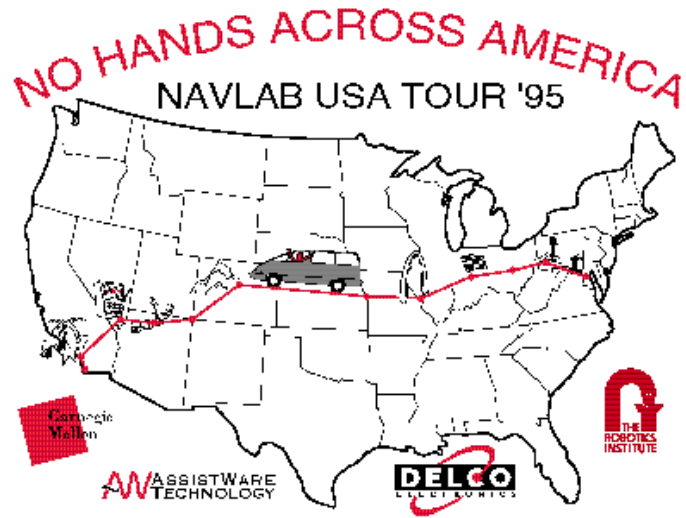


COLLABORATIVE
INNOVATION DAY
4th October 2022 | Virtual
Event
5G- Blueprint

Rakshith Kusumakar
V-Tron

ORGANIZED BY:

5G-BLUEPRINT IN A NUTSHELL



- Washington DC
- Pittsburgh PA
- Columbus OH
- Indianapolis IN
- Kokomo IN
- Saint Louis MO
- Kansas City KA
- Denver CO
- El Sur Camera
- Grand Canyon
- Las Vegas NV
- Los Angeles CA
- San Diego CA

Driven in autonomous mode:
98.2 % of the trajectory*

27 years of
R&D later ...



2%
issue



Edge & corner cases



5G-Blueprint
approach

* <https://www.cs.cmu.edu/~tjochem/nhaa/>

5G-BLUEPRINT ULTIMATE GOAL

5G-Blueprint designs and validates **technical architecture, business, and governance model** for uninterrupted cross-border teleoperated transport based on 5G connectivity.



TECHNOLOGICAL



BUSINESS



REGULATORY

TECHNOLOGICAL



- Design and implement a **5G network for CAM services**
- Develop and implement the **prototype of a TO system**
- Implement and deploy enabling functions **guaranteeing safety** and increasing value
- Validate the **end-to-end TO transport** solution supported by 5G in real-life cross-border scenarios

BUSINESS



- 5G TO transport **market analysis**
- **Commercial possibilities**
- Positions the **possible role** of TO transport based on 5G **in CAM**
- TO transport based on 5G connectivity **market adoption**

