GR-TR Cross-Border Corridor Overview

5G-MOBIX 3rd Webinar

Dr. Nazlı GÜNEY (TURKCELL)

GR-TR Webinar, June 29th, 2020

5GMOBIX

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Layout

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- Objectives
- Trials

GR-TR CBC Overview

- Location information
- Partners and roles
- User Stories
- Roadmap

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5G for cooperative & connected automated MOBIlity on X-border corridors

Cooperative, connected and automated mobility

Cross-border Corridors

Technical

Execute CCAM trials along cross-border corridors

- Qualify and evaluate the benefits of 5G within the CCAM context
- Identify and respond to standardisation and spectrum allocation gaps

Business

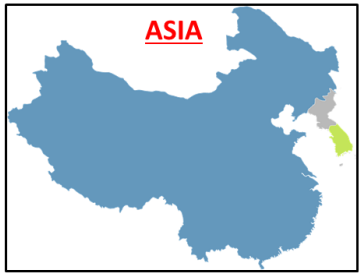
Accelerate deployment of 5G at cross-border areas

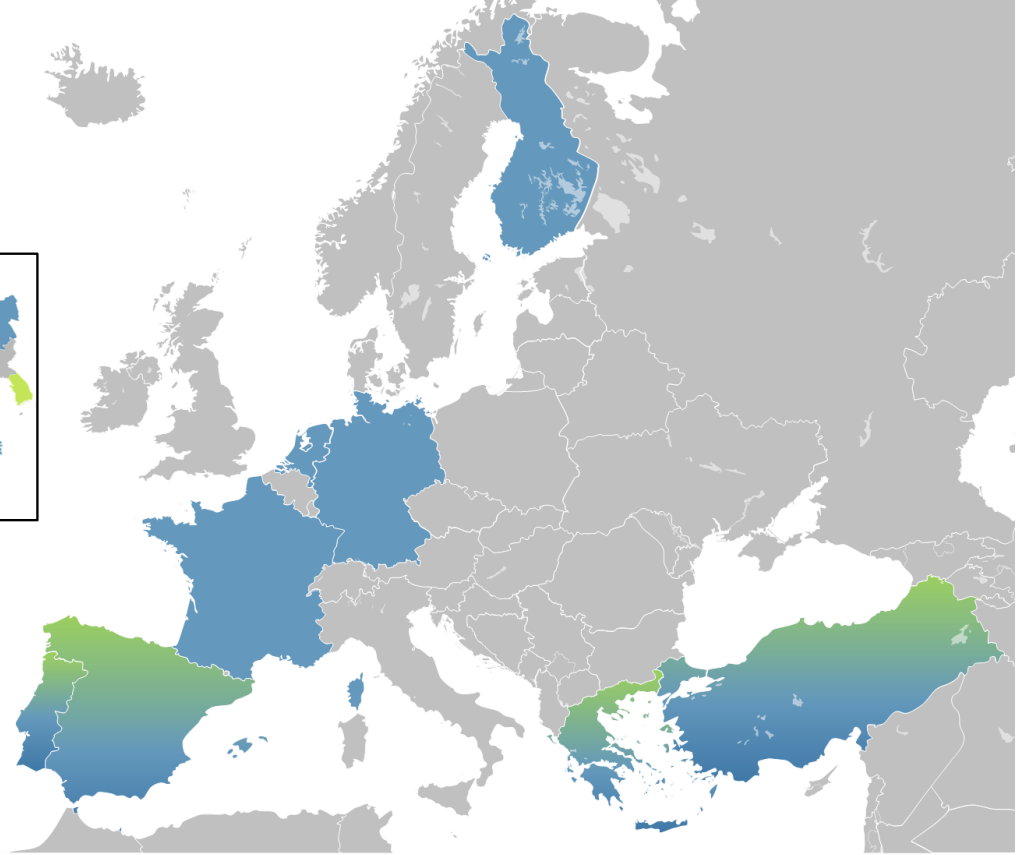
- Define and recommend deployment scenarios
- Perform cost/benefit analysis and impact assessment
- Propose views for new business opportunities for the 5G-enabled CCAM
- Investigate legal, regulatory and security issues

