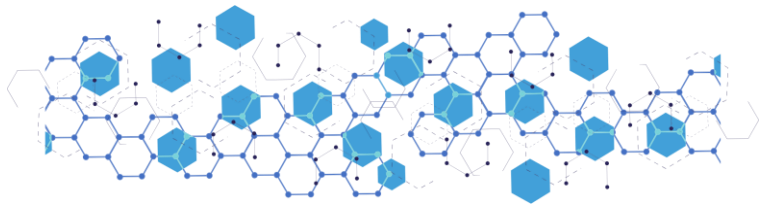# 6GSNS

Open Calls – Results
TRIALSNET Project

SUMMARY OF EXPERIMENTS AND IMPLEMENTATIONS

Results Achieved by 3rd Parties involved in 6G SNS Projects through the mechanism of Cascading Funding – Open Calls

6G SNS Open Calls – Results

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Results Achieved by 3rd Parties involved in 6G SNS Projects through the mechanism of Cascading Funding – Open Calls

TRIALSNET PROJECT

Trials Supported by Smart Networks Beyond 5G

OVERVIEW

Introduction and Project Overview

TrialsNet (G.A. 101095871) is one of the large-scale trial projects funded under the first phase of the Smart Networks and Services Joint Undertaking (SNS JU). The project aims to bring beyond-5G and emerging 6G technologies closer to real-life implementation through open, large-scale trials across different domains of the urban ecosystem. Its overarching ambition is to accelerate Europe's transition toward 6G-ready smart cities by validating advanced network capabilities that are sustainable, secure, and human-centric.

The project deploys 13 use cases across four geographical clusters in Italy, Spain, Greece, and Romania, addressing three strategic domains - **Infrastructure, Transportation, Safety & Security; eHealth & Emergency; and Culture, Tourism & Entertainment.** By integrating vertical industries, public authorities, and research partners, TrialsNet provides end-to-end experimental infrastructures for validating Key Performance Indicators (KPIs) and Key Value Indicators (KVIs) in real-world conditions. The project directly contributes to European standardization efforts (3GPP, ETSI) while supporting the SNS JU mission of connecting technical innovation with measurable societal impact.
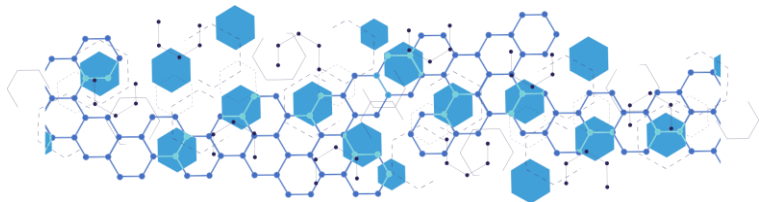
Objectives of the Open Call

To expand its ecosystem and reinforce its multi-stakeholder character, TrialsNet established an Open Call mechanism to attract new third parties, including SMEs, start-ups, research institutions, and vertical industries, able to complement and extend the project's existing trials. The Open Call sought to (i) enrich the project portfolio with innovative experiments aligned with beyond-5G technologies, (ii) diversify the experimentation ecosystem by engaging new organizations and perspectives, (iii) broaden the geographical reach of trial activities across Europe, and (iv) promote innovation transfer from research to market through validation of 6G-enabling solutions.

The process was coordinated under **Work Package 7 (WP7 - Open Call and Support to Third Parties)**, led by PIIU, in collaboration with technical work packages to ensure alignment between infrastructure capabilities, use-case design, and evaluation methodologies.
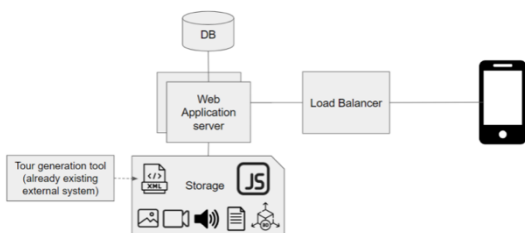
Preparation and Methodology

The Open Call framework was detailed in the **Applicant Handbook (D7.1)** and the **Launch and Evaluation Report (D7.2)**. Preparation began in mid-2023 with the creation of an internal Open Call Task Force comprising representatives from WP7, WP2–WP6, and an appointed Open Call Strategy Manager. This task force coordinated the technical, legal, and administrative aspects of the process to guarantee coherence and transparency.
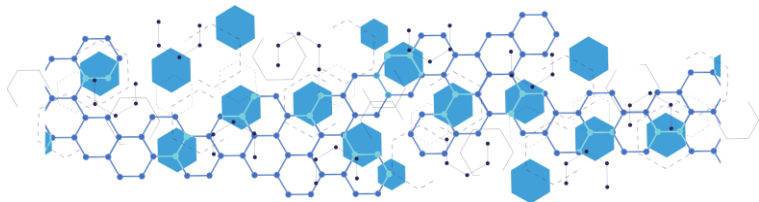
Comprehensive documentation was published on the official TrialsNet website, including the Open Call text, eligibility criteria, proposal and budget templates, and KPI/KVI frameworks. Awareness campaigns involved two webinars (7 November and 5 December 2023), social-media dissemination through LinkedIn and SNS JU channels, and a dedicated Helpdesk (opencall@trialsnet.eu) to assist applicants. The process followed an agile approach, updating FAQs and adapting procedures based on participant feedback to ensure equal access and clarity throughout the application period.
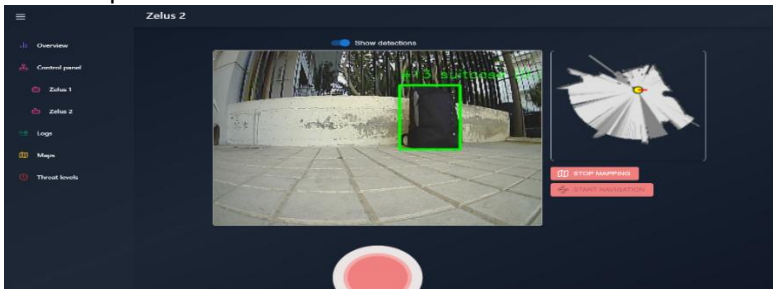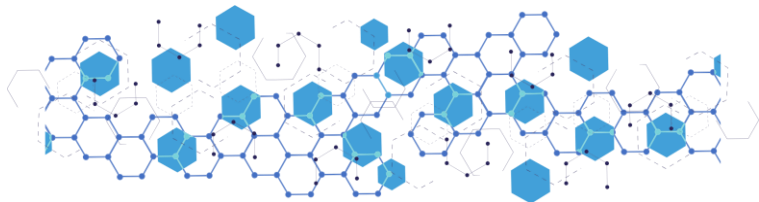
PRESENTATION OF OPEN CALLS PROJECTS

