

The logo for A-to-Be, featuring the text 'A-to-Be' in a stylized, rounded blue font. The letters are composed of various shades of blue and white, giving it a modern, digital feel.

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A-to-Be | 5G & Mobility

APDC – The Future with 5G for Mobility
4th November 2020



Frederico Vaz
Chief Technology Officer



About A-to-Be

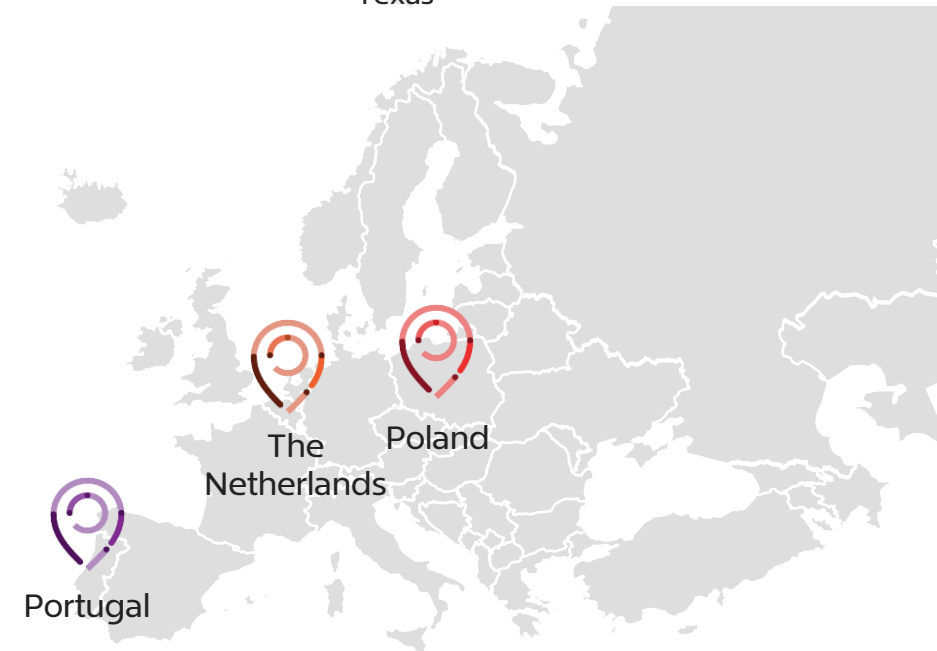
We've come a long way regarding mobility.

... providing complex systems used to successfully support and manage toll collection on highways around the world.

We have been around for a while. Yet, we believe that the **ride has just started.**

+40
years of experience

Contracts worldwide
(January 2020)



Today...
private companies
and public entities
use A-to-Be
solutions across
multiple countries
and continents.



** Year-end statistics

How Brisa group... leads mobility and beyond by example and vision.

Vision for Mobility



The service provider changes its processes and tools to follow the new client-centric approach.

The technology provider designs its products and tools with the citizen at the center.

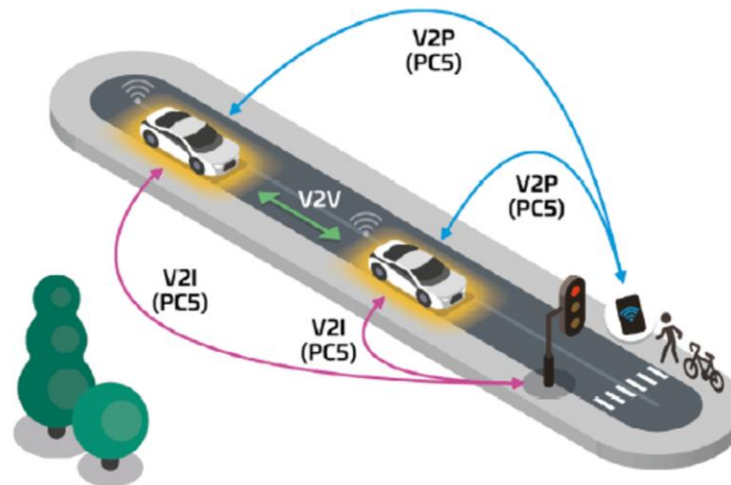


5G & Beyond

G5 or 5G?