5G-MOBIX Trials

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

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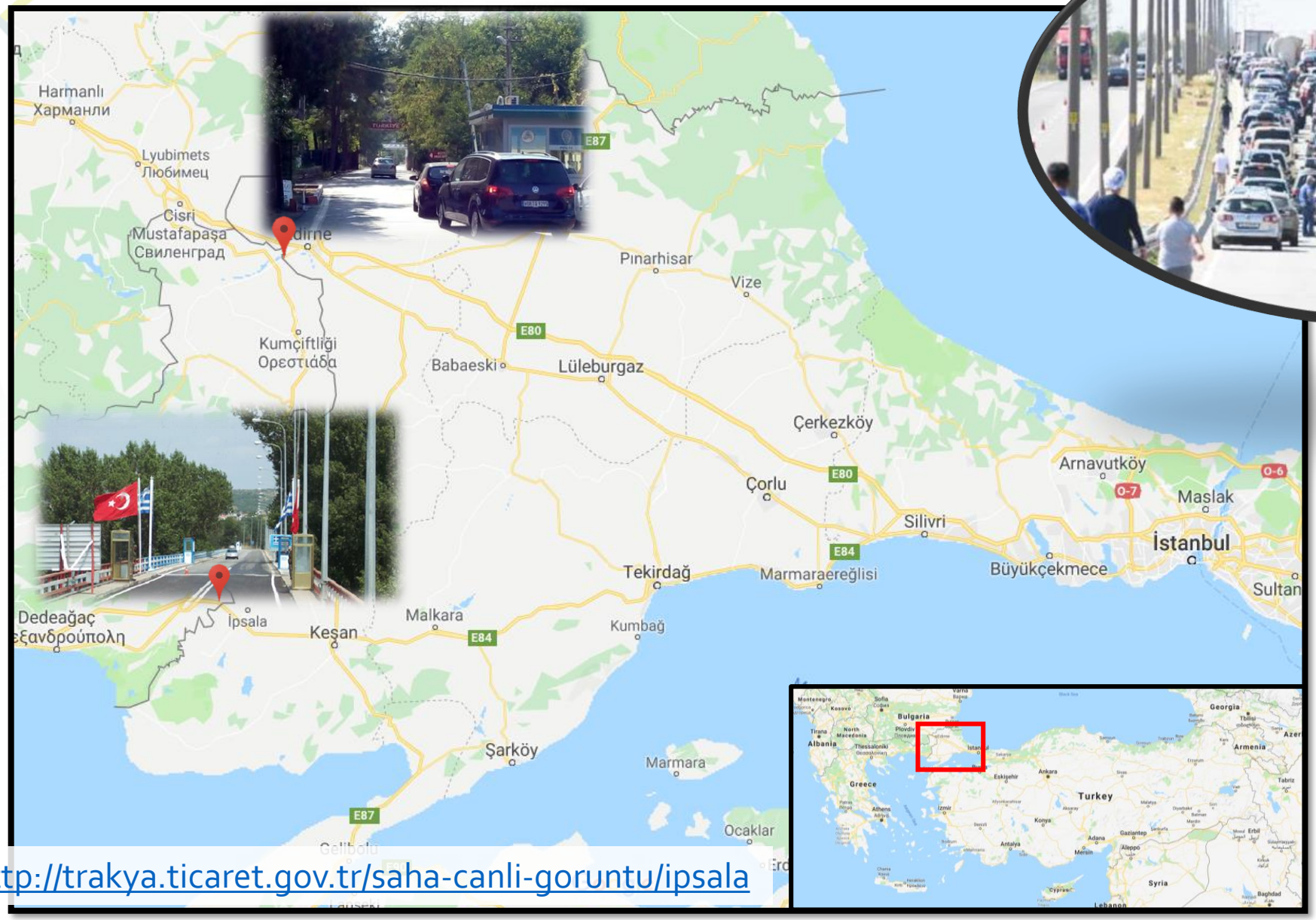
GR-TR Overview

