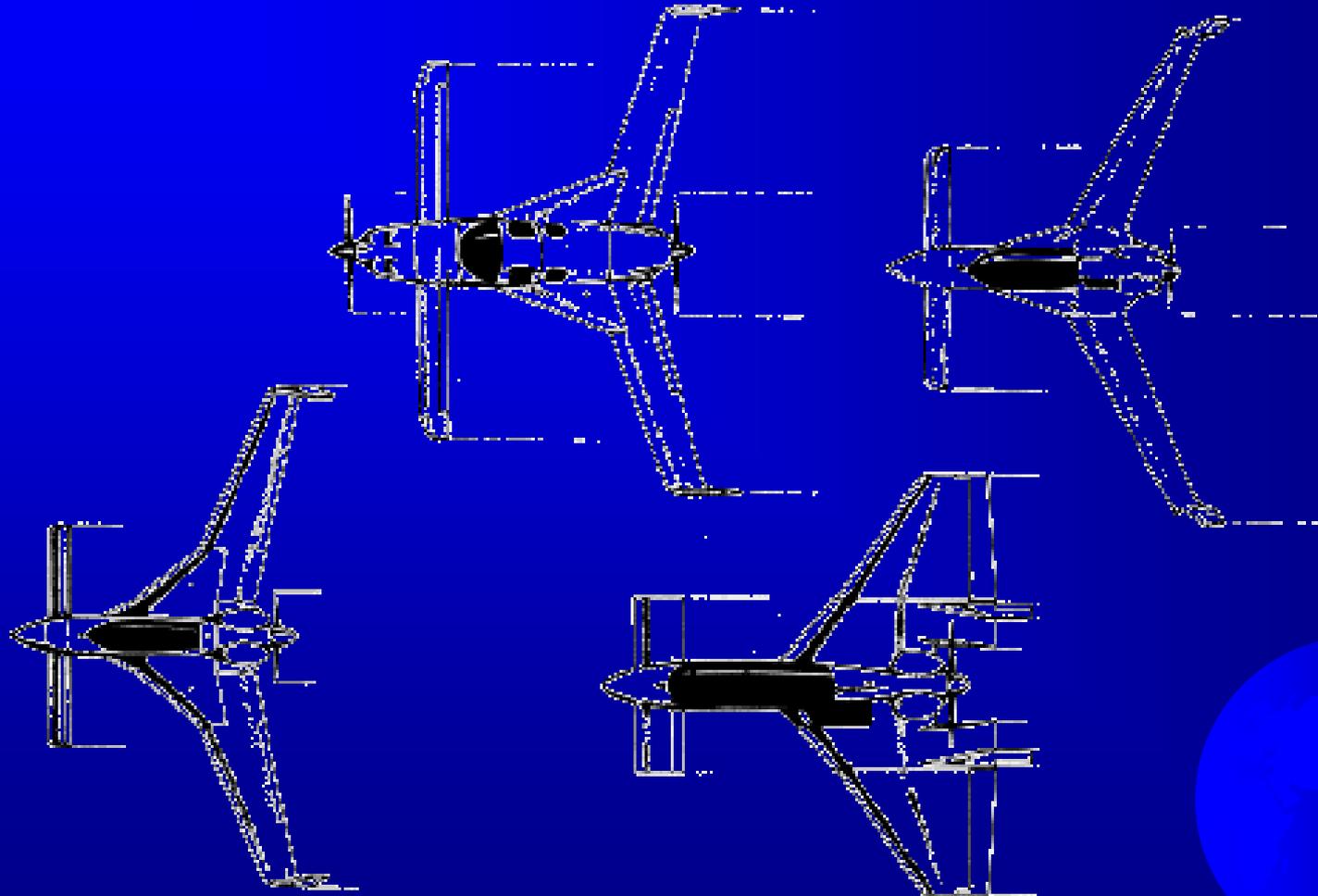


Convegno  
**SERGIO STEFANUTTI**  
**EFFICENZA AERODINAMICA**

Com.te Giuliano Mansutti  
Palazzo Torriani

# CANARD



# CANARD



# PROFILO AERODINAMICO

## ➔ **Maggior Efficienza Aerodinamica:**

- minore resistenza nella penetrazione dell'aria
- minore spinta dei propulsori
- minor consumo di carburante
- minori emissioni in atmosfera
- minor rumore aerodinamico (airframe noise)