5GAUGMENTED

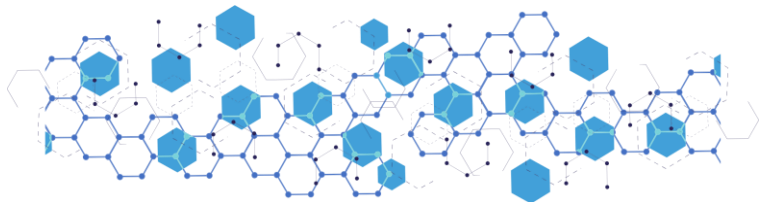|	
OC Project Title	5GAUGMENTED
Benefiaciary(s)/Country	A.R. TOUR SRL, ITALY
Project Description	The proposed use case is related to the conceptualization, the development and the trial of the tour for the UNESCO historic center of Naples using Augmented Reality (AR). Tourists will be able to access the tour directly from their mobile devices by scanning a QR Code and connecting to a WEB APP.
Vertical	Culture, Tourism & Entertainment
Testbed	WE USED AWS TO HOST THE APPLICATION AND CONTENTS + COMMERCIAL NETWORK FOR THE DEPLYMENT OF THE EXPERIENCE
Implementation timeframe	PROJECT FROM MAY'24 TO NOVEMBER'24. TEST FROM DECEMBER'24 TO APRIL'25
Results & Impact	The trial aimed to analyze the relationship between mobile network performance and the perceived quality of the user experience during an interactive tour based on augmented reality storytelling. Over the course of 73 test days across 11 different locations, 1,523 users were involved. The collected data reveals a strong correlation between data transmission speed, app responsiveness, and the users' overall evaluation of content. Critical thresholds such as **25 Mb/s** and **2 seconds of latency** emerged as key benchmarks: below these values, the user experience was consistently rated poorly. Conversely, speeds above **50 Mb/s** ensured fluidity, immersion, and highly positive perception. The findings suggest that, within the context of interactive tourism and outdoor AR-based experiences, **5G is not merely a technical upgrade, but a strategic enabler** for delivering seamless, scalable mobile-based solutions.

5GS3

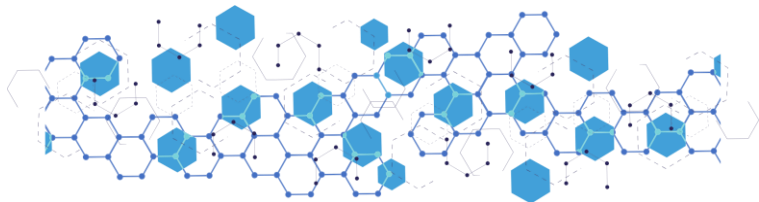| OC Project Title	5G-enabled Secure Surveillance System
Benefiaciary(s)/Country	ZELUS – Greece, Citiwave – Greece
Project Description	5GS3 is a 5G-enabled security solution designed to enhance surveillance operations in airport environments. The project leverages autonomous robots equipped with AI-based video analytics, IoT sensors, and experimental 5G/B5G infrastructure to detect and respond to potential safety threats in real-time. The system supports collaborative decision-making between the robots and airport personnel, aiming to improve situational awareness and reduce operational burden.
Vertical	Transportation, Aviation Industry
Testbed	- Patra, Greece – Trials conducted at the premises of the 5GS3 partner responsible for 5G infrastructure. - Athens, Greece – Trials will be conducted at the AIA premises 16th April 2025
Implementation timeframe	1st May 2024 – 30th April 2025
Results & Impact	The 5GS3 project has successfully developed and validated the core components of its secure surveillance system (5GS3 smart IoT robots, 5G/B5G core management, 5G core network). The 5GS3 surveillance system demonstrated services are a) robot to robot collaboration, b) mapping and autonomous waypoint navigation, c) live real time monitoring, and d) object detection and data augmentation for Ai-assisted video analytics. The work lays the foundation for future integration into operational airport environments, with upcoming efforts focused on multi-robot coordination and enhanced AI-based threat detection leading to higher security enhancements and expert satisfaction.

5GVIREH

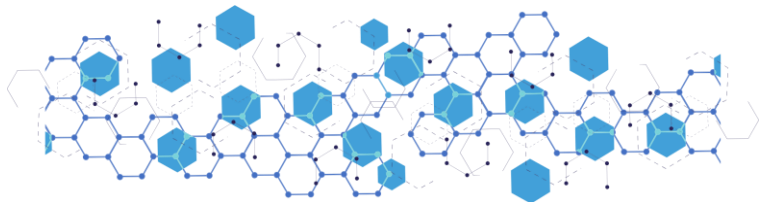| OC Project Title	5GVIREH
Benefiaciary(s)/Country	Roma Tre University & Fondazione Policlinico Universitario Campus Bio-Medico / Italy
Project Description	This project aims to demonstrate a 5G-enabled VR platform for post-operative tele-rehabilitation. Patients use a VR headset connected via a 5G router, while clinicians join remotely. The focus is on post-rotator cuff (RC) surgery rehabilitation, with VR exercises tailored to recovery phases, though the system is adaptable to other rehabilitation types.
Vertical	e-health providers
Testbed	Connectivity is provided by commercial 5G NSA service in Rome, Italy. The architecture includes: (1) a STUN/TURN server for audio-video streaming, (2) AI processing devices, and (3) mobile users (patients and clinicians). 5G CPEs act as gateways; VR headsets worn by the patients connect via WiFi to the CPEs.
Implementation timeframe	Project: May 2024 – April 2025 Development activities: May 2024 – December 2024 Trials: January 2025 – April 2025
Results & Impact	The trial protocol received a favorable opinion from the Territorial Ethics Committee, confirming compliance with ethical standards. Twenty patients undergoing arthroscopic rotator cuff repair were enrolled in the study, conducted at the Laboratory of Motion Analysis, FPUCBM. At the end of each rehabilitation session, patients completed questionnaires assessing Quality of Life (QoL)—focused on perceived usability, comfort, and acceptability of the VR-based rehabilitation procedure—and Quality of Experience (QoE)—focused on the technical performance of multimedia communication. Throughout the trial, network statistics from the WebRTC communication channel between clinicians and patients in the VR environment were continuously monitored. Collected metrics included packet loss rate, jitter, round-trip time (RTT), and available/used bandwidth. The results provide a foundation for understanding user needs and the network demands of VR tele-rehabilitation, which stands to benefit significantly from the ultra-reliable, low-latency communications enabled by B5G technologies.

6GVision

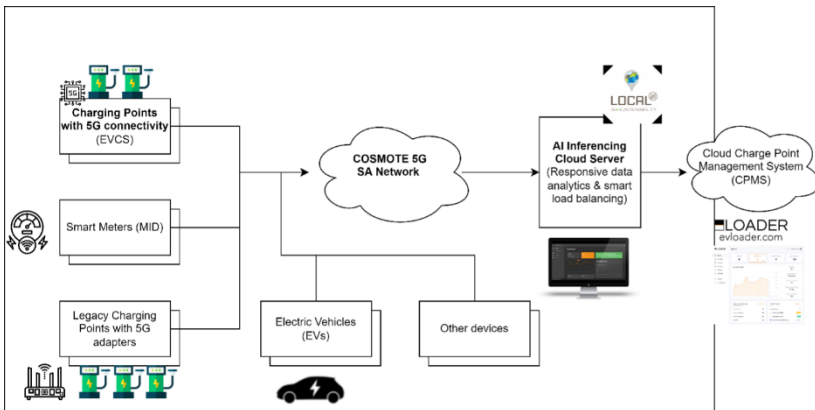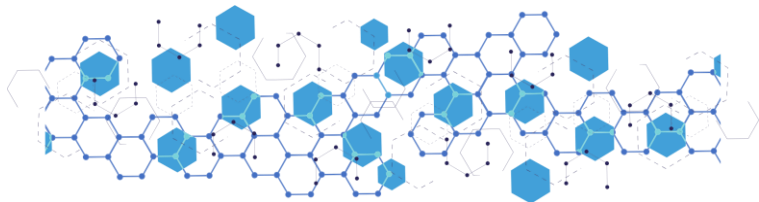| OC Project Title	Improvement of the 5GOpen testbed at imec with vision-aided mmW gNB
Benefiaciary(s)/Country	Allbesmart LDA, Portugal
Project Description	The 6GVision sub-project enhances TrialsNet use cases by integrating advanced Open RAN mmWave (3GPP FR2) capabilities and updating the existing OAI-based 3GPP FR1 gNB testbed for the 5GOpen indoor environment at imec. It also develops and evaluates in realistic indoor scenarios a vision-aided mmWave gNB with LOS blockage prediction and preventive beam switching.
Vertical	Culture
Testbed	Imec, Antwerp
Implementation timeframe	The 6GVision project is planned to run from April 2024 through April 2025, with two test visits at imec testbed on October 2024 and March 2025.
Results & Impact	In the context of this open call project, the Vision Aided Open RAN mmWave OAIBOX was introduced as a new product within the OAIBOX line, incorporating vision sensing capabilities for 5G Advanced mmWave communication. Several contributions were made to the OpenAirInterface (OAI) to enable FR2 operation, and trials were subsequently performed at the imec testbed to validate these developments in realistic indoor scenarios. The vision-aided Open RAN mmWave OAIBOX integrates Line-of-Sight (LOS) blockage prediction and preventive beam switching, and also features 5G mmWave coverage extension when paired with mmWave reflectors to enhance connectivity. During this timeframe, two trials were run at the imec testbed, where the newly developed features and the control and monitoring interface OAIBOX Dashoard were evaluated by the trial users.

