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Le programme européen pour la recherche et l'innovation





Wébinaire d'information Cluster 5 – Destination 6 Appels à projets 2022 sur la mobilité connectée, coopérative et automatisée (CCAM)

Jean-Marc Zaccardi, Thilo Schönfeld, PCN Transport



Suzanna Kraak, Tom Alkim, Ludger Rogge, Policy Officers, EC



20 Octobre 2021

Merci de bien vouloir veiller à couper vos micros et caméras, et à laisser le contrôle aux présentateurs



Les questions peuvent être posées par chat

Ce webinaire sera enregistré

La présentation et l'enregistrement de ce webinaire seront disponibles sur le site <https://www.horizon-europe.gouv.fr/>

- **HEU & Cluster 5 general introduction**
- **High expectations on CCAM**
- **2022 CCAM topics presentation**
- **Q&A**

1. Horizon Europe and Cluster 5

Climate, Energy and Mobility

HORIZON EUROPE

EURATOM

95,5 Mds€
au total
En € courants

SPECIFIC PROGRAMME: EUROPEAN DEFENCE FUND

*Exclusive focus on
defence research
& development*

Research
actions

Development
actions

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT

Exclusive focus on civil applications



**Pillar I
EXCELLENT SCIENCE**

European Research Council

Marie Skłodowska-Curie

Research Infrastructures

25 Mds€



**Pillar II
GLOBAL CHALLENGES &
EUROPEAN INDUSTRIAL
COMPETITIVENESS**

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre

53.5 Mds€



**Pillar III
INNOVATIVE EUROPE**

European Innovation
Council

European Innovation
Ecosystems

European Institute of
Innovation & Technology*

13.6 Mds€

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation & spreading excellence

