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Identification of opportunities for standardisation and collaboration to accelerate the demonstration and adoption of advanced technologies to enhance nuclear decommissioning and radioactive waste management.

The Euratom Harpers project aims to identify potential opportunities to enhance the implementation of nuclear decommissioning and the associated radioactive waste management through the adoption of a more harmonised approach, increased collaboration, and shared/common practices. The project focuses on three areas: (i) cross border services, (ii) circular economy and (iii) the adoption of "advanced technologies". This paper relates specifically to the adoption of advanced technologies.

In the context of the Harpers project, advanced technologies include a wide range of technologies covering new nuclear specific developments, emerging technologies and technologies matured in other sectors but not yet widely deployed in the nuclear sector. The technologies considered in the first phase of the project were identified through a structured gap analysis based on evaluating a wide range of data from existing research and development agendas and end user engagement. The subjects identified were grouped into three broad areas: 'Waste Treatment', 'Digitalisation'and 'Robotics and Automation'. Fifteen subtopics were identified in these categories ranging from artificial intelligence and digital twins, to smart decontamination. This paper describes the identification and prioritisation of these opportunities.

In the next phase of the programme, position papers will be developed based on a more detailed analysis of three short-listed (prioritised) topics, and dialogue with technologists, industrial end users and other stakeholders.

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