



*Presented by*

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# Human side of innovation



# Encouraging Innovation & Change

- Get employees involved in the process
- Make employees feel important
- Show employees they make a difference



# Example 1: the F117

- Old: Air Force provided lowest price tools, not lowest cost
- New: Quality, warrantied tools



# Example 2: Northwest

- Entry Into Service
- Dispatch Reliability



# Example 3: Air Canada



# A380 technology benefit

## New flight controls architecture: dual Hydraulic/Electric (2H/2E)

- Lighter, smaller 5000psi hydraulic system
- DMC, reliability benefits
- Improved redundancy

## Modular avionics:

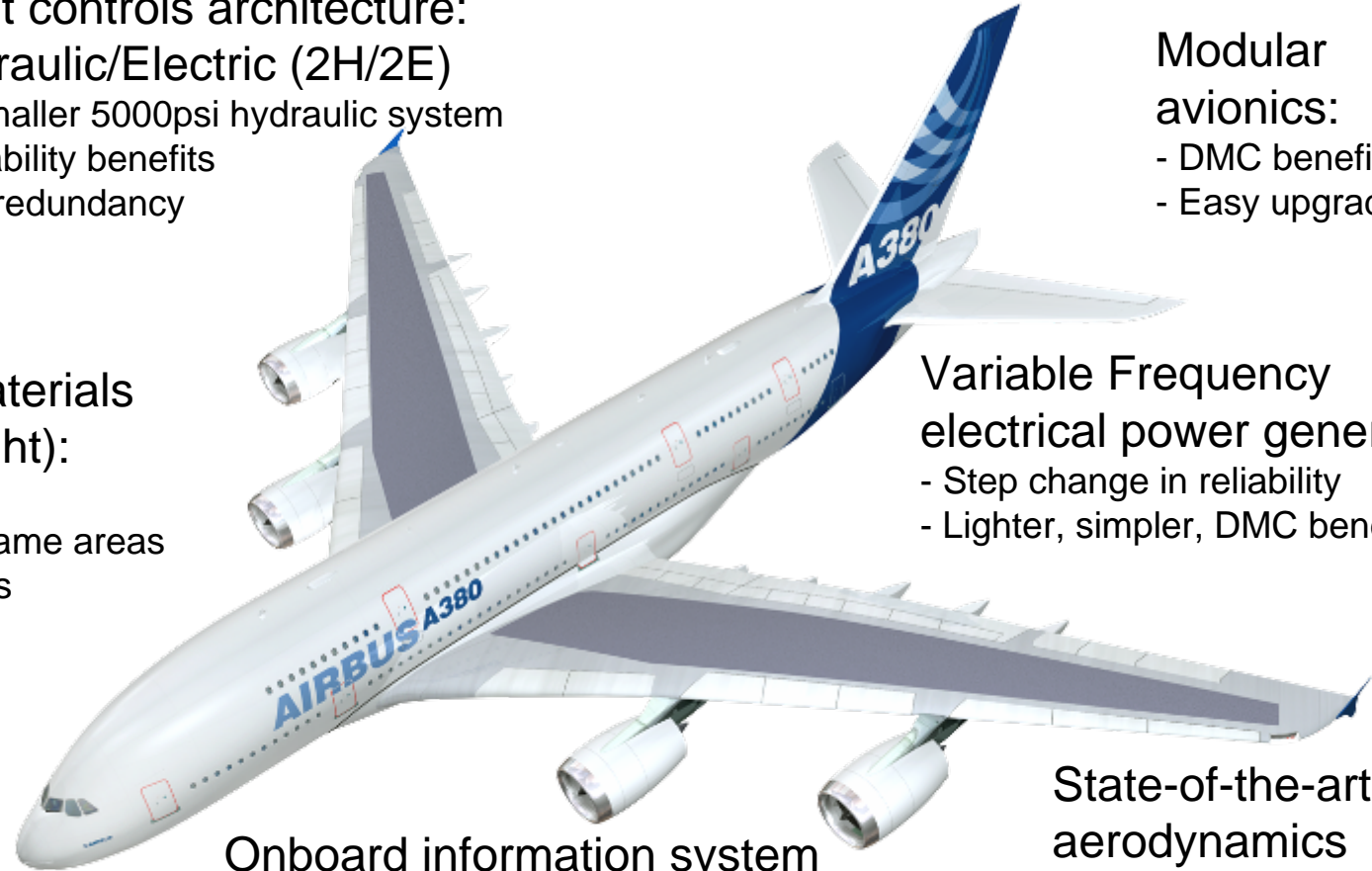
- DMC benefits
- Easy upgrades

## Advanced materials (25% by weight):

- Weight benefits
- In selected airframe areas
- Less inspections

## Variable Frequency electrical power generation

- Step change in reliability
- Lighter, simpler, DMC benefits



## Cockpit

- more interactive
- meaningful innovation
- Family cockpit (CCQ / MFF)

## Onboard information system (OIS/NSS)

- Less paper cockpit
- Improved connectivity, lower DMC

## State-of-the-art aerodynamics

- Lower fuel burn
- Lower noise
- Operational performance

*State-of-the-art technology, driving down costs*

# AIRBUS World – A portal to Airbus

- ▶ Single point of access to all on-line services made available by Airbus
  - **Airbus On-Line Services (AOLS)**
  - **Spares.airbus.com**
  - **eRooms**
  - **Customization & Delivery Information Systems**
- ▶ Development of on-line services in line with the business needs of customer-facing functions
- ▶ Consistency in the range of on-line services offered to customers across Airbus

# AIRBUS World – Home page

Welcome to



Portal administrator

Specialist areas

- Customization & Delivery
- Maintenance & Engineering
- Supply

