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ENABLE RPAS INSERTION IN CONTROLLED AIRSPACE (ERICA)

The ERICA project has the main objective to define the operational and technical capabilities that will allow Remotely Piloted Aircraft System (RPAS) to operate in controlled airspace safely, during nominal and emergency conditions. In particular, ERICA aims at providing the basis for defining, developing, and validating the key operational and technological enablers that are necessary to assure the proper insertion of RPAS into non-segregated airspace.

The objective will be pursued in several steps, starting from the development and validation of a Detect And Avoid (DAA) system for safer operations by preventing collisions. Then, the project activities will cover two timeframes, the first one for the accommodation of the initial RPAS demand in the short/medium term, establishing harmonized procedures across low/medium density and low/medium complexity European airspace. The second timeframe will address the full integration of civil and military RPAS, in the longer term, enabling their deployment in a cooperative environment in full integration with the manned aviation.

Coordinated by Leonardo, the consortium involves 20 beneficiaries from 18 countries across Europe.

By paving the way to RPAS insertion in controlled airspace, the project supports the development of recognised European RPAS operations in non-segregated airspace, also enabling civil and military RPAS, in particular fixed wing platforms, to operate mixed with manned traffic under the Single European Sky. These activities also contribute to regulatory and standardisation processes, in order to assure interoperability with Air Traffic Management (ATM) systems within and outside Europe. The smooth insertion of RPAS in controlled airspace will also pave the way for enabling new markets perspectives with a concrete possibility to offer new services to the community.

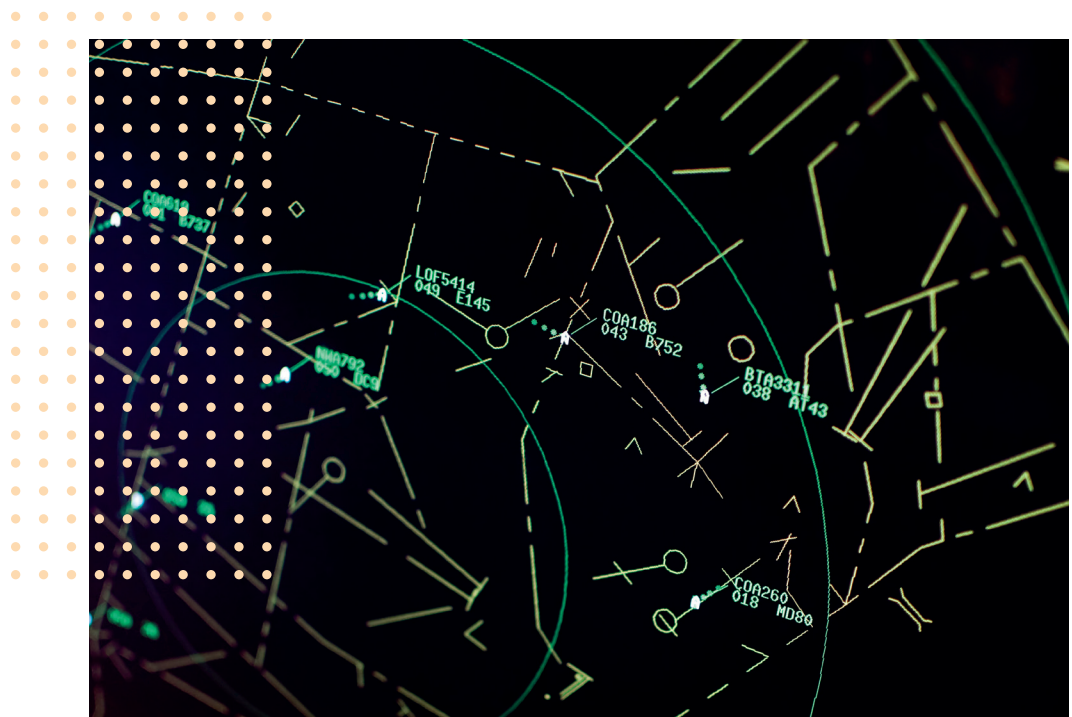
The project has received funding from the SESAR Joint Undertaking under European Union's Horizon 2020 research and innovation programme under grant agreement No 874474.

ERICA Solutions:

- **DAA system** - For RPAS to be allowed into the airspace, the Detect And avoid (DAA) systems have two functions: Remain Well Clear (RWC) and Collision Avoid (CA). For Class A-C airspace, the RWC function should provide situational awareness to prompt exchanges of traffic information with ATC, and support requests for revised clearances. If separation assurance fails, CA should be available to reliably prevent collisions.
- **Accommodation** - This SESAR solution aims at accommodating IFR RPAS, in the short to medium term, during their transit phase through non-segregated controlled class A-C airspace by establishing harmonized procedures across low/medium density and low/medium complexity European airspace. These procedures target reduced planning and approval time and improved access of low numbers of IFR RPAS in this airspace. Resulting benefits are to the initial fixed wing MALE RPAS demand which will benefit from routine access procedures to transit and operate in this airspace as General Air Traffic (GAT) with limited restrictions while ensuring airspace equity to all airspace users. Their departure/arrival remains from/to dedicated airfields or dedicated mission.
- **Integration** - This SESAR solution aims at enabling IFR RPAS to operate alongside manned aircraft in the controlled A to C airspaces completely transparently, with no mitigations because they are unmanned. Long term operational concept will be developed in order to allow RPAS to file a flight plan, obey ATC instructions, follow clearances and deal with emergencies in a manner that is safe and fully understandable to ATC, with no additional adverse effect on the ATM system to handle IFR RPAS in this cooperative environment.

Expected benefits:

- To pave the way for the insertion of RPAS in the Single European Sky by defining requirements, procedures, standards to allow a safe and common base for Europe, to assure the necessary interoperability within and outside Europe
- To increase the potential for RPAS applications in other sectors, as a key-enabler for opening the market, with a concrete possibility to offer new services to the community and potentially to increase employment in the medium/long term
- To trigger future research, developing new technologies for detect and avoid solution able to be accommodated also in RPAS with limited room and available energy, advanced sensors to increase the situational awareness of Remote Pilot (RP) and controllers in all the flight phases, cognitive aspects for the remote control and advanced remote pilot stations
- To extend the approach to military end users taking into account specific requirement and their need to fly outside segregated airspace.



Key facts

Project acronym: PJ13 - W2 ERICA

Project full title: Enable RPAS Insertion in Controlled Airspace

Topic: SESAR-IR-VLD-WAVE2-11-2019 PJ.13 W2 IFR RPAS

Type of project: Industrial Research

Granting authority: Single European Sky ATM Research Joint Undertaking

Duration: 37 months

Start: 1.12.2019

Number of beneficiaries: 20

Coordinator: Leonardo S.p.a.

Funding: EUR 13 150 435.87€

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