SHOW 1st Concertation Workshop "Planning demonstration for fleets of Connected and Automated Vehicles"

Experiences from the FABULOS project

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1. FABULOS in a nutshell

- FABULOS = Future Automated Bus Urban Level Operation Systems
- 01.2018 - 03.2021, Horizon2020, Grant Agreement No. 780371
- Innovation procurement: 3-phased Pre-Commercial Procurement model
- Overall budget 7.7 million EUR, of which 5.4M€ for PCP (R&D budget for companies)
- 6 Procuring Partners (Helsinki, Tallinn, Gjesdal, Helmond, Lamia, PTO Porto), 1 technical partner (Metropolia UAS, Helsinki)
- Piloting Phase (April 2020 - February 2021): 3 competing commercial consortia; 2 pilots each

2. FABULOS Objectives

- Aim: to procure R&D for the operations of a turnkey automated shuttle service, to be achieved by a Pre-Commercial Procurement process.
- Method for public sector to buy R&D from several suppliers **in parallel**, to steer development of solutions to **meet their needs**. Suppliers **compete** through different phases of development.
- List of 9 functional specifications and 3 non-functional specifications. Highlights:
  - an off-the shelf service (one-stop-shop)…
  - that can operate **fleets** of autonomous shuttles in mixed traffic…
  - without a steward on board…
  - remotely operated from a control room…
  - driving regular speeds

3. FABULOS pilots / demonstrations

- Each of the 3 Suppliers has 2 pilots in different cities (to prove scalability)
- Dec. 2020: 4 field tests done, 2 in January & February 2021
- All field tests / pilots / demonstrations of the prototypes solutions:
  - 50 days
  - Mixed traffic conditions
  - Routes 2,5 - 4,5 km long
  - Passengers travel free of charge
  - "Fleet" of 2 or 3 vehicles
  - Last-mile service in urban area
  - Establishment of Remote Control Centre
  - Integration in existing public transport route planners

- All together so far: 6000+ km driven in mixed traffic and
- 2800+ passengers, despite COVID-19 (about 15% filled passenger survey)

FABULOS Field Testing Phase: 3 consortia

- S4 - Shotl Consortium: Sensible 4 (FIN) (GACHA shuttle / Toyota Proace), Shotl (ES)
  - Field test 1: April – June 2020: Helsinki (FI)
  - Field test 2: January - February 2021: Gjesdal (NO)
- Mobile Civitatem Consortium : Modern Mobility, Tallinn University of Technology, AuVe Tech (Iseauto shuttle) and Fleet Complete (EE)
  - Field test 1: July – August 2020: Tallinn (EE)
  - Field test 2: November - December 2020: Lamia (GR)
- Saga Consortium : Halogen, Mobility Forus and Ramboll Management Consulting (NOR) together with Spare Labs (CAN). Navya as subcontractor.
  - Field test 1: July – September 2020: Gjesdal (NO)
  - Field test 2: January - February 2021: Helmond (NL)

4. Lessons learned in relation to planning the pilots (1/3)

- Legal: Make sure you get to know all ins and outs of the permission process in your country. Rules may vary from pilot to pilot in one country, depending on vehicle and route. Get to know the people at the Road Authorities. Reserve plenty of time & budget. Examples of unexpected surprises:
  - Norway: “drive 250 hours without passengers”
  - Netherlands: Road Admin invoices their work!; Positive EMC tests from other countries not accepted; 2 supporting vehicles during commissioning needed; additional onboard “host” required so that steward is not distracted.

4. Lessons learned in relation to planning the pilots (2/3)

- Stakeholders: before start pilot, organise a training for the emergency services. Fire department and police go through a learning process on AVs too. Explain about energy systems, safety systems, communication systems and vehicle construction. FABULOS can share list of 40 questions that “our” emergency services have provided.
- Stakeholders: try to have your demo’s remote control centre situated at existing traffic management centre for an optimal mutual learning process.

4. Lessons learned in relation to planning the pilots (3/3)

- Storage: preferably indoors, but parking garages often too low ceilings or too steep ramps. Investigate before deciding on route.
- Route: always keep a route option B and C at hand. Unexpected road works have a nasty habit of popping up.
- Speeds: don't settle too easily for the 18km/h that is often the limit. In FI & NO: 30 km/h is allowed (for certain vehicles). Helsinki pilot max. speed 28 km/h
- Integration with existing routeplanners: conventional travel planners are sometimes not adapted to flexible travel systems. Even in case of real-time data they need fixed schedules / routes. Complexity is added by different data formats and owners. Lesson: involve your PTO/PTA early on!

5. Best practices / recommendations

- Get help! In relation to permission processes: hire specific external expertise and/or seek help from cities *in your country* that have had pilots before.
- Read existing materials; use reports / outcomes / lessons of other projects. For example "Starting your own pilot - an implementation toolbox for cities" by Sohjoa Baltic project (Interreg 2018-2020) https://www.sohjoabaltic.eu/wp-content/uploads/2020/09/Starting-Your-Own-Pilot-1.pdf
- Be ambitious. Push "the market": they should provide what cities really need! Push the national Road Authorities: they should enable cities to test innovations in real-life circumstances!

6. Fostering dialogue / advice on concertation

- Quarterly webinars by all ongoing EU-funded projects involving shuttle pilots. Each time other project organises; different themes.
- Join FABULOS final conference on 18.2.2021. Link to info & registration: https://fabulos.eu/fabulos_final_conference_2021/


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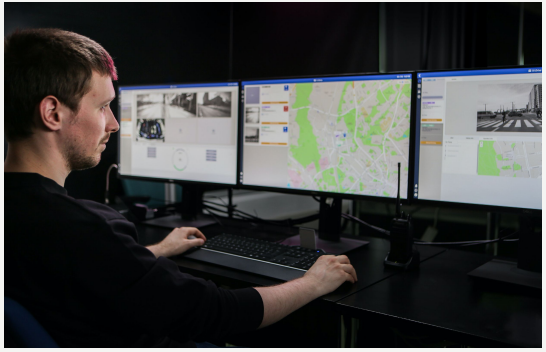


Boarding
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