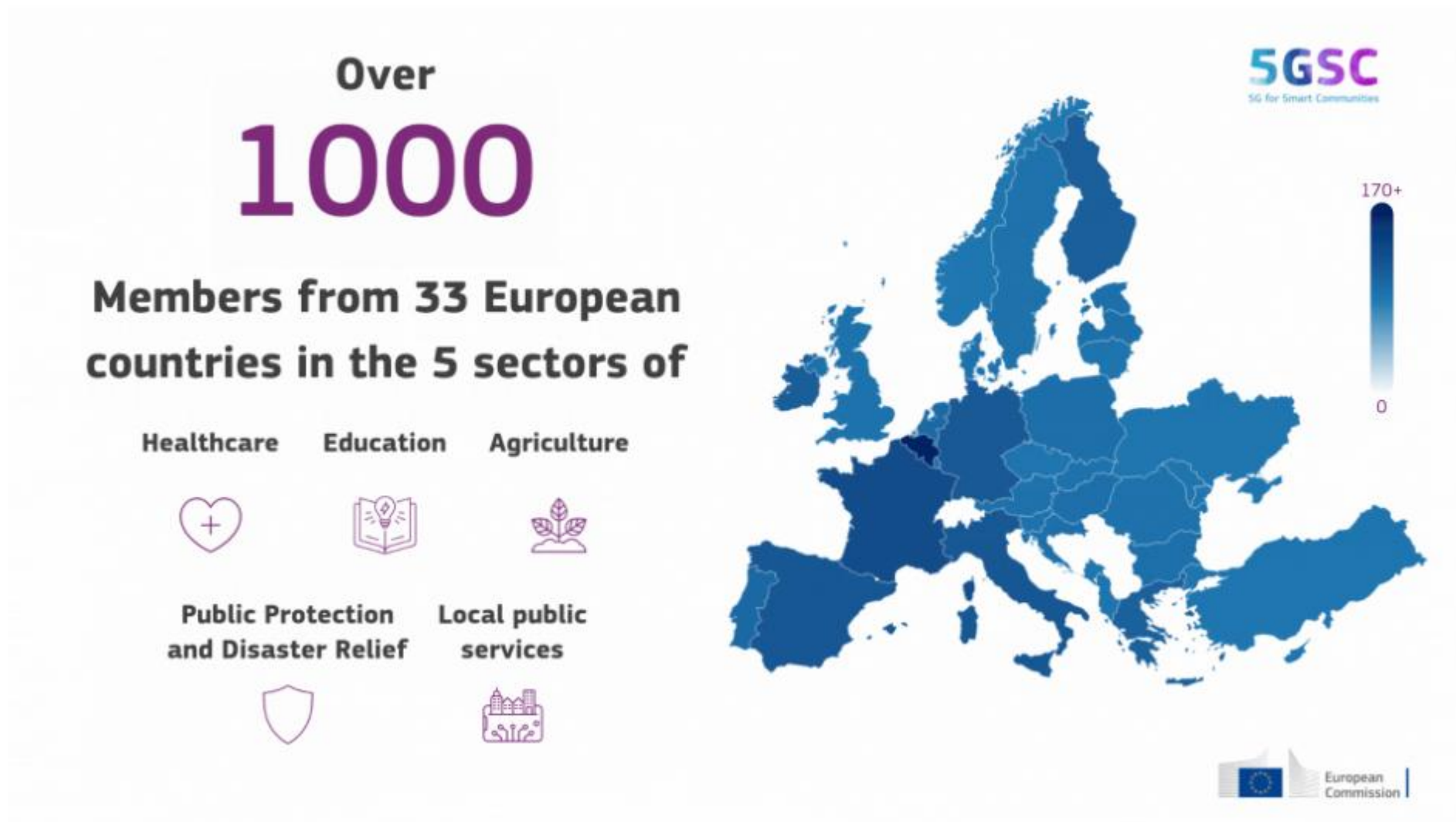# 2nd 5G for Smart Communities Working Group
5G for Smart Cities & Urban Connectivity

19.06.2025

www.5GSC.eu

Visit our online networking and knowledge-exchange community for '5G for Smart Communities'

5GSC
5G for Smart Communities

Over
1000

Members from 33 European countries in the 5 sectors of

Healthcare Education Agriculture

Public Protection and Disaster Relief Local public services

170+

0

European Commission

Welcome
5GSC
5G for Smart Communities

www.5GSC.eu

Agenda

Welcome and Introduction

Keynote speech: 5G and urban connectivity

Keynote speech: 5G for environmental monitoring and slow tourism

Closing remarks

Q&A

Open discussion on Scaling 5G for Smart Cities & Urban Connectivity: Challenges, Opportunities & Cross-Sector Collaboration

5GSC
5G for Smart Communities

Welcome Remarks

Jan Droege, Director, 5G for Smart Communities Support Platform

Save the dates

📅 **Thursday July 3, 2025 - Online**
   Healthcare subgroup

📅 **Thursday July 10, 2025 - Online**
   Drones subgroup

📅 **Thursday July 17, 2025 - Online**
   Cloud & EdgeAI subgroup

📅 **Thursday September 18, 2025 - Online**
   Working Group 3 - Business and investment models for 5G pilots

Save the dates

📅 **Tuesday, October 7, 2025**
CEF Conference & European Digital Connectivity Awards, Brussels

📅 **Wednesday October 8, 2025**
5G Community Conference, Brussels

European Commission | 5GSC 5G for Smart Communities

5G Deployment Guide

The 5G Deployment Guide, developed by the 5G for Smart Communities Support Platform, serves as a vital resource for public and private stakeholders aiming to bring 5G quality connectivity to life. Grounded in practical experience and shaped by collective expertise, the Guide provides clear direction for the establishment, funding, and implementation of 5G projects across Europe.

Learn more and download the 5G Deployment Guide here

5G Community Survey

A new study by the 5G for Smart Communities (5GSC) Support Platform offers a detailed overview of the public funding support made available at national level across the EU-27 for 5G deployment. The research spans the 2022–2024 period, while also looking ahead to planned support schemes for 2025–2027. The study captures not only the current state of investment but also highlights best practices, use case trends, and national project repositories.

Learn more and download the 5G Community Survey here

Live interaction

OR

Keynote speech

5G and urban connectivity

Eric GIRAUD-DESJUZEUR, FRMCS Program Director, SNCF Réseau

5GSC
5G for Smart Communities

European Commission

5G connectivity for Railways

Keynote

Eric Giraud-Desjuzeur

Expectations for 5G in Urban Mass Transit areas, and for 5G corridors as High Speed Lines.

