AiRTHM
Airbus Real Time Health Monitoring

The aircraft manufacturer real time expertise to optimize operations
#01  Innovation & technology

#02  Improve maintenance costs

#03  AiRTHM offer

#04  In services experience

AiRTHM
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Airbus new program **Innovation & Technology**

- Advanced Design
- New Generation Systems
- Innovative and Aerodynamic Airframe
- Simpler Electrical architecture
- New Generation Engines
- Advance Materials

How to take advantage of these new technologies?
New generation systems **Main innovative changes**

**AFDX (ARINC-664 part 7)**

- Based on commercial switched Ethernet
- **1,000 times faster** than previous standard (ARINC 429)
- Full duplex, simultaneous two ways communication
- Less wiring and less weight due to STAR network topology
- Robust, AFDX relies on parallel redundant network

**Modification ACMS**

- Single system collecting, centralizing and compiling data
- Able to **acquire a wider range of data**

**Boost Real time data utilization**

<table>
<thead>
<tr>
<th>A380</th>
<th>A350</th>
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<tbody>
<tr>
<td>250,000 parameters</td>
<td>400,000 parameters</td>
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AFDX: Avionics Full Duplex Ethernet  
ARINC: Aeronautical Radio Inc.  
ACMS: Aircraft Condition Monitoring System  
ACARS: Aircraft Communications Addressing and Reporting System
New generation systems **Added value**

**Use data to anticipate maintenance actions**

- **Maintenance messages**
- **Uplinks**
- **Scheduled TAT**
- **Delays**

- **Failure**  
- **Ground action**  
- **Trouble shooting in flight**  
- **Release to Service**

**In case of failure, anticipate maintenance tasks to reduce grounding time**

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Combine Technology with Expertise **Airbus answer**

**At Gate**

**In flight**

**Airline MCC**

**Up-link Technology**

**Feedback**

**Advice**

**Expertise**

Analysis on Root Cause identification

**Continuous improving process**

**AirTHM Team**

**Back-Office support**

**Customer Services**

**Design Office**

**Flight Test**

**AiRTHM Advanced technology Services with real time expertise**

**Airbus Engineering expertise applied to**

- A350 & A380
- Any location
- Any time
High level & dedicated expert team

- Team of 16 specialists
- All qualified on products maintenance, with experience in airlines operations
- 100% dedicated to improve A380/A350s availability

Gathering A380/A350 knowledge & engineering best practices

- Preferred access to worldwide fleet & exclusive understanding of A380/A350 systems
- Supported by Support Engineering & Design Office experts
- Located within AIRTAC solving AOG situations (Technical Adaptation release)
- Continuous improvement process within Airbus coupled with regular customer reviews
#01 Innovation & technology

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AiRTHM
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How this technology improves **maintenance costs**?

Different timing challenges depending on the aircraft operation phases

- **At Gate**
  - Every minute counts
  - Avoid / reduce delays Return To Gate events
  - Secure dispatch even in outstations

- **In flight**
  - Every hour counts
  - Anticipate and prepare ground maintenance
  - Avoid / reduce quantity of troubleshooting tasks
  - Avoid / reduce In Flight Turn Back events

- **Post Flight**
  - Each anticipated days
  - Optimized maintenance cost by turning unscheduled tasks into scheduled ones
  - Anticipate potential failures
#01 Innovation & technology

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AiRTHM
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AiRTHM Modular approach coverage

1. Pre-Departure Check
   Monitoring of selected sensible systems before the aircraft leaves the gate
   NEW

2. Flight Watch
   Continuous monitoring of critical messages to identify root cause during the flight

3. Trend monitoring
   Long term and proactive follow-up of selected critical systems to anticipate potential failures

4. Preventive maintenance
   Prevent unscheduled events by monitoring and filtering of all preventive maintenance messages
**AiRTHM Pre-Departure Check**

**Scope**
- List of pre-departure delay drivers
- In case of return to gate
  - On demand assistance

**Description**
- Proactive service
- Aircraft status check via ACARS at Gate
- AiRTHM will contact Airline MCC via call or mail if any advice to provide

**Benefits**
- Check remotely aircraft conditions on ground before dispatch
  - **Avoid / reduce delays**
  - Return To Gate events
  - **Secure** dispatch even in outstations
#01 Innovation & technology

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AiRTHM
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In-service experience: Pre-departure check

WLG LEHGS & Accu refill status
Low pressure (3885 psi) identified on FWD ACCU

AiRTHM Expertise

− No warning at cockpit (No ECAM alert)
− Not part of standard procedure

Worldwide Fleet visibility

− Potential impact analysed – Risk of flight cancelation in some airlines
− Recurrent issue identified

Dear MCC team,

In the frame of our AiRTHM Pre-Departure check, we noticed that, subject A/C, A380 ..., M31 ..., before next departure, we from

STATUS:
WLG LEHGS & Accu refill status, to be checked (3885 psi)

AiRTHM Advice

− E-mail or Phone call to MCC
− Avoided potential flight cancelation
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