



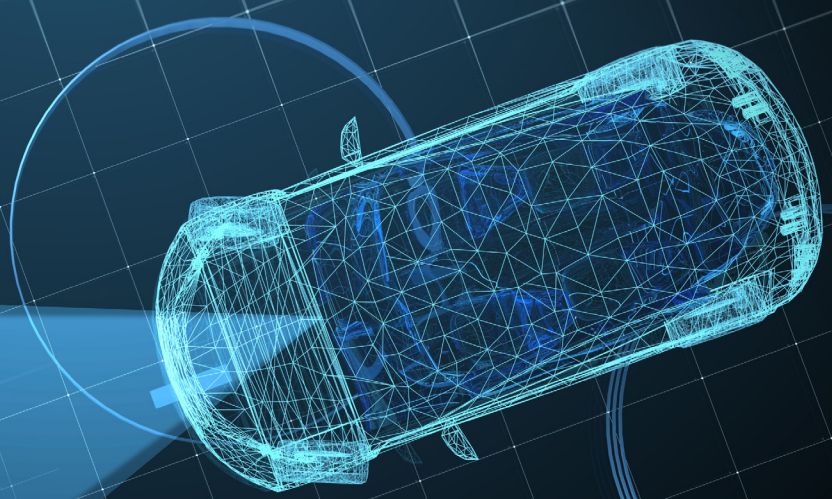
Safe, Resilient Transport and Smart Mobility Services

## Driving the Future of Road Safety with Dynamic Digital Twins

### Welcome Message

**FRODDO (Safe, Resilient, Transport and Smart Mobility Services)** is a Horizon Europe project that harnesses the power of **Digital Twin technology** to enhance road safety, improve traffic flow, and enable smarter mobility solutions.

The project tackles the challenges of **Operational Design Domains (ODDs)** and their interaction with physical and digital road infrastructure (PDI), FRODDO aims to **create adaptable, secure, and scalable mobility solutions** that benefit cities, authorities, industry, and road users.

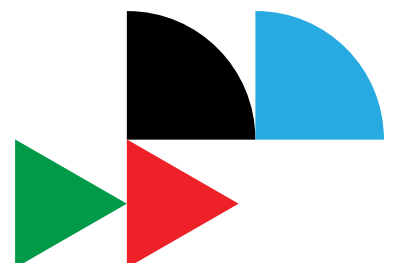


## Vision

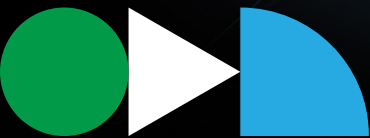
A future of **robust, safe, secure, and seamless connectivity** that adapts to physical, technological, and social challenges, supporting **user-centric mobility** and sustainable development.

## Main Objectives

- Develop frameworks for **actors' cooperation** to support adaptable, scalable, and secure ODDs.
- Ensure **safe and secure data provision** in digital twins for CCAM.
- Enhance **human-machine interfaces** for functional safety in automated driving.
- Implement **infrastructure-enabled solutions** for high-risk zones.
- Advance **GNSS and 5G-based positioning** to overcome signal disruptions.
- Integrate **predictive traffic management** and **human-in-the-loop decision support**.
- Conduct **real-world pilots** to validate solutions.
- Develop **legal, ethical, and standardisation frameworks** for scalable deployment.







## The Problem

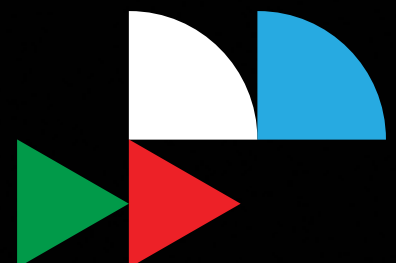
ODDs define where and how automated driving systems operate safely. Yet, there's a gap between **vehicle-specific capabilities** and the **real-world conditions** managed by road authorities and operators.

Current systems often lack adaptability, creating safety risks in changing conditions (e.g., weather, traffic incidents, infrastructure works).

## FRODDO's Solution

FRODDO bridges this gap by creating a federated digital twin platform integrating:

- Real-time multi-source data (IoT, connected vehicles, weather, traffic sensors).
- AI-driven simulations to predict risks.
- Proactive safety measures, enabling authorities to manage CCAM in complex and dynamic contexts.



