Airbus A380 Qantas Implementation Challenges
Overview

• Why the A380 aircraft?
• Magnitude of the A380 Program
• Key challenges
29 November 2000…
A Historic Day For Qantas

Worth A$9.6B over 10 years.
Largest fleet investment programme ever.
Challenges for The New Century

• Escalating costs
  - Fuel and distribution costs
  - Falling Australian Dollar
  - Efficiency pressures

• Declining yields
  - Increased competition
  - Liberalisation impact on market access
Challenges for The New Century

- Globalisation and alliances
  - Improved access to major hubs

- Qantas fleet renewal
  - Replacement of B747 Classics & B767-200s
  - Payload range on Pacific and to London
  - Preserve fleet flexibility
1960s Introduction to the jet-age

1970s The era of the jumbo jet

1980s Decade of the widebody twin

1990s Non-stop long-haul operations
New Aircraft Commitments

7 x A330-200
from 2002

6 x A330-300
from 2003

12 x A380-800
from 2006

6 x 747-400ER
from 2002
Program Benefits

New technologies and design

Capacity

Fuel Efficient
Silence

Range
Superior performance

Airport access

Superior performance

Airport
access

Airport
access
The Key to Flexibility

Commonality with A380 and other Airbus types
Overcoming Congestion at Sydney

Constraints also in London, Los Angeles and Tokyo
A330/A380 Strategy for Qantas

Low-risk growth strategy:

- 747-400: 395 seats (+34%)
- 767-300ER: 230 seats (+24%)
- A380: 550 seats (+39%)
- A330: 300 - 340 seats

Increasing capacity and reducing unit costs
The Next Logical Step for Qantas

Productivity of the Qantas fleet over time:

Time for the next step in growth and productivity
Magnitude of the Program

• $9.6b
• 1st non-Boeing airliner since the B707 in 1959
• Step changes
  - new technologies and designs
  - detailed technical specifications
  - maintenance
  - pilot training and systems
Magnitude of the Program

- Leveraging new type to drive step changes
  - dual aerobridges
  - latest e-distribution and workflow software
  - major increase in GE engine numbers
  - new RR engine for A380
  - innovative in-hold concepts
  - new EBAs
  - major new supplier relationships
A330 Program

- 13 A330 aircraft delivered Dec 02 - May 05
- Smoothing the introduction for the A380
  - Airbus relationship development
  - Program experience on new “Type” introduction
  - Experience with Airbus “family”
  - Strategic step changes introduced
Product

• Qantas pioneer in longhaul travel
  - 1st to sign A380 contract
  - 1st to introduce Business Class
  - end to end experience

• New aircraft and hence new cabin design
  - new manufacturing technologies & materials
  - intelligent use of space

• Ground Experience
  - highly efficient and seamless ground proposition
Flying environment

• New cockpit technologies; fly by wire
• New training techniques introduced
• Different aircraft characteristics
• New EBA
• Security implications
Electronic Flight Bag

- Instant access to aeronautical charts and flight planning information
- Ease of access to necessary flight information
- Navigate around airports whilst taxiing
- Eliminate folders of charts and books
Head Up Display Development

• **Enhanced Operational Safety**
  - Improved situational awareness
  - Precise flight path and energy control
  - Improved windshear awareness

• **Operational Benefits/Improved Aircraft Capability**
  - Lower take-off, approach and landing minima
Cockpit Door Surveillance System (CDSS)

- Selector P/B on the pedestal
- C/B & ON/OFF switch on the overhead panel
- LCD
- Keypad
- Camera 1
- Camera 2
- Camera 3
Flight Simulator
Cabin Technical specification

• Lining and servicing
• seats & galleys
• safety systems
• door arrangements
TRAINING

- 2,500 shorthaul crew, pilots & LAMEs
- 1,350 airport staff
- Custom flight simulator and cabin service trainers
Cabin Service Trainer

• Business and Economy Class galleys
• Business and Economy Class seating
• IFE simulator
• CIDS simulator
• Functionality as per aircraft
A380 Training

- 50% higher than A330
- First of type Flight Simulator
- Custom Cabin Service trainer
  - 2 storey
  - new building to house
Maintenance

- Maintainability
- reliability / cost
- technical data
- concepts, tooling, formats
New maintenance philosophy

• phased maintenance
• new technology aircraft
• non-Boeing aircraft and related change pain barrier
• new maintenance systems; IT systems, etc
• new tools, hangar
• Interim arrangements
Facilities

• New tailored A330 hangar
• ground support equip
• test equipment
• airframe / avionics & line station spares
• A380 specific hangar
Innovative In-hold system

- Innovative Concepts
  - Incorporating specific design features that improve safety on the ramp, efficiency & reliability

... a significant investment in safety for Ramp
High BTU density and dual lift cam

Continuous side rails and higher roller density
A380 Program

• 12 A380 aircraft delivered from 2006

• Leveraging the A330 program
  - Airbus relationship & “family” experience
  - Program experience on new “Type” introduction
  - New flying environment, technologies and systems
  - Lessons learnt
Airport Formalities

• “Pulse” impact:
  - “Clean skin” analysis at each airport
  - No decrease in performance standards
  - Most areas of the terminal need consideration.

• Airport readiness
A380 Turn-time

• Drivers
  - Compatibility / interchangeability
  - On Time performance
  - Passenger connecting times

• Parameters
  - GSE positioning in typical ramp layouts being assessed
GATE DIMENSIONS (A380 + 7.50 m (24.60 ft)):
- WIDTH: 87.50 m (287 ft)
- LENGTH: 80.20 m (263 ft)
- STORAGE AREA: 2 x 031 m² (2 x 10021 ft²)
Airfield study items

- Runway and taxiway width and separations
- Cross wind implications for runway operations
- Environment
QC2 Noise Target

- Rolls-Royce Trent 900
- 80,000 lb thrust
  - Larger fan
  - Low exhaust velocity
  - Optimised blades
  - Advanced acoustic liners
Safety Implications

• Transformational change
  - Maintain strong safety culture

• ‘New type’ risks
  - New routes / product
  - New cockpit technologies and systems
  - New aircraft characteristics
  - New maintenance approach, procedures and systems

• OH&S issues
A330 Lessons Learnt
What worked well - Safety

- Managing transformational change
  - Step change strategies
  - Innovative program structures
  - Accountability
  - Collaboration
  - Benchmarking & peer reviews
  - Vendor management focus
A330 Lessons Learnt
What worked well - Safety

• Extensive tech crew training and off-shore line flying
• Benchmarking with other A330 operators
  - Best practice focus and risk mitigation
• Comprehensive end to end proving flights
• Substantial investment in operational training
• Peer review by Cathay Pacific
• Comprehensive SAFE assessments e.g. OH&S
A330 Lessons Learnt
What worked well - Safety

- Underwritten by strong focus on:
  - Extensive planning
  - Minimising changes to plans and staffing
  - Operational procedural manuals, reference data, etc
  - Best of breed training simulators, facilities, IT tools
  - Leveraging experts and experience
  - Risk areas; high risk projects, load control, etc
  - Strong safety focus during EIS phase
A330 Lessons Learnt
Areas for improvement - Safety

- Some OH&S reviews left late raising risk
  - impacted vendor schedules and delayed training
- Initial training & familiarisation commenced later than planned
  - increased pressure on training schedules
- Access to Qantas configured aircraft was limited to EIS
  - increased pressure during EIS period
  - increased pressure on Airports staff training
Airbus, Airports and Airlines

...... working together towards the A380 vision