Reforming & Enhancing the European R&I system

3.4 Mds€

Fusion

Fission

Joint
Research
Center

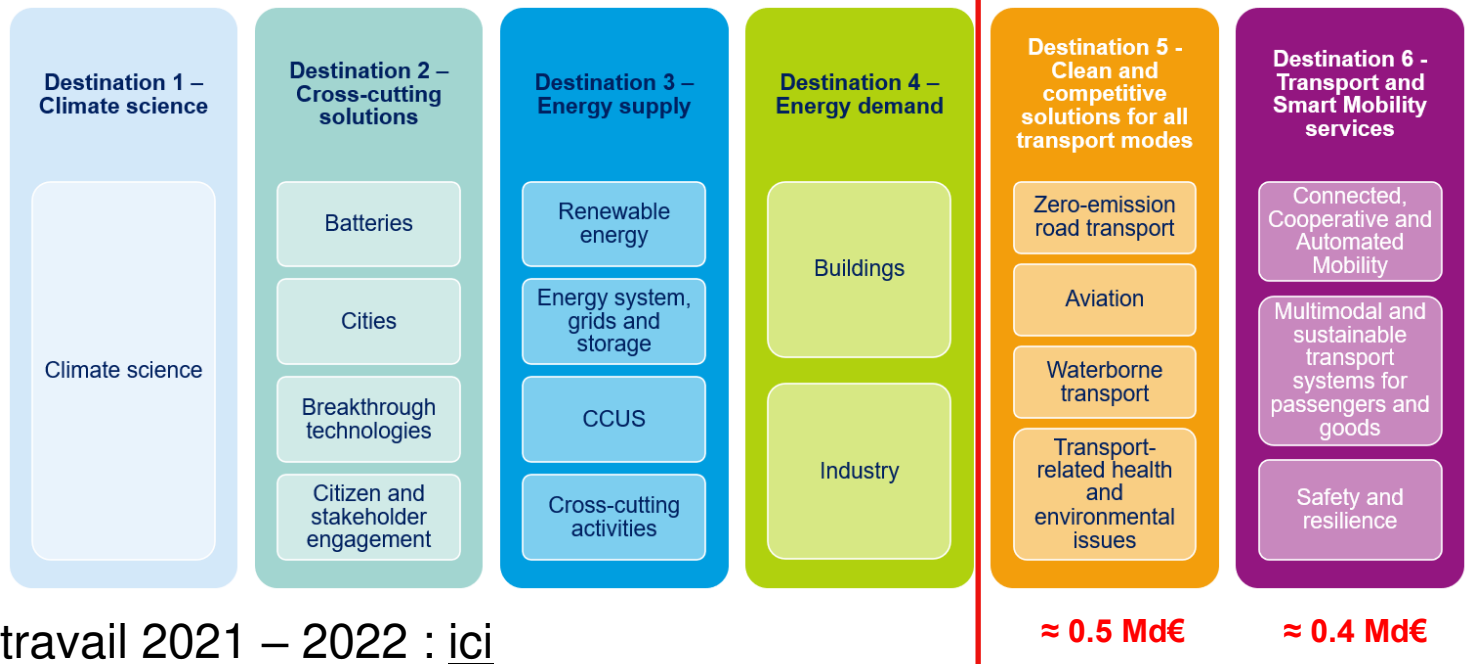
15,1 Mds€

Pas de ventilation
officielle à l'échelle du
cluster

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

Programme 2021/2022 et budgets

3 Mds€
Pour 2021/2022

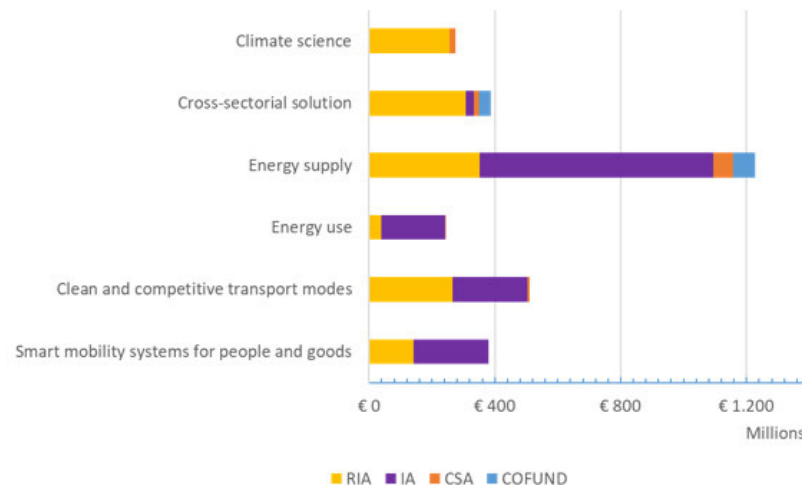


Programme de travail 2021 – 2022 : ici

Programme 2021/2022 et budgets

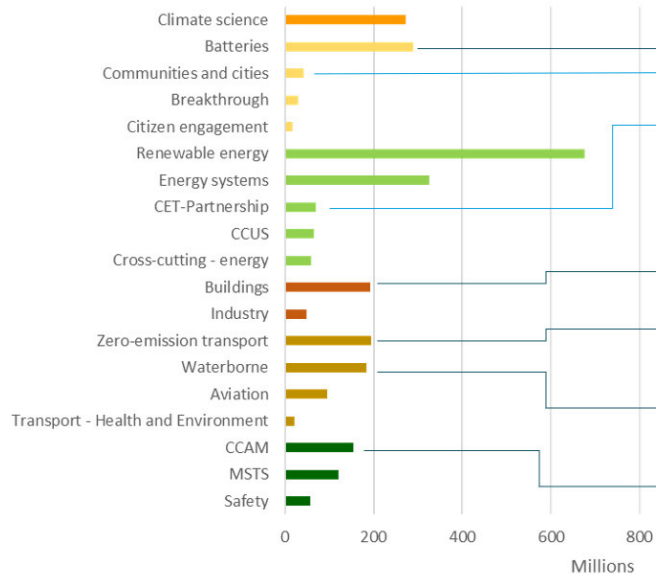
	Budget (Mio €)	Share of total	Number of topics	Share of total
Climate science	274.0	9%	17	9%
Cross-sectorial solution	387.5	13%	25	13%
Energy supply	1226.3	40%	67	36%
Energy use	244.0	8%	18	10%
Clean and competitive transport modes	511.0	17%	31	17%
Smart mobility systems for people and goods	380.0	13%	28	15%
TOTAL	3022.8		186	

EU contribution per Destination and type of action
(2021-2022, in Mio EUR)