Greece-Turkey Border



LIVE http://trakya.ticaret.gov.tr/saha-canli-goruntu/ipsala

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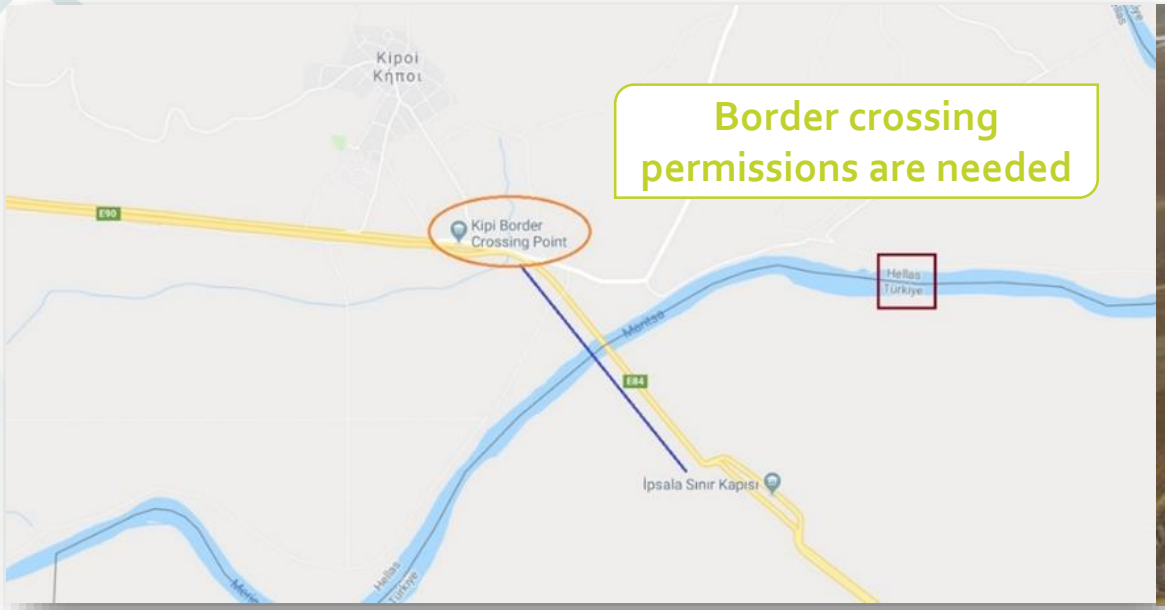
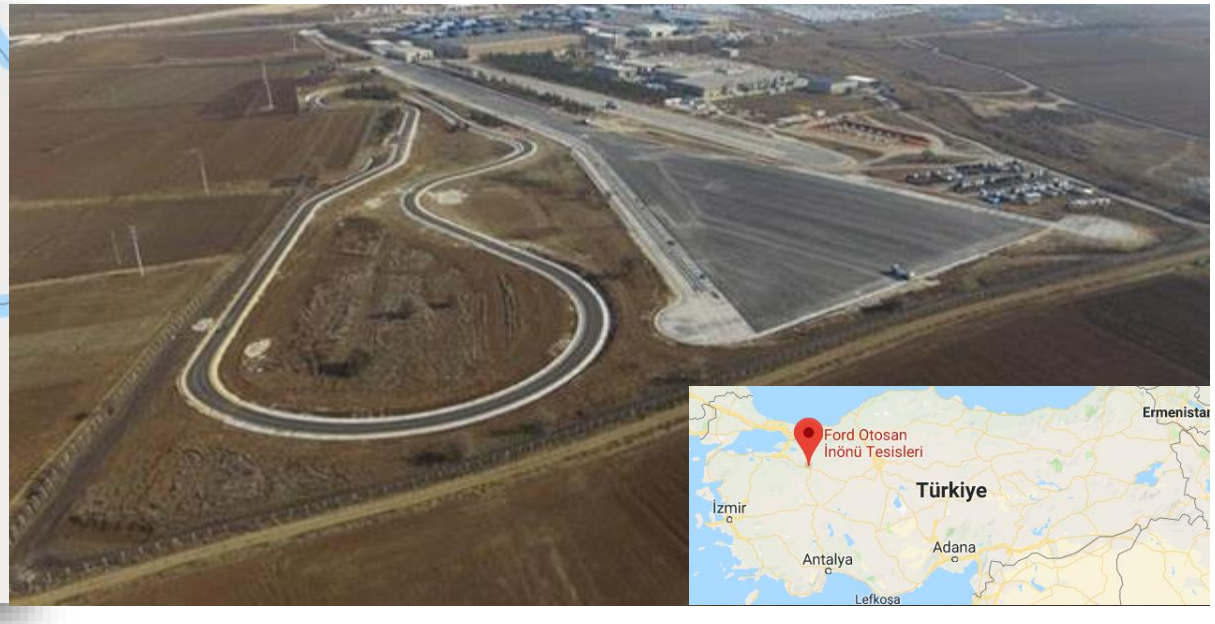
Trial Locations



