RESTORE

HORIZON EUROPE • INNOVATION ACTION

Remanufacturing for a circular Europe

Sustainable repair processes, recycled materials and digital intelligence for industrial scale-up.

2024–2028 / 4 industrial pilots / 14 beneficiaries + 4 associated partners

Co-funded by the European Union

restoreeuproject.eu



RESTORE

18 organizations. 8 countries. One mission.

14 beneficiaries + 4 associated partners • Coordinated by EWF (Belgium)

SWEDEN — 5 organisations

- Aerobase Innovations
- Dalforsan
- Parida Consulting
- PHD Controlled Solutions

FRANCE — 4 organisations

- Welding Alloys France
- IREPA LASER
- MSC Scanning

UNITED KINGDOM — 4 organisations

- Cranfield University
- Intellegens
- Lucchini Unipart Rail
- Technovative Solutions

ITALY — 3 organisations

- IRIS SRL
- Endurance
- Centro Ricerche Fiat

BELGIUM

EWF · Coordinator

GERMANY

Fraunhofer SCAI

NORWAY

Flowphys AS

TÜRKIYE

NAVTEK

EU RESEARCH & INNOVATION

Horizon Europe

FUNDING TOPIC

Factory-level and value chain approaches for remanufacturing

Made in Europe Partnership

HORIZON INNOVATION ACTION (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-04

GA 101138775

RESTORE

Three connected challenges. One RESTORE approach.

Industrial remanufacturing needs more than a better repair process.

01



Sustainable processes

Develop advanced cladding and consumables with recycled content.

02



Intelligent automation

Digitalise damage localisation, CAD, tool paths and process optimisation.

03



Circular value chains

Connect product data, environmental evidence and new business models.

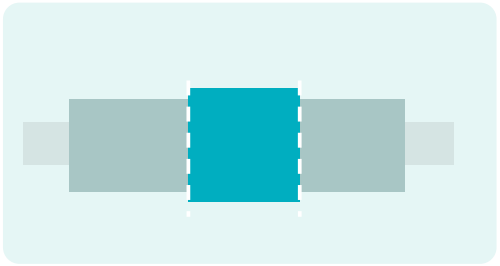
One programme: sustainable technology + digital platform + industrial validation

RESTORE

Four pilots across European industry

Complementary demonstrations test processes in different value chains.

UC 1 — RAIL TRANSPORT

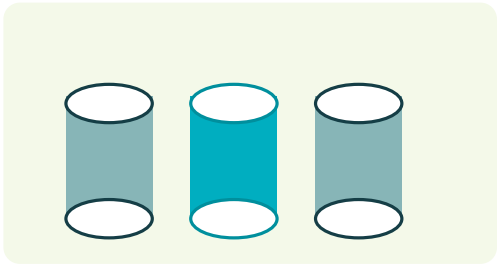


Rail axle

Hybrid deposition; damage removal and NDT

M26–M38

UC 2 — STEELMAKING



Steel rollers

PTA deposition on continuous-casting rolls

M28–M40

UC 3 — MARINE

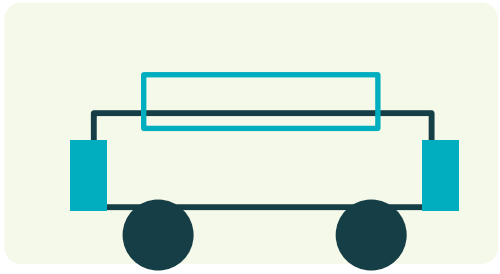


Ship propeller

Automated repair paths and hybrid deposition

M30–M42

UC 4 — AUTOMOTIVE



Automotive part

Laser powder DED for functional reinforcement

M32–M44

Pilot delivery windows shown as project months, as listed in the original catalogue.

RESTORE

2024–2028: build, integrate, demonstrate

A 48-month Innovation Action moving from R&D foundations toward industrial validation.

