

Towards opening new markets and create competitive edge for Finnish companies through Additive Manufacturing Post processes Automation and cost reduction

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The AMAze project tackles one of the most persistent barriers to industrializing AM: the absence of coherent and scalable solutions for post-processing automation of additively manufactured parts across the production chain. Current AM workflows rely heavily on manual de-powdering, part handling, separation, and quality assurance, which can represent over 50% of total production effort and significantly limit throughput, cost efficiency, and repeatability. AMAze responds by developing structured automation frameworks rather than isolated technological fixes, focusing on process integration, harmonized data flows, and modular end-to-end design principles.

A central strategic insight from AMAze is that post-processing automation must be approached as a system-level orchestration task rather than a set of discrete mechanized steps. The current speech focuses on presenting the project results targeted at modular automation pathways for metal and polymer AM and post-processing workflow design. AMAze emphasizes modularity to allow companies to adopt partial or full automation depending on product volumes, facility constraints, and maturity levels. Such modular pathways address current market gaps where multi-stage, fully automated solutions are lacking. Further, by aligning automation strategies with capacity goals (e.g., balancing print duration with downstream handling and finishing), AMAze establishes methodologies that prevent post-processing from becoming the volume-limiting step in AM production.

Through its results, AMAze creates a foundation for scalable, safe, and high-quality post-processing automation. Rather than introducing point solutions, the project delivers a roadmap for structuring post-processing as a predictable, traceable, and sustainably managed production function supporting the transition of AM from prototyping to industrial-scale manufacturing.