Ipsala – Kipoi cross-border site



Ford Otosan trial site to be used for long-term functionality development & testing

Knowledge & technology

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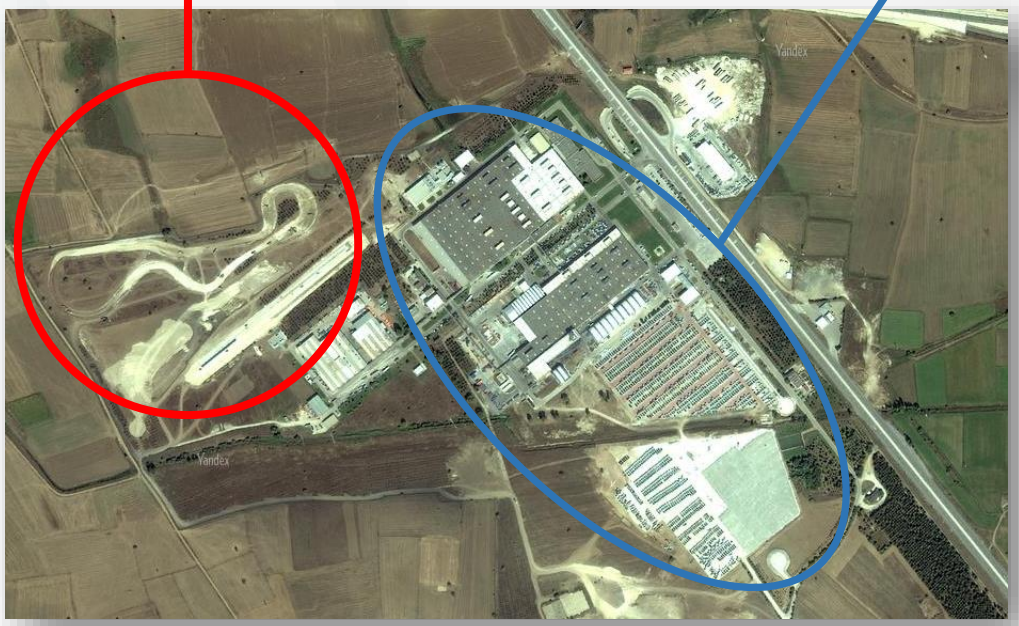
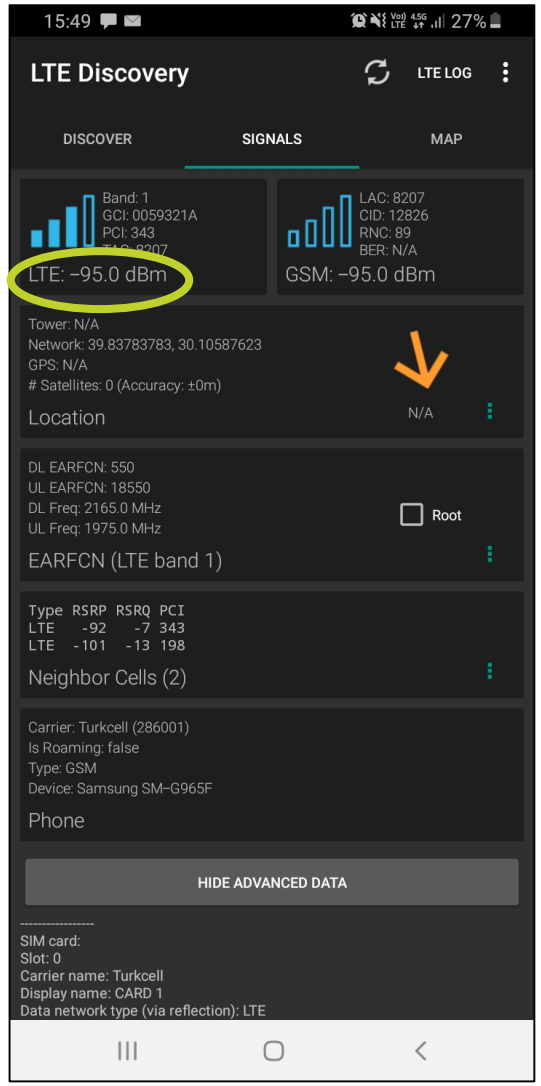


