

CIRCU Less Newsletter

Overview of the journey so far...



Since the project's inception in July 2024...

CIRCU Less continues to deliver strong progress towards enabling circular, digital, and data-driven solutions for Construction and Demolition Waste (CDW).

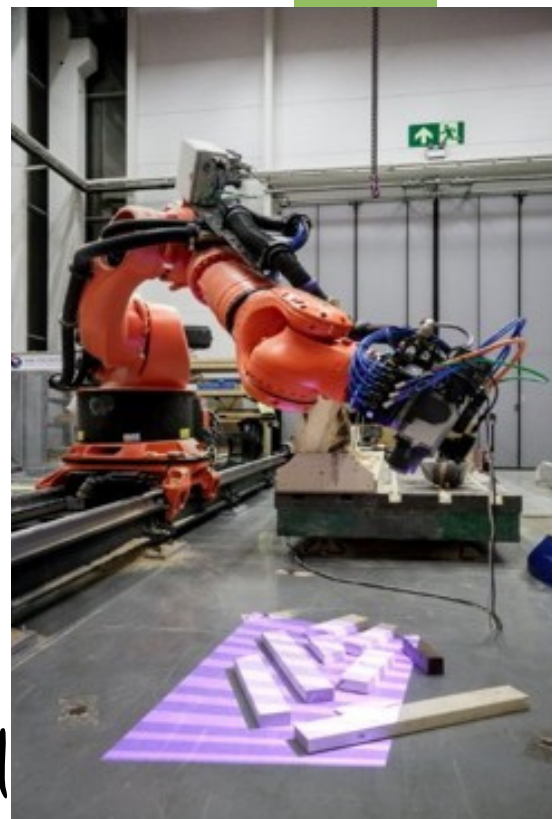
In December 2025, the project successfully completed its first review meeting with the European Commission. The external expert provided highly positive feedback, highlighting:

- A strong project start.
- Timely execution.
- Effective collaboration across the consortium.

All deliverables and milestones have been submitted on time!



Scrap wood



Pixel-level material sorting robot



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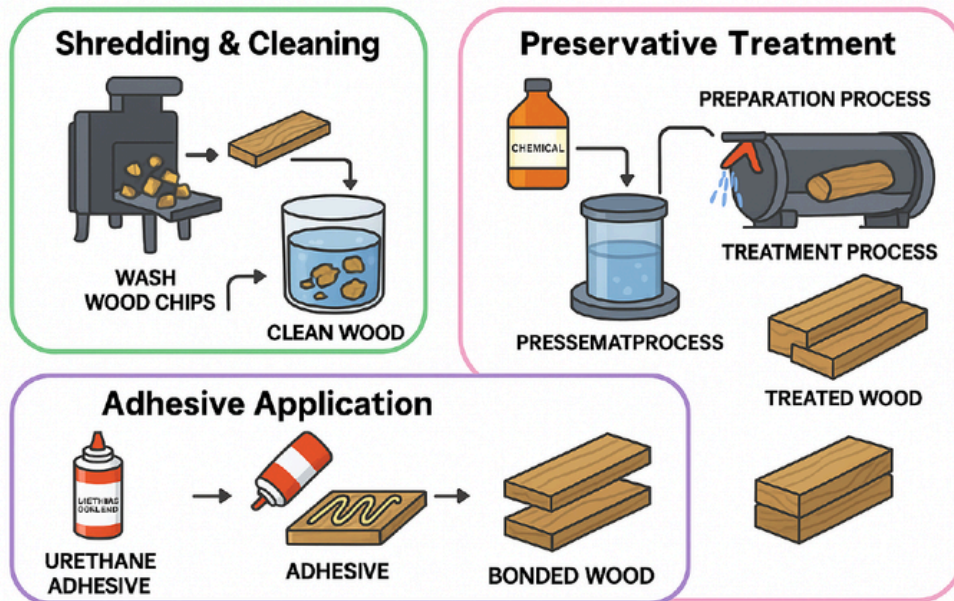
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Early project highlights



Timber waste processing separation

Digital platform development

A solid baseline framework for the CIRCULess digital platform has been established following an extensive review of existing circular economy platforms.

