Aircraft Connectivity and Digital Services
AEEC General session

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Introduction

Airbus has decided to provide new added value services to airlines through the extended use of aircraft data.

This data is hosted on a big data platform coined Skywise, and relies on a new architecture, making it possible to:

– Capture more data
– Improve the aircraft communication capacity
– Provide a host of applications and services
Cross-domain services from the aircraft to the end-user

DATA SERVICES
- Core Platform
  - Data Hosting
  - Predictive Maintenance
  - Flight Efficiency
  - Data Upload & Processing
  - Data Access & Visualization

DATA TRANSMISSION (4G|WiFi|Satcom)
- Enhanced Aircraft Connectivity
- IT Systems Connection

AIRCRAFT & SYSTEMS CONNECTIVITY

DIGITAL SERVICES
Aircraft connectivity
Aircraft connectivity

Flexible and evolutive architecture to cope with:
- Various A/C configuration
- Communication needs
- Air ground conditions
- Technology evolutions

ACD: Aircraft Control Domain
AISD: Aircraft Information System Domain
PIESD: Passenger Information and Entertainment System Domain
Connectivity Solutions – FOMAX

Capacity to connect any computers, any data

Double 4G ground connection, including a dedicated channel for Skywise offer

Avionics computers

Capacity to connect any computers, any data

Airline users (OCC, MCC, engineering…)

Airline IT

4G extended data

FOMAX: Flight Operations Message eXchanger
QAR: Quick Access Recorder
DAR: Direct Access Recorder
SAR: Smart ACMS Report
FLS: Field Loadable Software

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Connectivity solutions – FOMAX

A new dimension in data and connectivity access
An integrated & secured data pathway from the aircraft to skywise.

400 parameters:
<2% available data

CONNECTED AIRCRAFT
24,000 parameters*
100% available data

*From 1400 to 40 000 for A330
Examples of digital services
Digital services – IDLE Factor Optimizer

TAIL-CENTRIC FLIGHT PLAN OPTIMIZATION

- Adjust FMS flight plan
- Computations to real aircraft performance
- Consider in-time evolution
- Get fuel savings on descent and approach phases

Up to* 70kg for A320
100kg for A350
150kg for A330
210kg for A380

The first tail-centric application part of the OPTIMIZE module of ANALYTICS by NAVBLUE

*per aircraft per flight
Digital services – Predictive Maintenance

**FAILURES ANTICIPATION**

- Explore unequalled amounts of aircraft data
- Use performant analytics to anticipate failures of parts and servicing activities
- Reduce significantly operational interruptions

- **Up to 30% of OI* reduction in A320 and A330 fleets**

*Field proven experience with a dozen flagship operators*

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*Operational Interruption*
Digital services – Predictive Maintenance

Event!

PREDICT
- Estimate when a system will fail
- Estimate why a system will fail

DIAGNOSE
- Be aware a system has failed
- Estimate why a system has failed

FIX
- Confirm system failure
- Troubleshoot and fix

Mitigate Risk
- Avoid event: turn unscheduled event into scheduled maintenance
- Anticipate event: prepare to solve event quickly and at lower cost

Landing

Next dispatch

Delay, AOG…
Digital services – Predictive Maintenance

ATA 36 – PRESSURE REGULATING VALVE (PRV) FAILURE

Engine 1 PRV replaced and behaviour back to normal

Alert raised to MCC/Engineering because of several occurrences of PRV slow time to close
Thank you