## The Pilots

FRODDO's innovative solutions will be tested and validated through four diverse pilots across Europe, each designed to address specific mobility challenges and demonstrate real-world impact.



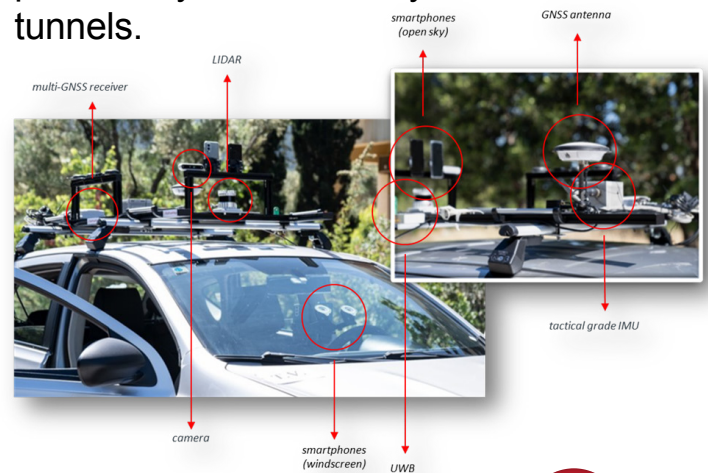
### Pilot 1 – Slovenia (Ljubljana)

High-fidelity driving simulations to test **multi-modal user interfaces** for autonomous vehicles, enhancing driver awareness and reaction in varied road and weather conditions.



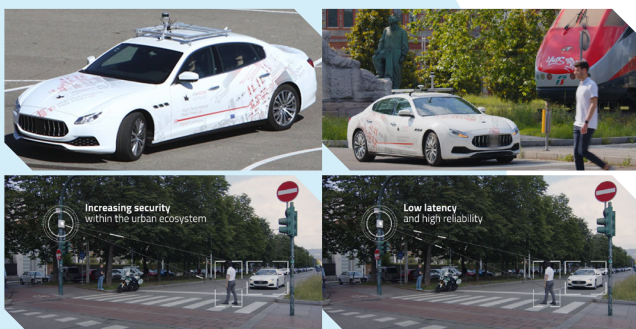
### Pilot 2 – Greece (Athens)

Testing advanced **Position-Velocity-Time (PVT)** solutions combining GNSS, IMU, and 5G to improve lane-level positioning, particularly in urban canyons and tunnels.



### Pilot 3 – Italy (Modena)

Using **infrastructure-based sensing** to improve object/event detection and prevent accidents in high-risk areas like intersections and crosswalks.



### Pilot 4 – Turkey (Bursa)

Demonstrating and validating cost-effective navigation and fleet management solutions for autonomous tow trucks (ATTs) operating within the TOFAŞ production facility.







Safe, Resilient Transport and Smart Mobility Services

The **FRODDO** project successfully demonstrated its cutting-edge solutions for **connected and automated vehicles** at the **16<sup>th</sup> ITS European Congress in Seville**, one of Europe's leading events on **Intelligent Transport Systems (ITS)**.

[Read more](#)



As cities grow more dynamic and mobility needs evolve, innovative solutions are critical for managing complex urban traffic systems. Within the Horizon Europe FRODDO project, CS GROUP France introduces Crimson SENTINEL, a ground breaking solution designed to make transportation systems safer, smarter, and more responsive to today's challenges.

[Read more](#)



From 13-15 May, the FRODDO project participated in the highly anticipated EUCAD 2025 event, hosted in the scenic town of Ispira, Italy. This key event gathered over 500 industry experts, policymakers, and innovators focused on Cooperative, Connected, and Automated Mobility (CCAM).

[Read more](#)



A step forward in the advancement of connected and automated mobility was achieved with the official start of the Integrated CCAM Technologies Cluster. This initiative unites several European projects under one cooperative umbrella, to redefine the future of transport.

