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MODI

A leap towards SAE L4 automated driving features

IPIC 2023, Athens

2023-06-14

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Modi in a nutshell

Horizon Europe framework

HORIZON.2.5 - Climate, Energy and Mobility

HORIZON.2.5.7 - Clean, Safe and Accessible Transport and Mobility

HORIZON.2.5.8 - Smart Mobility

HORIZON-CL5-2022-D6-01-01 - European demonstrators for integrated shared automated mobility solutions for people and goods (CCAM Partnership)

Project information

MODI: A leap towards SAE L4 automated driving features

Coordinator: ITS Norway

Partners: 34 (27 participants + 2 affiliated entities + 5 associated partners)

Timeline: 1 October 2022 - 31 March 2026

Total cost: € 27,992,880 - **EU contribution:** € 23,030,095

Funding scheme: Innovation Action (IA)

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Modi in a nutshell

Horizon Europe framework

HORIZON.2.5 - Climate, Energy and Mobility

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HORIZON-CL5-2022-D6-01-01 - European demonstrators for integrated shared automated mobility solutions for people and goods (CCAM Partnership)

CCAM = Connected, Cooperative & Automated Mobility

Project information

MODI: A leap towards SAE L4 automated driving features

Coordinator: ITS Norway

SAE L4 = Quite autonomous

Partners: 34 (27 participants + 2 affiliated entities + 5 associated partners)

Many partners

Timeline: 1 October 2022 - 31 March 2026

4 years (= quite a long time)

Total cost: € 27,992,880 - **EU contribution:** € 23,030,095

Quite impressive budget

Funding scheme: Innovation Action (IA)

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Consortium

34 organisations from 8 countries: 27 Participants, 2 Affiliated entities and 5 Associated partners

Industry and end users

Industrial partners

VOLVO, DAF, einride, DFDS, FREE, Technolution, MAERSK, enide, GRUBER LOGISTICS

Industrial clusters & networks

ITS Norway, in-move, alice, CLEPA

Terminals

RO RO, APM TERMINALS

Public partners

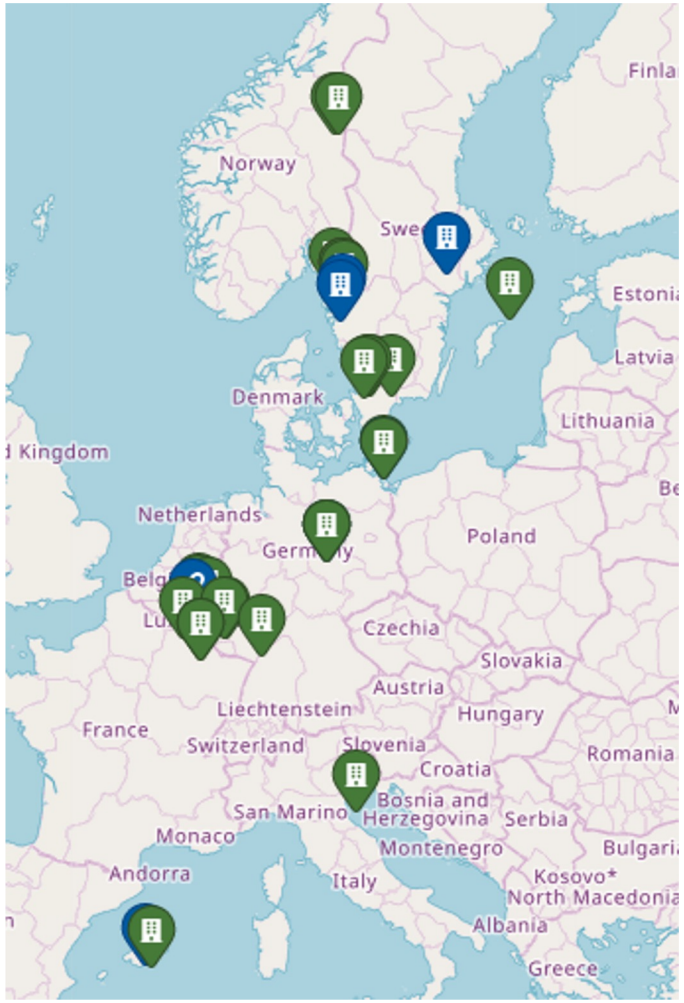
new mobility solutions Hamburg, Statens vegvesen, Rijkswaterstaat Ministerie van Infrastructuur en Milieu, Hamburg, VIKEN, Kartverket

Research and evaluation

SINTEF, TNO innovation for life, TU/e Eindhoven University of Technology, University of Applied Sciences, ASTAZERO, toi, Lindholmen Science Park, bast

Associated partners

ASKO, MOSS HAVN, HPA Hamburg Port Authority, Vejdirektoratet, TRAFIKVERKET



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Expected outcome

MODI KEY RESULTS

CCAM vehicles at TRL 7 suitable for L4 demos on public roads & confined areas on the logistic corridor between The Netherlands and Norway.