# SILENT INITIATIVE



45th AIAA Aerospace Sciences Meeting and Exhibit  
Jan 8-11, 2007, Reno, Nevada

*Special Session – Towards A Silent Aircraft*

## Airframe Design for “Silent Aircraft”

J. I. Hileman<sup>\*</sup>, Z. S. Spakovszky<sup>†</sup>, M. Drela<sup>‡</sup>

*Gas Turbine Laboratory, Massachusetts Institute of Technology, Cambridge, MA, 02139*

M. A. Sargeant<sup>§</sup>

*Cambridge University, Cambridge CB2 1PZ, UK*

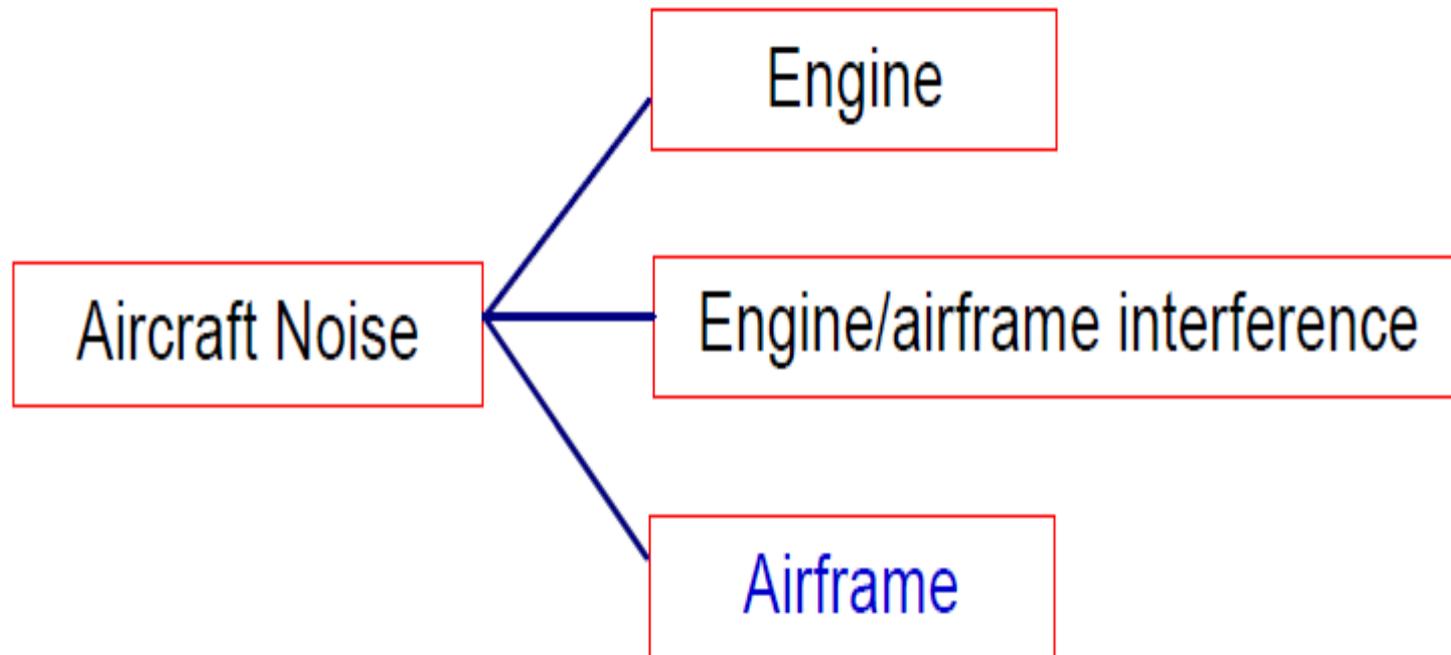
**SAX-12**

**SAX -20**

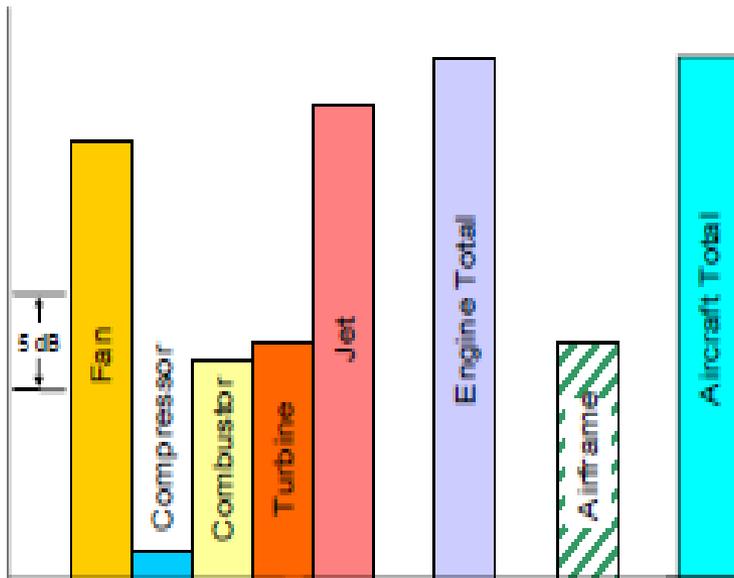
**SAX -40**



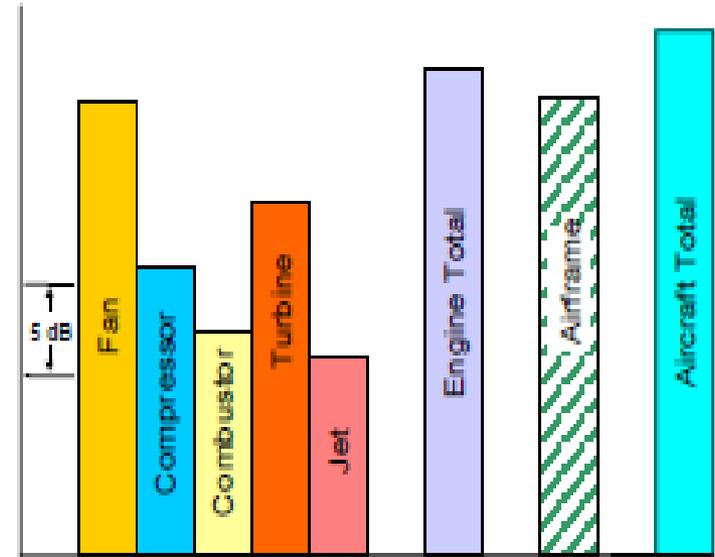
# COMPONENTI DEL RUMORE AERODINAMICO



# RUMORE AERODINAMICO IN DECOLLO ED ATTERRAGGIO

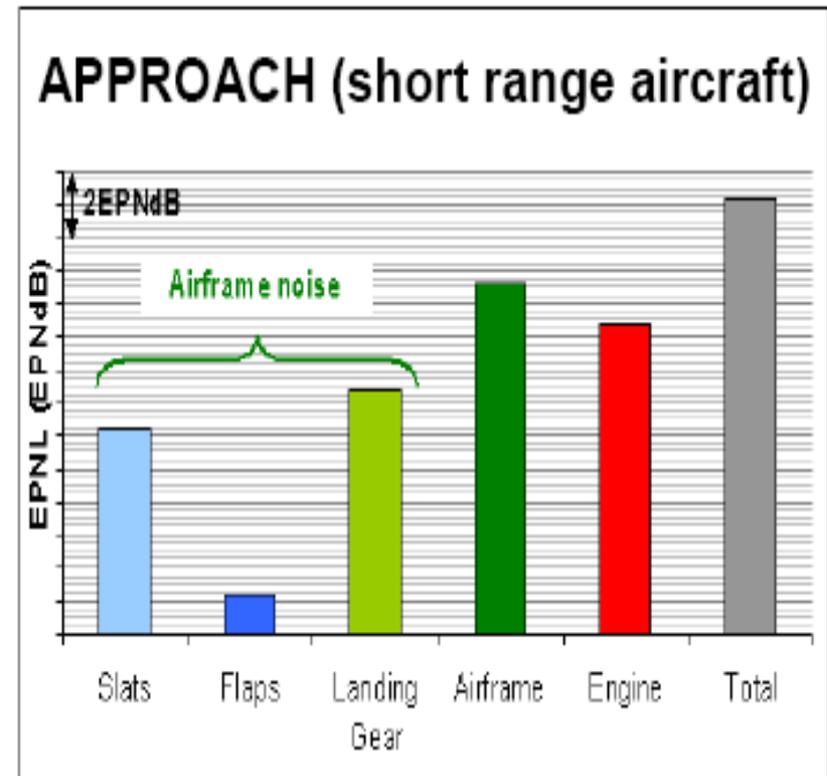
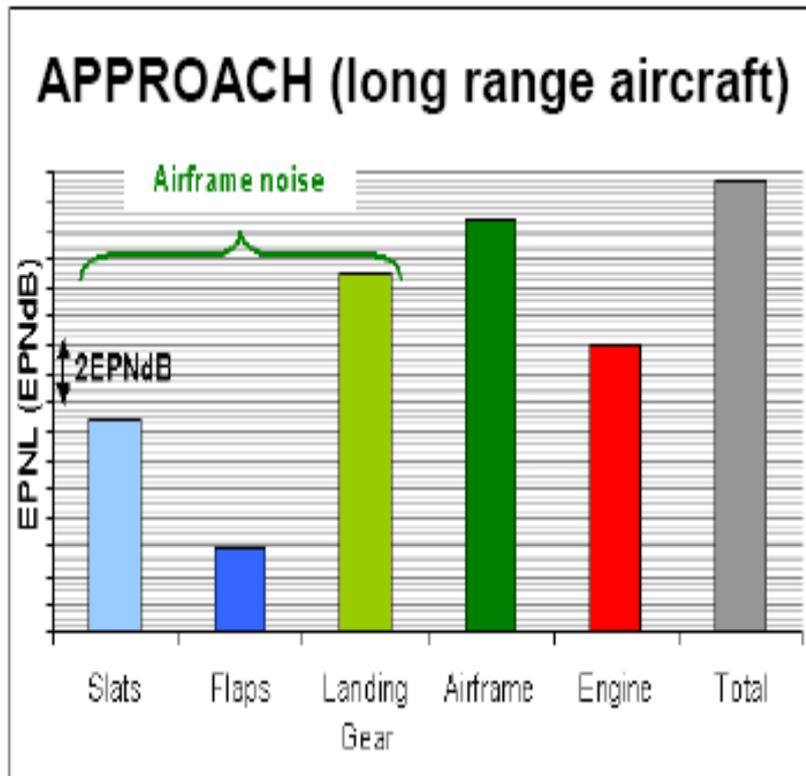


