

Circular makerspaces: training program



FOREWORD

Welcome to the training program on circular economy designed specifically for makerspaces! In a world where sustainability and resource efficiency are paramount, this program is tailored to empower makerspace enthusiasts with the knowledge and skills to thrive in the dynamic intersection of creativity and circular principles. Explore the essential concepts and working methods driving sustainable innovation and join us in reshaping the future of making through this immersive learning experience.

In the changing field of innovation, makerspaces play a crucial role in shaping the future of creative projects. As we navigate a world increasingly focused on sustainability and responsible resource management, the need for a circular mindset within makerspaces becomes ever more apparent. This circular training program is designed to empower makers with the knowledge, skills, and inspiration to infuse circular principles into their projects, fostering a community of innovators committed to both creativity and environmental responsibility. Welcome to a transformative journey, where making meets sustainability, and together, we shape a more circular and thoughtful future.

Circular Spaces Project Team

Empowering makerspace communities with a comprehensive view on circular economy principles, fostering sustainable innovation, resource efficiency, and a circular mindset

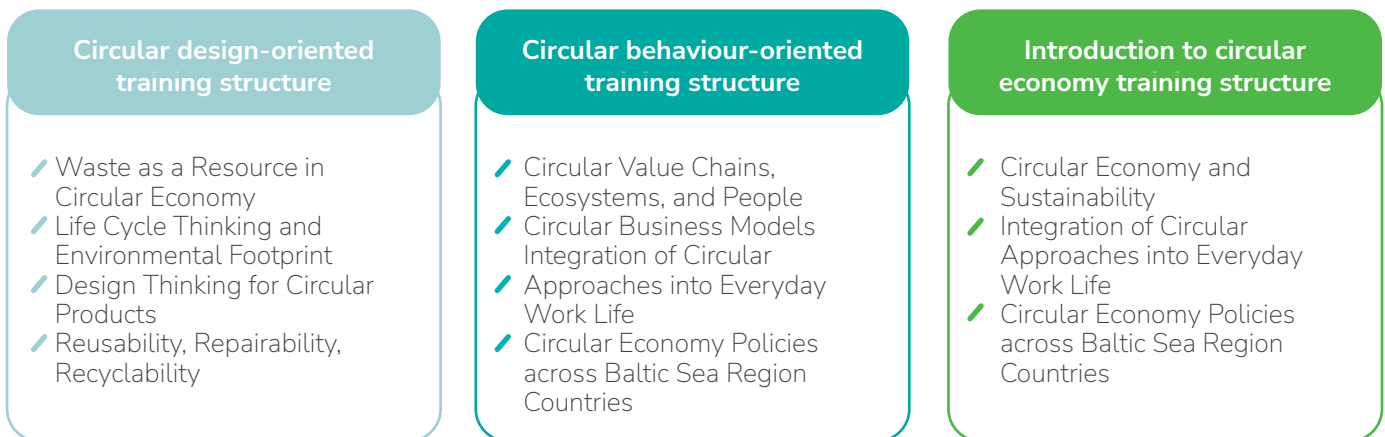
This education program was developed under the Circular Spaces project, funded by Interreg Baltic Sea Region programme 2021-2027

How to make use of this program?

Circular makerspaces training program consists of 9 Topics closely complementing each other. Topics 1-4 and 9 focus on building trainees' theoretical knowledge regarding different aspects of circular economy, while Topics 5-8 target practical application of gained insights.

1. Circular Economy and Sustainability
2. Waste as a Resource in Circular Economy
3. Circular Value Chains, Ecosystems, and People
4. Circular Business Models
5. Life Cycle Thinking and Environmental Footprint
6. Design Thinking for Circular Products
7. Reusability, Repairability, Recyclability
8. Integration of Circular Approaches into Everyday Work Life
9. Circular Economy Policies across Baltic Sea Region Countries

While the most benefits for trainees come from the exploration of all Topics, each trainer can decide individually how to structure their organization of trainings by utilizing different selected topics. Examples below suggest a few formations of such option.



Each Topic begins with methodological notes which serve as a guiding material for trainers during the preparation and the organization of training activities. These notes include a summary of each Topic, expected training outcomes, defined training benefits for different target groups, training plan and other necessary information for carrying out the training.

