FUTPRINT50

Future propulsion & integration:
towards a hybrid-electric 50-seat regional aircraft

A green future with carbon-neutral aviation – is it possible?

The EU funded collaborative research project FUTPRINT50 kicked-off in January 2020 and runs until December 2022 with the aim to accelerate technologies required for the entry-into-service of a commercial hybrid-electric aircraft in a class of up to 50 seats by 2035/40.

At global level aviation is challenging the mitigation of the sector's impact on the environment. The aviation community has realized that a change is required and therefore adopted the ambition to have a climate neutral aviation system by 2050 (FlightPath2050).

> FUTPRINT50 will Accelerate & Integrate Innovative Aircraft Electrification Technologies for Sustainable & Competitive Aviation Growth

FUTPRINT50 researchers address the need to accelerate the use of disruptive technologies in aircraft design that sustain the Carbon Neutral Growth commitment towards FlightPath2050. Promising tools, technologies, a common roadmap for technology and regulatory aspects for this class of hybrid-electric aircraft will be explored and an analysis of the key enabling technologies for future hybrid-electric demonstrators will be performed during the three-year course of the project.

Disruptive Innovation & New Technologies

FUTPRINT50 will focus on energy storage, energy harvesting and thermal management. Besides advancing the state of the art of these technologies, it will research and share **open-source** aircraft design **tools**, hybrid-electric aircraft **designs** and reference **data sets**.

To attain the ambitious vision of the entry into service of hybrid–electric up to 50 seats aircraft, FUTPRINT50 will develop a roadmap for a hybrid-electric regional airliner with a synergetic design between aircraft propulsion, aerodynamics and structures that will surpass the efficiency and environmental performance of the current generation of regional aircraft. This will be an important element in a new sustainable air transport system, opening new flexible routes to link smaller cities, and enabling air mobility for the European citizens at minimum emissions on thin routes.

FUTPRINT50 Academy: fostering new skills while developing future leaders & innovators

Communication links between the project and the European Academia will be pursued through the FUTPRINT50 Academy. Future engineers along with the supervision of University Professors and the mentoring of FUTPRINT50 partners will perform Bachelor/Master Theses on key themes identified within the project. Interaction with FUTPRINT50 will be ensured through the organization of web-conferences/seminars and physical workshops.

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 875551

European Commission

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FUTPRINT50 will be implemented thanks to a highly competent international consortium that brings together a mix of expertise - one OEM (Embraer SA with teams in Brazil and its R&T branch in Europe – Embraer Research and Technology Europe, at Airholding, SA), two SMEs (ADSE, EASN) and 11 Universities and research organisations (University of Stuttgart, Cranfield University, TU Delft, CEA (Atomic and Alternative Energies Commission), University Niccolo Cusano, University of Illinois, FSUE (TSaGI), GosNIIAS, CIAM, NRC, MAI) - abridging the EU with Russia, USA and Brazil. FUTPRINT50 receives support also from an Advisory Board that includes EASA and ensures cooperation with Canada.

Funded by the European Commission under the H2020 Framework Programme with a total budget of 4,7 M€ for the European partners, FUTPRINT50 is coordinated by the University of Stuttgart.

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