Take-off



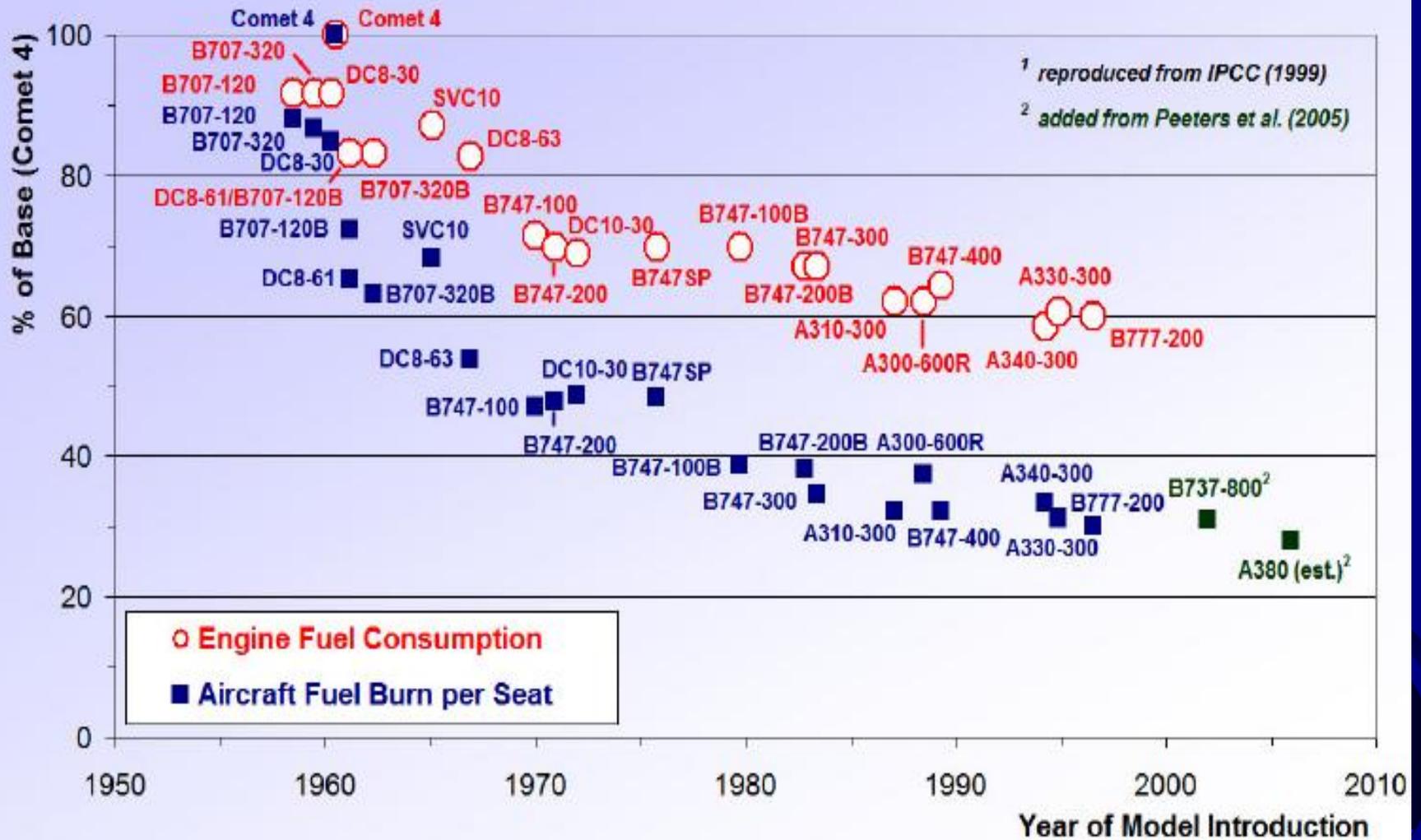
Approach

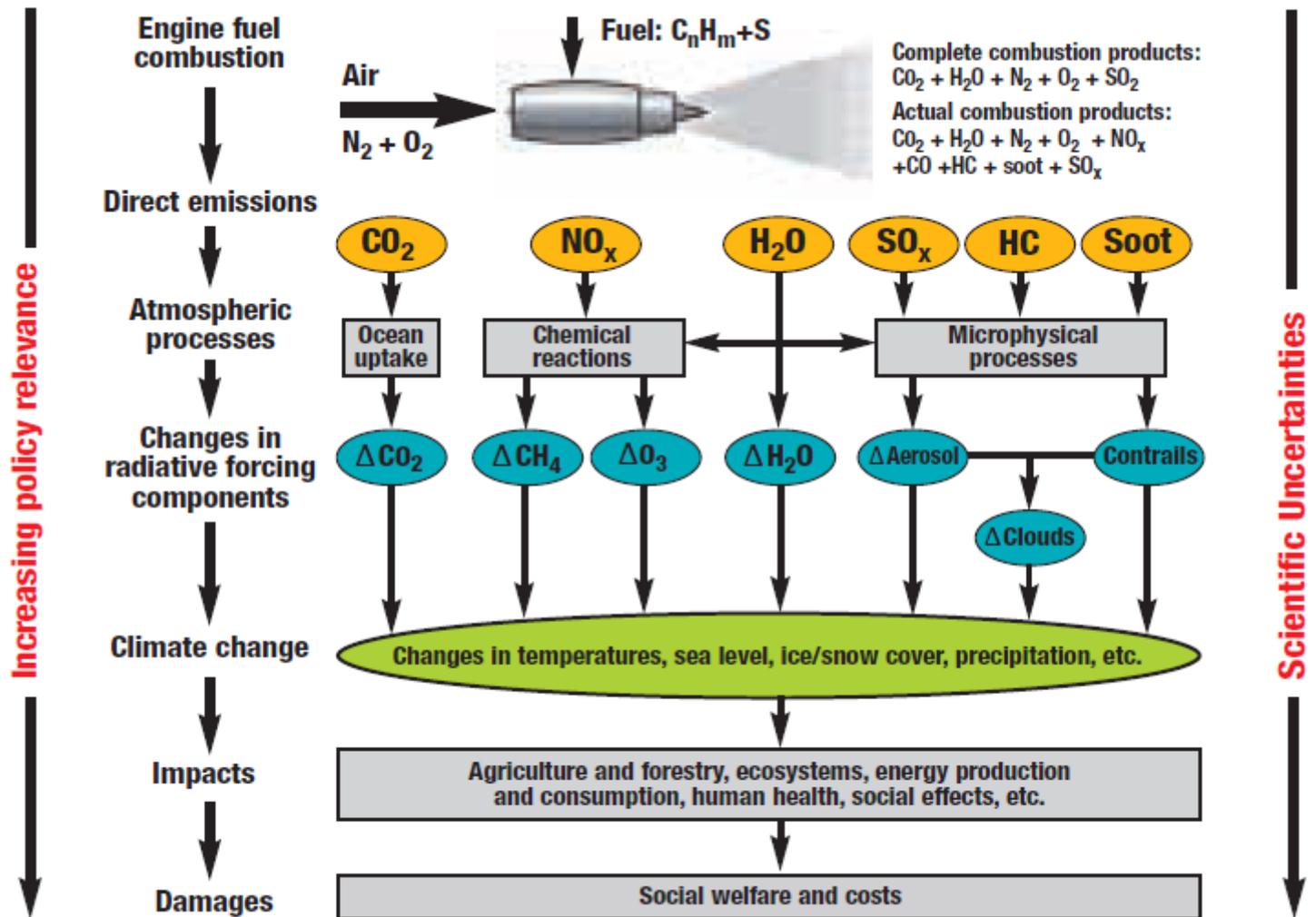
# RUMORE AERODINAMICO



Source: Airbus

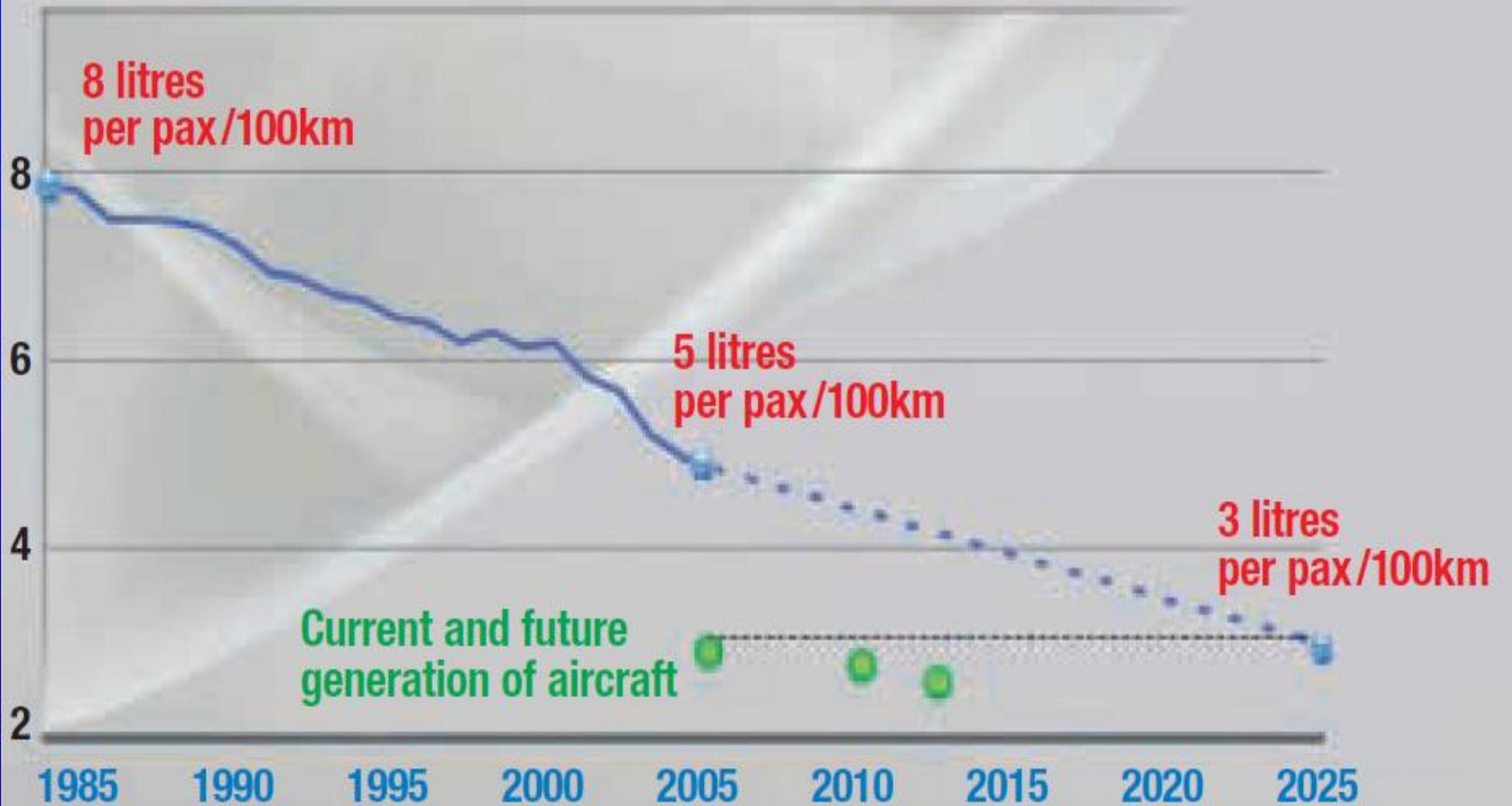
## Trend in transport aircraft fuel efficiency<sup>1</sup>





Sources: Okanagan University College in Canada, Department of Geography, University of Oxford, School of Geography; United States Environmental Protection Agency (EPA), Washington; Climate Change 1995. The Science of Climate Change, contribution of Working Group 1 to the Second Assessment Report of the Intergovernmental Panel on Climate Change, UNEP and WMO, Cambridge University Press, 1996.

