

EICACS

EUROPEAN INITIATIVE FOR COLLABORATIVE
AIR COMBAT STANDARDIZATION



NEWSLETTER

Issue #1 | June 2025

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Dear Reader,

We are delighted to present the inaugural issue of the EICACS project Newsletter.

EICACS (European Initiative for Collaborative Air Combat Standardization), is an EU-funded project, that aims to enable collaborative air combat standardization by ensuring the interoperability of heterogeneous assets and a seamless integration of future air combat systems. The EICACS consortium gathers industry leaders, institutions, universities, midcaps, and SMEs from 11 EU countries.

The **goals** of the EICACS project are twofold and include the promotion or development of design rules and interoperability standards, and the development of standards for implementing AI technologies.

Enjoy the read!

On behalf of EICACS Project Coordinator



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EICACS PARTNERS

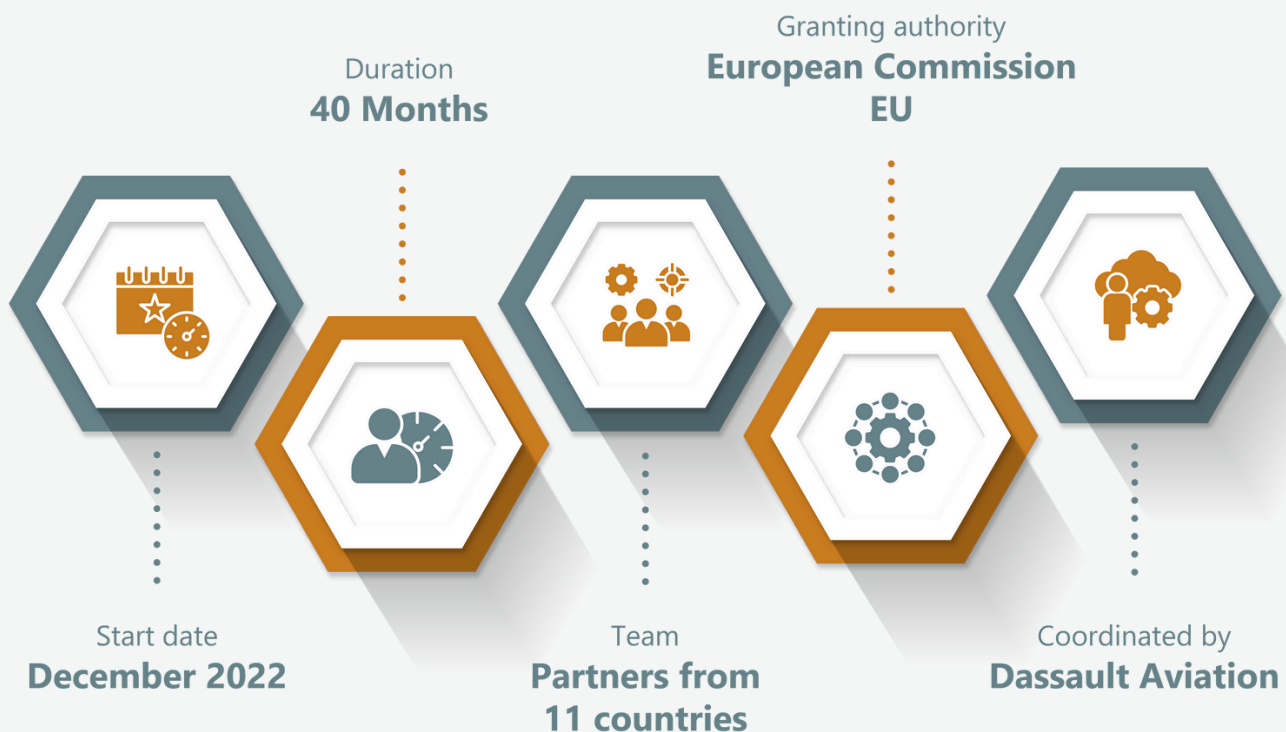




PROJECT OVERVIEW

The **European Initiative for Collaborative Air Combat Standardization** (EICACS) is a pioneering project led by Dassault Aviation, designed to transform and unify air combat capabilities across Europe. Co-funded by the European Union, EICACS aims to establish comprehensive standards and enhance interoperability among diverse air combat systems, ensuring seamless integration and cooperative operations between various manned and unmanned platforms.

