

JOINT CIRCULAR ECONOMY STRATEGY

JOINT CIRCULAR ECONOMY STRATEGY:
DORNBIRN

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D.T1.2.10: Joint circular economy strategy: DORNBIRN

A.T1.2 Developing a local circular economy strategy

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1. Introduction

The Memorandum of Understanding is an agreement signed by regional stakeholders which identify the joint objectives and the next activities foreseen to boost circular economy initiatives within CITYCIRCLE in Dornbirn, Vorarlberg. The Regional stakeholders' group has been previously identified with the regional mapping "D.T1.1.5 Regional mapping for CE transition - Dornbirn" and officially established through bilateral and/or plenary meetings as reported in deliverable "D.T1.2.5 Regional Stakeholders' group - Dornbirn".

The circular economy strategy for Dornbirn was designed adopting an interactive and integrative approach by actively involving the stakeholder's group in two dedicated workshops as described in "D.T1.2.11 CE strategy workshops". The workshops were meant to share knowledge and ideas, create synergies among key stakeholders and pursue a bottom-up approach throughout the strategy building process. This is also to ensure commitment and acceptance by relevant stakeholders in view of the long-term sustainability of the strategy. The strategy is ruled by the provisions set forth in the Memorandum of Understanding signed by relevant stakeholders. It represents the framework agreement upon which the local hub will be built and that will be described in the deliverable "D.T1.3.5 Circular economy hubs implemented: Dornbirn".

The aforementioned Memorandum is attached to this document. The next paragraphs contain information on the strategy and the context in which it is intended to be applied.

2. SUMMARY

The CITYCIRCLE project aims to bring innovation and sustainable economic growth to peripheral regions within the European Union. This is thanks to the implementation of circular economy practices. The partners of this project are 11, coming from different European countries (Austria, Croatia, Germany, Italy, Slovenia and Slovakia). The idea is to combine the efforts of the private sector and the public sector to generate a terrain suitable for the diffusion of circular economy practices. To achieve this it is necessary to involve stakeholders from different areas, in accordance with the principles of the quadruple helix, which plan to create collaborations between Public Authorities, Universities, companies and civil society. The aim of the project is therefore to create the best possible conditions for generating economic growth in the area, resulting from innovation and sustainable development.

3. GENERAL CONTEXT

At European level, the transition from a linear economy to a circular economy is an absolute priority. This depends on the fact that, not only this will be indispensable for achieving the objectives set for the protection of the environment, but it will also result in competitive advantages in economic terms. Consider, for example, the decarbonisation and climate agreements that involve the European Union. This context therefore generates important opportunities for companies and public bodies to be able to invest in new technologies, making their activities more competitive on the one hand and making cities more healthy places on the other.

Taking the 17 goals for sustainable development as a guideline, it is clear that for some of them, the circular economy can facilitate their achievement. In the following table (Schroeder et al., 2019) we see what is the relevance and the possible impact of CE for every single SDG. The numbers in the boxes represent the number of targets related to the corresponding goal that CE could help to achieve in some way. Sometimes we notice an inverse relationship that represents the cases in which reaching the target could be helpful in order to support CE diffusion. For these researches CE framework can permit us to reach different SDGs targets; the total number of targets is 169 and CE seems to help directly for 21 of them and indirectly for other 28. Talking about SDGs: 6, 7, 8, 12 and 15 are the ones for which there exist the strongest link with CE.



	<i>Direct contribution of CE practices to achieve target</i>	<i>Indirect contribution of CE practices to achieve target (e.g., via other SDGs)</i>	<i>Achieving target will contribute toward CE</i>	<i>Weak or no link</i>	<i>Cooperation opportunities for CE promotion</i>
Goal 1	0	4	1	1	1
Goal 2	1	3	3	0	1
Goal 3	1	0	0	11	1
Goal 4	0	0	5	3	2
Goal 5	0	0	2	6	1
Goal 6	4	1	0	0	3
Goal 7	3	1	0	0	1
Goal 8	2	3	4	1	2
Goal 9	2	0	6	0	0
Goal 10	0	1	4	4	1
Goal 11	1	3	3	2	1
Goal 12	3	5	2	0	1
Goal 13	0	1	3	0	1
Goal 14	1	2	3	1	3
Goal 15	3	3	1	1	4
Goal 16	0	1	6	5	0
Goal 17	0	0	9	0	10
Total	21	28	52	35	33

