

ERTICO

Ubiquitous PNT for Connected, Collaborative, Automated Mobility for more efficient, safe, and sustainable roads and vehicles

Information Webinar: 18th October 2022, 9:30-12:00 CEST

CCAM and its benefits

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The ERTICO-ITS Europe Partnership



Automated driving



Drones



Data exchange & data spaces



Traffic management



Artificial Intelligence



Mobility as a Service



Navigation



Mobility Apps



Transport and Logistics



Intelligent Infrastructure



Safety



Multimodality



Payment Systems



V2V & V2X Communication



eMobility

ITS

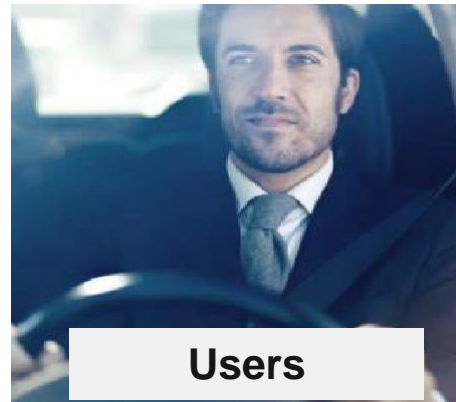
Intelligent Transport Systems



ERTICO-ITS Europe Unique Public Private Partnership

- Powered by the European Commission in 1991
- Bringing together 120 Partners from 8 sectors
- Making mobility smarter, cleaner, safer and more efficient
- Moving of people, goods and data

www.ertico.com



National, European & international focus Coordination with government authorities



ERTICO – ITS EUROPE AND EUROPEAN SPACE AGENCY SIGN MEMORANDUM OF INTENT



ERTICO – ITS Europe and the European Space Agency (ESA) signed a Memorandum of Intent (MoI) at the ESA-ESTEC offices in the Netherlands to further safer and smarter mobility.

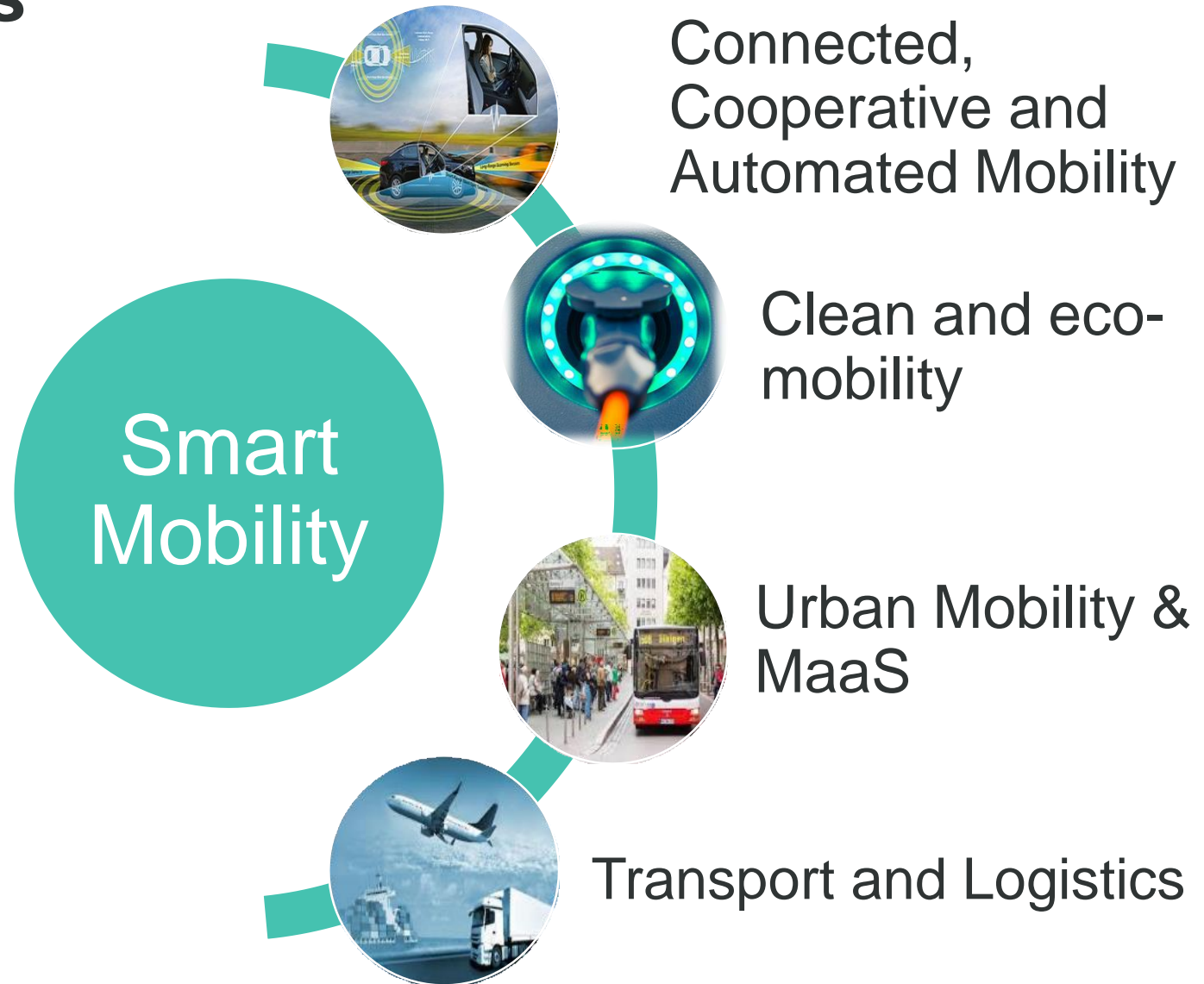
Through this partnership, ERTICO and ESA will pave the way for developing and commercialising cutting-edge and more sustainable technologies to support the transition in the transport and mobility sector through the twinning of digital and green.



