



R3-MYDAS

Newsletter 3

R3-Mydas Validation Plan Initiated: A Key Milestone Towards Use Case Demonstration



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R3-Mydas Validation Plan Initiated: A Key Milestone Towards Use Case Demonstration

The R3-Mydas project has reached a significant milestone with the completion of its initial validation plan. This comprehensive plan marks the transition from preliminary design to the development and implementation phase for the consortium's use case demonstrations. Having a robust and well-structured validation framework in place enables all partners to move forward with confidence, knowing that the solutions they are developing will undergo rigorous testing and provide clear evidence to support their effectiveness.

Building on the earlier work of formalizing ambitious targets for demonstrating industrial transition to circularity, the validation plan considers the unique characteristics of each use case, while ensuring consistency across the project. For example, in the wind turbine gearbox remanufacturing demo case of WP4, led by LUT, Flender Finland, and IKERLAN, with the support of CSEM and DeepBlue, the validation process will follow a structured approach to prove and convince stakeholders that remanufacturing is an effective strategy in the majority of cases of gearbox failures and maintenance for extending the product life and improving sustainability outcomes.

Completing the First Step

The initial version of the validation plan consolidates the validation requirements and KPIs needed to achieve the R3-Mydas objectives. In collaboration with use case leaders and technical partners, this process identified key areas where data must be gathered during the demonstration phase to verify the success of the solutions. Each requirement has been carefully analysed and translated into measurable validation objectives, formalizing the targets for validation as collected from the stakeholders.

The validation objectives for R3-MYDAS are grouped under four main impacts of the project as follows:

- 1) Reduce environmental impact in the energy goods manufacturing industry
 - a. Reduce the full lifecycle carbon footprint of energy goods
 - b. Increase the number of remanufactured energy goods delivered
 - c. Reduce failure rate of products
 - d. Reduce raw material consumption through reuse and remanufacturing
 - e. Reduce energy consumption
- 2) Reduce the cost of remanufactured energy goods
 - a. Reduce the cost of remanufactured energy goods
 - b. Reduce effort for preparation and post-processing in remanufacturing
- 3) Improve the quality of remanufactured energy goods
 - a. Improve the traceability of remanufactured items
 - b. Improve reliability of remanufactured products for end-users
 - c. Enable detailed evaluation of quality in simulation

- 4) Make it easier to implement remanufacturing
 - a. Provide skills and capability enhancing training resources
 - b. Implement simulation tools to evaluate and optimize repair strategies
 - c. Integrate novel remanufacturing and reuse methods to design and manufacturing processes
 - d. Ensure ethical compliance and address liability concerns

By formalizing these objectives now, the project ensures that each use case will not only meet the goals outlined by the project's ambition but also address the cross-dimensional aspects of digital and human factors that connect the use cases. This structured approach guarantees high rigor and transparency in how the results will be evaluated at the project's conclusion.

Looking Ahead: Demonstration and Data Gathering

As the project moves into the next phase, this initial validation plan will guide the work of developing and testing the innovative solutions within the use case demonstrations. Data gathering will begin, and each solution will be tested against the baseline scenario and the KPIs outlined in the plan. The demonstrations together with acceptance studies, ethics evaluation, and environmental and socio-economic impact assessments conducted in WVP5 provide the data for measuring those indicators. In close interaction with stakeholders, qualitative feedback will be collected during and after the demonstrations to supplement the quantitative data.

Ultimately, this work will feed into the final validation report, where the results will be compared against the state-of-the-art and evaluated against the project's ambitious targets. R3-Mydas will not only showcase how circular processes can be validated across different industrial contexts but also provide a reference framework that can be adapted and implemented by others aiming to transition towards a more sustainable future.

With the validation plan in place, R3-Mydas is well-positioned to move forward and make a meaningful contribution to the green transition by proving that sustainable outcomes can be effectively planned, measured, and communicated.