

Press Release:

The Future of European Aviation Takes Off!

CAELESTIS Kick-Off Meeting



CAELESTIS partners visiting AIMEN during the kick-off meeting on 9th May 2022

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CAELESTIS is a new project funded by CINEA (European Climate Infrastructure and Environment Executive Agency) through the EU's Horizon Europe programme seeking to conduct groundbreaking research into digital twins with huge potential impacts on the aviation industry. The project's output could lead to a decrease in CO₂ emissions stemming from aviation, reduce the costs and risks in developing new aircraft designs, and shorten the lead time on innovating tomorrow's more efficient aircraft.

The kick-off meeting for the CAELESTIS project took place on 9th & 10th May 2022 in O Porriño, Spain, at the headquarters of the coordinator AIMEN. Representatives from 11 partners from 7 EU member states (Austria, Cyprus, Finland, France, the Netherlands, Spain, and Sweden) participated in the meeting, introducing the work packages set to formulate the backbone of this groundbreaking research project exploring the potential for digital twins to speed up innovation in aeronautics that can contribute to reaching Europe's 2050 climate goals.

During this two-day Kick-Off Meeting, the CAELESTIS consortium partners looked ahead to the development and exploitation of the project's Interoperable Simulation Ecosystem (ISE). This system will effectively allow for dataflow across the entire aircraft value chain, further linking together engineering, design, and manufacturing. With a budget of almost EUR 6 million, CAELESTIS is an R&D project with a 42-month timeline, encompassing a variety of bold objectives:

- To develop a digital thread across the value chain linking the design, simulation, production engineering and manufacturing of next-generation airframe and engine structures;

- To develop model-based product and manufacturing digital twins, supporting virtual prototyping of next-generation aerostructures by linking and managing design and manufacturing uncertainties;
- To develop advanced HPC-data analytics that supports the design and manufacturing engineering;
- To develop smart manufacturing strategies to identify and reduce in real-time the impact of defects across the manufacturing chain;
- To foster the uptake of the CAELESTIS virtual prototyping ecosystem across the EU aeronautics industry to boost innovation for the future aircraft with a Multi-Actor Approach.



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CAELESTIS Project Coordinator and R&D Engineer at AIMEN Centro Tecnológico, **Mr. Francisco Ansedes Busto**, led the meeting, including a walking tour of AIMEN’s innovative technological facility. Project Officer **Mr. Miguel Martí Vidal** from the European Commission, was also in attendance, offering his support and congratulations on the launch of the project. Mr. Martí Vidal also provided an overview of its policy context and Europe’s climate goals with regards to the aviation industry.

“The CAELESTIS project is a research project funded in the Horizon Europe programme, focused on the aerospace industry and tries to digitalize the whole process of designing and manufacturing of aerospace parts”, explains Project Coordinator, Mr. Francisco Ansedes Busto (AIMEN). “It could impact the aerospace industry by introducing the digitalized framework that will connect design with manufacturing and integrate simulation and machine learning algorithms in a high-performance computing framework in order to optimize the solutions and requirements of the aerospace parts. The CAELESTIS project tries to reduce the weight of the aerospace parts by implementing this digital framework, and in that way reduce the consumption of fuel and the gas emissions in the aerospace industry.”

*In the coming months, **CAELESTIS** will not only launch its website, but also the **CAELESTIS Network**, open and accessible to industry partners and researchers from relevant fields. In the meantime, you can follow CAELESTIS on [Twitter](#) and [LinkedIn](#) to get the first updates about this groundbreaking research paving the way forward for a new breed of aircraft.*

Project Details

Full Name of the Project:	CAELESTIS: Hyperconnected simulation ecosystem supporting the probabilistic design and predictive manufacturing of next-generation aircraft structure
EC Project No.:	Project 101056886
Horizon Europe Funding Call:	Clean and competitive solutions for all transport modes (HORIZON-CL5-2021-D5-01)
Total Grant Amount:	5,956,880.00 EUR
Start Date	1 st May 2022
Duration:	42 months

Project Partners

1. Asociacion De Investigacion Metalúrgica Del Noroeste / AIMEN (Spain)
2. AMADE - Universitat De Girona (Spain)
3. Addcomposites (Finland)
4. ESI Group (France)
5. Institut De Recherche Technologique Jules Verne (France)
6. ITAINNOVA - Instituto Tecnológico de Aragón (Spain)
7. Barcelona Supercomputing Center / BSC (Spain)
8. Technische Universiteit Delft (Netherlands)
9. eBOS Technologies Limited (Cyprus)
10. GKN Aerospace (Sweden)
11. RTDS Association (Austria)

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