Action required tasks, such as discussions, workshops or case analyses, are marked with **blue text** and activity icon. It is up to the trainer to decide how these tasks will be carried out. For example, trainees can go through the theoretical materials individually and implement action required tasks in groups.



Activity icon

In addition to this document, **each Topic is accompanied with slides** which can be utilized as a supporting material for trainers when presenting training content. The slides can be freely accessed **here**.

This document can be used both as an **instruction manual for the trainer** and as **informational material for the trainees**. Training organisers are invited to add their own insights, local best practices or creative practical exercises to the material presented.

Circular Economy Policies across Baltic Sea Region Countries

Developed by

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County council

Topic



This training Topic provides an overview of circular economy policies and initiatives implemented by countries across the Baltic Sea region. Training participants will gain insights into the regulatory frameworks, best practices, and key targets associated with transitioning to a circular economy model in Denmark, Germany, Latvia, Lithuania, and Norway.

Differently than in other Topics, material here is oriented towards individual exploration and investigation of information provided. Practical activities or presentations can be developed according to the trainer's preferences.

Expected training outcomes

After completing this Topic, trainees will...

- ... understand the key principles of circular economy policies;
- ... have analyzed various circular economy initiatives in different countries across the Baltic Sea Region;
- ... gain a broader insight into the regulatory framework associated with transitioning to a circular economy model.

Denmark

Circular material use rate¹ in 2022: 14th position in EU (7,4%)

Eco-innovation index² in 2022: 4th position in EU (167 points)



National aims or targets regarding circular economy

The waste curve must be bent – less waste, less disposal, and more recycling. This should be achieved, among other things, by setting quantitative waste reduction targets for Denmark, linked to the setting of such targets in the EU.

The waste sector must be climate-neutral by 2030.

Sorting out 80% of Danish plastic from incineration by 2030.

Main strategic documents regarding circular economy

The Government's Action Plan for Circular Economy constitutes the national strategy for waste prevention and management for the period 2020-2032. Circular economy involves preserving products and materials in a loop and extracting their value for as long as possible. The Action Plan for Circular Economy outlines Danish policies and specific measures based on the circular value chain, encompassing design and consumption to waste management, where natural resources are reintegrated into new products and materials. In addition to various cross-cutting initiatives within the circular value chain, the Action Plan for Circular Economy focuses on three areas with significant environmental and climate impact: biomass, construction, and plastic.

The plan includes a total of 126 initiatives, many of which are part of the political agreement on the Climate Plan for a green waste sector and circular economy from June 2020. It also incorporates initiatives from the Strategy for Public Green Procurement (November 2020), the Plastic Action Plan (December 2018), the Circular Economy Strategy (September 2018), and the implementation of waste directives and the Single-Use Plastics Directive adopted in 2018 and 2019.

Key focus areas in the Action Plan for Circular Economy include:

- ✓ Reducing waste and better utilization of natural resources
- ✓ Increasing and improving recycling
- ✓ Enhancing the use of biomass
- ✓ Promoting sustainable construction
- ✓ Addressing plastic in a circular economy

Read more (in Danish):



Key focus areas, sectors or materials for circular transformation

- ✓ Less waste and better utilization of natural resources
- ✓ More and better recycling
- ✓ Improved utilization of biomass
- ✓ Sustainable construction
- ✓ Plastic in a circular economy

Good practices regarding public policies for circular economy

N/A

¹ Source: Eurostat

² Source: European Environment Agency

Germany

Circular material use rate³ in 2022:
8th position in EU **(13%)**

Eco-innovation index⁴ in 2022:
6th position in EU **(141 points)**



National aims or targets regarding circular economy

The German Federal Government is currently in the process of developing a National Circular Economy Strategy (NCES). This strategy aims to consolidate goals and measures for circular economy practices and resource conservation from all pertinent strategies. This framework will bring together the resource-policy-relevant strategies of the Federal Government in a manner that aligns with the coalition agreement's objective of reducing primary resource demand. The NCES is envisioned as an overarching strategy where the Federal Government will define objectives, fundamental principles, and strategic measures that support all resource-policy-related strategies.