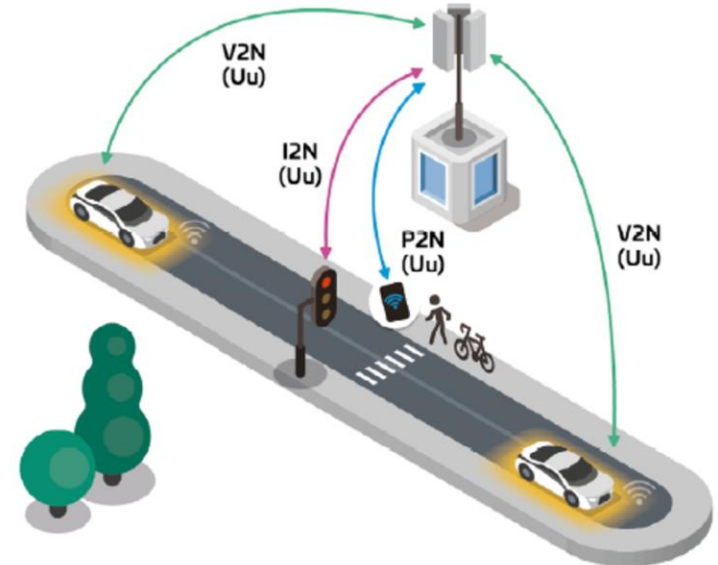
Direct

V2V/V2I/V2P in ITS bands (e.g. ITS 5.9 GHz)
independent of cellular network



Network based

V2N/I2N/P2N in bands designated for mobile communication networks



Source: A visionary roadmap for advanced driving use cases, connectivity technologies, and radio spectrum needs, White Paper, 5G Automotive Association, September 2020

5G-MOBIX project



5GMOBIX



LOCATIONS

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



NETWORK

- 30 5G gNBs
- NSA Architecture (potential for evolving to SA)