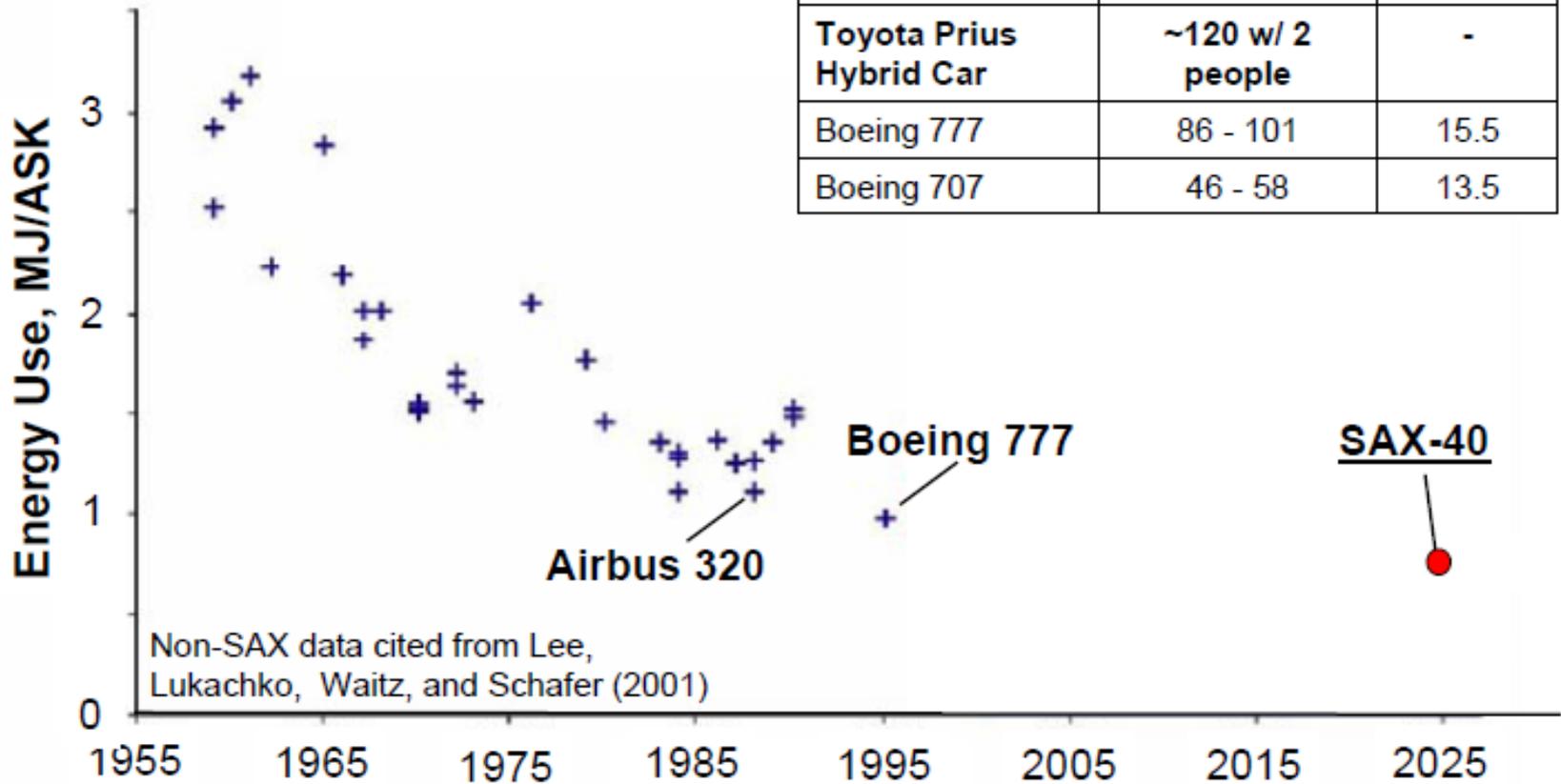
# Worldwide passenger air traffic fuel consumption (liters per 100 ASK)