EICACS brings together a consortium of leading aerospace and defense organizations, academic institutions, and industry partners from 11 European countries. This collaboration ensures a diverse and robust approach to addressing the complex challenges of standardizing air combat systems.





MISSION & OBJECTIVES

EICACS is committed to developing a cohesive framework that harmonizes technical standards and operational protocols for European air combat systems. The primary objectives of the project include:

- **Enhancing Mission Management:** Developing advanced mission management capabilities to improve coordination and execution of air combat operations.
- **Standardizing Systems Integration:** Creating unified architectural principles and protocols that enable the efficient integration of heterogeneous air combat systems, both existing and future.
- **Promoting Technological Innovation:** Facilitating the adoption of cutting-edge technologies, including artificial intelligence, to optimize decision-making processes and operational effectiveness.
- **Strengthening European Sovereignty:** Ensuring that European air combat capabilities remain sovereign and resilient by standardizing the tools and algorithms that underpin these systems.

EICACS encompasses several critical areas of development to ensure superior interoperability and functionality within European air combat systems:

Defining the operational needs and high-level requirements

Ensuring that EICACS aligns its technological developments with future requirements, particularly emphasizing the integration of various air combat systems expected between 2030-2040.

Architecture Principles for Collaborative Air Combat

Developing foundational principles that underpin the architecture of interoperable air combat systems, ensuring that they are robust, scalable, and capable of integrating both manned and unmanned platforms.

Standardization of Service Contracts and Sensor/Effectors Interfaces

Creating standardized protocols for the interaction between diverse combat systems, which is essential for the seamless operation and integration of various sensors and weapon systems.

Enhancement of Communication Protocols

Advancing communication interface standards to support robust and secure data exchanges essential for real-time operational command and control.

Integration of Artificial Intelligence

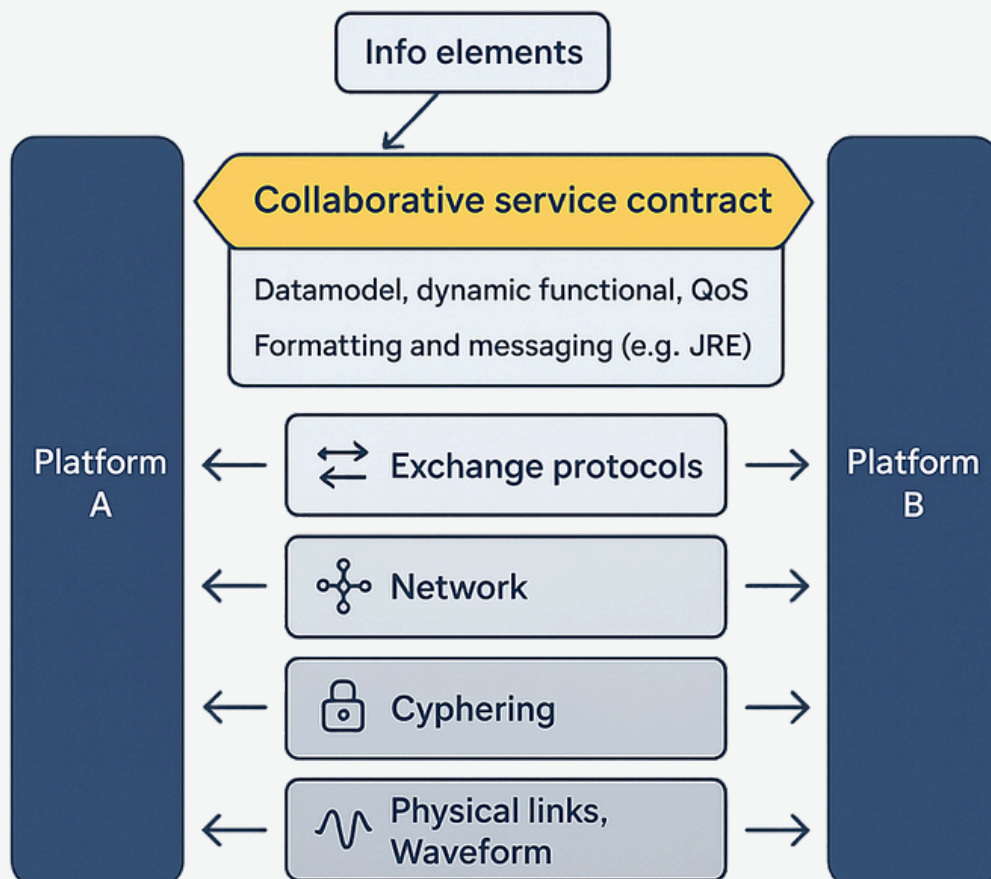
Leveraging AI to optimize system operations, enhance decision-making processes, and improve the cognitive abilities of air combat systems, focusing on both critical and non-critical components.



