

NAVISP Industry Days

Making Mobility Smarter

ERTICO - Roadmap for CCAM

Dr Nikolaos Tsampieris

Senior Manager ERTICO -ITS Europe

**16-17 June 2022, ESA-ESTEC, Noordwijk
(The Netherlands)**

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Our **VISION & MISSION**

VISION

BRINGING INTELLIGENCE INTO MOBILITY TOWARDS:

SUSTAINABLE MOBILITY → REDUCED IMPACT ON THE ENVIRONMENT

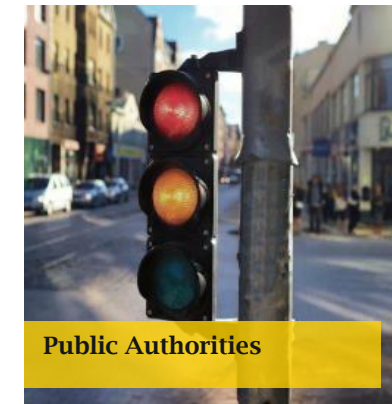
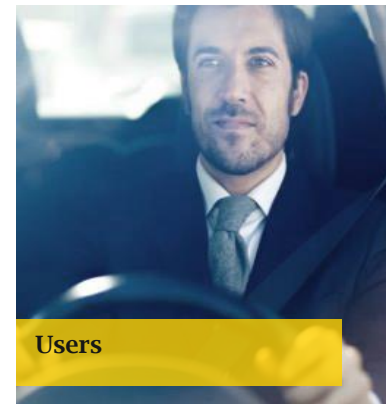
EFFICIENT MOBILITY → ZERO DELAYS AND FULLY INFORMED USERS

SAFE MOBILITY → ZERO ACCIDENTS

MISSION

ERTICO DEVELOPS, PROMOTES AND DEPLOYS INTELLIGENT MOBILITY SERVICES, BY PROVIDING A MULTI STAKEHOLDER PLATFORM FOR ACTION

Bringing together
8 mobility sectors
to make **mobility**
cleaner, safer and
more efficient.



