

## **Eco-Efficient by Design Challenges for Aerodynamics Engineers for Future Aircraft Design**

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### **Abstract**

Aviation's ongoing challenge is the increasing demand for air transport while at the same time effectively addressing the environmental concerns.

Airbus seeks to ensure that air transport continues to be an eco-efficient means of transport, delivering greater fuel efficiency while minimizing its environmental impact.

As part of the European Research Community, Airbus supports the well-known objectives defined in the European Aeronautics Vision 2020, which from an environmental perspective consists in achieving a 50% reduction of CO<sub>2</sub> emissions in 2020 compared to a standard aircraft in 2000.

The airframe can contribute to 20% of this by reducing the fuel burn through aerodynamic drag reduction and structural weight savings.

Today the evolution of 'standard' flight physics or aerodynamics technologies and associated performance gains is beginning to saturate. It is thought that a step change improvement in aircraft performance to meet the aviation challenges is only possible through the development of breakthrough technologies.

Laminar flow control provides a key opportunity to achieve a step change improvement in aerodynamic performance. The development and integration of such a technology combined with active loads control for low structural weight can only be done efficiently through multi-disciplinary design and a new approach to multidisciplinary simulation of the complete aircraft.