



**29th Congress of the International Council of the Aeronautical
Sciences
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St. Petersburg, Russia**

Dr. Jean Botti, Airbus Group Chief Technical Officer

Dr. Jean J. Botti

Chief Technical Officer of Airbus Group

Jean Botti has been the Chief Technical and Innovation Officer at Airbus Group¹ since May 2006. He is currently also the Chairman of the Group Corporate Foundation and, in the framework of 34 plans relating to the “New Industrial France” policy, manages the project for “electric aircraft”.

Jean Botti began his professional career at Renault in 1978 before joining the Chassis Engineering division of General Motors in the United States in 1989. Upon his return to France in 1992, he was appointed General Motors’ Director of European Engineering for chassis components. In 1997, he returned to the US to take over the reins of the Delphi Corporation’s Customer Solution Center, a position he held until 2002.

From 2002 to 2004, he managed the new corporate Dynamics, Propulsion and Thermal Innovation Center as the Chief Technical Officer. He rounded off his time at Delphi as the Director of the Powertrain Business Line, before taking up his position at EADS in 2006.

Botti graduated from the National Institute of Applied Sciences (INSA) in Toulouse in 1986, with a degree in mechanical engineering. He went on to pursue further studies in the United States, where he earned an MBA from Central Michigan University and a degree in Research and Development Management from the Massachusetts Institute of Technology (MIT), both in 1991. Last but not least, he was awarded a PhD in mechanical engineering from the National Conservatory of Arts and Trades (CNAM), Paris in 1995, in collaboration with the University of Michigan.



What I Want To Share With You Today

Innovation is the perpetual motion of evolution and revolution. Today, let me show what we are doing to push the frontiers of a revolution from air to space.

A Traditional Competitive Environment Today



Being more efficient
Higher performance

Being lighter
Higher productivity

Better quality

Focus on hardware



A Different Competitive Environment Tomorrow



Internet giant has bought drone firm Titan Aerospace

High-altitude solar powered drones to beam internet access to remote areas and collect aerial images.

\$54.7 billion cash reserved for investment opportunities

Focus on software

Rapid prototyping

Being faster

Higher creativity

Lower costs

Higher diversity



Private space transport services company founded 2002

Mission to reduce space transportation costs

First privately funded company to successfully launch, orbit and recover a spacecraft

We Need Disruptive Innovation To Stay Ahead

AIBRUS GROUP Innovation Model

Transversal
Innovation

R&T

Open
Innovation

Partnering &
Licensing

Out of the Box
Innovation

Green Field
Initiatives

Future Technologies Made Today: E-Fan

Designed from the outset for **electrical propulsion**

Battery pack location **in the wings** with a **quick change** capability

Electrically powered main wheel for taxiing and acceleration

Funding from the French Directorate General for Civil Aviation (DGAC) as well as from regional government institutions in southwest France

Involves an association between Airbus Group Innovations, SMEs and academia



E-Aircraft Day April 25th: First official flight

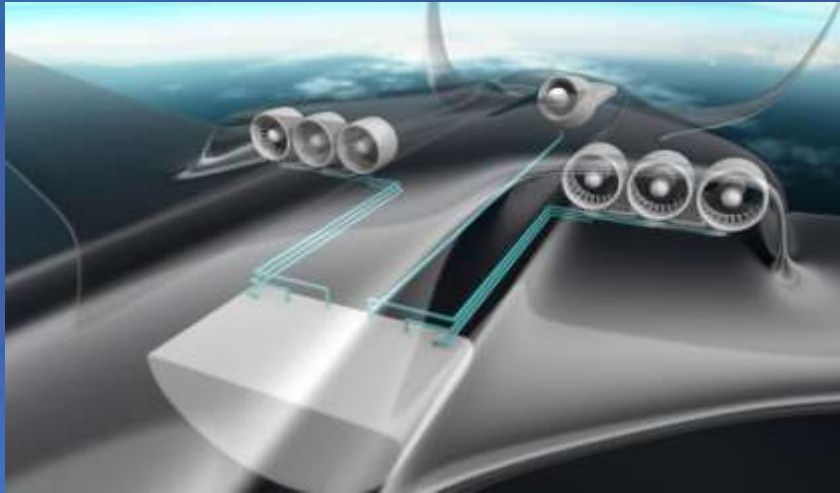
E-Fan – Video



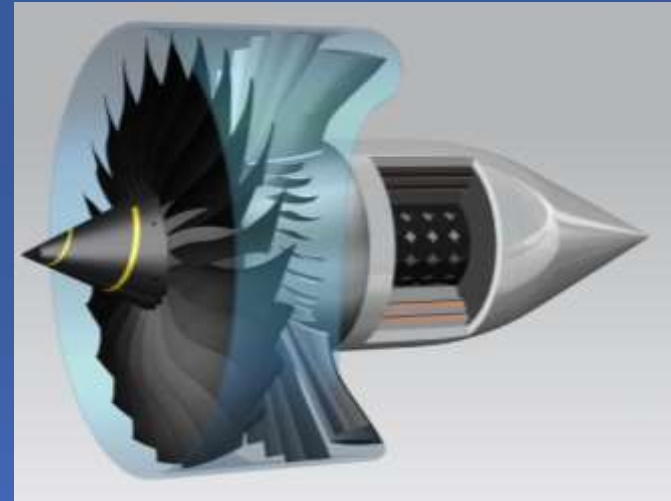
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E-Thrust: A Rolls-Royce Airbus Group Partnership