- Good LTE coverage @ İnönü test track
- 5G @3600 MHz has ~ same coverage as 2100 MHz LTE

- > -95 dBm NR is expected in test track.
- This is enough for all required use cases at the Ford Otosan İnönü Plant



*** Ford Otosan Eskişehir Plant Meeting: August 26th, 2019 ***

Ford Otosan, TÜBİTAK BİLGEM, Turkcell

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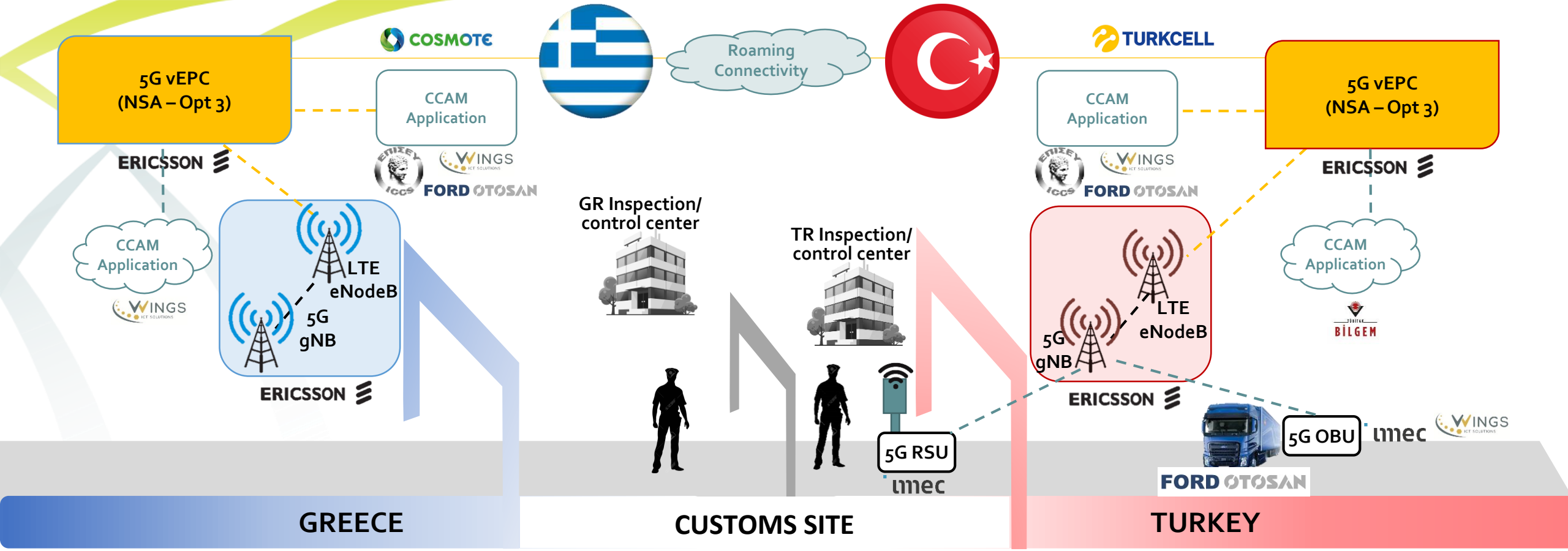

