Panel III
The industrial Internet of Things: Self-Driving Vehicles
Giovanni Romano
Standard Coordination

The Way towards the Internet of Things: Open Standards vs Silos
Florence, 15/11/2019
LTE ecosystem: the force of numbers

End of 2Q 2019: nearly 4.7 billion LTE subscriptions Worldwide
Source GSA and Ovum:
https://gsacom.com/?s=5G+Forecast+%26+LTE+Subscriptions%3A+Ovum+Data+Q3+2019 Source of data – Ovum WCIS provided to GSA on 17 September

LTE NotSpots in August 2019
Source GSA:

Mobile subscriptions forecast in 2023
C-V2X: exploiting existing infrastructure

- Dedicated infrastructure
- Few hundred meters
- Coverage limited to highways

- Radius: several km
- Shared infra with commercial Networks
- Coverage also in secondary roads
3GPP C-V2X

Note: most of the use cases can be supported by communication via the network

- 3GPP defined radio solutions dedicated to C-V2X applications starting with Rel 14 (2017)
- LTE C-V2X and NR-C-V2X are two complementary radio interfaces, designed to address different use cases: basic safety (LTE) and advanced use cases (NR)
Cross-country and cross-operator scenario

```
Location: Torino
App
Geo Service
MEC Italy
```

```
Location: Vienna
App
Geo Service
MEC Austria
```

```
Location Munich
App
Geo Service
MEC Germany
```

```
S1U
Inter-App-NW (low latency?)
```
A structured Go to Market to drive the transition from the ‘trial phase’ to commercial

5GAA Conference
‘The 5G Path of Vehicle-to-Everything Communication: From Local to Global’
Torino, Museo Nazionale dell’Automobile, 14/11/2019
5GAA members Fiat Chrysler Automobiles (FCA), Audi, Continental, Magneti Marelli, TIM, Vodafone, Ericsson, Harman (Samsung) and Qualcomm who will showcase the current state of C-V2X and the future of 5G technology
**Demonstration**

Open Roads & Lingotto Test Track

### Open Roads Use Cases
Starting point: Piazzale Fratelli Ceirano, Turin

- **Demonstration | VRU at crosswalk with camera, VRU on the road (bike)**
  TIM, Turin City Council, Links Foundation, Luxoft

- **Demonstration | Urban Georeferenced Alert**
  Fiat Chrysler Automobiles (FCA), Links Foundation, Politecnico of Turin, SWARCO, TIM, Turin City Council, 5T

- **Demonstration | Forward Collision Warning (FCW), Intersection Movement Assist (IMA)**
  Fiat Chrysler Automobiles (FCA), Harman

- **Demonstration | Emergency Electronic Brake Light (EEBL), Stationary Vehicle Warning (SVW)**
  Fiat Chrysler Automobiles (FCA), Continental, Qualcomm

### Lingotto Test Track
Via Nizza 294, Turin

- **Demonstration | Sensor sharing, Event-triggered road info, VRU protection, Event-triggered data sharing with RTA**
  Audi, Ericsson, Italdesign, KTH, Pirelli, Qualcomm, TIM, Tobii

- **Demonstration | See-through**
  Fiat Chrysler Automobiles (FCA), Marelli, Vodafone, Vodafone Automotive
TESTFEST-results-presentation-workshop

Venue: ERTICO-ITS—Europe, Avenue Louise 326, 1050 BRUSSELS, Belgium
Tel: +32 (0)2 400 0700; Website: www.ertico.com

Date: 16 December 2019

Meeting objective: The purpose of the workshop is to present the results of the interoperability trials (remote TESTFEST) between pilot sites, the synergies with Synchronicity and also to discuss further actions after the LSP, i.e. in relationship with standardisation activities on IoT (e.g. OneM2M).

AGENDA

<table>
<thead>
<tr>
<th>TIME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 (10 mins)</td>
<td>Welcome and agenda</td>
</tr>
<tr>
<td>11:10 (20 mins)</td>
<td>AUTOPILOT-remote-TESTFEST-concept and preparation</td>
</tr>
<tr>
<td>11:30 (60 mins)</td>
<td>TESTFEST-results-per-pilot-site/test-pairing</td>
</tr>
<tr>
<td>12:30 (45 mins)</td>
<td>LUNCH</td>
</tr>
<tr>
<td>13:15 (30 mins)</td>
<td>TESTFEST-results-per-pilot-site/test-pairing--continued</td>
</tr>
<tr>
<td>13:45 (45 mins)</td>
<td>Visualization: parking and traffic data from selected pilot sites</td>
</tr>
<tr>
<td>14:30 (15 mins)</td>
<td>COFFEE BREAK</td>
</tr>
<tr>
<td>14:45 (45 mins)</td>
<td>Synergies with Synchronicity—Merging of data</td>
</tr>
<tr>
<td>15:30 (30 mins)</td>
<td>Conclusions and final remarks</td>
</tr>
</tbody>
</table>
THANK YOU

Giovanni.romano@telecomitalia.it