The vision of a distributed hybrid/electric propulsion system



One gas turbine provides the electrical power for six fans and for re-charging the batteries



Rolls-Royce electric fan demonstrator

AGI and Rolls-Royce are jointly researching key technologies that will enable improved fuel economy and reduced exhaust gas and noise emissions for future aircraft designs.



eConcept: Visualization of the architecture and configuration of what an aircraft of the future could look like powered by hybrid/electrical distributed propulsion

E-Thrust Video



E-Thrust Video



ZEHST – High-Speed Transport Concept Study



Rocket engine cut-off and ramjet engine ignition

Cruise at optimum Mach number to beyond Mach 4 and an altitude up to about 32 km

Gliding descent

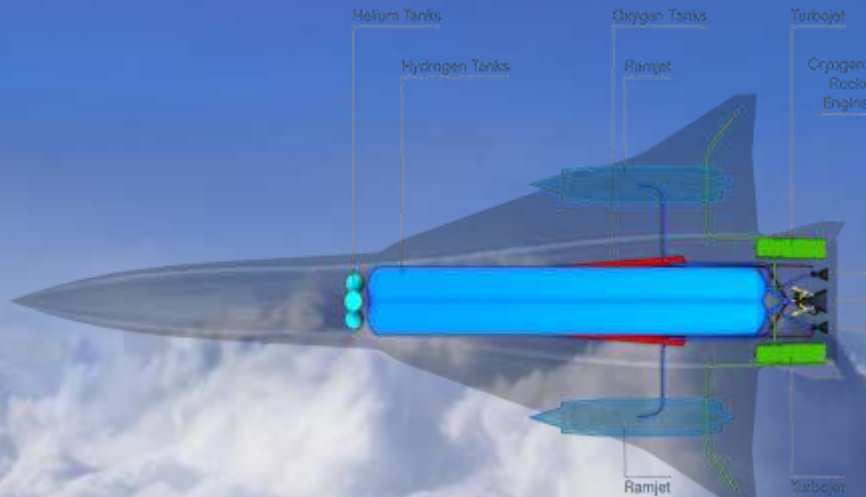
Steep ascent, supersonic regime

Rocket engine ignition, subsonic regime

Re-ignition of turbofans

Take-off from a standard runway (Turbofans)

Loiter, approach and landing on standard runway



ZEHST Video

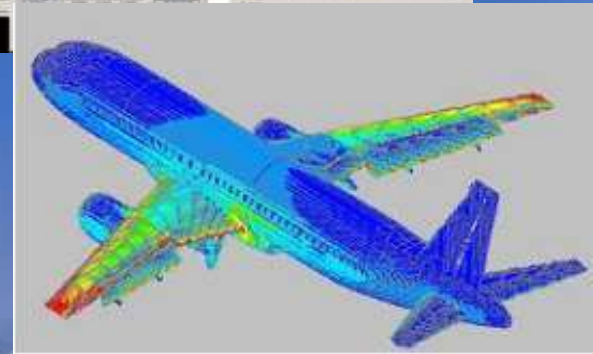
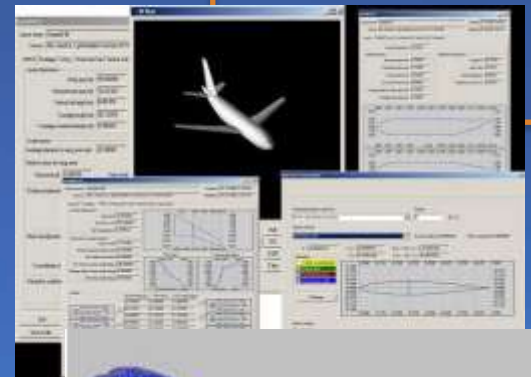


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Russia: A Partner for Airbus Group Innovations

- **Strategic partnership** agreement with Russian R&D key-players
- Multidisciplinary advanced simulation tools (MACROS)
- Over 110 projects with focus on **advanced engineering tools**
- Airbus support to EU-Russia research programs
- Airbus Group **R&D center** at Skolkovo Innovation Campus

New Airbus Group laboratory & offices



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From earth to space and from space to earth,
our vision for an aerospace revolution will
benefit society in many different ways.

Jean Botti, 2013

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