ERTICO Partners

MOBILE NETWORK OPERATORS



PUBLIC AUTHORITIES



RESEARCH



SERVICE PROVIDERS



SERVICE PROVIDERS



SUPPLIERS



TRAFFIC AND TRANSPORT INDUSTRY



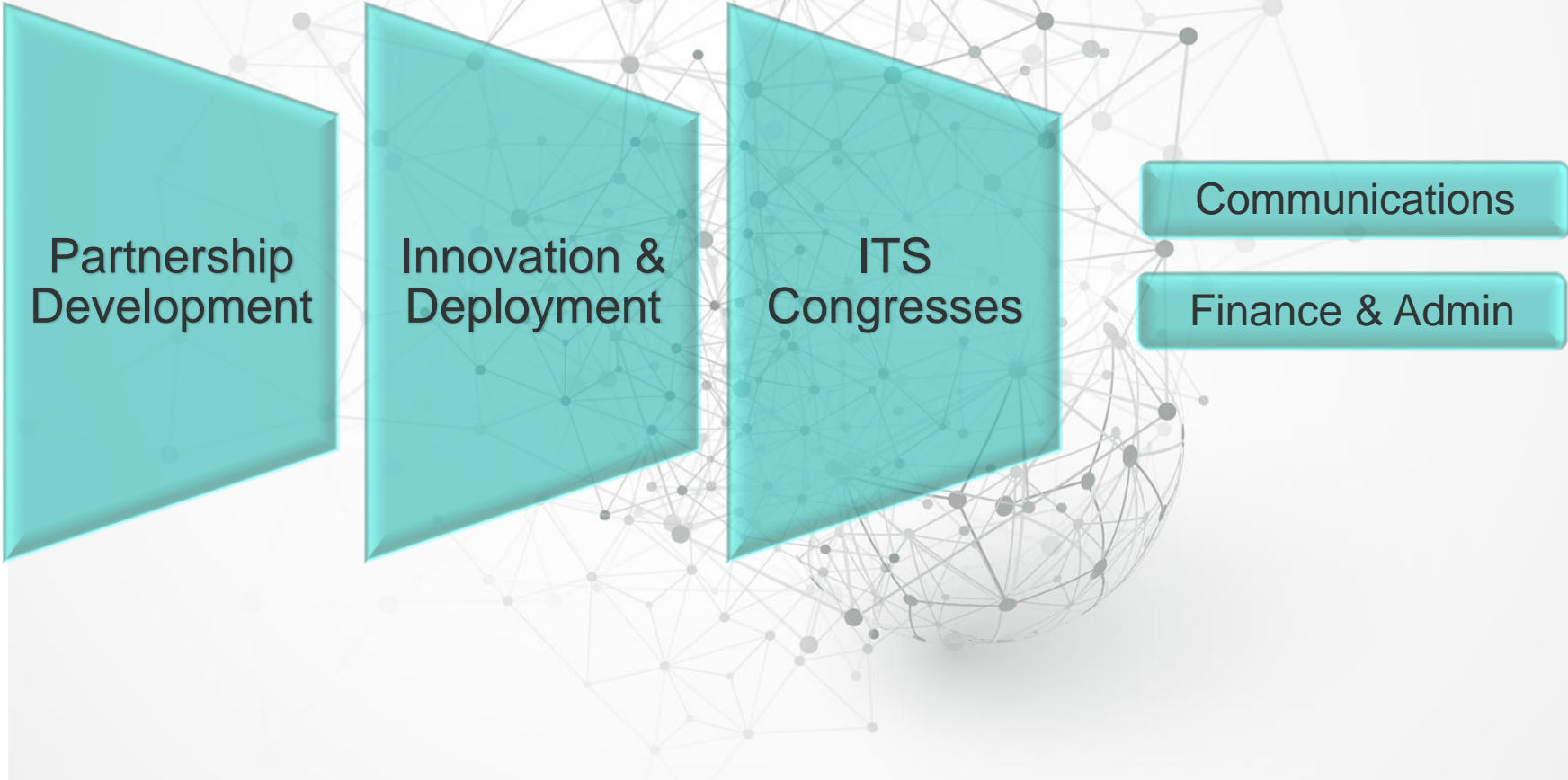
USERS



VEHICLE MANUFACTURERS



How **We** Work



WHAT

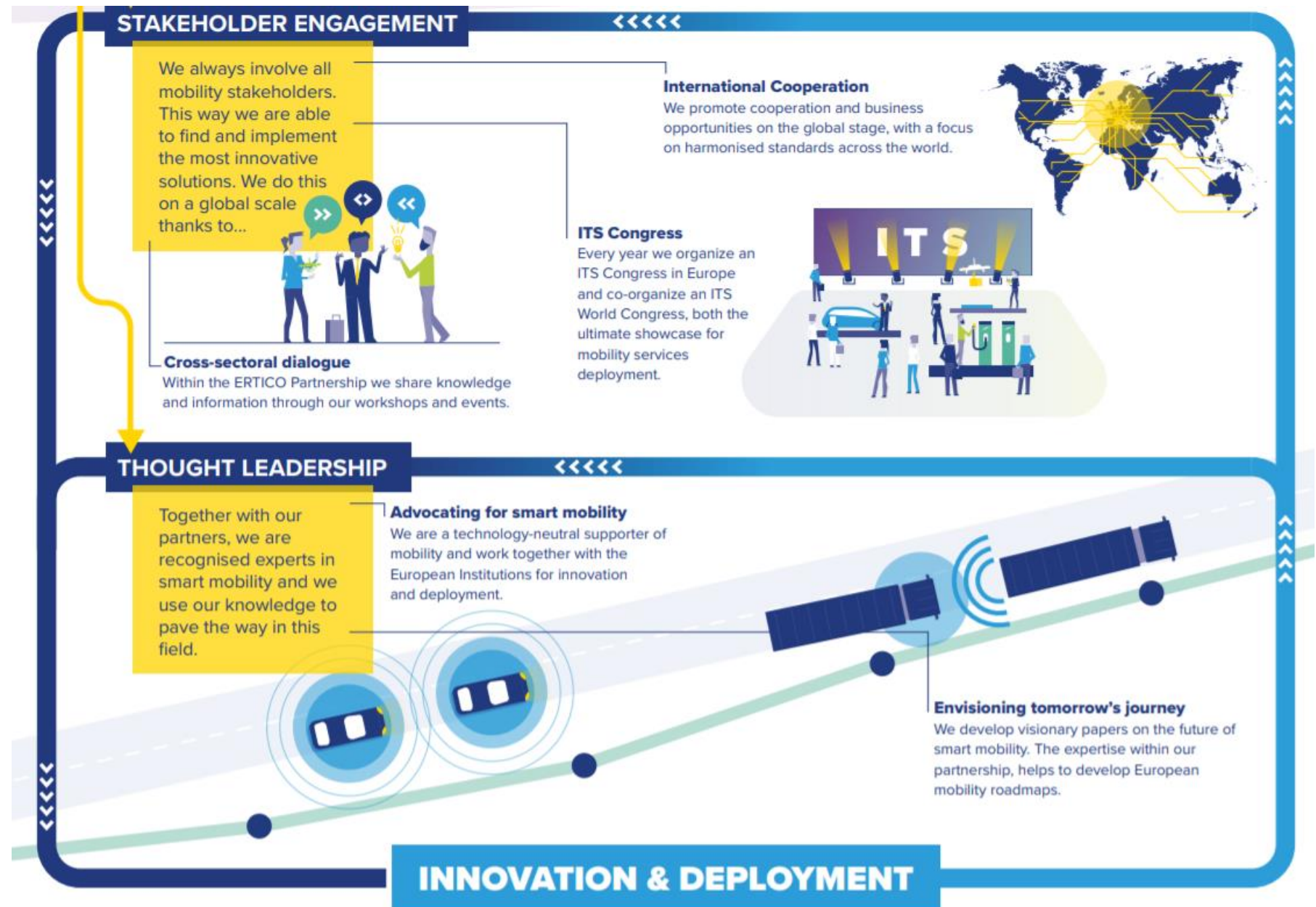
WE

DO

- ITS Innovation & Deployment
- Thought Leadership
- Stakeholder Engagement
- ITS Congresses & Events
- International Cooperation