REGULATORY



- Identify regulatory issues
- Recommended actions

USE CASES

UC1: Automated barge control



UC4: Remote take over



UC2: Automated docking



UC3: CACC-based platooning

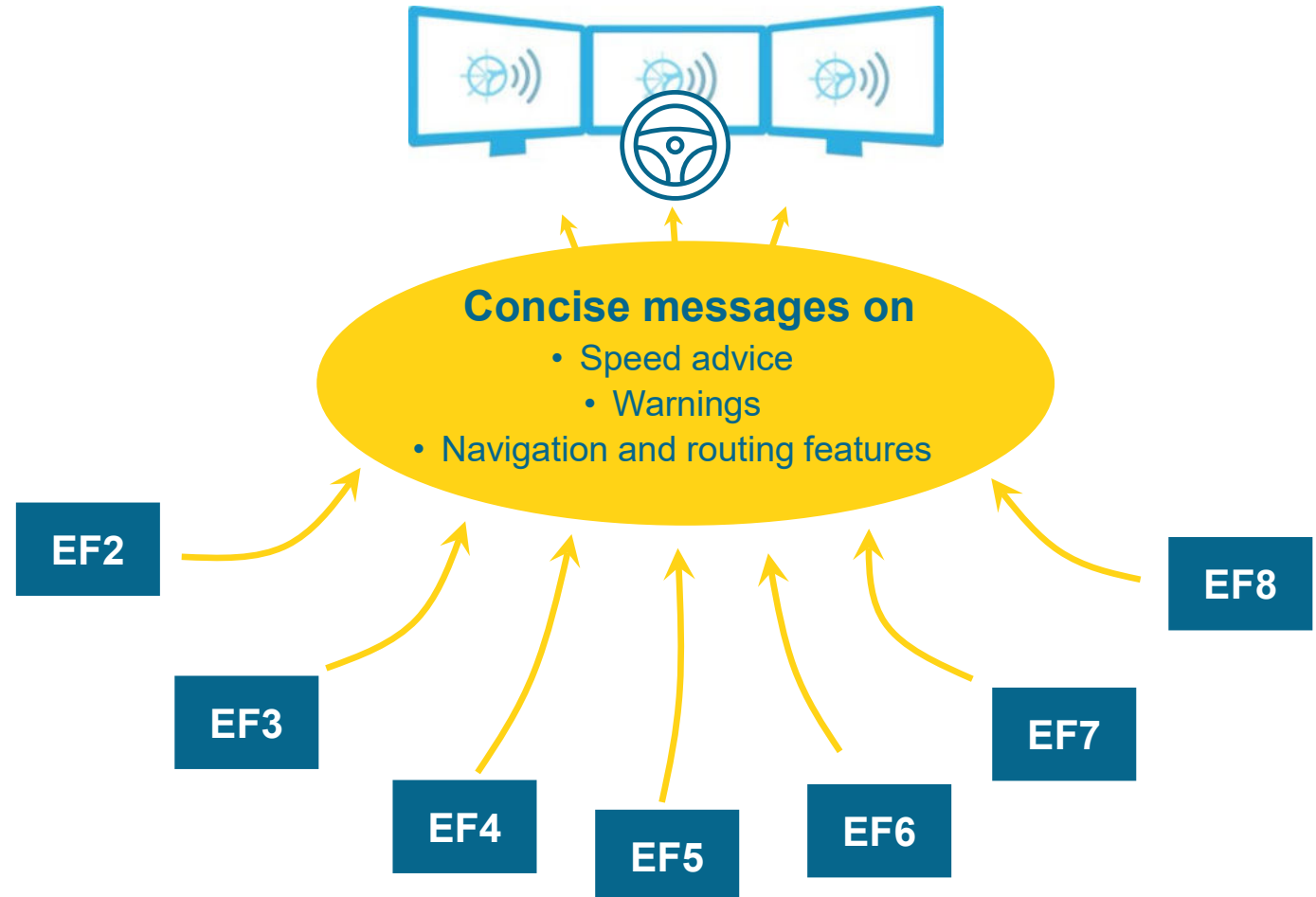


Teleoperated crane

ENABLING FUNCTIONS

| | |
|-----|---------------------------------------|
| EF1 | Enhanced awareness dashboard |
| EF2 | Vulnerable Road User interaction |
| EF3 | Timeslot reservation at intersections |
| EF4 | Distributed perception |
| EF5 | Active collision avoidance |
| EF6 | Container ID recognition |
| EF7 | ETA sharing |
| EF8 | Scene analytics |

TELEOPERATION COCKPIT



5G PILOT SITES

VLISSINGEN

- 5G enhancements for: direct-control teleoperation on roadways, docking, and platooning
- Enabling functions support:
 - Estimated Time of Arrival
 - Timeslot reservation at intersections
 - Container ID recognition
 - Active collision avoidance
 - Enhanced awareness dashboard