AdaptoFlow

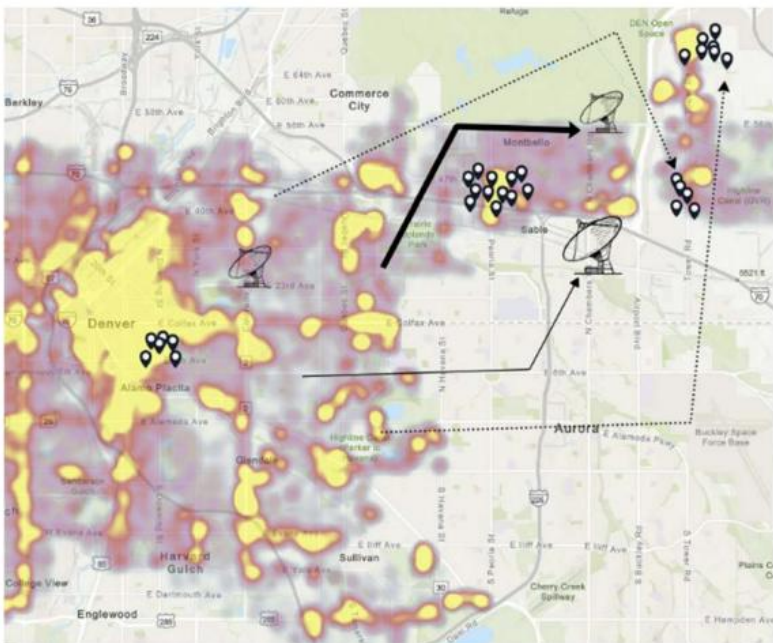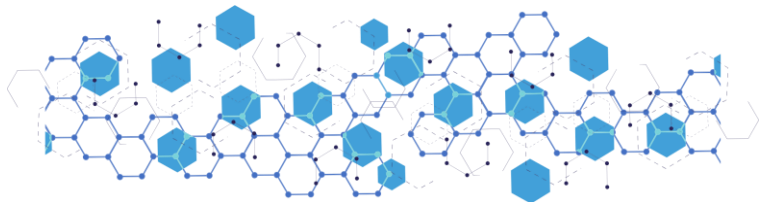| OC Project Title	AdaptoFlow
Benefiaciary(s)/Country	University of Cyprus / Cyprus University of Nicosia / Cyprus
Project Description	The AdaptoFlow project delivered a framework, offered as an open-source Python package, designed to support EdgeAI applications deployed in geo-distributed environments that use a Deep Learning (DL) model serving pipeline for video stream analytics. Extending DL model serving with AdaptoFlow introduces autonomous adaptation of the runtime inference process to reduce network traffic, application latency, and energy consumption, while still maintaining stringent QoS requirements within acceptable bounds defined by Service Operators. This is accomplished by introducing two new algorithmic mechanisms, namely Adaptive Stream Inference and Energy-aware Model Swapping. These mechanisms seamlessly monitor, at runtime, both the evolution of the video stream analytics and the availability of the underlying edge server's computational resources to adjust the intensity of the video stream inference process. To show the efficacy and efficiency of the AdaptoFlow algorithmic mechanisms, the project was bound to the TrialsNet use-cases for smart crowd monitoring and smart traffic management with physical deployment and field testing conducted via the Romanian testbed.
Vertical	Transportation, Telecommunication Infrastructure
Testbed	Romanian cluster
Implementation timeframe	The implementation period of the project is 1/5/2024-30/4/2024, while the experimentation on Romanian testbed held between 27/1/2025-31/1/2025
Results & Impact	Field trials showed a 78% reduction in data volume, 73% lower latency, 88% reduced GPU utilization, and improved scalability, enabling stable processing of up to eight video streams. KPIs and KVIs were successfully validated, demonstrating significant efficiency gains for smart city applications. The project's results were shared through scientific publications, demonstrations, and open-source software release, ensuring lasting impact.

AI4RTC

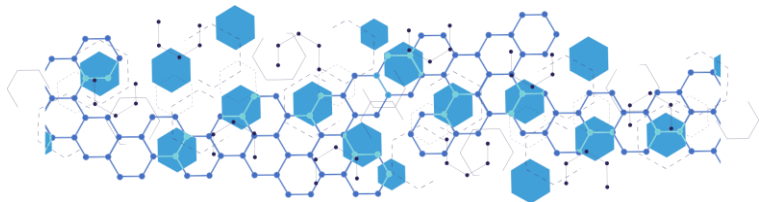|	
OC Project Title	AI applications for Real-time Charging Load Management
Benefiaciary(s)/Country	Local AI P.C., Greece
Project Description	The AI4RTC project addresses the challenges of electric vehicle (EV) charging load management by integrating 5G Standalone (5G-SA) connectivity with AI-driven forecasting and decision-making tools. By enabling ultra-low-latency communications between EV charging stations and load management systems, the project ensures real-time responsiveness and avoids power grid overloads. The Charging Network Analytics Platform (CNAP) developed within the project leverages AI algorithms to predict energy demand and automatically adjust charging profiles, enhancing both performance and reliability. *AI4RTC Connectivity Diagram*
Vertical	Infrastructure, Transportation, Security & Safety
Testbed	5TONIC testbed in Madrid, Spain
Implementation timeframe	May 1st, 2024, to April 30th, 2025
Results & Impact	AI4RTC has demonstrated a significant reduction in communication latency—down to 13–25 ms—across pilot sites by upgrading EV charging infrastructure with 5G-SA connectivity. This has enabled real-time command execution and improved energy distribution efficiency. The system showed zero load management failures in over 500 test runs, indicating high trustworthiness and system stability, while setting the groundwork for smarter, greener urban mobility ecosystems.