VEHICLES

- 24 SAE L4 automated vehicles



USE CASES

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

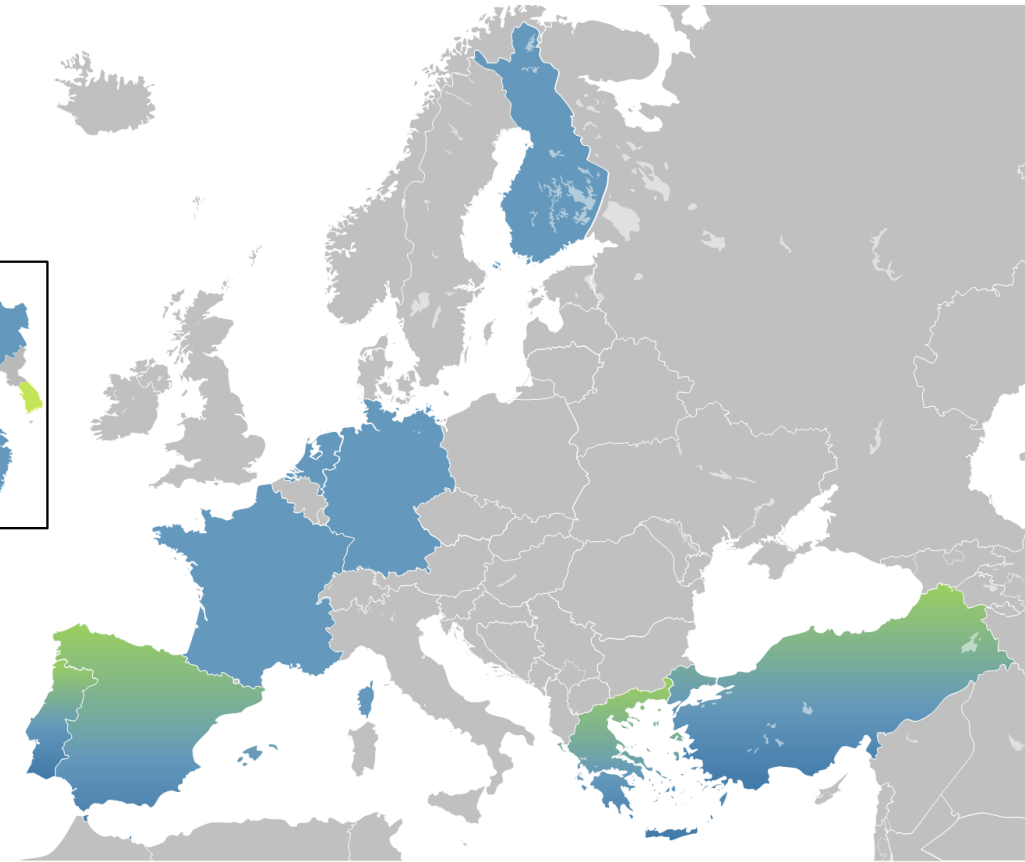
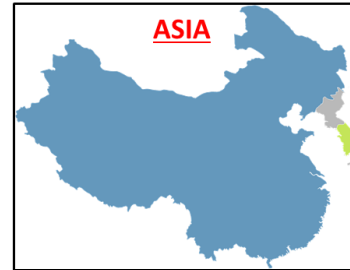
Advanced
Driving