Quick access

- General Information
- On-line Services doc. index
- On-line Services events
- New documents on-line
- FTP site

On-line Services

- Maintenance & Engineering**
  - Engineering Drawings -> Access
  - AirN@v -> Access
  - Engineering Technical Documentation -> Access
  - Supplier Technical Data Online -> Access
  - Technical Data Download -> Access
  - Technical Manuals -> Access
- Customization & Delivery**
  - Customization and Delivery Information Services -> Access
  - New Enhanced Certification Tool And Rulemaking
  - More info on service access
- Supply**
  - Airbus Support Data for Suppliers -> Access
  - Airbus Supplier Performance Indicators -> Access
  - AOG & Repair Guide -> Access
  - Supplier Product Support Agreements -> Access
  - Spares Portal -> Access
  - Vendor Information Manual -> Access
- Flight Operations**
  - Performance Program Management System -> Access
  - Annual -> Access
- Warranties**
  - Contracts & Warranty Administration

Access to service information card

Access to services



## *AIR*craft *Maintenance* *AN*alysis

Ground-based software dedicated to optimizing the maintenance of Airbus fly-by-wire aircraft equipped with:



On-board maintenance system



Real-time communication system  
(ACARS/ATSU)

Current aircraft covered by the system:



A318 / A319 / A320 / A321



A330 / A340



A380

# AIRMAN strengths

- ✓ Innovative tool for the maintenance of new generation aircraft
- ✓ Efficient trouble shooting assistant
- ✓ Correlation with logbook entries
- ✓ Follow-up of maintenance actions
- ✓ Reduces maintenance-related delays and disruptions
- ✓ Projected cost savings from start up
- ✓ Brings benefits to the whole maintenance process
- ✓ Allows automatic follow-up of a whole fleet
- ✓ Easy to use

## *AirN@v*

Single tool providing enhanced consultation & navigation functions for a wide range of technical data