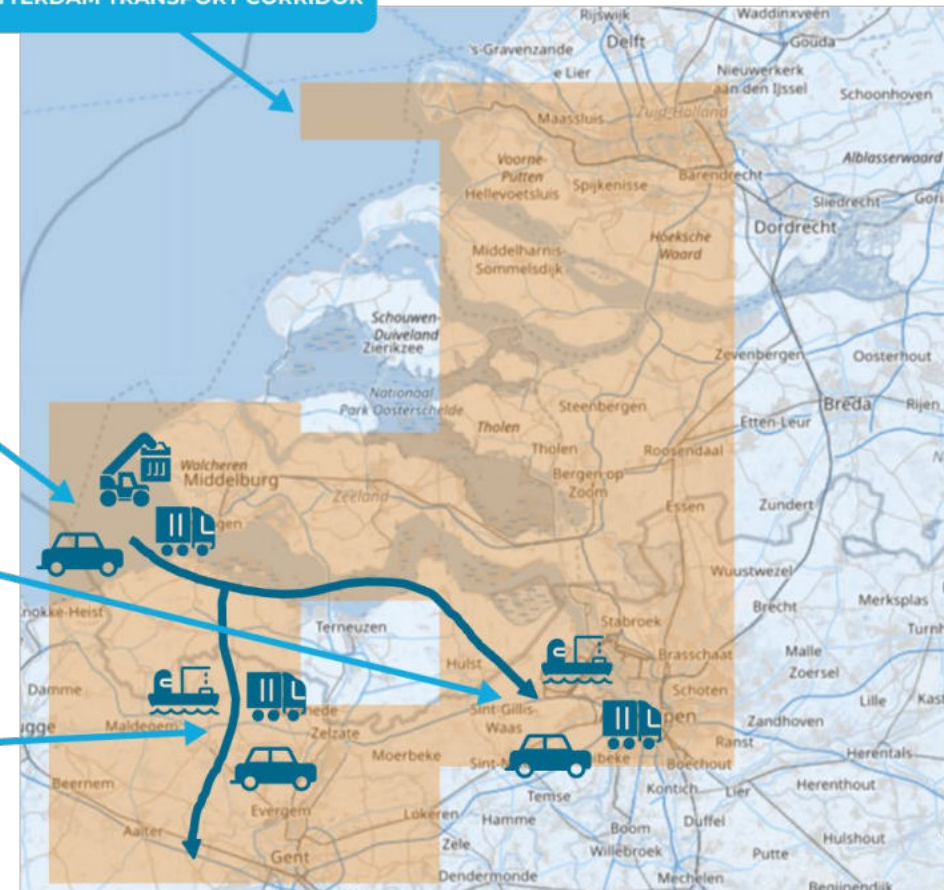
ANTWERP

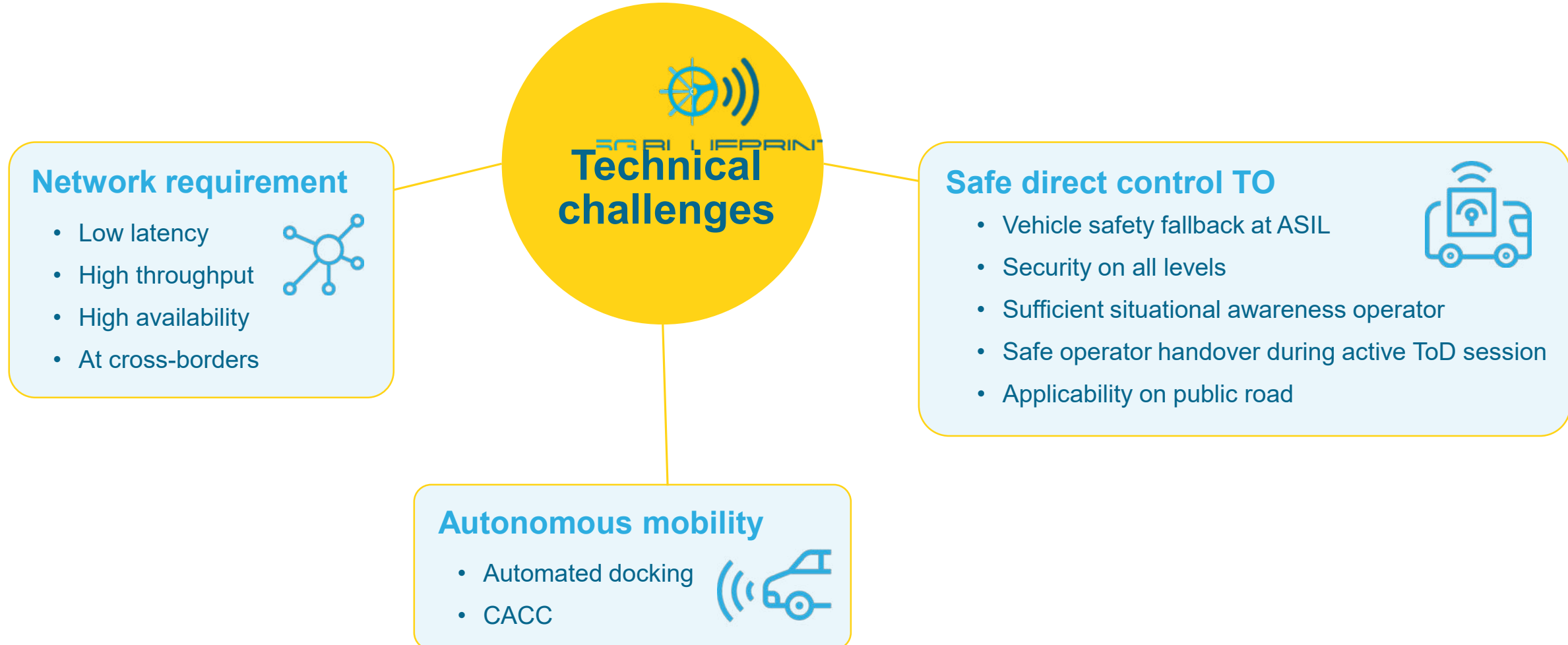
- 5G enhancements for: direct-control teleoperation on roadways/waterways, and platooning
- Enabling functions support:
 - Estimated Time of Arrival
 - Distributed perception
 - Scene analytics
 - Active collision avoidance
 - Enhanced awareness dashboard

ZELZATE (cross-border site)

- Seamless roaming
- 5G enhancements for: direct-control teleoperation on roadways/waterways, and platooning
- Enabling functions support:
 - Estimated Time of Arrival
 - Vulnerable Road User interaction
 - Timeslot reservation at intersections
 - Active collision avoidance
 - Enhanced awareness dashboard

