**Executive Summary Deliverable 5.2**

**Report on standardization pathways for novel dissimilar testing procedures**

The DISCO2030 project is focused on developing first-of-a-kind hybrid additive manufacturing methods to join dissimilar metal-metal and metal-polymer materials for functional, large-scale components. A pivotal part of this endeavour involves navigating and contributing to the landscape of technical standards. This document outlines the project's comprehensive Standardisation activities, which were essential for ensuring the integrity, reliability, and compliance of the project's outputs.

These activities revealed significant gaps in existing standards, particularly for multi-material additive manufacturing, where qualification frameworks for single materials are often inadequate. The primary barriers identified include low technological maturity, the high cost and complexity of qualification, and the lack of specific norms for functionally graded materials (FGMs) and dissimilar material joints produced by AM.

In response, the project undertook a structured approach: first, a thorough survey of available standards was conducted to map the existing landscape. Second, based on the identified gaps, the consortium developed and defined a suite of robust internal testing procedures and protocols for material characterization at the coupon, sub-component, and full-component scales.

Finally, DISCO2030 has proactively engaged with experts and Standardisation communities to share findings and propose recommendations for the evolution and enhancement of technical standards. This collaborative approach aims to fill existing gaps and pave the way for the development of new, dedicated standards for multi-material AM.