Project overview

5G-MOBIX from a high level
IEEE 5G Virtual Summit for Connected and Automated Mobility

Coen Bresser, 11 May 2021

5GMOBIX

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825496

From EU goals to 5G-MOBIX

H2020 ICT-2018 -> 5G for CAM

- Qualify 5G as a core connectivity infrastructure for CAM
  - From technological perspective
  - From business perspective
  - For SAE levels 4 and 5
- Demonstrating the benefits of 5G in innovative business models to
  - Open the door to private investments
  - Open the door to broader digitization of the automotive sector
- Supporting the strategic objective to have major transport paths covered by 5G in 2035
  - With cross-border trials along the planned 5G corridors

5GMOBIX

5GMOBIX

ABOUT

- EU funded Innovation action (H2020-ICT-18-2018)
- November 2018 – July 2022
- 50 partners from 11 countries in Europe
- 10 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

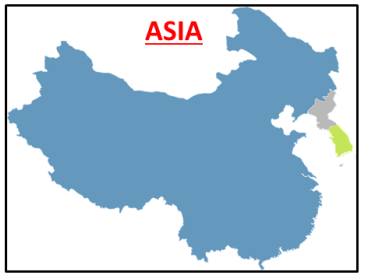
- Perform cost/benefit analysis and impact assessment
- Identify new business opportunities for 5G-enabled CAM
- Investigate legal, regulatory and security issues

