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NiCE

STRATEGY FRAMEWORK

to enable circular lifestyles in cities

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Content

The Strategy Framework has been edited and written by Mariann Szabó, Noémi Csigéné Nagypál, Ádám Csuvár, György Ádám Horváth & Tibor Princz-Jakovics based primarily on the 'Synthesis report - Status quo assessment and needs analysis of our target groups' and 'Short synthesis reports on political framework conditions' of NiCE Partners (LP: UBA - German Environment Agency, Germany; PP2: ENVIROS, Czechia; PP3: StadtLABOR, Austria; PP4: Scientific Research Centre Bistra Ptuj, Slovenia; PP5: Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy; PP6: Research and Innovation Centre Pro- Akademia, Poland; PP7: Budapest University of Technology and Economics, Hungary; PP8: Creative Industry Košice, n.o., Slovakia; PP9: Municipality of Brzeg Dolny, Poland).

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- Ádám Csuvár: 2.1. European Union and other Supranational Iinstitutional Frameworks for Supporting Circular Economy Rransition (author and editor), 2.2.2. Potentials, Challenges – Findings from Interviews (author, together with Noémi Csigéné Nagypál),
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- Mariann Szabó: 1.1. About the Project (editor), 1.2. Partners (editor), 1.3. About the Strategy Framework (author), 1.4. Usage & Valorisation of the Strategy Framework Summary (author), 1.5. Summary (author), 1.6. Concept of circularity in lifestyles in urban spaces (author & editor), 2.3. Local Level, NiCE Pilot Locations (editor), 3.1.1. Summary of Interviews, Focus Groups, Workshops (editor), 3.1.2. Pathways to Circular Lifestyles (author, the database has been developed by Fruzsina Bozsoki), 3.1.3. Interest Groups, Communities & Initiatives (author, the database have been developed by Fruzsina Bozsoki), 3.2. Priorities for Pilot Planning and Implementation – Results from the Transnational Think Tank Workshop.

Language review done by Katalin Käsz Head of Secretary, Certified Translator, Budapest University of Technology and Economics, Department of Environmental Economics and Sustainability.

Four annexes have been developed providing extra information on

1) scientific background on circular economy transitions and highlighted roadmaps,

2) political framework for circular economy transitions in Austria, Czechia, Germany, Hungary, Italy, Poland, Slovakia, Slovenia,

3) assessments on local level in NiCE pilot cities (Bologna and Porto-Saragozza district in Italy, Brzeg Dolny in Poland, Budapest and Újbuda district in Hungary, City of Jihlava in Czechia, Graz in Austria, Košice in Slovakia, Ptuj in Slovenia and Würzburg in Germany) including stakeholder mapping, collection of circular offers, and relevant projects,

4) recent debates and trends about circular economy good practices.

1-page descriptions of Annexes are available at the *Appendices* section of the Strategy Framework.

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1 INTRODUCTION

1.1 About the Project

European city centres used to be busy resource-intensive centres of consumption, but due to the Corona pandemic and a shift towards online trade, numerous shops had to close, and the supply chains were interrupted. Alternative and sustainable consumption models leading to more circularity and sufficiency increase do exist, but due to the current framework conditions, these models usually only remain in their niche. Consumers therefore lack a central and easily accessible offer of alternative forms of consumption. The 'From Niche to Centre - City Centres as Places of Circular Lifestyles' (NiCE) project focuses on two main challenges - a transformation of central places in cities that make it easy for their inhabitants to implement sustainable lifestyles and at the same time to (re)animate centres in a more circular way.

The partnership shows various practical approaches in different settings that strengthen new forms of consumption and make them visible in urban centres while bringing all relevant stakeholders together. The Project Team implements the following activities:

- **Status quo assessment and needs analysis of the target groups** to assess sustainable consumption patterns and support circular business models. It will result in a "monitor tool" which will help to quickly analyse the status quo, challenges, and potentials for circular lifestyle in cities and in a synthesis report of our findings.
- **VR exhibition** - Concept development, preparation, and implementation of a virtual exhibition of 30+ inspiring examples of how sustainable lifestyles have been established in urban centres supported by the presentation of at least 15 helpful tools to promote, support and sustain these.
- **Joint development of a strategy framework for the promotion and establishment of circular lifestyles in cities/city centres** that will serve as guidance for local and regional public authorities.
- **Transnational development of the pilot approaches**, implementation, evaluation, and assessment.
- Development of 4 solutions based on the pilot experiences, prepared in one **"Solution Box"**.
- **Roll-out of NiCE solutions** - a knowledge platform which will include a set of innovative solutions needed to enable the transition from city centres to circular city centres by re-using spaces and resources.

- **NiCE capacity building measures and networking offers** – The aim is to raise awareness and competences on how to establish circular lifestyles at central places in cities.
- **Mainstreaming and uptaking solutions**: From local decision makers to European networks.

1.2 Partners

NiCE partners are coming from **eight countries across Central Europe** and representing wide range of legal formes and types of different institutions: **LP** German Environment Agency (DE), **PP2** ENVIROS (CZ), **PP3** CityLAB Innovations for urban quality of life (AT), **PP4** Scientific Research Centre Bistra Ptuj (SI), **PP5** Italian National Agency for New Technologies, Energy and Sustainable Economic Development (IT), **PP6** Research and Innovation Centre Pro- Akademia (PL), **PP7** Budapest University of Technology and Economics (HU), **PP8** Creative Industry Košice, n.o. (SK), **PP9** Municipality of Brzeg Dolny (PL).

1. Figure The Project Team and Programme Officer in the First Partner Meeting. Source: B. Geberle, BME

1.3 About the Strategy Framework

The final Strategy Framework shows ways for the promotion and establishment of circular lifestyles in cities / city centres. It serves as guidance for local and regional public authorities that would like to enhance the implementation of circular lifestyle in their cities and regions.

From a practical perspective, circular lifestyle and circular living means reducing buying new goods, repairing and reusing products, sharing products and only recycling waste after an item is beyond repair and reuse.

The assessment of political measures, action plans, development plans, strategies and programmes that support circular lifestyles have been carried out in NiCE partner countries *(Austria, Czechia, Germany, Hungary, Italy, Poland, Slovakia & Slovenia)* as well as in pilot cities, towns *(Bologna and Porto-Saragozza district in Italy, Brzeg Dolny in Poland, Budapest and Újbuda district in Hungary, City of Jihlava in Czechia, Graz in Austria, Košice in Slovakia, Ptuj in Slovenia and Würzburg in Germany)* by interviewing political stakeholders and conducting desk research. Sustainable consumption patterns and supporting business models that play a role in the circular development of cities, towns have been assessed on an urban level. Partners have analysed the needs and visions of their target groups (cities and initiatives/ providers of new business models, existing networks) to identify transnational challenges and potentials.

By the end of the preparatory phase (end of February 2024) a draft document of the Strategy Framework has been developed, suitable for discussion in the framework of a joint, hybrid Transnational Think Tank workshop with the involvement of political stakeholders and partners from the eight participating countries.

The workshop took place in a hybrid format on 6 March 2024, back-to-back with the Partner Meeting in Košice. The participants of the workshop included the consortium of NiCE, some associated partners (e. g. networks), representatives from NGOs and policymakers. During the workshop participants had the opportunity to listen to presentations about the political framework conditions and the research conducted in order to support the status quo assessment, the needs analysis of the target groups through the assessment the sustainable consumption patterns, and the circular business models in NiCE pilot cities. Besides the presentations, discussions were held in smaller groups, where the invited participants and experts could express their opinions about the Strategy Framework and discuss the drivers and barriers of circular lifestyles in cities. Participants got familiar with the SWOT analysis about circular lifestyle patterns in partner cities and towns based on the research findings of

the consortium partners, followed by a proposal and a discussion regarding the creation of a common statement (Mission Statement) for the project.

The final Strategy Framework for the promotion and establishment of circular lifestyles in cities/ city centres thereafter is based on the identified (A) needs and challenges (B) potentials assessed during the analysis of sustainable consumption patterns and supporting business models that play a role in the circular development of cities as well as (C) the joint Think Tank workshop.

The Strategy Framework serves as guidance for local and regional public authorities and can be uptaken e.g. by the cities of our pilots. It can be regarded as a living document that we will reevaluate and update in our last period.

1.4 Usage & Valorisation of the Strategy Framework

Even as it is generally accepted that governments, municipalities, businesses, different networks, NGOs and citizens alike have a role to play in transitioning towards a circular economy (CE), those same aspects of CE, which mean significant changes to ways of living are barely addressed (Korsunova, Horn & Vainio (2021)). Due to its multidimensional character, transition toward circular economy and circular lifestyle integrates a wide range of stakeholders from the transnational and national to individual level.

The NiCE project concentrates on joint development and piloting of approaches and related solutions that increase the level of circular lifestyles (and foster sustainable consumption) in cities and lead to behavioural changes of citizens, enterprises, and local public authorities. Through this transformation towards sustainable and circular structures, urban centres are revitalised, social and cultural exchange between inhabitants is stimulated and new employment opportunities are facilitated. By consequence, the first target group of beneficiaries of this Strategy Framework are individuals, interest groups, communities, NGOs, businesses, local governance bodies, regional and national political decision-making bodies from pilot cities, towns, regions, and countries. As we shall see there are plenty of stakeholders of different kinds which all have the potential and capability to implement actions and programmes, as well as to create policies for the promotion of circular lifestyles. Accordingly, we believe that the Strategy Framework would be beneficial to any stakeholder in Europe and the developed world, which is committed to enhance circularity in urban areas.

This Strategy Framework aims to help different authorities, municipalities, organizations to develop strategies, action plans for boosting circular lifestyle in urban areas by presenting:

- state of the art of circular lifestyles' scientific literature,
- supranational, EU-level political framework of circular economy transitions,
- synthetized policy findings from eight Central European countries,
- the importance of local policy documents from cities, towns of different size patterns in Central Europe,
- good examples of enhancing circular lifestyle considering a wide range of stakeholders and topics,
- role of internet-based communities influencing circular lifestyle patterns,
- projects in the field of CE.

