Condition Analytics
The bigger picture
In an integrated approach that blends data analysis and engineering know-how optimally on a single platform, Condition Analytics by Lufthansa Technik offers customers exactly this. Much more than just presenting the current condition of a fleet, the platform allows measures to be taken to avoid failures before they actually happen.

The best of both worlds
Condition Analytics by Lufthansa Technik combines state-of-the-art condition monitoring with predictive maintenance to go beyond aircraft health management. Engineers and data scientists analyze flight and MRO data and use them as a basis for developing use cases. Once the analytical model has been developed, the system checks the customer data for relevant incidents and supplies the corresponding results to the customer automatically.

OEM-spanning platform
Condition Analytics is an independent platform that is not tied to a support contract with Lufthansa Technik. It is an OEM-spanning tool whose highly sensitive data is safeguarded by Germany’s rigorous data protection laws. The customer selects the required fleet and the desired use cases and is given access to the online platform. Condition Analytics by Lufthansa Technik is already operational and will be available to customers from the first quarter of 2017.
Condition Analytics offers operators great benefits. At its heart is the availability of the right data – protected by strict regulations and provided by customers in different volumes in line with their individual requirements.

For a smart data approach, initially an Aircraft Condition Monitoring System (ACMS) report customized by the operator is sufficient (for certain use cases only; ACMS reports generate additional transmission costs). Greater benefit is possible with the provision of full flight data that has been reduced to its use case-relevant parameters.

Finally, a big data approach taps the maximum in potential benefits. For one, customers are already connected for further use cases from a data technology point of view. Furthermore, Lufthansa Technik can use the data within the agreed scope, from automatic monitoring of the need for action with respect to the purchased use case, to the development of new use cases.

The relationship between data availability and benefit is clear: Increased provision of data equals stronger gains.
Data-based improvement

**From good to better**

Condition Analytics by Lufthansa Technik uses a multi-faceted approach to improve aircraft operations. The result: Reduced fuel consumption, optimized use of expandables and enhanced safety – to name just a few. And this is just the beginning. Engineers and data scientists are working continuously on adding new use cases, increasing the benefits of the platform day by day. The following use cases are already available and proven in operations.

### Safety improvement

**Example:** Predicting technical defects, e.g. radar altimeter

Reliable predictions of probable technical failures are very important for safety in addition to improved aircraft reliability. In one example, the contradicting results of height sensors cause the autopilot landing system to fail. Now an analysis of the data enables the corresponding sensors to be replaced early enough to avoid an in-flight failure.

**Potential savings:**
25 percent reduction in technical disturbances and delays per year

### Maximizing efficiency

**Example:** Optimum use of the functional life cycle of expendable parts, e.g. igniter plugs

Monitoring a system status can offer considerable gains. In the past, the replacement intervals of igniter plugs were based on estimation. Using aircraft data showed that the plugs were replaced after only a third of their guaranteed lifetime. Now the platform automatically controls replacement intervals.

**Potential savings:**
2,500 Euros per engine/year
(just for igniter plugs example)
Aerodynamic optimization

Example:
Continuous monitoring, correction and adaptation of control surfaces

The rigging of ailerons is a use case in progress. Recordings of control surface deflections in A320 aircraft have shown that the ailerons were deflected asymmetrically during cruising. Now the platform monitors a specific threshold value and triggers a recommendation, thus improving fuel efficiency of the fleet.

Potential savings:
Fuel savings of up to 1 percent

Product features
• Independent platform
• Automatic recommendations
• OEM-spanning software
• Data security guaranteed

Customer benefits
• Cost reduction
• Time-saving
• Higher availability and operational stability
• Increased technical dispatch reliability
• Safety enhancement
• Reduced complexity for mixed fleets
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