ERTICO & EU : Focus Areas

ERTICO Focus Areas

Smart Mobility
featured as a main
pillar of a **Smart
Society**



ERTICO Roadmaps in synch with EU policy focus areas



- Smart and Sustainable Mobility strategy
- Urban Mobility strategy
- Green deal
- Digital and data economy, AI and cybersecurity
- Competitiveness and industrial strategy

EU's Smart and Sustainable Mobility Strategy targets towards 2030 & 2050

- **Decarbonisation:** at least 55% emissions reduction by 2030 & 90% reduction of transport emissions by 2050
- **Safety:** Vision Zero and the Safe System approach: reducing road fatalities caused by human error with 50% reduction by 2030 (compared to 2020) & with 0 fatalities by 2050
- **Efficiency:** Focus on less-energy consuming cars, better infrastructure for alternative fuels, better links between modes of transport and better safety and fewer delays thanks to the roll-out of digital technologies



Smart Mobility

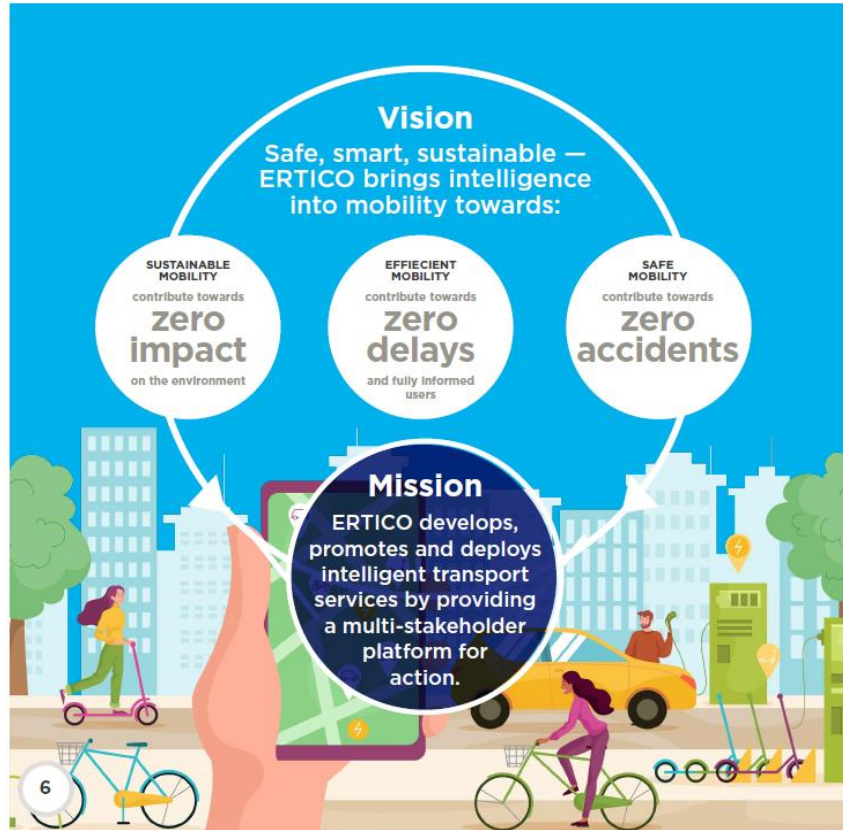


CCAM stands for Cooperative Connected and Automated Mobility.

Someone could see it as an umbrella term for intelligent mobility, also called smart mobility

Connected and Automated Mobility provides a unique opportunity to make our transport systems safer, cleaner, more efficient and more user-friendly.

ERTICO **Focus** on CCAM



Clean and eco-mobility



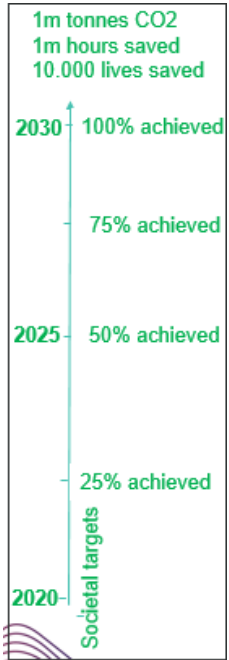
Urban Mobility & MaaS



Transport and Logistics



ERTICO roadmap on CCAM



- 5G-META
- 5G-LOGINNOV
- 5G-MOBIX
- 5G-DRIVE

- TM2.0
- TISA
- SENSORIS
- ADASIS
- EAVP

- Map city interests
- WE-TURNFORM
- ARCADE
- FUTURE-RADAR

Connected, Cooperative & Automated Mobility

2030

Infrastructure and connectivity needs for HLA & Common definitions for infrastructure adaptations & digital twins