How to use this Strategy Framework?

- **Before designing specific actions, pilots, it is important to comprehend the wide nature of the circular lifestyle phenomena**. Chapter 1.6. 'Concept of Circularity in Lifestyles in Urban Spaces' provides opportunities for quickly reviewing what kind of actions would enhance circular lifestyle. Annex 1, which is the scientific background on circular economy transitions and highlighted roadmaps is highly recommended for any decision-making body which aims to develop policies, roadmaps for circular lifestyle.
- **Once the decision is made that certain measures or policies will be introduced for enhancing circular lifestyle, it is important to have a clear picture of what has happened on European and supranational level** as raw materials, energy sources, moreover, pollution flow through different regions, thus collaboration is particularly needed. Chapter 2.1. 'European Union and other Supranational Institutional Frameworks for Supporting Circular Economy Transition' highlights policy recommendation for the promotion of circular transition, action plans and other frameworks which serve as profound information bases for local, regional, and national interventions.
- **Similarly to the European and supranational level policy framework, national policies are recommended to be reviewed**. National targets for various CE policies can be achieved with the cooperation of players at various territorial scale. Policy decision makers would also benefit from collecting information about policy frameworks of other nations, as this enables designing new policy measures. Chapter 2.2. 'National Level' provides synthesized overview of partner countries' policies, while Annex 2

provides detailed description of political framework for circular economy transitions in Austria, Czechia, Germany, Hungary, Italy, Poland, Slovakia, Slovenia.

- **After reviewing the supranational and national policy framework conditions, a situational analysis should take place** designing policies, roadmaps, action plans on a local level. The first step is the review of local policy documents. Chapter 2.4. recommends a possible way for content analysis focusing on funding, regulatory, policy, awareness and capacity gaps of the status quo, which have an effect on how to design the actions.
- **As in case of any planning process, we need to understand the needs of the target groups**. Chapter 3.1. highlights a wide range of solutions for needs' assessment covering primary and secondary research findings. When designing the specific measures, stakeholder mapping is a convenient tool to list all the stakeholders which can be connected to some extent. Annex 3 highlights the results of the stakeholder mapping for pilot project owners in NiCE, however due to the diverse background of partners: authorities, businesses, educational and research institutions and a municipality, the results can be easily generalized. It also provides a comprehensive list of good examples on how to enhance circular lifestyle considering a wide range of stakeholders and topics, as well as projects for circular transitions. Annex 4 can be a helpful guide for any organisation which is not familiar with good practice collection and analysis. It highlights useful sources and literature findings on recent debates and trends about circular economy good practices.
- **A general tool for summarizing the findings from the situational analysis is the SWOT analysis**, highlighting the strengths, weaknesses, opportunities, and threats related to a certain phenomenon. Chapter 3.2.3. provides a synthesized big picture of partner pilot cities.

1.5 Summary

The Strategy Framework is structured as follows:

- Introduction, which includes the Projects' description, Partners, Aim of the Strategy Framework, Usage & Valorisation of the Strategy Framework, as well as the 'Concept of Circularity in Lifestyles in Urban Spaces': this chapter is recommended for everyone who is interested in recent scientific research results on circular lifestyles, sustainable consumption, and value retention options for circular economy.

- Chapter II, ‘Political Framework’ provides an overview of international institutional frameworks which support circular economy transition, as well as the findings of NiCE project partners on national framework conditions based on secondary research and interviews. Findings from interviews with political stakeholders are synthesized in chapter 2.2.2. Potentials, Challenges – Findings from Interviews. NiCE pilot locations, and local strategic papers and challenges are discussed as well.
- Chapter III, ‘Status Quo of Sustainable Consumption Patterns and Supporting Business Models’ firstly introduces the research results of interviews, focus groups, workshops, living lab discussions with various stakeholders and target groups. Secondly, it demonstrates the results of our desk research on solutions and offers related to circular lifestyles, as well as related projects in partner countries. The subsection ‘Priorities for Pilot Planning and Implementation - Results from the Transnational Think Tank Workshop’ has been completed after the Workshop and highlights our understanding on the relation of circular economy and circular lifestyles, main conclusions of small group discussion about the reinforcement of circular lifestyles, a SWOT analysis on strengths, weaknesses, opportunities, and threats related to the implementation of circular lifestyle strategies in partner cities and countries and finally, the mission statement of the project.

Searching for the key points of the Strategy Framework? Then review:

- Chapter 1.6. to understand circular lifestyle phenomena,
- Chapter 2.2.1. for the overview of strategic documents on national level,
- Chapter 2.2.2. for synthesized results from interviews with policymakers,
- Chapter 2.2.3. for an overview of organizations and initiatives supporting circular transitions,
- Chapter 2.4. for synthesized results from local strategic papers,
- Chapter 3.1.1. for results on how target groups understand circular lifestyle to define pathways for circular transitions, and to evaluate the effects of the pandemic,
- Chapter 3.1.2. for synthesized results on circular offers,
- Chapter 3.2. for the results of the Transnatinal Think Tank Workshop.

1.6 Concept of Circularity in Lifestyles in Urban Spaces

As Korsunova, Horn & Vainio (2021) points out, it is generally accepted that governments, municipalities, businesses, and citizens alike have a role to play in transitioning towards a circular economy (CE). Even though CE also means significant changes to ways of living, these aspects of CE are barely addressed. According to recent estimates of the United Nations Conference on Trade and Development (UNCTAD) 57% of the world's population lived in urban areas in 2022. This rate is significantly higher for developed countries, the European Commission forecasts Europe's level of urbanisation to increase to approximately 83.7% in 2050. As urban spaces have become hubs of consumption of goods and services, they should enhance the transformation to circularity in terms of production and consumption.

Reike, Vermeulen & Witjes (2018) synthetize **value retention options in CE** based on literature findings (Table 1). If we assess the various CE concepts it becomes clear that **circular lifestyle is embedded in most of them**: starting with R0 'refuse' it is the choice of customers to avoid purchasing specific goods, while in case of R1 'reduce' it is up to customers to use less, use longer or to share the use of products. Nevertheless, business models must support R1 with providing high-level quality, durable, possibly local goods, and platforms for sharing. Parallel to reduce, R2 're-sell or re-use' needs sufficient communication channels or tools for the exchange of goods. The next group of CE concepts is directly connected to circular lifestyle as well, including R3 'repair', R4 're-furbish' and R5 're-manufacture. These activities provide upgraded products for customers but still in the original function. R3 'repair' can be achieved using ICT platforms, embedded, and transferred knowledge in societies and in new forms of social interactions, like in repair cafés. R4 're-furbish' activities can be carried out by prosumers, a new consumer segment who produce and consume parallelly or by specialized business agents. R5 're-manufacturing' covers the replacement of key modules or components and can be achieved by prosumers, and circular business providers. The third segment, covering downcycling includes R6 're-purpose', R7 're-cycle', R8 'recover' and R9 're-mine'. R6 're-purpose' focuses on using components in composite products, thus developing a new product with old parts, while R7 're-cycle' puts emphasis on material-usage, savings either in case of original or new functional products. Businesses which build on re-purposing or on re-cycling can have market opportunities in the segment of conscious buyers. According to Yan & Feng (2014) R8 'recover' means 'collecting used products at the end-of-life, and then disassembly, sorting and cleaning for utilization', while Stahel (2010) describes it as the extraction of elements or materials from end-of-life composites, while in Worrell and Reuter's "Handbook of Recycling" it is interpreted in two ways: collection of recyclable products and

materials and ‘energy recovery’ from waste streams. The last value retention option is R9 ‘re-mine’ which means the retrieval of materials after the landfilling phase.

1. Table Value Retention Options in Circular Economy

	R#	CE concept	Object	Owner	Function	Key activity customer	Key activity market actor
Client/ user choices	R0	Refuse	Product	Potential consumer	N.a.	Refrain from buying	2nd life cycle, Redesign
Client/ user choices	R1	Reduce	Product	Consumer	N.a.	Use less, use longer; recently: share the use of products	2nd life cycle, Redesign
Client/ user choices	R2	Re-sell/ Re-use	Product	Consumer	Original	Buy 2nd hand, or find buyer for your non-used produced/possibly some cleaning, minor repairs	Buy, collect, inspect, clean, sell
Product upgrade	R3	Repair	Components of composite products (old product with new parts)	1st or 2nd consumer	Original	Making the product work again by repairing or replacing deteriorated parts	Making the product work again by repairing/replacing deteriorated parts
Product upgrade	R4	Re-furbish	Components of composite products (old product with new parts)	Original or new customer	Original, upgraded (large complex products)	Return for service under contract or dispose	Replacement of key modules or components if necessary

	R#	CE concept	Object	Owner	Function	Key activity customer	Key activity market actor
Product upgrade	R5	Re-manufacture	Components in composite products (old product with new parts)	Original or new customer	Original, upgraded	Return for service under contract or dispose	Replacement of key modules or components, if necessary, de/recompose
Down-cycling	R6	Re-purpose (Re-Think)	Components in composite products (new product with old parts)	New user	New	Buy new product with new function	Design, develop, reproduce, sell
Down-cycling	R7	Re-cycle	Materials	Collector, processor, waste mgt. company	Original or new	Dispose separately; buy and use secondary materials	Acquire, check, separate, shred, distribute, sell
Down-cycling	R8	Recover (Energy)	Energy content	Collector, municipality, energy company, waste mgt. company	New	Buy and use energy (and/or distilled water)	Energy production as by-product of waste treatment
Down-cycling	R9	Re-mine	Landfilled material	Local authorities; Landowner	New	Buy and use secondary materials	Grubbing, cannibalizing, selling (South)/ high-tech extracting, reprocessing (North)

Source: own editing based on Reike, Vermeulen & Witjes (2018)

Klug & Niemand (2021) examines "precycling" lifestyle as a sustainable consumer lifestyle following the zero-waste approach, which involves rejecting waste caused by packaging materials, reducing the amount of waste produced, and consequently reusing items. Referring to Greyson (2007) they declare that precycling would be the lifestyle to boost the circular economy. In their research they call attention to pre- and post-consumption phases, divided by the purchase decision. Precycling is characterized as a pre-consumption approach, focusing on avoidance of waste, and taking into account the environmental consequences before consumption.

