The Challenges facing Air Transport

John Blanchfield
Director, Technical Marketing, Airbus
“From today there is a new queen of the skies for air travel”

Chew Choon Seng, CEO, Singapore Airlines

Big cities are getting bigger and driving world growth
Operational constraints limit frequency growth
New Business Class
The world’s **widest** B/C seat

New Economy Class
More personal space, 19” wide seats
A380 operations: the best EIS ever for SIA

**Technical dispatch**
- Over two months and > 100 flights with no technical delay
- 1,126 flight hours, 155 cycles (Jan 12th)
- Only one aircraft technical delay (29 min, Jan 5th)

99.35% dispatch reliability

**Ground operations**
- Catering times shorter than 747-400 (w UD catering)
- Boarding times in-line with 747-400

110 mn TRT in Sydney from day one

“Frankly, I've never seen such a good introduction”

Mervyn Sirisena, SVP (Engineering), SIA
Taking the lead: the A350 XWB
A350 XWB – a wide ranging family

A superior family with no compromise on range

- A350-1000
  MTOW 295t (650klb)  Thrust 92klb

- A350-900
  MTOW 265t (584klb)  Thrust 83klb

- A350-800
  MTOW 245t (540klb)  Thrust 74lb

Capacity
- 3-Class seating

Range

8300nm
Dimensioned for the future – **Xtra wide**

**Xtra comfort all round**

- 5 inches wider at eye level
- 5 inches wider at the shoulder
- 5 inches wider at armrest

A350:
- 211 inches
- 220 inches*

787:
- 206 inches
- 215 inches*

*Armrest to armrest
A350 XWB – Efficient airframe

A350-900 XWB
Material Breakdown (%)
Including Landing Gear

Composite 53%
Steel 6%
Al/Al-Li 19%
Titanium 14%
Misc. 8%

A350 XWB - designed for lowest fuel burn
A350 XWB Flight deck

Building on A380 experience…

Six identical 15” LCD displays
- Head-up display
- Vertical Display
- Dual Integrated Standby Instrument System
- Onboard Information System
- Brake to Vacate
- Onboard Airport Navigation System
Greener, cleaner, quieter, smarter

The environment is important to all of us…
... but people want or need to fly

- **Share** time with friends and family
- **Discover** new horizons and cultures
- **Increase** opportunities and business
- **Resolve** global issues

**Meeting increasing demand**

**Addressing environmental concerns**

**Aviation's ongoing challenge**
Which are ‘myths’ .... And which are facts

Air transport is a major global polluter.

**WRONG**  
*Air transport accounts for 2% of global man-made GHG emissions.*

Air transport is the major polluter in the transport sector.

**WRONG**  
*Air transport accounts for 12% of transport sector CO2 emissions.*

Air transport is excluded from the KYOTO accord.

**WRONG**  
*Domestic air transport is included in national accounts.  
International is under ICAO.*

Air transport receives ‘special treatment’.

**WRONG**  
*Air transport pays for its own infrastructure (unlike road and rail).*
Reductions in noise and fuel consumption

Relative Fuel Burn per seat
70% reduction over 40 years

Lateral Noise Level
Corrected for Aircraft Thrust
20dB reduction over 40 years

Turbojets
1st gen. turbofans
2nd gen. turbofans
The A380 carries 40% more passengers, yet has a 46% smaller noise footprint than today.
A380 is 20 years ahead of the fleet

Worldwide passenger air traffic fuel consumption
- litres per 100km per passenger

The A380 delivers 2025 fuel burn efficiency – today!

World Fleet projection
3 litres per pax/100km

- American SUV (10.2)
- European Compact Saloon (6.7)
- A380 (2.9)
Required Navigation Performance

Flexibility to go where you want with precision
Lower fuel burn, less emissions
Less noise as routes avoid populated areas

116 arriving flights, RWY 34, Kelowna

128 arriving flights, RWY 34, Kelowna
Smarter avionics & systems

New procedures to improve operations and reduce environmental impact

- RNP - Required Navigation Performance
- CDA - Continuous Descent Approach
- NADP - Noise Abatement Departure Procedure
- RTA - Required Time of Arrival
- BtV - Brake to Vacate
Technology research already underway

‘Clean Sky’ European Joint Technology Initiative

Fuel cell technology, demonstrator at 2007 Paris Air Show

Biofuel and biomass fuels

New aircraft configurations
  › natural and hybrid laminar flow aerodynamics

BUT it is a global issue.
The ACARE vision
Creating partnerships that matter

50% reduction in CO₂

Aircraft manufacturers → Engine manufacturers → Air and Traffic Mngt

50% reduction in perceived noise

Noise reduction at source → Land-use planning
Operational procedures → Operational restrictions
A380 launches Airbus Alternative Fuel Programme

A380 makes the first ever flight of commercial aircraft with alternative fuel
- MSN 004, flight test-equipped and fuel system test aircraft

GTL – Gas to Liquid synthetic processed fuel
- Approximate 50%–50% GTL-kerosene feeding one engine
- Three hour test flight from Filton, UK to Toulouse, France

“Our alternative fuels roadmap requires innovation, diversity of ideas, and options that need to be explored” Tom Enders, Airbus President and CEO
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