Programme 2021/2022 et budgets

EU contribution per thematic area
(2021-2022, in Mio EUR)



58 out 186 topics (31% of all) implement European Partnerships (2021-2022)

Co-funded Partnerships:

- **Driving Urban Transition:** 1 topic (37 M€ for 2021-2022)
- **Clean Energy Transition:** 1 topic (70 M€ for 2021-2022)

Co-programmed Partnerships:

- **Batteries:** 17 topics (EUR 293 million)
- **Built4People:** 8 topics (EUR 124 million)
- **Towards Zero-Emission Road Transport:** 8 topics (EUR 199 million)
- **Zero-Emission Waterborne Transport:** 12 topics (EUR 167.5 million)
- **Connected, Cooperative and Automated Mobility:** 11 topics (EUR 162 million)



2. High expectations on CCAM

Horizon Europe – Cluster 5 Connected, Cooperative and Automated Mobility (CCAM) Call 2022

20 October 2021

Speakers:

Suzanna Kraak, Tom Alkim, Ludger Rogge
European Commission, DG Research & Innovation



CCAM – high expectations

CCAM has the potential to

- bring down road fatalities to near zero
- increase accessibility of mobility services
- help to reduce harmful emissions from transport by making traffic more efficient

Our objective

Accelerate the deployment of innovative CCAM systems and services for passengers and goods

Our vision

We want CCAM systems, which

- are fully integrated in the transport system, accompanied by the right support measures of the public sector
- support new mobility concepts, shifting from a driver-centred to mobility-user oriented approach

EC policies on CCAM

Apt legal and policy framework

Societal & Ethical Aspects

Investment in research & innovation



Sustainable & Smart Mobility Strategy

- ❑ Lays the foundation for how the EU transport system can achieve its green and digital transformation and become more resilient to future crises.
- ❑ The aim is to achieve a 90% cut in emissions by 2050, delivered by a smart, competitive, safe, accessible and affordable transport
- ❑ 10 areas of action (flagships) including 82 initiatives for the next 4 years



By 2030

- At least 30 million zero-emission cars will be in operation on European roads
- 100 European cities will be climate neutral
- High-speed rail traffic will double across Europe
- Schedules collective travel for journeys under 500 km should be carbon neutral
- Zero emission marine vessels will be market-ready
- **Automated mobility will be deployed at a large scale**

European Partnership on CCAM

Main Objective:

- Support the development and market uptake of connected and automated mobility and logistics services and systems.

European partnership will

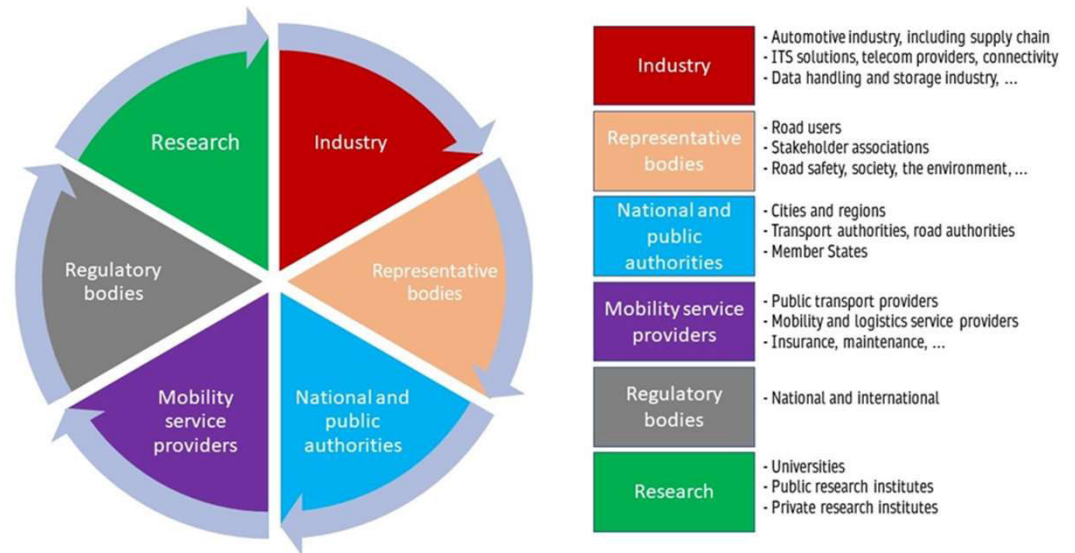
- Better align EU R&I efforts in the field of CCAM
- Develop and implement a coherent long-term agenda to coordinated investments in R&I and pre-deployment (SRIA)
- Implement large number of demonstrations of inclusive and user-oriented CCAM solutions for mobility of people and goods across Europe by 2030.

