



# HUCAN

## **HUCAN Project takes off: leading the way in AI-enabled ATM certification and automation guidelines**

*The project proposes a novel and holistic approach for the certification and approval of AI-enabled ATM airborne and ground systems*

**[Rome, Italy, 23/10/2023]** – The HUCAN project officially kicked off with a meeting held on the 21<sup>st</sup> of September 2023 in Brussels. The meeting, hosted at EUROCONTROL's headquarters in Brussels, brought together a consortium of experts, researchers, and stakeholders from across the aviation and regulatory spectrum. During the event, project leaders outlined their vision for HUCAN and discussed the critical role that this project will play in shaping the future of AI in ATM.

- **The mission**

HUCAN stands for **Holistic Unified Certification Approach for Novel systems based on advanced automation**. This project is an initiative funded by SESAR 3 Joint Undertaking under the Horizon Europe Research & Innovation programme, focused on navigating the complex legal and regulatory challenges posed by the increasing integration of automation and artificial intelligence (AI) into the Air Traffic Management (ATM) environment. The project aims to **set new standards for transparency, certification, and approval processes, ensuring the highest levels of safety and efficiency in the aviation sector**.

At the heart of HUCAN's mission is the development of a **novel, holistic certification approach tailored to AI-enabled ATM airborne and ground systems**. This approach targets key stakeholders such as the European Union Aviation Safety Agency (EASA), national aviation authorities, and air navigation service providers (ANSPs). HUCAN also plans to provide a comprehensive set of design guidelines and accompanying toolkits



that will streamline the development of automation and AI-powered technologies for manufacturers in the aviation industry.

- **The methodology**

In the next 30 months, HUCAN will develop an **approach for certification and approval of new ATM-related airborne and ground systems embedding higher levels of automation**, including those based on AI and ML. The proposed approach is intended to support both the approval/certification and the design phases of such technologies, developing to this end two interconnected products:

1. A new holistic and unified certification method for highly automated systems, whose main target users are EASA, national aviation authorities, qualified entities, and ANSPs
2. A set of suitable design guidelines and associated toolkit for streamlining the development of automation and AI-powered technologies, targeted to manufacturers

For the design and development of such products, the project will **review the most prominent trends and challenges in automation and AI research and applications regarding ATM systems**, also analyzing possible approaches developed in other socio-technical and safety critical domains and taking into account all possible impacts of higher levels of automation, including those on ATCOs license and training.

A parallel **analysis of certification approaches, legal and regulatory features and critical issues** of such technologies will be carried out. **Case studies** specifically focused on capacity on demand and dynamic airspace will feed and validate the theoretical research and the design of both the approval/certification approach and the guidelines for the design produced by the project.

- **About individual partners**

HUCAN is a **collaborative project** involving experts from the aviation industry, regulatory bodies, and research institutions.



1. [Deep Blue](#) (Project Coordinator, IT)
2. [Netherlands Aerospace Centre](#) (NL)
3. [European University Institute](#) (IT)
4. [German Aerospace Center](#) (DE)
5. [Italian Aerospace Research Center](#) (IT)
6. [D-flight](#) (IT)

- **About SESAR 3 Joint Undertaking**

[The SESAR 3 Joint Undertaking](#) is an institutionalized European private-public partnership set up to accelerate through research and innovation the delivery of the Digital European Sky. The partnership is developing cutting-edge technological solutions to manage conventional aircraft, drones, air taxis and vehicles flying at higher altitudes.

The SESAR 3 JU partnership brings together the EU, Eurocontrol, and more than 50 organizations covering the entire aviation value chain, from airports, airspace users of all categories, ANSPs, drone operators and service providers, the manufacturing industry and scientific community. The partnership also works closely with the regulatory and standardization bodies, notably EASA and Eurocae, as well as key stakeholders, such as professional staff organizations, the space and military communities and global partners.

**Quote** – Paola Lanzi (Deep Blue, Project Coordinator): *As the aviation industry continues to embrace automation and AI technologies, it becomes imperative that robust certification and approval mechanisms are established to ensure the highest levels of safety and compliance. The HUCAN project marks a significant step towards achieving this goal and underscores our commitment to a human-centric approach to technology integration in aviation.*



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