ERTICO'S Role in Mobility



ITS Innovation & Deployment

20

EU Co-funded collaborative ITS research, pilot and deployment projects

8

Deployment oriented platforms for the European and global ITS market



4 focus areas of mobility



**CONNECTED AND AUTOMATED
DRIVING**

Accelerating
automation and
connectivity for safer
and smarter mobility



CLEAN MOBILITY

Reducing
environmental impact



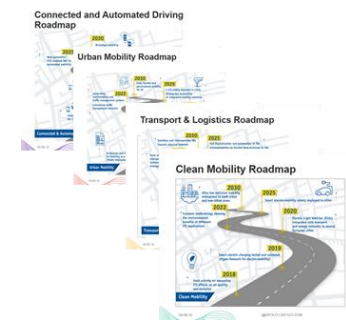
URBAN MOBILITY

Delivering seamless
mobility for all



**TRANSPORT AND
LOGISTICS**

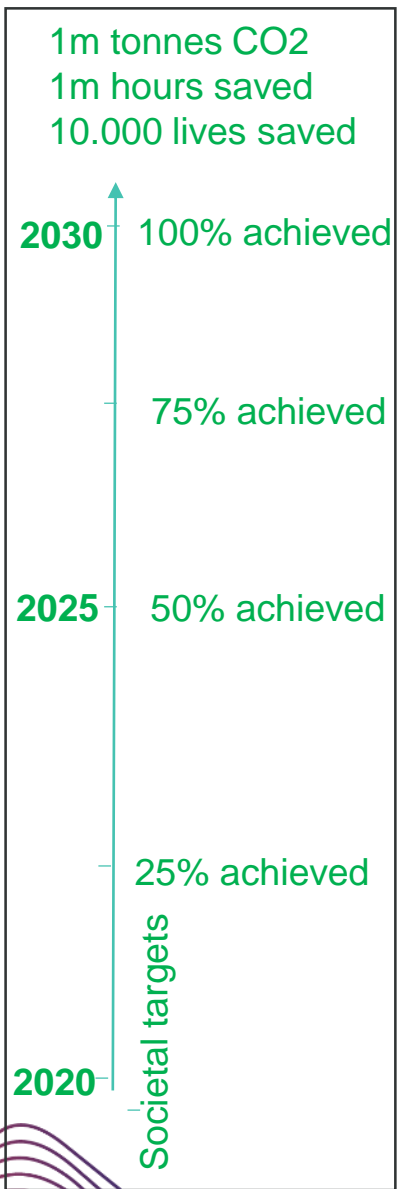
Creating the digital
infrastructure for
freight transport and
logistics operations



