This project has received funding from the European Union’s H2020 research and innovation programme under Grant Agreement No 731993

LIVORNO (IT)

Lorenzo Pieri (AVR) – 24/09/2018
Overview of the Italian PS

- **Specific features:**
  - The testbed encompasses the area of the Port of Livorno and the Florence - Livorno highway.
  - IoT devices are deployed in the car and along the roads in both the Highway and the Urban Area.
  - 7 JEEP Renegade prototype vehicles are used: 2 connected and AD cars, 5 connected cars.
  - A connected bicycle prototype is also included in the loop.
  - The MONI.C.A.™ Port Monitoring Centre, Traffic Control Centre with DATEX-II node are integrated into the PS ICT infrastructure.

- **Use cases:**
  - **Highway Pilot:** road hazard events announced by IoT devices enable speed adaptation and lane change functions on the AD cars.
  - **Urban driving:** vulnerable road user are detected at traffic light intersection and trigger brakes on the AD cars.

- **Partners involved:**

---

**Supported by:**

IoT European Large-Scale Pilots Webinar 24 September 2018
Use Cases - Highway

• **Scenario:**
  – Livorno- Florence public highway

• **Target:**
  – Avoiding accidents in a real-world dense environment featuring 40,000 vehicles / day (heavy trucks 20%)

• **Tackling with:**
  – common events:
    • road works (poorly flagged in case of urgent works)
  – specific events:
    • rain water standings (Tuscany is rainy in autumn/spring)
Use Cases - Urban

- **Scenario:**
  - Port of Livorno maritime terminal

- **Target:**
  - Avoiding accidents in the embarkment area of the cruise and ferry terminals (2 million passengers/year)

- **Tackling with:**
  - urban-like typical events:
    - pedestrian traffic light violation
    - fallen cyclist in the intersection
    - pavement deformation
IoT components of the Italian PS

- **Devices**
  - Puddle IoT sensors (based on 6LowPAN and NB-IoT technologies),
  - Pothole detector,
  - Smart Trailer (announcing roadway works),
  - Road Side Units,
  - On Board Units (cars and bicycle),
  - Smart traffic light,
  - Smart camera.

- **Networks**
  - Port Wireless Backbone,
  - Highway Backbone (Tuscan Institutional Cabled Network),
  - ETSI G5,
  - NB-IoT/6LoWPAN,

- **Platforms**
  - Infrastructure OneM2M platform,
  - In-vehicle IoT platform.
The DENM interface will be used by AVR TCC to geolocalize and validate events exchanged between the devices and the cloud platform.
IoT final user services

- **Enabling:**
  - Port Monitoring by IoT functions for drivers and VRU safety

- **Validating:**
  - IoT detections as (DATEX-formatted) events flowing through TCC
Thank you