5G TECHRITORY TECH DAY

5G intelligent transport system and services

22 November 2020

Moderator

Dr. Eusebiu Catana

Senior Innovation&Deployment Manager, ERTICO-ITS Europe

Agenda

- Introduction by the moderator Dr. Eusebiu Catana, Senior Innovation&Deployment Manager, ERTICO, Belgium
- **Speakers:**
- Ralf Willenbrock, Program Manager, T-Systems, DT AG Germany
- Dr. Otaegui Oihana, Head of ITS and Engineering, Vicomtech
- Coen Bresser, Senior I&D Manager, ERTICO-ITS Europe
- Dr. Janez Sterle, CEO, Internet Institute, Slovenia

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Ralf Willenbrock

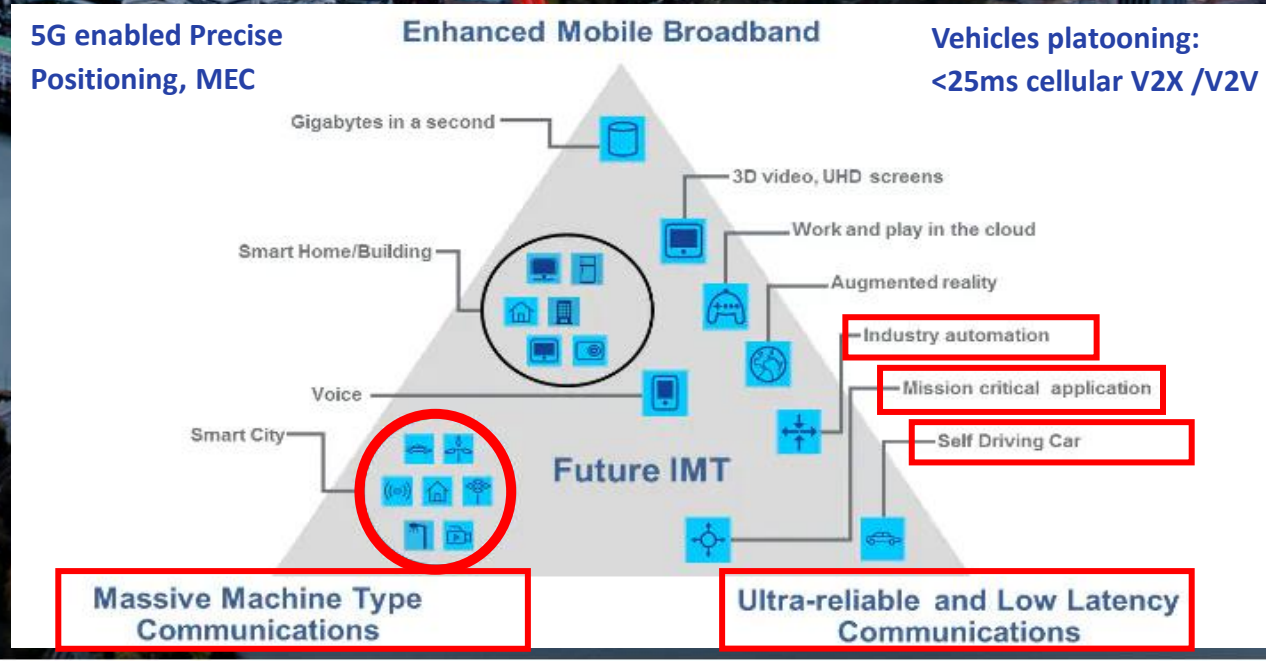
Product Manager

5G-Loginnov - Hamburg

Welcome to TAVF,
the test track for automated and
connected driving in Hamburg

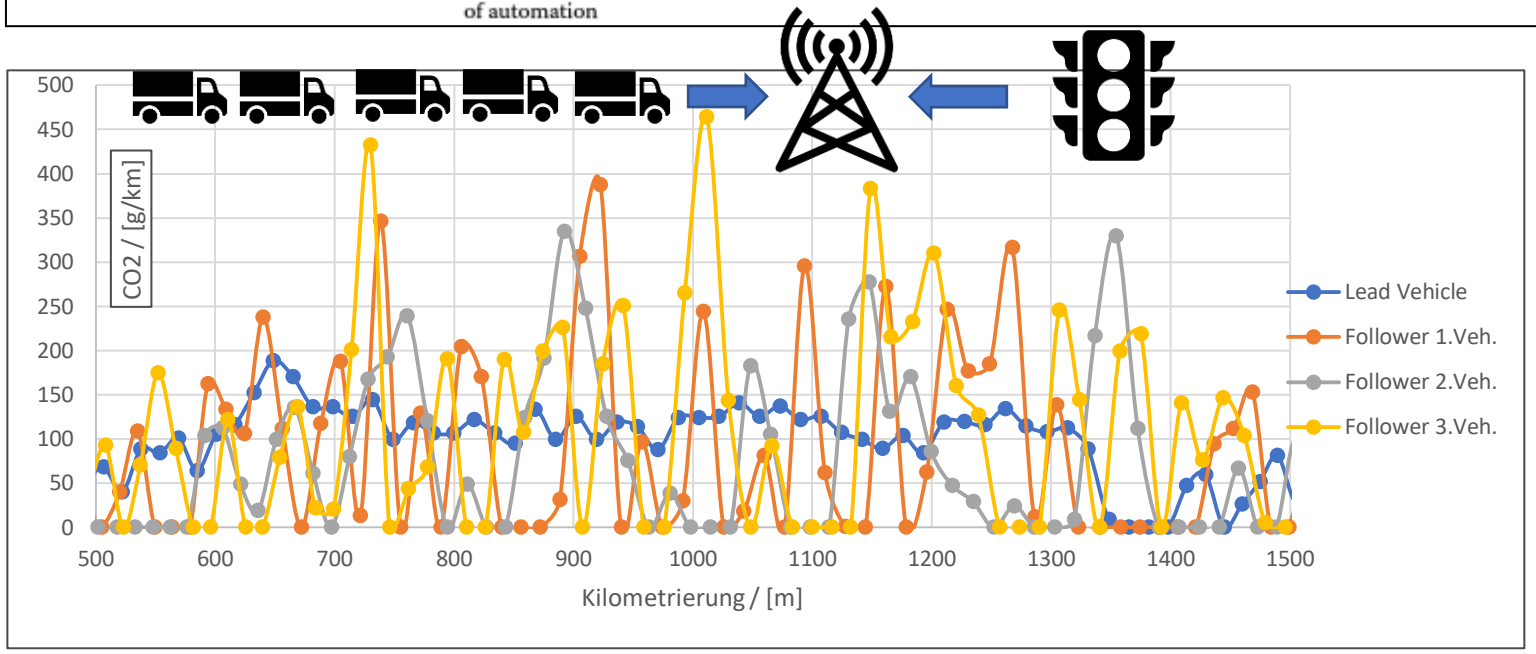
5G enabled Precise Positioning, MEC

