

TRANSFORMATION INTO CIRCULAR MAKERSPACES

A PRACTICAL STEP-BY-STEP
GUIDE FOR MAKERSPACES

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CIRCULAR ECONOMY

Circular spaces

INTRODUCTION

The Baltic Sea Region is in the quest for sustainable development and environmental stewardship. The adoption of circular economy principles is not just a trend but a necessary shift to mitigate environmental challenges, promote resource efficiency, and foster innovation in this ecologically sensitive and economically diverse region. This guide, “Transformation into Circular Makerspaces: a practical step-by-step guide for makerspaces”, is designed to steer makerspaces across the Baltic Sea Region on a transformative journey towards circularity, aligning with regional ambitions for sustainability and economic resilience.

In the Baltic Sea Region, characterized by its unique environmental challenges and collaborative economic landscape, the circular economy offers a pathway to reduce environmental pressures, enhance resource efficiency, and unlock new opportunities for growth and innovation. Makerspaces in the Baltic Sea Region are well-positioned to lead the transition towards circularity. With a rich tradition of innovation and a strong community ethos, these spaces can leverage their collaborative environments to integrate circular economy principles into their operations and outputs, setting a precedent for sustainable practices in the wider business community.

In several short chapters, the guide emphasizes importance of circular economy in the Baltic Sea Region, describes Circular makerspaces and their role in the business environment of the Baltic Sea Region and provides information on current situation and opportunities of makerspaces in Baltic Sea Region to transition towards circularity. The glimpse at the overall situation and trends which allow makerspaces to see themselves as essential players in achieving circular economy goals in the region is followed by a clear roadmap – a step-by-step guide with checklists of specific actions to enable makerspaces in the Baltic Sea Region to effectively navigate the transitioning to a circular economy.

The guide elaborates on ten aspects or must-haves for makerspaces to transition into circular makerspaces. Each must-have includes a checklist of the aspect-specific actions. The checklist is followed by a list of tools and templates that makerspace can use for their convenience. The ten aspects or must-haves for makerspaces to transition into circular spaces are the following:

1. Strategy and culture for circularity;
2. Assessment and planning;
3. Education, training and business support;
4. Sourcing and material management;
5. Design for circularity;
6. Facility and operation modifications;
7. Community and collaboration;
8. Monitoring and feedback;
9. Showcasing success and innovation;
10. Policy and funding.

This guide “Transformation into Circular Makerspaces: a practical step-by-step guide for makerspaces” has been developed within the Interreg Baltic Sea Region project “Circular Spaces”. The guide is a practical and helpful tool to effectively transition to a circular economy, ensuring that their contributions to sustainability are impactful, measurable, and aligned with the Baltic Sea Region goals.

CONTENT

1. Importance of circular economy in the Baltic Sea Region	4
2. Circular makerspaces and their role in the business environment of the Baltic Sea Region	5
3. Current situation and opportunities of makerspaces in Baltic Sea Region to transition towards circularity	6
4. Step-by-step guide for making the transition to circular makerspace	7
Step 1: Strategy and culture for circularity	8
Step 2: Assessment and planning	9
Step 3: Education, training and business support	10
Step 4: Sourcing and material management	11
Step 5: Design for circularity	12
Step 6: Facility and operation modifications	13
Step 7: Community and collaboration	14
Step 8: Monitoring and feedback	15
Step 9: Showcasing success and innovation	16
Step 10: Policy and funding	17
5. Tools and templates	18
5.1. Circular maturity test	18
5.2. SWOT canvas for makerspaces	19
5.3. Circular makerspace strategy map canvas	20
5.4. Training programmes of circular economy	21
5.5. Digital circular collaboration platform	22

1 IMPORTANCE OF CIRCULAR ECONOMY IN THE BALTIC SEA REGION

The European Union Strategy for the Baltic Sea Region (EUSBSR) is one of the four Macro-regional Strategies in Europe [1]. The action plan of the EUSBSR includes 14 Policy Areas and Actions for the Strategy implementation, and several of those emphasize the circular economy as a crucial aspect for the sustainable development of the Baltic Sea region [2].

EUSBSR often refers to the EU's new Circular Economy Action Plan which is one of the main building blocks of the European Green Deal, Europe's new agenda for sustainable growth. The EU's transition to a circular economy will reduce pressure on natural resources and will create sustainable growth and jobs. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss.

