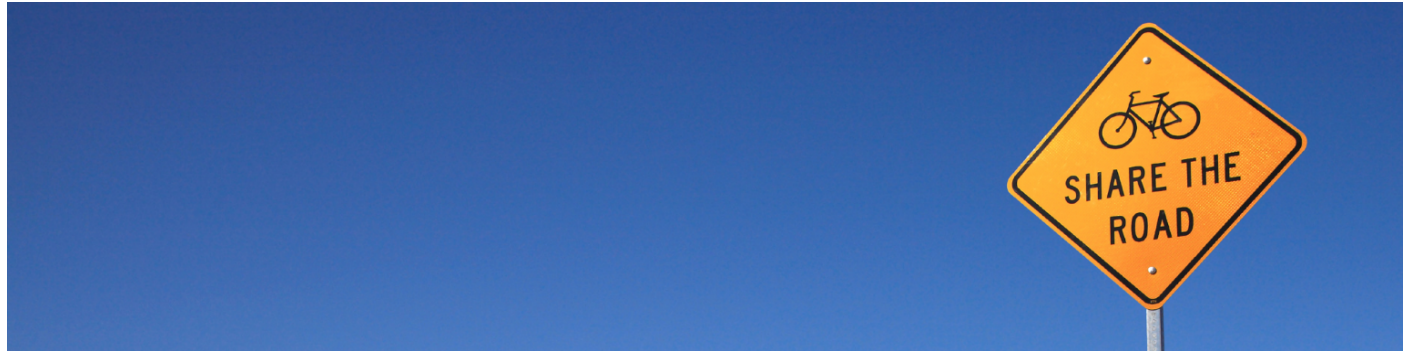


SAFE-UP

proactive SAFETY systems and tools for a constantly UPgrading road environment



A shared vision to tackle shared road safety issues

Lisa Spellman (Director - VRU Safety Consortium)



From large nations to small municipalities, awareness of the urgent need to expand sustainable modes and safer means to move people and goods continues to grow. Vulnerable road users (VRUs), such as cyclists (pedal and electric), scooter users (push and electric), pedestrians, and individuals with limited mobility, are increasingly at risk of being hit by moving vehicles. As overall safety outcomes for occupants inside most vehicles have gotten safer, the results for those outside of vehicles have not fared as well. Rates of VRU injury and death have been on the rise worldwide.

According to the [International Transport Federation \(ITF\)](#), *"All road user groups have seen a substantial increase in road fatalities in the period 2000-19 except for passenger car occupants. Moped riders are the most affected group, with a 170 percent increase in annual fatalities over this period (29 fatalities in 2000 compared to 79 fatalities in 2019). Similarly, motorcyclists saw 72 percent more fatalities, while pedestrians and cyclists saw 33 and 22 percent more fatalities, respectively. In contrast, fatalities of passenger car occupants dropped by 33% between 2000 and 2019. Since 2010, the United States has recorded a sharp increase in road deaths among vulnerable road users. Between 2010 and 2019, the number of pedestrians killed increased by 44.5%, the number of cyclists by 36% and... motorcyclists by 12%."*

The causes leading to injury and death for VRUs across the globe are complex, varied, and contextual...

[Read the full text](#)

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Update from the Coordinator

Núria Parera (Applus IDIADA)



Dear reader,

Welcome to the fourth edition of the SAFE-UP newsletter!

Last month, the SAFE-UP partners had the pleasure of participating in our 5th general assembly in beautiful Florence last month - hosted by partner Università degli Studi di Firenze (UNIFI).

The first of the two days consisted of a brief status update from each work package (WP) as well as workshops dedicated to open technical aspects of the project - like the overall impact assessment in WP5, and WP3's technical verification. On the second day, a WP6 knowledge translation session was led by Marilee Nugent of UNIFI and featured an expert talk from Tamika Heiden of the Research Impact Academy in Australia. The second and final workshop on day two focused on planning the next steps for our innovations, which involved identifying potential markets, users, synergies, and collaborations.