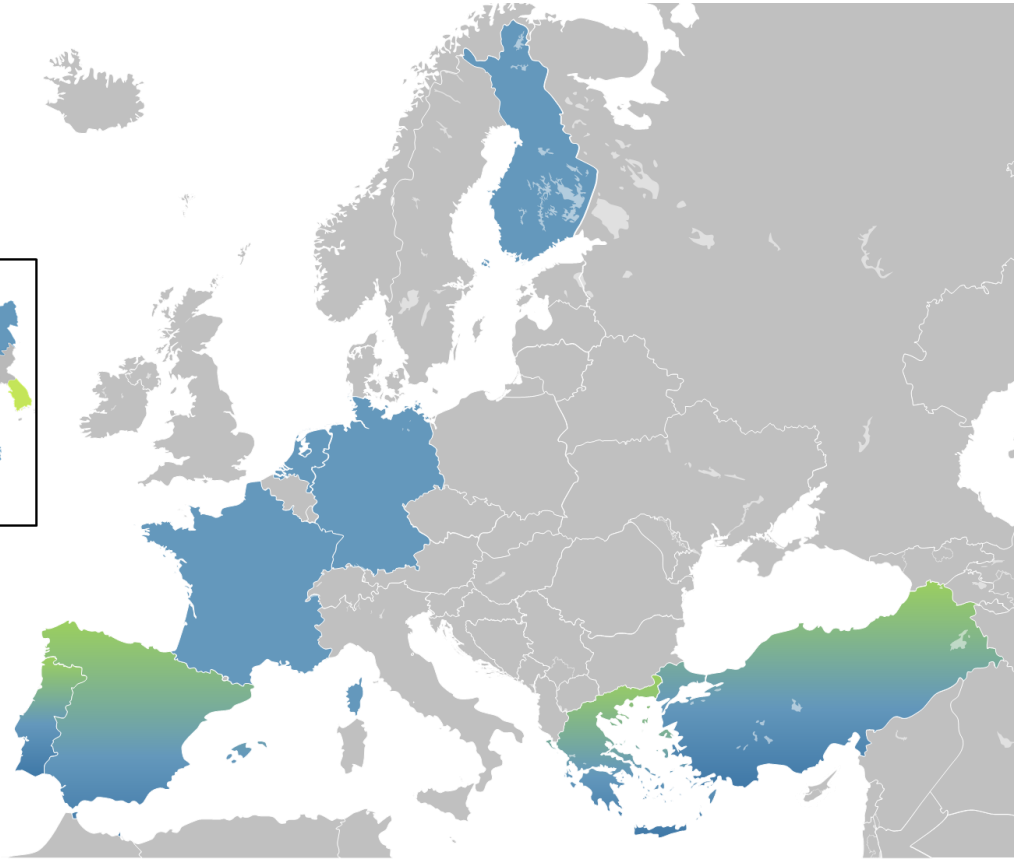
5GMOBIX

5G-MOBIX Trials

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

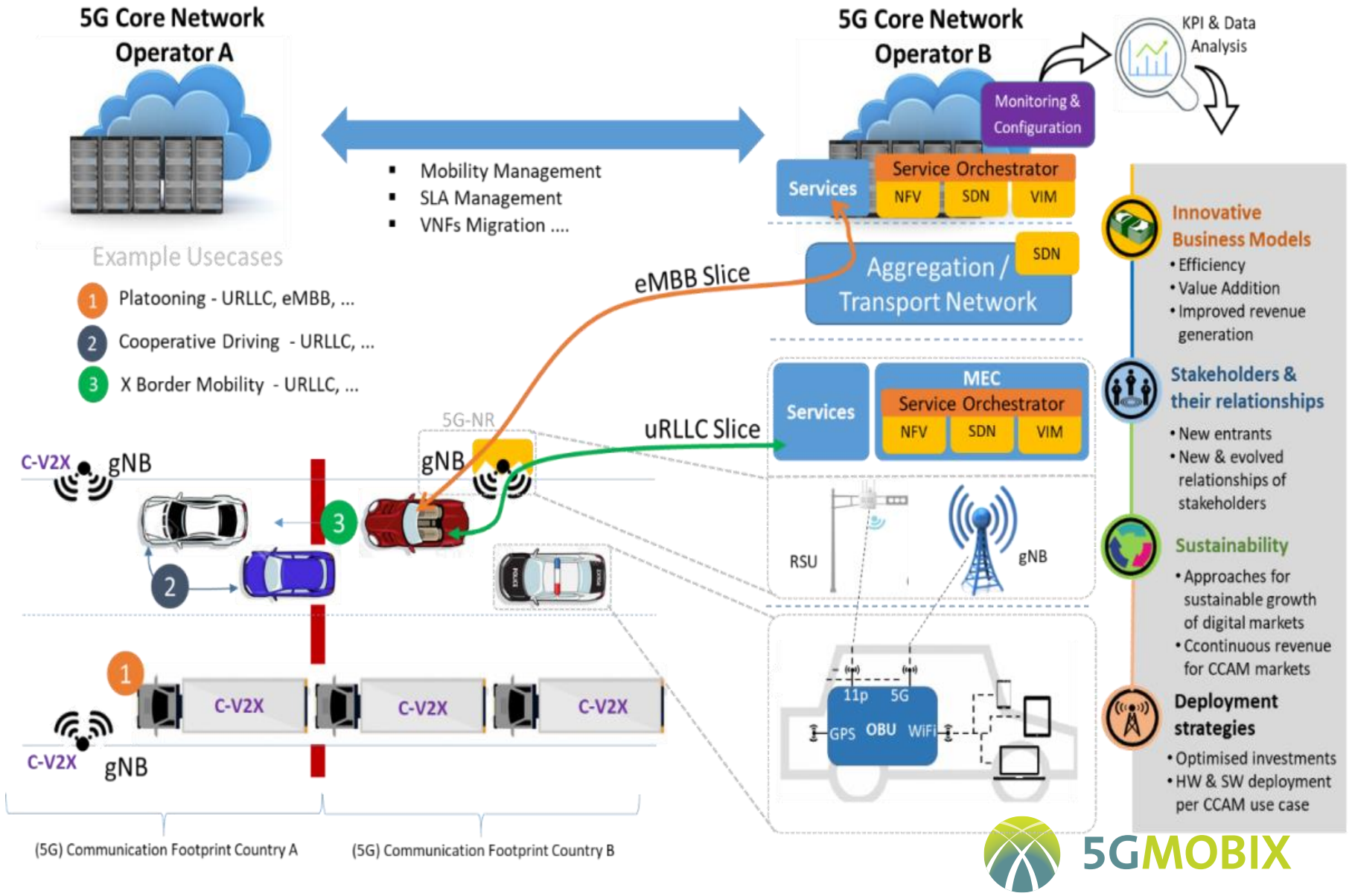
Advanced Driving	Vehicles Platooning	Extended Sensors	Remote Driving	Vehicle QoS Support