Korsunova, Horn & Vainio (2021) explore the perceptions of young adults in Finland and how CE affects their everyday lives. The article proposes a holistic view of citizen roles in the economy. **CE citizenship is a dynamic process**, in which consumers would develop their skills for circular transition. They group the associations related to circular lifestyle and count the frequency of mentions related to each group as follows:

- **Recycle** (408 mentions): return to recycling points, correct sorting of waste, general recycling,
- **Reuse** (233 mentions): renting, sharing, borrowing, buying and selling used, donating, repurposing,
- **CE as industrial solutions** (94 mentions): maximizing value for as long as possible, increased material efficiency, recycling, and reuse of raw materials,
- **Other sustainable behaviour** (88 mentions): buying sustainable, recyclable, durable & using sustainable transport,
- **Refuse** (58 mentions): decline unnecessary goods, decline non-recyclables,
- **Reduce** (44 mentions): reduce buying single use, reduce consumption, waste, reduce buying short-lived products,
- **Nature** (40 mentions): caring towards nature,
- **Repair** (27 mentions): repair old or broken,
- **Education** (15 mentions): deepening understanding, seeking more information. (Korsunova, Horn & Vainio, 2021)

Borrello, Cembalo & D'Amico (2022) argue that growing number of circular businesses, offers are not exclusive solution for circularity transition, however it is important to inspire consumers having a renewed notion of wellbeing. New narratives are required to drive post-consumerist societies.

For behavioural changes, it is important that multi-level stakeholder platforms would provide information to **practices which enhance circular lifestyle**. According to '**The Sustainable Consumer 2023**' report for the UK, adoption of more sustainable lifestyles continues to grow, but sustainable choices need to be made more affordable and widely accessible for consumers to contribute to the net zero transition. The report highlights actions consumers took to adopt a more sustainable lifestyle:

- Recycled or composted household waste (76%),
- Reduced food waste (68%),
- Limited the use of single use plastic (64%),
- Reduced the amount of new products and goods (64%),
- Bought more seasonal produce (57%),
- Limited water usage (55%),
- Repaired/fixed an item instead of replacing with a brand-new equivalent item (55%),
- Bought more locally produced goods (49%),
- Bought secondhand/refurbished items (46%),
- Paid extra for a more durable/long lasting product (42%),
- Chose brands that have ethical practices/values (39%),
- Reduced consumption of meat/animal products (38%),
- Chose brands that have environmentally sustainable practices (37%),
- Used my car less (36%),
- Opted for low carbon emission and/or shared modes of transport (33%),
- Stopped purchasing certain brands or products because I had ethical or sustainability related concerns about them (30%),
- Reduced my air travel (28%)
- Switched to a renewable energy supplier (15%)
- Purchased carbon offsets (11%)
- Switched to renewable energy sources (10%)
- Hired/Rented items instead of purchasing (7%)
- Contacted a brand to raise an issue on their sustainability or ethical practices/values (6%).

The German Environment Agency (Umweltbundesamt) proposes a 'Concept of Big Points for sustainable consumption' (umweltbundesamt.de, online(a)). As you can see above, if you want to consume in an environmentally friendly way, you have to make a lot of decisions. It is not always easy for consumers to maintain an overview and implement the measures that are

most effective. Even though every small step counts, it is the big levers, known as big points, that effectively reduce the carbon footprint. If you start with your personal Big Points, you can reduce your personal carbon footprint particularly effectively. With average consumer behaviour, a person in Germany can **reduce their footprint by half with these seven Big Points**:

- Saving shower head,
- Avoiding flying,
- Insulated living space,
- Plant-orientated diet,
- Green electricity,
- Driving less by car,
- Conscious consumption.

These Big Points relate to the average footprint of 10.5 tonnes of CO_2 emissionsn per person in Germany. As every footprint is made up differently, the Big Points also look slightly different for each person. The UBA CO_2 calculator[1] can be used to determine your personal footprint and the corresponding Big Points.

It is not only the Big Points that do not yet receive much attention in consumer advice on climate-friendly consumption. The ecological handprint is also a concept that is not yet widely recognised in climate protection communication.

The handprint adds an optimistic perspective to the footprint: the footprint stands for the negative impact at an individual level and is intended to incentivise people to reduce it. The handprint, on the other hand, shows the positive impact that is created at the level of society. In other words, the handprint represents the actions of one person that reduce the CO_2 emissions and environmental consumption of other people.

[1] The UBA CO_2 calculator is available in english: https://uba.co2-rechner.de/en_GB/

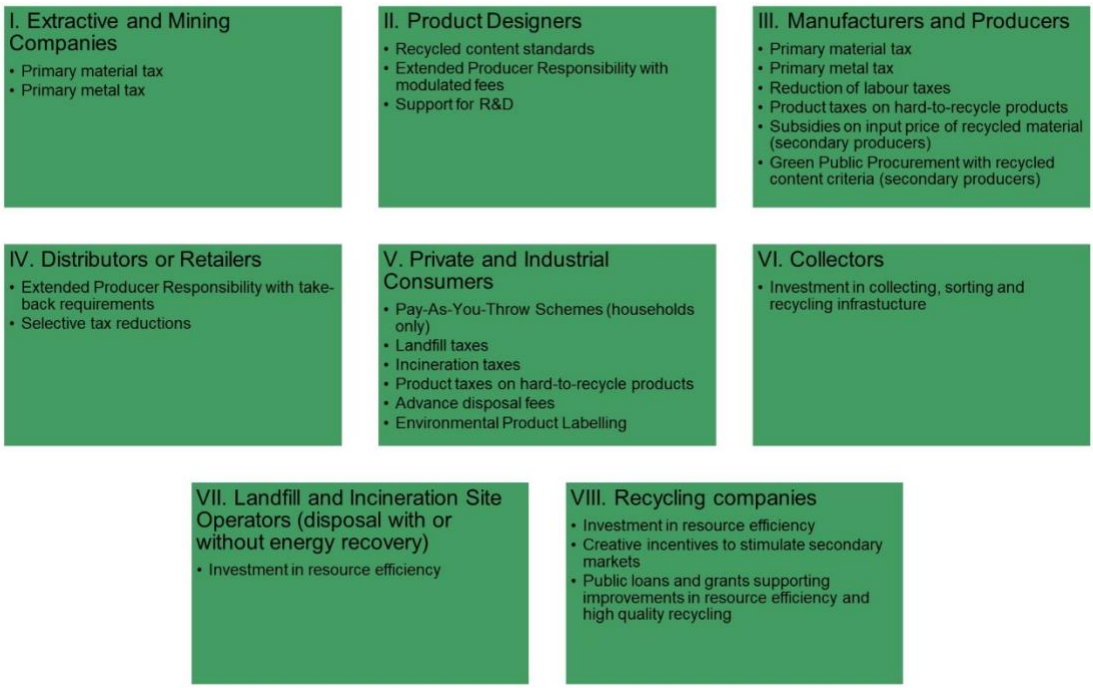
2 POLITICAL FRAMEWORK

2.1 European Union and other Supranational Institutional Frameworks for Supporting Circular Economy Transition

Institutions and regulations at a supranational level ("higher-than-national-level") are crucial for the implementation of the circular economy since the problems that we are trying to deal with go beyond the borders of the countries. Raw materials, energy sources, moreover, pollution flow through different regions, thus collaboration is especially needed. In this section, we summarize the relevant European Union and other institutional initiatives which help in supranational actions and facilitate the circular transition.

2.1.1 OECD's "RE-CIRCLE"

The first initiative is a novel approach of the **Organization for Economic Co-operation and Development (OECD)** that connects to the ideal of the EU, called **Resource Efficiency and Circular Economy (RE-CIRCLE)**. It provides policy guidance on resource efficiency and the transition to a circular economy. It aims to identify and quantify the impact of resource-efficient, circular economy policies to guide a range of stakeholders in OECD member countries and emerging market economies through quantitative and qualitative analysis. The RE-CIRCLE project was funded by the European Union and can be tightly connected to the EU's CE principles (OECD, 2022a). RE-CIRCLE showcases circular business models that represent different ways of producing and consuming goods and services. They can reduce the extraction and use of natural resources and the generation of industrial and consumer wastes, using existing materials and products as inputs across the value chain. Using as many tools as possible, the environmental footprint tends to be considerably smaller than in the case of traditional models. Concentrating on policymaking, there is an extensive toolkit of instruments to support the circular transition. Figure 2 from the OECD report summarizes the most relevant examples for different stages and agents. The organization has produced policy analysis on a selection of them, such as fiscal instruments, Extended Producer Responsibility schemes, measures to curb single-use plastic waste, and labelling and information schemes.



2. Figure A broad policy package can promote the circular transition by targeting all stages of the value chain and all agents of the economy.Source: own editing based on OECD (2022b)

2.1.2 EU's Circular Economy Action Plan

The first real milestone in moving towards a circular economy in the **European Union is the Circular Economy Action Plan (CEAP 2020)** presented by the European Commission in March 2020 (European Commission, 2020). This includes suggestions for more sustainable product design, waste reduction, and the right to repairing products. Particular attention is paid to sectors that use the most resources and energy, such as electronics and ICT, plastics, textiles, and construction (European Parliament, 2023). This action plan is an important element of the European Green Deal as well, the purpose of which is to make our economy suitable for a green future through measures covering different stages of the product life cycle, strengthen our competitiveness, and at the same time, protect the environment and provide new rights for consumers. This action plan, which forms part of the European Industrial Strategy, presents measures related to the:

- **Generalization of sustainable products**. Products placed on the EU market should be designed to last longer, be easier to reuse, repair and recycle, and contain as much recycled materials as possible instead of primary raw materials.
- **Promoting conscious consumer behaviour**. Consumers will have access to reliable information about the repairability and durability of products, which will help them make

environmentally conscious decisions. Consumers will be able to exercise their real "right to repair".