Back in November, SAFE-UP held its **first-ever public vehicle demonstration** at the TRA Conference in Lisbon. Our demo 1 vehicle, equipped with our Occupant Monitoring System (OMS) was showcased at the European Commission's stand, where visitors had the chance to enter the demo vehicle and see how the OMS works, by using cameras and sensors to track occupant seating positions, postures, and belt use.



Pictured left to right: Alessandro Zimmer (THI), Patrick Mercier-Handisyde and Marcel Rommerts (EU Commission) and Núria Parera (IDIADA)

SAFE-UP members Marilee Nugent of UNIFI, Anderson de Lima Luiz of THI and Jorge Lorente Mallada of Toyota also participated in the TRA with 3 scientific sessions, covering road user training for future mixed automated traffic contexts, a C-ITS-based VRU safety system, and performance analysis of CNN speed and power consumption.

We're now facing the final few months of the project and the last tasks and deliverables to be filled, namely the overall assessment of the virtual simulations and the launch of user training activities and **e-learning courses (soon to be launched on our website)**!


We're currently finalising the agenda of our **final event** which will take place in Spain at Applus+ IDIADA HQ. We can't wait to share more info with you, but for now, **SAVE THE DATE: May 17th!**

Sincerely,
Núria


Knowledge Translation for road safety innovation

On January 25th 2023, at the 5th SAFE-UP General Assembly, Dr. Marilee Nugent of UNIFI led a WP6 workshop on Knowledge Translation for Road Safety Innovation with special guest speaker Dr. Tamika Heiden, the principal and founder of Research Impact Academy, Australia.

In a virtual interview with Tamika, we asked the question, *“How can researchers proactively enhance the impact of their research?”* Tamika described how Knowledge Translation (KT) is a strategy for impact planning. Processes and principles are applied throughout the research process to plan for and capture impact. The processes are typically social and involve engaging and interacting with users of research to ensure outcomes are translated into useable and relevant formats, rather than just publishing in journals and hoping the findings are read and used.




With Special guest




Dr Tamika Heiden
PRINCIPAL AND FOUNDER

Twitter Facebook LinkedIn



Knowledge Translation for road safety innovation

Partner workshop hosted by
WP6 Dr Marilee Nugent
January 25, 2023



UNIVERSITA' DEGLI STUDI FIRENZE



DIEF

Tamika introduced the key characteristics of KT proposed by Sudsawad (2007):

- Includes all steps between the creation of new knowledge and its application
- Needs multi-directional communications
- Is an interactive process
- Requires ongoing collaborations among relevant parties
- Includes multiple activities
- Involves diverse knowledge-user groups
- Is user- and context-specific
- Is impact-oriented

In other words, **KT is PEOPLE-ORIENTED**. This echoes the current wisdom that innovation is a social process (or requires many social processes).

Tamika provided insights into the differences and relationship between KT and Impact. She further clarified what impact is, where it happens and when. Typically, real impact takes a long time to manifest, but we can look at ways to capture and measure impact at different stages in the life of a research project. Engaging with research users throughout a research program or project can help ensure we track and capture a wide variety of potential impacts, including unintended ones. It is often more appropriate to describe how outcomes have contributed to specific impacts, since measuring impact is problematic and may result from a variety of factors.

The relevant skills, knowledge and practices required for knowledge translation to strengthen the pathway from research to impact are not typically a part of researchers' training. Despite this, a growing number of funders require knowledge translation and impact planning as part of grant proposals, to ensure the ethical use of public funds and to avoid research waste...