The new action plan announces initiatives along the entire life cycle of products. It targets how products are designed, promotes circular economy processes, encourages sustainable consumption, and aims to ensure that waste is prevented and the resources used are kept in the EU economy for as long as possible. It also introduces legislative and non-legislative measures targeting areas where action at the EU level brings real added value.

Measures that will be introduced under the new action plan aim to:

1. Make sustainable products the norm in the EU;
2. Empower consumers and public buyers;
3. Focus on the sectors that use most resources and where the potential for circularity is high such as: electronics and ICT, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food, water and nutrients;
4. Ensure less waste;
5. Make circularity work for people, regions and cities;
6. Lead global efforts on circular economy [3].

Moving away from the linear "take-make-use-dispose" model and transitioning to a regenerative growth model is essential to keep resource consumption within planetary boundaries. In a circular economy, the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized.

The current linear economy continually increases its demands of scarce natural resources. By using and consuming in a more circular way, we can substantially reduce the impacts of human economic activities on the environment, including on biodiversity [4].

More circular makerspaces offering their services and being closely linked to local communities, interest groups, students, start-ups and small and medium-sized enterprises can be important agents in achieving the goals of the Green Deal.

[1] <https://www.eusbsr.eu/about/about>

[2] <https://www.eusbsr.eu/action-plan>

[3] https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

[4] https://environment.ec.europa.eu/topics/circular-economy_en

Makerspaces are becoming increasingly common in the world, in Europe and in the Baltic Sea Region. The increase in making has resulted in discussion about environmental impact of the makerspaces and how they can support circular economy. Most makerspaces already have basic circularity awareness and knowledge and to a certain capacity they apply circular economy practices on a daily basis. To accelerate the shift towards even more environmentally sustainable practices, makerspaces should implement vision and actions to foster circularity [5].

The circular makerspaces have all the characteristics of the maker movement and additionally promotes sustainability and is more resource-oriented. The circular economy strategies such as redesign, reduce, share, reuse, refurbish, repair, remanufacture, recycle, upcycle, resource and waste management complement the five key maker movement strategies - make, share connect, learn, innovate [6].

Circular makerspaces in the Baltic Sea Region can be instrumental in driving innovation, education, and collaboration towards sustainability, thereby playing a significant role in transforming the Baltic Sea region's business environment to be more resilient, sustainable, and circular. They even may have the potential to be a driver for the transition of cities towards social inclusion and circular economy model [7].

Moving away from the linear “take-make-use-dispose” model and transitioning to a regenerative growth model is essential to keep resource consumption within planetary boundaries. In a circular economy, the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized.

Makerspaces can play a pivotal role as:

1. Innovation hubs by providing a space for experimentation and prototyping;
2. Education and skill development centres where individuals and businesses can learn about sustainable practices, circular economy concepts, and how to apply them in product design and business operations;
3. Community and collaboration centres that bring together entrepreneurs, designers, engineers, and environmental enthusiasts, fostering a community that collaborates to reach sustainable solutions;
4. Promoters of economic growth and employment by nurturing start-ups and small businesses that focus on sustainable products and services;
5. Resource efficiency and waste reduction advocates by promoting the use of recycled materials and the development of products designed for longevity, repairability, and recyclability;
6. Catalysts for transitioning towards more sustainable production and consumption patterns.

By analysing the available literature and summarizing the experiences of makerspaces in the Baltic Sea region, the functions, initiatives and practices of a circular makerspace can be clustered into six blocks.

[5] Honkala T, Hölttä-Otto K., Kähkönen E. (2023), Towards Circular Design and Manufacturing – Lessons Learned from University-Based Makerspaces, 33rd CIRP Design Conference

[6] Metta J. & Bachus K. (2020), Mapping the circular maker movement: from literature review to a circular maker passport (Deliverable 2.1). Leuven: Pop-Machina project 821479 – H2020.

[7] Metta J. & Bachus K. (2020), Mapping the circular maker movement: from literature review to a circular maker passport (Deliverable 2.1). Leuven: Pop-Machina project 821479 – H2020.

CURRENT SITUATION AND OPPORTUNITIES OF MAKERSPACES IN BALTIC SEA REGION TO TRANSITION TOWARDS CIRCULARITY

The analysis of the existing situation and opportunities reflects both the potential and valuable resources as well as shortcomings and gaps of the makerspaces in Baltic Sea Region to transition to circular makerspaces.

