ENABLING LARGE-SCALE DRONE OPERATIONS IN SPAIN

indra

2021 has been a key year for the U-space. The EASA Committee published last 22 April, the Commission's Implementing Regulation of the Regulatory Framework for U-Space. Most of the European countries are getting ready to have their U-space systems up and running for 2023, when the regulation enters into force. This is a great step for the drone industry and will contribute to open European skies to new actors, transforming the world of aviation as we know it.

In this context, the Spanish air navigation service provider, ENAIRE, has entrusted Indra in a public tender with the deployment of its U-space system in Spain, which will cover all drone operations in national territory, in an ambitious project that will open up the Spanish airspace to all U-space users.

Indra will contribute, together with ENAIRE, to the early development of a completely new sector, with a system which is the first 'second generation' U-space systems to be deployed in Europe, compliant with the regulation from the design phase.

The system includes both CISP (Common Information Service Provider) and USSP (U-space Service provider) platforms, enabling a federated architecture since the first operational phases of the project. This U-space system will follow the 'single CIS Provider' architecture from U-space regulation, being ENAIRE a pioneer in Europe with the role of the Common Information Service Provider, becoming not only a national but also an international reference.

The CISP acts as the single point of truth of the U-space environment, providing a complete view of the airspace and applicable rules. Besides, it provides critical services, as flight plan authorisations by the competent authorities, integration with current ATM system or integration with other ENAIRE's AIS and operational systems, as ICARO or INSIGNIA. It will also allow the connection of privileged users to exercise their responsibilities towards the services.

The second component of the platform is the USSP. A solution to which the drones operators are connected to plan and validate their operations, request U-space flight authorisation and monitor in real time their flights. USSP will receive from the CISP all airspace information necessary to provide a complete situational awareness to their operators and pilots users

ensuring the safety of these new UAS operations and those already existent in the current airspace.

A full set of validation campaigns over the complete system and interface with ATC is established to guarantee the performance and allow for an earlier entrance of the services. The Spanish NSA, AESA, will supervise the full process for a better understanding of the functionalities, architecture and services with a view on the certification of ENAIRE primarily as CISP.

The platform will be ready for operational deployment before the entry into force of the new regulation in January 2023. The project can be extended other 24 months.

The project is divided in two main phases:

- Phase I: with a delivery early 2022, in which a first version of CISP and USSP will be deployed and it will allow the validation of the different drone operations and start the certification process.

- Phase II: a new version of the system will be ready in 2023, fully compliant with the regulation and with the possibility of adding new USSPs that will connect with ENAIRE 's CISP. With this approach, the competitive market of U-space service providers will be open in Spain in 2023.

The platform will be highly digitalised and automated, which will provide each user with agile and secure access to the U-space. "The perfect integration of the different components from its design", ENAIRE's U-space Project Manager explains, "as well as the careful distribution of functions among them, is one of the factors that have made this U-space platform one of the most sophisticated".

Indra and ENAIRE will contribute to the growth of a market that will benefit both U-space users and society as a whole. Through this system, drone operations will grow exponentially ensuring a safe integration into the airspace with current conventional operations managed by air navigation services and will be a first and necessary step in the development of Urban Air Mobility.

INDRA AIR DRONES SOLUTIONS

Indra, as one of the most innovative companies in the world, is transforming the aviation as we know it. With this purpose, Indra has a complete portfolio of UTM/U-space solutions that can give answer to the more demanding needs of the customers worldwide.

Indra UTM Hub: is the FIMS/CIS solution developed by Indra. Its flexible design allows customisable service deployment to meet your needs. UTM market and regulations are constantly evolving, and the flexibility of our system makes possible a smooth adaptation to new challenges. This cloud-based platform can provide different services depending on the customer needs, including: Geo-awareness and Drone Aeronautical Information Management service, Registry and Users Management service, Tracking and Network Id services, Emergency management alerts, etc.

This solution is complemented with the UTM Connect platform that is the USSP multiplatform developed by Indra.

Indra UTM Connect: the UTM Connect platform, oriented to drone operators and pilots, provides end-to-end services needed for the safety management of drone operations during the pre-flight, in-flight and post-flight phases. This platform is available as a web service and through a mobile app with a full "APIfied" design to simplify integration with other systems or applications enabling multiple drone operations. This platform cloud-based can provide different services depending on the customer needs, including: Flight Planning and UAS Flight Authorization service (including the Strategic Deconfliction service), Geo-awareness, Registry and Users Management service (including crew and fleet management), Tracking and Network Id services, Conformance and Tactical conflict management services, Emergency Management service.

Indra ARMS C-UAS system: Indra's ARMS is a simple, flexible and scalable solution that provides the most advanced tools to combat UAS threats. From micro drones (i.e. DJI Phantom family) to large UAS, Indra's ARMS manages to take a step forward in the detection of these devices, surpassing the surveillance capability of traditional services. This system integrates a wide variety of high-tech detection and identification sensors. This solution integrated with the rest of Indra´s UTM platforms is able to clearly distinguish between possible hazardous UAS operations and those UAS operating in a cooperative way.

UTM/ATM interface: Indra, as an experienced company in ATM solutions, is leading the definition of UTM/U-space and ATM interface, having integrated already UTM Hub with several of Indra Air Automation solutions. This interface will discriminate which information is relevant to air traffic controllers avoiding to overload them when the UAS traffic increases in the near future. Among the information that may be shared by UTM are the drone tracks with their alerts.

Indra´s proven trajectory in developing, deploying and evolving ATM systems, combined with our state-of-the-art UTM Hub platform (the U-space FIMS/CIS) represents the best choice to unleash the potential of drone applications and open new skies for commercial exploitation.

Indra Air Drones, solutions to the demanding needs of the UTM