◆ 5G needs : Passenger connectivity combined with Train Digital Operation

◆ Models of cooperation between telecom operators, railways, and industries
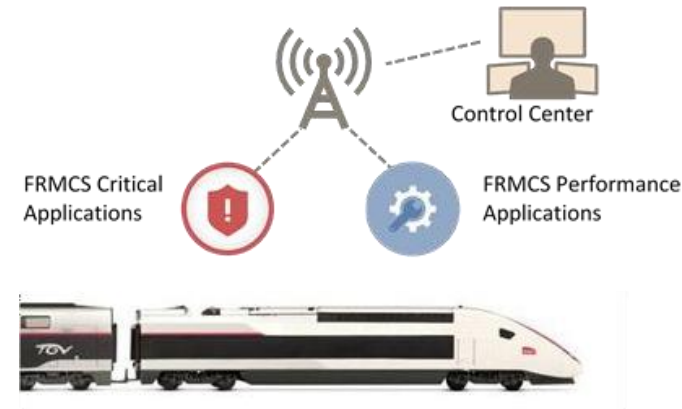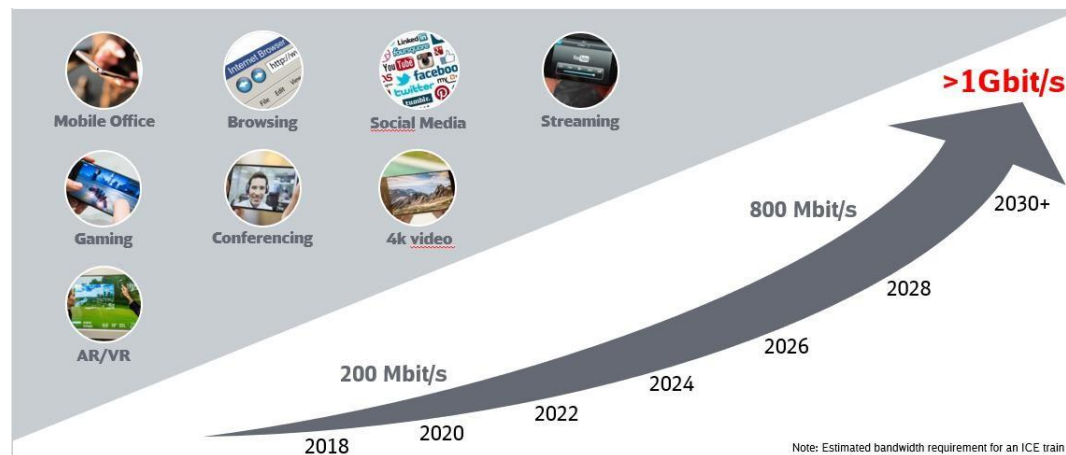
◆ On going CEF2 Digital projects

5G needs : Passenger connectivity combined with Train Digital Operation.

CEF 2 Digital enables the financing of 5G infrastructure for cross-border rail coverage.

The 5G Future Railway Mobile Communication System (FRMCS) was introduced in the CEF 2 Digital work program, thanks in particular to the detailed explanations provided by EIM/CER/UIC in the Strategic Deployment Agenda (SDA) document "5G CONNECTIVITY AND SPECTRUM FOR RAIL."

The SDA states that the deployment of 5G along rail corridors should serve both needs:

✓ passenger connectivity needs (the "Gigabit Train" concept)

✓ the digitalization of rail operations (the "FRMCS" concept)

Mobile Office · Browsing · Social Media · Streaming
Gaming · Conferencing · 4k video
AR/VR

>1Gbit/s
800 Mbit/s   2030+
                    2028
              2026
200 Mbit/s   2024
         2022
    2020
2018

Note: Estimated bandwidth requirement for an ICE train

Control Center
FRMCS Critical Applications
FRMCS Performance Applications

Illustrations issues du document EIM/CER
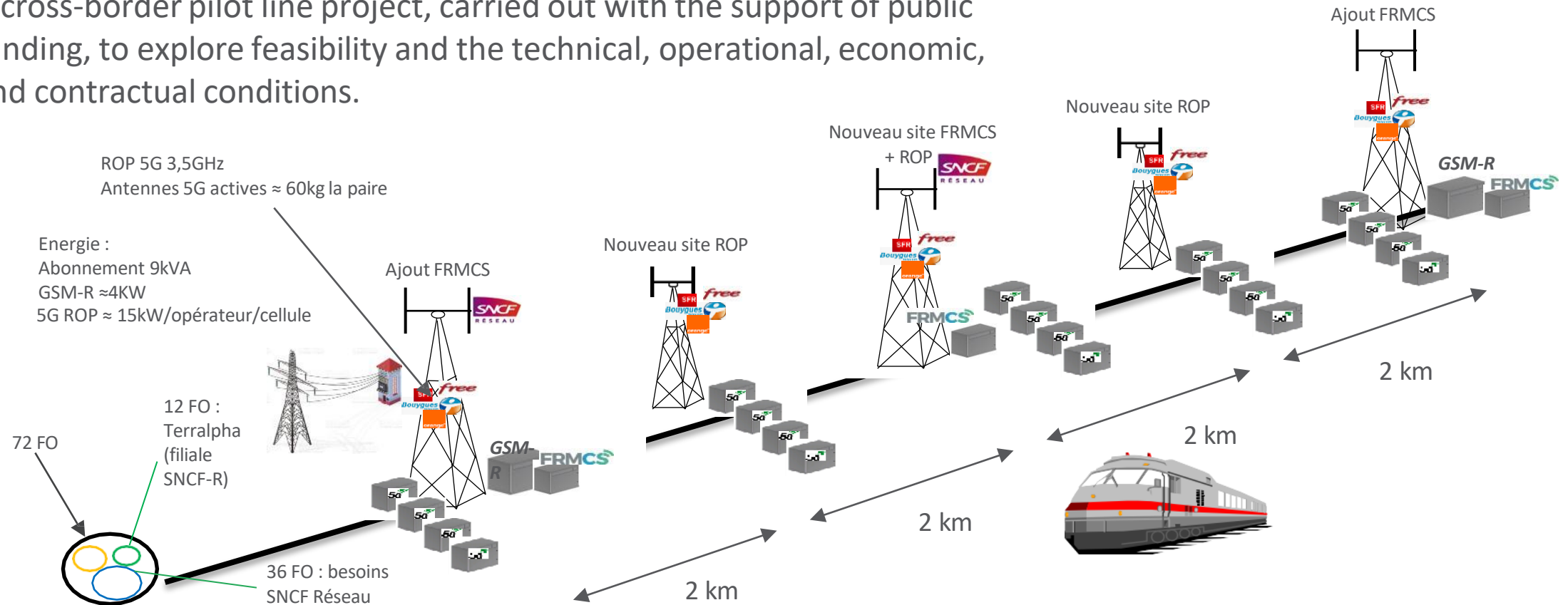SDA for the Gigabit Train and Digital Rail Operations

Co-funded by the European Union

Models of cooperation between telecom operators, railways, and industries

Potential savings in the co-construction of public 5G coverage for passenger use and dedicated 5G coverage for rail operations.