AI-PREMSET-MCX

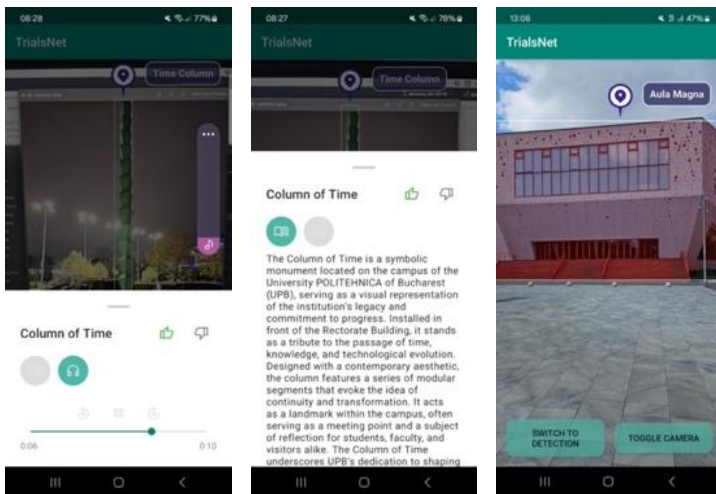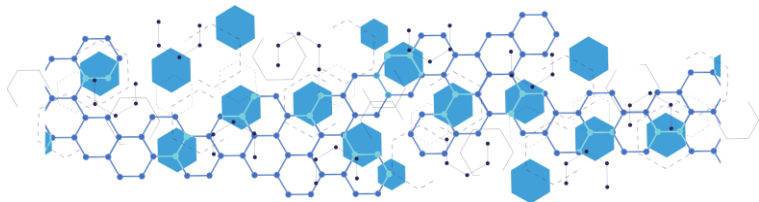|	
OC Project Title	(AI/ML-based Preventive and Reactive Emergency handling
Benefiaciary(s)/Country	Nemergent Solutions SL, Spain
Project Description	AI-PREMSET-MCX aims to enhance 3GPP-compliant Mission Critical Services (MCX) over 5G by applying AI/ML techniques to support both preventive and reactive emergency response strategies. Led by Nemergent Solutions and the European Emergency Number Association (EENA), the project develops dynamic optimization mechanisms for MCX across the 5G RAN and Core, leveraging data sources such as crime hotspot heatmaps, gNodeB locations, first responder movement predictions, and traffic demand simulations. By integrating these inputs into control loops powered by AI/ML, AI-PREMSET-MCX supports more efficient, adaptive, and context-aware mission-critical communications for public safety, with real-world testing focused at the Romanian TrialsNet site.
Vertical	Infrastructure, Transportation, Security & Safety
Testbed	Iasi, Romania
Implementation timeframe	May 1st, 2024, to April 30th, 2025
Results & Impact	The AI-PREMSET-MCX project has advanced the optimization of Mission Critical Services (MCX) over 5G by integrating AI/ML techniques into both preventive and reactive emergency management strategies. Through successful lab-based validations and the development of realistic mobility and radio simulations, the project has laid the groundwork for real-world trials in Romania, aiming to enhance responsiveness, reliability, and efficiency in public safety communications. Its innovation, grounded in open 3GPP-compliant architectures, offers a scalable, interoperable, and AI-enhanced framework poised to influence future deployments across public protection and disaster relief domains.

ATOS

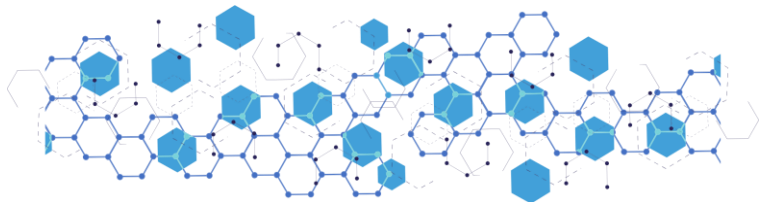| OC Project Title	Automated Tele-Operated Sustainable (ATOS) driving
Benefiaciary(s)/Country	TNO, The Netherlands
Project Description	The Automated Tele-operated Sustainable (ATOS) Driving project focuses on enabling safe and efficient vehicle teleoperation by leveraging Beyond 5G (B5G) network capabilities. It integrates teleoperation services with advanced orchestration and open APIs to dynamically adapt to changing network conditions in real-time. Through trials conducted at the DoIoT Fieldlab in the Netherlands, ATOS aims to validate reliable, low-latency communication and sustainable mobility solutions aligned with future 6G architectures. *Architecture of the experimental infrastructure*
Vertical	Infrastructure, Transportation, Security & Safety
Testbed	IMEC, Antwerp
Implementation timeframe	May 1st, 2024, to April 30th, 2025
Results & Impact	ATOS demonstrates the technical feasibility of B5G-enabled teleoperation through successful lab and field integration tests, meeting key latency and throughput targets. The project contributes to TrialsNet's innovation goals by introducing API-driven orchestration, energy-efficient service deployment, and showcasing teleoperation as a scalable, value-driven mobility solution.

Augumented Reality

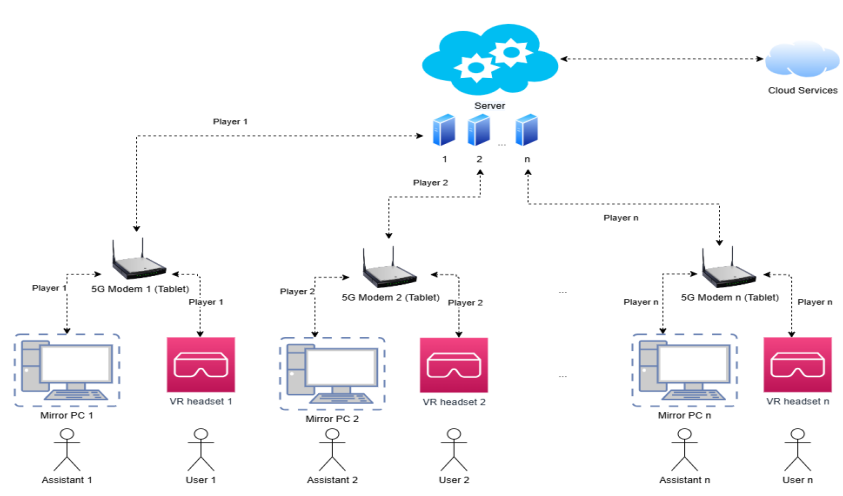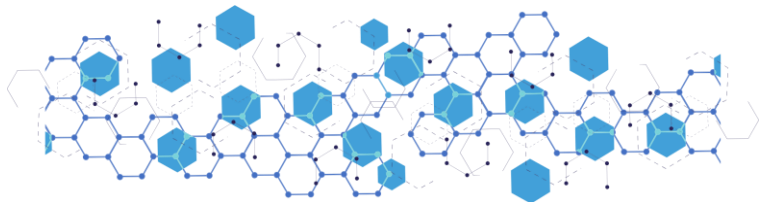| OC Project Title	Mobile Augmented Reality for Outdoor PoI Enrichment
Benefiaciary(s)/Country	SmartRDI, Romania
Project Description	This project integrates 5G/B5G, augmented reality, federated learning, and edge computing into a mobile Android app designed to enhance tourism experiences. By pointing a smartphone at a landmark, users receive real-time AR overlays with relevant information. Federated learning ensures privacy by keeping user data on the device while enabling personalization. The project showcases how 5G/B5G can support immersive, educational, and secure tourism applications.
Vertical	Tourism
Testbed	The app was tested using Orange Romania's 5G Lab infrastructure at the POLITEHNICA Bucharest campus. Edge computing was powered by a high-performance, low-latency HPE ProLiant DL360 Gen10 server.
Implementation timeframe	May 2024 – April 2025 (Design: May–June, Development: July–February, Evaluation: September–April)
Results & Impact	The project has demonstrated the potential of integrating 5G/B5G connectivity, edge computing, augmented reality, and federated learning into a mobile application aimed at enhancing the tourism experience. Trials confirmed the app's ability to deliver personalized, location-aware experiences with strong privacy guarantees. The federated learning component validated the viability of decentralized AI in mobile environments. Network testing showed low latency and high throughput, confirming the benefit of 5G/B5G in supporting advanced mobile services. The use case ultimately serves as a PoC for future AI-powered apps that combine privacy, personalization, and cutting-edge connectivity to deliver transformative user experiences.

