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Interreg Europe



European Union
European Regional
Development Fund

Improving urban mobility through self-driving vehicle

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The framework: the Interreg «MENTOR» project

The Interreg «MENTOR» project



Project duration: 29.11.2018 – 28.11.2021

Project budget: 1.164,75 € + 320.000 CHF

Goals

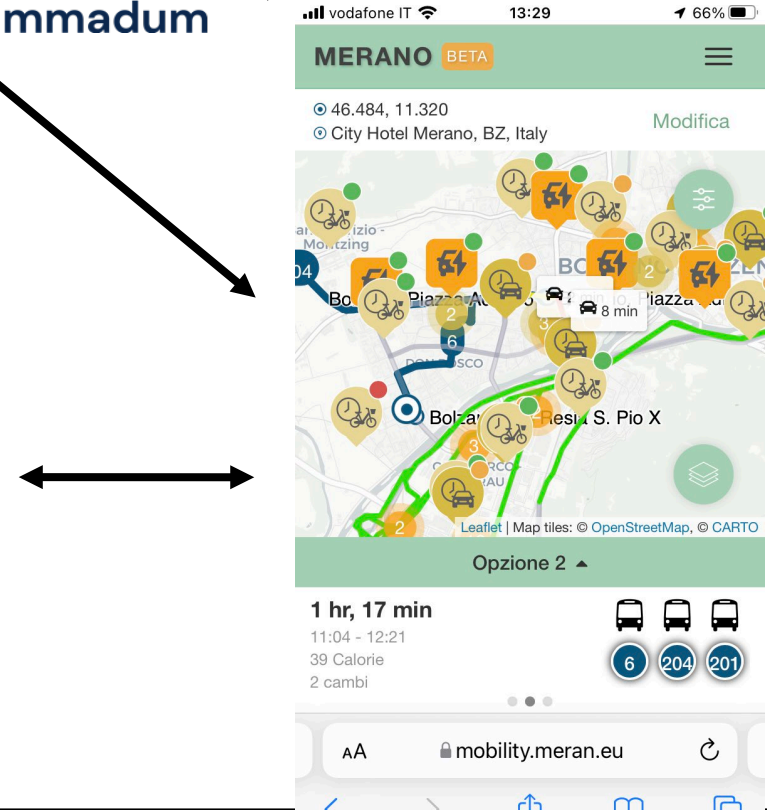
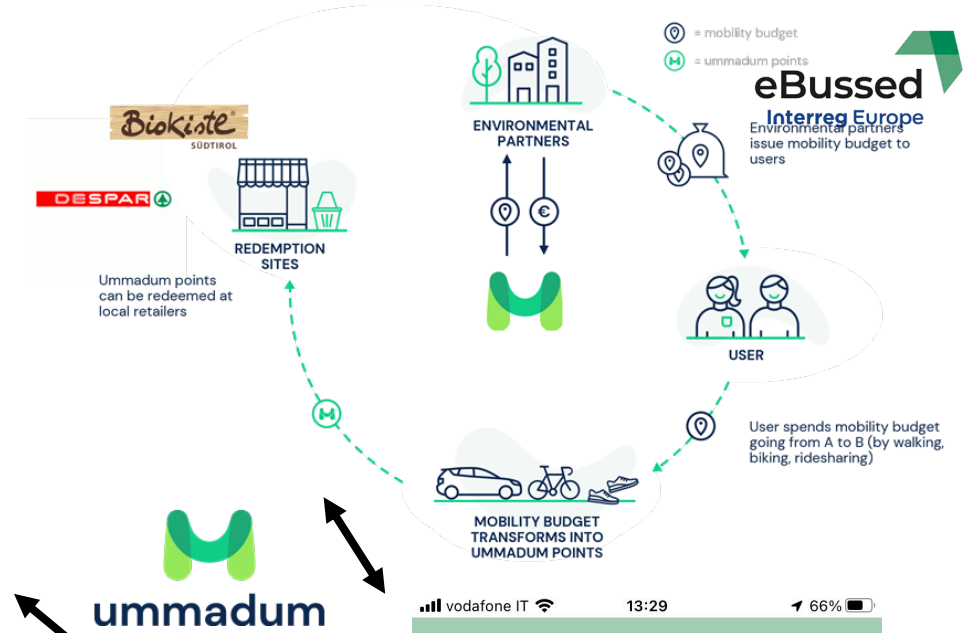
- Pilot **sharing mobility services** that are by design complementary with **public transportation**
- First local tests of comprehensive **MaaS** applications