2020

Support R&I coordination with tools for sharing of Knowledge & lessons learned

2027

Better understanding of wider impacts of AD including sustainability for passenger and logistics

2023

Increased awareness about CCAM, societal impacts and methodologies for co-creation processes

2035

Integrated, accepted, inclusive and infrastructure supported operational CCAM services supporting decarbonisation

2025

CCAM progressed through Mobility Data Space, edge computing, Big Data & AI for high quality data collection & sharing

Harmonised regulatory frameworks in EU, facilitated testing and liability frameworks

Common EU evaluation methodology and validation framework

PROJECTS

PLATFORMS

City Moonshot

SHOW

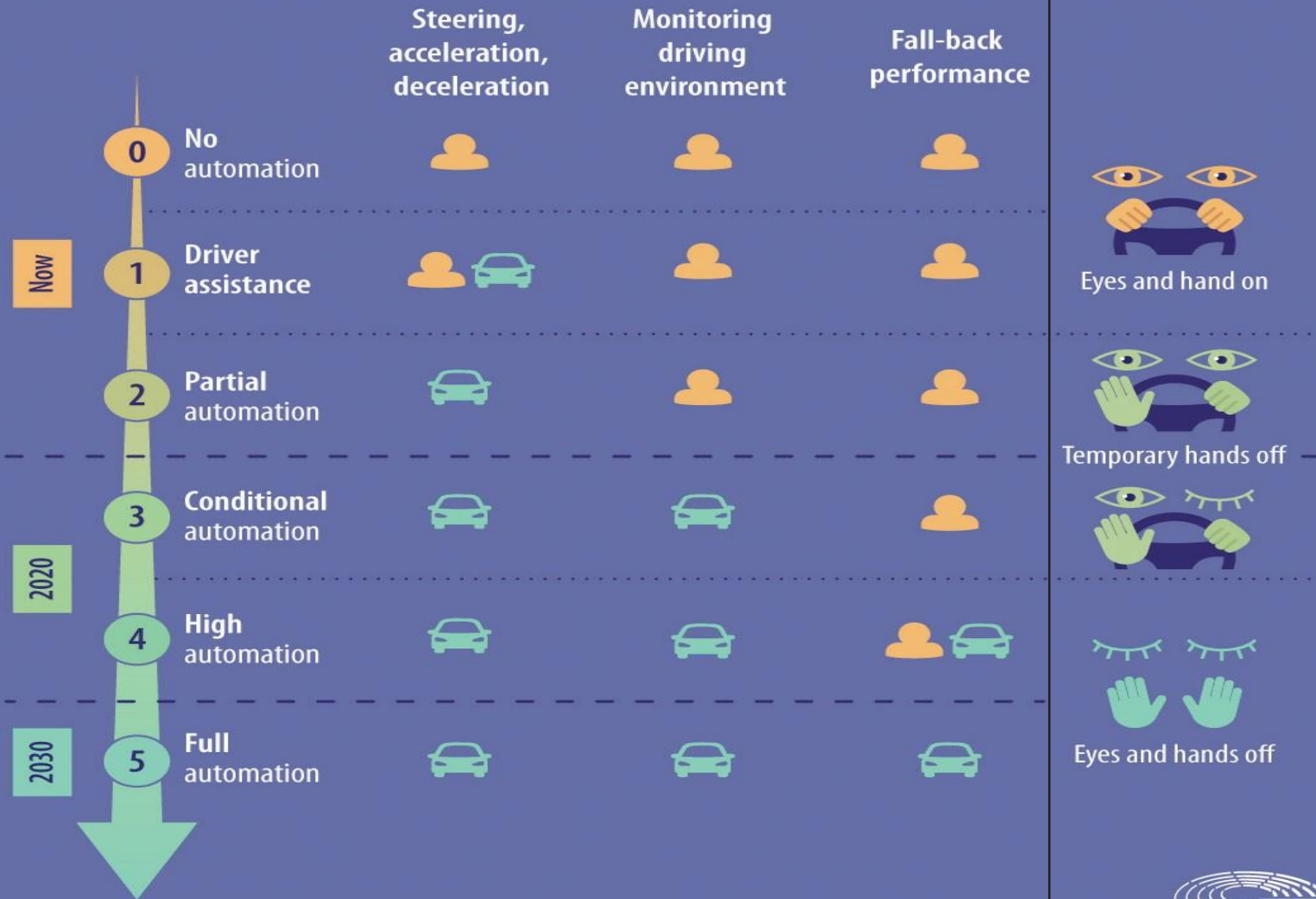
HEADSTART

ENSEMBLE

CCAM (the) sum is greater than its parts !!