A cross-border pilot line project, carried out with the support of public funding, to explore feasibility and the technical, operational, economic, and contractual conditions.

ROP 5G 3,5GHz
Antennes 5G actives ≈ 60kg la paire

Energie :
Abonnement 9kVA
GSM-R ≈4KW
5G ROP ≈ 15kW/opérateur/cellule

72 FO

12 FO : Terralpha (filiale SNCF-R)

36 FO : besoins SNCF Réseau

Ajout FRMCS

Nouveau site ROP

Nouveau site FRMCS + ROP

Nouveau site ROP

Ajout FRMCS

GSM-R

FRMCS

2 km

2 km

2 km

2 km

2 km

On going CEF2 Digital projects

Cross-Border Corridors

5G infrastructure along a rail cross-border section

- High-Speed Line Between Paris and Brussels
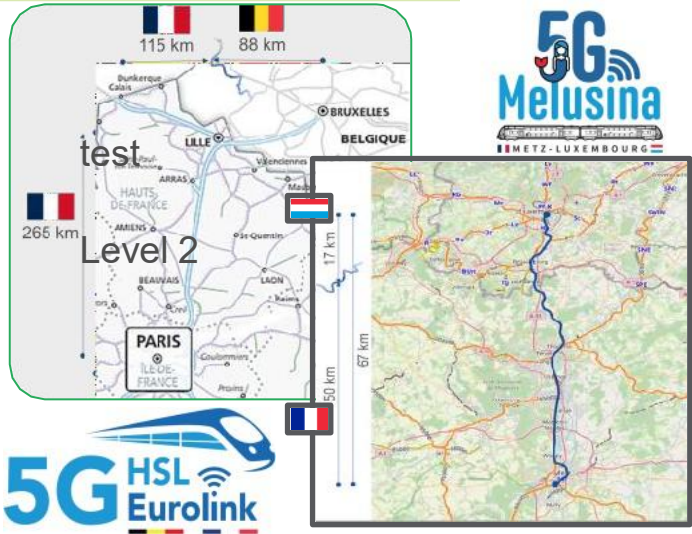- Mass Transit Line between Metz and Luxembourg

Environmental impact

- Target EU Climate Goals
- Shifting transportation onto rails, reduces carbon footprint.
- Mutualize infrastructure reduces carbon footprint

Rail Operations

- FRMCS specification & validations for 2027
- FRMCS will support ETCS

test
Level 2

Connectivity

- Improve the connectivity in train by 5G Coverage

Q&A

Keynote speech

Keynote speech: 5G for environmental monitoring and slow tourism (5G Connect Danube Delta)

Cristian Patachia-Sultanoiu, Development & Innovation Manager, Orange Romania

5GSC
5G for Smart Communities

European Commission

5G Connected Danube Delta

Transforming Connectivity in the Danube Delta Region

- Digital education
- Telemedicine
- Slow tourism
- Environmental monitoring

Romania Digital Decade 2025 – country report

Digital Decade KPI [1]	Romania				EU		Digital Decade target by 2030	
	DESI 2024 (year 2023)	DESI 2025 (year 2024)	Annual progress	National trajectory 2024 (3)	DESI 2025	Annual progress	RO	EU
Fixed Very High Capacity Network (VHCN) coverage	95.0%	95.9%	0.9%	-	82.5%	4.9%	99.0%	100%
Fibre to the Premises (FTTP) coverage	95.0%	95.7%	0.8%	-	69.2%	8.4%	99.0%	-
Overall 5G coverage	32.8%	46.8%	42.7%	33.0%	94.3%	5.9%	62.0%	100%
Edge Nodes (estimate)	5	11	120.0%	-	2257	90.5%	-	10000
SMEs with at least a basic level of digital intensity (2)	-	69.1%	14.7%	-	72.9%	2.8%	75.0%	90%
Cloud	15.5%	-	-	-	-	-	40.0%	75%
Artificial Intelligence	1.5%	3.1%	103.3%	-	13.5%	67.2%	10.0%	75%
Data analytics	21.9%	-	-	-	-	-	15.0%	75%
AI or Cloud or Data analytics	28.7%	-	-	-	-	-	-	75%
Unicorns	0	0		-	286	4.4%	-	500
At least basic digital skills	27.7%	-	-	-	-	-	50.0%	80%
ICT specialists	2.6%	2.8%	7.7%	-	5.0%	4.2%	4.0%	~10%
eID scheme notification		Yes						
Digital public services for citizens	52.2	62.7	20.2%	-	82.3	3.6%	100.0	100
Digital public services for businesses	50.0	55.1	10.2%	-	86.2	0.9%	100.0	100
Access to e-Health records	58.6	75.1	28.2%	-	82.7	4.5%	-	100

ref: digital-strategy.ec.europa.eu/en/factpages/romania-2025-digital-decade-country-report

CEF-Digital 2021-2027

5G coverage along transport corridors	Backbone connectivity for Digital Global Gateways	Quantum Communication Infrastructure
5G and Edge for Smart Communities	Backbone networks for pan-European cloud federations	Operational Digital Platforms