Table 1. SWOT analysis of Baltic Sea Region makerspaces ready to begin transitioning to circular makerspaces

<p>STRENGTHS:</p> <ol style="list-style-type: none"> 1. Infrastructure and equipment for circular practices 2. Waste reduction measures 3. Resource utilization and upcycling 4. Community engagement for circular initiatives 5. Success stories and case studies 6. Local municipality and regional support 7. Strong partnerships and cooperation with stakeholders 	<p>WEAKNESSES:</p> <ol style="list-style-type: none"> 1. Space limitations for circular projects (for activities, storage for materials) 2. Insufficient equipment for a wide range of circular economy initiatives 3. Resource constraints and funding challenges 4. Skills gaps and training needs 5. Waste management issues 6. Regulatory challenges 7. Limited circular economy knowledge among team and customers 8. Issues with material sorting and recycling 9. Lack of cooperation with companies for material support 10. Limited awareness of a circular makerspace
<p>OPPORTUNITIES:</p> <ol style="list-style-type: none"> 1. Material sharing and recycling education and initiatives 2. Reduced energy consumption 3. Cooperation for circular economy initiatives 4. Digitalization, leveraging the emerging technologies 5. Education and knowledge enhancement 6. New services and products 7. International and local collaboration 8. Funding opportunities 9. Market expansion for circular services 10. Community engagement for circular initiatives 	<p>THREATS:</p> <ol style="list-style-type: none"> 1. Resistance to circular practices, limited awareness and understanding 2. Financial challenges for circular initiatives 3. Supply chain disruptions and resource issues 4. Regulatory changes impacting circular projects 5. Market perception shifts and competition 6. Economic fluctuations and funding challenges 7. Technological changes and digital adoption 8. Increasing competition of makerspaces and maker initiatives

STEP-BY-STEP GUIDE FOR MAKING THE TRANSITION TO CIRCULAR MAKERSPACE

This chapter offers a definition of circular makerspace by makerspaces in the Baltic Sea Region as well as a step-by-step guide to turning a linear makerspace into a circular makerspace. The circular makerspace definition and each aspect, practical tool and list of must-haves have been prepared by analysing the available literature and the current situation and opportunities of makerspaces in the Baltic Sea region.

The definition of circular economy makerspace:

A circular economy makerspace is a collaborative and innovative physical or virtual space that operates in alignment with the principles of the circular economy. It serves as a hub where individuals, creators, innovators, and communities come together to design, create, share, and experiment with products, services, and solutions that prioritize sustainability, resource efficiency, and extended product lifecycles. In a circular economy makerspace, the emphasis is on minimizing waste, maximizing resource utilization, and fostering a culture of reuse, repair, upcycling, and responsible consumption. The makerspace provides a platform for education, skill-sharing, and hands-on activities that promote the circular economy's core values, including reducing environmental impact, encouraging collaboration, and transforming traditional linear production and consumption models into regenerative, closed-loop systems.

A step-by-step guide includes a list of 10 must-haves in circular makerspaces. Each step includes a task check-list and practical tools and templates that can be helpful in the process. The ten must-haves are:

1. Strategy and culture for circularity;
2. Assessment and planning;
3. Education, training and business support;
4. Sourcing and material management;
5. Design for circularity;
6. Facility and operation modifications;
7. Community and collaboration;
8. Monitoring and feedback;
9. Showcasing success and innovation;
10. Policy and funding.

Ten aspects of a circular makerspace, including checklists of specific practical activities as well as tools and templates, were created by studying the available literature [8, 9, 10], using the results of workshops and SWOT analysis by the Baltic Sea Region makerspaces [11] and utilising the practical everyday experience of the experts working in makerspaces.

[8] Honkala T, Hölttä-Otto K., Kähkönen E. (2023), Towards Circular Design and Manufacturing – Lessons Learned from University-Based Makerspaces, 33rd CIRP Design Conference

[9] Metta J. & Bachus K. (2020), Mapping the circular maker movement: from literature review to a circular maker passport (Deliverable 2.1). Leuven: Pop-Machina project 821479 – H2020

[10] Predeville S., Hartung G., Brass C., Purvis E., Hall A (2017), Circular Makerspaces: the founder's view, International Journal of Sustainable Engineering

[11] Circular makerspace – Kaunas Lithuania; Makerspace DARE – Valmiera, Latvia; Creator Makerspace – Stavanger, Norway; Makerspace MAKER – Copenhagen, Denmark, Makerspace RADE – Ventspils, Latvia, Gewerbehof Luckenwalde – Luckenwalde, Germany

STRATEGY & CULTURE

A strategic commitment to sustainability thinking of makerspace leaders and team is a key to initiate changes towards circularity. This step involves defining clear strategy, staff up-skilling as well as communicating the sustainability vision to the public.

