



Doctoral Thesis Title: Analysis for the development and implementation of a Unmanned Services Provider (USP) in the metropolitan area of Valencia

Supervisor/s: PhD. Israel Quintanilla García
PhD. Áurea Cecilia Gallego Salguero

Abstract:

The unmanned aerial vehicle industry has seen a big growth in the number of aircraft manufactured and in the number of drone's applications. The increase in unmanned aircraft traffic requires of management tools that can support new air operations while maintain nowadays safety levels.

Therefore, the thesis subject we propose is the development of a U-Space service provider in the metropolitan area of Valencia. First with a compilation of the international agreements and requirements of a Unmanned Services Provider (USP) in order to set up the roots of its development.

In this way, it is intended to offer an initial solution to a USP model in line with European research lines related to unmanned air traffic management (UTM) and its integration with manned air traffic (UTM / ATM).

Available Means:

I. Equipment:

a. Unmanned aircrafts:

- i. DJI F450 (2 aircrafts)
- ii. DJI Mavic 2 ENTERPRISE (4 aircrafts)
- iii. DJI Mavic AIR 2 (1 aircraft)
- iv. DJI Mavic Mini (1 aircraft)
- v. DJI Phantom 1 (2 aircrafts)
- vi. DJI Matrice 300 RTK (1 aircraft)
- vii. Magister V1 (1 aircraft)
- viii. Magister V2 (1 aircraft)
- ix. Cheerson CX 20 (2 aircrafts)

b. Software:

- i. ArcGIS
- ii. AutoCAD
- iii. TcpMDT

II. Associated projects:

- a. **BUBBLES™** Defining the BUilding Basic BLocks for a U-Space SEparation Management Service (H2020-EU.3.4.7. - SESAR JU)



- b. **DELOREAN™** Drones and Egnss for LOw aiRspacE urbAN mobility (H2020-EU.2.1.6.3. - Enabling exploitation of space data)
- c. Uso de Drones para el transporte de material de emergencias, medicamentos y muestras de laboratorios (DOGV DECRET 63/2020 [2020/3509])
- III. Collaboration:
 - a. Agencia Valenciana de Seguridad y Respuesta a las Emergencias (AVSRE)
- IV. Financing:
 - a. Related to associated projects

References:

CORUS Consortium. (2019). *U-Space Concept of Operations - Reference Manual*. Retrieved from [https://www.sesarju.eu/sites/default/files/documents/u-space/CORUS ConOps vol2.pdf](https://www.sesarju.eu/sites/default/files/documents/u-space/CORUS_ConOps_vol2.pdf)

Legros, L., Garrity, R., & Hately, A. (2019). *Initial view on Principles for the U-space architecture*. Retrieved from [https://www.sesarju.eu/sites/default/files/documents/u-space/SESAR principles for U-space architecture.pdf](https://www.sesarju.eu/sites/default/files/documents/u-space/SESAR_principles_for_U-space_architecture.pdf)

SESAR Joint Undertaking. (2016). *European Drones Outlook Study. Unlocking the value for Europe*. Retrieved 1 October 2020 from https://www.sesarju.eu/sites/default/files/documents/reports/European_Drones_Outlook_Study_2016.pdf

SESAR Joint Undertaking. (2017a). *Supporting safe and secure drone operations in Europe*. Retrieved 1 October 2020 from Luxemburgo: 10.2829/952777

SESAR Joint Undertaking. (2017b). *U-space blueprint*. Retrieved from Luxemburgo: 10.2829/614891

SESAR Joint Undertaking. (2018). *European ATM Master Plan: Roadmap for the safe integration of drones into all classes of airspace*. Retrieved 1 October 2020 from [https://www.sesarju.eu/sites/default/files/documents/reports/European ATM Master Plan Drone roadmap.pdf](https://www.sesarju.eu/sites/default/files/documents/reports/European_ATM_Master_Plan_Drone_roadmap.pdf)