GTÜ - 11. Technische Fachtagung“, 12.10.2024, Ulm

Analysis of bicycle to car accidents at intersections

A. Shishkov, T. Unger, H. Liers // “eMove360° Europe 2024”, 15.10.2024, Munich

Analysis of serious and fatal bicycle accidents from Germany and Japan

T. Kiuchi (ITARDA), H. Liers, T. Unger // "ICSC 12th International Cycling Safety Conference", 05.-07.11.2024, Imabari, Japan

Investigation of bicycle-car accidents at intersections

A. Shishkov, T. Unger, H. Liers // "ICSC 12th International Cycling Safety Conference", 05.-07.11.2024, Imabari, Japan

Real traffic accident scenarios for verification and validation

L. Dulewicz, T. Unger // "SDS 10th Symposium Driving Simulation", 07.11.2024, Stuttgart

Bridging the Gap: Mechanistic-based Cyclist Injury Risk Curves Using two Decades of Crash Data

A. Schubert, E. T. Campolettano (Waymo), J. M. Scanlon (Waymo), T. L. McMurry (Waymo), T. Unger // "AAAM's 68th Annual Scientific Conference", 11.-14.11.2024, Seoul, Süd-Korea

Event Data Recorder – Auslesen, Protokollaufzeichnung und Auswertung

K. Schreckenbach, E. Sinen // „ADAC Saarland Sachverständigen-Tagung 2024“, 16.11.2024, Homburg

E-Scooter, Lastenfahrrad & Co. – Wie sicher ist die neue urbane Mobilität?

H. Liers // „DGUV-Fachgespräch Verkehrssicherheit - Mobilitätstrends im Wandel – gemeinsam sicher im Straßenverkehr“, 18.11.2024, Bad Hersfeld

Road safety in a global perspective – Accidentology in Asia and Europe

H. Liers, L. Pett // "Airbag 2024 – 16. Internationales Symposium über integrale Fahrzeugsicherheits-systeme“, 25.-27.11.2024, Mannheim

Challenges in converting real accident data into ASAM openx format

T. Unger, K. Reisinger // "6th ASAM International Conference 2024", 04.-05.12.2024, Munich

Accident data analyses within the Connected Motorcycle Consortium – an international overview of PTW accidents

P. Miklis, T. Unger // "15th International Motorcycle Conference", 05.12.2024, Cologne

Methodology to Identify White Spots in the Euro NCAP Test Protocols Based on Accident Data

H. Liers, R. Rößler, J. L. Mallada (Toyota Motor Europe) // "carhs Euro NCAP Update", 10.-11.12.2024, Hanau

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