Budget: 1 Billion € (500 M€ EC contribution)

State of play

- Strategic Research and Innovation Agenda (SRIA) finalised
- MoU between the Commission and the partners signed on 23 June

CCAM Partnership Sectors and Stakeholders



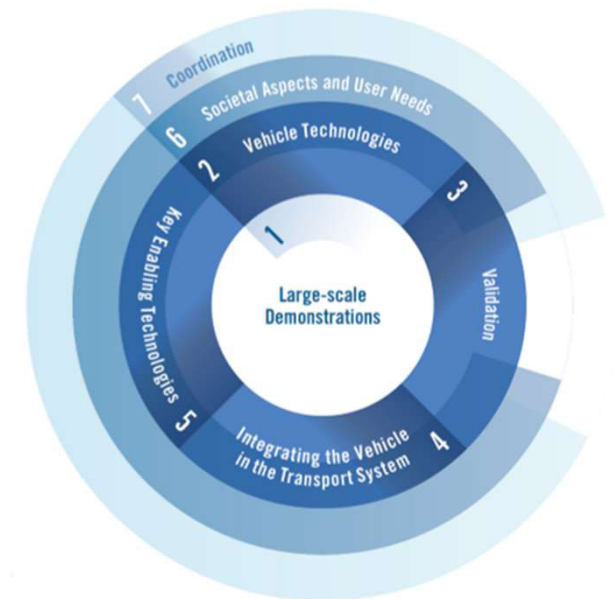
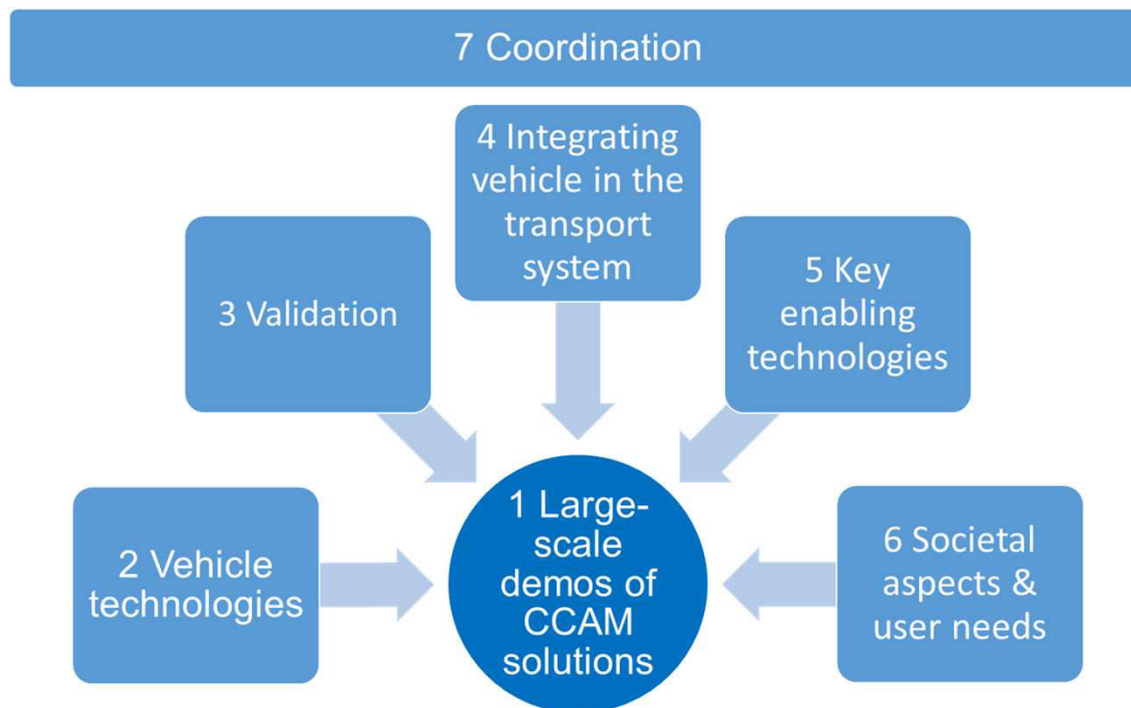
Partnership website:

<https://www.ccam.eu/>

European Partnership on CCAM – R&I Agenda

Multiannual roadmap, guiding the CCAM Partnership.

Describes the portfolio of activities, resources, and timeline for 7 main R&I areas.





HE Cluster 5 – First calls on CCAM 2021 & 2022

VEHICLE TECHNOLOGIES

VALIDATION

INTEGRATING VEHICLE IN THE TRANSPORT SYSTEM

KEY ENABLING TECHNOLOGIES

SOCIETAL ASPECTS AND USER NEEDS

COORDINATION

LARGE-SCALE DEMONSTRATIONS

- On-board perception and decision-making technologies, addressing complex environmental conditions **(2021)**
- **Reliable occupant protection technologies and HMI solutions to ensure the safety of highly automated vehicles (2022)**
- Common approaches for the safety validation of CCAM systems **(2021)**
- **Human behavioural model to assess the performance of CCAM solutions compared to human driven vehicles (2022)**
- Physical and Digital Infrastructure (PDI), connectivity and cooperation enabling and supporting CCAM **(2021)**
- **Integrate CCAM services in fleet and traffic management systems (2022)**
- Cyber secure and resilient CCAM **(2021)**
- **Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM (2022)**
- Analysis of socio-economic and environmental impacts and assessment of societal, citizen and user aspects for needs based CCAM solutions **(2021)**
- Framework for better coordination of large-scale demonstration pilots in Europe and EU-wide knowledge base **(2021)**
- **European demonstrators for integrated shared automated mobility solutions for people and goods (2022)**



Horizon Europe - CCAM Call 2022

Topic	Title	Action type	Budget	Projects
2022-D6-01-01	European demonstrators for integrated shared automated mobility solutions for people and goods	IA	50	2
2022-D6-01-02	Reliable occupant protection technologies and HMI solutions to ensure the safety of highly automated vehicles	RIA	8	1
2022-D6-01-03	Human behavioural model to assess the performance of CCAM solutions compared to human driven vehicles	RIA	8	1
2022-D6-01-04	Integrate CCAM services in fleet and traffic management systems	IA	10	2
2022-D6-01-05	Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM	RIA	12	2

5 topics – total budget: €88 million

Call open: 14 Oct 2021/ Call deadline: 12 Jan 2022

For more information on the open topics, please go to the: [EC funding & tenders portal](#)





International Cooperation for CCAM

New opportunities for cooperation between EU and International partners

CCAM topics encourage International Cooperation

“In order to achieve the expected outcomes, international cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia”

Rationale for cooperation

- share experiences, knowledge and data collected in research projects and large-scale demonstration pilots
- identify common research areas and fields of cooperation to exploit synergies.
- In the longer term: cooperation can lead to harmonised approaches in terms of testing, methodologies and standards.

Large-scale demonstration

Topic	Title	Call open	Call deadline
2022-D6-01-01	European demonstrators for integrated shared automated mobility solutions for people and goods	14 October 2021	12 January 2022

European demonstrators for integrated shared automated mobility solutions for people and goods

HORIZON-CL5-2022-D6-01-01

Expected outcome

- Demonstration of inclusive, user-oriented and well-integrated shared CCAM systems and services for people and goods in real traffic conditions
- Demonstration of innovative cross-sector business models
- Assessment of all impacts of shared CCAM solutions in real world conditions

Scope

Proposals should address all the following aspects:

- Implement a set of European demonstrators of smart, shared mobility and/or logistics use cases in real traffic conditions enabled by CCAM solutions (at SAE Level 4)
- Test robustness, reliability and safety of highly automated CCAM systems and services, while focusing on user interaction and interaction with other road users
- Address user and customer needs for mobility and logistics, paying special attention to differences in mobility patterns by gender, age, disability and other social groups
- Apply, test and demonstrate the common evaluation framework for large-scale demonstration pilots in Europe and the test data exchange framework