Development of 5G and Edge Cloud infrastructure elements that allow the implementation of innovative applications for the digitalization of public services of general interest
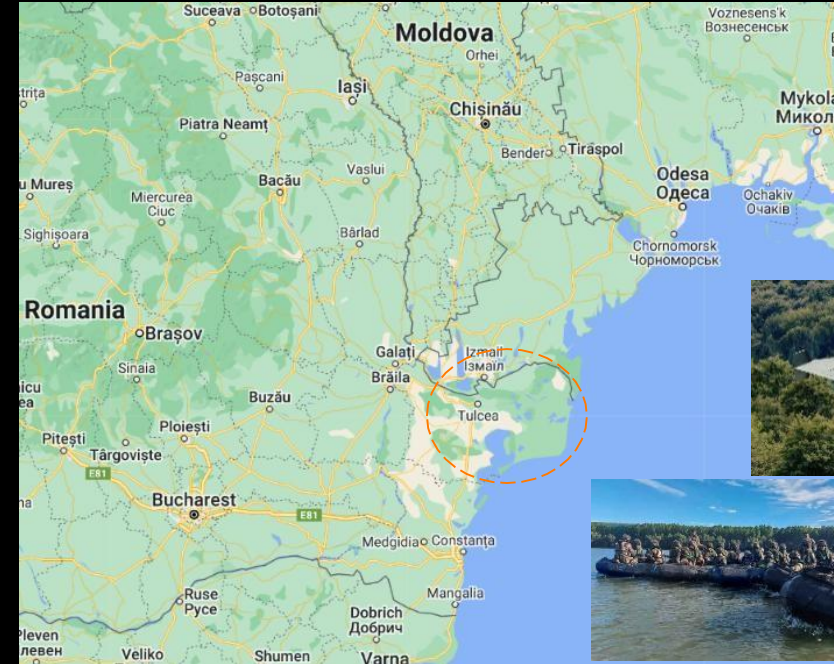
5G Connect Danube Delta

Scope: development of a communications network based on 5G Stand-Alone and Edge Cloud technology in 23 localities in the Danube Delta to support digital education, telemedicine, slow tourism and environmental monitoring applications
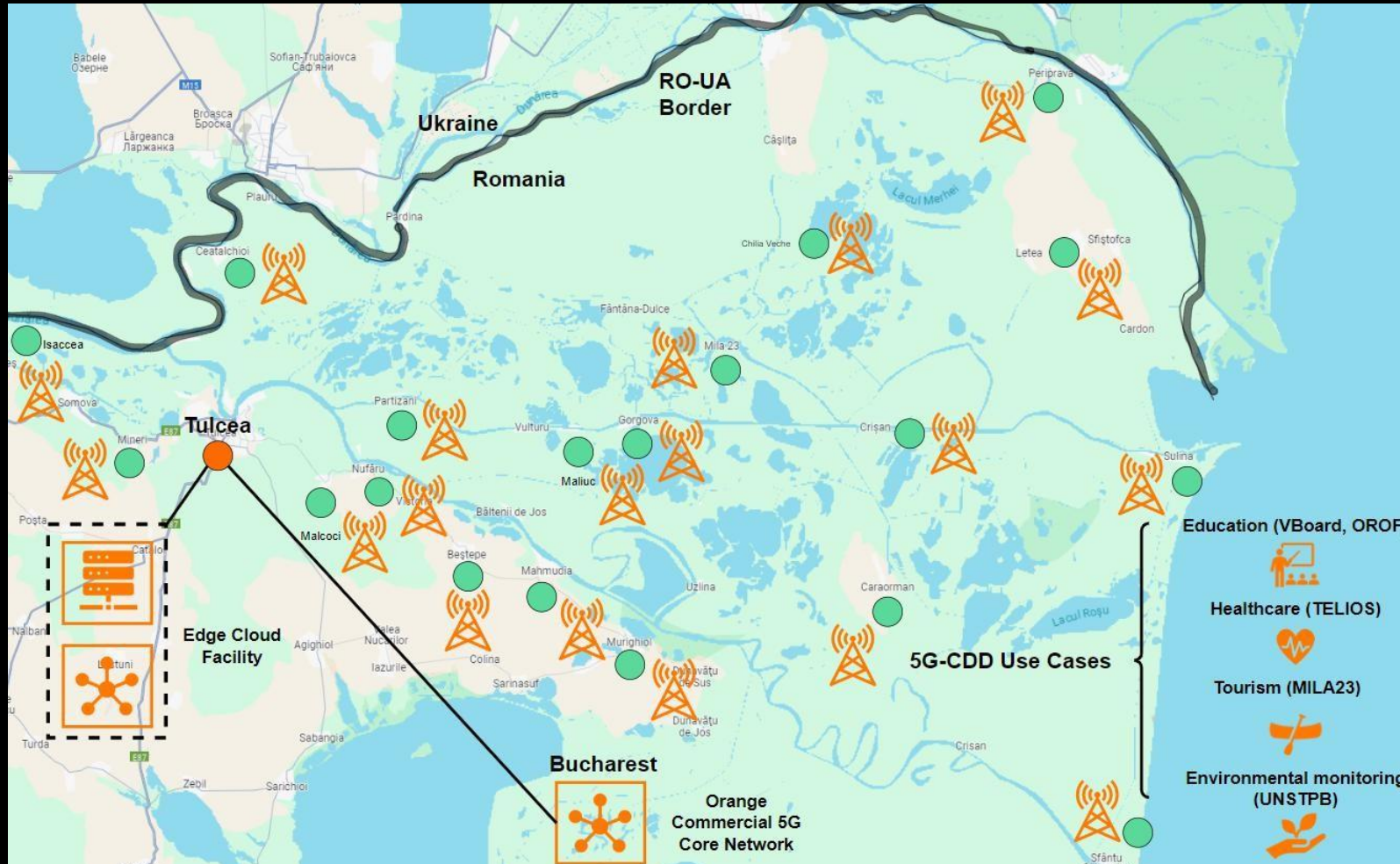
Consortium:

- **Orange Romania**
- **Fundatia Orange**
- **Asociatia Ivan Patzaichin – Mila 23**
- **UNST Politehnica Bucuresti**
- **Virtual Board**
- **Consiliul Judetean Tulcea**
- **Telios Care**

Oct 2024 – Sept 2027

5glab.orange.ro/5g-cdd

5G Connect Danube Delta – infrastructure

Malcoci

Mineri

Bestepe

Crisan

Partizani

Gorgova

Dunavatu de Jos

Mila 23

Chilia Veche

Sf. Gheorghe

Periprava

A Rosetti

Patlageanca

Caraorman

Ceatalchioi

Mahmudia

Sulina

Isaccea

Murighiol

Plauru

Tatanir

Letea

Nufaru

5G Connect Danube Delta – use cases

Digital education

Orange Foundation programs and VBoard remote education solution

Hybrid teaching real time collaboration between students and teachers

Orange Digital Center in Mila 23

Leveraging on the Digitaliada educational content

Piloting XR education in 1 school from Tulcea (6G-PATH)

Target: 1,470 beneficiaries in 17 schools and 600 beneficiaries through the Orange Digital Center

Telemedicine

Legacy portable medical devices using 5G-enabled laptops / tablets

Telios Care telemedicine eHealth solution

Deploying the remote medical control mobile app

Deploying instances of the Point of Care concept with the associated clinical devices