[Read more](#)



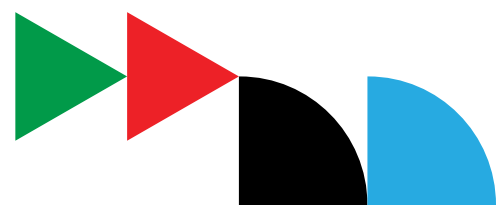
In a significant step toward advancing road safety, the EU Road Safety Cluster successfully hosted its inaugural webinar last week, gathering more than 90 stakeholders from diverse sectors. Co-organized by six pioneering EU projects—SOTERIA, PHOEBE, AI4CCAM, HEIDI, FRODDO, and EVENTS—the webinar shed light on the critical challenges faced by vulnerable road users (VRUs) such as pedestrians and cyclists, presenting innovative solutions that promise safer streets for all.

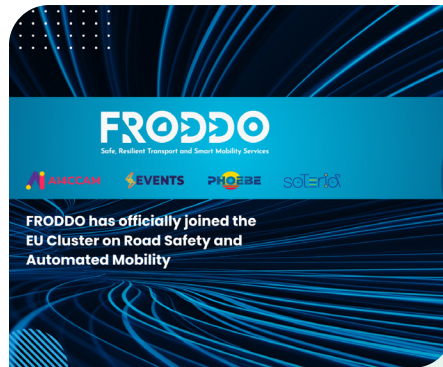
[Read more](#)



The **FRODDO** project is proud to announce its participation in the first official webinar of the **EU-funded Road Safety Cluster**, scheduled for **25 February 2025, from 14:00 to 15:00 CET**. This event will serve as an introduction to the cutting-edge solutions being developed by the cluster's six pioneering projects: **AI4CCAM, HEIDI, EVENTS, PHOEBE, SOTERIA, and FRODDO**.

[Read more](#)





We would like to announce that the **FRODDO project** has officially joined the newly established **EU cluster on Road Safety in Complex Urban Environments** as of December 2024.

[Read more](#)



The 30th ITS World Congress, held from September 16-20 in Dubai, highlighted advancements in Intelligent Transportation Systems (ITS) and smart mobility, focusing on automated mobility, clean energy, urban transportation, and logistics innovations.

[Read more](#)

## Blog Spotlight

In this issue's spotlight, we explore how Digital Twin technology is transforming the way cities, authorities, and mobility providers anticipate risks and enhance road safety in real time.

### ▶ ***"Building the future of Mobility with Digital Twin Technology"***

Discover how FRODDO's next-generation Digital Twin technology is revolutionising Connected, Cooperative, and Automated Mobility — from real-time monitoring to AI-powered traffic simulations.

[\[Read the full blog post on our website\]](#)

### ▶ ***"FRODDO Project Presented at the Artificial Intelligence for Road Safety and Mobility Workshop in Athens"***

FRODDO took the spotlight at the AI for Road Safety and Mobility Workshop in Athens, presenting its cutting-edge AI-powered traffic management strategies and vision for the future of smart mobility.

[\[Read the full blog post on our website\]](#)

### ▶ ***"Navigating the Transition: AI-Driven Traffic Management for Mixed AV and Human-Driven Vehicle Ecosystems"***

Discover how FRODDO is developing AI-driven traffic management strategies to ensure safety and efficiency in the transition to mixed autonomous and human-driven vehicle traffic.

[\[Read the full blog post on our website\]](#)

### ▶ ***"FRODDO will develop new approaches improving security V2V communications"***

From boosting road safety to tackling cyber threats, FRODDO is designing next-generation Vehicle-to-Vehicle (V2V) communication systems that are both smart and secure.

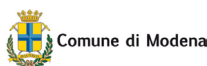
[\[Read the full blog post on our website\]](#)



# The FRODDO Consortium

FRODDO brings together a multidisciplinary consortium of 10 countries, 18 experts in traffic management, artificial intelligence, IoT, and connected mobility.

Our goal is to create a **real-time, data-driven decision-support system** that helps cities, road authorities, and mobility providers prevent accidents and optimise traffic performance.



## Stay Connected

Become part of FRODDO by following us online, join our events, and help shape the future of safe, connected, and automated mobility.

**Project Coordinator:** ERTICO

### Contact Us

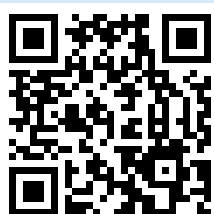


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### Follow us



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the European Union

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