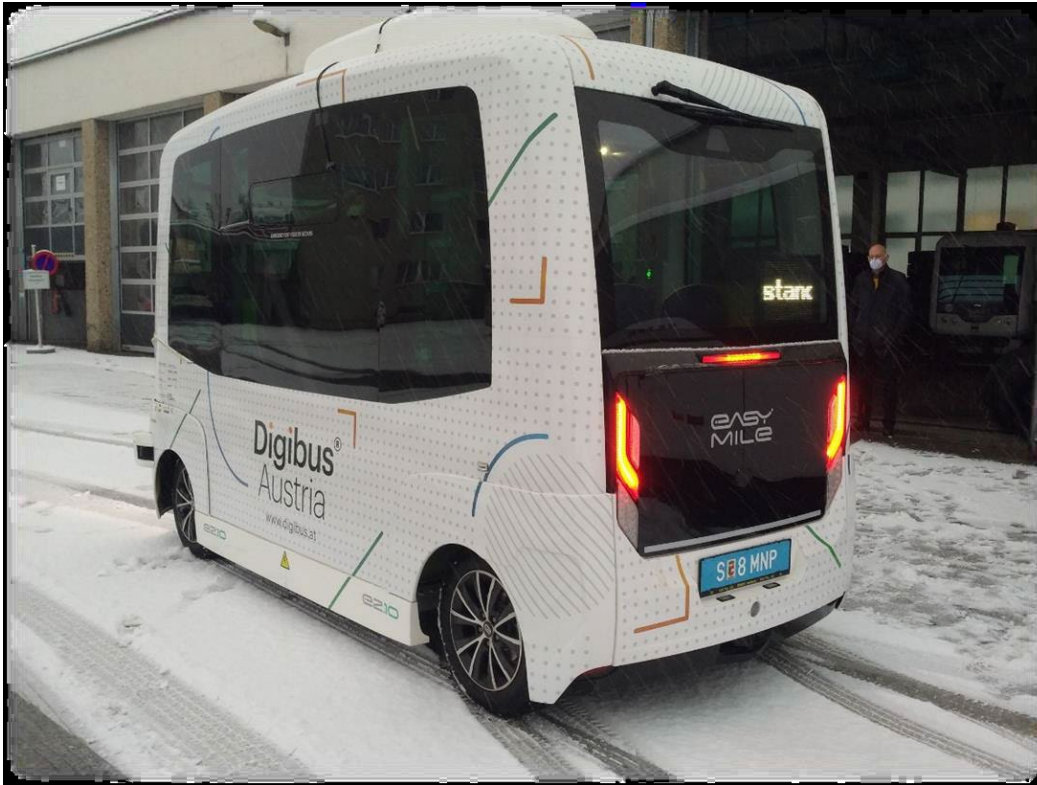
Merano (I), ~ 40k inhabitants



Brig-Glis (CH), ~ 13k inhabitants



Autonomous shuttle services: where are we?



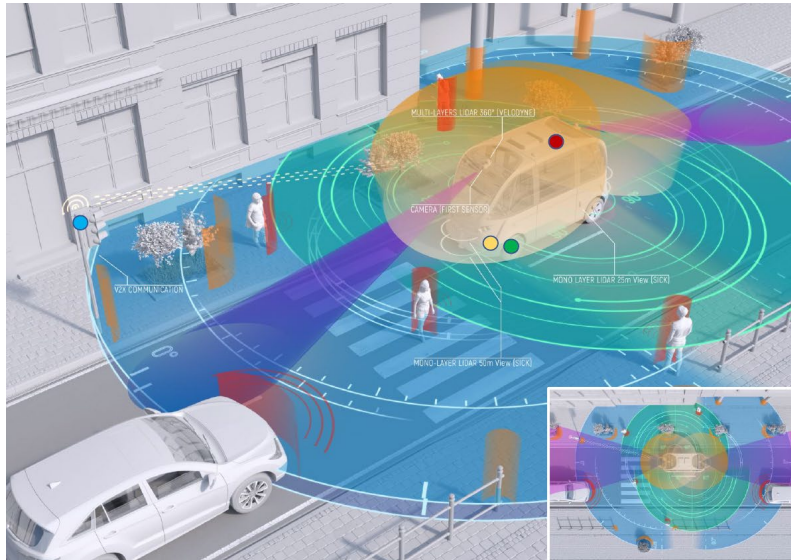
Source: Digibus project

- Electric autonomous (SAE-4) shuttles, first / last mile services
- Several pilot demonstrations on-going to advance the technological state-of-art, increase user acceptance and find viable business models
- Current technological challenges: increase of ODD, complex use cases (V2X), on-demand functionality, remote control

