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**From Airbus to the
Society**
and viceversa

October, 28th (2014)

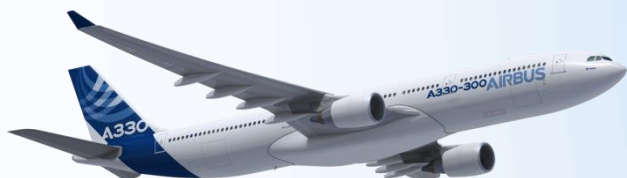
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- ❑ Society demands
- ❑ Technology drivers
- ❑ Our pillars
- ❑ Our results and contribution



There are clear economic and social benefits in having a successful aviation sector - 56 million jobs globally ; **3.5% of global GDP.**

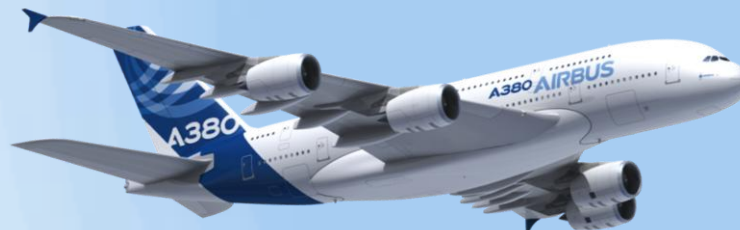
The Airbus Family today



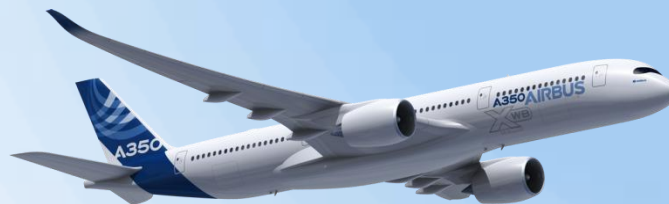
A330 Family



A320 Family



A380 Family



A350 XWB

14,606
orders

5,793
backlog

8,699
deliveries

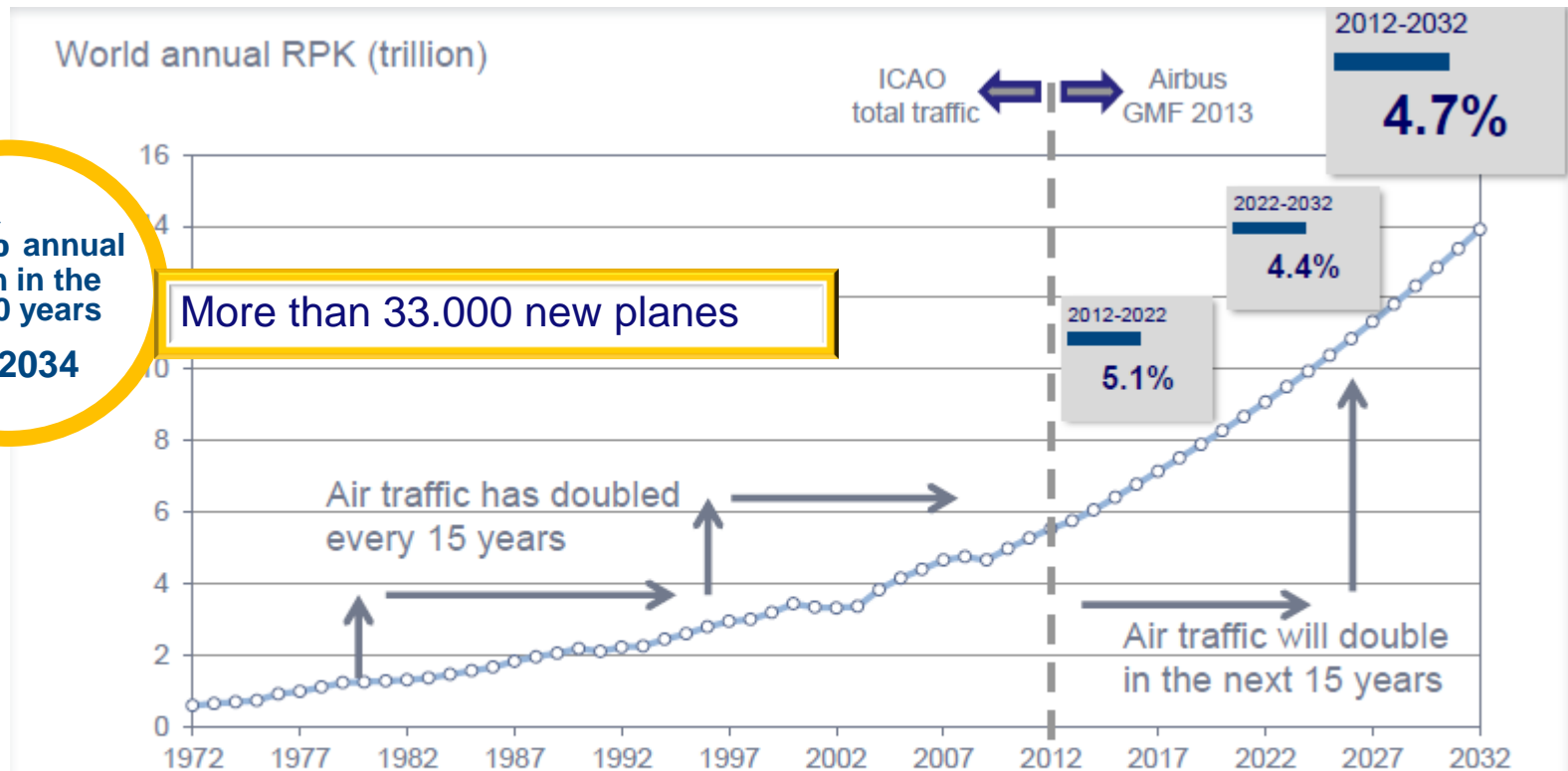
626
Deliveries 2013

25,000
flights daily

Data at Sept 2014

Society demands - Forecast on world traffic growth

Currently the aeronautics is suffering a number of challenges of societal, environmental and economic character.



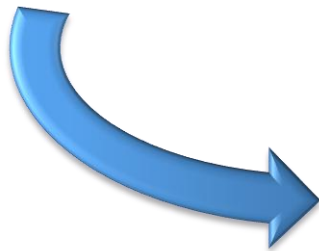
Traffic growth increase forecast in revenue passenger kilometer (RPK)

A RPK is flown when a passenger for whose transportation an air carrier receives commercial is carried one kilometre

Society demands – Example: environmental footprint



Flightpath 2050 Europe's Vision for aviation



ACARE – Advisory Council for Aerospace Research in Europe (EC, DLR, NRL, Onera, Safran Indra, Thales, RR, Aena, IATA, Augusta, Dassault, Patras Univ., CDTI etc.)