Vehicles platooning: <25ms cellular V2X /V2V



First platooning tests using ISO/DIS-23795

Communication scenario		Payload (Bytes)	Tx rate (messages per second)	E2E latency (ms)	Reliability (%)	Data rate (Mbps)	Min range (m)
Scenario	Degree						
Cooperative driving for vehicle platooning	Lowest degree of automation	300–400	30	25	90		
Information exchange between a group of UEs supporting V2X application.	Low degree of automation	6500	50	20			350
	Highest degree of automation	50–1200	30	10	99.99		80



T-Systems · Continental · tec4U Ingenieurgesellschaft mbH · swarco

5G TECHRITORY

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5GMETA Project

Monetizing car & mobility data for new Entrants, Technologiesand Actors

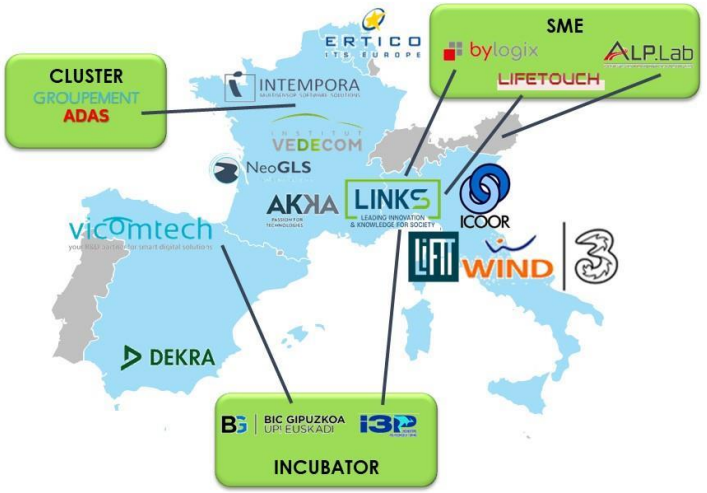
Dr. Oihana Otaegui (VICOMTECH)
ootaegui@vicomtech.org