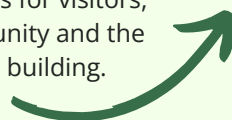


CHECKLIST:

1. Conduct a **competitive analysis** of other closely located makerspaces;
2. Co-develop a shared circular **vision and strategy** of makerspace among the team and manifesting it to stakeholders and clients from get-go;
3. **Communicate** and articulate the vision and strategy to the public;
4. Ensure **makerspace leadership** that is recognised as gatekeeper to circular practices and implementation of the vision and strategy;
5. Train and **up-skill the makerspace team** thus promoting their joining the circular commitment (topics including circular economy, practices, procurement etc.);
6. Attract and train **volunteers** that are passionate about circularity and sustainability;
7. Establish a **sustainability advisory board** consisting of stakeholders and partners to provide guidance.



Regular meetings and educational events for visitors, the maker community and the makerspace team building.



Assessing the current situation and planning clear goals is crucial for sustainability transition. This step involves conducting an audit of current practices, resources, and waste management to understand the baseline from which changes need to be made. It also means setting clear goals for the transition towards circularity, including specific targets for waste reduction, material reuse, and sustainable sourcing.



CHECKLIST:

1. Assess the **circular maturity** of the makerspace;
2. **Inventory of current materials and their sources** as well as evaluate tools, equipment and practices and their relevance, relationship and impact to circularity;
3. Identify **sources of waste and opportunities** for improvement;
4. Define specific **sustainability goals** (e.g., waste reduction targets, percentage of materials to be sourced sustainably);



Training and education of maker community contributes hugely to their joining the circular commitment. This step involves educating the makerspace community about circular economy principles and the importance of sustainable practices, including workshops, seminars, and collaborative learning sessions. It also involves training members in skills necessary for circular practices, such as repairing, upcycling, and sustainable design.



CHECKLIST:

1. **Identify circular economy educational needs**, namely, key circular economy principles and practices relevant to makers and makerspaces for education or use a ready-made list of educational programmes' topics for makerspaces transitioning to circularity;
2. **Plan a series of programmes and training** (e.g. educational workshops and programmes, mentorship programme, business support programme, incubation of circular start-ups, seminars, trainings);
3. Develop **training materials** focused on repair, upcycling, and sustainable design or use **ready-made educational and training programmes** for makerspaces;
4. Map the **local knowledge and available experts**, know-how;
5. **Implementation** of educational programmes, workshops, mentorship and incubation programmes and trainings for makerspace target groups involving experts and co-creation between makers and experts (e.g. courses introducing tools and technologies, safety trainings, courses for basic fixing skills, break things down or tear-down courses, top ten materials courses, trade-schools).

Theoretical and practical training and workshops led by local experts.



Shifting to sustainable sourcing by choosing materials that are renewable, recyclable, or reclaimed is one of cornerstones of a circular makerspace. This step includes establishing partnerships with local businesses or organizations for sourcing such materials as well as implement a system for effective management of materials, including storage, tracking, and sharing of resources to minimize waste.



CHECKLIST:

1. Establish **criteria for sustainable materials**;
Map and build a **network of suppliers** for recycled, renewable, or reclaimed materials, including landfills. Set up a local supplier database, material **database**;
2. Implement a **material tracking and inventory system** for efficient use and sharing;
3. **Events for material management** (e.g. yard sales, selling unnecessary resources online);
4. Implement a **material recovery station**.



DESIGN FOR CIRCULARITY

Makerspaces are places for prototyping and currently in most cases are not seen to be geared towards manufacturing. However, circular makerspaces, experimenting with different circularity ideas could potentially offer alternative production systems and approaches founded on circularity principles. Design for circularity is an important aspect of that. This step includes encouraging and supporting projects that adopt principles of circular design, such as modularity, repairability, and upgradability, and providing tools and resources that facilitate circular design practices, such as modular components, repair kits, and design software emphasizing sustainability.



