A SHM- Damage Monitoring
Roadmap & Applications

M-A De Smet
A-SHM project Leader
Engineering Department

A. Payton
SEE
Customer Support Engineering

L. Wenk
SEM
Customer Support Engineering
Voice of Customer!

- Optimization of fleet operation
- Reduce down time
- Maintenance cost reduction

Concerned Maintenance tasks:
- Planned
- Unplanned

AIRBUS Solutions:

2018 Quick Wins … 2027 target: Condition based Maintenance

Full Digital Aircraft

Airframe Structural Health Monitoring

Operation Monitoring

Damage Monitoring
**Vision**

- Game changing for Condition based maintenance
  - Automatic damage detection
  - Higher Aircraft availability
  - Maintenance hours saving for Airlines

**Value Drivers**
- Increase A/C operational availability
- Decrease direct maintenance costs
- Weight saving

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**A-SHM Roadmap**

**2020-22**
- Integrated ASHM (Usage/damage/Hotspot monitoring) solution for Derivatives & incremental developments

**2018-19**
- Tailored Maintenance and damage monitoring

**2017**
- Architecture for optimized A/C operation

**2027-28**
- Conditioned Based maintenance

**2030**
- Game changer with full Conditioned Based maintenance

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**De-risk**

**Take benefit of evolution in sensors (lighter, cheaper)**

**Incremental approach to reach long-term ambitious goals!**
A-SHM DM – Field of applications – **Drivers**

1st driver: The use case

Determining:
- Damages characterization & Environmental conditions

Other drivers: Robustness – Business Case - Certification
- Retrofit ability - Digitalization & Self Sustaining

Questioned on demand & on ground - Durability for 10 to 20 years!
A-SHM DM Application - Metallic structure - All crack directions

1st generation:
All crack direction detection with
- Ultrasonic (UT) sensors for parallel to surface cracks
- Eddy current (ET) sensors for perpendicular to surface

Solution offers retrofit ability!

UT and ET sensors TRL6 by end 2018 - Qualification program by end 2019
A-SHM DM Application - Candidate selection criteria

Maintenance *Ideal candidates* to benefit from SHM solution:

- Low repeat interval (not aligned with maintenance checks)
- Heavy access
- Risk of collateral damage during access
- Low risk of in service finding
- Long and/or complex inspection
- Rather localized damage scenario that can be addressed with current SHM capabilities
THANK YOU