5GMETA

5GMETA quick facts

ABOUT

- 5GMETA - Monetizing car & mobility data for new Entrants, Technologies and Actors
- *Co-ordinator: Vicomtech*
- *Duration: 36M - 1.9.2020 – 31.08.2023*
- ICT-42-2020 - 5G PPP – 5G core technologies innovation



BACKGROUND

- Data driven services will play a crucial role in the mobility ecosystem related revenues
- High-tech SMEs and start-ups will become key players in the data monetization
- Data management in terms of security, access etc. is required for allowing access to third parties

Create a flexible telematics platform for **pipelining car captured and generated data** to **traditional and new automotive industry players** while **ensuring data privacy, security, interoperability and ownership**

5GMETA: 3 general innovation corners for data monetization

1.- Data-driven **Product** innovation

- **Product Enhancement**: improving or personalizing customer experience.
- **Product Augmentation**: creating a digital ecosystem
- **Data as a Product**: analysing values to retrieve actionable information

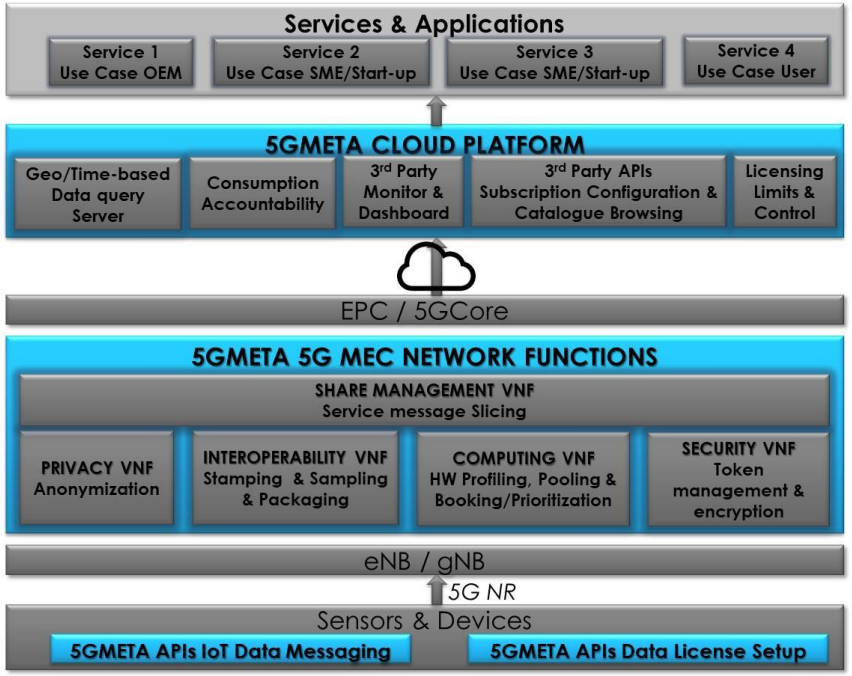
2.- Data-driven **Process** innovation comprising

- **Enterprise Process Innovation:** optimising internal R&D processes
- **Customer Process Innovation:** optimising direct impact on customer experience.

3.- Data-driven **Business Model** innovation spanning

- **Value Model Innovation:** provide new methods of value generation for the customer.
- **Monetization Model Innovation:**

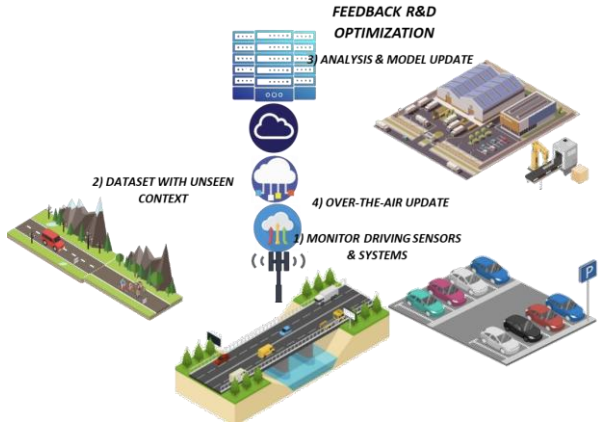
HOW



5GMETA framework is an **open** data-centric IoT messaging for CAM services and applications live ingest where the security, privacy, scalability, interoperability and licensing features are provided by the 5G networks functions executed at the edge to gain zero latency, capillarity and geo-driven networking

