Technologies and Techniques for New Maintenance Concepts

Results in Brief

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How healthy is your airplane?

Aircraft maintenance, particularly unscheduled maintenance activities, can account for as much as 20 % of an aircraft operator's direct operating costs. The expense is related not only to that required to fix the failed parts, but also to lost income due to delays and cancellations.

INDUSTRIAL TECHNOLOGIES

There is much room for improvement. The EU-funded 'Technologies and techniques for new maintenance concepts' (TATEM) project sought to evaluate technologies capable of increasing aircraft operability by transferring unscheduled maintenance to scheduled maintenance as well as by increasing the overall efficiency and effectiveness of the maintenance process.

The researchers focused on aircraft health as related to monitoring via enhanced diagnostic and predictive tools as well as to management including mission risk assessment. Given that aircraft mechanics spend approximately 30 % of their time trying to access vital information and that human error during maintenance likely contributes to approximately 15 % of airline accidents, the investigators highlighted the need for an integrated data management system as the future for maintenance information systems (MISs).

Thus, the investigators proposed a distributed diagnostic onboard maintenance architecture, enabling better localisation of defects. They also developed a data management platform (DMP) incorporating state-of-the-art onboard and on-ground information technology for data transformation and presentation.

The TATEM project identified the need for a greater understanding of human factors in implementation of technological developments. In particular, the researchers highlighted the critical role of ground crew support technologies in automising fleet processes, reducing work load and increasing maintenance efficiency. Further, some issues arising from technological developments require changes in the structural organisation of companies or even entire industries.

In summary, the investigators concluded that integrated health monitoring and management implemented by an integrated enterprise management scheme has the potential to significantly reduce operating costs related to aircraft maintenance. Implementation of the outcomes should have positive effects on consumer safety, airline mechanic worker satisfaction and corporate profit with a significant boost for the European airline industry.

Project Information

TATEM

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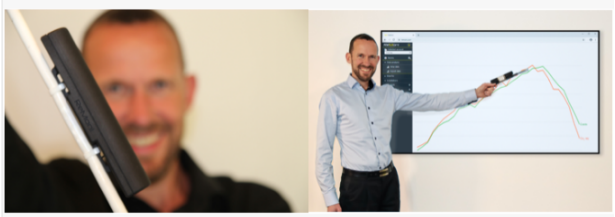

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