European demonstrators for integrated shared automated mobility solutions for people and goods

HORIZON-CL5-2022-D6-01-01

ACTION TYPE

Innovation Action (IA)

TECHNOLOGY READINESS LEVEL (TRL)

7

BUDGET OF TOPIC

50 M€

EXPECTED EU CONTRIBUTION PER PROJECT

20-25 M€

NUMBER OF PROJECTS EXPECTED TO BE FUNDED

2

INTERNATIONAL COOPERATION

International cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia

OTHER REMARKS

Topic requires effective contribution of SSH disciplines and the involvement of SSH experts, institutions, as well as the inclusion of relevant SSH expertise.

Vehicle technologies

Topic	Title	Call open	Call deadline
2022-D6-01-02	Reliable occupant protection technologies and HMI solutions to ensure the safety of highly automated vehicles	14 October 2021	12 January 2022

Reliable occupant protection technologies and HMI solutions to ensure the safety of highly automated vehicles

HORIZON-CL5-2022-D6-01-02

Expected outcome

- Occupant protection systems in Connected and Automated Vehicles (CAVs)
- New, advanced Human-Machine-Interface (HMI) solutions as enablers for the safe and efficient co-existence and interaction of CAVs with other road users

Scope

Proposals should address all the following aspects:

- Vehicle crashworthiness and advanced safety solutions in order to protect passengers and mitigate injury risk in unavoidable collisions
- Empathic HMI solutions, including a framework for modelling human emotions
- Monitoring approaches and simulation models to detect and assess occupant status (including health) and level and point of attention of the driver
- Improved solutions to address situations in which human drivers are expected to seamlessly resume control, for example when the limit of the ODD is approaching.
- Recommendations for user-centric HMI design guidelines
- Assessment tools for the developed protection technologies and advanced safety solutions in order to support the definition of safety requirements, standards

Reliable occupant protection technologies and HMI solutions to ensure the safety of highly automated vehicles

HORIZON-CL5-2022-D6-01-02

ACTION TYPE	Research and Innovation Action (RIA)
TECHNOLOGY READINESS LEVEL (TRL)	5
BUDGET OF TOPIC	8 M€
EXPECTED EU CONTRIBUTION PER PROJECT	6-8 M€
NUMBER OF PROJECTS EXPECTED TO BE FUNDED	1
INTERNATIONAL COOPERATION	International cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia
OTHER REMARKS	Topic requires effective contribution of SSH disciplines and the involvement of SSH experts, institutions, as well as the inclusion of relevant SSH expertise.

Validation

Topic	Title	Call open	Call deadline
2022-D6-01-03	Human behavioural model to assess the performance of CCAM solutions compared to human driven vehicles	14 October 2021	12 January 2022

Human behavioural model to assess the performance of CCAM solutions compared to human driven vehicles

HORIZON-CL5-2022-D6-01-03

Expected outcome

- A robust and scalable reference model of human driving behaviour:
 - Replicating the full performance spectrum of human drivers
 - Serving as a reference to design human-like and therefore easily predictable and acceptable behaviour of automated driving functions in mixed traffic
 - Helping to represent the behavior of other human-driven vehicles in the (virtual) simulation of mixed traffic.

Scope

- Probabilistic human behavioural model with the potential to cover all relevant aspects of human driving performance as well as the broad spectrum of drivers and influencing factors.
- Methodology to extract and collect consistent data on human driving performance from different data sources (e.g. real traffic, simulator tests)
- Model should be validated at least for selected fields of application with the perspective of extending these fields of application gradually

Human behavioural model to assess the performance of CCAM solutions compared to human driven vehicles

HORIZON-CL5-2022-D6-01-03

ACTION TYPE

Research and Innovation Action (RIA)

TECHNOLOGY READINESS LEVEL (TRL)

