









Vicent Pastor







SMEs and Mobility Service providers

- HARMONY creates the opportunity for **mobility service providers, start-ups and transport authorities to co-develop, demonstrate and evaluate new mobility services** based on technological advancements (AV, EV, UAM).
- HARMONY MS will provide the capability to evaluate proposed services in a holistic way that can
 objectively demonstrate their advantages and quantify their short and long-term effects on the
 transport network.
- GRIFF had certified drones, so far they were able to demonstrate them in operational
 environments only in Asia. AIRBUS that had developed an unmanned traffic management
 system that had been validated only in Singapore. Within HARMONY, they will have the
 opportunity to customise this system taking into account the EU legislations for air-traffic.
- HARMONY investigates appropriate business models for new mobility services and will deliver recommendations about their usage.



Industrial partners in Harmony

3

Multimodal OEMs

2

Transportation software companies

2

Mobility consultancy companies



SMEs and mobility service providers in HARMONY

Multimodal OEMs







Transportation software companies



Mobility consultancy companies





SMEs and Mobility Service providers in Harmony

- <u>Multimodal OEMs</u> (AIRB, ARR, GRIFF) manufacturing the new generation of vehicles, such as electric, connected and autonomous vehicles (bus, car, pods), electric drones and flying taxis.
- <u>Transportation software companies</u> (AIMS, MOBY) providing tools for modelling and evaluating the operations of the land-network and traffic and their impact on sustainability, as well as state-of-the-art solutions to collect detailed data about travel patterns and activities.
- Mobility consultancy companies (TRT, ENIDE) focusing on support and provision of commercial services in the spatial and transport planning sector, including the provision of aggregate and disaggregate spatial and transport models to support local-, regional-, national and cross-border and TEN-T-related decision making and policies formulation; the development of spatial and transport long-term strategies and SUMPs, business cases and business models development for attracting investments.





Challenges Solution Products Summary

Our Mission

Make electric vehicles mainstream

The world is changing, and we are not waiting to become part of its foundation.





Role in HARMONY

Technology company providing autonomous vehicles for the demonstrations in Oxford & Rotterdam









Role in HARMONY

- GRIFF Aviation will be offering to fly 5 heavy lifting UAVs on the test site.
- Together with Airbus we will appear on their UTM software.
- This can in the future go into Eurocontrol for safe operation in the air over Europe

Airbus Fortion®1Sky UTM -Capabilities:

Aeronautical Data Management

Dynamic Airspace Management

Route Planning, Scheduling & Optimization

Flight Plan / 4D-Trajectory Management

eRegistration & Fleet Management

Multi-Sensor Fusion feed into Real-Time Air Picture

Automated Track-Generation Tracking & Monitoring

Weather Data Management







AIRBUS



Role in HARMONY

- Providing an air traffic management solution
- Aiming at maximum safety in unmanned air traffic
- Connecting the traffic and transport system to air transport services (GRIFF Aviation)
- Coordinating drone flights according to customer transport needs
- Providing interfaces towards ATM (Air Traffic Management) and ATC (Air Traffic Control)



DEFENCE AND SPACE

Steps within HARMONY - Demonstration Preparation

Aim of the flight operation(s): Demonstration of usage of drones in urban areas

- 1. Agree with OCC (Oxford City Council) on appropriate use cases
- 2. Define the appropriate approach to the conduct of the flight demonstration together with the competent authorities (OCC, CAA, NATS, Eurocontrol, ...)
 - a. Agree on the way of operation (incl. safety and security measures)
 - b. Agree on the aeronautical data set
 - c. Agree on the airspace usage
- 3. Define an interface from the UTM-system to receive transport requests out of the smart city transport system
- 4. Finalise the interface between the UTM-System and the drone from GRIFF

Overall:

Working to connect or partly integrate aviation (standards) with/into the smart city (model)







Shaping a new mobility era: key take-aways

- Harmony sets a benchmark for public-private cooperation in Spatial and Transport planning.
- SMEs and Mobility service providers must work hand in hand with policy makers to help them understand the benefits of the latest Mobility technologies such as (AV, EV, UAM).
- A more digital, sustainable and inclusive mobility era will require a
 multimodal approach that considers the cooperation of all stakeholders
 involved in the transportation ecosystem (railway, road, air, etc.).
- We **encourage ERCI & Railgrup members** to **engage** with **Harmony** initiative and **other European cooperation programmes** such as Horizon Europe.

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Thank you!

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