- Key enabling technologies, such as **Artificial Intelligence, Big Data and cybersecurity** , are needed to successfully realize CCAM solutions
- Connectivity
- Next generation sensors
- Automation

LEVELS OF DRIVING AUTOMATION



Feet-on/Hands-on/Eyes-on/Brain-on SAE Level 0

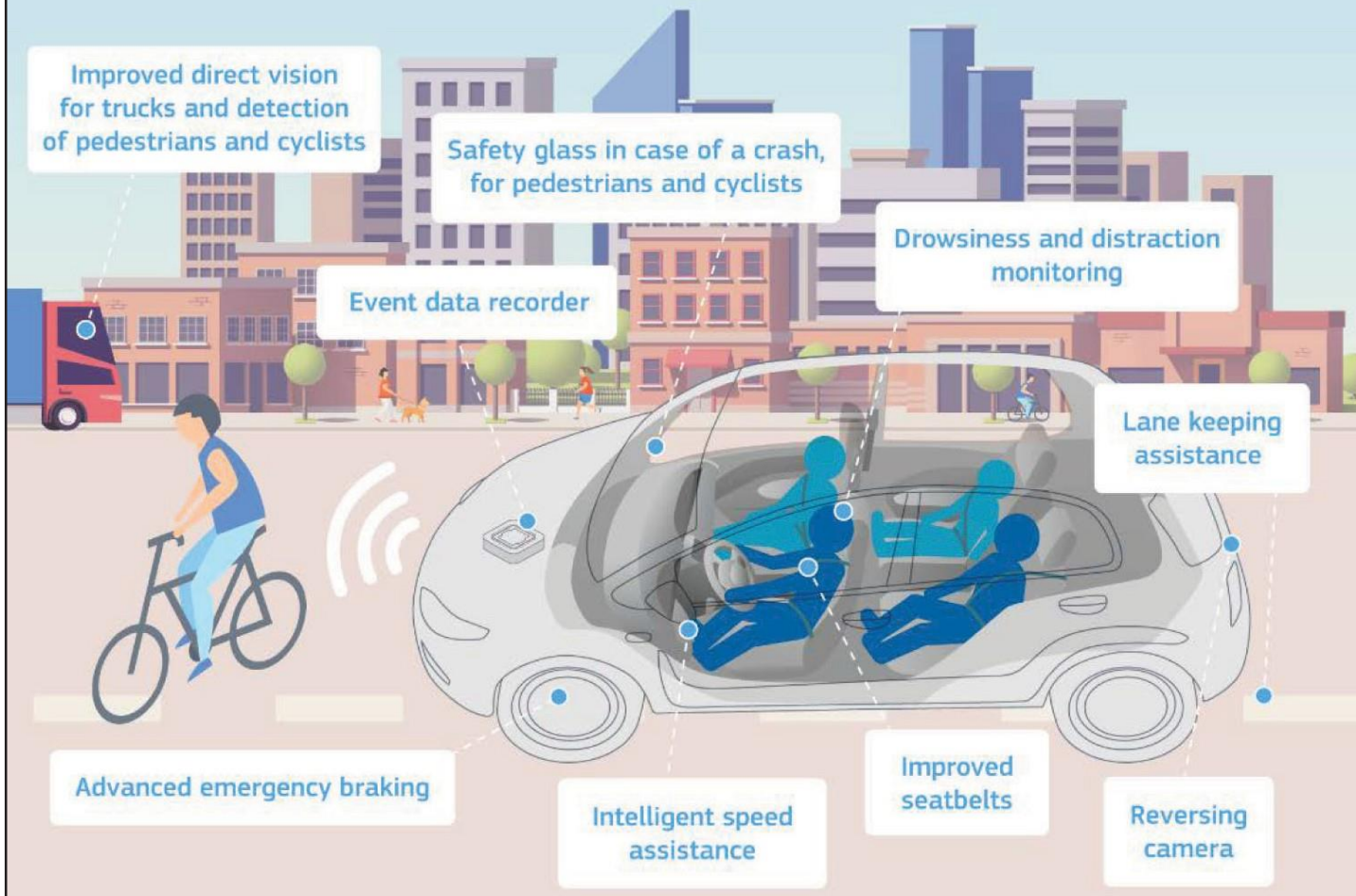
Feet-OFF/Hands-on/Eyes-on/Brain-on SAE level 1 and 2

