

TADA

Terminal Airspace Digital Assistant

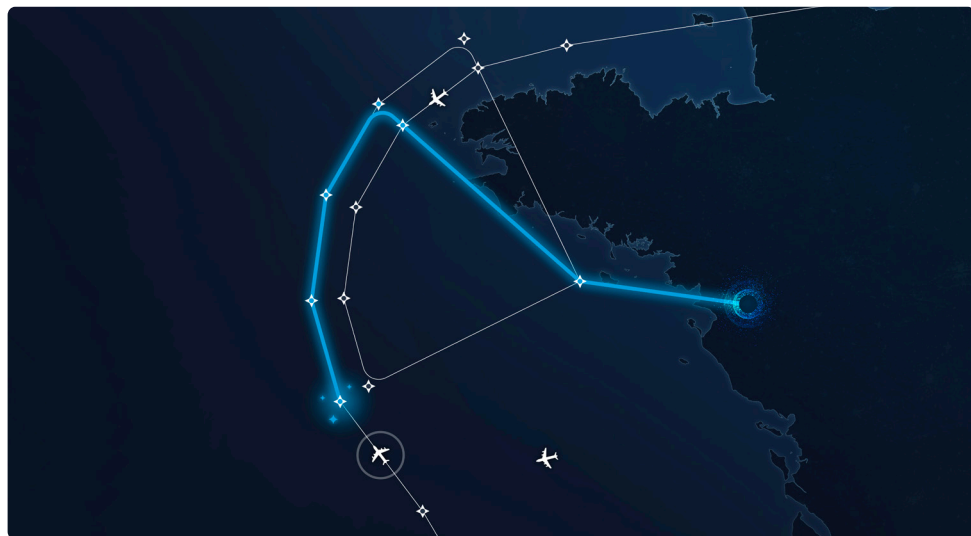


OVERVIEW

TADA focuses on the integration of **Artificial Intelligence (AI)** into **Air Traffic Management (ATM)** to enhance **predictability, efficiency, sustainability, and capacity** in **Terminal Manoeuvring Areas (TMAs)**.

Nowadays, TMAs face increasing challenges in traffic complexity. Within this scenario, TADA aims to support Air Traffic Control (ATCOs) to better handle incoming aircrafts at airports through the introduction of an **AI-based digital assistant** that integrates with the current ATC systems.

Thanks to the integration of historic data and machine learning techniques, TADA will **provide enhanced trajectories suggestions** based on the proposed **Arrival Management Systems (AMAN) sequencing**. Through these advancements, TADA explores the future of smarter, more efficient and adaptive air traffic management.



ABOUT

TMAs play a key role in ATM, even more so in regions with multiple airports operating in close proximity, known as **Multi-Airport Systems (MAS)**. MAS are among the **most complex areas for ATC**, due to the high volume of flights arriving, departing, and transiting through the same airspace. As air traffic increases in volume, managing these busy airspaces efficiently becomes gradually more challenging. **TADA** aims exactly at **improving TMAs performance through the use of ATCO generated historical data and ML** to provide the ATCOs with decision and action selection for future situations, presented in a user-centric way.

OBJECTIVES

1

Develop an AI-powered Digital Assistant based on ATC data to support decision-making for arrival sequences, together with the development of AI modules to support AMAN in proposing the best sequence. This will reduce ATCOs' workload, while increasing capacity and operation sustainability.

2

Develop an Interface based on the EASA AI Framework to allow an enhanced Human-AI teaming between ATCOs and TADA's digital tool, with emphasis on inputs presentation and Explainable AI (XAI) application.

3

Validate TADA and the HMI concepts through Human-in-the-loop (HITL) validation with Operational Staff involved in TMA Air Traffic Control operations.

4

Gain further understanding of the best Human-AI teaming in ATC between support for decision, action selection and autonomous ATC under human monitoring (automation level 4 maximum) by performing a comparison study during the project and disseminate the results.

