



Using 5G technologies to innovate logistics and ports for a sustainable future

Vertical Innovations in Transport and Logistics over 5G experimentation facilities

Living Lab Koper

Living Lab Description

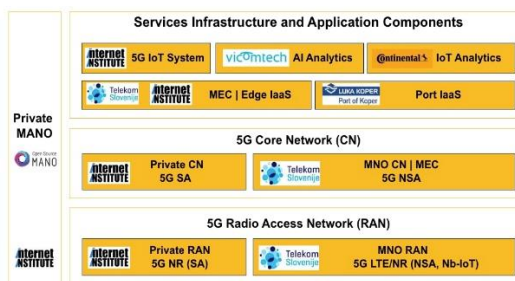
Living Lab Koper is located in the Port of Koper, one of the most dynamic ports in Europe and a front-runner of innovation. Five partners, LUKA KOPER, INTERNET INSTITUTE, TELEKOM SLOVENIJE, VICOMTECH and CONTINENTAL, are focusing on exploitation of applications and services that are based on 5G-assured Industry 4.0 scenarios and include use cases related to port control, logistics, remote automation and port security. To support the most advanced port logistic services, such as automation control of the container management system, a real-time and AI-powered video surveillance and 5G MEC components are deployed along with high-performance CCTV applications, such as body worn and drone-assisted video streaming, that can significantly benefit from low latency capabilities supported by the deployed 5G. A combination of private mobile services provided by the national MNO and on-site private 5G infrastructure enables demonstration and verification of various scenarios and 5G operational modes within a single European port environment.

5G Innovation

Living Lab Koper focuses on development and demonstration of novel 5G technologies targeting future European ports (e.g., cloud-native and MEC driven infrastructures, MANO-based services and network orchestration, Industrial IoT, vehicle telemetry, AI/ML based video analytics, drone-based security monitoring etc.) and cutting-edge prototypes tailored to the needs of port environment. The most demanding port logistic operational scenarios and mission-critical applications are supported through a combination of a national 5G NSA network extended with MEC mechanisms and a private 5G SA deployment. NFV-MANO is selected for orchestration as it provides means to efficiently provision, deploy and manage the life-cycle of the 5G network infrastructure and Industrial IoT services. Hybrid private-public 5G network operations enable verification of novel features, such as eMBB, mMTC and URLLC services, network slicing, NFVI and multi-1aaS scenarios operated in realistic port settings.



Port of Koper - Container Terminal



Living Lab Koper - 5G Architecture



Use Case Highlights

Mobile Network and Services Deployment Automation

Cloud-native and MANO assured automated deployment and life-cycle management of a private 5G SA network and Industrial IoT applications operated in a real port environment.



5G and IoT Assisted Port Control and Logistics Process Operations

Automated container identification process and detection of structural damages using AI/ML-based video processing and IoT-based port machines monitoring with remote telemetry support.



5G Mission Critical Communications for the Port

Enhancing port security operations with AI-enabled video analytics and drone-based video streaming over 5G providing real-time common operational picture for the security operations centre.



5G-LOGINNOV - Project Info

5G-LOGINNOV supports the new generation of 5G-CAD terminals, new type of IoT-5G connectivity devices through technical solutions, business models and priority scenarios by deploying new CAD and Logistics as a Service in real-life port-city areas. 5G-LOGINNOV's central innovation is to build a first-class European industrial supply side for 5G core technologies and new IoT-5G devices with global market footprints. The Project contributes to the emergence of global standards and globally harmonised frequency bands for 5G in the context of related developments at the level of global bodies like 3GPP, ITU and, being part of the third 5G PPP phase, it supports the development of a "lead" market involving cooperation models with key vertical sectors.

Project partners

ERTICO (Coordinator)
AKKA
CIRCLE
CONTINENTAL
ICCS
ICOOR
INTERNET INSTITUTE
LUKA KOPER
PCT
SWARCO
TEC4U
TELEKOM SLOVENIJE
T-SYSTEMS
VICOMTECH
VODAFONE INNOVUS

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