Cities Without Barriers

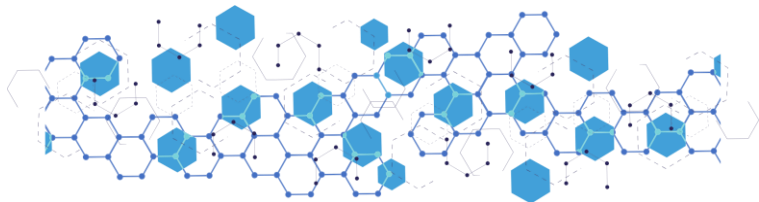|	
OC Project Title	Cities Without Barriers
Benefiaciary(s)/Country	Studio 5T / Italy
Project Description	The project aims to improve urban accessibility in Turin for individuals with disabilities by leveraging 5G, AI, and data-driven mapping technologies. It uses RGB cameras and smartphones to collect data on architectural barriers and urban infrastructure, processes it using AI for semantic analysis, and publishes the results for public and scientific use. The goal is to enhance mobility, safety, and inclusion through real-time accessible navigation systems and open data platforms.
Vertical	Infrastructure
Testbed	Turin
Implementation timeframe	01/05/2024 – 01/05/2025
Results & Impact	Social: Mapping of 500 km of urban routes to document accessibility, publication of an app supporting real-time navigation for reduced mobility users, and strong focus on citizen science and inclusive data sharing. Technological: Development of AI-driven semantic analysis of video data and integration with GIS platforms (ESRI, QGIS). User Engagement: At least 80 user feedback questionnaires collected from volunteers and app users. Policy alignment: Contributes to implementing the European Accessibility Act (Directive 2019/882) and smart inclusive urban mobility strategies.

CITY4ALL

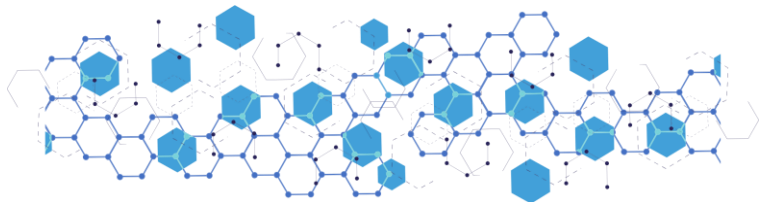| OC Project Title	CITY4ALL
Benefiaciary(s)/Country	EURIX SRL, Italy
Project Description	CITY4ALL is a TrialsNet use case that develops an immersive virtual reality (VR) experience to raise awareness among students and the general public about the daily challenges faced by individuals with disabilities. The VR game simulates scenarios involving visual, hearing, and mobility impairments, allowing users to experience and better understand the barriers faced in urban environments. Designed for deployment in schools, the game integrates AI tools and cloud-based services over 5G connectivity to deliver interactive, educational content tailored to promote inclusivity and social awareness. *VR Game setup: clients connected to VR services through a 5G network.*
Vertical	Security & Safety
Testbed	Turin
Implementation timeframe	May 1st, 2024, to April 30th, 2025
Results & Impact	CITY4ALL has demonstrated the feasibility of using VR and 5G networks to deliver impactful educational experiences on inclusivity and disability awareness. Despite challenges with 5G NSA performance, successful integration and field testing have validated the system's usability and educational value. Engaging over 80 students in schools in Turin, the project collects user feedback to refine game design and ensure a high level of acceptability, edutainment, and accessibility, contributing to broader societal impact and potential replication in educational and public outreach settings.

COMO5

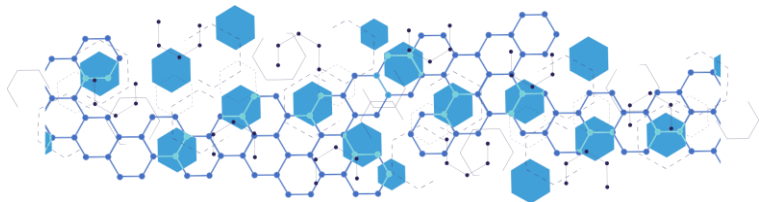| OC Project Title	COMO5: CONTINUOUS MONITORING OF PATIENTS WITH CHRONIC DISEASE VIA 5G
Benefiaciary(s)/Country	University of Pisa, Italy
Project Description	COMO5 considers a UC of patients affected by chronic diseases, specifically patients affected by chronic obstructive pulmonary disease (COPD), a progressive chronic lung disease. The goal is to assess the opportunity to improve the efficiency of their management via a new approach based on telemedicine. Patients' conditions are monitored continuously via a kit of unintrusive devices. Such devices are connected to the internet via a 5G connection, which is exploited on one side for real-time data transmission, on the other, to allow patients for live interaction with healthcare professionals, whenever it is required by their conditions. Data collected from each patient is transmitted to a data collection platform that stores and analyses the data to automatically assess the evolution of the disease. The platform offers a web interface for healthcare providers that can be used to monitor the data received and the results of the data analysis. Two different modes of operations are defined: stable and deteriorating. Patients in stable conditions have a stable outlook and the disease currently under control, instead, patients with deteriorating conditions are worsening and that requires a fine-grained collection of data, supported by the 5G network via dynamic reconfiguration, and, if requested by the patient or by the clinician, a live consultation to assess the overall condition remotely.
Vertical	The project considers a vertical in the area of telemedicine/smart medicine, which allows for data collection from patients, analysis of data and rapid communication between patients and clinicians.
Testbed	The testbed includes a patient's kit that comprises a smartphone, a smartwatch and a portable spirometer. The data collected by the devices are offloaded to a data collection platform that collects and analyzes the data, which is displayed to clinicians via a web interface.
Implementation timeframe	The system has been implemented completely, the trials on the field are currently ongoing.
Results & Impact	The project is expected to validate an implementation for a remote patient monitoring and assess such novel approach in order to assess its potential value from the point of view of patients and clinicians.