[Read the full text on our website](#)

SAVE THE DATE

WEDNESDAY MAY 17TH 2023

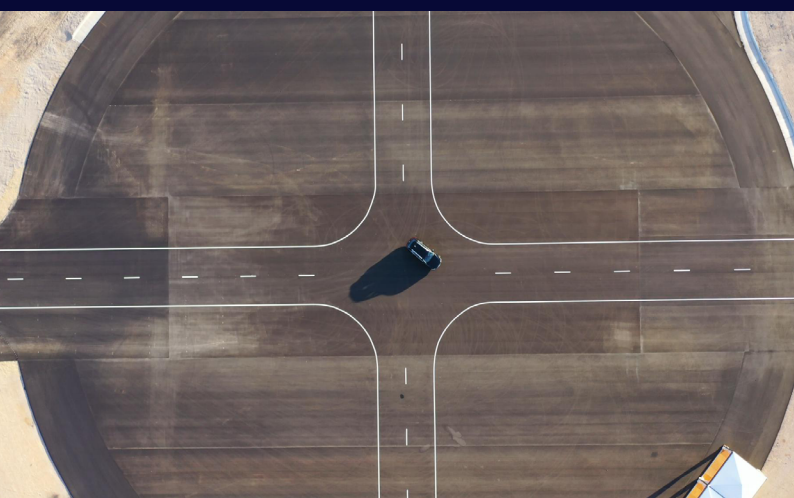
SAFE-UP



FINAL EVENT



Applus+ Idiada, Santa Oliva (Spain)



REGISTRATION OPENING SOON

Join us at Applus+ IDIADA HQ* this May and get to know our final demonstrators first-hand, for the first-time!

If you have any questions about the event you can email contact@safe-up.eu

**Capacity is limited*



The SAFE-UP project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement 861570.

MEET THE SAFE-UP PARTNERS

AIMSUN



Jordi Casas



David Garcia



Leyre Nogúes



Marcel Sala



Antonio Cabrera

Who belongs to your SAFE-UP team?

In SAFE-UP, Aimsun is mainly involved in work package 2 for future safety-critical scenarios, specifically leading Task 2.4 'Behavioural models integration and calibration: Future-proof use case simulator'. Jordi Casas is the Technical Lead, supported by Scientific Researcher Marcel Sala, and Scientific Software Engineers David Garcia, Leyre Nogués and Antonio Cabrera. These team members combine their **expertise in mobility, traffic simulation and software engineering**. Aimsun's contributions to other work packages are focused on alignments with the traffic simulation area.

What does AIMSUN bring to the project?