I&D targets towards 2030 & 2050*

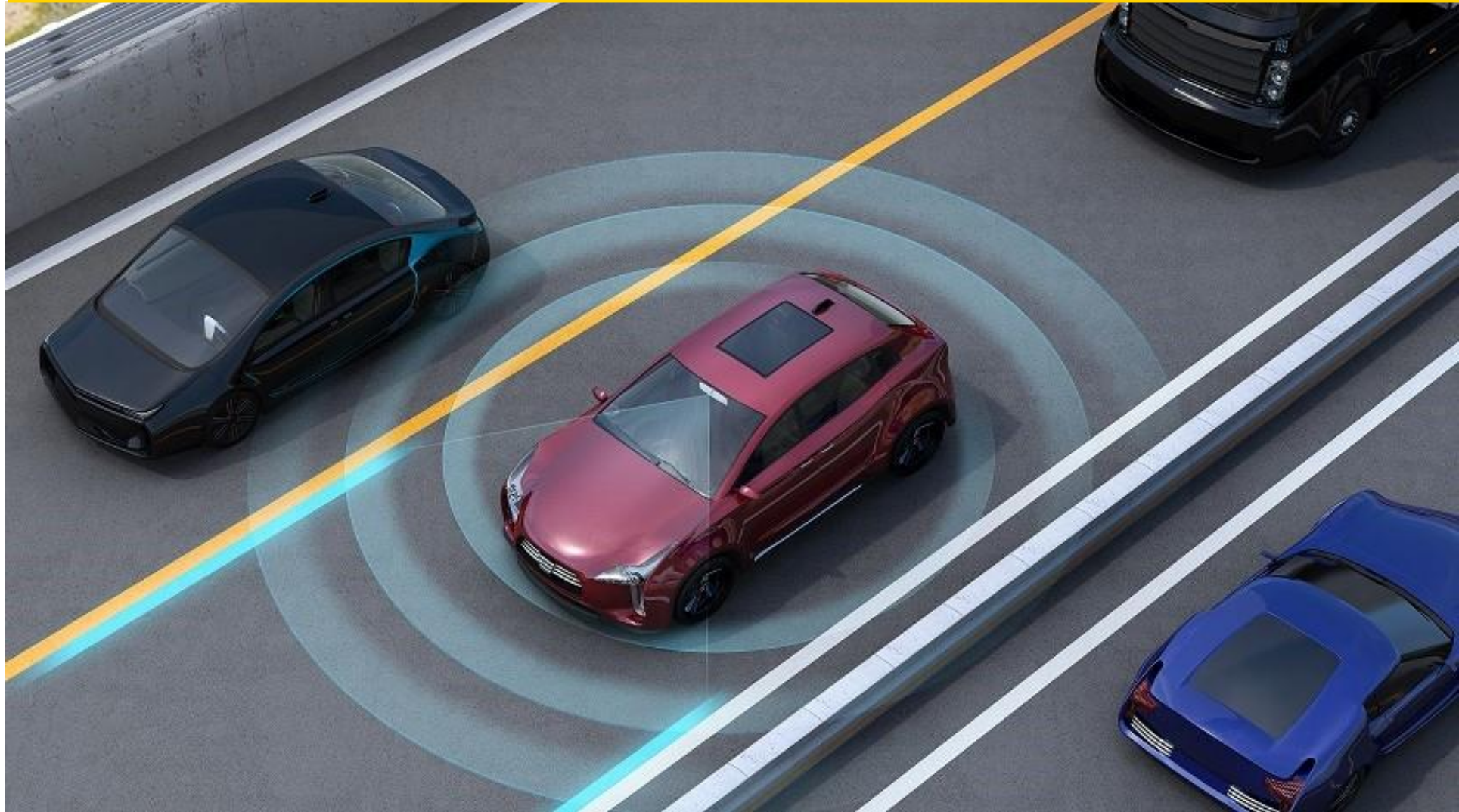
ERTICO will support the EU in delivering its societal targets

- **Decarbonisation:** at least 55% emissions reduction by 2030 & 90% reduction of transport emissions by 2050
- ✓ ERTICO will contribute to the savings of 1m tonnes CO₂ by 2030
- **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
- ✓ ERTICO will contribute to saving more than 10,000 lives in Europe
- **Efficiency:** No dedicated KPIs set by the EC. 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
- ✓ ERTICO will contribute to saving 1m hours from traffic congestions and delays



*we will work on setting a methodology to assess the KPIs. Each project calculating KPIs, following the EC SUMIs.

Connected, Cooperative and Automated Mobility (CCAM)



Connected Automated Driving Roadmap

2030

Driverless mobility commercial deployment

2025

Next generation V2X enabled SAE L4 automated mobility

2022

CAD using Big Data trusted platform for Open Data Access

2020

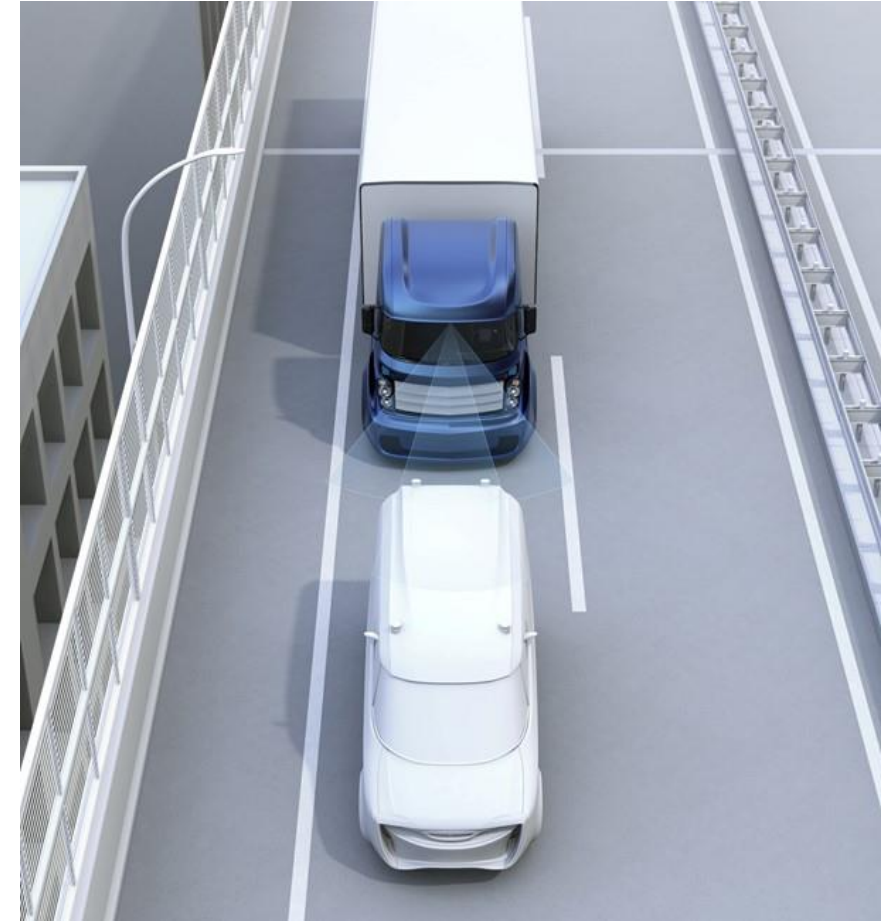
Testing and validation of automated mobility