5GMOBIX

Overall concept and trial architecture

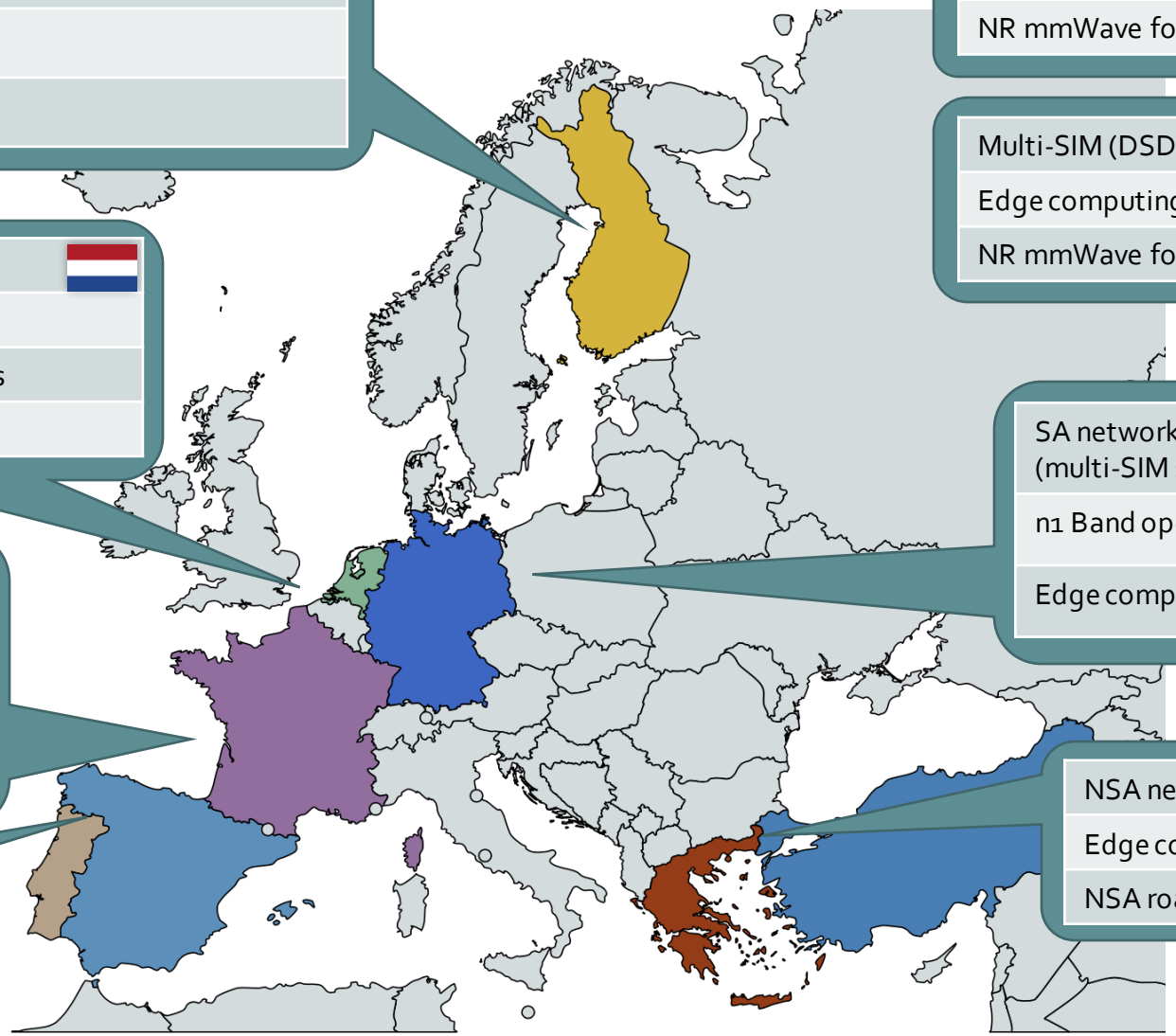
Trials through 2 network slices:
- eMBB for high data throughputs
- uRLLC for low latency connectivity

Local and cross-border trials with challenging Automated driving scenarios:
- Cooperative manoeuver
- Platooning



5GMOBIX

5G Network characteristics per CBC/TS



- SA networks + multi-SIM functionality
- 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