Key achievements include:

- Definition of the platform architecture and microservices framework
- Initial structure of the Digital Product Passport
- Market analysis using the C-Met market estimation tool
- In-depth assessment of opportunities and challenges in the CDW sector
- Design and deployment of a survey targeting external experts

The next step is the delivery of a first functional platform version with reduced scope, while finalizing microservice cataloguing, functional requirements, and cybersecurity evaluation.

CIRCULess Waste Management Platform

From the baseline developed in the earlier stage of the project. Plans are ongoing to achieve a first version of the platform with reduced functionality. We are now finalizing how to catalogue the micro services available, and evaluating the functional requirements and security of the platform.

Innovative sorting techniques for mineral and timber-based materials

The consortium has designed and validated an end-to-end AR-based inspection architecture integrating:

- 3D LiDAR.
- RGB-D imaging.
- Inertial measurement units (IMU).

This solution enables:

- Consistent 3D point clouds.
- Semantic material labelling.
- Occupancy and spatial mapping.



3D LiDAR RGB-D Camera IMU

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Early project highlights

Processing techniques for circular materials

CIRCULess has completed a comprehensive review of circular practices, emerging technologies, and regulatory barriers across the EU.

Initial processing protocols have been developed, including:

- Accelerated carbonation for mineral aggregates.
- Robotic cleaning workflows for reclaimed timber.

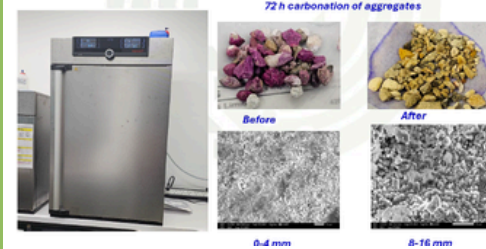
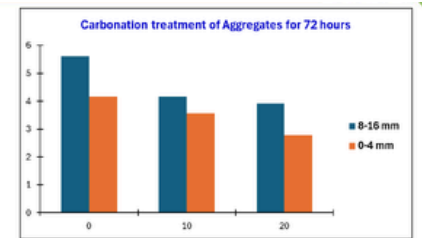
The next phase focuses on developing a decision-support approach to guide processing choices based on technical, environmental, and economic performance.

Integrated environmental and economical solutions

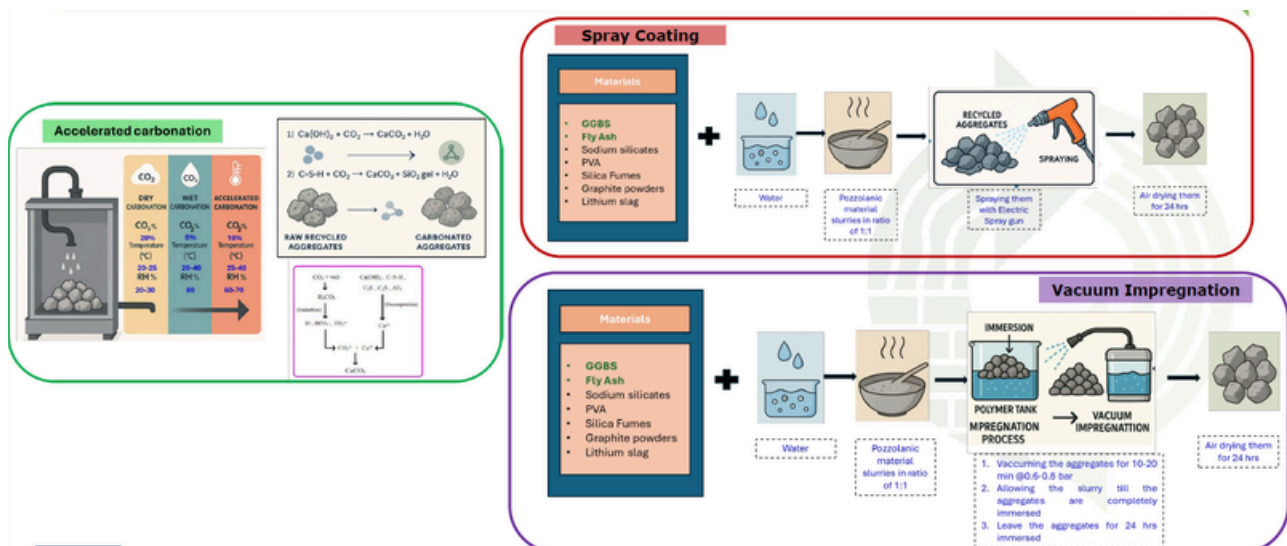
Life-cycle-based methodologies are being developed to:

- Assess the environmental and economic performance of secondary materials.
- Demonstrate the viability of new circular products.
- Optimise value chains.
- Reduce the carbon footprint of construction materials.

Work is ongoing to define target performance levels and KPIs for each use case, supporting future product development and market uptake.



Use of Accelerated carbonation technology for concrete aggregates



Optimization of current mineral processing techniques

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Event highlights



CIRCULess Summer School, titled "Developing Circular Construction Materials - 2025" at The Technical University, Eindhoven, Netherlands



CIRCULess First Special Session at the "4th International Conference on Sustainable Building Materials - 2025", Eindhoven, Netherlands



CIRCULess at ECOMONDO in the workshop session titled: "Driving the Circular Transition in the EU: Recovering Value from Secondary Raw Materials - 2025", Rimini, Italy



CIRCULess at EuReComp workshop titled: "Circularity in Composites: Shaping a Sustainable Future - 2025", Athens, Greece



CIRCULess at the "Innovawood General Assembly - 2025", Kastoria, Greece



CIRCULess at the "International Congress on Recycling of Construction and Demolition Wastes - 2025", Zaragoza, Spain



CIRCULess at the "11th IFAC Conference on Manufacturing, Modelling, Management and Control - 2025", Trondheim, Norway

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Other highlights



Communication and dissemination activities are ongoing, with more events planned, including:

- TheGreenTech Innovation Forum in Brussels, Belgium (19-23rd May 2026)
- The 22nd European Conference on Composite Materials, ECCM22 in Oslo, Norway (21 - 25th June 2026)
- Cyprus Presidency Strategic Alignment across Cyprus (January-June 2026)

Relevance of CIRCULess for policy makers, industry and society

CIRCULess is already demonstrating how digital innovation is relevant for various stakeholders.

- Industry relevance: Early inspection technologies, and processing concepts are reducing uncertainty around material quality, and traceability.
- Policy relevance: First life-cycle frameworks and regulatory analyses are generating evidence to support circular economy ambitions.
- Societal relevance: Early results point to lower carbon construction pathways and increasing trust in secondary materials.

Publications from CIRCULess

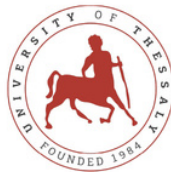
- “A Minimal Subset Approach for Informed Keyframe Sampling in Large-Scale SLAM” by our partner Luleå University of Technology. Link to the paper: [here](#)
- “A Cost-Benefit Model for Sustainable Product Reuse and Repurposing in Circular Remanufacturing” by our partner Zerofect. Link to the paper: [here](#)
- “The Role of Digitalization and Human Aspects in the Use of Digital Product Passport for Sustainable Upcycling (De)Construction Waste” by our partner Zerofect. Link to the paper: [here](#)

What's Next ...

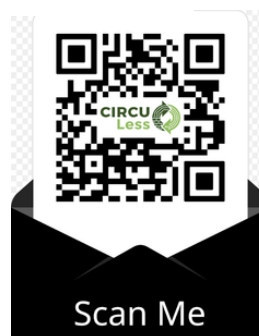
- First functional release of the CIRCULess digital platform.
- Decision-support tools for circular material processing.
- Continued contribution to EU standardisation and policy initiatives through ISO/IEC/CEN/CLC technical committees and/or via CEN/CENELEC Workshop Agreement.

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The consortium



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