Output Factsheet

Output title:

O.2.2 Guideline for circularity in machine industry and Factsheets of life cycle phases

Summary of the output (max. 2500 characters)

Based on the piloting, factsheets reflecting the single phases of the life cycles are composed. The involvement of regional stakeholder networks, transnational capacity building sessions with peers from other partner regions, and the transfer of technology know-how about circular machine life cycle phases provided by R&D contribute to the Guideline for circularity in machine industry – This solution aims at initiating change in the machine industry towards a circular economy.

The output titled *Guideline for circularity in machine industry and Factsheets of life cycle phases* is a jointly developed solution aiming to initiate a shift in the machine industry towards circular economy principles. The output was created based on piloted co-creative design thinking workshops implemented across several Danube partner countries. In these workshops, stakeholders from the machine industry collaboratively explored how circular principles could be applied to each of the machine life cycle phases.

As a result of this process, detailed factsheets for each life cycle phase were produced - covering design and development, material sourcing, manufacturing and assembly, distribution and logistics, use and maintenance, end-of-life, refurbishment and reuse, and waste management. Those outline innovative circular strategies, practical measures, and tested solutions tailored to industry needs. The Guideline consolidates these outputs, providing a structured roadmap for implementing circularity across the entire machine life cycle.

The development was supported by transnational peer exchange and capacity-building sessions. These efforts ensured that the Guideline and factsheets reflect both theoretical (scientific/innovative) and practical relevance, making them adaptable to various industrial contexts within the Danube region.

This output addresses the knowledge and innovation gaps in the machine industry and supports regional businesses, business support organisations (BSOs), and policymakers in promoting sustainability, increasing competitiveness, and meeting EU Green Deal and Circular Economy Action Plan goals.

Contribution to the programme and project objectives, output and result indicator, as

well as to the targets set for the Priority Area concerned (max. 2000 characters)

This output directly contributes to Programme Output Indicator 1.1.1 – *Jointly developed solutions* – by delivering a practical, transnationally co-developed set of circular economy solutions for the machine industry. It also supports Result Indicator 1.1.2 by enabling the uptake of these solutions among stakeholders in the Danube region.

By equipping industry actors with practical guidance and adaptable factsheets, the output supports the programme's objective of increasing institutional capacity and accelerating the transition towards a circular economy. It contributes to the specific objective of strengthening transnational cooperation to improve the implementation of regional development policies and strategies.

Moreover, it aligns with Priority Area 8 of the EUSDR, particularly with goals related to competitiveness of enterprises and promotion of sustainable industrial development. The output enhances innovation capacities of SMEs and mid-caps, empowers BSOs with tools for circular transition support, and guides policymakers in integrating circularity into regional frameworks.

Through cross-border cooperation and knowledge and technology transfer, this Guideline builds on existing knowledge while addressing regional differences in development, ensuring applicability across different industrial environments and countries in the Danube region.

How can the output be used and by whom (target group), what is the benefit and the impact for these target groups and the target area / Danube Region? (max. 1500 characters)

The output can be used by SMEs, mid-sized and large enterprises in the machine industry, BSOs, sectoral agencies, research institutions, and policymakers. SMEs and mid-caps benefit from concrete, easy-to-adopt circular strategies and business models tailored to each phase of the machine life cycle. Larger enterprises can utilize the output to refine existing practices or scale up circular innovations.

BSOs and sectoral agencies can use the output to enhance their support services, foster innovation, and build capacity among their networks. Research institutions can apply the insights for RDI projects and teaching, while policymakers can rely on the Guideline to design or adjust policy instruments fostering circularity.

In the Danube Region, the output ensures alignment with EU sustainability goals, strengthens cross-border cooperation, and improves competitiveness through increased resource efficiency and innovation. It builds a shared understanding and vision across the machine industry, enabling stakeholders to collaboratively advance circular transformation.

How can the sustainability of the output be ensured and where and to whom is it going to be transferred? (max. 1500 characters)

The sustainability of the output is ensured through its anchoring in the everyday

business operations of target groups and continuous dissemination beyond the project lifetime. The Guideline and factsheets are tailored for long-term use by industrial stakeholders, BSOs, and policy actors. Also, these inputs will be an essential part of broader strategies - such as the Transnational Strategy for Circularity in Machine Industry and the Action Plan for the Danube Region - ensuring their ongoing relevance.

Transferability is supported by strong transnational collaboration and dissemination mechanisms, including workshops, online platforms, and uptake events. Outputs will be transferred to regional and national stakeholders across the Danube region, with active involvement of EUSDR PA8 and PA7, as well as clusters and innovation platforms.

Higher education institutions have the opportunity to integrate the Guideline's findings into teaching and RDI projects. BSOs can use it to support local companies. Policymakers can employ it to design supportive regulatory frameworks. This integrated use ensures lasting impact, promotes circular transformation, and supports implementation of EU and regional circular economy policies.