Interface for efficient coordination of vehicles in public & confined areas, adding more benefits to **CCAM vehicles** use.

Design of Physical and Digital Infrastructure for supporting L4 CCAM vehicles, co-created and verified by relevant stakeholders.

New viable business models and tools creating value along the logistic chain by utilizing CCAM technology and vehicles.

Assessment of environmental, safety, operational, and socio-economic **impacts** to support the recommendation of CCAM deployment in logistics.

Lessons learned and **book of recommendations** on CCAM vehicles, PDI, regulation, harmonization, and standardization to accelerate CCAM adoption in logistics.

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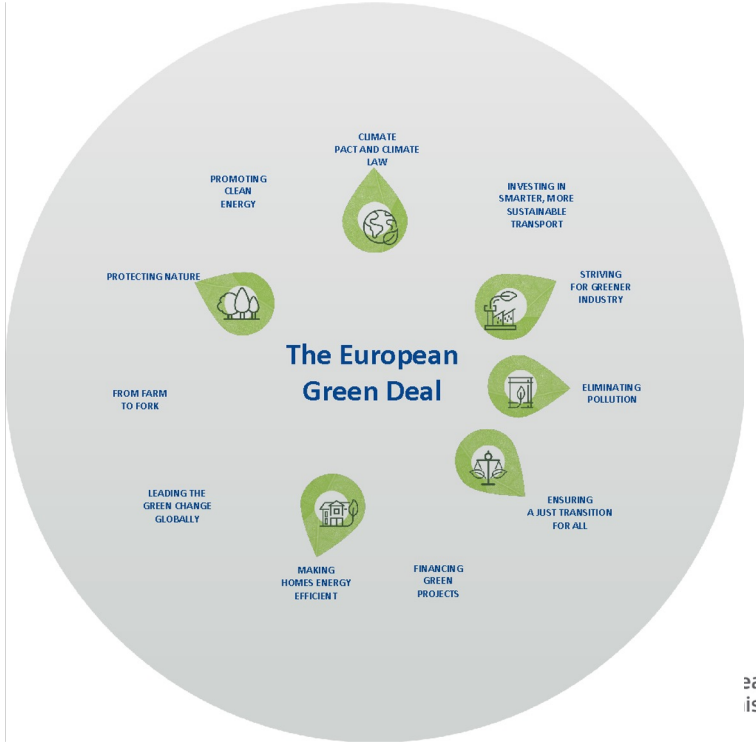

- No net emissions of greenhouse gases by 2050
- Economic growth decoupled from resource use
- No person and no place left behind

- Technology that works for the people
- A fair and competitive digital economy
- An open, democratic and sustainable society

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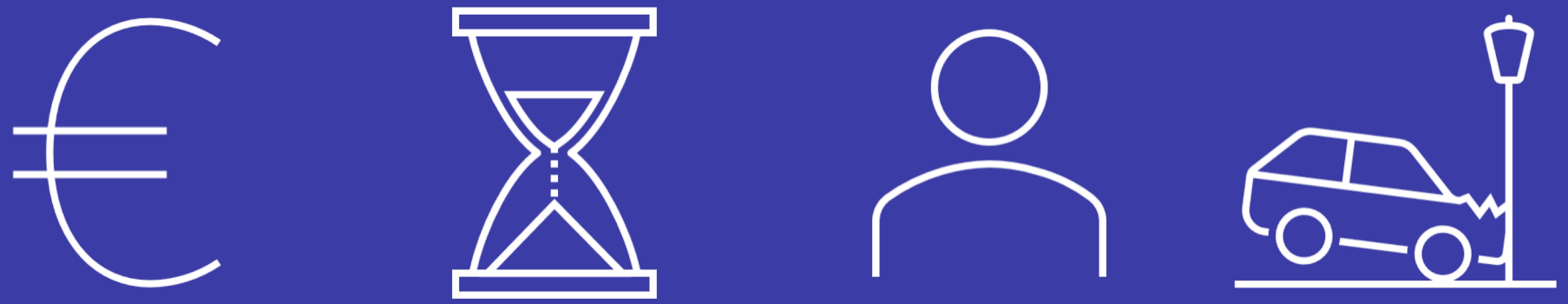
Automated transport is crucial to overcome freight transport challenges