COSMOTE	MNO, Network and Frequency Provider	TURKCELL
ERICSSON	5G Equipment Vendor	ERICSSON
	Truck Manufacturer FORD OTOSAN	
	OBU/RSU Developer imec WINGS	
	CCAM Application Developer WINGS FORD OTOSAN	

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Key Stakeholders

Partner	Role
FORD OTOSAN	Truck Manufacturer
imec	C-V2X Technology Developer
TURKCELL TEKNOLOJİ	MNO, Network and Frequency Provider
COSMOTE	MNO, Network and Frequency Provider
INTRASOFT INTERNATIONAL	Technology Integrator & Software Developer
WINGS ICT SOLUTIONS	Software Tools Developer & IoT, AI Expert
ERICSSON GR	5G Technology Provider
ERICSSON TR	5G Technology Provider
ICCS	CCAM / 5G Experts & KPI Evaluation Experts
TÜBİTAK BİLGEM	Research institute

	Hellenic Ministry of Infrastructure and Transport (GR)
	Ministry of Digital Policy, Telecommunications and Media (GR)
	Turkish Ministry of Transport and Infrastructure (TR)
	Customs Agency (TR)
	The Information and Communication Technologies Authority (TK)

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The team @X-ray Area

The Team @Rooftop

*** İpsala Border site visit: August 1st, 2019 ***

Ford Otosan, TÜBİTAK BİLGEM, Turkcell, Ericsson TR, IMEC

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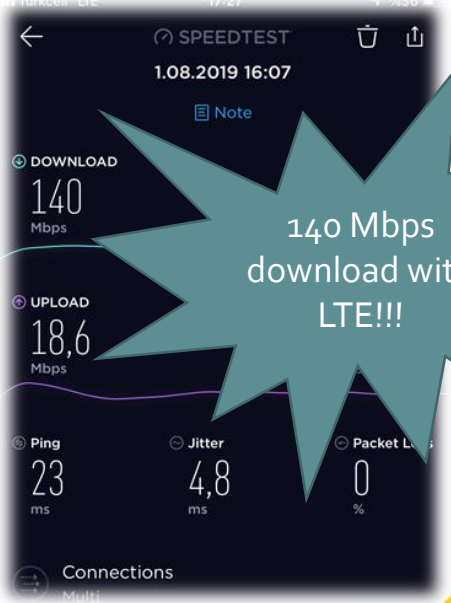
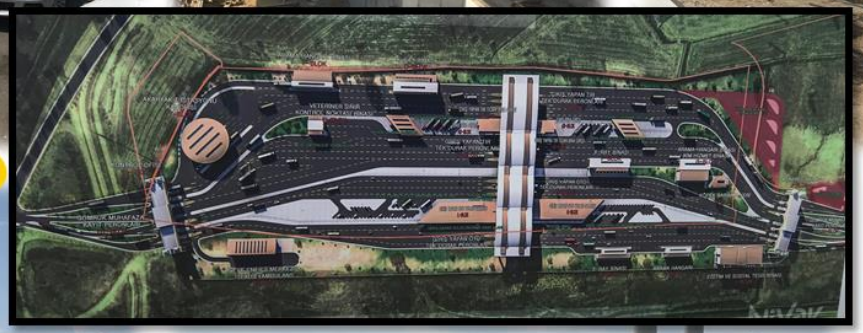