Read more (in German):



Main strategic documents regarding circular economy

Germany has developed the "Resource Efficiency Program (ProgRes)," which serves as the foundation for the country's circular economy policy. Find more information on the Federal Ministry for the Environment's website (in German):



The German federal government has also established a National Platform for the Circular Economy to foster dialogue among various stakeholders and develop recommendations. More information can be found on their website:



Read more:



Key focus areas, sectors or materials for circular transformation

In Brandenburg and Germany as a whole, there is a focus on promoting the circular economy in various sectors, including electronics, construction, textiles, and plastics. Efforts are also made to advance circular economy practices in urban areas and regions.

Good practices regarding public policies for circular economy

Germany has implemented various measures to promote the circular economy, including comprehensive waste separation systems, investments in research and innovation, and incentives for businesses to improve resource efficiency. A notable example is the deposit system for beverage containers, which encourages reuse and recycling. Another example is the extensive efforts to promote the recycling of electronic waste (WEEE).

³ Source: Eurostat

⁴ Source: European Environment Agency

Latvia

Circular material use rate⁵ in 2022:
18th position in EU **(54%)**

Eco-innovation index⁶ in 2022: 16th
position in EU **(105 points)**



National aims or targets regarding circular economy

The following targets are set in the Action Plan for the Transition to a Circular Economy 2020–2027:

- ✓ Resource productivity increase from 0,90 €/kg in 2020 to 1,55 €/kg by 2027;
- ✓ Circular material use rate increase from 6,6 % in 2020 to 11,0 % by 2027;
- ✓ Public awareness and participation - percentage of total population as a measure of CE implementation, based on Eurobarometer and other surveys.

Main strategic documents regarding circular economy

Latvia has adopted a designated circular economy strategy, the Action Plan for the Transition to a Circular Economy 2020-2027 (1) in 2020. The Action Plan contains seven initiatives in total.

Key focus areas, sectors or materials for circular transformation

1. The transition from waste management to resource management.
2. Improving resource productivity in all sectors of the economy by encouraging the development of research and innovation.
3. The establishment of pre-conditions for the reuse of goods. Measures include support for social innovation and entrepreneurship.
4. Promotion of the transition from the purchase of goods to services, i.e., the promotion of rental services and green public procurement (GPP).
5. Improving the management of materials, processes, and waste in priority sectors, such as food, textile, and furniture waste minimization.
6. Strengthening the role of municipalities in the implementation of the principles of circular economy.
7. Engagement, information, and education of the public.

Good practices regarding public policies for circular economy

Natural Resource Tax One initiative that is still under the implementation is the adoption of a law to adjust natural resource tax rates for selected natural resources and products. The adjustment includes both the taxation of new material categories for packaging, in particular packaging containing plastic, and adjusted tax rates. Once passed, the Natural Resources Tax Act will facilitate the withdrawal of non-recyclable or barely recyclable packaging from the market.

Development of several Extended producer responsibility schemes for single-use plastic packaging and plastic trays, products harmful to the environment such as batteries, and used vehicles. The participants in these EPR schemes are exempted from the obligation to pay the Natural Resources Tax.

Green procurement is widely used in municipalities and, to a lesser extent, by private companies. The share of GPP for the most necessary items and services in district administrative centres reached 61 % of all public procurement in 2019. The list of items and services concerned includes office paper, printing and computer equipment, information and communication technology (ICT) infrastructure, food and catering services, cleaning products and services, indoor lighting, street lighting and traffic signals.

⁵ Source: Eurostat

⁶ Source: European Environment Agency

Lithuania

Circular material use rate⁷ in 2022:
21th position in EU **(4,1%)**

Eco-innovation index⁸ in 2022:
17th position in EU **(104 points)**



National aims or targets regarding circular economy

- ✓ Use of secondary raw materials (circular material use) rate: from 4% in 2019 to non-lower than the EU average by 2025 and 2030.
- ✓ Eco-innovation index: from 82 in 2019 to 122 by 2025 and 133 by 2030.
Resource productivity: from 0,82 €/kg in 2019 to 1,1 €/kg by 2025 and 1,5 €/kg by 2030.
- ✓ Total waste per unit of GDP: from 105 t/€ in 2018 to 100 t/€ by 2025 and 50 t/€ by 2030.
- ✓ Share of municipal waste ready for re-use and recycling: from 49,73% in 2019 to 55% by 2025 and 60% by 2030.