With this in mind, CITYCIRCLE aims to disseminate tools such as industrial symbiosis in order to provide examples of good sustainable development practices that will then have to be repeated by other companies and other organizations. A problem in this regard may be the fact that, especially dealing with peripheral territories, interested parties may find difficulties and barriers on several fronts (Kirchherr et al., 2018):

- A) **Cultural:** hesitant company culture, limited willingness to collaborate in the value chain, lacking consumer awareness and interest, etc.
- B) **Regulatory:** limited circular procurement, obstructing laws and regulations, lacking global consensus, etc.
- C) **Technological:** lacking ability to deliver high quality remanufactured products, limited circular designs, too few large-scale demonstration projects, etc.
- D) **Market:** low virgin material prices, lacking standardization, high upfront investment costs, etc.

To cope with these problems, CITYCIRCLE provides for the implementation of facilitator offices (HUBs) capable of following companies and organizations of various types along the transition path.

4. KEY OBJECTIVES OF THE PROJECT

In order to create, as mentioned, a favourable environment for sustainable development, the CITYCIRCLE project will focus on the following objectives:

- 1) **Implementation of pilot projects that will serve as an example for future initiatives:** This will happen thanks to the collaboration with the stakeholders and the identification of specific and promising projects.
- 2) **Promotion of the initiative and the concept of circular economy:** through events, web advertising campaigns, etc.



- 3) **Creation of a circular economy HUB in each of the regions identified by the project:** It will represent a facilitator office able to offer services to users and stakeholders in the transition to the circular economy.

5. THE STRATEGY FOR DORNBIRN/VORARLBERG

In this paragraph you will find indications regarding the specific characteristics of the territory in question, the plan for achieving the project objectives contextualized in the region and other information always related to the specific context.

5.1. STAKEHOLDERS DEFINITION

FHV involves all groups of quadruple helix actors in the region: Industry, Academia, Authorities and Citizens. Potential stakeholders are listed in the section below.

Industry/SMEs

Illwerke vkw

Wirtschafts-Standort Vorarlberg WISTO

Haimaten

Postgarage

Carcoustics Austria GmbH

Senseforce GmbH

Kaufmann Bausysteme GmbH

Wirtschaftskammer Vorarlberg (wko)

CARUSO Carsharing eGen

Academia

V-Research GmbH

Authorities

City of Dornbirn

Vorarlberg Government

NGOs - Citizens

Startupland Vorarlberg

5.2. SPECIFIC OPPORTUNITIES RELATED TO THE TERRITORY

Vorarlberg ranks among Europe's strongest economic regions. Its extremely high economic strength is based on a rate of industrialization above average combined with competitive trade, numerous innovative craft business and an effective tourist industry. The following conditions, amongst others, for corporate employment play a decisive role in the leading position and economic power of Vorarlberg:

- Strategically beneficial location in the midst of Europe's strongest economic regions
- Advanced infrastructure, also for the transport of goods and individuals
- Business sites as professional technology and impulse centers
- High availability of top qualified and motivated personnel



- Labor productivity above average
- Relatively low energy prices (e.g. electricity)
- Great range of funding opportunities due to a healthy regional banking sector
- Professional local supply industry
- Attractive economic promotions for innovation and investment projects
- Efficient administration with short distances and no red tape
- Business-friendly local climate
- High quality of life, numerous sports and leisure opportunities

Regional smart specialization strategy formulates five main fields of strategic importance to regional growth: Smart textiles, Energy and energy efficiency, Education and health, Intelligent production, Humans and Technology.

The scope of Circular Economy Strategy in Vorarlberg to be employed by CITYCIRCLE project, focuses on regional intelligent production systems. Vorarlberg's intelligent production system aids the economic growth through manufacturing, ICT, Information system activities, Professional, scientific and technical activities. Moreover, Scientific domain that encompasses intelligent production in the context of smart specialization adapts solutions in the field of Industrial production and technology (increasing economic efficiency and competitiveness), Improving industrial production and technology, and General advancement of knowledge. Finally, policy objectives focusing on intelligent production support the application of key enabling technologies - such as advanced manufacturing systems, which is the particular focus of circular economy strategy application.

Although in Austria there have not been introduced particular circular economy roadmaps, the country supports transitions towards a green economy by diverse set of instruments that places in focus waste management, energy consumption, mobility and other areas of circular economy application.