140 Mbps download with LTE!!!



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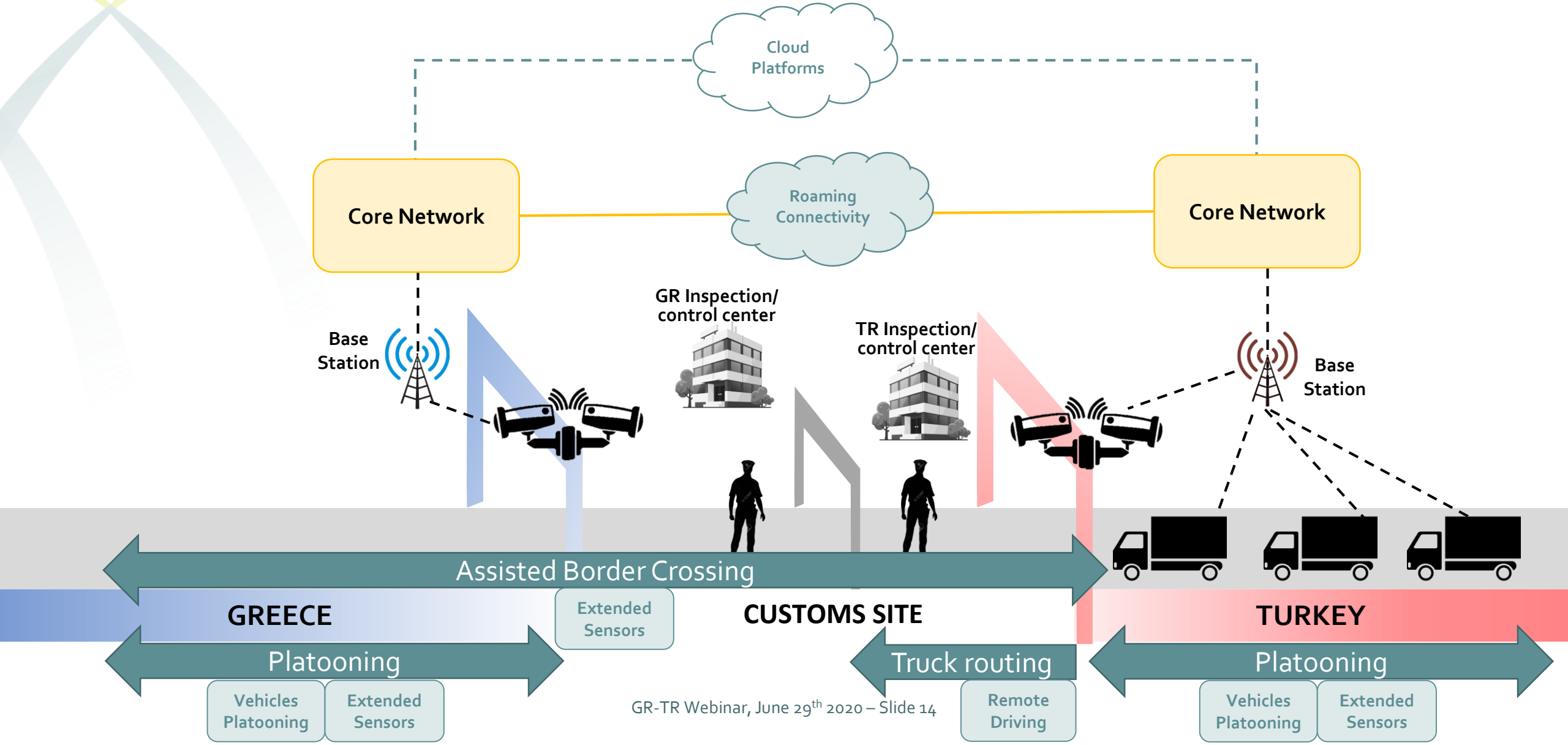
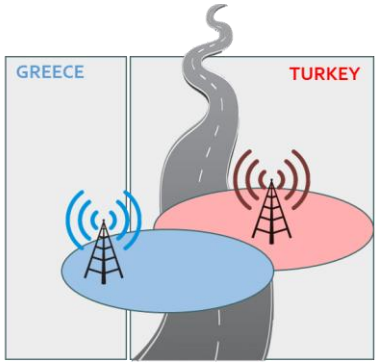
GR-TR User Stories Overview