- **Greater attention on those sectors that use the most resources and where there is a great opportunity to achieve circularity**: electronics and info-communication technologies; batteries and vehicles; packaging; plastics; textiles; construction and buildings; food.
- **Reducing waste generation**. Emphasis is placed on the complete avoidance of waste generation and the transformation of waste into a high-quality secondary resource that finds its place in the well-functioning market for secondary raw materials. Selective collection and labelling of waste (European Commission, 2020).
- As shown in Table 2 below, while in 2015 not a single European Union Member State had a circular economy policy, by 2022 20 states have adopted such national policy.

2. Table EU Member States adopted national circular economy policies, by year and cumulative total

Year	2015	2016	2017	2018	2019	2020	2021	2022
No. of countries	0	3	5	10	11	16	19	20
Countries		Belgium Finland Netherlands	Italy Portugal	Denmark France Greece Luxemburg Slovenia	Poland	Germany Latvia Malta Spain Sweden	Cyprus Czechia Ireland	Romania

Source: own editing based on Geerken et al. (2022)

In 2021, the European Parliament voted for a new action plan which calls for further measures to achieve a carbon-neutral, environmentally sustainable, non-toxic, and fully circular economy by 2050. This includes stricter rules for recycling and mandatory targets for the use and consumption of raw materials by 2030. In 2022, the Commission published the first set of measures to speed up the transition to a circular economy. The proposals include promoting sustainable products, encouraging consumers to go green, revising the construction products regulation, and a strategy for sustainable textiles. Later that year, they proposed new EU-wide packaging rules that aim to reduce packaging waste and improve packaging design.

2.1.3 EU's Circular Cities and Regions Initiative (CCRI)

An important initiative and part of the Circular Economy Action Plan is the **Circular Cities and Regions Initiative (CCRI)**. Its focus is narrower than the action plan's scope, it directly deals

with the implementation of CE on the levels of cities and regions. According to the **CCRI (2023) cities and regions are in the best spot to drive the circular transition**. The CCRI aims to increase synergies among projects and initiatives, disseminate relevant knowledge, and give greater visibility to best practices. The CCRI is on the closest governance level to Europe's citizens and is a source of innovation, socio-economic transformation, and circular ecosystems, specifically targets EU cities and regions, and supports them in improving circularity in their economic sectors, value chains, and services. As it is defined by the organization itself, it is a multi-stakeholder collaboration and support scheme to boost cooperation, knowledge sharing, innovation, and upscaling. Providing replicable best practices to help cities and regions is a formal tool of the initiative since Circular Systemic Solutions must suit the regions' own conditions and needs. Financial and technical support are also part of the CCRI as written on the website. At the time of the preparation of this study 12 pilots – i.e., European cities and regions with high circularity potential – existed in relation to the CCRI. In 2022 these cases were selected to receive tailored support from CE experts for the implementation of their Circular Systemic Solutions. For example, Asker's (Norway's eighth largest municipality) council has decided to build the municipality on the framework of the Sustainable Development Goals, strategies, and targets, and has decided on a climate action plan calling for a transition to CE. Another case is the Helsinki-Uusimaa Circular Valley initiative which is a platform of various innovation actors aiming to create systemic change towards accomplishing CE in this Finnish region. The last case we summarize here is a Slovenian one. In 2021, the WCYCLE Institute Maribor merged with the Regional Development Agency Podravje. In Maribor, the same team works on CE, and now includes 41 municipalities as well. The program for CE will be upgraded from city-level to regional-level, based on the experience gathered since 2016 through development in Maribor.

2.1.4 European Circular Cities Declaration (ECCD)

Similarly to the previous initiative, the **European Circular Cities Declaration (ECCD)** was created to help the transition from a linear economy to a circular one concentrating on the cities of Europe. The declaration itself is a commitment document from cities and regions to use towards circular transitions with special attention to decouple economic growth from resource use, underlining the role of local and regional governments and developing a common vision of the circular economy.. Decoupling economic growth from resource use, giving a critical role to local and regional governments, and having a common vision of a circular economy are its theoretical pillars. Mainly Western European cities/countries are among the signatories, but it is encouraging that some post-socialist countries also appear. The organization ore s a CCD Report (2022) which compiled and analysed the first submissions by the signatories on their

circular activities. All in all, 40 cities submitted reports sharing their key activities and interventions as well as challenges. This report represents one of the most significant longitudinal samples collected to date on circular economy transitions in Europe. It shows that great progress is being made, approximately half of the 40 cities involved in the program already have circular economy strategies in place or in development.

2.1.5 EEA's Circular Economy Country Profile

Among the tools and models just described, it is necessary to give priority to those that best suit the country's natural, social, infrastructural, and economic conditions. The country profile created by the **European Environmental Agency (EEA) for each EU Member State** helps to define these conditions more precisely. A country profile offers an updated view of the „circular economy policies being implemented at a national level with a particular focus on elements that go beyond EU mandatory elements; and a best practice with a focus on policy innovation" (Eionet_Portal, 2022). In addition to the separate ore ses for each country, EEA published a working paper that deals with CE innovation and the good practices of the Member States (Geerken et al., 2022). Some of the most important findings of this paper are the following.

National CE strategies, roadmaps, etc. have been adopted in 20 EU Member States since 2016, and some states have already adopted their second CE policy. All states are integrating CE elements in their policies, like waste management, climate change impacts and public procurement. Having data and indicators is the first and crucial step for CE implementation, followed by the interpretation of trends and comparisons which is also challenging. Few countries reported carrying out an overall assessment of their transition to a CE using monitoring framework. 15 countries have already developed their own CE monitoring framework (often based on the Circular Economy Monitoring Framework of the EU). Some of the countries have introduced consumption-based indicators, e.g., raw material consumption and material footprints. 18 countries have introduced CE (related) targets. Several countries have already adopted long-term targets for their circular material use rates. (More information about the CE indicators used by the EU will be provided later.) A shift in the role of government is underway, from being a regulator to a facilitator in the field of CE. Since research and innovation have been identified as key areas of public policy, 14 states reported examples of funding for research programs and innovation hubs to support the testing, development, and upscaling of circular solutions (Geerken et al., 2022).

2.1.6 EU's Monitoring Framework for Circular Economy

One of the basic conditions for implementing CE is the definite determination of raw material flows and the ability to measure them precisely. To comply with these, the EU determined 5 broad categories and their detailed content with subcategories and indicators (Eurostat, 2023). This monitoring framework is the 2023 revised version of the original one that was adopted by the European Commission in 2018. Following the launch of the new CE action plan for a cleaner and more competitive Europe, a revised framework has just been adopted to capture the CE focus areas and the interlinkages between circularity, climate neutrality and the 'zero pollution' ambition. The **revised monitoring framework is based on the CE priorities in the context of the European Green Deal**, the eighth environment action program, the 2030 agenda for sustainable development and the EU's security of supply and resilience objectives.

- **Production and consumption** refer to material consumption and waste generation. The former can be evaluated by material footprint (tons per capita), resource productivity (percentage), and green public procurement. Consumption is represented by indicators related to waste generation, for example, total waste generation (kg per capita), generation of waste excluding major mineral wastes per GDP unit (kg per thousand Euro).
- **Waste management** is split into two parts. The first contains overall recycling measured by the recycling rate of municipal waste (percentage) and of all waste excluding major mineral waste (percentage). The second part contains recycling rates for specific waste streams such as the recycling rate of overall packaging (percentage), plastic packaging (percentage), and waste from electrical and electronic equipment (WEEE) separately collected (percentage).
- **Secondary raw material usage** also consists of two parts. The first is the contribution of recycled materials to raw materials demand measured by the circular material use rate (percentage) and the end-of-live recycling input rates of aluminium (percentage). The second subcategory of secondary raw material usage is the trade in recyclable raw materials which is measured by imports from non-EU countries, exports to non-EU countries, and intra-EU trade (thousand tons).
- **Competitiveness and innovation** are the fourth broad category. The former contains private investment, jobs and gross value added related to circular economy sectors measured by private Investments (percentage of gross domestic product at current prices), people employed (percentage of total employment) and gross value added (percentage of gross domestic product at current prices). The latter can be represented by patents related to waste management and recycling (number).

- The final category is **global sustainability and resilience**. Global sustainability of circular economy is examined by consumption footprint (percentage), and greenhouse gas emissions from production activities (kg per capita), while the resilience of circular economy contains material import dependency (percentage) and EU self-sufficiency for aluminium (percentage).

By summarizing and organizing these indicators, the amount and direction of material flows used annually can be clearly illustrated. With the help of the interactive chart on Eurostat's website, one can examine sub-areas in more detail and make comparisons over time.

2.1.7 European Environment and Sustainable Development Advisory Councils Network

The European Environment and Sustainable Development Advisory Councils Network (EEAC Network) aims to enhance the sort of collaboration discussed above, the absence of which can be considered a great barrier to the circular transition (EEAC, 2023). This organization brings together advisory bodies, its members offer their governments and parliaments independent advice related to climate change, the environment, and sustainable development. Eighteen advisory bodies from fourteen European countries and regions are members of the EEAC Network. With representatives from academia, civil society, the private sector, and public bodies the EEAC network brings together experts with years of experience producing independent advice. EEAC provides a platform for inter-council cooperation with representatives from academia, civil society, the private sector, and public bodies. It operates as a knowledge exchange platform since transition to a more sustainable development necessitates systematic changes. The complexity of such a transition requires holistic solutions, thus cross-border exchange among advisory bodies and other stakeholders is crucial. EEAC Network also serves as a linkage between the work of the national and sub-national councils and the work at European policy level. To sum it all up, EEAC can be an important actor and facilitator for the dissemination of regional circular models, and it can also foster the collaboration among different stakeholders.