Circular economy country overview

“Circularity Gap Report Austria” - Austria the first nation to measure the Circularity Gap, paving the way for nations to lead the transition from a linear economy of Take-Make-Waste to a circular economy.

ARA study: Circularity rate for Austria of 9.7%, ahead of the figure of 9.1% in Circle Economy's Global Circularity Gap report published in January 2019.

Main results:

- Domestic extraction of resources (metals, minerals, biomass, fossil fuels): 164 Mt, out of which 10.7% stem from recycling
- Austria's entire resource consumption: 434 Mt, out of which 260 Mt (55%) stem from imports. 51% of the resource consumption go to export articles and export services
- Net domestic resource consumption: 206 Mt with a recycling rate of 9.7 %.

Four courses of action:

1. Shifting from fossil fuels to renewable resources (boosting circularity to 9.9%)
2. Recycling of all recyclable waste (18.8%)
3. Maintaining current buildings and infrastructure by sourcing all construction materials from demolition of old building stocks (11.6%)
4. Prioritising imports with a higher proportion of secondary content (20.1%).

5.3. SPECIFIC CHALLENGES RELATED TO THE TERRITORY



Austria is amongst the highest waste producers - 546 kg per person per year.

Main challenges:

- SMEs perform below the EU average on waste minimization
- No circular economy roadmap
- Existing initiatives mainly driven by NGOs - not coordinated
- Awareness on waste and environmental concerns, rather than on economic opportunities (i.e. service sector - approx 63% of GDP)

Barriers:

- Lack of corporate awareness
- Government not much focused on the CE
- Missing market action

5.4. CONTEXTUALIZATION OF THE PROJECT OBJECTIVES

Advanced manufacturing is about speed, the phrase refers to technologies or management processes that increase speed and efficiency in manufacturing. Technologies that enable advanced manufacturing are often described as 'lean' or 'precise' and many are 'computer-aided' like computer-aided design (CAD) and computer-aided manufacturing (CAM). Administration at The City of Dornbirn is working to make the city a destination for advanced manufacturing. Innovation manufacturing technologies are deployed in diverse industrial sector, in Vorarlberg. These cover: built environment, mobility, energy, agriculture and other sectors.

FHV provides a framework for *Circular Economy Open Business Model Innovation for Advanced Manufacturing*, which highlights circularity as a significant opportunity for utilizing opportunities provided by Vorarlberg, in context of its regional actors. Based on collaboration activities between four foundation of helices - industries - SMEs, local and regional authorities, Academia and students, and citizens, Vorarlberg CE strategy will support development of novel business models that could also induce systemic change in long-term. The objectives of the circular economy strategy upon which the framework is founded are as follows:

- Reducing raw materials use and waste production,
- Citizen participation in product/service development,
- Fostering secondary raw material use,
- Stimulate sustainable urban innovation,
- Participatory labs: Conceptualizing circular economy by relevant actors,
- Studying EPR (Extended Producer Responsibility) in regional context,
- Sustainable circulation and ecologically efficient town structure
- Increase inhabitant responsibility and awareness
- Accumulating knowledge on how to enhance positive and alleviate negative impacts of circular transition
- Towards: Austria becoming fully circular in 2050.

Based on application of the above mentioned strategy, circular economy hub in Vorarlberg will support project objectives through following activities:

- Measurement of new solutions for the circular economy in urban contexts combined with new stakeholder networks for innovative, green manufacturing settings.
- Promoting initiatives at policy and entrepreneurial level against the state-of-art, allowing them to be at the forefront of new findings and green solutions.
- Generating knowledge regarding current challenges and problems in connected green manufacturing.
- Setting up of the basis for territorial knowledge and its transferability to other European regions.



5.5. SCHEDULED ACTIVITY

31.1.2020 - 1st Stakeholder meeting and stakeholder training

April/May - 2nd workshop and stakeholder training

5.6. HUB'S ECONOMIC SUSTAINABILITY

-Increase understanding on how innovation systems operate:

Through data collection and studies on conceptual overlaps between the Quadruple Helix spheres of CE with data on new industrial patents, technologically driven private investments, public innovation funding and new business development including university spin-offs.

6. Annex

- Memorandum of Understanding signed by the stakeholders (English version)
- Memorandum of Understanding signed by the stakeholders (National language version)