- By 2050 **CO₂ emissions** per passenger kilometer will have been **reduced by 75%** compared to a 2000 technology level
- **NOx emissions** will have been **reduced by 90%** compared to the 2000 technology level
- The perceived **noise emission** of flying aircraft is **reduced by 65%** compared to the 2000 position

Strategic agenda - Global answers: “Vision 2050” and Targets: ACARE

Challenges & Associated Goals

● Meeting societal and market needs

● Industrial leadership

● Environment & energy supply

● Safety and Security

● Prioritize research, testing & education

- 90% of travelers within EU to complete journey within **4 hours**
- Coherent ground infrastructure
- Flights land within **1 min** of the planned arrival time
- *Air traffic management system providing services to handle **25 million flights/year***
- *EU aviation sharing more than **40% of global market***
- *Leading edge design, manufacturing and system integration capability*
- *Decreased **development costs** (i.e. certification by 50%)*
- **CO₂ emissions reduced by 75%, NO_x emissions by 90% and perceived noise by 65%** relative to year 2000
- Vehicles designed and manufactured to be **recyclable**
- Sustainable **alternative fuels**
- **Less than one accident per ten million flights**
- Air vehicles **resilient by design** to security threat evolution
- ***Research & innovation strategies jointly defined by all stakeholders***
- ***Multi-disciplinary technology clusters***
- ***Courses at universities match the needs of the industry***