CHECKLIST:

1. **Encourage sustainability projects** that embody modularity, repairability, and upgradability;
2. Provide access to **circular design tools and resources**, including digital open-source design tools;
3. Realise **product life-cycle extension initiatives**, often community-led or co-creation based - reuse, repair, remanufacturing, refurbishment, recycling, upcycling, sharing, emotional attachment, adaptability, upgradability, industrial symbiosis events and initiatives, (e.g., repair cafes, restart parties, open door days, manufacturing to produce spare parts in low-volume, making improvements to furniture, material exhibitions)
4. Organize **circular design events, challenges or hackathons**;
5. Set up **innovation lab** to experiment with emerging technologies, approaches, materials.

Sustainable design workshops for children and adults.



This step includes redesigning the space and operations to support circular practices. This might include setting up dedicated areas for material recovery, repair stations, and recycling bins. It also includes integrating energy-efficient equipment and sustainable practices into the daily operations of the makerspace.



CHECKLIST:

1. Identify necessary **facility modifications** to support circular practices (e.g., repair stations, appropriate and available storage rooms, wall of boxes, supply caves, recycling trolleys, libraries for sharing materials, electronics, co-working spaces). Work together with architects and urban planners;
2. Plan for the integration **of energy-efficient and sustainable infrastructure** and equipment (e.g. acquiring specialised machinery for recycling, up-cycling or sustainable materials experimentation);
3. Review and optimise the **appointment and entry system**;
4. Introduce a **project management platform or system** to track tasks, milestones, deadlines;
5. Establishing clear **safety guidelines**;
6. Ensure **equipment and premises maintenance** (e.g. regular maintenance checks, invest in repair and replacement of malfunctioning equipment, developing system for reporting equipment issues and for tracking maintenance, regular cleaning schedule);
7. Implement **waste sorting and recycling systems** (seek partnerships with recycling companies, appoint waste management coordinator responsible for overseeing waste reduction initiatives);
8. Install **signs and visual cues** to promote circularity (e.g. of off-cuts and valuable scrap materials stored visibly to promote using those for prototyping, used or recycled materials for free, guidelines for efficient machine and equipment use (e.g. testing the machine setting with scrap material), indication alternatives to the use of machinery, signposting to local resources and collected materials, examples of prints – size, font, density);
9. **Loaning, sharing the equipment.**



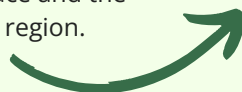
Engaging community and stakeholders, creating valuable networks is key to foster their joining the circular commitment. This step includes fostering a community culture that values and practices circular economy principles. This can be through regular events focused on sustainability, community projects, and collaborative challenges. It also includes collaborating with other organizations, makerspaces, and educational institutions to share knowledge, resources, and best practices in circular making.



CHECKLIST:

1. Develop a **community engagement plan** for promoting circular practices;
2. Establish **partnerships** with local organizations, other makerspaces, and educational institutions, including cross-industry and cross-sectoral initiatives;
3. Plan **regular community events** focused on co-creation and sustainability (e.g. community projects, collaborative challenges, knowledge and best circular practices sharing events time-banking, skill sharing);
4. Initiatives to **understand local needs**, skills, knowledge, barriers, risks;
5. Develop outward looking, inclusive and **welcoming communication**;
6. Introduce **digital tools or systems to promote resource, equipment, material, knowledge, information and idea sharing**, including contributing information about makers' needs to the digital tools and system providers, providing makers with digital tool or system training, encouraging makers to use digital tools or systems.

Meetings, events, and other collaborations with local entrepreneurs, service providers, and the public to discuss topics relevant to the makerspace and the maker community in the region.



MONITORING & FEEDBACK

Monitoring and feedback from the maker community helps the makerspace to see progress on the way to becoming circular. This step involves establishing systems for monitoring progress towards the set goals, such as tracking waste reduction, material reuse rates, and community engagement in circular projects. It also involves seeking regular feedback from the community to understand challenges, gather suggestions, and continuously improve the circular practices of the makerspace.



CHECKLIST:

1. **Tracking progress towards sustainability goals** in line with the defined sustainability KPIs;
2. Implement a **feedback mechanism** for maker community members to share insights and suggestions;
3. Regularly **review progress and adjust practices** as necessary.

Participating in networking events and providing activities that help gather feedback.



Showcasing success stories, projects, initiatives and innovations truly inspires others and demonstrates the value of circular practices. This step involves highlight successful projects and innovations emerging from the circular makerspace and sharing stories, case studies, and best practices both within the makerspace community and with a wider audience through social media, publications, and presentations at relevant events.