Main strategic documents regarding circular economy

Guidelines for Lithuania's transition to a circular economy by 2035. The aim of these Guidelines is to provide a targeted framework for the implementation of circular economy policies, creating the conditions for a more efficient and sustainable use of resources, covering the entire life cycle of products and materials, and ensuring stakeholder cooperation.

Read more (in Lithuanian):



Circular economy and waste hierarchy priorities are also strongly integrated into National Waste Prevention and Management Plan for 2021–2027.

Read more (in Lithuanian):



Key focus areas, sectors or materials for circular transformation

- ✓ Circular Industry
- ✓ Circular Construction
- ✓ Circular Bioeconomy
- ✓ Circular Transport
- ✓ Circular Use of Waste
- ✓ Circular Consumption

Good practices regarding public policies for circular economy

Green public procurement is a powerful strategic tool for greening the economy, meeting climate commitments, and fostering eco-innovation. In 2022, the total value of green procurement (€4,690.1 million) carried out by all procurers in Lithuania accounted for 60.2% of the total procurement value (€7,786.4 million). A range of measures have contributed to this achievement, such as the update and improvement of green procurement criteria, the launch of a dedicated monitoring system, and the extensive implementation of information and expert advice activities to procuring organizations.

To ensure circular waste treatment, various existing economic measures in Lithuania include charges and payments for municipal waste management, as well as different taxes on recyclable, non-recyclable packaging and chargeable goods, subsidies and grants for waste management.

The deposit refund system for single-use beverage packaging in Lithuania is a successful example that ensures a high return rate of pure, high-level secondary raw materials. Deposit systems allow to achieve higher recycling targets compared with other waste management systems. Lithuania's deposit system collects and recycles 92% of sold-to-market beverage packages (PET, metal, glass) every year.

⁷ Source: Eurostat

⁸ Source: European Environment Agency

Norway

Circularity rate⁹ in 2020: **2,4%**
(global average 8,6%)

European Innovation Scoreboard performance¹⁰ in 2023: **119,4%** of EU average (Strong Innovator)



National aims or targets regarding circular economy

The Government's ambition is for Norway to play a pioneering role in the development of a green, circular economy that makes better, more efficient use of resources. Norway will play this role by further developing policy instruments both nationally and in cooperation with the EU, to develop a framework for value creation and green competitiveness in Norway.

Read more (in Norwegian):



Main strategic documents regarding circular economy

Norway's strategy for developing a green, circular economy "<...> is the result of broad cooperation between several ministries. The strategy shows the potential for value creation in a more circular Norwegian business life."

Read more (in Norwegian):



The factual basis for a strategy for a circular economy "About which industries have particular potential in the development of a more circular Norwegian economy. On behalf of the Ministry of Climate and the Environment, Deloitte has investigated the basis."

Read more:



Key focus areas, sectors or materials for circular transformation

In the strategy, the government focus on: Sustainable production and product design; Sustainable ways of consuming and using materials, products and services; Non-toxic circular Earth cycle; Economy and value creation.

Industries:

- ✓ Bioeconomic industries (agriculture, forestry, aquaculture and fishing)
- ✓ Construction, building and property
- ✓ Batteries and vehicles
- ✓ Packaging
- ✓ Electronics
- ✓ Waste and recycling
- ✓ Digitization and technology
- ✓ Retail and service industries
- ✓ Research and innovation
- ✓ Economy and the financial sector

Good practices regarding public policies for circular economy

The EU Circular Economy Action Plan presents groundbreaking legislative initiatives for sustainable products, a more ambitious approach to using the resources in waste and continued high standards for a toxic-free environment. The Government's strategy describes how Norway's policy fits into this picture and describes the implications of the EU action plan for Norwegian policy, for Norway's positions in its cooperation with the EU, and efforts to enhance Norway's green competitiveness.

⁹ Source: Circularity Gap Report Norway, Circle Economy

¹⁰ Source: Directorate-General for Research and Innovation, European Commission