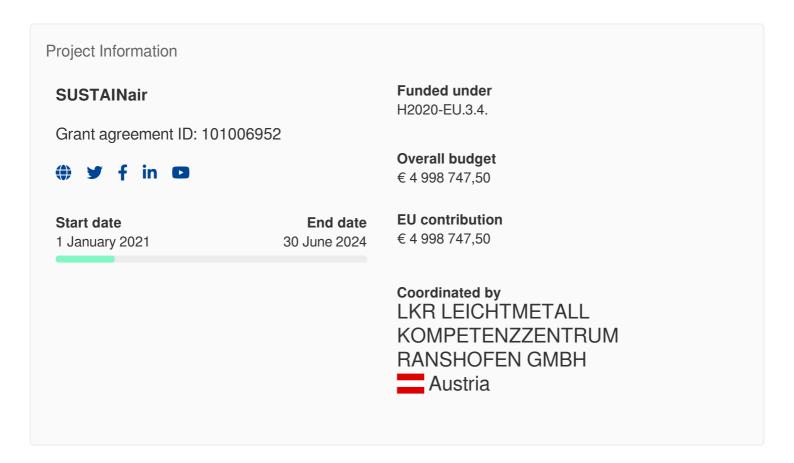




SUSTAINability increase of lightweight, multifunctional and intelligent airframe and engine parts

Fact Sheet



Project description

Towards the next generation of airframe and engine parts

One of the EU's priorities is to advance the design, production and field operation of multifunctional and intelligent airframe and engine parts. New technologies emerging as a result of advances in European research and innovation can help meet this goal. However, key obstacles surrounding the entire aircraft component value chain will need to be overcome first. Tackling these challenges, the EU-funded SUSTAINair project aims to address each stage of the component value chain by developing and introducing novel concepts and techniques that will shape design, manufacturing,

maintenance, repair, overhaul and recycling processes for lightweight, multifunctional and intelligent airframe and engine parts.

Objective

Multiple challenges exist with respect to the development of multifunctional and intelligent airframe and engine parts. These are situated along the entire aircraft component value chain - design, manufacturing, MRO and recycling. SUSTAINair addresses each of these phases. With respect to design, new joining techniques for metal and composite designs are developed and demonstrated. For metal joining, these include a novel pin-pattern creation with Laser Powder Bed Fusion/Wire Arc Additive Manufacturing/Laser Direct Energy Deposition. For composites, these consist of thermoplastic welding. With respect to both design and manufacturing, a flexible wing with morphing capabilities is made industrially possible by introducing a novel concept using tailored elastomers, seamless integrated with conventional structural wing parts for lowest integration risk, providing a realistic industrial morphing technology. The problem of high production waste in the manufacture of composite materials, Ti AM and Al HPDC is addressed, thereby reducing waste streams, e.g.: For thermoset prepreg manufacturing waste and thermoplastic waste, new recycled materials are developed and characterized to allow re-use with recyclability up to 100%, bringing FTB ratio close to 1 (KET3-KPI); Increased BTF ratio of Ti powders by using it 6x (vs. 1x now) (KET4-KPI); Incredible BTF ratio <1.1 by advanced HPDC processing of thermal stable nano-eutectics (KET5-KPI). A Structural Health Monitoring system optimizing MRO activity is proven using radically new ZnO nanowires, which will be integrated into polymer as well as metal parts. Finally, SUSTAINair raises the bar with respect to aircraft EoL, introducing Industry 4.0 automated technology for robotic dismantling.

Fields of science

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Programme(s)

Topic(s)

Call for proposal

H2020-MG-2020-SingleStage-INEA

Funding Scheme

RIA - Research and Innovation action

Coordinator



LKR LEICHTMETALL KOMPETENZZENTRUM RANSHOFEN GMBH

Address Activity type EU contribution

Lamprechtshausenerstrasse Research Organisations € 854 828,75

5282 Ranshofen

Austria

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Participants (10)



STICHTING KONINKLIJK NEDERLANDS LUCHT - EN RUIMTEVAARTCENTRUM

Netherlands

EU contribution

€ 530 000

Address Activity type

Anthony Fokkerweg 2 Research Organisations 1059 CM Amsterdam

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DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV

Germany

EU contribution

€ 449 638,75

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Linder Hohe Research Organisations

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JUANNEUW KESEAKUN FUKSUNUNGSGESELLSUNAF I WBN

Austria

EU contribution

€ 449 412,50

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UNIVERSITAT LINZ

Austria

EU contribution

€ 392 750

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Altenberger Strasse 69 Higher or Secondary

4040 Linz Education Establishments

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TECHNISCHE UNIVERSITEIT DELFT

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EU contribution

€ 450 000

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2628 CN Delft Education Establishments

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AELS

Netherlands

EU contribution

€ 400 562,50

Address Activity type

7524 PK Enschede (excluding Higher or

Secondary Education

Contact the organisation **Establishments**)

Austria

EU contribution

€ 297 055

Address Activity type

Wiener Strasse 3 Private for-profit entities
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INVENT INNOVATIVE VERBUNDWERKSTOFFEREALISATION UND VERMARKTUNG NEUERTECHNOLOGIEN GMBH

Germany

EU contribution

€ 403 750

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Christian Pommer Strasse 47

38112 Braunschweig

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DUTCH THERMOPLASTIC COMPONENTS BV

Netherlands

EU contribution

€ 353 250

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Bolderweg 2 Private for-profit entities
1332AT Almere (excluding Higher or
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RTDS - VEREIN ZUR FORDERUNG DER KOMMUNIKATION UND VERMITTLUNG VON FORSCHUNG, TECHNOLOGIE UND INNOVATION (RTDS VEREIN, ENGL. RTDS ASSOCIATION)

Austria

EU contribution

€ 417 500

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Lerchengasse 25/2-3 1080 Wien Other

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