Feet-OFF/Hands-Off/Eyes-on/Brain-on SAE Level 2+

Feet-OFF/Hands-off/Eyes-OFF/Brain-on SAE Level 3

Feet-OFF/Hands-Off/Eyes-OFF/Brain-OFF SAE Level and 5

New safety features in your car



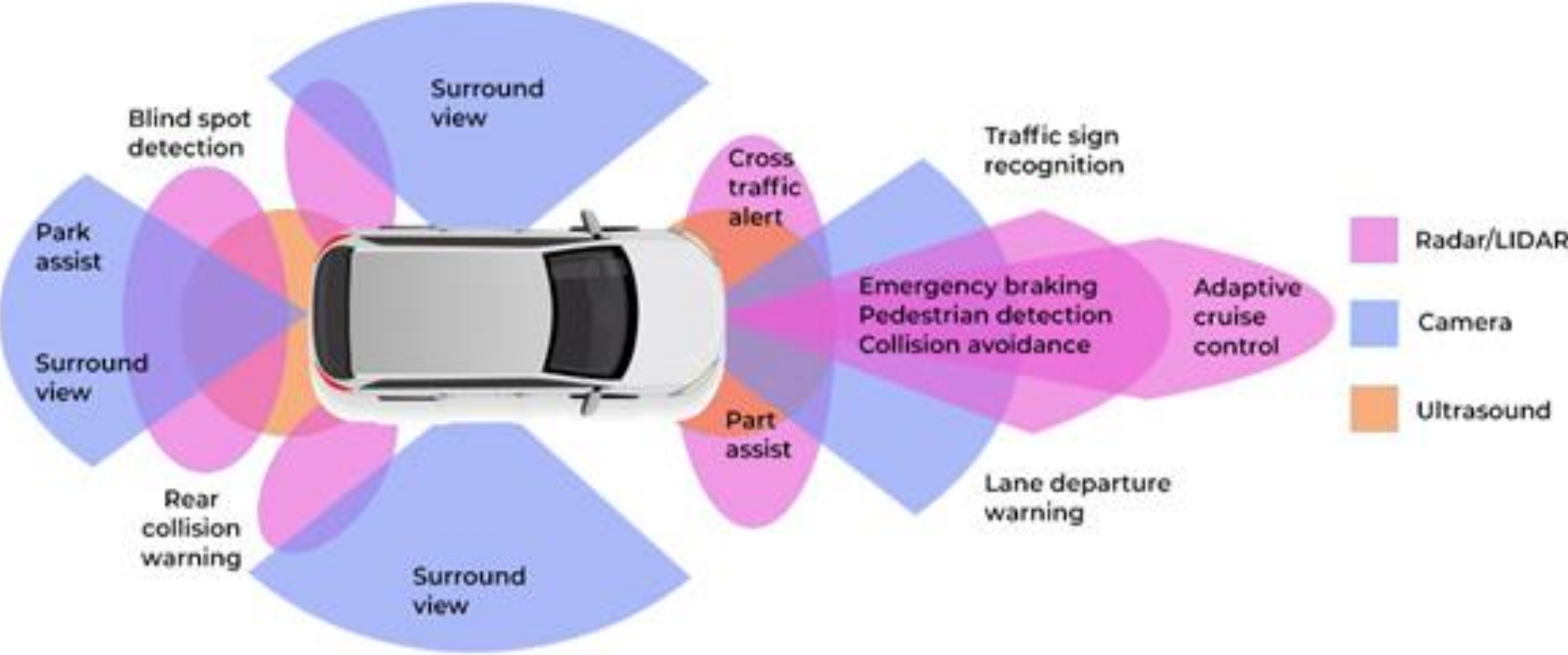
Advanced Drivers Assistance Systems (ADAS)

Regulation (EU) 2019/2144 (2019) on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users

ABS	Anti-lock Braking System
AEBS	Advanced Emergency Braking System
DAS	Driver Alert System
ISA	Intelligent Speed Adaptation
LDWS	Lane Departure Warning System
LKA	Lane Keeping Assistance
Park Assist.	

As of 2022, the European Regulation 2019/2144 enters into play. New vehicles must be equipped with a number of advanced vehicle systems (e.g. ISA, incident data recorder, fatigue alert, etc.).

How ADAS works



Example of CCAM deployment the 5G-MOBIX project

EU funded Innovation action (H2020-ICT-18-2018)
(Nov 2018 – Sep 2022)

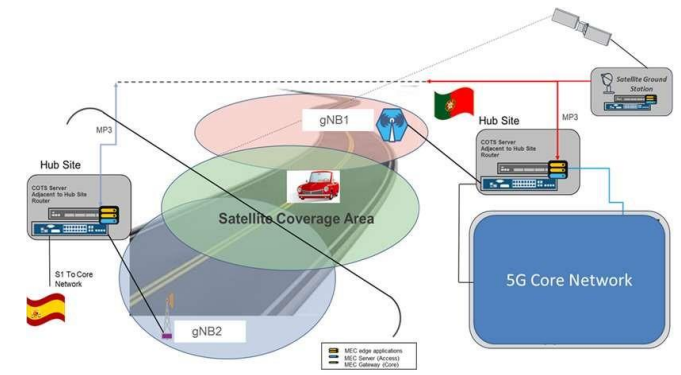
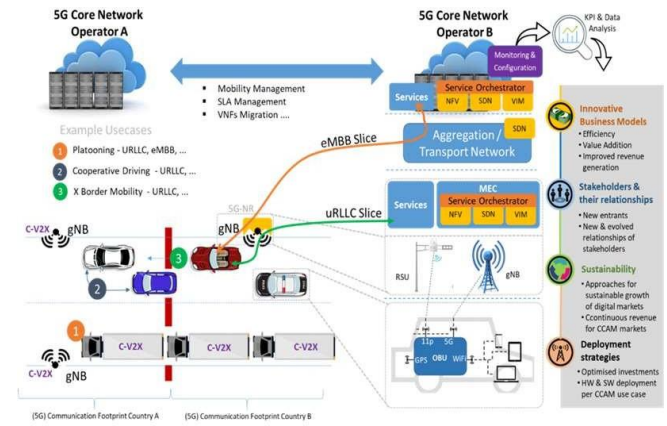
Objective

Demonstrate scalable and sustainable solutions to address cross-border challenges for CCAM deployment in Europe