Connected Rails

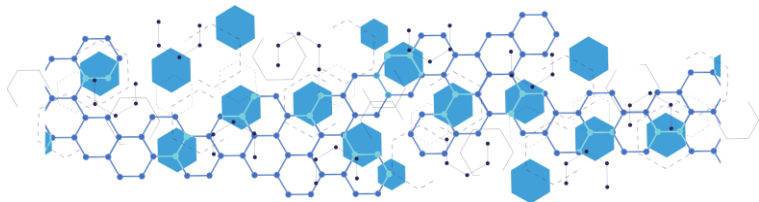| OC Project Title	Connected Rails
Benefiaciary(s)/Country	GTS Hitachi, Università di Siena, Universitat Politècnica de Catalunya
Project Description	The project relied on the installation of a tram (1013 in the Florence tramway system) of equipment (HW and SW) to achieve the following objectives: • Evaluate the performances of commercial best effort 5G services along the tramway line (T1) • Determine the tram position along the railway using the 5G signals freely available in the urban environment. The position reference (Ground truth measurement) is provided by a Hitachi Positioning system called NGAP which is able to measure the tram position with an accuracy lower than 1 m.
Vertical	Trasnportation
Testbed	Florence tramway, using tram 1013
Implementation timeframe	May 2024-April 2025
Results & Impact	The planned tests (iperf, ping) are now running on the tram 1013. Data are collected on daily base. Also, we are collecting logs from the 5G router used on board covering the 5G signals, radio network cells and the positioning (as this router has its own GPS). The analysis of data is in progress. Moreover, 5G signal acquisition for tram positioning has been collected by means of a software defined radio. Measures are currently processed to extract information about presence of gNB and the related signal strength. This data will be used to train an algorithm to predict tram position. Besides, the project has developed a local sandbox to enable deepening into the mechanisms to manage critical and non-critical applications sharing a computing platform as is the case onboard the tram. Different policies have been analysed based on Kubernetes, with the aid of Prometheus and Grafana.

DREAMPARK

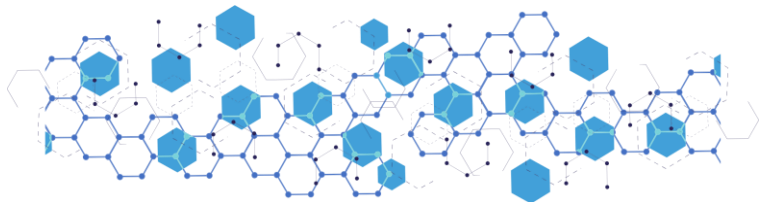|	
OC Project Title	DREAMPARK
Benefiaciary(s)/Country	AnotheReality, Italy
Project Description	The project aims to create an immersive and gamified experience of Valentino Park located in the city of Turin. The goal is to enable people who are not physically present in Valentino Park to enjoy, through various gamification elements, contents related to the physical places of the park.
Vertical	Culture, Tourism, Entertainment
Testbed	Reflectis (Anothereality's platform) is hosted on Microsoft Azure infrastructure and other cloud services (please refer to the mid-term report and other documentation for specific architecture details). The trials have been hosted on a commercial network using 5G routers, where we invited external users (mainly students from high school and university students) to test the experience.
Implementation timeframe	The project has been organized in several milestones. Briefly, the analysis and development phase took place from May 2024 to December 2024. Test, trials and deploy took place from January 2025 to April 2025.
Results & Impact	The trial took place in selected locations in Turin using the 5G network exclusively. The goal of the trial was to organize the users into two groups, in separate locations, to access the experience and interact with each other. We focused the trials on three events, starting from January to the end of March 2025. During these events, we collected data and questionnaires so that the application could be improved over various iterantions. During the closing event, users were be able to test the final version of the experience, which included the integration of feedback received from the previous trials. The collected data in relation to the collected questionnaires reveals how the users really enjoyed the experience and that a low latency experience is key for enabling immersive technologies such as XR experiences.

FOOTBALL STADIUM

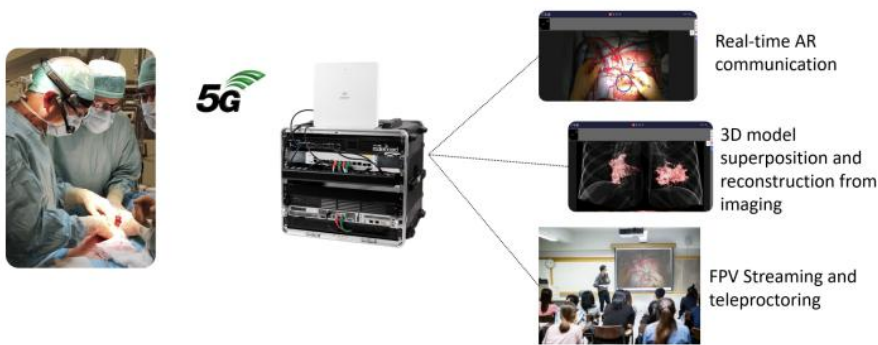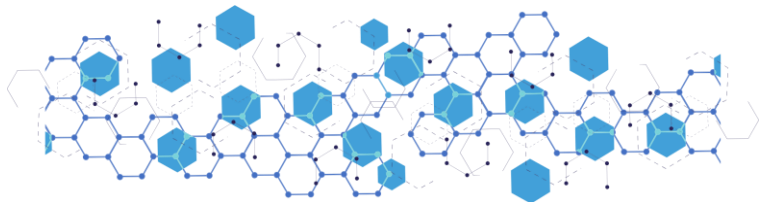| OC Project Title	Football Stadium
Benefiaciary(s)/Country	Israel
Project Description	The B5GFS project intends to make available to the TrialsNet consortium team and the SNS community critical real time data sets related to the Stadium B5G network including Key Performance Indicators (KPIs) and Key Value Indicators (KVIs) interrelated to large scale sports events (11,000 spectators) during the Israeli premier football league matches.
Vertical	Entertainment
Testbed	Israel
Implementation timeframe	01/05/2024 – 31/04/2025
Results & Impact	In Phase-1 of the project, large data sets of 32 real time parameters were recorded during a football match event with a large number of subscribers, and the data sets were uploaded to the Trialsnet Data Lake for further analysis and training of AI modules using real time data from a large-scale entertainment event. In Phase-2 of the project, a novel algorithm to measure the location of 5G user equipment (UE) was tested in the football stadium. The test results shown in the Figure-1 below shows an outstanding cm level accuracy of locating the UE in the stadium which represent a two order of magnitude improvement compared to the current state of the art (a few meters).

i-CNC

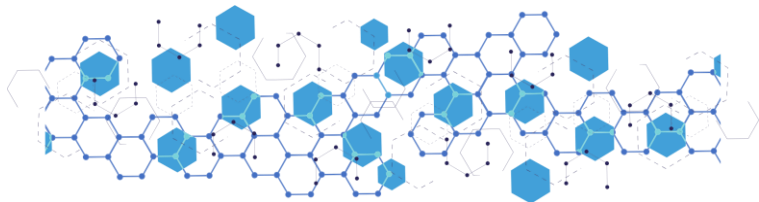| OC Project Title	Intelligent control of interconnected manufacturing infrastructures
Benefiaciary(s)/Country	CNC Solutions, Fogus Innovations & Services P.C., LMS/Univ. Patras, Greece
Project Description	The i-CNC project utilizes a commercial 5G infrastructure to deploy and test a cloud-based, and AI-enabled system that improves power efficiency and reduces scrap rate in a CNC machine shop. The system focuses on detecting the chattering phenomenon, a very unpredicted and challenging issue that occurs during the milling process.
Vertical	Manufacturing (CNC Machinery)
Testbed	The i-CNC system is developed on top of commercial 5G infrastructure and manufacturing monitoring systems deployed at the CNC Machine shop of CNC Solutions and the LMS laboratory at Patras. A central compute infrastructure located at FOGUS premises has been used to facilitate network interactions as well as to collect all the data produced.
Implementation timeframe	The project was divided into 2 development phases. One during the first half (M1- M6) of the project where equipment integrations and end-to-end connection between the different network components of the project were established. During the second half (M7-M12) the focus was on the development of the decision-making AI algorithm, the graphical interfaces and the data base.
Results & Impact	The results of the i-CNC project can be categorized into technical and societal impacts. From a technical perspective, a successful end-to-end communication process was achieved, linking the CNC machine with the AI assessment module via a 5G network. The KPIs measured across the application, algorithm, and network layers successfully met their target values. From application perspective, the average round-trip delay reached 140 ms, aligning with expectations. The algorithm also met its performance goals, achieving an accuracy of 95%, a precision of 90%, and an F1 score of 90%. At the network layer, the average round-trip delay was 75 ms, validating the target range of 50 to 100 ms. During a live demonstration of this process, a CNC operator was able to complete a cutting task while receiving real-time alerts on a nearby monitor indicating the presence of chatter. These accurate alerts helped the operator to decide when to stop the cutting process and avoid wasting raw material through a user-friendly GUI which was developed to display the chatter status for the operator. From a societal and environmental standpoint, the system reduced material and energy waste by detecting inefficient cutting early, thanks to 95% accuracy and 90% precision in chatter detection. Economically, the solution improved resource efficiency, cut operational costs by 4–6% per machine, and minimized downtime through fast, low-latency communication (50- 100 ms).