THREE CONNECTED WORKSTREAMS

Process and materials

Cladding, recycled consumables

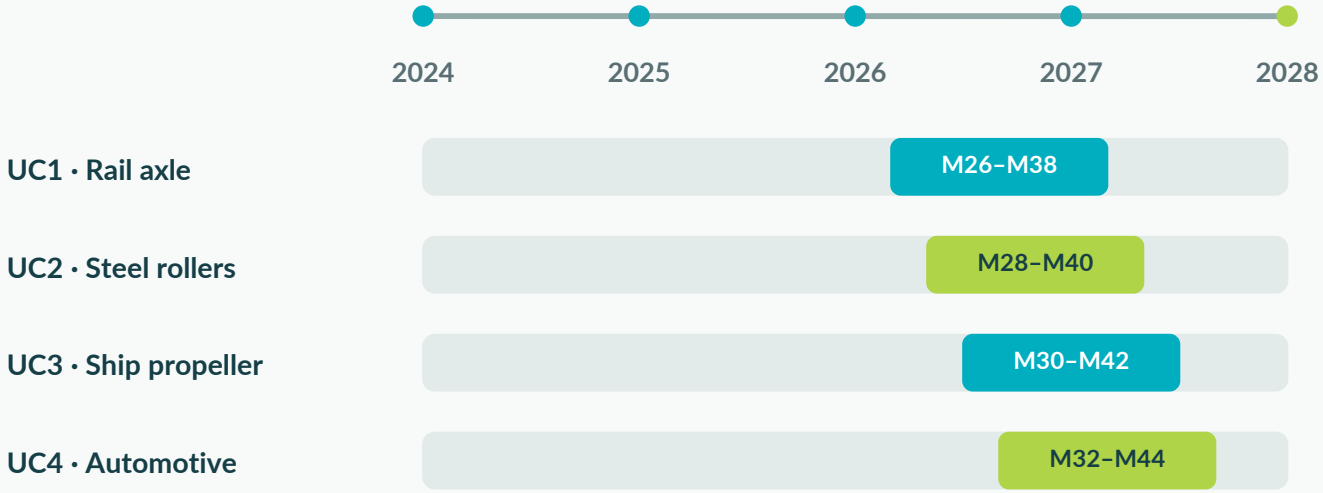
Digital engineering

Automation, models and platform

Business and adoption

Models, collaboration and uptake

INDUSTRIAL DEMONSTRATION WINDOWS



RESEARCHERS

Models, methods and validation

INDUSTRY R&D

Pilot pathways and scale-up insights

EU POLICY

Traceability and circularity evidence

RESTORE

From worn component to documented value

A connected workflow from component assessment to circular decision-making.

RESTORE REMANUFACTURING PLATFORM

01 — Characterise

Damage localisation and CAD generation

02 — Optimise

Simulation, recipe book and tool paths

03 — Remanufacture

Cladding and recycled-content consumables

04 — Document

Validation and Digital Product Passport data

05 — Create value

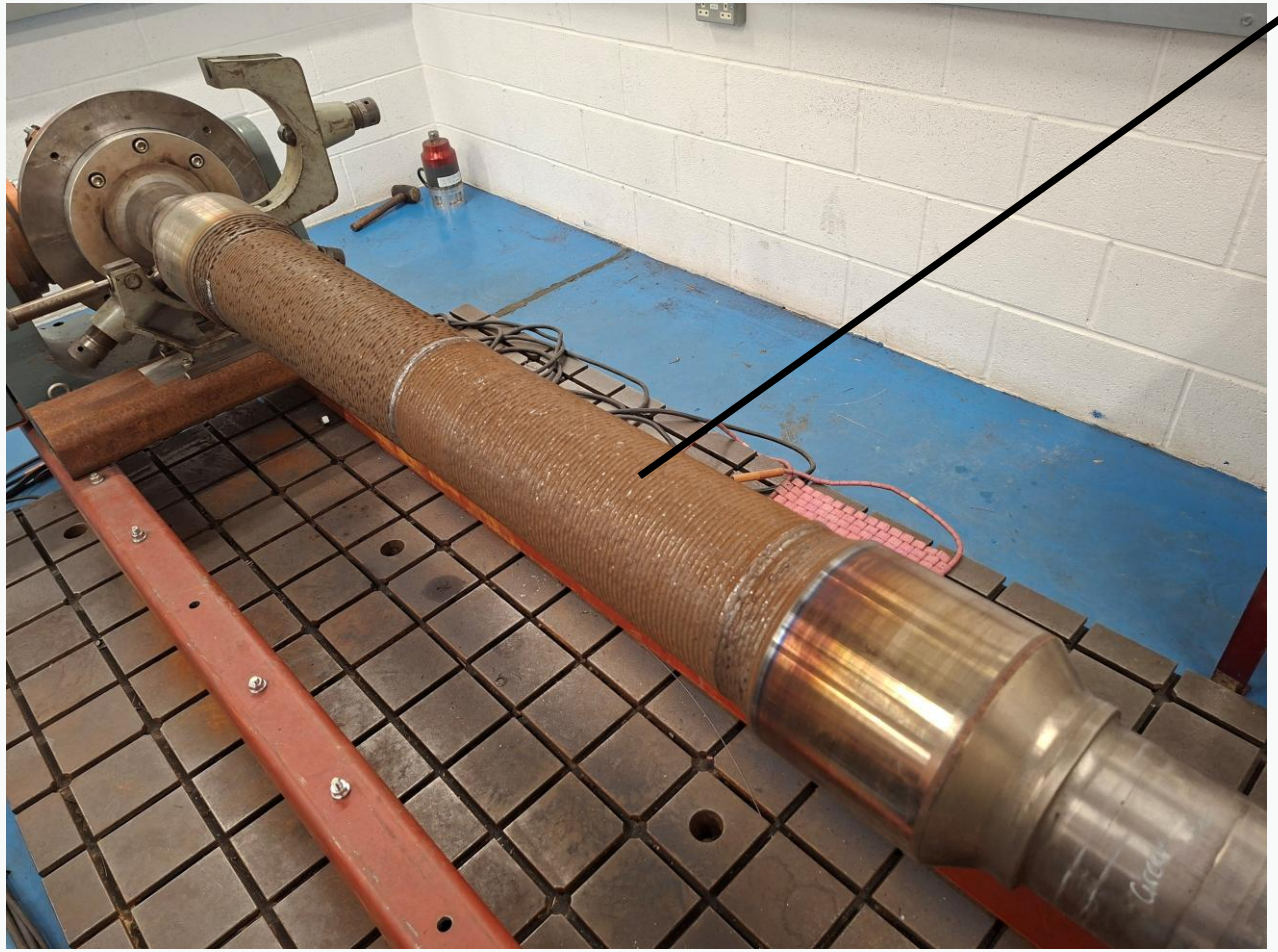
LCA, circularity and marketplace pathways