2.1.8 Fit for 55 Package

The **Fit for 55 Package** is a set of proposals to revise and update EU legislation and to put in place new initiatives to ensure that EU policies are in line with the climate goals agreed on by the Council and the European Parliament. The package of proposals aims to provide a coherent and balanced framework for reaching the EU's climate objectives. Fit for 55 refers to the EU's target of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990 and become climate neutral by 2050. To reach these goals, EU member states need

to take definite measures to reduce emissions and decarbonize the economy. Among these, we find the Emissions Trading System (ETS). This system sets a cap on greenhouse gas emissions in the EU territory, which will be progressively lowered each year. Fit for 55 strengthens the ETS by extending it to new sectors such as international aviation and maritime transportation. The system is also reinforced by the creation of supplementary, self-standing emission trading systems to be used in other sectors such as buildings and road transport. Another tool is the Carbon Border Adjustment Mechanism (CBAM), with which international firms in carbon-intensive sectors (steel, cement, fertilizers) must pay duties to import goods that are produced outside of the European Union. Through this mechanism, the EU aims to protect European factories. The REFuelEU Aviation and FuelEU Maritime propositions provide the use of sustainable fuels in the aviation and maritime transportation sectors, which are also regulated by the emissions trading system. Finally, several measures are provided to change and update existing norms, such as the Energy Efficiency Directive, to improve the building's energy efficiency and decrease energy consumption, and the Renewable Energy Directive, which promotes an increase of renewable energy sources in the European energy mix to 42.5 per cent.

2.1.9 Further Relevant EU-level Initiatives

European Environmental Bureau

The Bureau is a founding member of several circular economy-related campaigns, such as Right to Repair or Rethink Plastic. The EEB is also an official member of the European Circular Economy Stakeholder Platform. More information: https://eeb.org/work-areas/circular-economy/circular-economy

European Green Deal

Through the European Green Deal, the EU intends to increase the efficiency of resource usage by transitioning to a clean, circular economy. It is also essential to stop climate change and reduce biodiversity loss. More information: https://www.switchtogreen.eu/the-eu-green-deal-promoting-a-green-notable-circular-economy

Circular Economy Package

The Circular Economy Package contains an EU Action Plan for the Circular Economy which creates a concrete action program with measures spanning the entire cycle. More information:

https://commission.europa.eu/eu-regional-and-urban-development/topics/cities-and-urban-development/priority-themes-eu-cities/circular-economy-cities_en

Single-Use Plastics Directive

To achieve a circular life cycle for plastics, it's necessary to solve the problems of the continuous increase in plastic waste generation and plastic waste leaking into the environment, as the European Commission concluded. One of their solutions is the Single-Use Plastics Directive. More information: https://eur-lex.europa.eu/eli/dir/2019/904/oj?locale=en

EcoDesign Guideline

Through the EcoDesign Guideline, the energy and resource efficiency of products will be improved, which helps secure the energy supply and reduces the pressure on natural resources. More information: (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0125

Farm to Fork Strategy

At the heart of the European Green Deal, aiming to make food systems fair, healthy and environmentally friendly. To achieve climate neutrality by 2050, the current EU food system must also move towards a more sustainable model. More: https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

2.2 National Level

After the assessment of European and other supranational political framework conditions, the next chapter introduces the findings of national level analysis.

2.2.1 Overview of Strategic Documents

Based on the D.1.3.1 Short synthesis reports on circular economy development in the participating countries, the strategy documents were grouped into main categories by type. These are the following:

- Circular economy country profile,
- Circular Economy Strategy,
- Framework Strategy on Sustainable Development,
- Clean Development Strategy,
- Environmental Protection Program,

- Resource Efficiency Programme or Raw Material Policy,
- Others.

Further details on the documents can be found in the D.1.3.1 Short synthesis reports for partner countries and pilot settlements and in Annex 2.

The “country profile” document has been prepared for every EU member state and some further countries, that is, it is relevant for all partners. The documents were published in 2022, providing relatively up to date information about the national level circular economy policies and best practices in the countries. Further descriptions about country profiles will be given in the next chapter.

Based on the categorisation of the documents, the following conclusions can be drawn:

- Circular economy country profiles are available for each country, giving an overview of the situation of CE at national level.
- Relatively few countries have a dedicated strategy for Circular Economy. There is no CE strategy in Slovenia, while, Slovenia 2030 Development Strategy includes “A low-carbon circular economy“, highlighting the importance of increased resource productivity, among others. In case of Hungary and Slovakia, CE appears in other strategic papers, too. In Germany the federal level circular economy strategy is under development.
- A Framework Strategy on Sustainable Development is available for each country, but not always under this specific name. In Poland it is called Strategy for Responsible Development, in Slovenia the Development Strategy 2030 can be classified under this category.
- A Clean Development Strategy has also been prepared for all countries except Poland. In terms of format, these documents could be policies, strategies or action plans.
- In Austria, Slovakia and Slovenia there are no direct environmental protection programs on circular economy on the government level. In the other countries, the environmental documents give priority to waste prevention and the protection of biodiversity.
- Germany has a Resource Efficiency Programme and Poland prepared a Raw Material Policy.
- Other documents in Germany, Poland and Slovenia include a wide range of types of documents, which cannot be classified in the previous groups.

Overview of the documents can be seen in Table 3. *Legend:* white: there is no document, green: document(s) available, orange: document is under development. *Strategy for Responsible Development. ** Development Strategy

3. Table National documents for circular economy transition

	AT	CZ	DE	HU	IT	PL	SK	SI
Circular economy country profile								
Circular Economy Strategy								
Framework Strategy on Sustainable Development						*		**
Clean Development Strategy								
Environmental Protection Program								
Resource Efficiency Programme or Raw Material Policy								
Others								

Source: own compilation

2.2.2 Potentials, Challenges – Findings from Interviews

Based on the interviews with political stakeholders from the eight countries, the typical problems, weaknesses, challenges or − broadly speaking − gaps could be identified (Table 5). On the other hand, existing good practices, opportunities or perspectives could also be detected. Listing and categorization of gaps and perspectives enables the identification of patterns and typical, recurring phenomena. Quantitative analysis of the responses was not possible for various reasons: the number of interviews vary from country to country, as well as the length and accuracy of documentation. The level of operations of various stakeholders is also diverse, and the total number of interviews does not support analysing different levels one by one. **The classification of gaps** is based on The Circular Economy in Cities and Regions: Synthesis Report by OECD in 2020.

4. Table Gap analysis for NiCE partner countries

Countries/ Gaps	Austria	Czechia	Germany	Hungary	Italy	Poland	Slovakia	Slovenia
Funding gaps	n/a	n/a	“There is currently a lack of personnel capacity, budget and a data basis…”	“A certain income level is the prerequisite of environmental investments (e.g. solar panels) and buying high-quality, durable goods”/ “some individuals may resist embracing circular lifestyles due to the perceived higher costs associated with sustainable products and services”	Lack of adequate financial resources in most cases/No business context to work around, it must be an autonomous and personal decision	n/a	Insufficient resources	n/a
Regulatory gaps	"Legal requirements sometimes present obstacles, so that, for example, materials generated in a product have to be declared as waste and disposed of instead of being regarded as a by-product that could be used further"/"EU level e.g. EPR (Extender Producer Responsibility) is limited to certain product categories (should be more comprehensive)"	n/a	n/a	"Inconsistent or unclear regulations regarding waste management and circular initiatives"/"EU (and OECD) attempts regarding CE are quite narrow, focusing on the “R””/"The main barrier for CE is that several environmental resources are under-valuated. Higher prices would motivate efficiency and saving natural resources"	Lack of specific regulations and regulatory incentives to promote the transition towards circular economic models. Resources may be lacking for the implementation of existing regulations, or adequate oversight to ensure compliance with regulations, or checks that impose producer responsibility obligations	n/a	n/a	n/a
Policy gaps	"Waste prevention is not addressed enough (focus too much on waste separation (is also steered too much in this direction by waste disposal companies, which have to make obligatory contributions))"/"It is not easy to start a broad movement; the economic system has to be changed at all levels and by everyone"	"Achieving sustainability at local level is quite challenging, because local sustainability consists of/depends on attitudes and everyday behaviour and (small) choices of a variety of individual stakeholders, such as citizens, consumers, businesses and other institutions, which the city cannot directly manage and control"	n/a	"Municipalities are more likely to have strategic documents for climate and energy issues, compared to circular economy"	Limited coherence and coordination between national, regional, and local policies on the circular economy. Despite funds and resources being allocated to support circular projects, these resources may not be sufficient or easily accessible for small businesses or local communities	A significant gap exists in public participation in decision-making processes	Missing document for the circular scan/Political will to pursue new trends in waste management	n/a

Countries/ Gaps	Austria	Czechia	Germany	Hungary	Italy	Poland	Slovakia	Slovenia
Awareness gaps	“biggest obstacle is lifestyles, lifestyle is based on fast fashion and consumerism"/"Awareness must grow among producers, consumers, politicians, lobbyists and the interplay between sectors"/“Quality of life and prosperity need to be redefined”	n/a	"Scepticism or aloofness towards new models and offers"/"CE Offers often only known in the community "	"Campaigns typically have only temporary impact"/ "There are some very professional, precise citizens, while others just want to “get rid of the waste” quickly"	Low public awareness of the principles of the circular economy and the associated benefits. Established mindsets and practices that favour the linear economy over the circular one persist. Results obtained are not yet measurable through specific indicators, they refer to very general aspect	Waste sorting/separation patterns have remained relatively unchanged/Individuals tend to prioritize affordability, succumbing to corporate manipulations such as those seen during events like Black Friday/Lack of awareness about social consultations persists/Many residents are uninformed about these events	Lack of data, indicators	Not enough knowledge of the citizens is a barrier
Capacity gaps	The sectors/ departments in the city of Graz often exist and work side by side without close contact or cooperation.	n/a	"Infrastructure of the city (little public transport, poor cycle network, no city centre, "old" large commercial areas with traditional shopping chains/high fluctuation"/"Consuming more sustainably often means travelling long distances and travelling to many individual locations, which is often difficult under everyday conditions "	"inadequate infrastructure (no instruments for effective recycling, composting, and other circular practices.)"/"the Covid had some lasting negative impact on the activity of NGOs"	Lack of specialized skills and infrastructure to support the circular economy. Investments may be needed in training workers and entrepreneurs on circular practices, as well as in the development of infrastructure.	Technical barriers toseparation/sorting, such as inadequate containers/Previous container designs allowed children to independently dispose of bottles	Insufficient staff capacity within the city authority structure	n/a