MediVision-5G

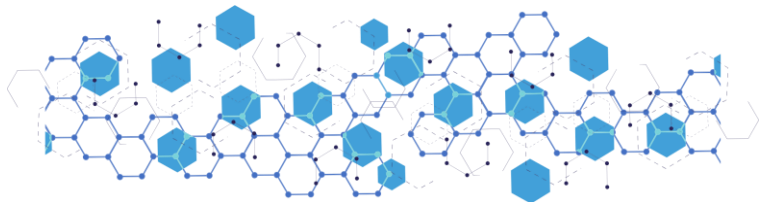| OC Project Title	MediVision-5G
Benefiaciary(s)/ Country	Neutroon Technologies S.L, Spain
Contact point (Name,email)	Matteo Grandi, matteo.grandi@neutroon.com
Project Description	MediVision5G aims to bring advanced connectivity and digital tools to the healthcare sector by deploying a private 5G-enabled platform tailored for clinical and engineering applications. The project focuses on five use cases, including teleproctoring, 3D image consultation, and real-time metrics for clinical engineering. It integrates edge computing and AR technologies to support surgeons and medical professionals with hands-free, high-performance tools in surgical environments, supported by automation, real-time data, and enhanced network performance.
Vertical	eHealth & Emergency
Testbed	Barcelona, Spain
Implementation timeframe	May 1, 2024, to April 30, 2025
Results & Impact	Initial lab trials have demonstrated successful deployment automation, reliable connectivity, and the feasibility of integrating AR applications into a 5G-enabled hospital setup. The system showed promising results in improving workflow efficiency and data-driven decision-making for clinical engineers. Several leading hospitals in Italy and Spain have shown formal interest in piloting the solution, underlining its potential to enhance surgical precision, operational efficiency, and future adoption of advanced medical devices across Europe.

MetaClinic

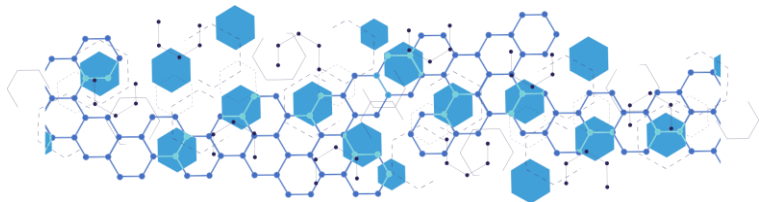| OC Project Title	MetaClinic
Benefiaciary(s)/ Country	NARA EGITIM TEKNOLOJILERI A.Ş., Turkey
Contact point (Name,email)	Burak Karaceylan, burakkaraceylan@nara.com.tr
Project Description	The MetaClinic project is developing a VR-enabled telemedicine platform that leverages 5G networks to enable immersive remote consultations and emergency support. It features clinician and patient VR clients, a real-time cloud-based backend, and a content management system for secure data exchange. The project emphasizes low-latency, high-throughput performance, and user-centric design to enhance healthcare accessibility and inclusivity.
Vertical	eHealth & Emergency
Testbed	Istanbul
Implementation timeframe	May 1, 2024, to April 30, 2025
Results & Impact	MetaClinic has successfully achieved key milestones, including stable VR interaction under lab conditions and seamless integration of VR elements with backend systems. The upcoming field trials will assess user satisfaction, system scalability, and performance under real-world conditions. The project contributes to TrialsNet's goals by demonstrating how 5G can enable advanced telemedicine services and improve healthcare delivery through innovative, immersive technologies.

MILESTONE

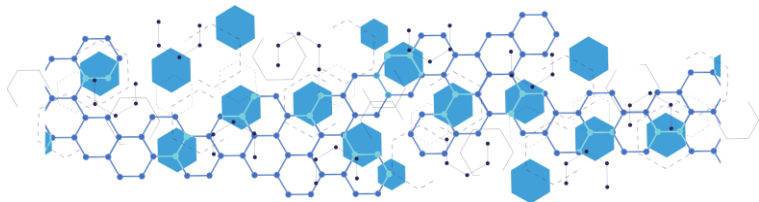| OC Project Title	A REAL-TIME AI-ENABLED WORKER SAFETY PRESERVATION SYSTEM
Benefiaciary(s)/Country	PLEGMA LABS (Greece), ExcID (Greece)
Project Description	MILESTONE couples 5G with computer vision AI models and secure access control and authorization mechanisms to offer a real-time safety monitoring solution specifically designed for public infrastructure environments.
Vertical	Security & Safety
Testbed	TrialsNet Greek Trial, Technopolis City of Athens
Implementation timeframe	May 2024 - April 2025
Results & Impact	The trial demonstration showcased the system's capabilities in terms of 1) real-time processing of large volumes of data for AI model inference through 5G, 2) Data authenticity assurance, and 3) Fine-grained, scalable access control, validating all the respective KPIs, such as round-trip latency, throughput, precision, and recall, achieving significant impact in terms of real-time public infrastructure monitoring and security.

Remember Ascari

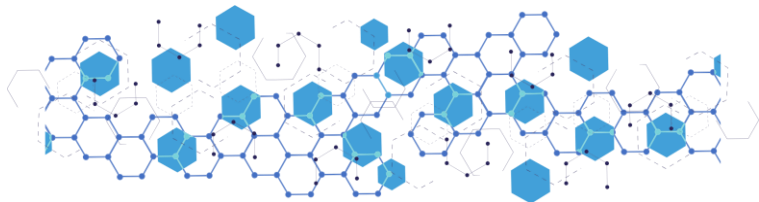|	
OC Project Title	Black Cats and Chequered Flags.
Benefiaciary(s)/ Country	
Project Description	Black Cats & Chequered Flags is an immersive, interactive VR and multiplayer Mixed Reality experience that brings to life the story of Italy's only two-time Formula 1 World Champion, Alberto Ascari. Through storyliving and MR pit stop action for four players, audiences relive his rise, his bond with his father, and the superstitions that shaped his fate—as if part of his team, and his destiny.
Vertical	Arts & Culture
Testbed	WINDTRE's commercial 5G network with public APN and dynamic IP, and deployed the experience at MAUTO with cloud-server communication across 4 meta quest 3 headsets.
Implementation timeframe	From March 13 to 16, 2025
Results & Impact	The trial aimed to evaluate the relationship between 5G network performance and the quality of user experience in a multiplayer Mixed Reality environment. From March 13 to 16, 2025, at MAUTO in Turin, over 100 participants—including school students and individuals over 65 years old. The experience required low data exchange but consistent low latency, which was achieved with average values under 25ms. During the entire trial period WINDTRE monitored the download and upload values, detecting a maximum usage of 32.77Mbps in download and 8.19Mbps in upload. The experience received highly positive feedback regarding engagement, technical quality, and storytelling. The audience appreciated the historical accuracy and emotional immersion provided by the combination of advanced technologies and interactive storytelling. The collected data confirm the initiative's success in several key areas, including user engagement, accessibility and usability, and educational and cultural value. 96% of users are willing to repeat the experience..