CHECKLIST:

1. Create clear **communication plan** to inform stakeholders, partners, investors, members, society;
2. **Identify successful projects** and innovations to highlight – create a success story or circularity flagship project portfolio (e.g. keeping some prototypes and case study materials and presentations as inspiration to others, highlighting unique offerings and community engagement as differentiators);
3. **Develop case studies or stories** showcasing circular practices (e.g. good design practices);
4. **Share achievements** through various channels (social media, newsletters, local media, events).




Inspiring meet-ups and other events with local makers.

Many makerspaces are not financially self-sustainable; therefore, attracting additional funding and creating opportunities for implementing circular economy initiatives is very important. This step includes preparing recommendations and proactively making suggestions to local, regional and national governments about the importance of promoting the circular economy, as well as preparing project and initiative applications for local and cross-border cooperation programmes to attract funding for circular economy and sustainability activities.




CHECKLIST:

1. Maintain **close relationships with regulatory authorities** to stay informed of upcoming changes and influence policies;
2. **Prepare recommendations** and proactively making suggestions to local, regional and national governments about the importance of promoting the circular economy, about regulatory issues, necessary funding programmes for makerspaces;
3. **Involve stakeholders and policy makers** in activities with the aim of gaining their policy support for the maker movement;
4. **Apply for funding** for circular activities in makerspaces and establish a dedicated team to manage applications and project execution;
5. **Identify investors and donors** that could contribute to circularity needs of the makerspace or its clients.



Edgars Rinkēvičs, the President of the Republic of Latvia, visiting DARE - makerspace in Valmiera, Latvia.



Dace Melbārde, a Latvian cultural worker, politician, and former member of the European Parliament, gets inspired.



5

TOOLS AND TEMPLATES

5.1. CIRCULAR MATURITY TEST

The Circularity Maturity Test is a comprehensive diagnostic tool designed to evaluate the extent to which organizations and individuals have integrated circular economy principles into their operations and practices. The tool is tailored to five different target groups: makerspaces, makers, SMEs (small and medium enterprises) and start-ups, suppliers, and other relevant stakeholders. By providing a structured assessment, the tool helps identify strengths, areas for improvement, and actionable steps to advance circularity. Users who have registered in the system will have the opportunity to take the test again and compare the current and previous results, thus measuring the progress of positive changes.

How it works:



Questionnaire: Each target group completes a tailored questionnaire that addresses specific aspects of circularity relevant to their operations and practices.



Scoring: The responses are scored based on predefined criteria that reflect best practices in circular economy.



Analysis: The scores are analysed to determine the maturity level of the respondent in each assessment area.



Report: A report is generated, providing insights into the current state of circularity, strengths, and areas for improvement.







Access the Circular Maturity Test [here](https://makertech.com/en/circularity-test/) [12].

[12] Circular Maturity Test: <https://makertech.com/en/circularity-test/>

5.2. SWOT CANVAS FOR MAKERSPACES

This method helps to successfully assess the current situation and define opportunities for makerspaces for the transition from a linear to a circular economy. When conducting your SWOT analysis, involve key stakeholders and gather data to ensure a comprehensive understanding of the makerspace's current situation and its potential within the circular economy context. This analysis can serve as a foundation for strategic planning and decision-making. Analysing makerspaces in the context of the circular economy using a SWOT analysis can provide valuable insights. The current situation analysis and the description of makerspace opportunities is a good sequential next activity after, for example, a customer and stakeholder focus group analysis or after researching competitors and other Makerspaces.