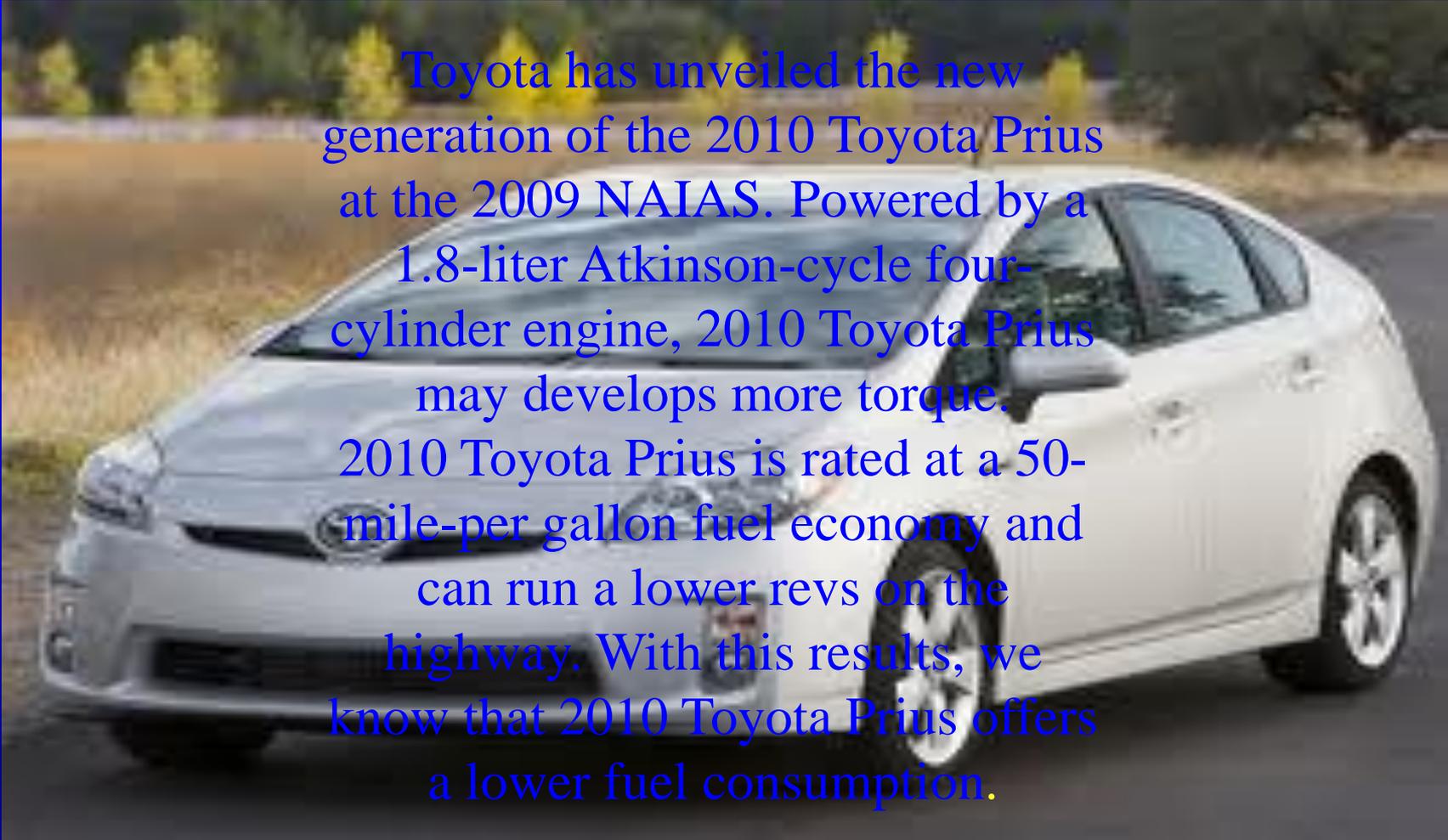


# SAX-40 Fuel Efficiency

In addition to quiet, analysis suggests high fuel efficiency.

	passenger miles per gallon	Mach * Lift/Drag
<b>SAX-40</b>	<b>~124</b>	<b>20.1</b>
<b>Toyota Prius Hybrid Car</b>	<b>~120 w/ 2 people</b>	-
Boeing 777	86 - 101	15.5
Boeing 707	46 - 58	13.5





Toyota has unveiled the new generation of the 2010 Toyota Prius at the 2009 NAIAS. Powered by a 1.8-liter Atkinson-cycle four-cylinder engine, 2010 Toyota Prius may develops more torque. 2010 Toyota Prius is rated at a 50-mile-per gallon fuel economy and can run a lower revs on the highway. With this results, we know that 2010 Toyota Prius offers a lower fuel consumption.



SAX 40 – Silent Aircraft Conceptual Design

**GRAZIE**