Remote Coordination

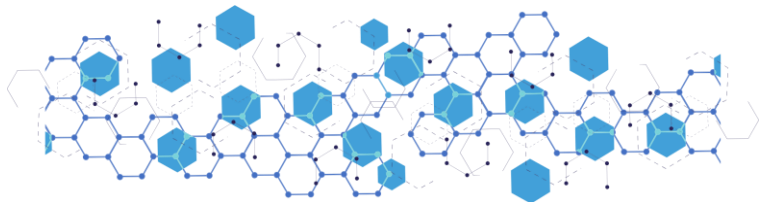|	
OC Project Title	Remote Coordination and Interworking of First Responders in Emergency Situations
Benefiaciary(s)/Country	Eviden / Spain
Project Description	The project is focused on enabling the remote coordination and interworking of different groups of first-responders (firefighters from the Community of Madrid along with the 5TONIC caretaker) by providing a complete 5G MCx solution, which will integrate a 5G-Advanced interworking function (IWF) designed to support the delivery of MCx over 5G and the interworking with legacy critical communication systems like PBX.
Vertical	eHealth & Emergency
Testbed	5Tonic Testbed at IMDEA Networks in Leganes, Madrid.
Implementation timeframe	The project has been implemented between May 2024 and April 2025. Its implementation has been split in four different phases: 1. Scoping (May 2024 – June 2024) 2. Development (July 2024 – December 2024) 3. Integration (January 2025 – February 2025) 4. Testing (March 2025 – April 2025).
Results & Impact	The project has successfully validated the MCx developments made by Eviden, enabling seamless communication between 5G and PBX technologies in an emergency situation, leading to achieve the targeted Key Performance Indicators (KPIs) in terms of throughput, latency and jittter. With respect to KVIs, Eviden distributed a questionnaire to participants involved in the demonstration, receiving an overall average rating of 4.5 out of 5. The subproject effectively confirmed that the entire solution offered an added value to first-responders by enhancing the technological capabilities (interworking, geolocation, video calls, group calls) for easing their actuation in emergency situation.

SkyLink Vision

OC Project Title	SkyLink Vision
Benefiaciary(s)/Country	Alpha Unmanned Systems, Spain.
Project Description	SkyLink Vision integrates 5G-enabled UAVs and AI-based video analysis to deliver real-time, high-precision aerial surveillance for applications such as public safety, emergency response, and law enforcement. The system offloads intensive computation from UAVs to ground/cloud-based platforms, preserving drone mobility while enabling license plate detection and target localization through real-time video feeds. It utilizes a Non-Public 5G Network (NPN) to ensure secure, low-latency, high-throughput communication among UAVs, ground control, and end-user systems. *Use Case Concept*
Vertical	Security
Testbed	5Tonic
Implementation timeframe	01/05/2024 – 30/4/2025
Results & Impact	SkyLink Vision has successfully completed initial development and lab testing of its key components, including video broadcasting, sensor data synchronization, and AI-based detection algorithms. The project lays a foundation for reliable UAV surveillance over 5G, demonstrating reduced environmental impact compared to manned alternatives and promising enhanced trustworthiness through secure, fast deployment. Upcoming field trials aim to validate the system's scalability, responsiveness, and effectiveness in real-world surveillance and safety scenarios.

Torino4U

OC Project Title	Torino4U: 10 things to see around you (aka T4U)
Benefiaciary(s)/Country	Stendhapp srl / Italy
Project Description	T4U builds upon the experience gained by Stendhapp in promoting Italian cultural heritage through a proprietary app dedicated to cultural tourism. The free, user-friendly mobile application, available on both the App Store and Play Store, provides access to over 71,000 points of interest across the entire national territory and suggests AI generated cultural itinerary based on user profile. T4U's vertical use case is developed in Turin, a UNESCO Creative City for Design, with the aim of engaging citizens and tourists through digital augmented reality content available at various locations throughout the city. Leveraging 5G technology, T4U offers an immersive experience, allowing users to discover, along the streets of the historic city center, eight digital twins of the eight design icons that have made Turin renowned on the international design scene.
Vertical	Culture
Testbed	Large scale field trials in Turin with general public using the commercial network for the experience
Implementation timeframe	Project start: May 2024 Project end: April 2025 Software development: June 2024 – November 2024 App Publishing: December 2024 Field trials: December 2024 - March 2025
Results & Impact	During the trials conducted in Turin, hundreds of individuals successfully downloaded and utilized the Stendhapp mobile application to view the digital twins of the eight design icons, thereby initiating a new, more engaging, and impactful method of accessing cultural content. Looking ahead, this project paves the way for extending the approach to additional territories across Italy, as well as expanding the range of AR models within Turin to encompass topics beyond design. More broadly, it contributes to making augmented reality content for cultural tourism accessible to anyone with a smartphone, offering an engaging and user-friendly experience

Turin5Games

OC Project Title	Turin5Games
Benefiaciary/ Country	Domethics/Italy
Project Description	Turin5Games aims at assessing user and technology related aspects of 5G Cloud Gaming. 5G Cloud Gaming is an innovative Gaming service where users can play games and immersive experiences including advanced edutainment scenarios running in the cloud infrastructure. Video and haptic feedback actuator controls are streamed in real time to the 5G user device. Interaction between player and game are managed over 5G networks with overall user experience broadly independent on user device processing power. The Turin5Games projects aims at investigating some key aspects for effective 5G Cloud Gaming solutions and addressing enabling elements to support possible wider adoption of Cloud Gaming by Telco operators and other Industry players in a cost effective and profitable way. Different trials have been carried out: public event at Le Gru Shopping mall (November); 5G load test with up to 25 parallel gaming sessions in the same indoor room (April); Training session at driving school (April). The aim was to verify the capacity of the 5G network to support the solution and to collect user experience and KVIs.
Vertical	Gaming, education
Testbed	The testbed integrates gaming devices (e.g. smartphones/controllers, AR glasses, projectors) connected with a cloud platform via a commercial 5G NSA network. KPI are collected with an integrated tool, KVIs are collected with an online user friendly tool. The service user experience is designed to provide a realistic environment for measuring KVIs.
Implementation timeframe	The testbed was implemented in September 2024 with trials running up to April 2025
Results & Impact	More than 900 questionnaires collected, allowing a large base to evaluate KVIs. Main KPIa are latency and streaming performance measured with throughput. KPIs show a good results in all main areas including the overall experience. In the "hot spot" indoor load stress test the 5G microcell network supported up to 27 concurrent sessions with progressive service degradation starting at 20 sessions. The experiment at the driving school demonstrated the potential high interest of students to learn from realistic game-based simulators, to support class lessons prior to practical driving lessons. Same high interest was demonstrated by schoolteachers. We regard the overall trial outcome as very valuable for substantially covering the Minimum Viable Product assessment and therefore reducing the potential Time To Market for a commercial exploitation. The opportunity for a start-up to commercialise the service is currently under evaluation.