Sinergy with Ministry of Health telemedicine program

Target: 5,218 beneficiaries in 10 medical units

5G Connect Danube Delta – use cases
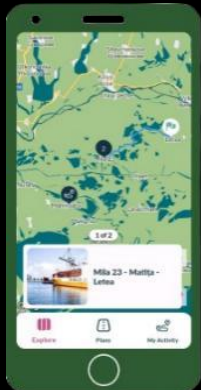
Slow tourism

MILA23 mobile app 'Delta lui Ivan' that augments the visitor's experience in the Danube Delta biosphere

Includes educational content, routes and points of interest, geo-fencing and dangerous events reporting capabilities

Tourism points of interest monitoring with 5G-enabled smart surveillance cameras

Target: **2,050 tourists** and **explorers**


Environmental monitoring

Based on the DaWetRest Horizon Europe project of Politehnica Bucharest and TrialsNet of Orange RO

Key protected areas to be fitted with environmental monitoring sensors connected to 5G routers

Targets the improvement of local hydrological conditions, water surface cleanness and natural reed cultures

Target: public authorities implementing environmental policies, **climate protection NGOs**
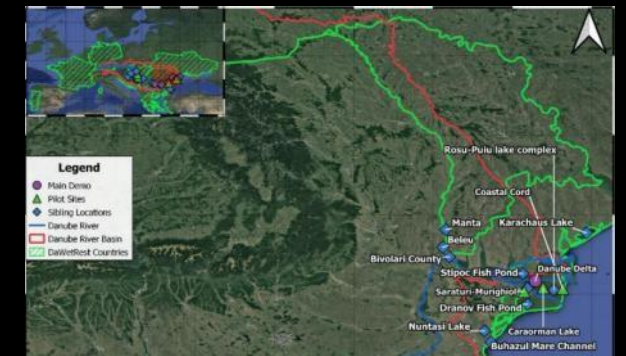
5G Connect Danube Delta – planning

Project start (Phase 0)

Equipment procurement and sites-related authorizations

5G network evolution (Phase 1)

5G/5G+ activation on the remaining sites

Construction of new sites

Transmission upgrades (MW, FO)

Project validation (Phase 3)

Final network performance (KPIs) assessment

Social impact assessment

Dissemination of application results

10/2024-03/2025	03/2025-05/2025	06/2025-12/2025	01/2026-12/2026	01/2027-09/2027

5G network construction (Phase 1)

Construction of the underlying 5G/5G+ infrastructure needed for the project implementation

Edge-Cloud infrastructure implementation

Transmission upgrades (MW, FO)

Use cases deployment (Phase 2)

Deploying the proposed applications over the developed 5G infrastructure

Onboarding and training with use cases beneficiaries
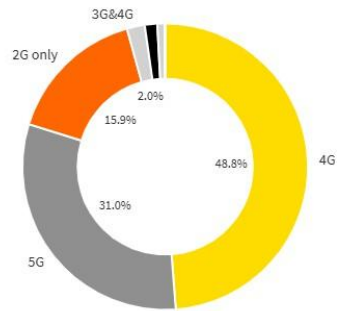
Project sustainability (Phase 4)

Applications' improvements

Sustainability report

Call for additional applications

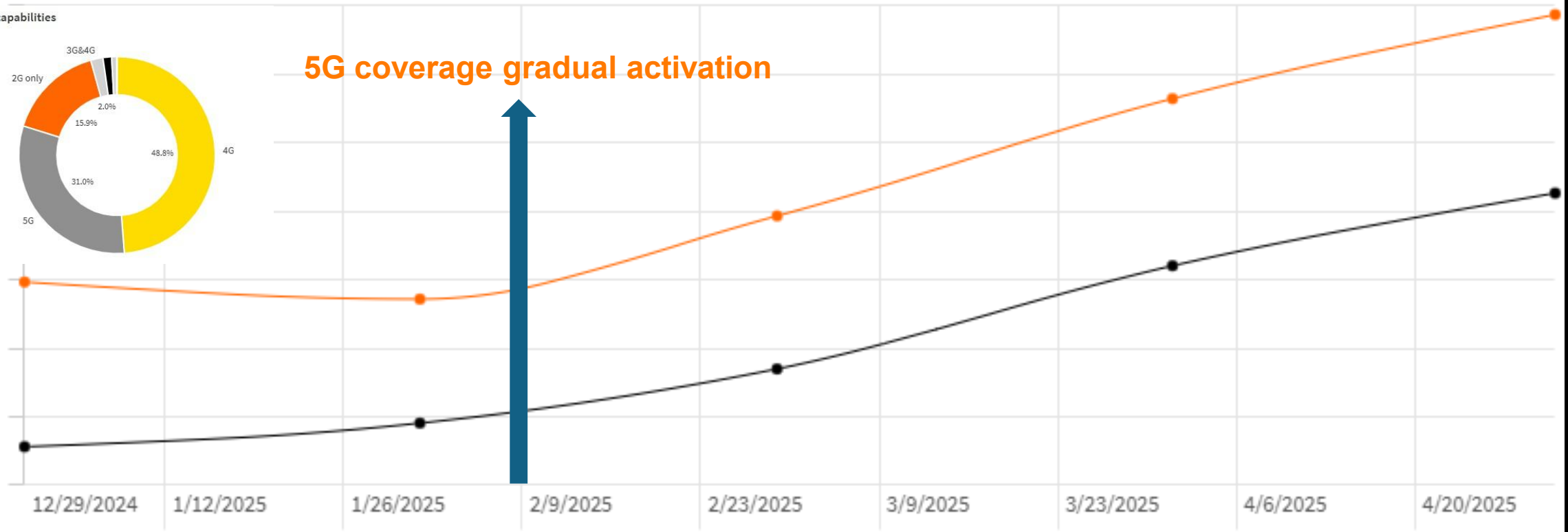# 5G Connect Danube Delta – Phase 1

5G-enabled video analytics architecture

Surveillance Cameras

E2E Network Slicing

Orange 5G SA Radio

Orange Edge Cloud

Orange 5G SA Core Network

Servers with GPUs

Dedicated 5G Router

Video analytics processing

Management, Detections

Embedded 5G Modem

Detection Dashboard

- **Counting – boats, people, birds**
- **Obstacles detection**
- **Fires and floods detection**
- **Danube bank erosion monitoring**
- **Perimeter security**

Open discussion

Scaling 5G for Smart Cities & Urban Connectivity

Challenges, Opportunities & Cross-Sector Collaboration

5GSC
5G for Smart Communities

Fredrik Engströmer

HEAD OF INNOVATION,
REGION STOCKHOLM

CHAIR

Tom Collins

RESEARCHER, CITYMESH

CO-CHAIR

Inga Barisa

ADVISER, EU DIGITAL
INNOVATIONS,
RIGA CITY COUNCIL

CO-CHAIR

European
Commission

5G Mobile Healthcare Innovative solutions

Fredrik Engströmer
Head of Innovation
Region Stockholm

Co-funded by
the European Union

Region Stockholm

5G Mobile Health Innovative Solutions – 5GMHI

5G Medical Net
- A 5G indoor network will be built at a hospital.