→ Hybrid DVD/Web-based technology

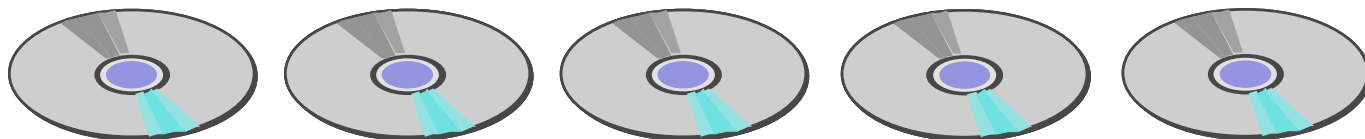
Current aircraft covered by the system:

→ A320 family, A330/340 available

→ A300-600/A310 trial phase begun

→ A380

## Across the maintenance process



**AirN@v**

**AirN@v**

**AirN@v**

**AirN@v**

**AirN@v**

### Maintenance

- AMM
- TSM
- IPC
- PIPC (first A380)
- AWM
- ASM
- AWL
- ESPM

### Repair

- SRM
- NTM

### Shop

- CMM Airbus
- DRM
- *DFPRM\**

### Planning

- MPD

### Engineering

- AOT, FOT
- OIT, SIL
- TFU, OEB
- SB, VSB
- MOD, MP
- AD, CN

*EDCI*



- CML
- SM

- CML
- SM

- CML
- SM

A320/A330/A340  
A300-600/A310 end of 2004  
A380 by end of 2005

By end of 2005 first on A380

- *IFE Supplement\**

\* under investigation

# A350: Taking A380 innovation farther

## Maintenance Program

- fewer fatigue related tasks
- extended check intervals
- optimized for long haul operation

## Cabin

- improved cargo loading system
- cabin maintainability improvements

## Structure

- intelligent use of AL-Li alloy
- CFRP wing structure

## Line Maintenance

- improved trouble shooting
- AIRMAN as standard

## Fuel System

- significant system simplification
- reduced number of components



## Bleed system

- application of A3456 fully electric regulated system
- better reliability, easier trouble-shooting

## External lighting

- new A380 technology (HID, LED) lights

## Air Conditioning

- system simplification
- deletion of pneumatic back-ups
- trend monitoring on all exchangers

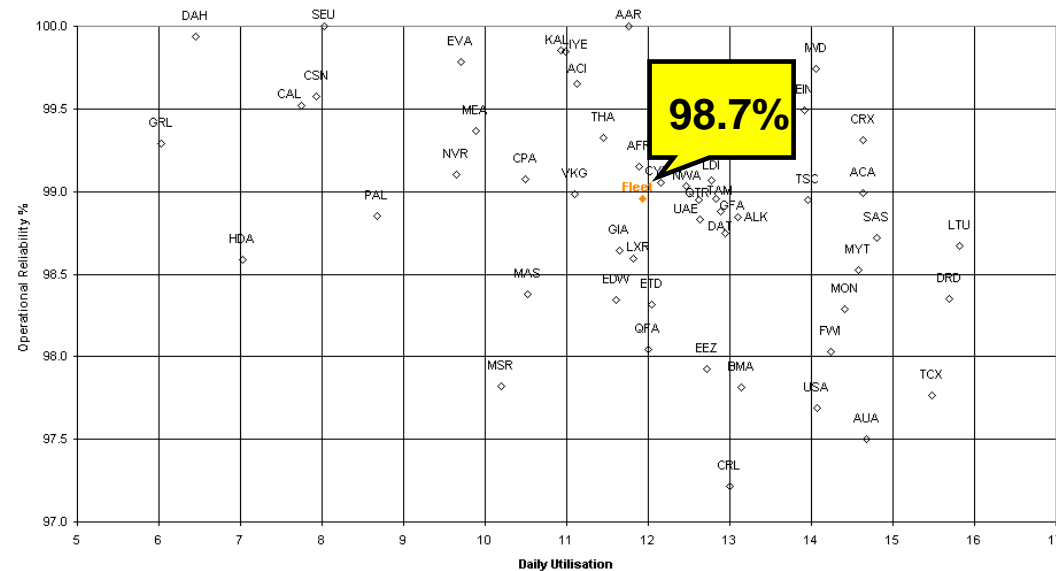
## Landing Gear, wheels, tires, brakes

- new, simplified design
- no shortening mechanism
- improved reliability, lower costs

