Press release

DISCMAM

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DISCMAM achieves two milestones in the project: digital security and smart monitoring in metal additive manufacturing

- Led by LORTEK and Accenture, the EDF-funded project has completed two major actions that reinforce its mission to deploy on-site metal Additive Manufacturing (AM) technologies for defence applications, showing significant progress beyond the mid-point of its development.

The DISCMAM project is progressing through a key phase of its development, marked by the successful completion of two strategic milestones. The first, led by Accenture, focused on the Cybersecure Digital Pathway solution, creating a secure digital framework for files and process data sharing that meets EU military platforms requirements and enable future digital part qualification without requiring additional on-site testing. The second, led by project coordinator Lortek, advanced the development of process monitoring systems and a defined manufacturing workflow, delivering an updated strategy for on-site operations that reduces system downtime while ensuring part quality and functionality of repaired or newly manufactured components.

A cybersecure digital pathway for the DISCMAM solution

The completion of the Cybersecure Digital Pathway marks a major step forward in developing the DISCMAM secure digital framework, designed for seamless integration into multiple digital infrastructure scenarios.

The work, led by the consortium partner ACCENTURE, aimed to ensure that all the components of the digital pathway (on-premises infrastructure, network architecture and cloud integration between others) adhere to robust security standards and EU military platforms compliance.

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Smarter monitoring systems and optimized workflows

Under the leadership of LORTEK, the milestone "Monitoring systems developed, and manufacturing workflow defined" has also been successfully reached, accomplishing several key objectives in the process.

Ensuring the quality, consistency and traceability of metal AM processes is at the core of this accomplishment. To this end, an extensive analysis of process monitoring systems/sensors in metal AM was carried out, addressing the limitations of traditional quality assurance methods and reviewing key in-situ process monitoring technologies currently used on powder bed fusion (PBF-LB/M) and directed energy deposition (DED-LB/M). To do so, common failure modes, and requirements for mobile AM in demanding environments were taken into consideration. A preliminary selection of complementary sensors was established to reliably detect critical defects under deployed conditions.

Building on this, the selected monitoring devices were integrated into AM equipment, enabling the first demonstrations of how real-time data can be captured and analysed to monitor melting or metal deposition processes. Two tailored approaches were developed for PBF-LB and DED-LB solutions, showcasing how monitoring strengthens quality assurance in different metal AM technologies.

Finally, a comprehensive maintenance workflow was defined for on-site operations, covering all stages from initial assessment and digital readiness to manufacturing, inspection, and final delivery. This workflow reinforces quality control through full documentation, rigorous real-time and post-process inspections, and secure management of digital files for complete traceability. Tested in real use cases, the approach has proven practical and effective, offering flexibility and efficiency for both repairs and the production of complex, low-volume components while ensuring high-quality, compliant outcomes.

The next steps of the project, involve the full integration of the developed solutions and systems to validate the DISCMAM solutions and approach, aiming at on-site repair and manufacturing as well as data information sharing under remote assistance through a secure digital pathway.

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