Group of Personalities



...addresses the full scope of customer expectations

Pillars – Technology and Proven values



1990

2000

2010

2015

A320



**2nd gen. digital
auto flight system**

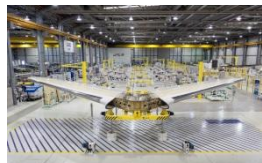


**CFRP HTP
Primary structure**

A340

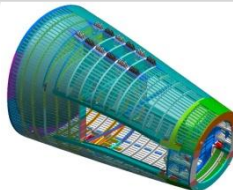


**All-new advanced
technology wing**



**CFRP HTP (wet
primary structure)**

A380



**CFRP non-
pressurized fus.**

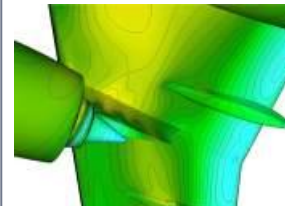


**Variable Frequency
generator**

A350

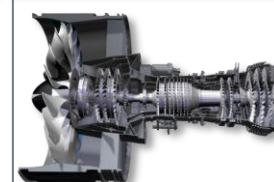


**CFRP Fuselage
and wing box**



**Aerodynamic
Efficiency**

A320neo



**VHBR engine
integration**



Sharklets

Technology as established driver for success

Made in Spain – Example: carbon composite structures



Horizontal tail plane A320 NEO



Section 19 fuselage A380



Bottom panel wing A350XWB



Section 19 fuselage A350XWB



First time in the market

Pillars – Partnerships

Airbus role as puller




Centro para el Desarrollo Tecnológico Industrial

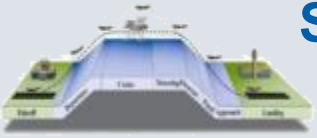


Innovación en Composites Avanzados y Rear-End Optimizado








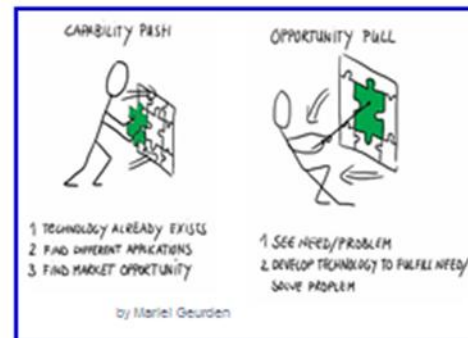
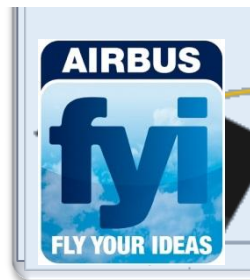



Systems:



Open and closed innovation

Open innovation is the use of directed inflows and outflows of knowledge to accelerate internal innovation and expand the market for external use of inventions



Technology push / market pull

Crowdsourcing processes

Avoid non-invented here syndrome

Connect Industry and Academic research

Partners

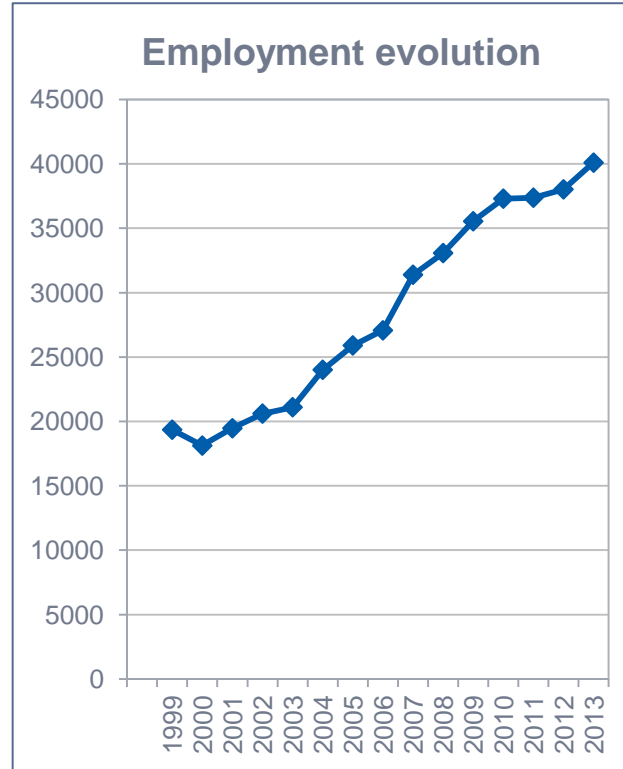
materplat

GRAPHENE FLAGSHIP

What aeronautics provides in Spain



80% export



351 companies certified against EN9100
518 productive centers



>40,000 sustainable and highly skilled jobs in Spain

Los pilares que nos permiten servir a la sociedad y seguir inventando el futuro descansan en:

- **Un conocimiento de las demandas de los clientes y los desafíos de la sociedad**
- **Una hoja de ruta tecnológica coordinada**
- **Estrategia negociada con todos los involucrados**
- **Buen aprovechamiento de los recursos internos y externos**
- **Atmósfera que permita trabajar en condiciones de continuidad**