Vehicles
Platooning

Extended
Sensors

Remote
Driving

Vehicle QoS
Support



Telecom & Connectivity



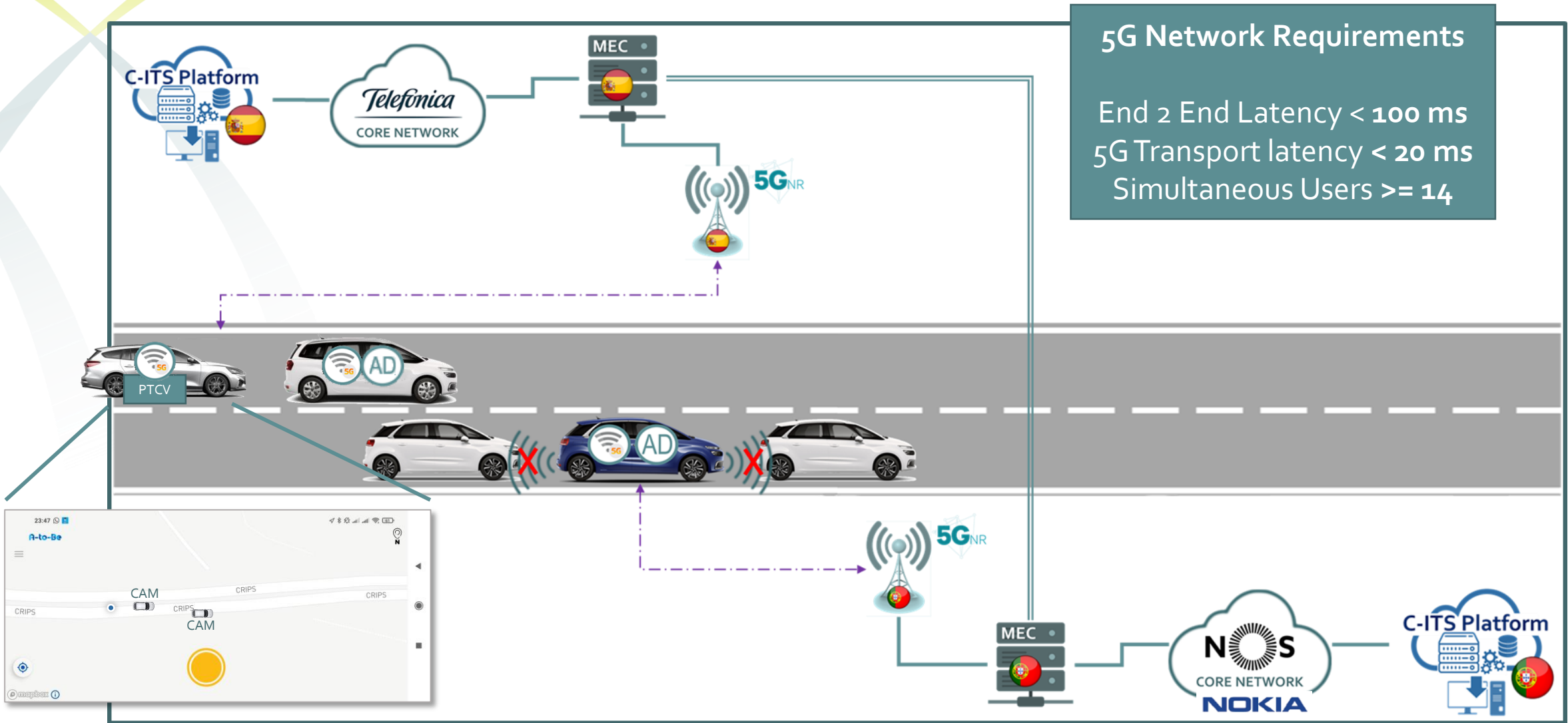
Business

R&D

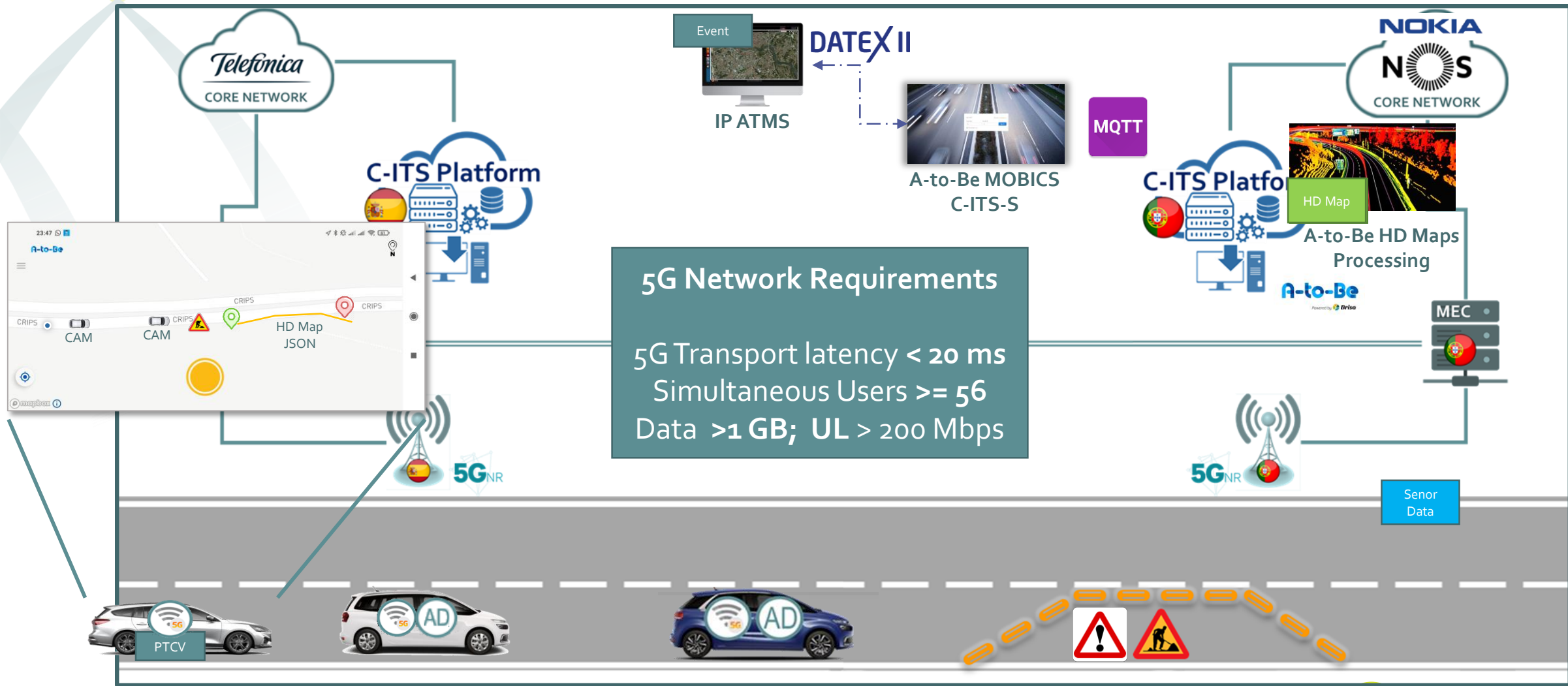


Automated driving

5G-MOBIX | ES-PT User Story – Overtaking



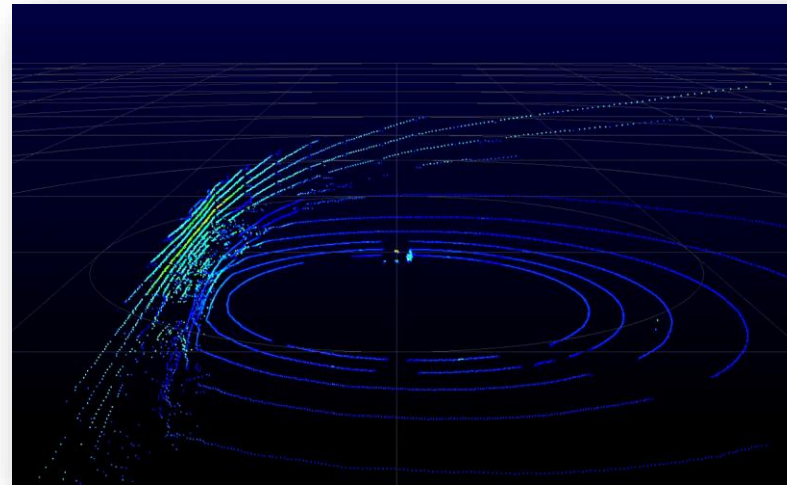
5G-MOBIX | ES-PT User Story – HD Maps



A-to-Be Current Results

- Accomplished Sensor Data unpacking and decoding
- App / HMI V2V testing

LIDAR

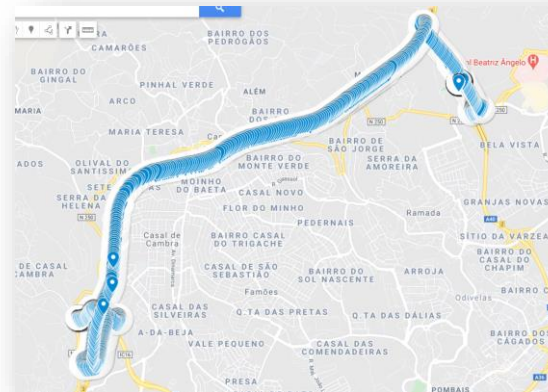