2019

CAD progressed by cloud computing, IoT, Big Data and hybrid V2X

2018

Common Framework for CAD pilots



ERTICO ROADMAP - updated



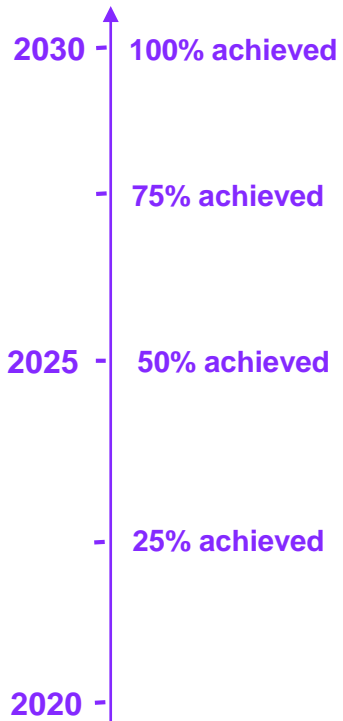
Process:

- ❖ updated following 3-day workshop on 15, 20, 21 Sept 2021
- ❖ partner consultation (Sept.-Nov. 2021)
- ❖ Strategy Committee on 12th Nov and on 17 Nov 2021
- ❖ SC and SB deadline for feedback until mid January 2022.

Approved by the Supervisory Board at its meeting on 24 February 2022

Presented to the ERTICO partnership on 17-18 May 2022 & at the Toulouse ITS European Congress on 30-1 June 2022

1m tonnes CO2
1m hours saved
10,000 lives saved



Societal targets

- PROJECTS**
- PLATFORMS**
- ERTICO Academy
 - ERTICO City Moonshot

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



CCAM progressed through Mobility Data Space, edge computing, Big Data & AI

CITY Moonshot
Map city interests

SUNRISE

SHOW
Common EU evaluation methodology and validation framework

HEADSTART

ENSEMBLE

2025

Harmonised regulatory frameworks in EU, facilitated testing and liability frameworks



2035

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

Better understanding of wider impacts of AD for passenger and logistics

2030



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

2027

FAME

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

2023

WE-TURN

TRAINING

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

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

THE ACADEMY
by ERTICO PARTNERSHIP
Sharing knowledge

2020

ARCADE

FUTURE-RADAR

Connected, Cooperative & Automated Mobility

Connected, Cooperative and Automated Mobility (CCAM)

Legislation and related activities

CCAM Platform	CCAM Partnership
Amsterdam Declaration & HLG meetings /	
C-ITS Deployment (CCAM), C-ROADS, CEF Pilots	
5G Action plan, 5GPPP – & 5G Cross-border corridors - Big Data Value Partnership (DAIRO/BDVA)	
Data Economy - GDPR – Cybersecurity – Mobility packages – The European Data Strategy – Smart & Sustainable Mobility Strategy	
H2020 Work Programme	Horizon Europe and Digital Europe Programs

Projects

Coordination Support	
ARCADE	FAME (CCAM-2021-D6-01-06)
Large scale demonstrations & Pilots	
SHOW	
AUTOPILOT	
ENSEMBLE	
Infrastructure for CCAM	
C-MOBILE	
ICT4CART	
CCAM Impacts & validation	
HEADSTART	SUNRISE (CCAM-2021-D6-01-02)
	CCAM-2021-D6-01-05

Platforms involvement & Activities

CCAM Partnership, ETPC, ERTRAC, DAIRO/BDVA (ERTICO involvement)
ADASIS, SENSORIS, TN- ITS, DFRS, EAVP, TISA, TM 2.0
ITS Congress, EUCAD (ERTICO involvement)

