DATA4CIRC

Data-driven AI-assisted Digital Framework for Enhancing Circularity in Manufacturing

Mission

The EU has set a target of doubling circular material use by 2030. DATA4CIRC aims to improve access to the information needed to efficiently and safely recover, recycle, and reuse materials, and move towards a circular economy. To do this, we're developing a human-centred platform for asset digitalisation and secure sharing of data. This will support the transition to circularity.

Challenge

A major barrier to circularity is a lack of data about materials contained in manufactured goods. If data does exist, manufacturers may be unable to access it, e.g. due to Intellectual Property restrictions. Where potential solutions exist, a lack of standardisation / interoperability and a deficit in training for end-users has stopped wide-spread adoption.

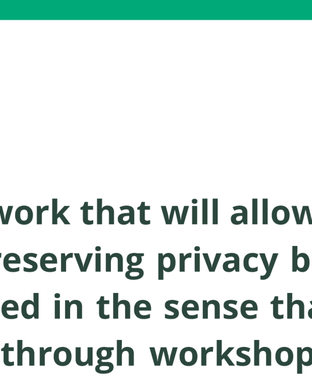
Impact

By transforming manufacturing by facilitating the adoption of circular practices, DATA4CIRC will help businesses become more efficient. Environmentally, they will require fewer resources and produce less waste. Socially, businesses will become more resilient, protecting jobs, improving working conditions, and promoting workforce skills development.

How will DATA4CIRC be tested?

DATA4CIRC will demonstrate the feasibility and profitability of recycling mulch film used in agriculture. This involves scaling and replication of circular practices whilst ensuring compliance with future environmental standards. Digital Product Passports will enhance traceability of waste whilst digital models will guarantee cost-effectiveness.

DATA4CIRC's DPP tool will improve the traceability of repaired and remanufactured WEEE & allow valuable parts to be more effectively recycled. This will involve networking & data collection to amplify the circular value chain (i.e. availability of spare parts, and supply of devices to be repaired). Increasing metal recovery will boost sustainability and profitability.



DATA4CIRC will evaluate the efficiency and compliance of existing recycling processes of catalytic converters in the automotive sector. The integration of Digital Product Passports will allow better traceability throughout the product lifecycle. Cost savings through digitalisation and reduced use of new raw materials will boost the sector's competitiveness.

The DATA4CIRC project is working to develop a platform, comprised of a human-centred, digital framework that will allow data to be collected and, with the aid of cutting-edge digital technology, digitalised and then shared securely, preserving privacy but allowing traceability and lifecycle analysis to assess environmental impacts. The platform will be human-centred in the sense that it will be designed with the end-user in mind, prioritising their needs and ease of use. This will be facilitated through workshops based on each use case, and an upskilling and reskilling training programme. The DATA4CIRC framework can be broken down into 5 key elements: A) Federated Data Spaces; B) Digital Models; C) AI-Assisted End-to-End Lifecycles Analyses; D) Digital Product Passports; and E) Digitalisation.

Partners

idener.ai · IAT · RWTH AACHEN UNIVERSITY · NTT DATA · MONOLITHOS CATALYSTS - RECYCLING - INNOVATION · EC Recycling · GRUPPO FOS soluzioni ad alta tecnologia · T&G technology and groupware · cetec centro tecnológico del calzado y del plástico · GWC · LOBA® · STELLANTIS · CRF · eit Manufacturing · DIN · 大阪大学 OSAKA UNIVERSITY

Co-funded by the European Union

Details & Contact

Overall budget: € 5,663,837.50
Project start: 1 Nov 2024
Project end: 31 Oct 2028
Project Coordinator: IDENER.AI
Comms: EIT Manufacturing East GmbH
Website: www.data4circ.eu

Funded by the European Union

DATA4CIRC has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101178152