Source: own compilation

Perspectives

Regarding the opportunities or perspectives, no earlier classification was available. Some categories may be based on the above OECD classification, i.e. opposites of the gaps identified. After overviewing interviews from all countries, the following categories of perspectives could be identified and distinguished:

- **Political and regulatory incentives**: this category provides the framework or background for CE practices. It includes the existence or potential development of strategic papers, supporting circular economy and lifestyles at various governmental levels, as well as the political will and support.
- **Economic incentives**: this category is about economic or financial support of CE solutions, in many cases as the manifestation of the above-mentioned political support. Economic aspects or processes supporting CE also belong here.
- **Education and awareness raising**: several respondents highlighted that awareness raising is crucial. Some complained about low awareness-levels while others see promising trends. This is the category which was the most frequently mentioned.
- **Attitude and behaviour**: it is closely related to the previous category, however more practice-oriented, focusing on real commitment and actions.
- **Existing sustainable and circular solutions**: existing practices in different sectors (especially waste management or mobility /tourism) help the circularity transition, demonstrating that it is feasible, contributing to the awareness-raising of citizens as well.
- **Cooperation**: while previous categories tend to focus on the role of various actors (including governance, individuals, or companies), cooperation is about joint efforts of stakeholders.
- **Innovation**: changing lifestyles – especially in cities – require new technological solutions and supporting innovative mechanisms. Several respondents emphasised the necessity of innovation in making CE more widespread.

Table 5 and 6 summarises the perspectives for circular economy and lifestyle for NiCE partner countries, cities.

5. Table Perspectives for circular economy and lifestyle for NiCE partner countries (Political and regulatory incentives, Economic incentives, Education and awareness raising and Attitude and behaviour)

Countries/ Perspectives	Austria	Czechia	Germany	Hungary	Italy	Slovakia	Poland	Slovenia
Political and regulatory incentives	"Public authorities (municipalities, state): Create framework conditions and set an example"/"within the framework of the Waste Management Act, reusable programs as well as a formulation of recycling targets, Ecodesign Directive, waste prevention program (e.g. Reuse box, Graz repairs, organic waste bin campaign)" Soon, perhaps as separate department, a department for CE in the city of Graz shall be bundled (so that it is clear then, who takes part in events and brings together the strands)	"The city can work towards the highest level of sustainability by leading by example and supporting local initiatives and actors who promote and implement circular economy and sustainable lifestyles activities."/Political support is an important element /Ministry of Environment manages the programme on Local Agenda 21 at central level, which includes methodological support of municipalities"//"Although direct financial support to concrete initiatives is often not possible, providing “support from the centre” is also helpful"	"Ecologically orientated parties achieve good election results"/ "There is a mission statement (2023) of the city, in which climate protection and sustainability are an important part"	"What is also important, to establish clear metrics and standards for circular economy performance that can guide businesses and industries in their efforts. This includes measuring resource efficiency, recycling rates, and the overall environmental impact of products and services"/"When setting CE targets, local specialities have to be considered as every region is unique."	Adoption of circular strategies and roadmaps to steer the circular transition/Planning documents on sustainability/Sustainable Urban Mobility Plan/Covenant of Mayors "A Commitment to Sustainable Energy"/Zero Waste strategy/Food Policy and carbon neutrality program for several municipalities	Waste management policy	n/a	n/a
Economic incentives	Potentials related to behaviour change: “this creates new services, promotes craftsmanship, creates green jobs”/". If a company needs financing, it must demonstrate a high level of ecological awareness in order for the business to be successful."/"support for green organisations"	Personal and financial support of coordinators and evaluators./"The city dedicates time of its staff and financially supports activities and events organized by them"	Strengthen regional brands/providers	"Large amount of waste in cities – more economical to recycle"/"Providing support and funding for startups and small businesses that focus on circular solutions would encourage innovation and diversity in the marketplace "/"positive impact is that the adoption of circular practices in urban areas has the potential to create jobs in sectors related to sustainable practices and waste management"	Tax incentives: The Italian government has introduced tax incentives for companies adopting circular practices, such as tax credits for investments in technologies and processes that promote circularity. Funds for circular innovation: Funds and financing programs have been established to support research and development projects in the field of circular economy.	Higher waste management fees	n/a	n/a
Education and awareness raising	School competitions on circular economy/"sustainable business models are promoted"/"Circular economy should be cool"/"Awareness-raising, waste advice, resource park by the municipality"	"In order to strengthen the circular economy and sustainable lifestyles, the role of education was stressed."	Environmental awareness is increasing strongly	"Green" courses at universities, i.e. environmental education is becoming more and more popular/"the formation of attitudes is easier in cities/"awareness raising is indispensable, it can be considered as a long-term investment” „Awareness-raising is especially important in case of young generations."/"to improve environmental awareness, communicating that buying higher quality products pays back on the long run, and being green may require economic sacrifices"/"the staff of HAEE could play a significant role in awareness raising and a board game was created for this purpose."/"Schools are the best places to promote the circular lifestyle concept"	Information campaigns: Public campaigns have been conducted to raise awareness among citizens about the importance of the circular economy and the actions they can take at an individual level to reduce waste and promote circularity. Education in schools: The introduction of educational programs on the topic of the circular economy in schools has helped raise awareness among young generations and encourage more sustainable behaviours.	n/a	Children and young people hold immense potential	n/a

Countries/ Perspectives	Austria	Czechia	Germany	Hungary	Italy	Slovakia	Poland	Slovenia
Attitude and behaviour	"Big players need to be pioneers without greenwashing, advertising, media"/"waste-free festivals"	Students, as young- and forward-looking group	Students, as young- and forward-looking group	There are some very professional, precise citizens, while others just want to “get rid of the waste” quickly./"The achievements of NGOs are respectable: e.g. activities of WWF and Greenpeace. They generally have good communication skills and rich experience backgrounds"/It would be easier to attract older people to participate in community workshops to show the professional tricks to the others. This would also help to prevent isolation of this vulnerable group of citizens"	Promotion of conscious consumption: Through awareness-raising initiatives and education, Italy has promoted conscious consumption, encouraging citizens to prefer durable, repairable, and recyclable products. Development of circular communities: Local and community initiatives promoting the exchange, reuse, and repair of goods have been supported, encouraging a spirit of sharing and solidarity.	n/a	They feel confident in reporting illegal waste dumping/More customers bring their containers to the meat shop and reusable bags to the bakery	n/a

Source: own compilation based on Partners’ Short Synthesis Report

6. Table Perspectives for circular economy and lifestyle for NiCE partner countries (Existing sustainable and circular solutions and Cooperation)

Countries/ Perspectives		**Austria**	**Czechia**	**Germany**	**Hungary**	**Italy**	**Slovakia**	**Poland**	**Slovenia**
Existing sustainable and circular solutions	Material, waste	"Strategy for sustainable food supply City of Graz"; “Fairteiler”: Food sharing initiative in Graz ; “RepaNet”: network for re-use and re-pair (initiatives, companies, social enterprise, for improving frameworks), there exist several repair-café offers; “Back Cup”: brand by the city for refillable cups; “Ressourcenpark Graz”: collecting and sorting over 80 materials	„Responsible consumption and waste management”	Regional food, flea markets, food saving, swapping & sharing (bike repair shop, book box already exist)	The waste court system is important and it should be developed, additional 10 waste courts are planned in the capital/"KÖVET the 'Pass it back, bro' programme has been running successfully for years"	Household and industrial discharges are required to collect and treat wastewater appropriately/Community composter/Reducing and properly utilizing packaging/Creation of more regenerative local food systems/School catering system has been developed that uses over 90% organic food	n/a	Separately collected 5 waste fraction/ Elements of the circular economy can be observed in local small and medium-sized enterprises (tire)/ NGO managing charity shops in larger urban centers/Collect electronic waste/Second-hand clothing and furniture/Local market, featuring regional producers of vegetables and fruits	Separate collection of waste, recycling is good
	Mobility	In Graz, there is a subsidy for cargo bikes and the “TIM” car sharing programme is being continuously expanded. In some newly build districts/settlements/quartiers in Graz property owners have to finance information folders about alternative mobility offers as well as free public transportation for renters for one year after moving in	n/a	Switch to cycling/bike sharing	Importance of public transport, cycling and bike sharing is increasing	Use of eco-friendly means of transport such as bicycles, car sharing, and electric vehicles. For example, the creation of protected bike lanes and tax incentives for purchasing low-impact vehicles. Redevelopment of urban spaces to make them more accessible by environment-friendly modes. Implementation of eco-friendly delivery solutions, such as urban logistics with electric vehicles or low-impact options, to reduce emissions associated with goods transportation.	n/a	n/a	n/a
	System/ Practice	“Nachhaltig in Graz”: platform for all kinds of sustainable initiatives, actions and events in Graz “Ökoprofit”: support program for companies to become more sustainable (see also below)	n/a	Opportunities to consume more sustainably are available in Würzburg	"The concentration of residents and the smaller distances in a quite small region, in a city, is a great circumstance and help the CE, moreover, the formation of attitudes is easier here"	Economic incentives: Introduction of tax and financial incentives for businesses that adopt circular economy practices, such as tax breaks for adopting sustainable production processes or subsidies for purchasing high-energy efficiency machinery. Public-private collaborations to develop and implement projects and policies in favor of the circular economy, sharing knowledge, resources, and expertise. Environmental certifications and quality labels: Promotion and support for initiatives of environmental certification and quality labels for products and services that meet sustainability and circularity criteria, thus encouraging consumers to make more informed choices.	n/a	n/a	Show best practice in the field of tourism

