Innovative Methodologies and technologies for reducing Aircraft noise Generation and Emission

Funding: European (Horizon 2020)
Duration: Apr 2016 - Jun 2019
Status: Complete
Total project cost: €1,799,810
EU contribution: €1,799,810

Call for proposal: H2020-MG-2015_SingleStage-A
CORDIS RCN: 199882

Background & policy context:
The proposed project, IMAGE, is relevant to Topic MG-1.10-2015, aiming to enhance the EU-China collaborative effort focusing on "Innovative methods and numerical technologies for airframe and engine noise reduction". The project consortium consists of 12 partners.

Objectives:
The purpose of IMAGE is to investigate experimentally and numerically innovative airframe and engine noise-reduction technologies and, in a systematic conjunction, to develop robust methodologies of addressing these technologies. Airframe noise is addressed by tackling landing gears and high-lift devices, and engine noise through its fan component. Fundamental investigations of three key control strategies are carried out: plasma actuation, turbulence screens and innovative porous materials, on a platform of three configurations, relevant to airframe and aero-engine noise generation and control, including a wing mock-up, tandem cylinder and engine-fan duct. Beyond this, IMAGE explores further the installation effect of aeroacoustic engine-jet/wing interaction with a simplified configuration, as well as low-noise concepts and optimal noise-actuation methods by means of aeroacoustic optimization.

Methodology:
The project will conclude a comprehensive understanding of the physical mechanisms concerning flow-induced airframe and engine-fan noise generation, propagation and control, and of further improvement of beam-forming technology and noise source identification in aero-acoustic experimental analysis. The experiment will generate well-documented database, supporting the development of numerical modelling and simulation methodologies for reliable validation and verification. To this end, with technical synthesis and industrial assessment, the noise control methods will be optimized and be facilitated towards potential industrial use, and the methodologies developed should form a robust part of advanced tools in industrial practice.

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:

Chalmers Tekniska Hoegskola Ab
Address:
41296 GOTHENBURG
### Sweden

**Organisation Website:**
http://www.chalmers.se

**EU Contribution:** €275,063

### Partner Organisations:

**Cfd Software - Entwicklungs- Und Forschungsgesellschaft Mbh**

**Address:**
Wolzogenstrasse 4
14163 Berlin
Germany

**EU Contribution:** €210,000

**Kungliga Tekniska Hoegskolan**

**Address:**
Brinellvagen 8
100 44 Stockholm
Sweden

**EU Contribution:** €140,000

**Stichting Centrum Voor De Ontwikkeling Van Transport En Logistiek In Europa**

**Address:**
Van Nelleweg 1
3044 BC Rotterdam
Netherlands

**Organisation Website:**
http://www.cetle.org

**EU Contribution:** €159,508

**Rheinisch-Westfaelische Technische Hochschule Aachen**

**Address:**
Templergraben
52062 Aachen
Germany

**Organisation Website:**
http://www.rwth-aachen.de

**EU Contribution:** €74,900

**Airbus Defence And Space GmbH**

**Address:**
Ludwig-Boelkow-Allee 1
85521 Ottobrunn
Germany

**Organisation Website:**
http://www.airbus-group.com

**EU Contribution:** €50,000
<table>
<thead>
<tr>
<th>Organisation Name</th>
<th>Address</th>
<th>Organisation Website</th>
<th>EU Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office National D' Etudes Et De Recherches Aérospatiales</td>
<td>29, avenue de la Division Leclerc BP72 CHÂTILLON CEDEX</td>
<td><a href="http://www.onera.fr">http://www.onera.fr</a></td>
<td>€160,075</td>
</tr>
<tr>
<td>Technische Universitaet Kaiserslautern</td>
<td>Gottlieb-Daimler-Strasse Geb. 47 67663 Kaiserslautern</td>
<td><a href="http://www.uni-kl.de">http://www.uni-kl.de</a></td>
<td>€74,953</td>
</tr>
<tr>
<td>Centre Internacional De Metodes Numerics En L'enginyeria'</td>
<td>C/ GRAN CAPITÀ, S/N; EDIFICIO C-1; CAMPUS NORTE UPC 8034 BARCELONA</td>
<td><a href="http://www.cimne.com">http://www.cimne.com</a></td>
<td>€190,000</td>
</tr>
<tr>
<td>Institut Von Karman De Dynamique Des Fluides</td>
<td>Chaussee De Waterloo 72 1640 Rhode Saint Genese</td>
<td></td>
<td>€215,000</td>
</tr>
<tr>
<td>Numerical Mechanics Application International</td>
<td>5 Avenue Franklin Roosevelt 1050 BRUSSELS</td>
<td><a href="http://www.numeca.com">http://www.numeca.com</a></td>
<td>€170,313</td>
</tr>
<tr>
<td>Universidad Politécnica De Madrid</td>
<td>Avda. Ramiro de Maeztu, 3 28040 MADRID</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Organisation Website: http://www.upm.es
EU Contribution: €80,000

Technologies:
- Aircraft noise measurements
- Aircraft noise reduction at source

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing
Transport mode: Air transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Societal/Economic issues, Environmental/Emissions
Geo-spatial type: Other