Challenges

PLATOONING	ASSISTED BORDER CROSSING
NSA Roaming Latency	Low Coverage Handover
Inter-MEC Connectivity	Continuity Protocol
V2X Continuity	Real-time Multi-tier Processing
Accurate Geo-positioning	
Federation Trust	Anonym Privacy
Anonym Privacy	
Law Enforcement Interaction	AV Regulation Compliance
	Geo-dependant Spectrum



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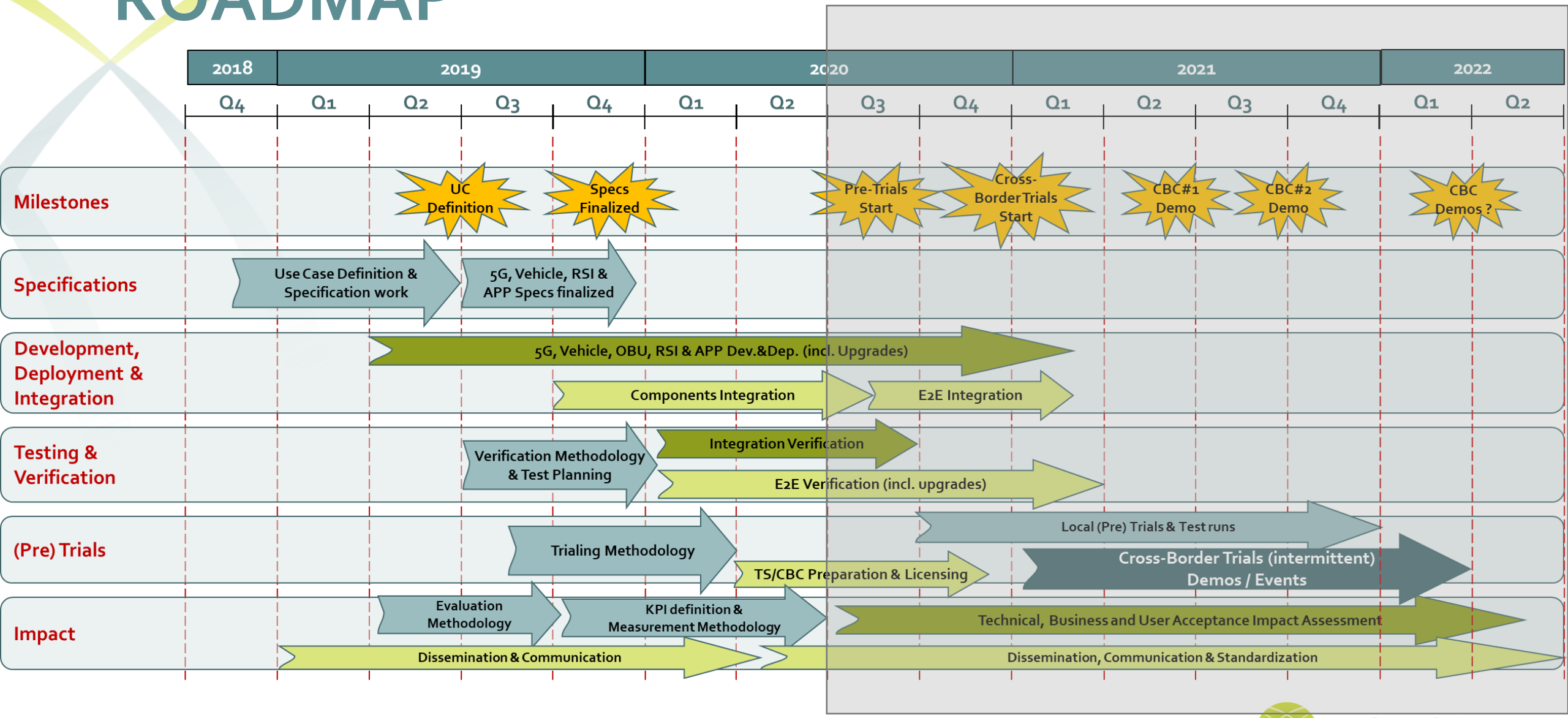
ROADMAP



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Thank you

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