   	
SWOT CANVAS FOR MAKERSPACES	
STEP 1: Identifying the current situation	
STRENGTHS <i>Identify the internal strengths of your makerspace that can support the transition to a circular economy. Consider aspects such as community engagement, available resources, expertise, the culture of innovation within your space, and others.</i>	WEAKNESSES <i>Recognize internal weaknesses that could hinder the transition to a circular economy. Think about areas where your makerspace may be lacking, such as inefficient resource management, limited financial resources, lack of awareness about circular economy principles, inadequate infrastructure, or other areas.</i>
OPPORTUNITIES <i>Identify external opportunities that your makerspace can leverage to support the transition to a circular economy. Look for potential partnerships, funding sources, educational programmes, growing market demands and other aspects that align with sustainable practices.</i>	THREATS <i>Identify external threats that could challenge the transition to a circular economy. Consider potential regulatory changes, economic factors, competition, resistance to change from members or stakeholders and other aspects.</i>
STEP 2: Developing strategies and tasks	
LEVERAGING STRENGTHS <ol style="list-style-type: none"> How can we further enhance and capitalize on our identified strengths to support circular economy initiatives? What specific projects or activities can we initiate to maximize the benefits of our strengths in the circular economy context? Are there ways to leverage our strengths to differentiate ourselves from competitors in the circular economy space? 	ADDRESSING WEAKNESSES <ol style="list-style-type: none"> What steps can we take to address and improve upon our identified weaknesses within the makerspace's circular economy efforts? Are there training or development programs that can help strengthen areas of weakness among our team members? How can we mitigate or minimize the impact of our weaknesses on circular economy projects while working on improvement?
CAPITALIZING ON OPPORTUNITIES <ol style="list-style-type: none"> Which opportunities identified in the SWOT analysis align most closely with our makerspace's mission and goals for the circular economy? What strategies can we formulate to seize these opportunities and turn them into successful circular economy initiatives? Do we need to allocate additional resources or form partnerships to take full advantage of these opportunities? 	MITIGATING THREATS <ol style="list-style-type: none"> How can we proactively address the threats identified in the SWOT analysis to safeguard our circular economy initiatives? Are there contingency plans we can put in place to mitigate the impact of external threats on our projects? Can we diversify our activities or partnerships to reduce vulnerability to specific threats?
CROSS-ANALYSIS AND INTEGRATION <ol style="list-style-type: none"> Are there areas where our strengths can be used to counteract or compensate for identified weaknesses? Can opportunities be leveraged to offset or minimize the impact of threats on our makerspace's circular economy efforts? How can we align our strategies to create synergy between our internal factors (strengths and weaknesses) and external factors (opportunities and threats)? 	SETTING SPECIFIC GOALS AND TASKS <ol style="list-style-type: none"> What are the short-term and long-term goals we want to achieve within the circular economy domain, considering our SWOT analysis? What specific tasks and action plans need to be developed to realize these goals and align with our strategies? How will we measure progress and success in implementing these strategies and tasks?



Access and download the blank SWOT Canvas for Makerspaces [here](#) [13].

5.3. CIRCULAR MAKERSPACE STRATEGY MAP CANVAS

This is a strategy map canvas that will help makerspace aspiring to become circular to determine priorities, objectives of strategic dimensions and key activities to accomplish the objectives. The circular makerspace strategy map canvas was designed with inspiration from the Balanced Scorecard [14].

CIRCULAR MAKERSPACE STRATEGY MAP CANVAS

OUR MISSION:
Write here your circular makerspace mission. When creating the mission of a circular makerspace, consider aspects such as sustainability, community, innovation, education, local impact, accessibility, environmental stewardship, and accountability.

CLIENTS:
This section focuses on understanding and meeting the needs and expectations of makers, other makerspace clients and the broader community. This perspective helps ensure that the makerspace delivers value to its users, enhancing their satisfaction and engagement while promoting principles of the circular economy. In each box, define one strategic objective and 1-3 actions or initiatives to achieve the objective. Before defining the strategic objectives in this section, identify the key customer groups. Once you have defined the objectives and activities, decide on the key performance indicators (KPIs) you will use to measure progress towards these objectives. The objectives could include enhancing their skills and knowledge, ensuring access to tools, resources and services, opportunities of networking and collaboration, supporting sustainable projects, etc.

OUR VISION:
Write here your circular makerspace vision. Creating a vision for a circular makerspace involves articulating a clear and inspiring future direction that aligns with the principles and core values of the circular economy.

INTERNAL:
This section focuses on identifying and optimizing the internal processes that are crucial for delivering value to the customers and achieving the financial and strategic goals of the makerspace. This perspective ensures that the operations, workflows, and internal practices are efficient, effective, and aligned with the principles of the circular economy. In each box, define one strategic objective and 1-3 actions or initiatives to achieve the objective. Before defining the strategic objectives in this section, identify the key internal processes, for example assessment, planning, material sourcing, facility and operations, monitoring, communication. Once you have defined the objectives and activities, decide on the key performance indicators (KPIs) you will use to measure progress towards these objectives. The objectives could include enhancing day-to-day operational efficiency, ensuring equipment reliability and availability, material sourcing and inventory management, minimizing waste, etc.

OUR VALUES:
Write here your circular makerspace values. Creating values for a circular makerspace involves defining the core principles that guide behaviour, decision-making, and the overall culture of the makerspace.

