

## IRF WORKSHOP

### Novel Practices for Effective Road Assets Management

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# Physical and Digital Infrastructure (PDI) supporting CCAM

## Thierry Goger

Secretary General, FEHRL



International Road Federation  
Fédération Routière Internationale  
Federación Internacional de Carreteras



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# Problem statement

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- In 2050, vehicles are expected to have 100% real-time connectivity on the relevant road network, in order to allow the greatest possible extension of Automated Vehicles (AVs) Operational Design Domain (ODD).
- Physical and Digital Infrastructure (PDI) is pivotal to improve CCAM services.
- There is lack of understanding and clear guidance to the PDI adaptors (infrastructure operators, providers and cities).
- Current PDI classification and support schemes can work only on complementary basis.
- PDI adaptors need to have a clear insight on the proven costs and benefits associated with the priority PDI interventions



# Objectives

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AUGMENTED CCAM aims to understand, harmonise and evaluate in an augmented manner adapted and novel support solutions of Physical, Digital and Communication (PDI) infrastructure, to advance its readiness for large scale deployment of CCAM solutions for all.

The project will:

- Elaborate, extend and harmonise PDI classification and support levels mapping co-determined PDI priority requirements and adaptations.
- Develop 11 PDI support solutions (aiming at TLR 6-7) that will apply and evaluate in different configurations in 7 test sites across 3 European Countries, encompassing a vast spectrum of physical (living labs, closed areas, open traffic highway, urban and peri-urban/rural environments) and virtual (DT, AV & driving simulators) test beds.

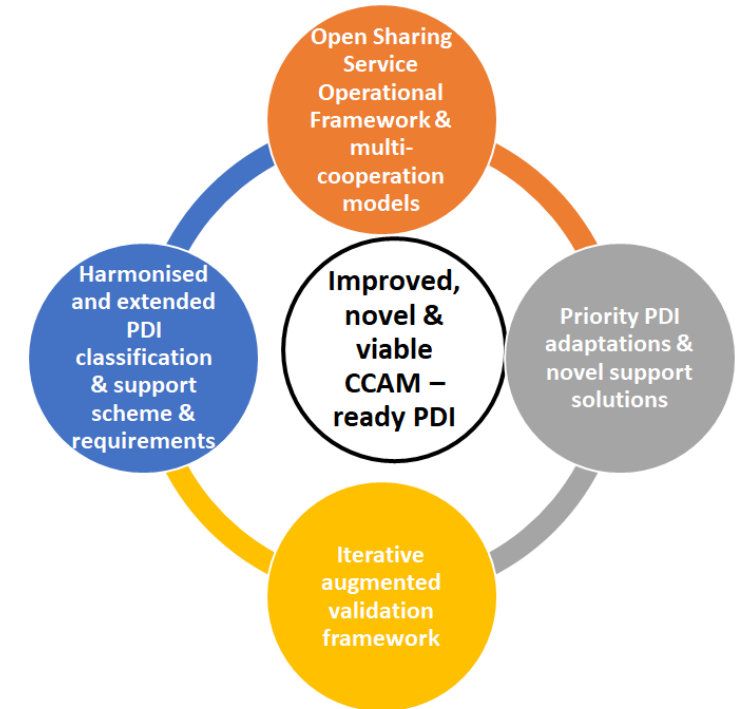


# Solutions

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Four backbone elements of AUGMENTED CCAM that leads to the improved, novel and viable CCAM-ready PDI:

- Harmonised and extended PDI classification & support scheme & requirements
- Prioritised PDI adaptations and novel PDI support solutions across different CCAM use cases
- Open Sharing Service Operational Framework and multi-cooperation models that enable the sense-plan-act approach, involving all CCAM actors
- Augmented and iterative validation framework that, through the deployment of physical and virtual test beds and supporting simulation activities, will evaluate the applicability, viability of the proposed PDI support solutions and will assess their impacts.



# Impacts

Expected results	Impact
Classification schema, mapped to PDI priorities	The new schema, upon its adoption by road infrastructure owners, operators and constructors, will accelerate CCAM penetration in European road networks in an interoperable way, enabling seamless road surface corridors and operational contexts of lower CCAM readiness to catch-up (e.g. of Eastern Europe), apart from building a common reference point for all future work in the field.
Service operational framework and instantiated architectures  Multi-actor cooperation models for the planning and management of the CCAM services	CCAM service providers (of all layers and types) will be able to plug in the new validated service architecture and thus exploit their service in a secured and interoperable way which will, in turn, infer increase of the overall European competitiveness, allowing more and different types of business to flourish and to move cross-border under new/different/multiple business models.
PDI support solutions for CAVs with extended ODD	This will lead to direct benefits to OEMs and Tier 1 suppliers that will exploit enhanced ADS of AVs and on-board intelligent systems of connected vehicles.
Iterative augmented implementation and evaluation framework.	DT & simulation platforms providers/modelers will get benefit of upgraded models and platforms; researchers in several fields from upgraded tailored frameworks.
Multilayered impact assessment framework.	Cities, Road infrastructure operators/owners & transport and logistics operators benefited from methods and tools for pre-assessment of PDI adaptations.



# Thank you!

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**Thierry Goger**

Secretary General  
Forum of European National Highway Research  
Laboratories

[thierry.goger@fehrl.org](mailto:thierry.goger@fehrl.org)