# Leveraging Innovative Commercial Support Practices



- Germany and Canada benefit from commercially-based support approaches for their A310 MRTT
- The UK and Australia will also benefit from commercially-derived support approaches for their AirTanker and A330 MRTT
- A330 Dispatch Reliability at 98%+



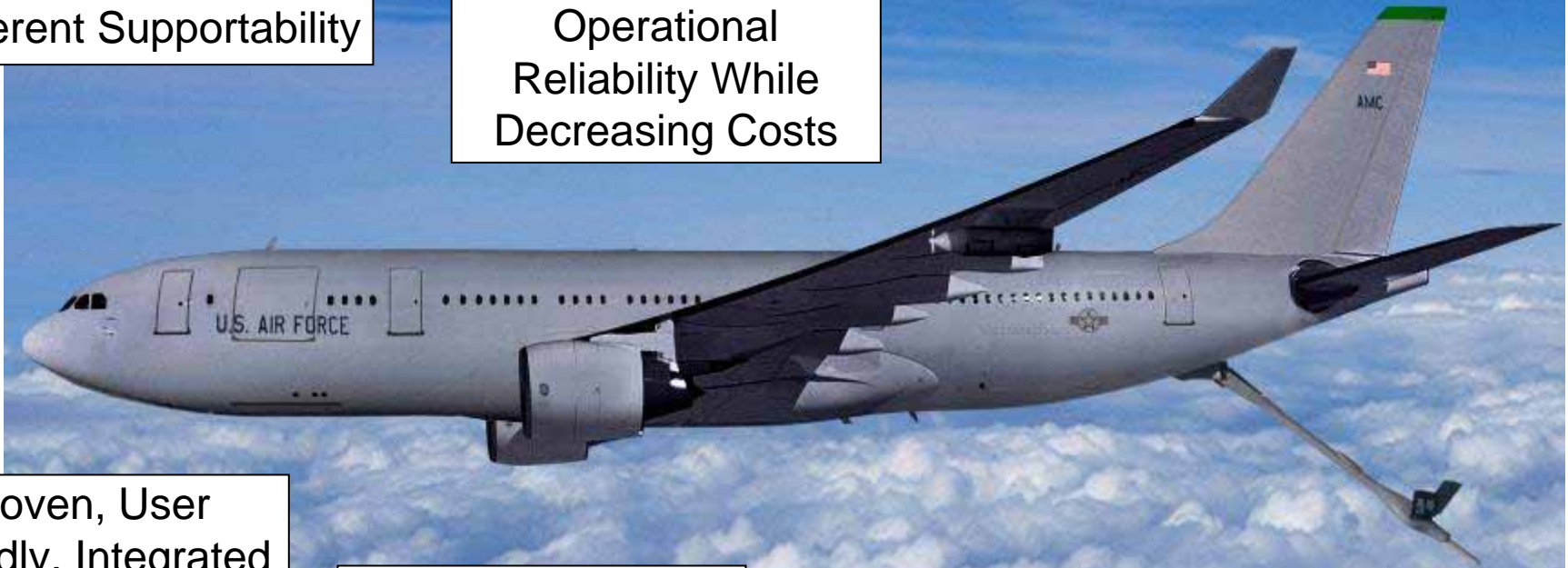
# Leveraging Innovative Commercial Support Practices



A330 Offers Superior Inherent Supportability

AIRMAN System Increases Operational Reliability While Decreasing Costs

PDM Cycle Provides Higher Aircraft Availability



Proven, User Friendly, Integrated Digital Tech Data

World Wide Supply Support Network

Proven Training Infrastructure

Proven Partnership Approach

**Commercial Support Innovations Adaptable to Support Existing Maintenance Practices**



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# Conclusion

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- **Make employees feel important**
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