Drone video
- Resource optimization and planning of care interventions.

Streamline property management
- Connected sensors for monitoring and operations
- AR/VR to facilitate maintenance

Video connection with ambulance
- Connection to a hospital from the incoming ambulance to assist in diagnosing and preparing care interventions.
- Pilot with ambulances.

RTLS – Real-Time Location Services
- Tracking hospital beds and Medtech equipment to streamline processes and avoid unnecessary work.
- RTLS Pilot.

For more info: 5G Mobile Healthcare Innovative solutions (5GMHI) | Shaping Europe's digital future

Co-funded by the European Union

Region Stockholm

# 5GMHI Participants

The project is lead by

- Region Stockholm, as project coordinator,

with

- Södersjukhuset AB, as affiliated entity

- Locum AB, as affiliated entity

- Ambulansjukvården i Storstockholm Aktiebolag, as affiliated entity

and

- Telia Sverige AB, as beneficiary,

For more info: 5G Mobile Healthcare Innovative solutions (5GMHI) | Shaping Europe's digital future

Co-funded by the European Union
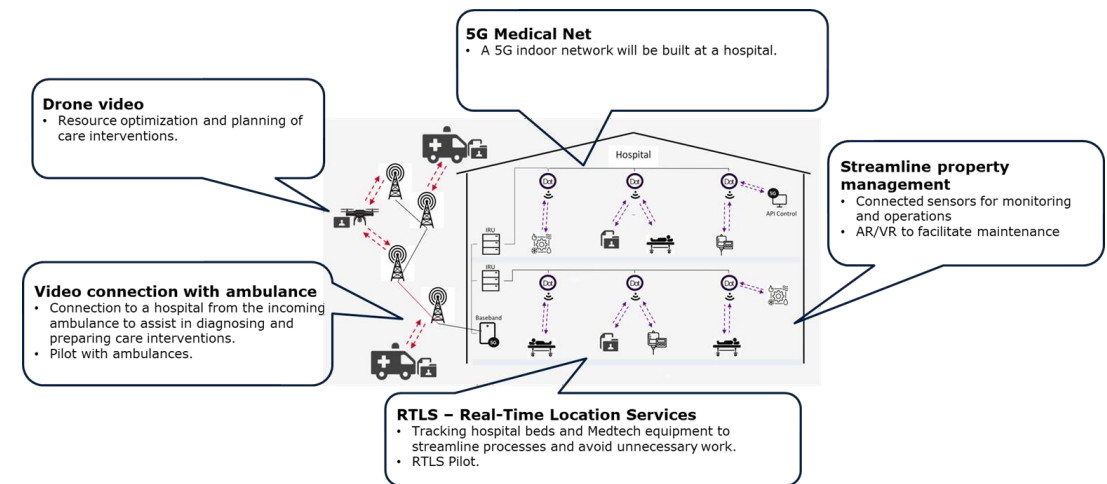
Region Stockholm

www.regionstockholm.se/om-regionstockholm/forskning-och-innovation/

[5G Mobile Healthcare Innovative solutions (5GMHI) | Shaping Europe's digital future](http://5gmhi)

fredrik.engstromer@regionstockholm.se

5G for a Better Tomorrow:
Protecting Lives and the Environment in Riga and Turin - 5G4LIVES
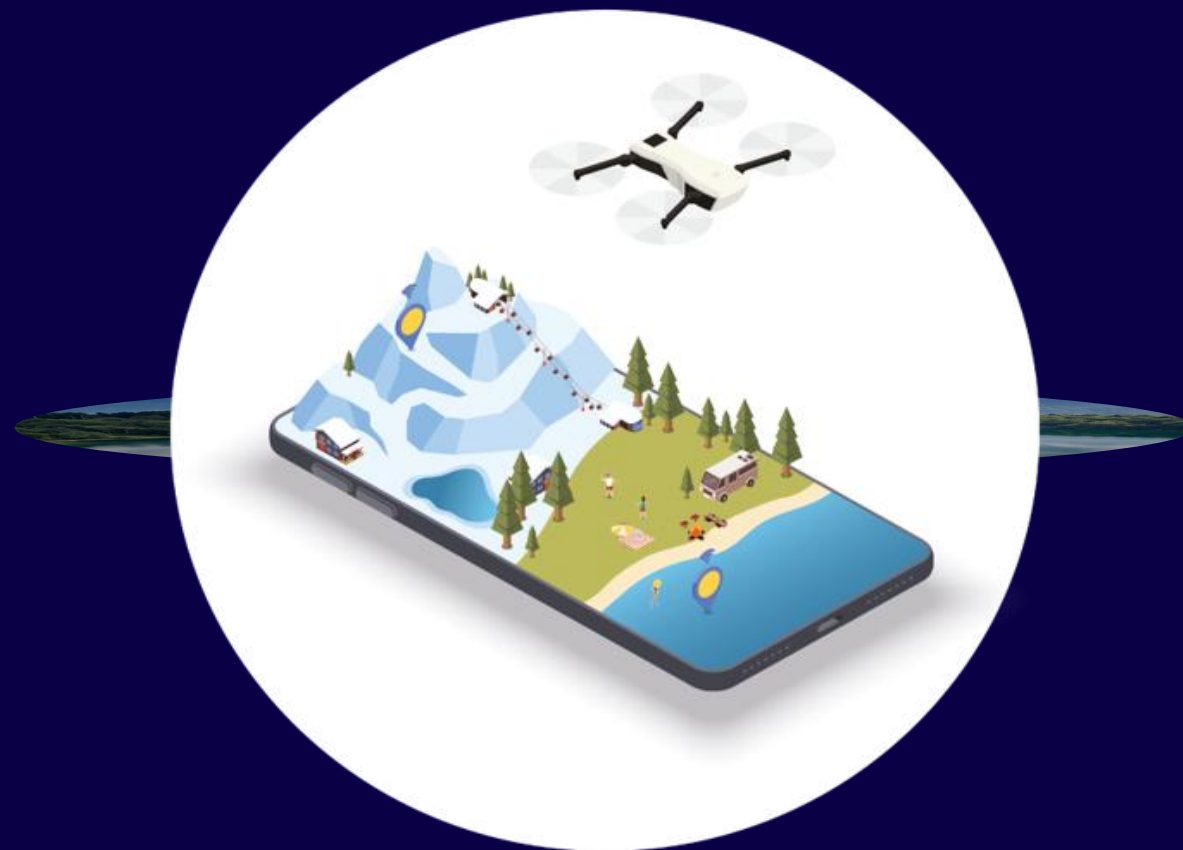