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Overview

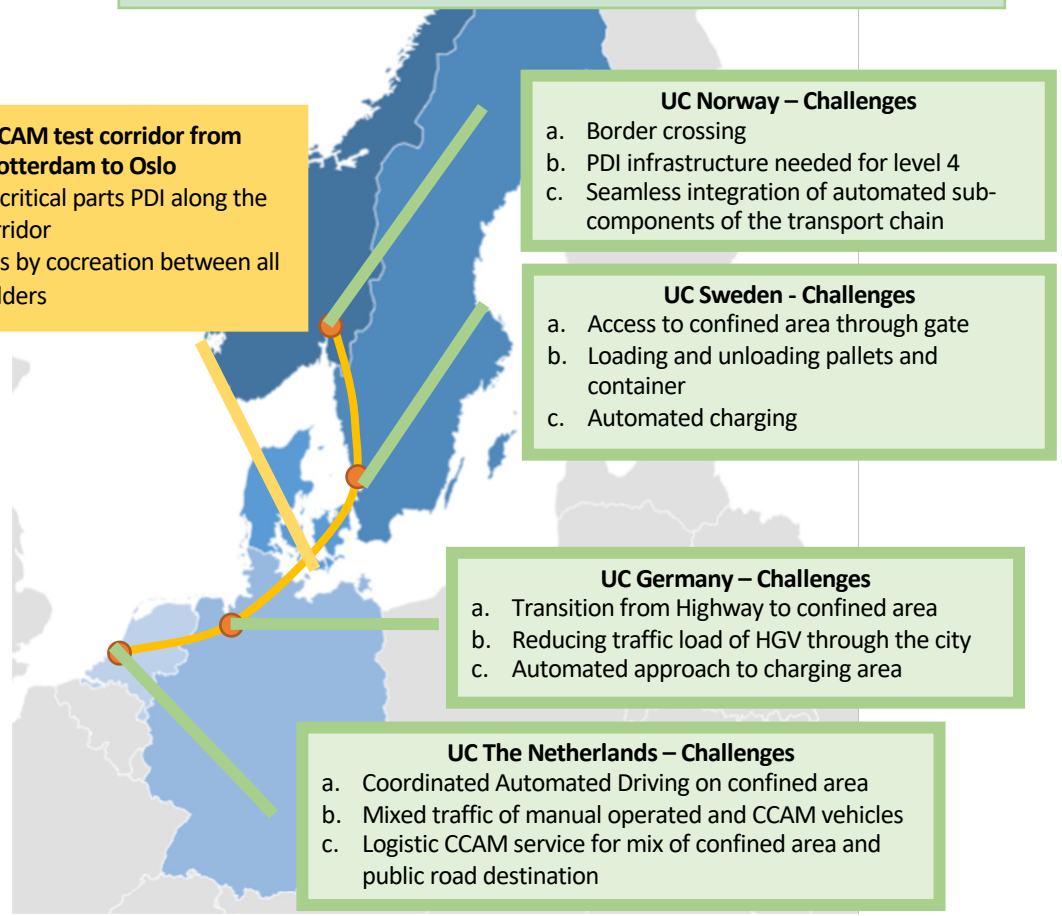
- **Logistics** corridor from Rotterdam to Oslo
- Identify and largely resolve barriers on this corridor, in **confined areas** and on **public roads**

Leveraging with other projects

ENSEMBLE
MOVE 21
AWARD
C-ROADS
ULTIMO
Orchestra
AUTOPILOT
levitate
AVENUE
connected automated driving.eu
SUNRISE

Overall – Challenges
a. New business models for logistic operation
b. Steps towards L4 motorway automated driving
c. Standardization and harmonization
d. Seamless integration of the PDI and the vehicles

MODI CCAM test corridor from Rotterdam to Oslo
a. Identify critical parts PDI along the total corridor
b. Solutions by cocreation between all stakeholders



UC Norway – Challenges
a. Border crossing
b. PDI infrastructure needed for level 4
c. Seamless integration of automated sub-components of the transport chain

UC Sweden - Challenges
a. Access to confined area through gate
b. Loading and unloading pallets and container
c. Automated charging

UC Germany – Challenges
a. Transition from Highway to confined area
b. Reducing traffic load of HGV through the city
c. Automated approach to charging area

UC The Netherlands – Challenges
a. Coordinated Automated Driving on confined area
b. Mixed traffic of manual operated and CCAM vehicles
c. Logistic CCAM service for mix of confined area and public road destination

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Use cases

CCAM SOLUTIONS TO IMPROVE LOGISTICS OPERATIONS

PORT OPERATIONS
NETHERLANDS

CCAM vehicles in current logistics operations at port site.

MOTORWAY TO HARBOUR
GERMANY

CCAM vehicles approaching a confined area at the harbour.

HUB-TO-HUB
SWEDEN

Hub-to-hub traffic with CCAM heavy-duty vehicle.

BORDER TO PORT
NORWAY

CCAM vehicles from EU border crossing to a port.

MODI CCAM CORRIDOR

MODI CCAM test corridor from Rotterdam to Oslo.

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THANK YOU FOR YOUR TIME!

MODI
A LEAP TOWARDS
SAE L4 AUTOMATED
DRIVING FEATURES

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