Countries/ Perspectives		Austria	Czechia	Germany	Hungary	Italy	Slovakia	Poland	Slovenia
Existing sustainable and circular solutions	System/ Practice	“Nachhaltig in Graz”: platform for all kinds of sustainable initiatives, actions and events in Graz “Ökoprofit”: support program for companies to become more sustainable (see also below)	n/a	Opportunities to consume more sustainably are available in Würzburg	"The concentration of residents and the smaller distances in a quite small region, in a city, is a great circumstance and help the CE, moreover, the formation of attitudes is easier here"	Economic incentives: Introduction of tax and financial incentives for businesses that adopt circular economy practices, such as tax breaks for adopting sustainable production processes or subsidies for purchasing high-energy efficiency machinery. Public-private collaborations to develop and implement projects and policies in favor of the circular economy, sharing knowledge, resources, and expertise. Environmental certifications and quality labels: Promotion and support for initiatives of environmental certification and quality labels for products and services that meet sustainability and circularity criteria, thus encouraging consumers to make more informed choices.	n/a	n/a	Show best practice in the field of tourism
Cooperation		"Consultancy services for companies/SMEs"/"work with multipliers (e.g. waste coaches)"/"Ökoprofit programme: mentoring programme for sustainability in companies"/"Strategies and funding are developed by the city departments in exchange with experts and are triggered by impulses from other cities and cooperations, by political influences, by professional discourse and national & EU requirements."	"The city government can (promote the topic and implement concrete activities). It can also play an initiating and coordinating role"	"cooperation with environmental organisation"/"Local experts from associations, organisations, companies and institutions, science, administration and politics as well as citizens were involved in development of climate concept through specialist workshops, online participation opportunities and an online congress. (Spängler, Würzburg)"	"Collaboration among legislators, industry players, consumers, and other stakeholders is the first-order condition of the circular economy"/"By fostering collaboration between businesses, government bodies, and the community, they aim to drive positive change toward a more sustainable and resilient future"/"collaboration and knowledge transfer between corporate, governmental, and scientific communities is needed”	Contribution and external support from companies, associations, citizens, and universities/Initiatives, including local associations and cooperatives, that engage in activities related to the circular economy on a voluntary basis	n/a	n/a	We must work all together in building knowledge

Source: own compilation based on Partners’ Short Synthesis Report

2.2.3 Organisations and Initiatives Supporting Circular Economy – Synthesis on National Level

Based on the D.1.3.1 Short synthesis reports for partner countries and pilot settlements, the organisations and initiatives were grouped into main categories by type. These are the following:

- National Council for Sustainable Development,
- Business Council for Sustainable Development,
- Institutions of Environmental Protection,
- Organizations of Circular Economy,
- Association of Environmental Enterprises,
- Networks and Platforms of NGOs or stakeholders,
- Others.

Further descriptions of the organisations and initiatives can be found in the Short synthesis reports and in Annex 2. or directly in the homepages of the organizations.

Based on the categorisation of the organisations and initiatives, the following conclusions can be drawn:

- Four countries have a National Council for Sustainable Development: the Czech Republic, Germany, Hungary and Italy (in Italy it is called National Council for the Green Economy).
- There are four Business Councils for Sustainable Development: in Austria, the Czech Republic, Hungary and Italy.
- Three institutions of environmental protection work in the context of the circular economy in Italy, Poland and Slovakia.
- Organizations of Circular Economy in Italy, Poland, Slovakia and Slovenia support promotion of the transition to circular economy.
- Hungary and Italy have an Association of Environmental Enterprises as a nonprofit advocacy organization. In Italy it is the Association for Environmental Services and Circular Economy Companies (Assoambiente).
- Partner countries have specialized Networks and Platforms of NGOs or stakeholders in various domains (awareness-raising, multiplication).
- Other organisations can also be identified in the Czech Republic, Germany, Italy, Poland and Slovakia.

Overview of the organisations and initiatives can be seen in Table 7. Legend: white: there is no organisation or initiative, green: organisation(s) or initiative(s) can be found.

7. Table Organisations supporting circular economy – synthesis

	AT	CZ	DE	HU	IT	PL	SK	SI
National Council for Sustainable Development								
Business Council for Sustainable Development								
Institutions of Environmental Protection								
Organizations of Circular Economy								
Association of Environmental Enterprises								
Networks and Platforms of NGOs or stakeholders								
Others								

Source: own compilation

2.3 Local Level, NiCE Pilot Locations

The NiCE project targets transnational development of pilot approaches, their implementation, evaluation, and assessment of activities in tandem. Eight partners will implement a pilot activity in settlements of various sizes. In this chapter, we introduce the pilot cities, where local strategies, action plans, needs of target groups, circular offers, interest groups, communities, initiatives, and implemented projects have been analysed. The pilot cities are Bologna and Porto-Saragozza district in Italy, Brzeg Dolny in Poland, Budapest and Újbuda district in Hungary, City of Jihlava in Czechia, Graz in Austria, Košice in Slovakia, Ptuj in Slovenia and Würzburg in Germany.

Partners will work in transnational tandems and test 4 specific approaches in different settings:

- Approach to initiate the re-use of spaces at central places in cities for circular offers,
- Implementation and running of multifunctional “resource centres” under living lab condition by re-using spaces in central places of cities,
- Linking sustainable online commerce with city centres, e.g. establishing multifunctional micro hubs or retail as a service,
- Activation of users for circular lifestyles e.g. for circular water management.

2.3.1 Bologna and Porto-Saragozza district (IT)

Bologna is a city in the centre of the Emilia-Romagna region, which is located in Northern Italy. Bologna sits along the edge of the Po Plain that lies at the bottom of the Apennine Mountains where the Reno and Savena River valleys meet before flowing out to the Adriatic Sea. In contrast to the rolling green hills outside the city, Bologna's Roman heritage largely dictates the winding maze of buildings and streets inside the city limits. The roads and streets follow the grid pattern typical of Ancient Roman settlements. Of the estimated one hundred eighty medieval defence towers that once stood tall in Bologna, only twenty or so remain. The most famous of these are thought to be the Due Torri (Asienelli and Garisenda) which lean slightly and together have become a symbol of the town.

Greater Bologna is estimated to have a population of approximately one million people, whereas the city itself is estimated to have a population closer to three hundred ninety thousand. For many centuries this city has proved to be among the most highly populated and urban areas in Northern Italy. The historic centre of the city is considered to be among the most extensive in Italy and is known for its leaning towers, ancient churches, and porticoed streets. The centre is home to Medieval, Renaissance, and Baroque monuments that are highly reflective of the culture thriving within the city at different periods in time. Bologna was declared the European capital of culture in 2000 and was designated as a UNESCO City of Music in 2006. Ever since Medieval times, water has been an essential source of wealth and economic development for Bologna. Another characteristic that makes Bologna unique is its position as gateway to the "Food Valley." Although the city of Bologna does not yet have a specific circular economy plan, the municipal administration is strongly committed to the fight against climate change and to the promotion of transition processes towards a circular economy. It is also committed to EU Mission "Climate-Neutral and Smart Cities" and it has developed both a Sustainable Energy and Climate Action Plan (SECAP) and a Climate adaptation plan.

The Porto-Saragozza District, established in 2016 from the merger of the previous Porto and Saragozza districts, is the largest in Bologna in terms of residents (Figure 3). It consists of the western half of the historic center of Bologna, with significant monumental buildings, and the southwest outskirts of the city, including a portion of the hills. The name of the Porto area is linked to Via del Porto, named so because it was the ancient access point to the Naviglio Port, Bologna's river traffic port on the Navile Canal. From the Renaissance until the 19th century, the area was the city's port zone and, along with its proto-industrial hinterland, the mercantile and manufacturing epicentre of the Bolognese economy at least until the 1600s. In this area,

covering approximately 100,000 square meters, the Manifattura delle Arti (Art Factory) was established. The area, after extensive planning and demolitions due to bombings during the last war, was renovated from 1996 to 2003 through joint efforts of the Municipality and the University of Bologna, based on a project by architect Aldo Rossi. It is divided into the following parts: Manifattura Tabacchi (home to the Bologna Film Library), Castellaccio (renovated for residential purposes), the old paper mill Mulino Tamburi (home to the Department of Philosophy and Communication of the University); descending towards Porta Lame, on Via Azzo Gardino, is the area of the former slaughterhouse.

3. Figure Bologna Porto-Saragozza district. Source: FIU, Fondazione Innovazione Urbana

2.3.2 Brzeg Dolny (PL)

The municipality of Brzeg Dolny consists of the town of Brzeg Dolny and thirteen village council: Bukowice, Godzięcin, Grodzanów, Jodłowice, Naborów, Pogalewo Małe, Pogalewo Wielkie, Pysząca, Radecz, Stary Dwór, Wały, Żerków and Żerkówek. It covers an area of 94.4 km2, which is less than 14% of the area of the Wolow Poviat. The landscape of the municipality can be characterised as agricultural and forestry (forests cover about 30% of the area), with the town of Brzeg Dolny itself having an industrial character. Brzeg Dolny is situated on the right bank of the Oder River and is one of the three communes, along with the Wołów and Wińsko communes, forming the Wołów poviat. The town is located 31 km north-west of Wrocław and constitutes an extension of the Wrocław urban-industrial agglomeration.