Partners' ITS related activities/use cases

- Combined 4G/5G/satellite architecture to utilise the advantages of satellites- regarding **ubiquitous connectivity**- to realise the always-connected aspect of CCAM (Satellite and 4G/5G-driven autonomous vehicles),
- Car on vehicle sensors networked to the OEM's premises via satellite to constantly monitor vehicle's parameters; over-the-air updates, which would lead to smart update solutions for the entire vehicle, from the powertrain to infotainment systems
- Next generation positioning OBU for enabling highly automated driving such as the development of a precise positioning system for high levels of automated driving SAE-L4 and L5 for many vehicle types (e.g. cars, buses, trucks)
- Use of vehicle cameras and Intelligent image processing algorithms, as part of an integrated multi-camera system) –to provide an all-around view (360-degree visibility) of the vehicle environment from a bird's eye perspective; bird's eye view perspectives provided by satellites 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

GNSS/PNT in smart mobility

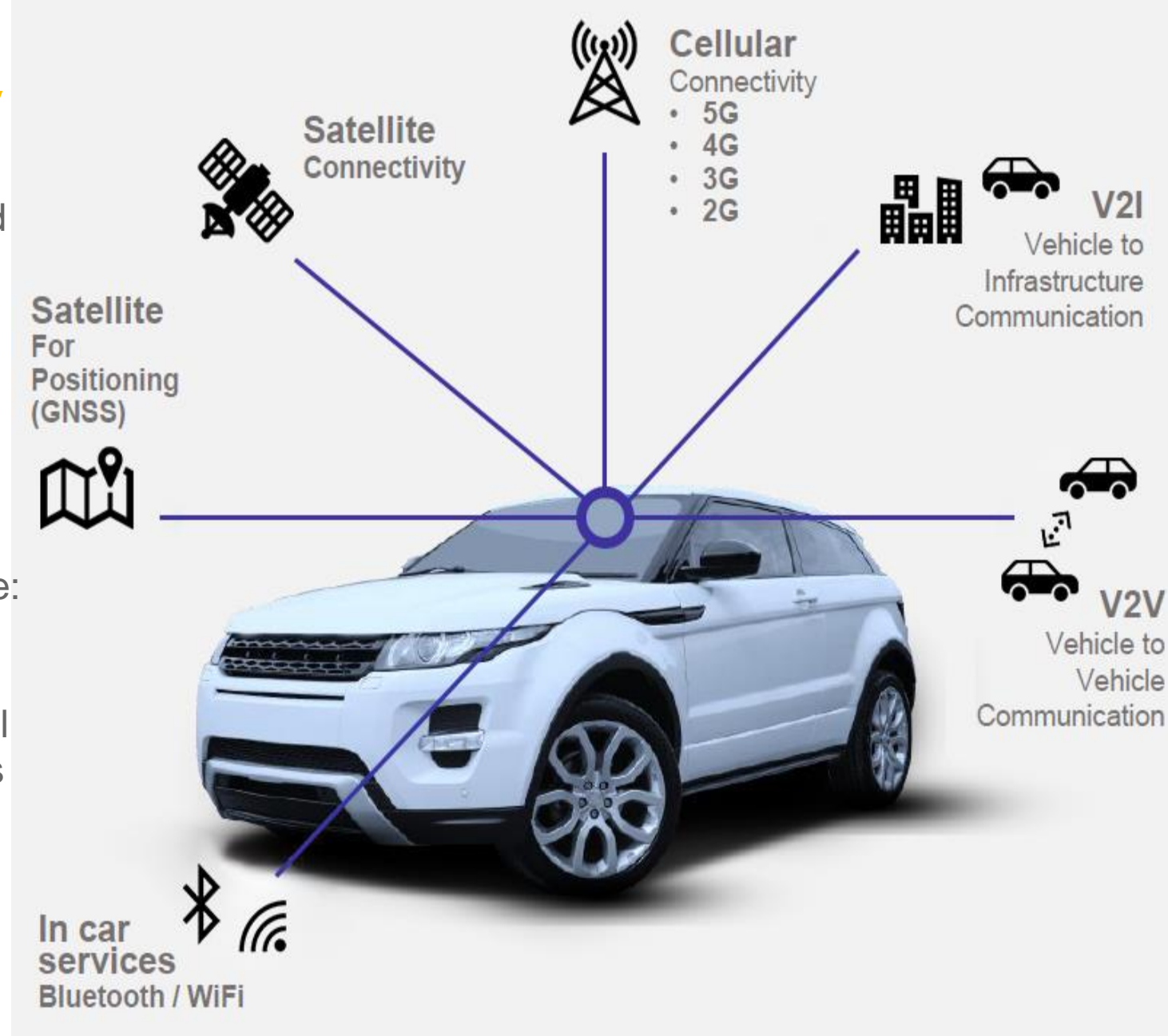
- Aside from providing navigation solution to self-driving cars, GNSS/PNT offers numerous opportunities to:
 - **plan** new infrastructure and improve the existing one based on measuring traffic flows – e.g. longitudinal traffic flow data informing future infrastructure investment decision
 - **decrease** CO₂ emissions coming from the transportation vehicles – e.g. smart bus stops and efficient phasing of traffic lights
 - **ensure** safety based on citizens' reports from certain locations – e.g. combining citizens' emergency reports with CCTV data
 - **improve** infrastructure monitoring, optimize maintenance intervals and reduce the costs for upkeep – e.g. combining data on the use of bridges and sensor-provided status of various elements.

