AFLoNext

2ND GENERATION ACTIVE WING

Active Flow,
Loads & Noise control
on next generation wing
www.AFLoNext.eu

AFLoNext is a four-year FP7 level 2 collaborative research project with the objective of proving and maturing highly promising flow control technologies for novel aircraft configurations.

This project is supported by the European Community's Seventh Framework Programme FP7/2007-2013, under grant agreement n°604013, AFLoNext project.

AFLONEXT

In the current context of Air Traffic worldwide, Aerodynamic efficiency is of key concern.

AFLoNext will deliver highly matured technologies in the area of flow, loads and noise control for advanced aircraft design and novel configurations.

AFLoNext is an unprecedent collaboration story set up to meet a double challenge : i**mproving aircraft's performance** and thus **reducing the environmental footprint**.

15 COUNTRIES

40 PARTNERS

200 RESEARCHERS
collaborating to meet a double challenge

37 MILLIONS €
(total budget)

AIMS

AFLoNext aims to prove the engineering feasibility of the HLFC technology for drag reduction on fin in flight test and on wing by means of large scale testing. The project shows also engineering feasibility for vibrations mitigation technologies for reduced aircraft weight and noise mitigation technologies.
The peculiarity of the AFLoNext proposal in terms of holistic technical approach and efficient use of resources becomes obvious through the joint use of a flight test aircraft as common test platform for the above mentioned technologies.

To improve aircraft performance along the whole flight regime, locally applied active flow control technologies on wing and wing/pylon junction are qualified in wind tunnels or by means of lab-type demonstrators.

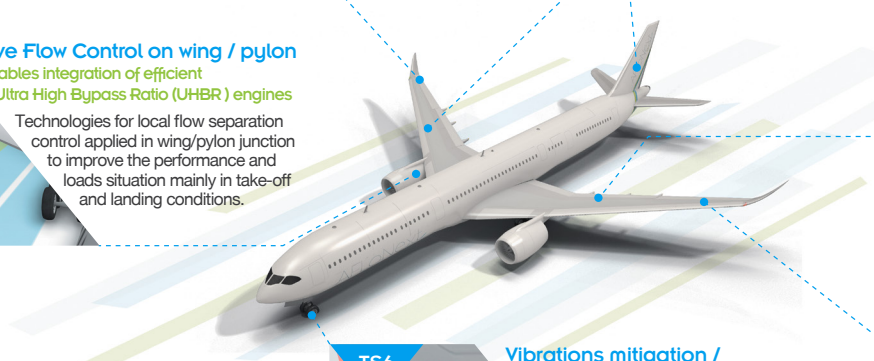
Get ready to tackle the challenges of innovative aircraft design, requirements of future air transport and extremely high degree of environmental compatibility.

GREENING OF THE AIR TRANSPORT:

- More eco-efficient aircraft design
- Lower environmental footprint (noise and pollution)
- Improved aerodynamic efficiency
- Optimised energy consumption
- Improved aircraft performances and safety
- Optimised manufacturing

TECHNOLOGY STREAMS

The AFLoNext concept is based on six Technology Streams which cluster the targeted technologies and their associated contributions to advanced aircraft performance as follows:



TS2 Active Flow Control on outer wing

up to 2% fuel saving

Flow control technologies to enable more aggressive outer wing design for novel aircraft configurations, thereby improving the performance and the loads situation in low and high speed conditions.

TS1 Hybrid Laminar Flow Control on wing and fin

up to 9 % fuel saving

Hybrid Laminar Flow Control (HLFC) technology applied on fin and wing for friction drag reduction and thus performance increase in cruise conditions.

TS3 Active Flow Control on wing / pylon

Enables integration of efficient Ultra High Bypass Ratio (UHBR) engines

Technologies for local flow separation control applied in wing/pylon junction to improve the performance and loads situation mainly in take-off and landing conditions.

TS5 Noise reduction on flapand undercarriage

significant A/C noise reduction in approach

Technologies to mitigate airframe noise during landing generated on flap and undercarriage and through mutual interaction of both.

TS6 Vibrations mitigation / control in undercarriage area

weight reduction of 100-200 kg on landing gear doors

Technologies to mitigate/control vibrations in the undercarriage area which are caused by highly unsteady or inhomogeneous inflow conditions in take-off and landing conditions.

TS4 Active Flow Control on wing trailing edges

up to 1-2 % fuel saving

Technologies to control the flow conditions on wing trailing edges thereby improving the performance and loads situation in the whole operational domain.

PARTNERS

AIRBUS OPERATIONS GMBH, AIRBUS OPERATIONS SL, AIRBUS OPERATIONS SAS, AIRBUS OPERATIONS LIMITED, EADS DEUTSCHLAND GMBH, EADS UK Ltd are all partners of AFLoNext Project.

In a nut shell

Title of the Project: "2nd Generation Active Wing"- Active Flow Loads & Noise control on next generation wing - Grant Agreement Number: 604013 - Project type: FP7 Collaborative Project – Large Scale (L2) - Starting date: 1st June 2013 - End date: 31th May 2017 Duration: 48 months - Total Budget: 37 066 858.00 € - Total Manpower: 2 449 Person-months - Maximum Community Financial Contribution: 23 612 079.00 € - EC Project Officer: Dietrich Knoerzer - Project Coordinator: Markus Fischer / Martin Wahlich (AIRBUS-D) Project Management Officer: Carsten Doergeloh / Ayla Kazanci (AIRBUS-D) - Dissemination Manager: Peggy Favier (L-UP)

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