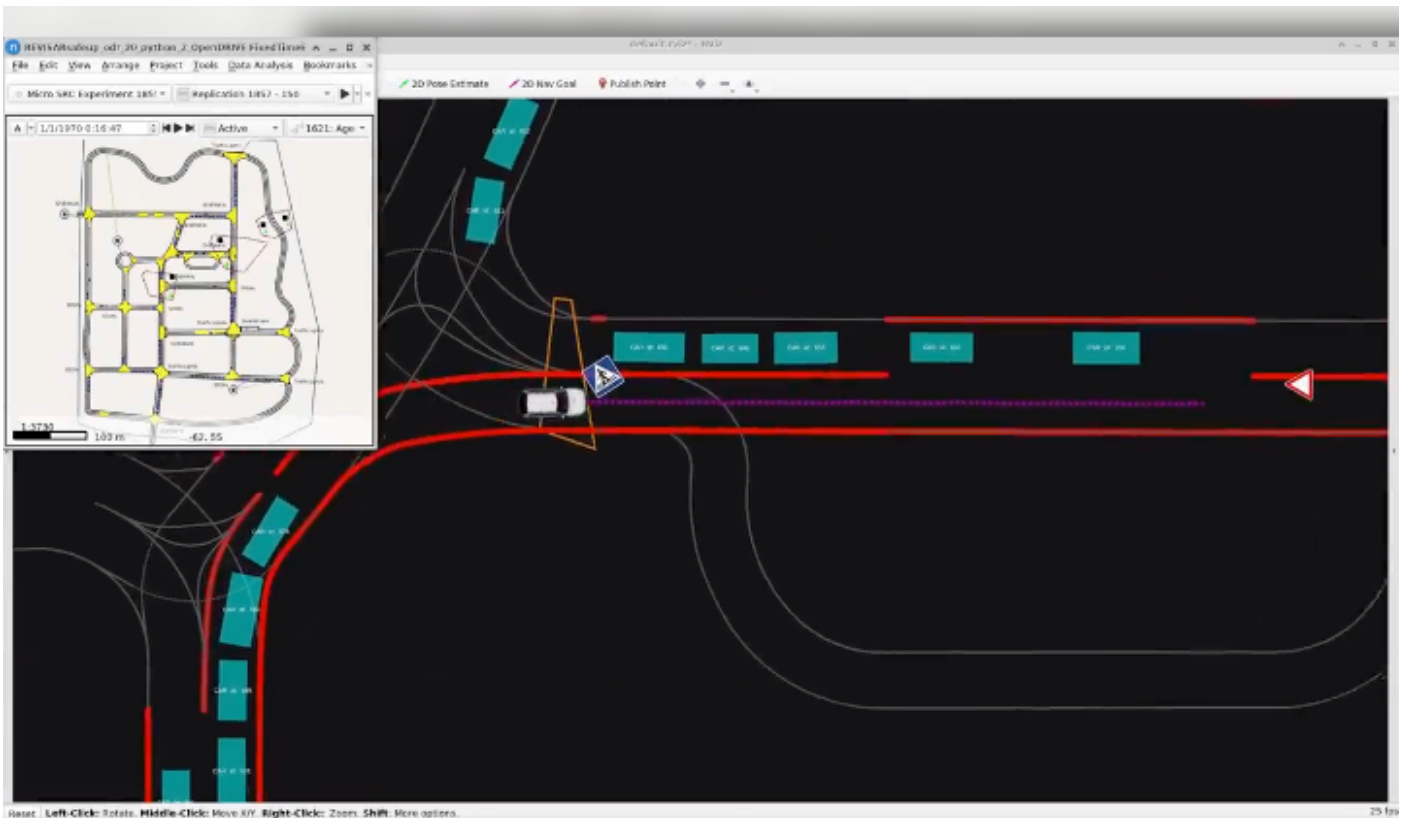
Aimsun's main contribution is **setting up a simulation framework to assess the future critical scenarios** for analysis in WP2. The SAFE-UP simulation framework involves integrating models that have been developed by different partners; in task 2.3, these account for various types of road users (such as autonomous vehicles, cyclists, or pedestrians), and different weather conditions, which may impact visibility and braking distance. The Aimsun team is working to integrate the different models into our Next simulation software - the result is a user-friendly simulation platform where the different models interact seamlessly. This has been achieved at a fraction of what it would have cost to develop an ad-hoc simulation platform and, in addition, comes with all the additional features that come as a standard with Aimsun Next that enable greater simulation flexibility and better visualisation of results.

Why did you want to take part in SAFE-UP?

The ambitions of SAFE-UP coincide with Aimsun's strategic plan to leverage its traffic simulation software, adding new functionalities focused on safety analysis for future scenarios that will include disruptors like **connected, cooperative and autonomous vehicles**. Aimsun Auto represents this strategy.

Which other related initiatives are you involved in?

Aimsun is involved in several other ongoing projects complementary to SAFE-UP, either focusing on safety assessment and traffic efficiency or evaluating connected, cooperative and autonomous technologies. For example, FRONTIER (Next Generation Network and Traffic Management for Future Mobility - www.frontier-project.eu), TANGENT (Enhanced Data Processing Techniques for Dynamic Management of Multimodal Traffic - www.tangent-h2020.eu) and DIT4TraM (Distributed Intelligence & Technology for Traffic & Mobility Management, www.dit4tram.eu) are developing new complementary tools for multimodal traffic management, considering automated / non-automated vehicles, passengers, and freight transport.