Pilot Cities

Turin, Italy:
Focus on scenario-based beach and lake rescues on disaster preparedness, monitoring, and situational awareness using drones and 5G mobile vans

RIGA

TURIN

Riga, Latvia
Focus on scenario-based beach and lake rescues using automated drones

Working Group 2 - 5G for Smart Cities & Urban Connectivity June 19, 2025

Inga Barisa, Riga City Council Digital Agency

RĪGA   lmt   VEFRESH   Electronic Communications Office of Latvia   Politecnico di Torino   CITTA' DI TORINO   WINDTRE   Rīgas pašvaldības policija

CITYMESH & WAVER PARTNERSHIP

CONNECTOW

CONNECTOW is a collaboration project between the city of Wavre, Citymesh and the European Union. The project puts the city on the international map as one of the first truly smart cities in Europe. Thanks to the support and under the supervision of the European Union, the city of Wavre provides connectivity for all its residents, visitors, schools, entrepreneurs, emergency services and public services.
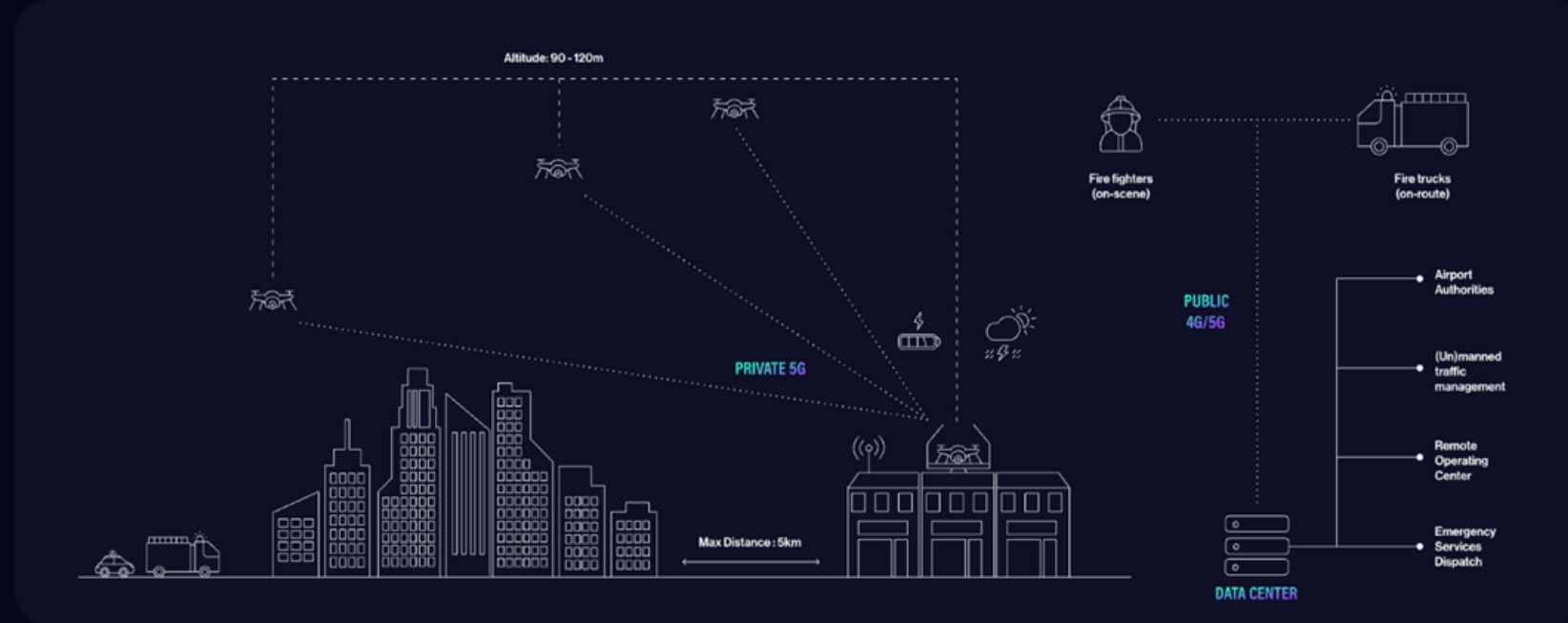
OVER CONNECTOW   **PROJECTEN**