Always-On Connectivity

enabling always-on, everywhere connectivity and associated services: Infotainment, Vehicle Management, and Data Analytics.

Connected and autonomous vehicles are not the future, they are the present. As consumer expectation for on-demand data services increases, the new market differentiators become: Access, Data rate, & Reliability

Despite the deployment and rollout of 4G/5G, still huge areas where autonomy and critical services will not be accessible unless we harness the entirety of the connectivity that surrounds us, including satellite data, cellular and wi-fi.



H2020 - 5G-MOBIX

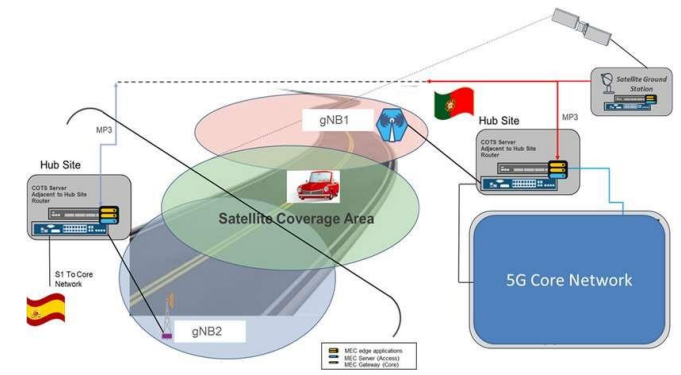
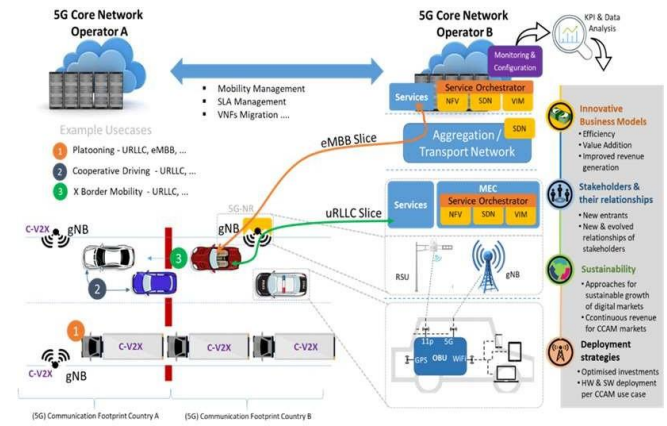
EU funded Innovation action (H2020-ICT-18-2018)
(Nov 2018 – Jul 2022)

Objective

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

Approach (Catapult Centric)

- 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 ITS related activities/use cases

Digital Shield (Continental – Vodafone) a user's smartphone can host a software application that can send the individual's position, direction, and speed to a server via the mobile network base station. This data can then be relayed to nearby vehicles that have cellular telematics or V2X-communications equipment. If the trajectories indicate a potential risk, the system can issue a warning.

And because the vehicles have access to additional information such as steering wheel angle and turn signal activation, the system can also reduce the risk of a dangerous situation caused by a vehicle turning across a cyclist's path.



Source: Continental

Selected ITS 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.

The collision warning system is based on satellite positioning (GPS), acceleration sensors, mobile communications and cloud computing. The car transmits its position and acceleration values to the cloud via mobile communications. The cyclist also sends this information to the cloud via smartphone. It calculates the paths for the next five seconds and sends a warning to the car and the cyclist's end user device if a collision is imminent. To ensure that this information reaches both road users as quickly as possible, multi-access edge computing. Techniques are used

DT & Continental presented the results at the ITS World Congress. in Hamburg 2021.



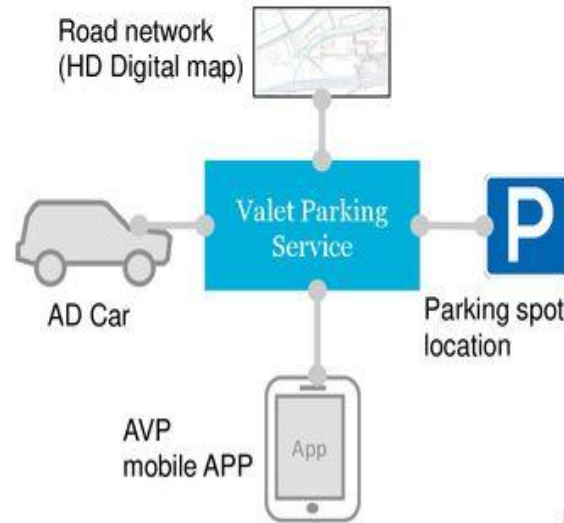
The information on available parking spaces is obtained by a networked and fully autonomous flying drone – a component of the Internet of Things. It flies a fixed course at a height of two or three metres and uses its four cameras to acquire data. With this information, the system can identify free parking spaces, determine the optimal route and detect obstacles. Unlike stationary cameras, the drone can be used flexibly, for example in parking areas without the necessary infrastructure or in parking areas that are only used temporarily, such as a field at a festival,