CBC use case

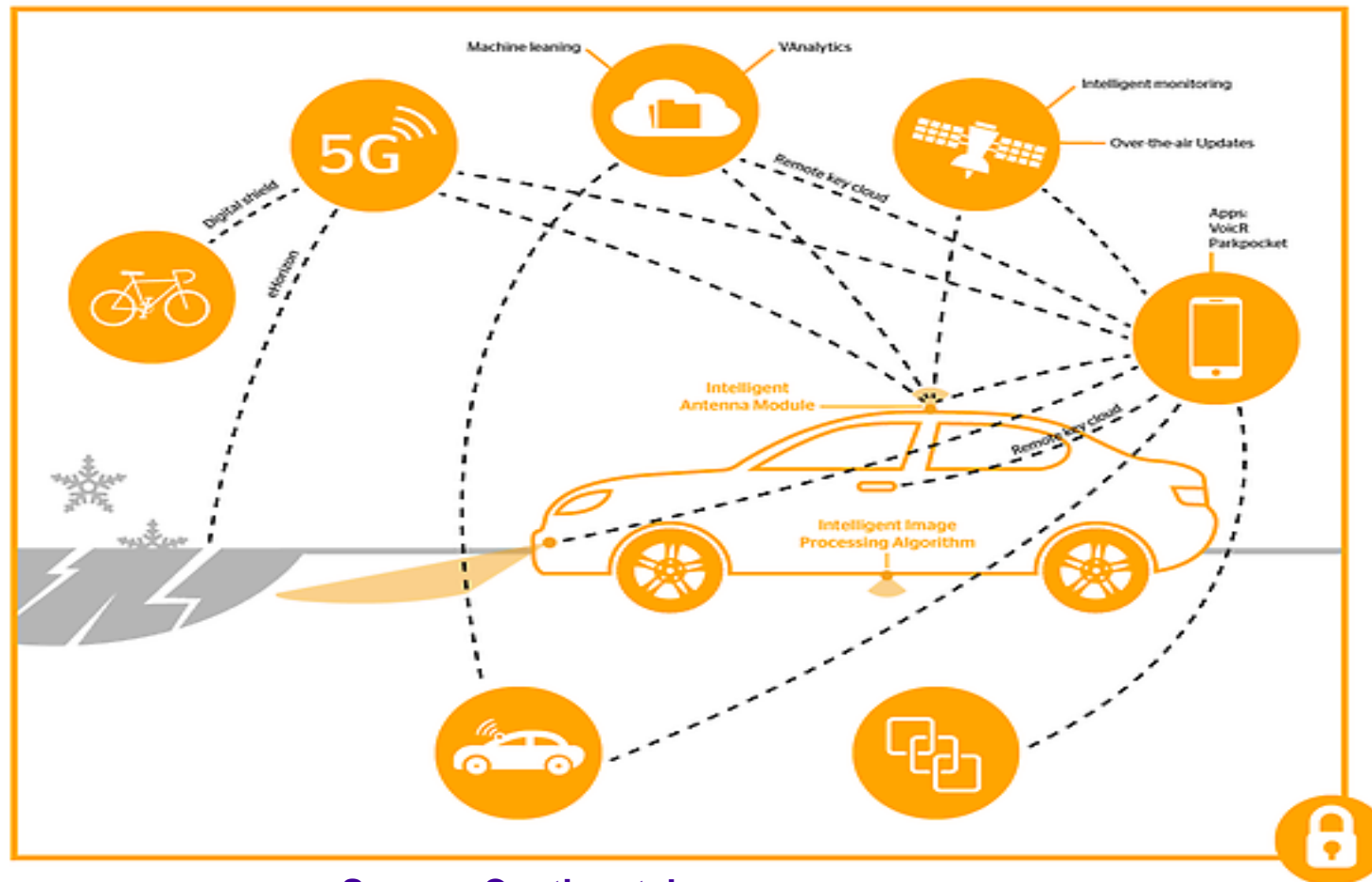
Intelligent use of satellite communication and terrestrial 5G for connectivity gaps, improved resilience, critical data

