



Space for Twin Cities: Digital City

Davide Coppola

*Partner-led and thematic initiatives
Business Applications and Space Solutions
European Space Agency*

ESA SPACE SOLUTIONS



→ MARITIME



→ SPACE WEATHER



→ HEALTHCARE



→ TRANSPORT



→ EARTH OBSERVATION



→ ENVIRONMENT



→ AGRICULTURE



→ SATELLITE NAVIGATION



→ MEDIA



→ ENERGY



→ SATELLITE COMMUNICATION



→ EDUCATION



→ HUMAN SPACEFLIGHT TECHNOLOGIES



→ AVIATION



→ FINANCIAL

INNOVATIVE TECHNOLOGIES

Space Weather



Earth Observation



Satellite Navigation



Satellite Communication



Human Spaceflight
Technologies



- UMS
- HAPS
- RPAS
- VR/AR
- 5G
- IoT
- Artificial Intelligence
- Megaconstellations
- Cybersecurity
- Blockchain



Maritime



Healthcare



Transport



Environment



Agriculture



Media



Energy



Education



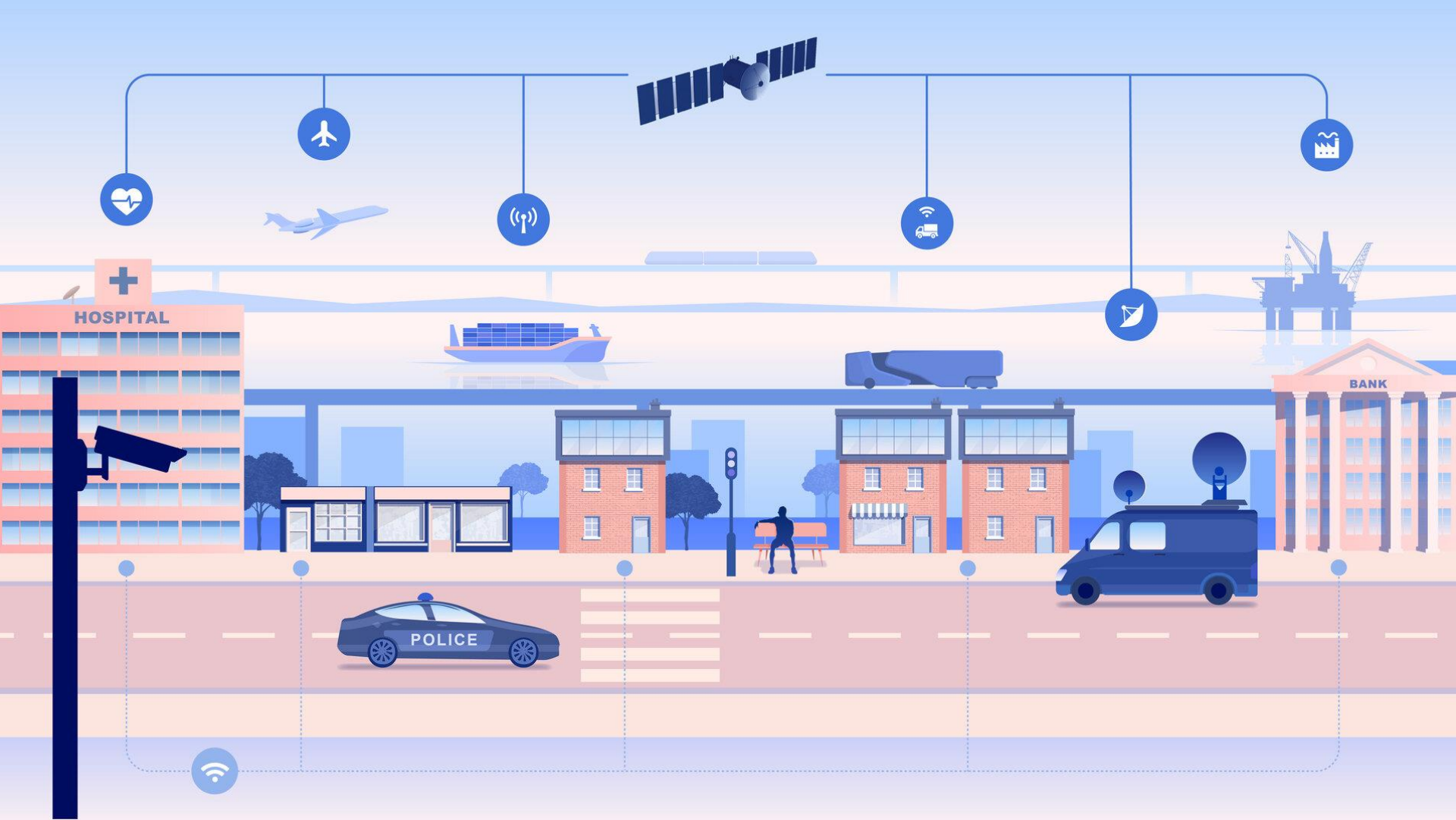
Aviation

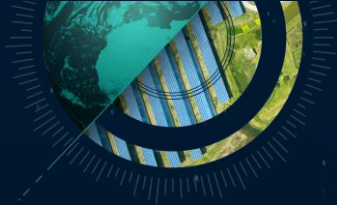


Financial



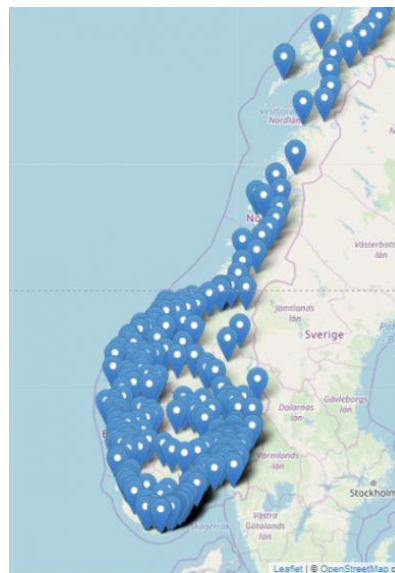
ESA UNCLASSIFIED





Electric Vehicle Routing and Charging Prediction

- Support Charge Point Operators (CPOs) to predict the usage of their public fast-charging sites and to inform users of electric cars which site will be available at their intended time/day of charging;
- Provide electric car owners with an intuitive way (i.e. app) to navigate to the next available charging station, considering criteria like traffic, weather and terrain;
- Help CPOs to predict, with the help of data derived from satellite imagery, which geographical areas are most suited for the erection of new public fast-charging infrastructure in order to satisfy demand;
- Enable electric utility providers to predict which capacities are needed short and mid-term and by thus allowing them to plan for grid strength and power supply.



ESA UNCLASSIFIED

<https://business.esa.int/projects/erp>

Teleretail

- Automated delivery service which uses courier robots for urban and sub-urban use. These self-driving vehicles are ordered by a user on-demand and delivers the products locally on the same day. This technology will allow for cost effective, energy preserving and space efficient urban logistics.
- The project uses:
 - Satellite navigation to help with journey accuracy
 - Satellite communication to aid with asset tracking