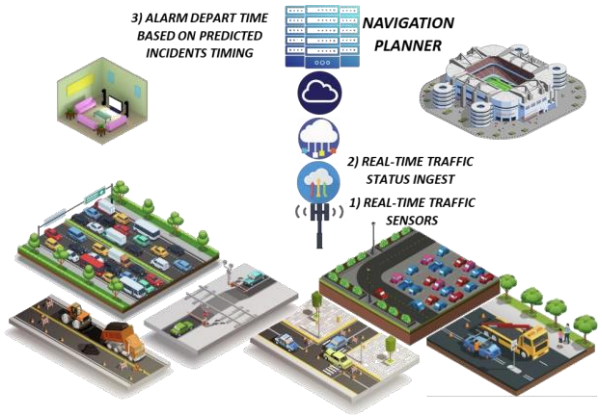
5GMETA Use Cases

R&D Live Training Loop



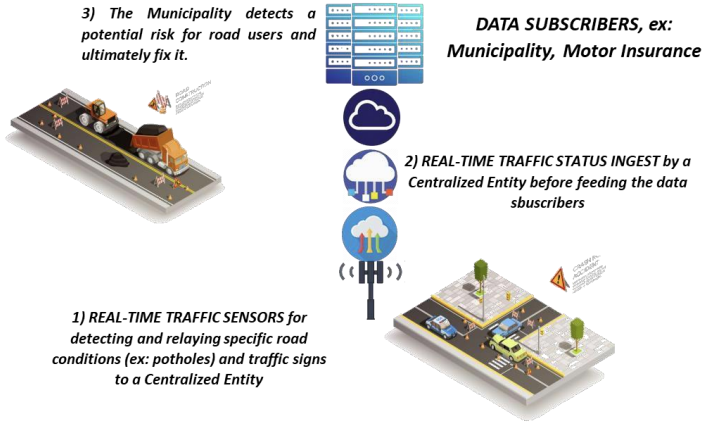
5G enabled scenario: 5G **eMBB** feature as the cars need to continuously upload data to the cloud service which analyse new data to detect unseen conditions and trigger training processing

Networking Parking



5G enabled scenario: 5G **mMTC** as the volume of data coming from vehicles in a congested and parking areas is huge and has to be instantly uploaded to edge services, which get context awareness from cameras using CV

Driving Safety & Awareness



5G enabled scenario: 5G **URLLC** since the vehicle is supposed to prevent surrounding vehicles to avoid any possible collisions and ultimately make an emergency call. **eMBB** is also needed

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Coen Bresser

Senior Manager

5GMOBIX

ABOUT

- EU funded Innovation action (H2020-ICT-18-2018)
- November 2018 – July 2022
- 59 partners from 11 countries in Europe (incl. Linked Third parties)
- 9 non-EU funded partners from China and South Korea

OBJECTIVES

Accelerate deployment of 5G at cross-border areas

- Carry out trials along X-border corridors to assess 5G capabilities for CAM
- Qualify the 5G-infrastructure and evaluate the benefits of 5G within the CAM context
- Identify spectrum allocation gaps, contribute to standardisation and 5G CEF preparation

Technical

Business

Define deployment scenarios & recommendations including x-border context

- Perform cost/benefit analysis and impact assessment
- Identify new business opportunities for 5G-enabled CAM
- Investigate legal, regulatory and security issues