Presentation of the good practice

Objectives of the pilot

- Check the **maturity of the technology** for «basic» first/last mile services in an alpine environment
- **Demonstrate** a possible «on-demand» public transportation service of the future
- Evaluate the **acceptance level** of local users of autonomous vehicle technologies / services



IN-HOUSE ADVANCED
INTELLIGENCE SOFTWARE



COMBINED WITH OUR SPECIFIC
SENSORS ARCHITECTURE

- MULTI-LAYER LIDAR SENSOR
- MONO-LAYER LIDAR SENSOR
- CAMERAS
- ANTENNAE GNSS
- ODOMETRY SENSORS
- IMU UNIT
- V2X COMMUNICATION

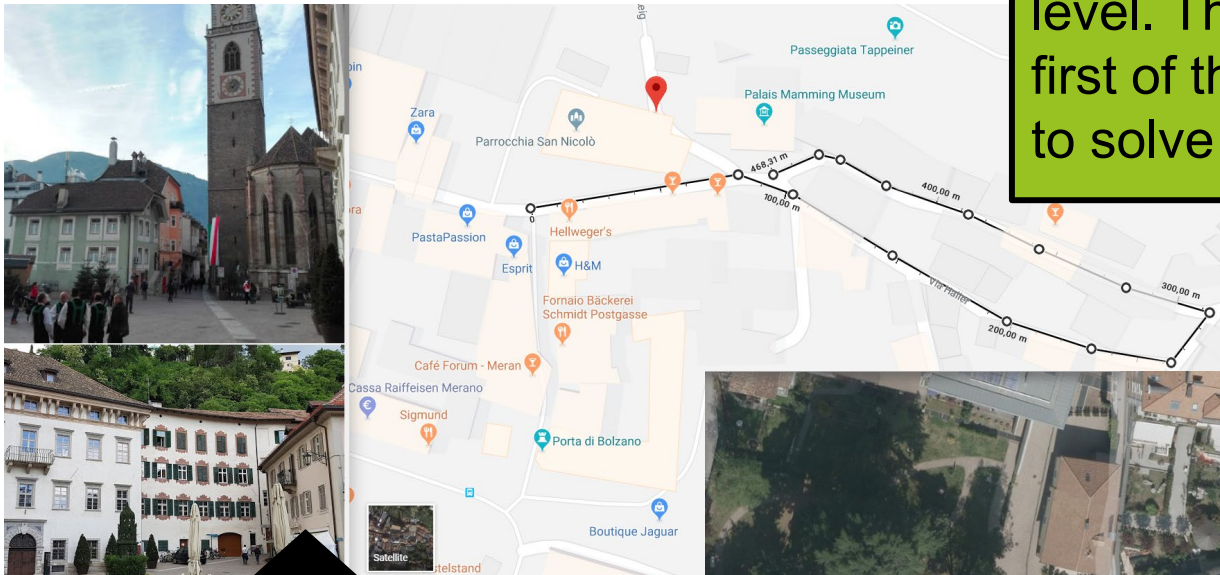
Supplier chosen for the demonstration:

- Navya (FRA)
- i-Mobility Garage (ITA)

Source: Navya

Route choice

At the time of the pilot, no legislative support at national level. The pilot execution (the first of this kind in Italy) helped to solve this gap



- Initial idea: longer test route, in mixed traffic
- Final choice: much smaller route, street closed for the demonstration

Additional organizational aspects

Vehicle charging and secure parking: at a depot of a local PTO (charging at night).
To be highlighted: transport of shuttle through a tow truck before and after the daily service execution!



Route mapping: in order to ensure the proper functioning, the vehicle needs to “study” the route in advance. This is carried out through a **high-resolution location system** → need of installation of a GNSS antenna on a nearby roof to ensure spatial accuracy in the order of [cm].

Very difficult to complete these operations due to many onlookers on the circuit (including journalists)!