TECHNICAL PROGRESS ARCHITECTURES PRINCIPLES

The **EICACS** project aims at achieving interoperability among heterogeneous assets, enabling seamless integration and cooperation in coalition contexts, such as European and NATO coalitions. This interoperability is crucial for operating a variety of manned and unmanned assets during air operations in coalition contexts. Collaborative combat in this context requires the standardization of interactions between assets and also between some of their components to ensure communication and coordination.

The architecture principles elaborated in EICACS facilitate this interoperability between heterogeneous assets. The key objectives of the work performed include designing and developing technical drivers to set up reference architecture principles that tackle all layers of the OSI model, ensuring that the collaborative assets can adapt to changing conditions and threats while maintaining robust performance and reliability. EICACS reference architecture principles also facilitate finding opportunities for mutualizing components (e.g., software) among assets on case by case, when relevant in terms of economic efficiency.





NEWS & EVENTS



2nd Annual Event 2025

The consortium successfully held its 2nd Annual Event at the Dassault Aviation facilities in Paris, France. The event brought together the project consortium, technical experts, and institutional stake-holders to reflect on the progress achieved over the past year and to outline the priorities for the next phases of the project.

Technical Progress Meeting

The EICACS Technical Progress Meeting was hosted at the coordinator's (Dassault Aviation) premises in Saint-Cloud, France, from February 29th to March 1st, 2024. The meeting was honored by the esteemed presence of the European Commission's Project Officer and distinguished representatives from EU Member States, emphasizing the significance of our collaborative efforts in European defense.



General Assembly Meeting 2023

The project had the 2023's General Assembly meeting at the Dassault Aviation premises in Saint-Cloud, France, on the 18th of October 2023.



PUBLICATIONS



“Non-Uniform Sampling and Adaptive Optimizers in Deep Learning”
37th Annual Conference on Neural Information Processing Systems (NeurIPS 2023)
15th Annual Workshop on Optimization for Machine Learning (OPT2023)
 New Orleans, USA
 December 10-16, 2023



“Samples Sharing and Prioritization in Multi-Agent Deep Reinforcement Learning”
23rd International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2024) - OptLearnMAS 2024
 Auckland, New Zealand
 May 6-10, 2024



“Better gradient steps for deep on-policy reinforcement learning”
41st Annual International Conference on Machine Learning (ICML 2024)
8th Workshop on Aligning Reinforcement Learning Experimentalists and Theorists (ARLET 2024)
 Vienna, Austria
 July 21-27, 2024



“In-Flight Vibration Signal Based Detection and Localization for UAV Propeller Anomalies Under Uncertainty via Machine Learning Type Methods”
34th Congress of the International Council of the Aeronautical Sciences (ICAS 2024)
 Florence, Italy
 September 9-13, 2024



“Artificial Intelligence Verification Based on Operational Design Domain (ODD) Characterizations Utilizing Subset Simulation”
3rd Digital Avionics Systems Conference (DASC 2024)
 San Diego, CA, USA
 September 29 – October 3, 2024



“Large Batch Sharing”
The 38th Annual Conference on Neural Information Processing Systems (NeurIPS 2024)
 Vancouver, Canada
 December 10 – 15, 2024

EICACS TEAM



AIRBUS

DIEHL
Defence

DIEHL
Aerospace



THALES



HENSOLDT

iABG



indra

Inria

LEONARDO

MBDA
MISSILE SYSTEMS



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