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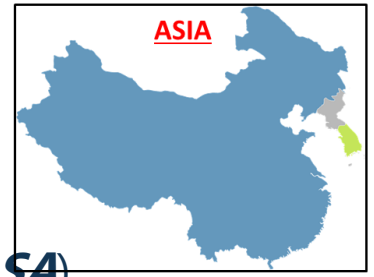
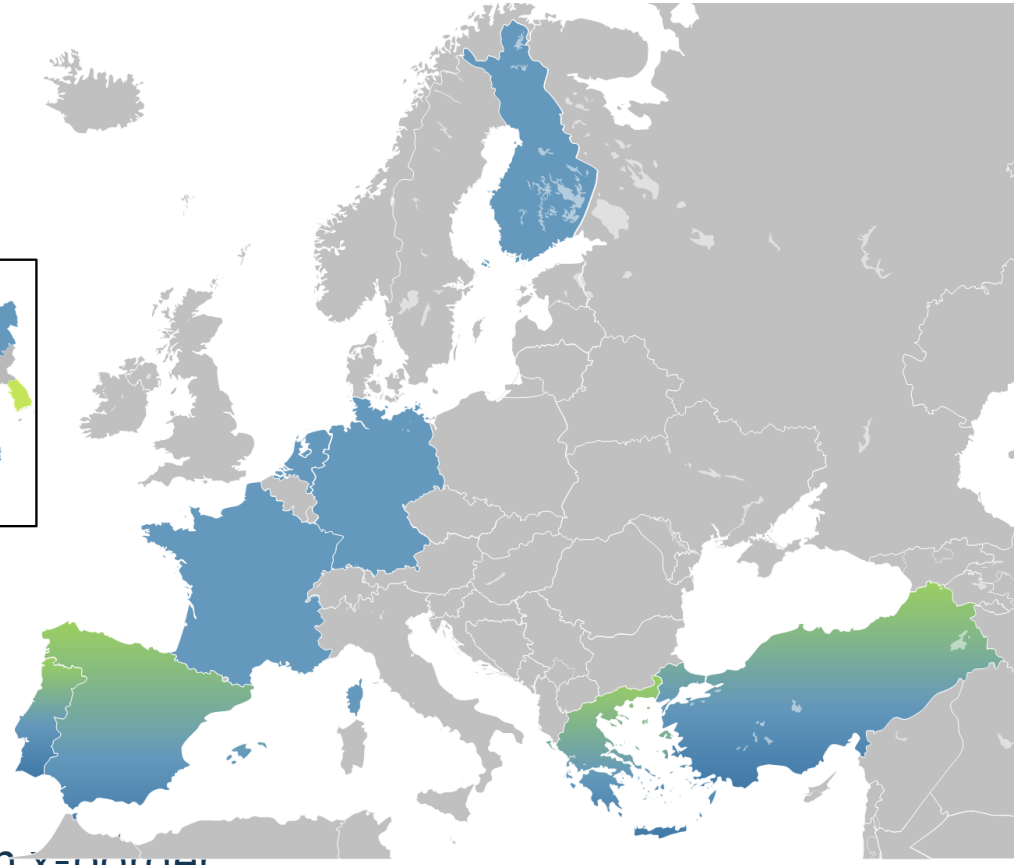
LOCATIONS

- ***2*** Cross-Border Corridors (CBC)
- ***4*** complementary European Trial Sites (TS)
- ***2*** complementary Asian Trial Sites (TS)





NETWORK

- **29** 5G gNBs
- ***NSA*** Architecture (potential for evolving to ***SA***)

VEHICLES

- ***20*** SAE L4 automated vehicles

USE CASES

- ***5*** use case categories based on 3GPP TS 22.186, focusing on x-border operation

Advanced Driving | Vehicles Platooning | Extended Sensors | Remote Driving | Vehicle QoS Support

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Network characteristics

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- SA networks + multi-SIM fun[illegible]ality
- Service discovery
- Edge computing

- National roaming with seamless HO
- NR mmWave for V2x

- Multi-SIM (DSDA)
- Edge computing
- NR mmWave for V2X

- SA networks with roaming
- SA network slicing
- Service Continuity with multiple edges
- 5G Localisation

- SA network and NSA network (multi-SIM service migration)
- n1 Band operation (+n78)
- Edge computing

- Multi Sim Modem for increased reliability and preventing coss border HO latencies
- Intelligent routing for coverage gaps & service continuity
- Edge computing (MEC)

- NSA networks with roaming
- Edge computing
- NSA roaming in Hard border conditions

- NSA networks with roaming
- Edge computing (MEC)
- Possible SA network with NSA roaming