The Autopilot Project

Automated Valet Parking Implementation

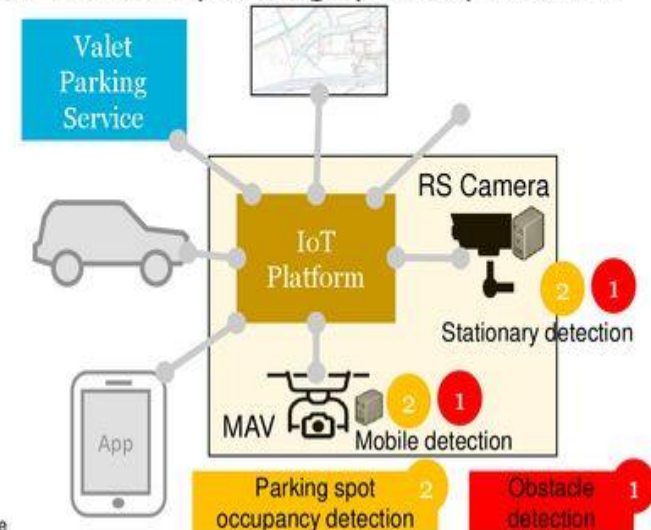
Option 1: without IoT

- Parking spot exploration is needed



Option 2: With IoT

- No need of parking spot exploration



MAV: Micro Aerial Vehicle



AUTOPILOT Deployment

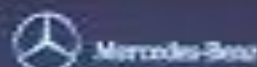
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10/10/2019



Automated Valet Parking

Fast, safe, driverless



Mercedes-Benz



BOSCH

ERTICO Innovation Platform on 'European Automated Valet Parking' (EAVP)

Establish a multi stakeholder innovation platform and to create an activity by aligning all stakeholders and define, develop, and market the relevant building initiatives

The objective of the Platform is:

- To facilitate and provide support, on a permanent basis, to the implementation of priority actions for the deployment of AVP in Europe, as defined and identified by the platform working groups.
- To foster and to cultivate the relevant standards as these have been identified



Valeo

**Valeo Drive4U prototype navigates
the bustling streets of Paris**

Powering Innovation

ERTICO activities that bring innovation to wider community



Training and capacity building

Filling the knowledge and experience gap for the deployment of ITS

 Training in smart and sustainable mobility – face to face & online

 Designed for Public Authorities in Europe & beyond

 On-demand & interactive courses for all levels

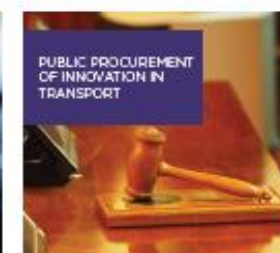
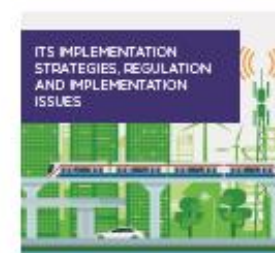
Amongst others, courses include:

- Digital freight
- Electro-mobility
- Access to EU funding programmes
- Mobility as a Service
- 5G & IoT
- C-ITS

THE ACADEMY

by
ERTICO
PARTNERSHIP
Sharing knowledge

Available Trainings



ERTICO Start-up Initiative

Connect, Innovate and Grow your start-up within the ERTICO Partnership.

- **CONNECT** your start-up with stakeholders in the European ITS industry via ERTICO events and ITS European and World Congresses;
- **INNOVATE** the transport of tomorrow by connecting to key stakeholders and being involved in EU-funded projects and innovation platforms;
- **GROW** your network and increase your knowledge thanks to ERTICO's smart mobility experts and training programmes.



City Moonshot

Mission: 300 cities

200 cities in Europe;
25 China & SE Asia;
25 North America; 25 South America;
25 Africa & rest of Asia and Oceania

What is in for the cities:

- Visibility in the final report
- Learning with ERTICO Academy
- Best practices from other cities
- Access to mobility experts
- Exclusive online trainings
- Unique webinars
- Networking
- Joining the ITS Community



International Cooperation

- International dimension to EU projects
- Close cooperation with: ITS America, ITS Asia-Pacific
- Business visits to Japan, China and the US
- MoU with China



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

ERTICO Partnership





**Innovation for
tomorrow's journey.**

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