https://www.connectow.eu
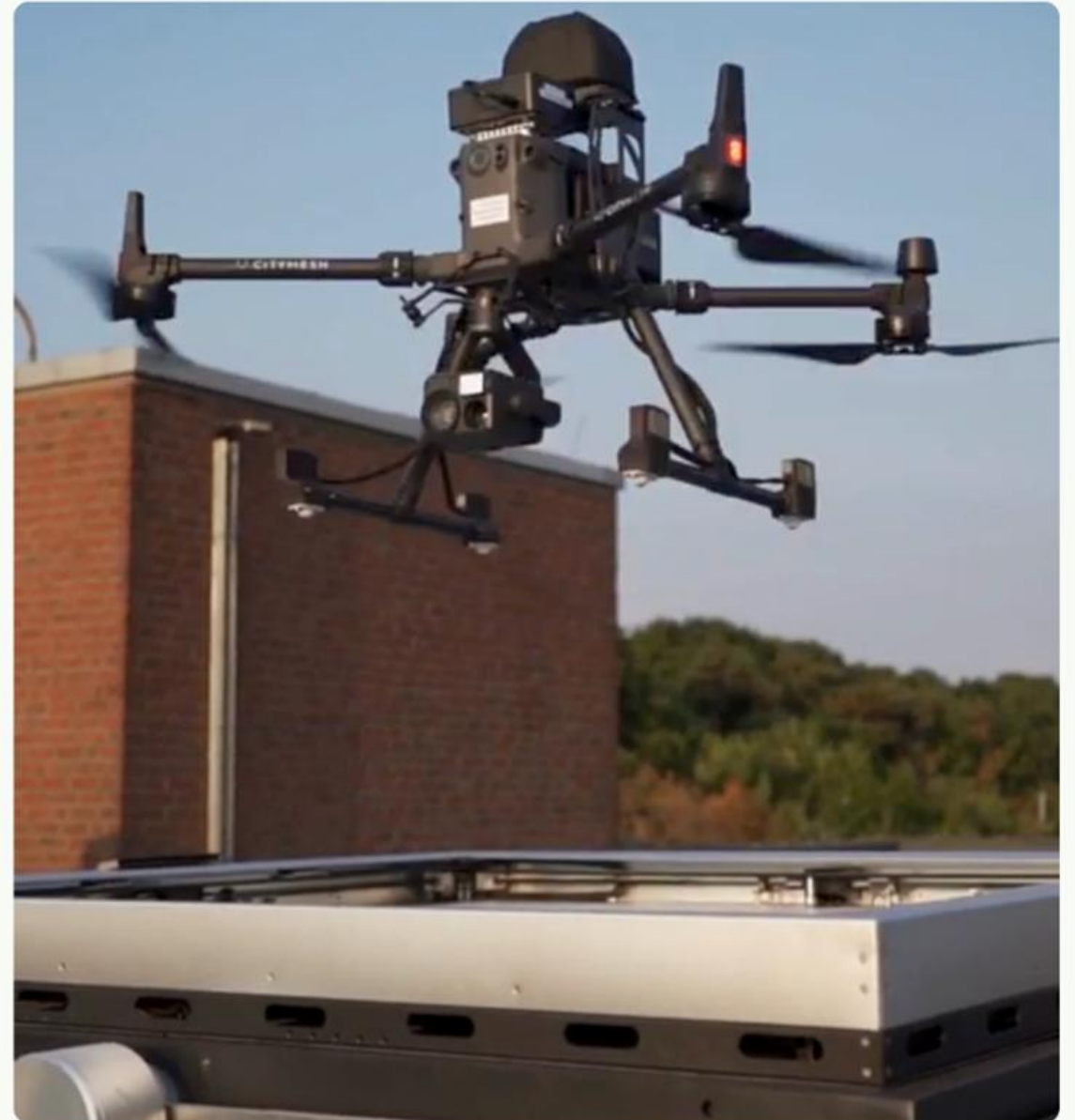
The drones have been successfully linked to Verdi and Frontforce, the fire department's dispatching systems. This allows the safety drone to be placed in the call train between the regular vehicles. This ensures that the safety drone can be called without any additional action being required from the fire department personnel.

In which situations the drone will be deployed, will be determined together with the fire brigade in the first months of the test period. This way each fire zone can adapt the use of the drone to the specific needs of that zone.

As firefighters rush to an incident, the GPS coordinates are passed on to the safety drone and within 90 seconds the drone is in the air on its way to the incident, ready to provide an extra pair of eyes in the sky. During the flight, there is radio contact with the fire department dispatcher, who can give very specific commands to the drone: "fly to the back of the

8
kilometer

Imaging of incidents up to 8 km radius from the departure point.

30
minutes

The effective flight time of a flight is 30 minutes.

https://5Gsense.citymesh.com

The *Porto Vecchio* Project

Paolo Perucci,
Deputy Central Director for State Property, General Services and Information Systems, Autonomous Region of Friuli Venezia Giulia

Lorena Cantarut,
Multimedia specialist, INSIEL

PortoVecchio 5G – Innovation and better life in Trieste
PV5G

The context of «Porto Vecchio»

URBAN SUSTAINABLE DEVELOPMENT

The Old Port of Trieste is a historic area located on the Adriatic coast, it was originally designed to support freight activities. Over time, changes in global trade and transportation methods led to its decline, leaving much of its infrastructure underutilized and unsuitable for modern logistics. Currently, **the Old Port is undergoing a revitalization effort.** The redevelopment plan divides the area into four key zones: mixed-use spaces, piers, museum-scientific-congress facilities, and recreational-sports areas.

The PortoVecchio 5G project aims to transform the historic Old Port of Trieste into a vibrant hub for **digital education and technological innovation**.

Deploy Public and Private 5G Networks: Including outdoor nodes, edge computing, and private indoor networks.

Establish a Digital Education Hub 4.0: Featuring immersive technologies like AR/VR/MR for enhanced learning experiences

Create a Quantum Communication Lab integrated with 5G networks – this research and development facility will focus on advancing quantum communication technologies and integrating them with 5G infrastructure.

The project benefits from a maximum EU grant of €2,572,413.75, which covers 75% of the total eligible costs (€3,429,885.00) for most activities.

PV5G – Use cases definition
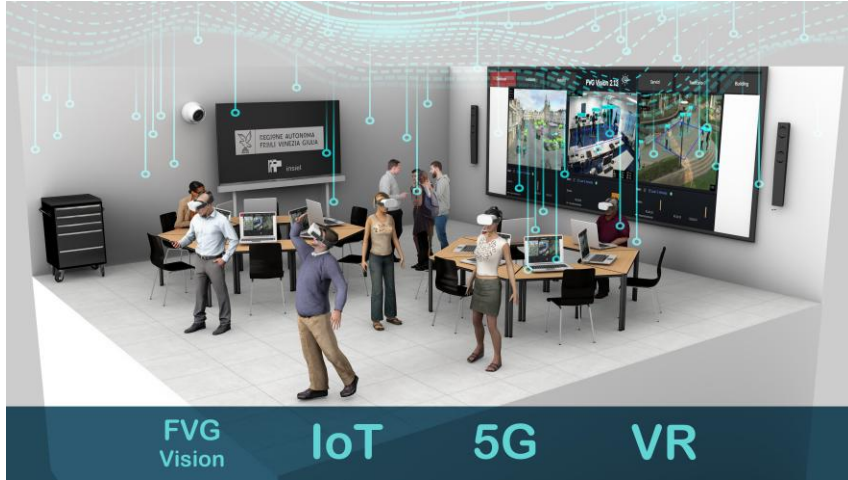
The Education Hub will serve as a hub for experimentation with **advanced digital technologies**, promoting innovation and lifelong learning.

Use case 2 on: **Quantum Communication**

Use case 1: will leverage 5G technology to explore cutting edge technologies for education, such as **Immersive Learning Experiences**, and host an **IoT Laboratory**

Hands On Lab on IoT Sensor Ecosystem using **FVG Vision platform**

Design of courses using **Virtual Reality**.

THANK YOU FOR YOUR ATTENTION

Closing Remarks

Jan Droege, Director, 5G for Smart Communities Support Platform