Output Factsheet

Output title:

Piloting co-creative design thinking workshops to transform machine industry towards circularity

Summary of the output (max. 2500 characters)

Co-creative design thinking workshops were organized and implemented for stakeholders from the machine industry, primarily representatives of different companies from this industry, at the national level - in the project partners' countries. The workshops aimed to examine the potential of the circular transformation of the machine industry. The workshops were based on the design thinking principle and the use of different methodologies, with which the workshop participants thought about potential innovative, circular pilot solutions and defined proposals that could, at some point, be implemented in real business models. The life cycle of a machine, which consists of eight phases, was explained at the workshops, and then the participants had the task of designing and defining circular pilot solutions for each phase of the machine's life cycle through creative and interactive work. Considering that the participants of the workshops were machine industry stakeholders, they became familiar with the potential and benefits of circular transformation and were additionally motivated to implement this process and innovative solutions in their businesses, keeping in mind the long-term benefits.

The workshops resulted in a large number of pilot solutions for all eight phases of the machine's life cycle, which were developed following leading circular concepts. The pilot solutions were explained in detail and the real potential of their implementation in real business models was assessed, primarily based on the compliance of national regulations with leading international regulations, technological development, and cooperation between different sectors of the industry. The environmental impact of each defined pilot solution was also assessed. These two criteria will be the basis for further work and the definition and development of circular solutions that could really be implemented in practice.

The conclusion is that each phase of the machine's life cycle has circular potential and that circular aspects can be clearly defined within each phase. What is further needed is that all the defined pilot solutions are analyzed and evaluated in detail and that specific solutions for the circular transformation of the machine industry in the Danube region countries are developed.

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 is directly related to the Specific objective 2: Transformation of the MACHINE INDUSTRY into a circular economy, using a design thinking methodology. The results of this output provide pilot solutions for the circular transformation of the machine industry. They will be further elaborated and analyzed to define concrete solutions that can be implemented in practice. It also contributes to the Project's overall objective, as it provides circular pilot solutions for the machine industry, which will boost the transformation of the plastics value chain in the Danube countries towards circularity.

This output is directly contributing to the Programme Result Indicator 1.1.3:

Organisations with increased institutional capacity due to their participation in cooperation activities across the borders. The piloting of workshops for developing circular machine life cycle phases is followed by a transnational exchange of learnings (peer level) and mutual coaching sessions (capacity building in less developed regions) between the stakeholders of the machine industry, resulting in increased capacities in all PP regions, already during project lifetime.

The main focus of the Plan-C project lies on PA8 "Competitiveness of enterprises" which forms the basis for addressing two main actor groups within the transnational plastics value chain, and one of them is the sector of plastics machinery suppliers as a sub-sector of the machine industry. The results of the project, which will include recommendations for the circular transformation of the machine industry, will be created in cooperation with industrial experts, BSOs, and academic project partners, and therefore this output contributes to a certain extent to the PA7 Knowledge Society. Finally, this output directly contributes to the EUSDR pillar of protecting the environment, given that defined pilot solutions can greatly reduce the negative impact of climate change and the carbon footprint.

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 results of this output can primarily be used by SMEs. Company representatives participated in design thinking workshops and defined the pilot solutions. In the following periods, they will analyze the pilot solutions and contribute to the definition and development of concrete circular solutions that they could possibly implement in their business models. BSOs can also use the results of this output and help their more effective implementation through the support they provide to companies from the machine industry sector.

Adopting circular business models in the machine industry offers target groups direct benefits such as cost savings through resource efficiency, reduced waste, and increased competitiveness by aligning with sustainable market demands. Circularity fosters innovation, prolongs product lifecycles, and enhances resilience to material shortages, securing long-term profitability. For the Danube region, this transition promotes economic growth while reducing environmental pressures. It supports regional goals for climate change mitigation, conserves biodiversity, and fosters cross-border collaboration. In this way, companies initiate innovation and a more efficient circular transformation, which leads to the strengthening of the global competitiveness of the Danube region.

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

Regional machine industry stakeholders scrutinized the demand of their clients from the plastics processing industry for more sustainable machinery in dedicated design thinking workshops to transform industry and user demand into innovative re-

machining circular solutions. Cooperation between project partners and machine industry representatives from different partner regions will, in the following periods, result in factsheets of life cycle phases, a guideline for circularity in the machine industry, and a jointly developed strategy towards circularity which will be directly disseminated to target audiences from the machine building sector to ensure that these project results will be continuously used as a main reference for industry transformation beyond project lifetime. This ensures the sustainability of this output since its results represent the basis for defining concrete steps for the circular transformation of the machine industry. These learning will be integrated into one Transnational Action Plan towards circularity in the plastics value chain. It will be the key dissemination tool to ensure the uptake of project results at the level of industry, sustainability, and innovation policies in the partner countries. The recommendations for the circular transformation of the machine industry will be disseminated and transferred throughout the Danube region and will serve as a tool for aligning the industry with the EU circular economy plan in the years to come.