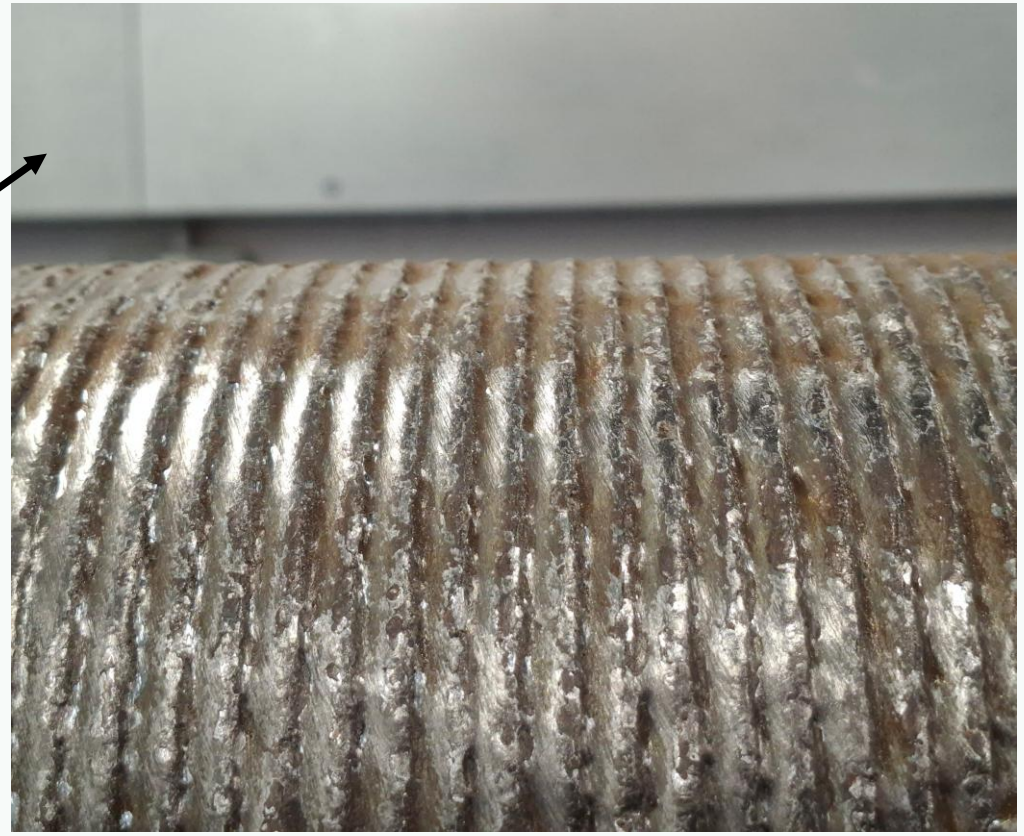
Industrial feedback supports learning, optimisation and future scale-up

RESTORE

UC 1 – Rail axle

Several demonstrators were already built.





Reduce scrap by remanufacturing

UC 1 – Rail axle



RESTORE

UC 1 – Rail axle

Semantic Information Management and Knowledge Graphs



Reduce scrap by remanufacturing

RESTORE

A connected data layer - not isolated tools

Planned digital capabilities link engineering decisions with lifecycle evidence.



RESTORE

THE TAKEAWAY

Repair components.

Preserve value.

Make circularity visible.

RESTORE connects sustainable processes, industrial demonstrations and digital lifecycle intelligence.



Co-funded by the European Union

GA 101138775

restoreeuproject.eu