FINANCIAL:
This section focuses on the financial goals and strategies that support the sustainability and growth of the makerspace. This perspective ensures that the makerspace operates efficiently, generates sufficient revenue, and manages costs effectively to achieve its mission and long-term objectives. In the box, define the financial strategic objective and 1-3 actions or initiatives to achieve the objective. Before defining the strategic objective in this section, identify the key financial goals. Once you have defined the objective and activities, decide on the key performance indicators (KPIs) you will use to measure progress towards the financial objective.

LEARNING AND GROWING:
This section focuses on the continuous development and improvement of the makerspace team, ensuring they have the skills, knowledge, and capabilities to support the makerspace's mission and strategic objectives. This perspective is critical for fostering innovation, adapting to changes, and maintaining a competitive edge. In the box, define the learning and growing strategic objective and 1-3 actions or initiatives to achieve the objective. Before defining the strategic objective in this section, identify the key learning and growing areas. Once you have defined the objective and activities, decide on the key performance indicators (KPIs) you will use to measure progress towards the learning and growing objective.



Download the blank Circular Makerspace Strategy Map Canvas [here](#) [15].

[14] <https://www.clearpointstrategy.com/blog/full-exhaustive-balanced-scorecard-example>

[15] Circular Makerspace Strategy Map Canvas:

https://makertech.com/images/userfiles/circular_spaces/Guidelines/A3_Tools_and_templates_Guidelines_CircularMakerspac.es.pdf

5.4. CIRCULAR ECONOMY TRAINING PROGRAMMES

A coalition of several makerspaces in Latvia, Lithuania, Germany, Denmark and Norway has developed and piloted eight training programmes on the circular economy. Training is valuable for educating and engaging all types of makers in more sustainable everyday practices. The training will also be excellent for up-skilling makerspace teams.



The topics of the eight training programmes are:

1. **Circular Economy: from linear to circular** - developed by Technical University of Applied Sciences Wildau (Germany);
2. **Waste as a resource in circular economy** - developed by Kaunas Science and Technology Park (Lithuania);
3. **Circular value chains, ecosystems and people** - developed by Valmiera County Council (Latvia);
4. **Circular business models** - developed by Ventspils High Technology Park (Latvia);
5. **Product life cycle and ecological footprint** - developed by Valmiera Development Agency, Makerspace DARE (Latvia);
6. **Design thinking for circular products** - developed by Makerspace CREATOR (Norway);
7. **Reusability, repairability, recyclability** - developed by Makerspace MAKER (Denmark);
8. **Integrating circular approaches into every day work life** - developed by Lithuanian Innovation Centre (Lithuania).



Access the educational programmes and ready-made materials [here](#) [16].

5.5. DIGITAL CIRCULAR COLLABORATION PLATFORM

The Digital circular collaboration platform is designed to empower the maker community by providing a comprehensive platform that connects makers, facilitates collaboration, promotes circular economy practices, and offers educational resources. The digital tool is more than just a platform; it's a hub for innovation, collaboration, and sustainability within the maker community. By connecting makers, promoting circular economy practices, and offering valuable resources, the platform aims to foster a vibrant and resilient maker ecosystem.



The platform's key functionalities include:

1. **Makerspaces on the map** - an interactive map feature allows users to discover and connect with makerspaces around the world.
2. **Forum for makers** - the forum provides a dedicated space for makers to engage in discussions, share ideas, and seek advice from their peers.
3. **Prototyping jobs/orders** - the job board connects makers with opportunities for prototyping work.
4. **Marketplace** - the marketplace enables makers to buy and sell products and services related to their craft.
5. **Circularity labels** - to promote sustainability, our platform includes a labelling system that indicates the circularity of products and makerspaces.
6. **Circular maturity test** - a comprehensive diagnostic tool designed to evaluate the extent to which organizations and individuals have integrated circular economy principles into their operations and practices.
7. **Circular economy training materials** - comprehensive training materials to help users develop new skills and adopt circular economy practices.



Access the Digital circular collaboration platform [here](#) [17].



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CIRCULAR ECONOMY

Circular spaces

**VALMIERAS
NOVADS.**



VALMIERA
DEVELOPMENT
AGENCY

maker
Foreningen for fysisk iværksætteri



LITHUANIAN
INNOVATION
CENTRE



Creator

**TECH
PARK**
KAUNAS