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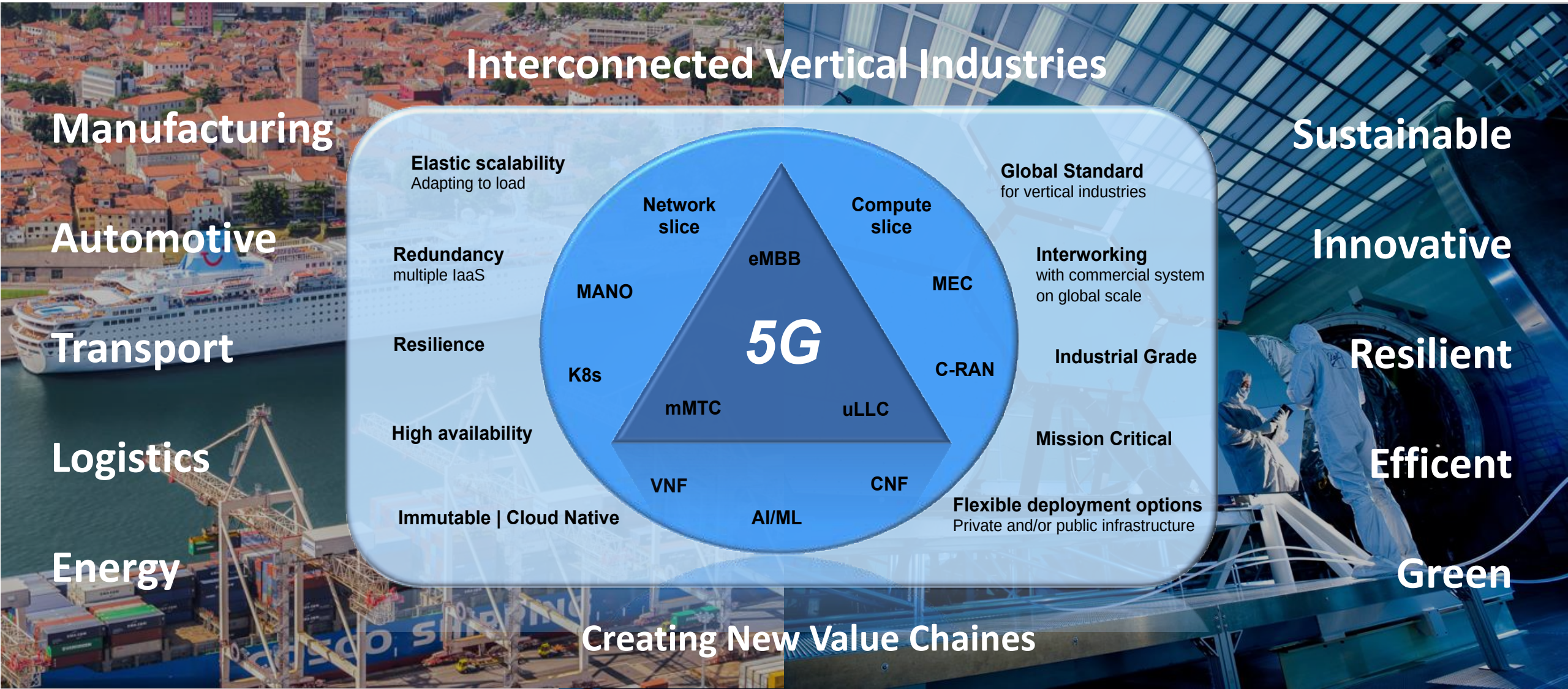
dr. Janez STERLE

CEO, INTERNET INSTITUTE

Future EU Ports



5G Assured Port Operation | Koper | Internet INSTITUTE

5G&AI Assisted
Logistic Process

Network slice

Compute slice

eMBB

MANO

MEC

5G

K8s

C-RAN

mMTC

uRLLC

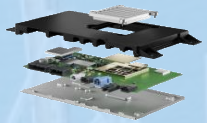
VNF

CNF

AI/ML

5G&AI Assisted
Security Surevilance

Telematics Metering |
Predictive maintenance



Remote Crane Control

Panel

WHY 5G intelligent transport system and services?

- New challenges vs new technologies
- 5G ecosystem-ICT platforms able to achieve a cloud based cooperative ecosystem
- Corridors information for the deployment of pan-European solutions
- Digital Transport and Logistic Forum / DG MOVE
- 5GAA

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Thank you for your attention!

Dr. Eusebiu Catana

Innovation & Deployment

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