Pilot demonstration (KPIs)



MERANO - 25 NOVEMBRE - 1 DICEMBRE 2019

7 GIORNI
in guida autonoma con lo Shuttle Navya

2624 PASSEGGERI
a bordo

375 TEST DRIVE
effettuati

75 CHILOMETRI
nel centro storico su un percorso autorizzato

Pilot demonstration (acceptance)



Interviews carried out before and after the test of the service

- 543 passengers (24.5% of the total passengers) + 220 “observing” people
- Main target group represented: > 50 years old (37%)
- Low trust level before the test: 45.1%
- Low trust level after the test: 5.1%

The pilot demonstration was fundamental to increase the trust towards the technology and new future mobility services, in particular by elderly people

Recommendations and next steps

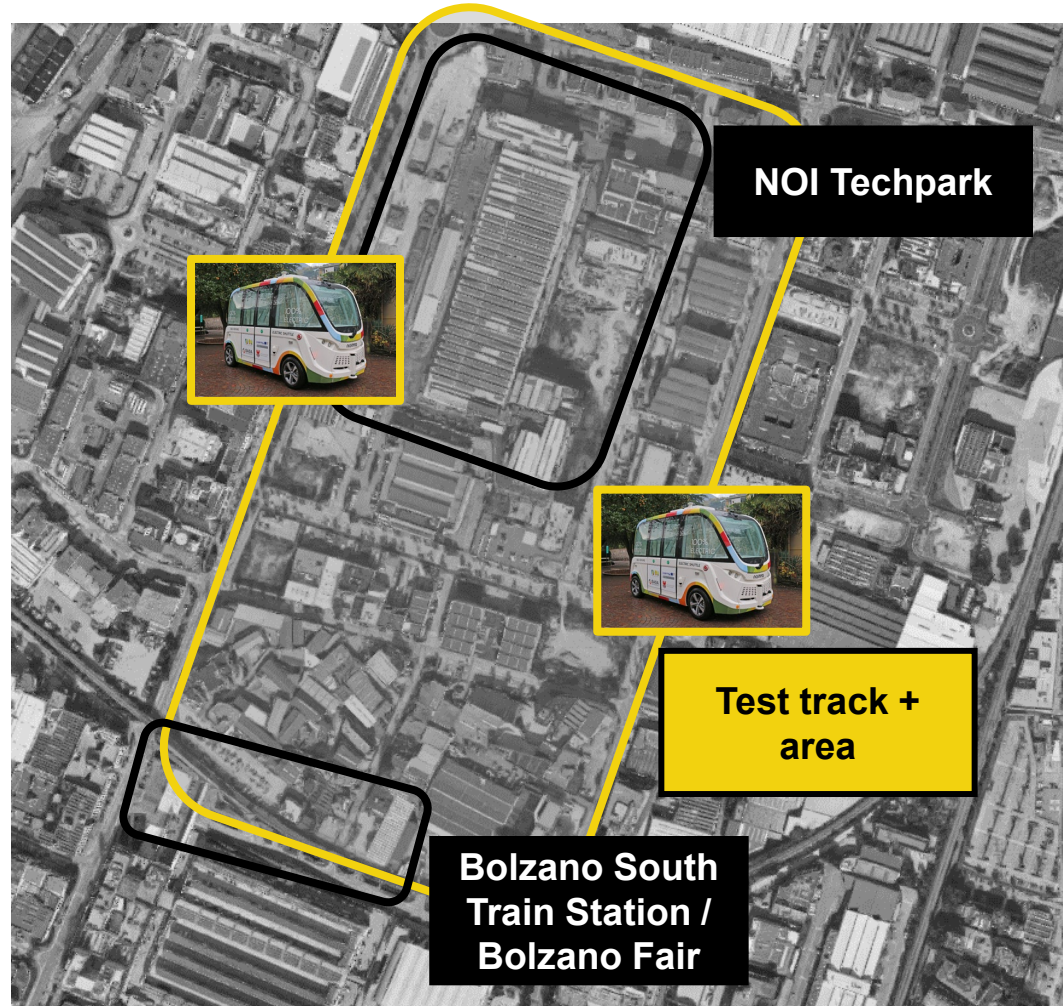
Lessons-learnt and recommendations for replication

- Autonomous shuttles are nearly **ready** to be used for very **specific and limited commercial mobility services**. The more challenging aspects are of **financial** and **organisational** nature. **Additional pilots** are needed in order to manage **more complex services** in challenging operating conditions

Once you plan a similar pilot, you should consider to:

- **clearly define and communicate the objectives of your trial**, and ensure to have the **right resources** to implement it. Our pilot had a cost of about 40 k€;
- **vehicle charging** is typically not an issue (could be carried at night), but ensure to have a **secure depot** near the test route – a cooperation with a PTO here is ideal;
- if necessary, activate and resolve all **legislative clarifications** in good time.
- be careful not to hinder **vehicle preparation activities** due to excessive **communication!**

Our next pilot project





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Thank you!

Questions welcome



Project smedia