 - Earth observation satellites to assist with urban mapping



<https://business.esa.int/projects/teleretail-delivery-robot>

ESA UNCLASSIFIED

5G for L'ART: L'Aquila and Abruzzo Region, Roma, Torino



space solutions

- In 2019 ESA has signed three Memorandum of Intent with Roma, Torino, L'Aquila and the Abruzzo Region.
- Scope of the MoIs is on pursuing space based activities making use of the 5th Generation of communication networks.
- Thematic addressed:
 - Law enforcement and emergency response
 - Cultural heritage fruition and preservation
 - Structural monitoring
 - Intelligent transport



ROMA



ESA UNCLASSIFIED



→ 5G FOR L'ART:

INTELLIGENT TRANSPORT

30/10/2020 - 14/12/2020

FUNDING CALL NOW OPEN

Space to advance innovation on circular cities

- ESA Space Solutions is planning to issue an **announcement of opportunity** for a feasibility study to assess technical and business feasibility of using **space** assets to advance **business innovation** in **circular cities**.
- The opportunity, supported by **ENEL X**, will cover two main areas of interest:
 - **public transport transition towards zero carbon**
 - Decision support system for optimizing the service for public transport companies
 - Public transport services enhancement leveraging on citizen participation and existing infrastructures upgrade through digitalization
 - **Dynamic mapping system of infrastructures.**
 - Punctual mapping system of infrastructures (light points, parking, PV, charging stations, building) and simulation tools supporting monitoring and predictive maintenance
 - Identification of the relevant KPIs for each infrastructure (i.e. Luminance conditions, LED vs SAP technology detection on light points)



Funding opportunities - Currently open

→ SPACE SYSTEMS FOR SAFETY AND SECURITY (4S) APPLICATIONS

→ DIGITAL HEALTH IN DEVELOPING ECONOMIES

→ NEW EDUCATION

→ MARINE ENERGY

→ SPACE APPLICATIONS TO ADVANCE INNOVATION ON CIRCULAR CITIES

→ SPACE AND 5G CONVERGENCE: TRANSPORT & LOGISTICS

→ CONNECTED RURAL COMMUNITIES

→ INTELLIGENT TRANSPORT

→ PREVENT AND DETECT FOOD AND BEVERAGE FRAUD

→ COMMODITIES

→ PROPTech

→ SPACE&RAIL

ESA UNCLASSIFIED

<https://business.esa.int/>

ESA Space Solutions

→ **SPACE IS OPEN FOR BUSINESS**

Davide.Coppola@esa.int