- Integration of satcom into 5G architecture for MEC interconnect



Selected CCAM related activities/use cases

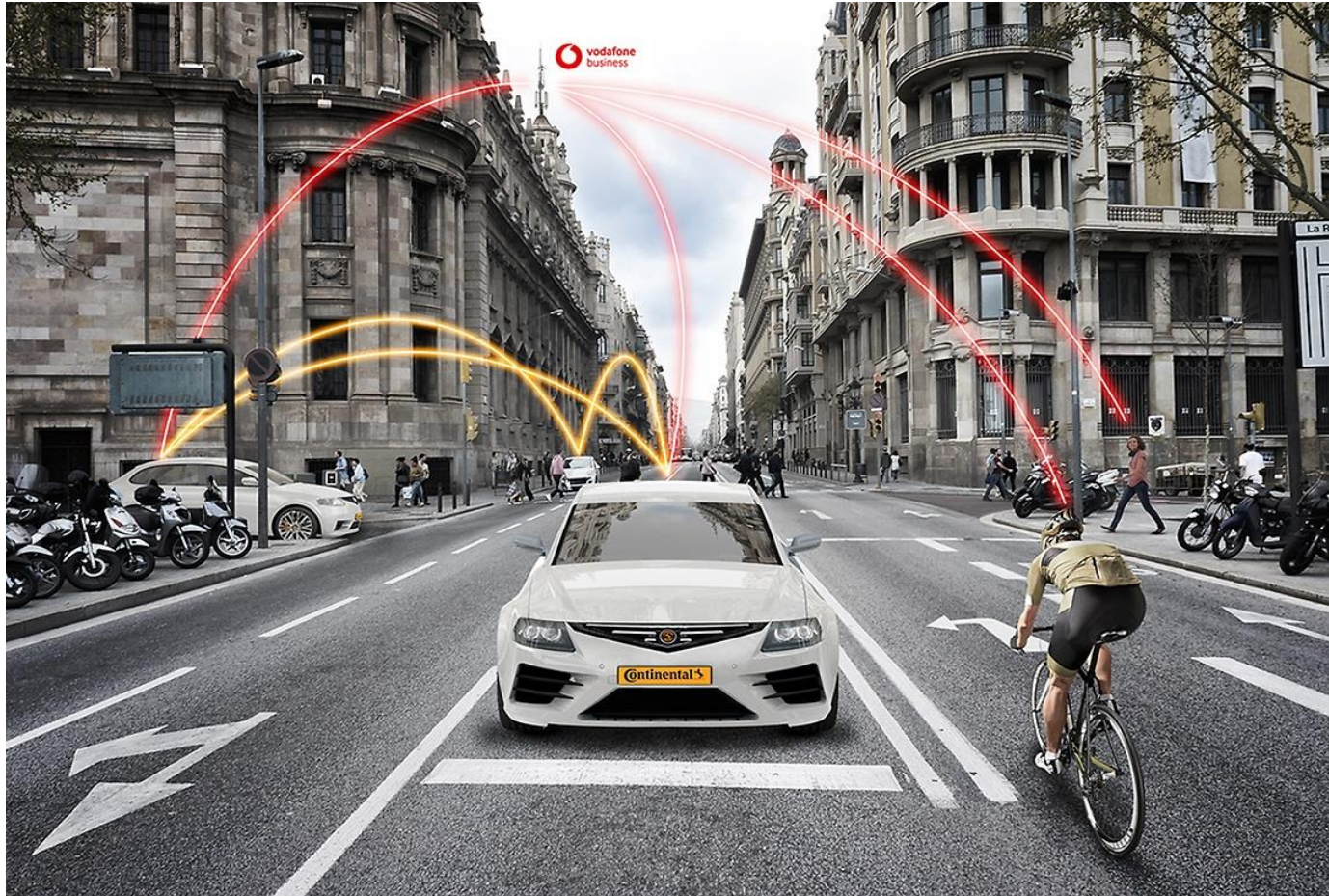
Birds eye view perspectives could enable cars of the future to identify a motorcyclist approaching rapidly from behind and the system could warn the driver or even prevent the vehicle from changing lanes as planned



Source: Continental

Selected CCAM related activities/use cases

Continental -Vodafone develop a digital shield



Source: Continental

Selected CCAM related activities/use cases

Deutsche Telekom working with Continental AG develops technology for collision warning and protecting vulnerable road users such as pedestrians, users of e-scooters, and cyclists, who are particularly impacted by accidents.



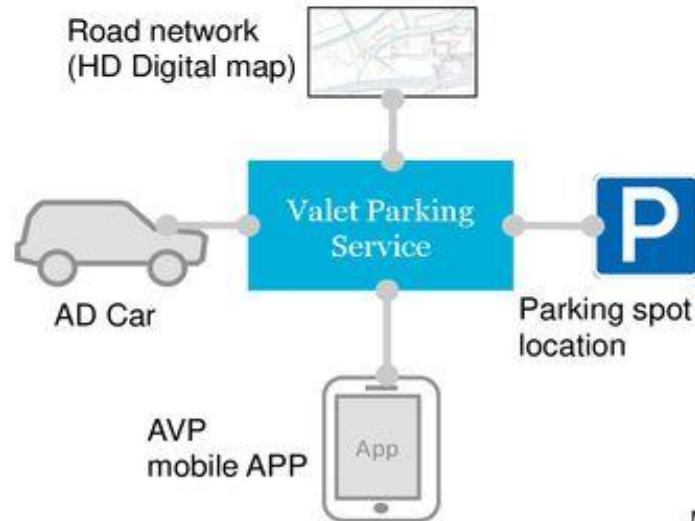
Selected CCAM related activities/use cases

The Autopilot Project

Automated Valet Parking Implementation

Option 1: without IoT

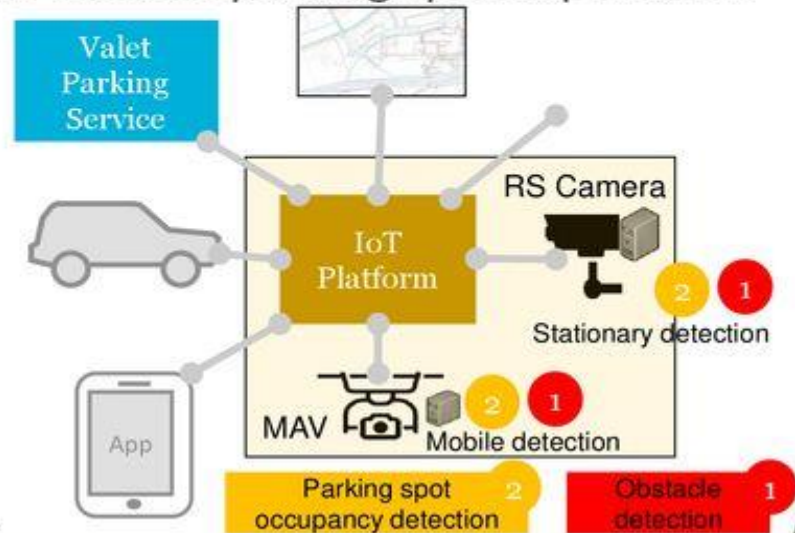
- Parking spot exploration is needed



MAV: Micro Aerial Vehicle

Option 2: With IoT

- No need of parking spot exploration



Example of CCAM deployment the SHOW project

SHOW aims to support the deployment of shared, connected and electrified automation in urban transport, to advance sustainable urban mobility.