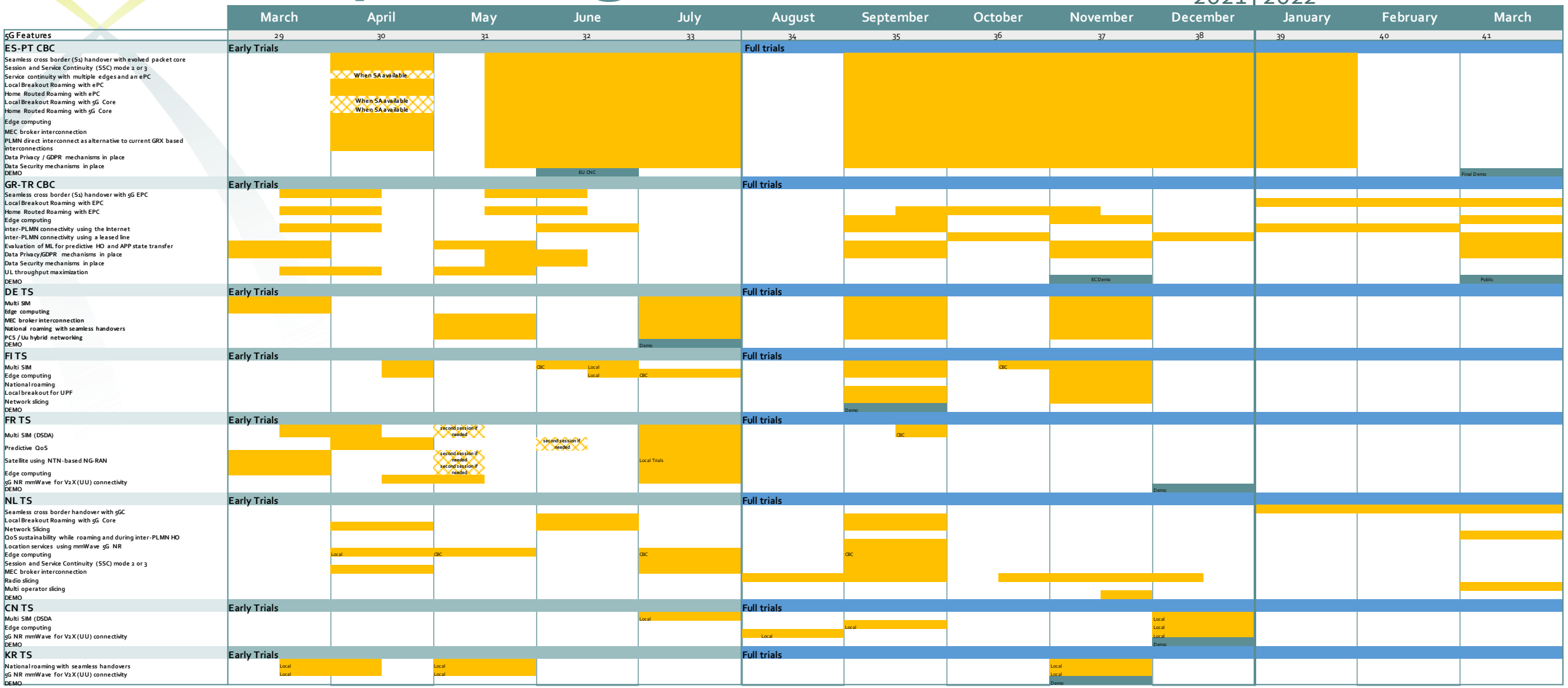
- Multi Sim Modem for increased reliability and preventing coss border HO latencies
- Intelligent routing for coverage gaps & service continuity
- Edge computing (MEC)

- 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

5GMOBIX

5G trial planning



5GMOBIX


Telecom & Connectivity
ISEL
Telefónica
Choose it all
CATAPULT
Satellite Applications
instituto de telecomunicações
SIEMENS
Ingenuity for life
DATANG TELECOM TECHNOLOGY & INDUSTRY GROUP
kpn
Fraunhofer
IAO
ict SNETICT
INTRASOFT
INTERNATIONAL
COSMOTE
ο κόσμος μας, εσύ.
GTARC
GERMAN TURKISH
ADVANCED RESEARCH CENTRE FOR ICT
imec
Centro de Computação Gráfica
Investigação & Desenvolvimento Tecnológico
Research & Technological Development
Infraestruturas de Portugal
Ligamos destinos
norte litoral
NOS
DAI-Labor
Distributed Artificial Intelligence Laboratory
WINGS
ICT SOLUTIONS
TIS
TRANSPORTES, INOVAÇÃO E SISTEMAS
MOVIMENTO INTELIGENTE
TURKCELL
TEKNOLOJİ
ERICSSON
UNIVERSITÉ DU LUXEMBOURG
vicomtech
visual interaction & communication technologies
ETRI
Electronics and Telecommunications Research Institute
炫一科技
DAZZLEE
NOKIA
R&D
Aalto University
TU/e
Technische Universiteit Eindhoven
University of Technology
Where innovation starts
ERTICO
Business
VTT
CTAG
AKKA
PASSION FOR TECHNOLOGIES
TNO
innovation for life
A-to-Be
Powered by Brisa
ΕΠΙΣΕΥ
ICCS
DEKRA
POLITÉCNICA
MINISTERIO DEL INTERIOR
DGT
Dirección General de Tráfico
ALSA
TÜBİTAK
AEVAC
ASSOCIACIÓ EMPRESARIAL DE LLOGUER DE VEHICLES SENSE CONDUCTOR DE CATALUNYA
FORD
OTOSAN
INSTITUT VEDECOM
DU VÉHICULE DÉCARBONÉ ET COMMUNICANT ET DE SA MOBILITÉ
LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY
LIST
UNIVERSIDAD DE MURCIA
sensible 4
SELF-DRIVING EVERYWHERE
CONCELLO DE VIGO
CNHTC
Valeo
IMT
INSTITUTO DA MOBILIDADE E DOS TRANSPORTES, I.P.
SDAS
山东省科学院
SHANDONG ACADEMY OF SCIENCES
KATECH
5GMOBIX
Automated driving

Thank you
Questions?

5GMOBIX

www.5g-mobix.com

Coen Bresser
ERTICO-ITS Europe
c.bresser@mail.ertico.com
+31 6 5783 1658

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 825496