

PROJECT

## **FLEXOP**

# **Flutter Free FLight Envelope eXpansion for ecOnomical Performance improvement**

**Funding:** European (Horizon 2020)

**Duration:** Jun 2015 - Dec 2018

**Status:** Complete

**Total project cost:** €6,692,164

**EU contribution:** €6,692,164



**Call for proposal:** H2020-MG-2014\_TwoStages

[CORDIS RCN : 193394](#)

### **Objectives:**

The FLEXOP project is about developing multidisciplinary aircraft design capabilities for Europe that will increase competitiveness with emerging markets, particularly in terms of aircraft development costs. A closer coupling of wing aeroelasticity and flight control systems in the design process opens new opportunities to explore previously unviable designs. Common methods and tools across the disciplines also provide a way to rapidly adapt existing designs into derivative aircraft, at a reduced technological risk (e.g. using control to solve a flutter problem discovered during development). The goal will be achieved by:

- Improving efficiency of currently existing wing, by increased span at no excess structural weight, while establishing modifications by aeroelastic tailoring to carry the redesigned derivative wing
- Developing methods and tools for very accurate flutter modeling and flutter control synthesis, to enable improved flutter management during development, certification, and operation, enabling flying with the stretched wing at same airspeed as the baseline aircraft
- Validating the accuracy of developed tools and methods on an affordable experimental platform, followed by a scale-up study, demonstrating the interdisciplinary development cycle.

Manufacturers will gain cost efficient methods, tools and demonstrators for enhancing aircraft performance by integrated development of flutter control and aeroelastic tailoring. These interdisciplinary capabilities will improve the design cycle and the Verification & Validation process of both derivative and new aircraft. Better control of development and certification costs can be achieved if these capabilities are used to address problems early in the design process. Flight test data will be posted on the project website to provide a benchmark for the EU aerospace community. The project's results will serve as a preliminary outlining of certification standards for future EU flexible transport aircraft.

### **Parent Programmes:**

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

### **Lead Organisation:**

**Magyar Tudományos Akadémia Számítástechnikai Es Automatizálási Kutatóintézet**

**Address:**

Kende Utca 13-17  
Budapest

1111  
Hungary

**Organisation Website:**

<http://www.sztaki.hu>

**EU Contribution:** €980,802

**Partner Organisations:**

**Inasco Hellas Etaireia Efarnosmenon Aerodiastimikon Epistimon Ee**

**Address:**

Napoleonos Zerva 18  
16675 Glyfada Athina  
Greece

**EU Contribution:** €528,533

**Rheinisch-Westfaelische Technische Hochschule Aachen**

**Address:**

Templergraben  
52062 Aachen  
Germany

**Organisation Website:**

<http://www.rwth-aachen.de>

**EU Contribution:** €95,535

**Technische Universitaet Muenchen**

**Address:**

Arcisstrasse 21  
80333 MUENCHEN  
Germany

**Organisation Website:**

<http://www.tu-muenchen.de>

**EU Contribution:** €1,129,835

**Airbus Defence And Space Gmbh**

**Address:**

Ludwig-Boelkow-Allee 1  
85521 Ottobrunn  
Germany

**Organisation Website:**

<http://www.airbus-group.com>

**EU Contribution:** €895,564

**Deutsches Zentrum Fr Luft Und Raumfahrt E.v**

**Address:**

Linder Hhe  
12489 KLN  
Germany

**Organisation Website:**

<http://www.dlr.de>

**EU Contribution:** €735,454

**University Of Bristol**

**Address:**

BEACON HOUSE QUEENS ROAD  
BRISTOL  
BS8 1QU  
United Kingdom

**Organisation Website:**

<http://www.bristol.ac.uk>

**EU Contribution:** €643,468

**Airbus Defence And Space Ltd**

**Address:**

Gunnels Wood Road  
STEVENAGE  
SG1 2AS  
United Kingdom

**Organisation Website:**

<http://www.astrium.eads.net>

**EU Contribution:** €282,150

**Fischer Advanced Composite Components Ag**

**Address:**

Fischerstr. 9  
192 RIED / INNKREIS  
Austria

**Organisation Website:**

<http://www.facc.co.at>

**EU Contribution:** €1,177,444

**Technische Universiteit Delft**

**Address:**

.  
2600 GA Delft  
Netherlands

**EU Contribution:** €223,379

**Technologies:**

Aircraft design and manufacturing  
Truss braced wing aircraft

**Development phase:** Research/Invention

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Geo-spatial type:** Other