The Aimsun Next traffic simulation tool was used by Applus+ IDIADA to improve the planning module of their CAVride platform. [Click the image to learn more.](#)



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MEET THE SAFE-UP PARTNERS

CEA

CEA-Leti



Sylvie Mayrargue



Mouna Karoui



Benoît Denis



Valérian Mannoni

Who belongs to your SAFE-UP team?

CEA-LETI is involved in SAFE UP through its wireless division, which is interested in various topics such as cellular systems, the Internet of Things, antennas, propagation, and vehicular communications. CEA-LETI is mainly involved in WP3 (Active safety systems for vehicle-VRU interaction). The team is composed of Sylvie Mayrargue, Mouna Karoui, Benoît Denis and Valérian Mannoni, all four of us with **solid experience in C-ITS (Cooperative Intelligence Systems)**.

What does CEA bring to the project?

In WP3, Demo 4 is dedicated to evaluating the safety benefits of VRU connectivity. In particular, Demo 4 focuses on low or no visibility situations between the car and the VRU. This is precisely the case where connectivity can provide an advantage over the baseline case in which only in-vehicle radar, lidar, cameras are used as sensors to detect a VRU at risk. Mutual awareness is achieved by the regular exchange of information among road users: vehicles or pedestrians (V2V and V2P messages) and between road users and roadside infrastructure (V2I messages). Awareness can be also achieved through message exchanges (V2N) using long-range 4G/5G networks. All these message exchanges are part of Cooperative Intelligent Transport Systems (C-ITS).

On the one hand, the presence of the VRU can be detected by a Road Side Unit (RSU) or by a vehicle, both using their onboard sensors (camera, lidar). In this latter case, the vehicle information is sent wirelessly to the network (V2N, or to the RSU (V2I) - or possibly to both - and is then processed (fused) to enhance the probability of VRU detection. On the other hand, when connected, VRUs can also broadcast their awareness information, which is received either by the vehicles thus directly warned, or by the RSU and/or the 4G/5G network, which will in turn alert the vehicles.

CEA-LETI simulations aim to test a variety of configurations and operating contexts that could not be physically addressed in real field trials. In particular, we have performed comparisons between the above-mentioned different connectivity architectures or infrastructure deployments. We have also considered multiple radio technologies, different kinds of input sensor information and accordingly, distinct message formats to convey such information. In addition, we took advantage of the simulations to consider larger numbers of vehicles than in Demo 4 to address scalability issues.

Why did you want to take part in SAFE-UP?

Vehicular communications are part of the CEA-LETI wireless division roadmap. We have accumulated expertise in V2X communication protocols, both for short distances (IEEE 802.11p and C-V2X sidelink) and for long distances (V2N). In the context of other EU projects, we have developed several simulation tools, which have been upgraded in the context of SAFE UP, to take into account the specificities of VRUs and more realistic sensor data. Therefore, **participating in SAFE UP expands our portfolio of expertise and simulators**. In addition, our usual partners in EU projects are from the ICT (Information and Communication Technology) community. SAFE UP has a broader point of view, also involving mechanical engineers and accidentology researchers, thus enlarging our scope.

Which other related initiatives are you involved in?

We have been involved in a number of past and present European projects on vehicular technologies, in particular **H2020 HIGHTS, 5G HEART and 5G CARMEN**. HIGHTS (2015-2018) was dedicated to obtaining increased localization accuracy through vehicle-to-vehicle cooperation, 5G HEART (2019-2022) (resp. 5G CARMEN (2018-2022)) involved evaluating the improvement of vehicle safety brought by connectivity at a junction (resp. when manoeuvring on a cross-border highway). We also have been involved in the Celtic + project, where connected vehicles also carried pollution/weather sensors, and the challenge was to create crowdsourced pollution maps.



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[CLICK HERE](#) TO RECEIVE ALL FUTURE ISSUES

If you would like to get in touch with a member of the SAFE-UP team send an email to: contact@safe-up.eu



The SAFE-UP project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement 861570.