Source: CTAG

CCTV

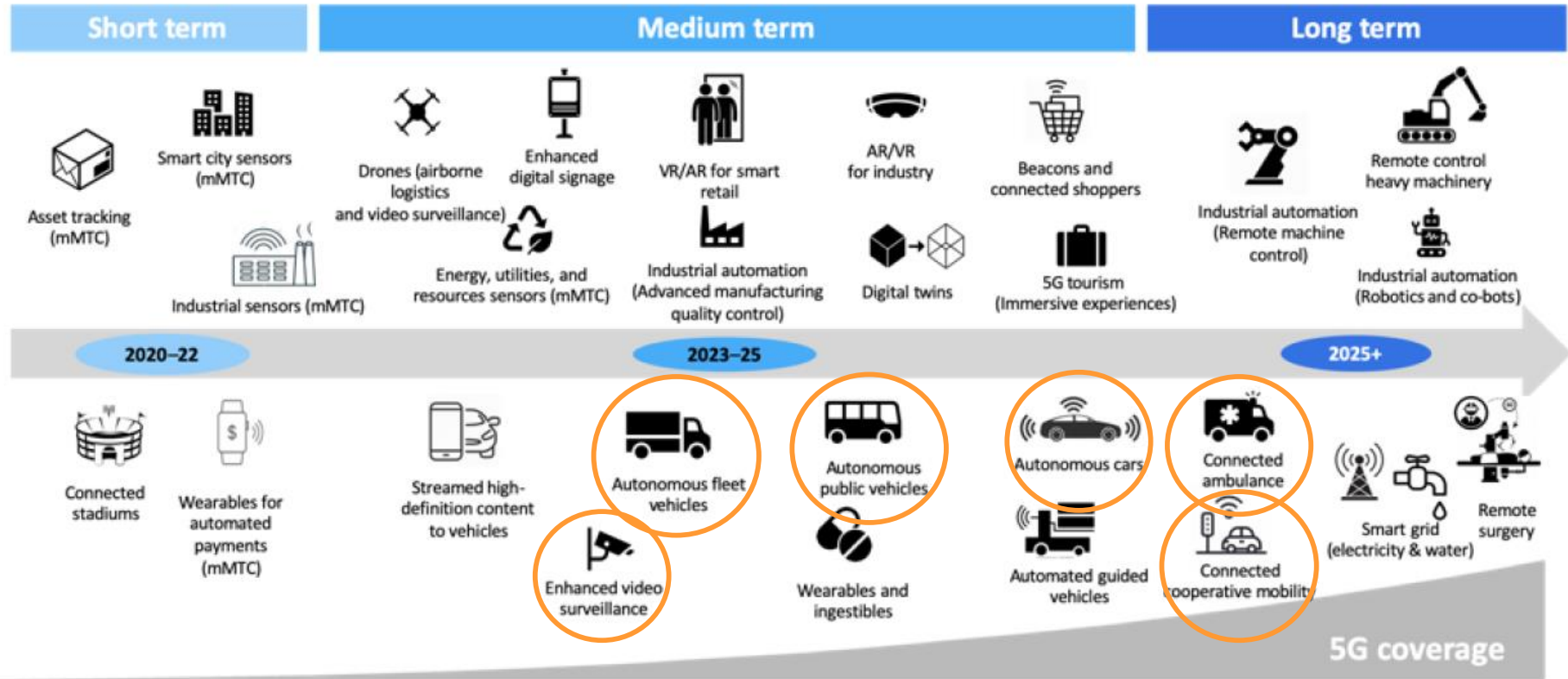


Source: CTAG



>2000 CAMs exchanged in <20 min

5G Coverage Opportunities



The sheer volume of devices engaging in simultaneous connections via 5G technology demand proactive measures be taken before widespread deployment takes place

Source: Security Transparency and Assurance in a 5G World, OMDIA, August 2020

What are some of the key questions to address?

Several questions still need to be explored to better understand how will the future be shaped in this domain

- How will the data be managed in this ecosystem?
- What are the emerging business models?
- What role can European entities play?
- How will the security be managed in this ecosystem?

Beyond.

That's where we are going.

Machine Learning | Dynamic Pricing | Vehicle-to-X | Road User Charging | Autonomous Vehicles
Radio-frequency Innovation Management | Blockchain | Big Data



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