NORTH SEA PORT ANTWERP ROTTERDAM TRANSPORT CORRIDOR

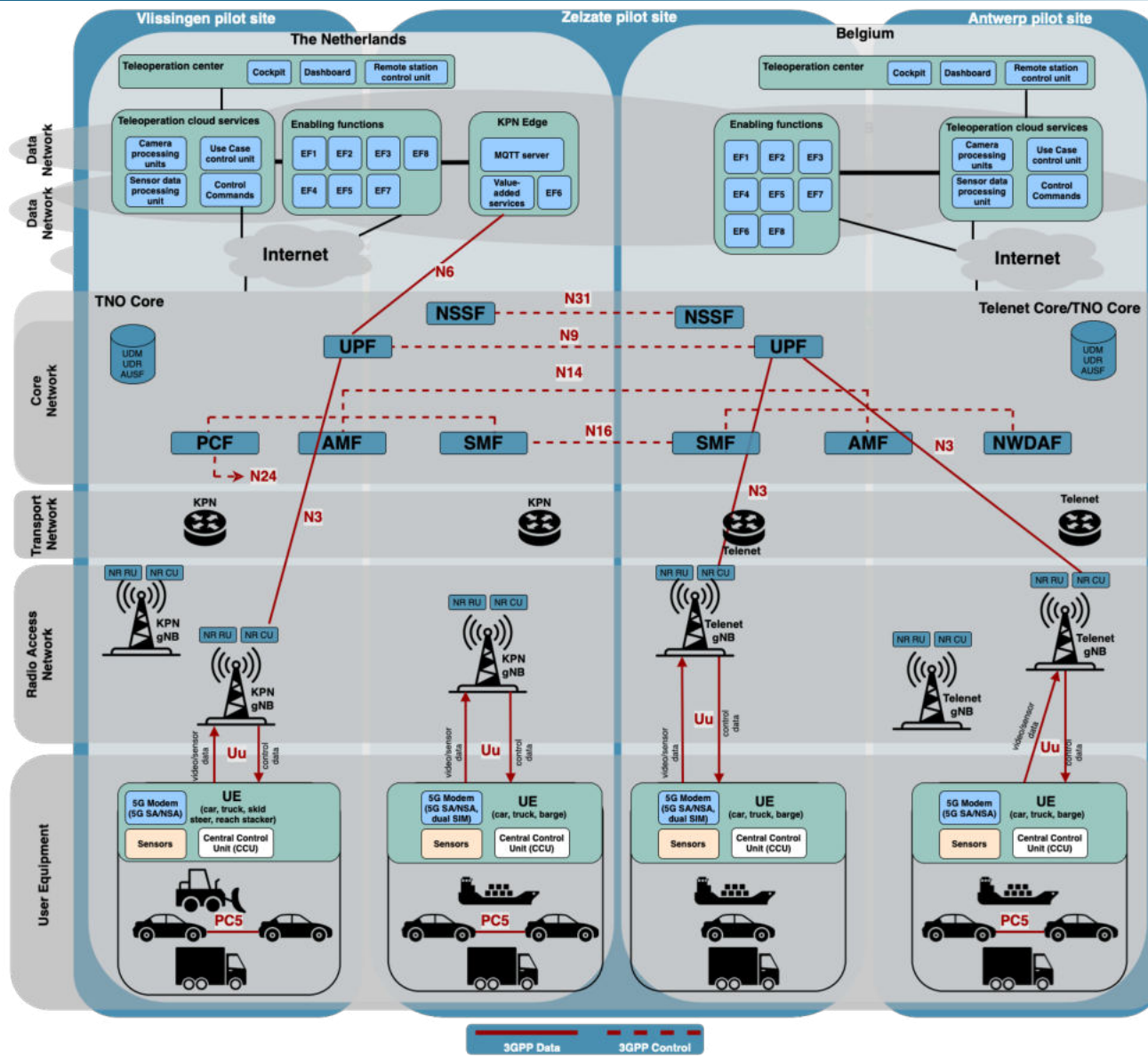




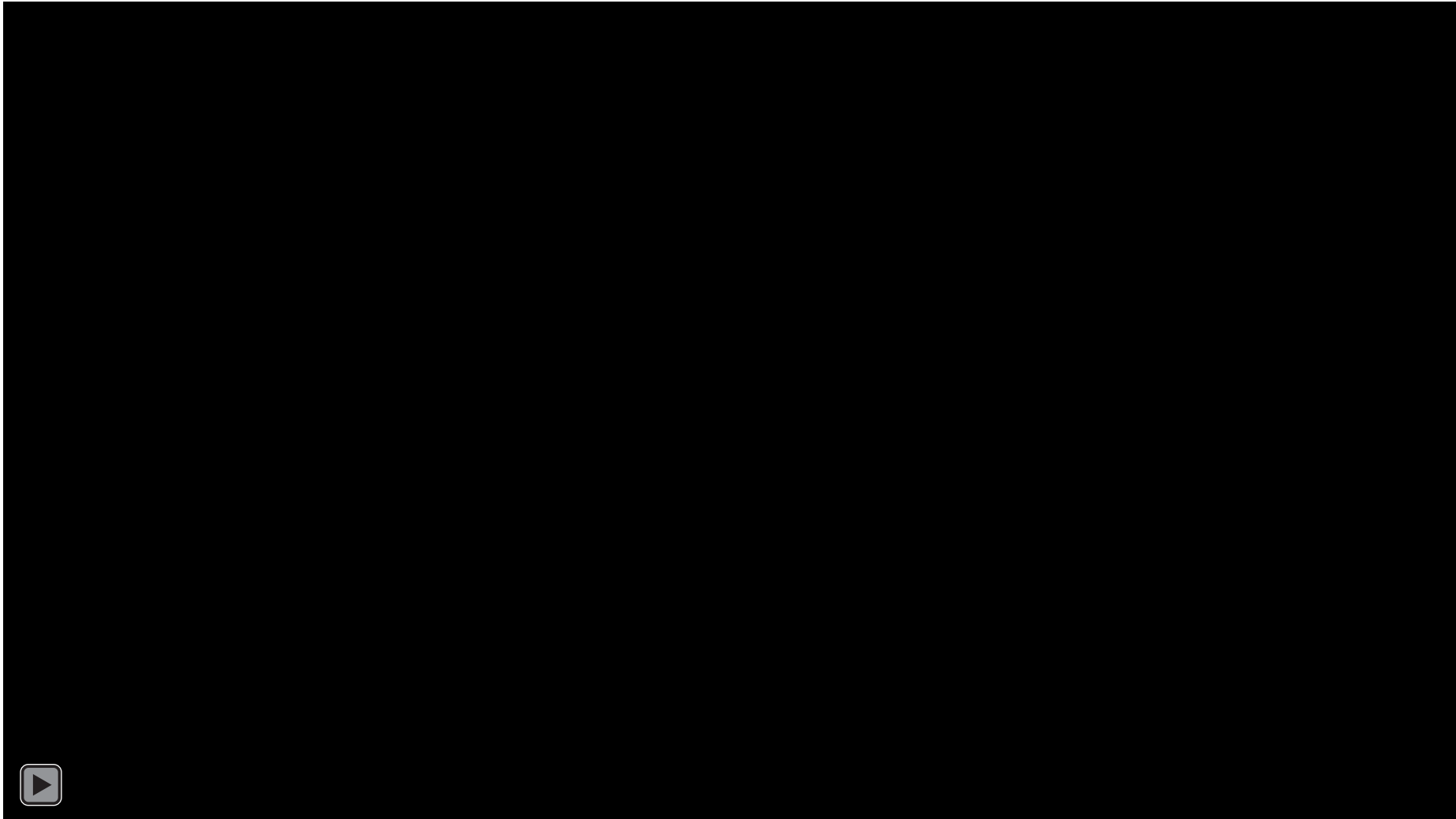
5G-BLUEPRINT CHALLENGES



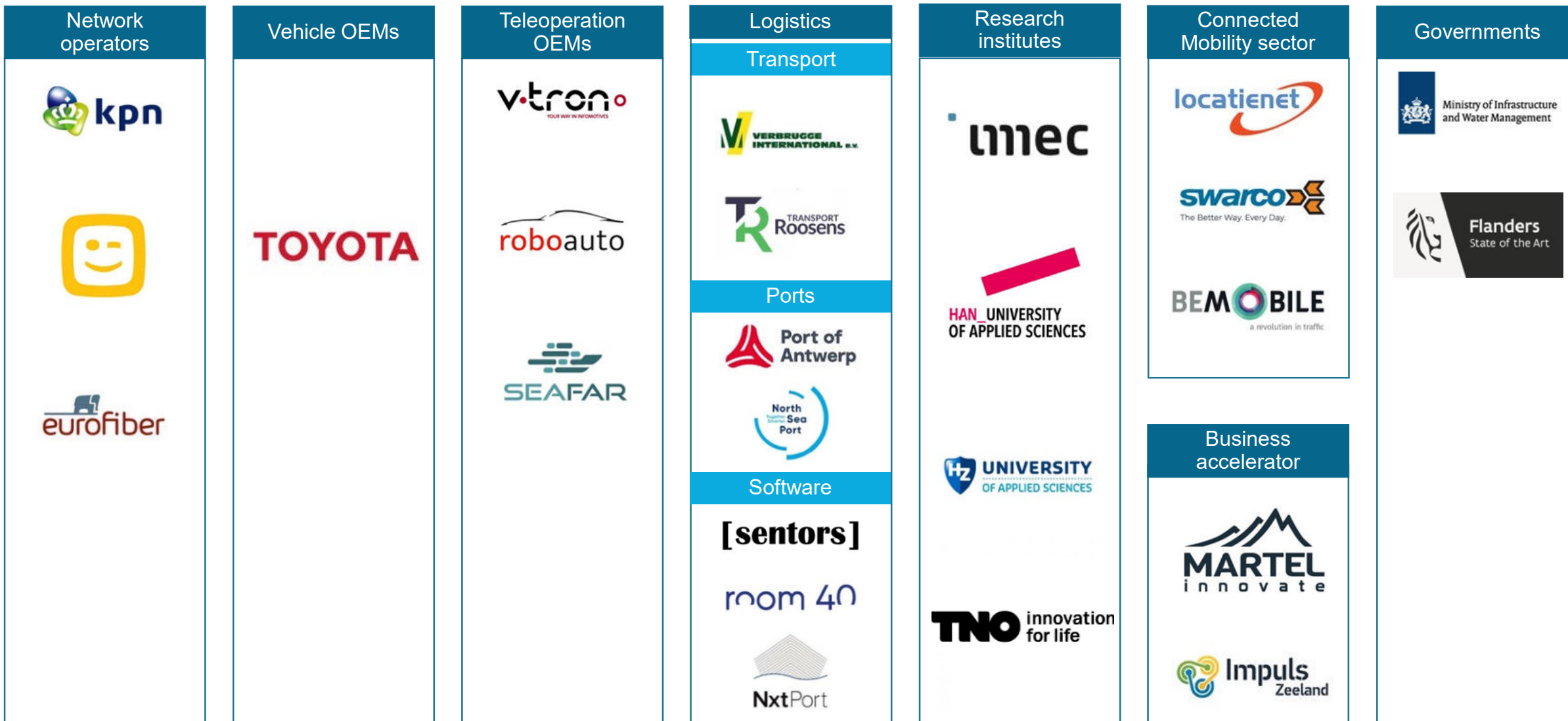
NETWORK ARCHITECTURE



DEMOS



CONSORTIUM AS A WHOLE



ADVISORY BOARD

Regional government



Vehicle OEMs



Logistics sector



Associations



FACTS & FIGURES



Project Acronym: 5G-Blueprint

Project Name: Next generation connectivity for enhanced, safe & efficient transport & logistics

Funded Under: H2020-ICT-2018-20

Topic: ICT-53-2020: 5G PPP (*5G for Connected and Automated Mobility*)

Call for proposal: H2020-ICT-2019-3

Starting Date: 01/09/2020

Duration: 36 Months

Total cost: EUR 13,9 M

EU contribution: EUR 10 M

Project Coordinator: Dr Wim Vandenberghe, *Ministerie van Infrastructuur en Waterstaat*

Technical Coordinator: Prof. Johann Márquez-Barja, *Interuniversitair Micro-Electronica Centrum*



5G BLUEPRINT

THANK YOU FOR YOUR ATTENTION



5GBlueprint.eu

THIS PROJECT IS PART OF THE 5G PUBLIC AND
PRIVATE PARTNERSHIP

5G PPP WWW.5G-PPP.EU

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innovation programme under grant agreement N° 952189*

