



FUTURE REPAIR AND MAINTENANCE FOR AEROSPACE INDUSTRY

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First RepAIR workshop

Final

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Executive summary

One of the main objectives of the RepAIR project is to achieve certain impact by means of the dissemination of its activities, results and the consortium's vision. For this purpose, one of the foremost dissemination actions in the project is the organization of workshops. According to the Description of Work (DoW), two major public workshops are scheduled within the lifetime of the project RepAIR.

Euromold, world fair for Moldmaking and Tooling, Design and Application Development (<http://www.euromold.com>), was pondered as the best forum to organize the first of these workshops in terms of scope, audience and visibility opportunities. The first RepAIR workshop was organised in the format of an open forum as part of a series of workshops on 'Additive Fertigung und Werkzeugbau' (English: 'Additive Manufacturing and Tooling'). It was held on November 28th, 2014 in Frankfurt am Main, Germany.

This deliverable does not summarise the complete content of presentations, but provides an overview including abstracts per speech. All parts of the projects were demonstrated along a 'story' – a kind of scenario which integrates all relevant scientific and technological topics. The envisaged software solution was used to visualise the storyline:

- “The RepAIR approach”: Rainer Koch (University of Paderborn, C.I.K./DMRC) presented an overview of the project and its current state.
- “Future use of Additive Manufacturing in aircraft MRO”: Gereon Deppe (University of Paderborn, C.I.K./DMRC) provided an insight into scenario based research on future applications of AM in aircraft MRO, possible business cases and applicable business models.
- “Software as an enabler for integration”: Ingrid Sánchez-Diezma Guijarro (O'Gayar Co.) introduced a draft dashboard user interface of the integrated RepAIR software solution based on O'gayar's software for MRO services.
- “Condition monitoring and part lifetime prediction”: Adrian Cubillo (Cranfield University, IVHM Centre) emphasized the importance of integrated vehicle health management for an holistic approach to improve MRO processes.
- “Make or buy? Economics based decision support”: Gereon Deppe replaced Christian Lindemann (University of Paderborn, C.I.K./DMRC). He elaborated on costing aspects and derived knowledge to help decision making processes.
- “Integrated RepAIR technology for complex individual parts”: Alfred Schapansky (AVANTYS engineering) visualised the concept for a 5-axis Direct Metal Deposition machine to analyse defects, derive manufacturing data and actually repair the defect parts.
- “High batch RepAIR using Selective Laser Melting”: Toni Adam Krol replaced Dieter Schwarze (both SLM Solutions). SLMG presented a demonstrator for high-batch repair. The clamping device as an enabling part for this process was shown in a video presentation and at the SLMG booth.
- “AM: Key Enabling Technology as part of the supply chain”: Jeppe Skinnerup Byskov (Danish Technological Institute/DTI) reported about the project's

approach to design the future supply chain and work with actual parts in several research activities.

- “The final milestone: Certification”: Luis Portolés Griñán (AIMME) presented a key to utilise the AM potential – certification needs and constraints which were transferred into a concept and an overall quality management system.

Throughout the whole workshop, moderated by Jens Pottebaum (University of Paderborn, C.I.K./DMRC) and organised by Eric Klemp (University of Paderborn, DMRC), the audience interacted with the presenters and other RepAIR partners like The Boeing Company, ATOS, APR and Danish Aerotech A/S.

In a closed session with the Advisory Board of the project, the consortium received very positive feedback but also valuable criticism regarding missing applications for airlines, key AM topics like materials research as well as partially weak integration of all aspects presented throughout the workshop.