4

BUDGET OF TOPIC

8 M€

EXPECTED EU CONTRIBUTION PER PROJECT

7-8 M€

NUMBER OF PROJECTS EXPECTED TO BE FUNDED

1

INTERNATIONAL COOPERATION

International cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia

Integrating the vehicle in the transport system

Topic	Title	Call open	Call deadline
2022-D6-01-04	Integrate CCAM services in fleet and traffic management systems	14 October 2021	12 January 2022

Integrate CCAM services in fleet and traffic management systems

HORIZON-CL5-2022-D6-01-04

Expected outcome

- Concepts of fleet and traffic management to achieve a desirable integration of CCAM vehicles in the entire mobility system

Scope

Proposals should address all the following aspects:

- Develop and demonstrate concepts of traffic and fleet management to enable or involve new mobility business cases for fleet operation (logistics, public or private transport operator)
- Address technology gaps to foster vehicle integration, communication and better maneuver coordination and orchestration concepts in managing fleets and traffic
- Demonstrate traffic efficiency improvements by mobility network load balancing of routes
- Intermodal interfaces and interoperability between traffic management systems
- Advanced simulation models and tools that enable and help assessing new traffic management strategies
- Effective cooperation and governance models for operating CCAM services

Integrate CCAM services in fleet and traffic management systems

HORIZON-CL5-2022-D6-01-04

ACTION TYPE

Innovation Action (IA)

TECHNOLOGY READINESS LEVEL (TRL)

6-7

BUDGET OF TOPIC

10 M€

EXPECTED EU CONTRIBUTION PER PROJECT

4-5 M€

NUMBER OF PROJECTS EXPECTED TO BE FUNDED

2

INTERNATIONAL COOPERATION

International cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia

OTHER REMARKS

Topic requires effective contribution of SSH disciplines and the involvement of SSH experts, institutions, as well as the inclusion of relevant SSH expertise.

Key enabling technologies

Topic	Title	Call open	Call deadline
2022-D6-01-05	Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM	14 October 2021	12 January 2022

Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM

HORIZON-CL5-2022-D6-01-05

Expected outcome

- AI concepts, techniques and models for CCAM applications as well as for cyber threat detection and mitigation.
- A clear understanding of the capabilities, limitations and potential conflicts of AI based systems for CCAM.
- Increased user acceptance from an early stage, based on explainable, trustworthy and human-centric AI.

Scope

Proposals should address all the following aspects:

- Support the development and integration of AI in CCAM with explainable, trustworthy and human-centric and unbiased concepts, techniques and models,.
- Address the knowledge gap on AI training and validation approaches as well as efficient and ethical approaches for data handling of increasing amounts of data.
- Build upon existing and generated data for training and verification of AI supporting situational awareness in CCAM in more complex traffic scenarios (e.g. digital twins).

Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM

HORIZON-CL5-2022-D6-01-05

ACTION TYPE	Research and Innovation Action (RIA)
TECHNOLOGY READINESS LEVEL (TRL)	5
BUDGET OF TOPIC	12 M€
EXPECTED EU CONTRIBUTION PER PROJECT	5-6 M€
NUMBER OF PROJECTS EXPECTED TO BE FUNDED	2
INTERNATIONAL COOPERATION	International cooperation is advised, in particular with projects or partners from the US, Japan, Canada, South Korea, Singapore, Australia
OTHER REMARKS	Topic requires effective contribution of SSH disciplines and the involvement of SSH experts, institutions, as well as the inclusion of relevant SSH expertise.



Thank you!

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<http://ec.europa.eu/horizon-europe>



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Prochain webinaire organisé par votre PCN Transport

- 30 Novembre 2021, 10h30-12h – Appels à projets 2022 sur le transport maritime et fluvial

Replays

- Webinaires organisés par le MESRI pour le lancement de Horizon Europe ici
- Info days de la Commission (5 et 6.07.2021), Cluster 5 : <https://www.horizon-europe-infodays2021.eu/event/cluster-5-climate-energy-mobility>

Un site dédié

- <https://www.horizon-europe.gouv.fr/transports>
- Ressources juridiques et financières : <https://www.horizon-europe.gouv.fr/ressources-juridiques-et-financieres-24384>

pcn-transport@recherche.gouv.fr

- Pour toutes vos questions sur la thématique « transport »
- Pour vous inscrire à notre liste de diffusion