Becoming the bigger ever showcase and living lab for AV fleets by transporting over 1500000 people and 350000 containers of goods through a combined AV fleet of over 70 L4/L5 vehicles (bus, shuttle, pod, car) in 20 cities across Europe.

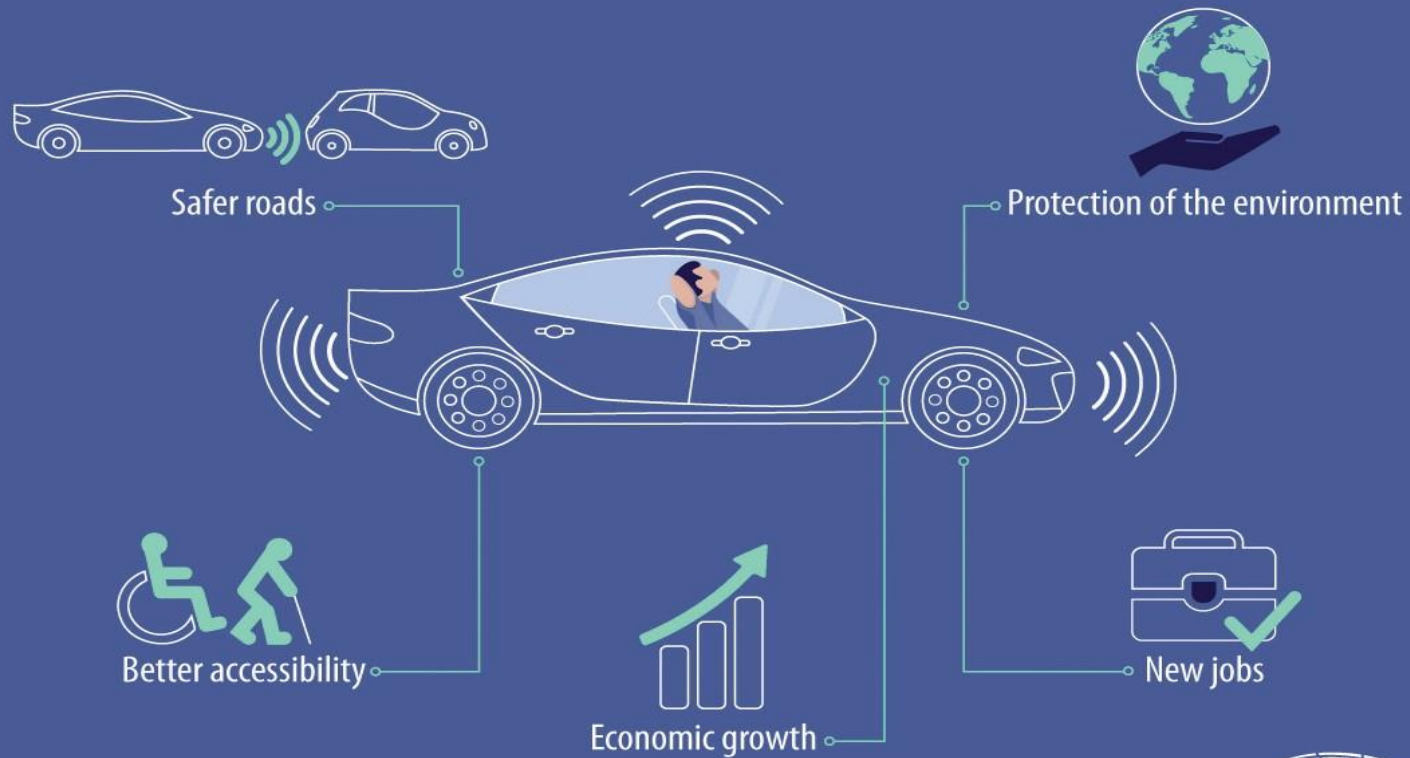
Benefits

- Reduction of 20% energy consumption and 10% emissions
- Reduction of overall number of private vehicles through intelligent combination of smart Public Transport solutions
- Improving traffic flows
- Establish new business models and improve virtual validation



Innovativ: Selbstfahrender E-Bus in Monheim • © imago images/Rupert Oberhäuser

BENEFITS OF SELF-DRIVING IN THE EU



Sources: EPRS, European Commission



The European Union wishes to become a world leader in the deployment of safe systems for automated mobility,

- increasing road safety and efficiency,
- combating congestion,
- reducing energy consumption and emissions from transport,

(and gradually phasing out fossil fuels)



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**“Alone we can do so little,
together we can do so much”** Helen Keller

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