



I3-MYDAS

Newsletter I I

Giving Industrial Assets a Second Life



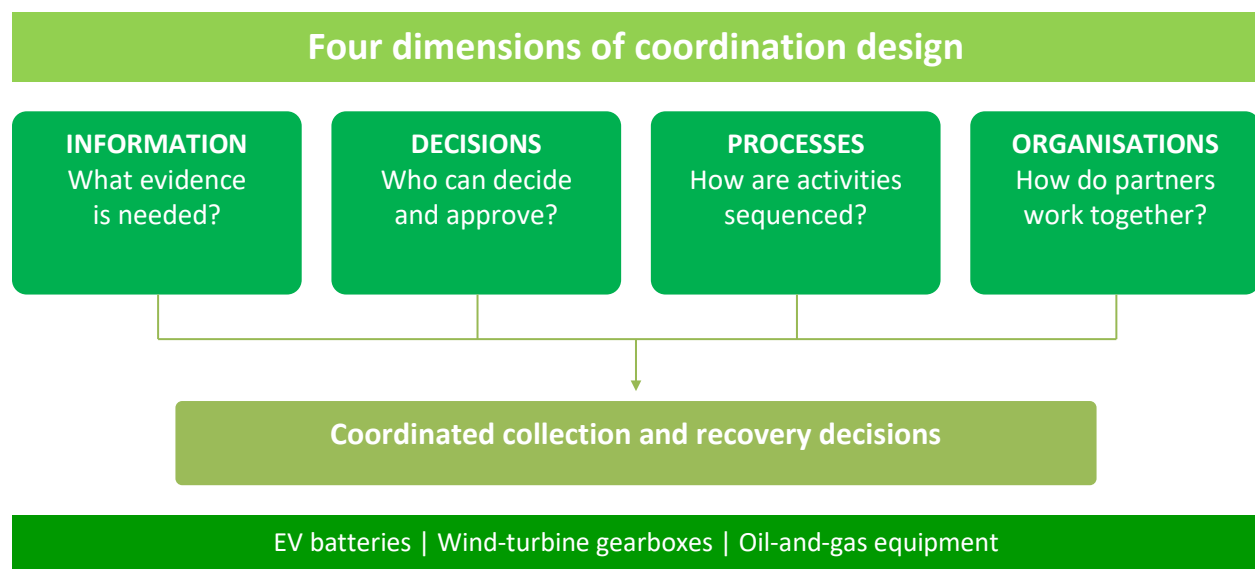
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Making the Return Journey Count: Smarter Logistics for Remanufacturing

What stands between a used industrial asset and a second life? Often, the challenge arises long before the asset reaches a remanufacturing workshop. A wind-turbine gearbox awaits collection, an EV battery requires a safety assessment, or an industrial pump arrives without a complete service history. Each situation highlights how logistics and information can determine whether recovery is practical. Within R3-MYDAS, we are examining how better coordination of collection, assessment and recovery decisions can help these assets return to productive use.

Our work draws on a systematic integrative review of academic research, complemented by industry and policy sources. It explores how factors such as uncertain returns, incomplete information, transport constraints, and fragmented responsibilities affect recovery systems. Prioritising early screening is crucial: assessing an asset beforehand can avoid unnecessary journeys, repeated handling, and delays by enabling better decision-making before allocating significant logistics resources.

We have created a proposed **Reverse Logistics Coordination Design Framework (RL-CDF)** that integrates four key dimensions: the necessary information, decision-making authority, activity sequence, and organisational arrangements among partners. Together, these dimensions highlight areas where coordination improvements are needed.



Proposed framework to guide partner assessment

Digital tools such as AI, Digital Product Passports, IoT, condition-monitoring systems, shared platforms, and workflow systems aid coordination by providing asset records, condition monitoring, forecasting, and shared workflows. Their selection must be based on a clear

understanding of the decision they support and the responsible parties. Reliable data and well-defined responsibilities are also crucial for successful digital implementation.

The three R3-MYDAS applications highlight different priorities regarding remanufacturing's impact on logistics. For EV batteries, condition and safety information supports appropriate handling and recovery decisions. For wind-turbine gearboxes, maintenance schedules, lifting arrangements, site access and workshop capacity must be coordinated. For oil-and-gas equipment, contamination assessment, technical inspection and documentation help determine whether components can be recovered and returned to service.

The report will translate the research findings into industry action cards, a responsibility-allocation template, and an implementation pathway. These tools can help companies map return processes, identify bottlenecks and select manageable improvements. Economic and environmental assessment considers the full recovery pathway, including transport, replacement parts and processing. Guidance on Scope 3 emissions also identifies the data needed to assess purchased recovery services and other value-chain activities.

These outputs provide a basis for partner assessment. Improvements at individual sites still need to be demonstrated. The recommended next step would be to conduct pilots involving one asset family, route or maintenance campaign. Comparing results with an agreed baseline would allow partners to assess changes in lead times, recovery yields, costs and environmental performance before deciding whether to expand the approach.