The city has a convenient transport system towards Lubiąż, Oborniki Śląskie, Miękinia, Środa Śląska, Wołów, Żmigród and the capital of Lower Silesia, Wrocław. In Brzeg Dolny there are small, medium and large economic entities focused on serving the population and producing

chemical components. The largest enterprise in Brzeg Dolny is PCC Rokita SA, a chemical plant of Polish and international importance. Aside from it, there are also other chemical companies Vita Polymers Poland, Linpac Plastic Polymers, Stepan Europe, Organika Malbork and in the electronics industry - Hanza and BeSo. Surface water resources consist of rivers - Odra, Jodłówka, Juszka Wołowska as well as small retention reservoirs in Kręsk and Godzięcin (flooded area of 2.72 ha) and large recreational reservoirs located in Wały, Grodzanów, Pogalewo Wielkie with a total flooded area of 7.35 ha. The Oder River, which forms the southern border of the municipality, flows at a length of approximately 16 km. On the border with the municipality of Oborniki Śląskie, north-east of the village of Jodłowice lies the reserve "Jodłowice", created in 1958. It protects a mixed fir forest of primeval character. It contains spruces, oaks, larches and pines. Near the eastern border of the reserve, there is an erratic boulder, the so-called Romer's Boulder, which is an inanimate natural monument. There are also 5 parks in the municipality - 4 rural parks (in the villages of Godzięcin, Grodzanów, Pogalewo Małe, Żerków) and the City Park in Brzeg Dolny. The historic parks in Godzięcin, Pogalewo Małe and Żerków have been entered in the register of monuments - there are archaeological sites on their territory. The Municipal Park, located in the very centre of the town and covering an area of 67 ha, is the "green lungs" of Brzeg Dolny. Figure 4 indicates the location of the pilot activity.

4. Figure Location of the pilot activity in Brzeg Dolny. Source: Municipality of Brzeg Dolny

2.3.3 Budapest, capital of Hungary and Újbuda (HU)

Újbuda (lit. New Buda) is the 11th district of Budapest. It is the most populous district of Budapest with 143,111 inhabitants (2022). Until the 1890s, Újbuda's present territory was a

field south of the historical town of Buda. The construction of a new residential area started in the 1900s, the present district was formed in 1930. From 1880 to 1980, Újbuda's population increased from 1,180 to 178,960. There are boulevards, avenues with tram lines, and communist-era housing estates in the district. Line 4 of the Budapest metros passes through Újbuda. As the URBACT introductory describes, the district is divided into different zones representing several urban fabrics: the Bartók Béla Boulevard and its surroundings are one of the most elegant parts of the capital; Gellérthegy and Sashegy belong to the top green-belt areas of Budapest; but there are also huge panel blocks, abandoned and temporarily used industrial sites, brownfields. Two of the biggest university campuses of the country are also located in the district providing a huge human capital (Figure 5).

According to a survey developed by Time Out England in 2021 Újbuda became the seventh coolest neighbourhoods in the world. As dailynewshungary.com describes a total of 27,000 participants were interviewed during the survey, and their responses were forwarded to a panel of experts, who took the final decision about the order. As the Time Out declares, the treelined Bartók Béla Boulevard brims with bohemian cafés, bars, and independent art galleries. A perfect day here in the 11th district is a mixture of nature, sightseeing, culture, and culinary adventures: “Have breakfast at Eastern Café and Gallery before hiking up Gellért Hill. Once you’re back on Bartók Béla Boulevard, head over to Kopaszi Dam, where you’ll find plenty of lunch options and might even be able to sunbathe a little (weather permitting). Come evening, grab a drink, and catch a gig at Dürer Garden.”

5. Figure View from the Gellért Hill – university campuses. Source: Pál Szabó

2.3.4 City of Jihlava (CZ)

City of Jihlava is one of 14 regional capitals in the Czech Republic. It covers an area of approximately 79 km² and with a population exceeding 50 thousand inhabitants (with an agglomeration of more than 90 thousand) it is one of the important centres of the Vysočina Region. The city impresses not only with its cultural heritage, but also as an industrial and commercial centre of the region. Figure 6 illustrates Masaryk Square with the City Hall.

The city is very active in addressing environmental issues. As part of its sustainable development, it focuses on reducing emissions and promoting renewable energy sources. It improves air quality, monitors water resources and supports environmental projects. It seeks to integrate modern technologies with a view to nature conservation and sustainable development for future generations. Jihlava has long been involved in the Local Agenda 21 programme and is one of only three cities in the Czech Republic to achieve (and defend in 2023) the highest "A" category. It is also one of the cities participating in the Healthy Cities programme of the World Health Organization (WHO).

6. Figure Masaryk Square with the City Hall. Source: ENVIROS

2.3.5 Graz (AT)

Graz is the second largest city in Austria and the provincial capital of Styria. Graz is a city with around 300,000 inhabitants and around 60,000 students at 4 universities and colleges. The

old town, the city centre and the main shopping areas are located on both sides of the Mur in the districts Innere Stadt, Lend and Gries. Part of this area are several pedestrian zones; public transport is well developed in this part of the city. A formerly important shopping street which connects the inner city with the train station is now heavily affected by vacancies. There are also isolated vacancies in the city centre, on the main square and in the side streets. In the district Gries and especially Lend close to the city centre, an upcoming young creative scene has developed over the last 15 years, which also makes the topics of sustainability and circular economy attractive. Kastner & Öhler, the oldest department store in Graz, is located near the main square and is temporarily testing out sharing concepts. Figure 7 represents a challenge in the city – abandoned retail spaces.

7. Figure Figure Annenstrasse connecting the city centre with the main train station. Street with many empty retail spaces. Source: StadtLABOR GmbH

The Climate Protection Plan of Graz is an umbrella strategy (based on the European Green Deal) and aims to transform the economic system. Lead/ sub-strategies of the Environment Agency are: “Back-Cup”, “Re-Use box”, „Repair Graz”, create compost through cleanly separated organic waste, cargo bike subsidies, repair subsidies in the framework of waste prevention programme. The Mobility plan MP2040 aims to expand rail network (tram), push sharing concepts. Graz economic strategy also boosts circular lifestyles by pop-up promotion to combat vacant commercial space, start-up promotion in the environmental sector, strategy for sustainable food supply in the city of Graz (independence, production, waste). The climate

protection mission statement of the City of Graz targets all departments, subsidiaries, and employees and concerns the areas of construction, mobility, catering and resources.Offers for employees: Smartmeeting, purchase of products.

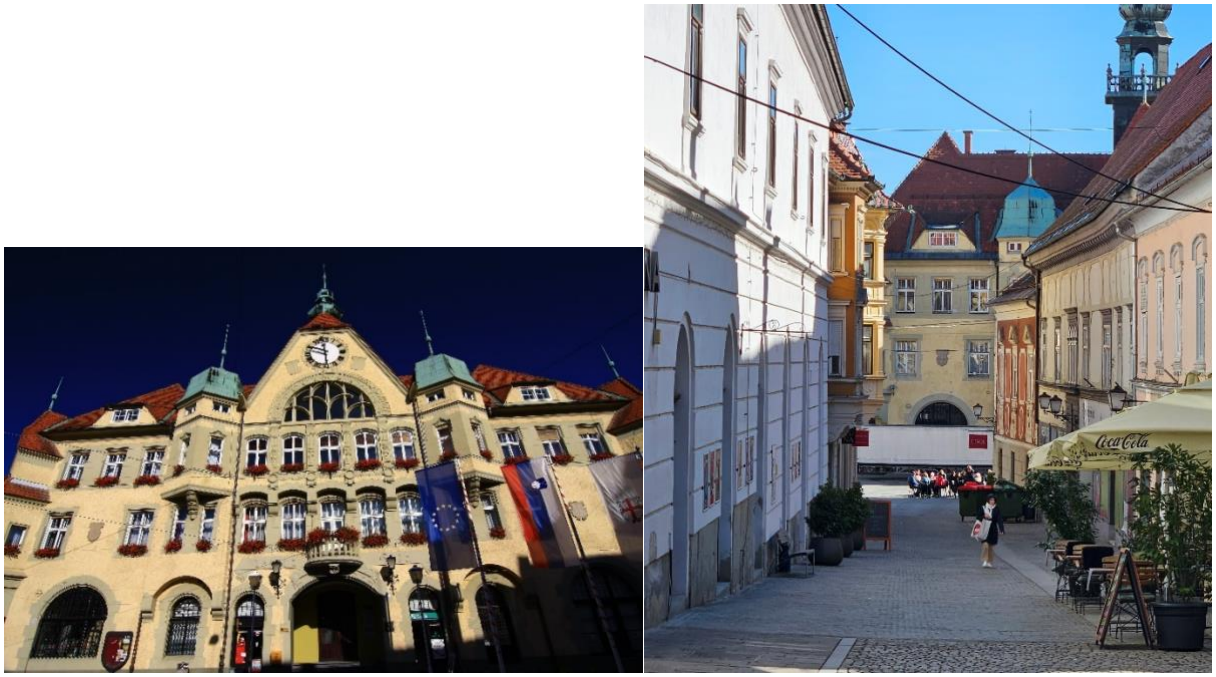
2.3.6 Košice (SK)

Košice is the largest city in eastern Slovakia. It is situated on the banks of the river Hornád at the eastern reaches of the Slovak Ore Mountains, near the border with Hungary. With a population of approximately 230,000, Košice is the second-largest city in Slovakia. Being the economic and cultural centre of eastern Slovakia, Košice is the seat of the Košice Region and Košice Self-governing Region, and is home to the Slovak Constitutional Court, three universities, various dioceses, and many museums, galleries, and theatres. In 2013 Košice was the European Capital of Culture. Košice is an important industrial centre of Slovakia, and the U.S. Steel Košice steel mill is the largest employer in the city. The town has extensive railway connections and an international airport. In the last decade, a growing creative industry sector has been developed in Košice, with numerous ICT, architecture, design, game developing and tourism SMEs employing more than 10,000 inhabitants. Together with the growing cultural and creative sector, there is a growing number of companies, citizens' initiatives and NGOs that are actively promoting and implementing circular economy models in their everyday operations.

8. Figure Košice, the second biggest city in Slovakia. Source: CIKE

2.3.7 Ptuj (SI)

Ptuj is a city in the northeastern part of Slovenia with a little bit over 23,000 inhabitants that is one of 12 city municipalities and also the oldest city in Slovenia. Ptuj is the centre of Spodnje Podravje region. SRC Bistra Ptuj is located in the old city centre. Figure 9 represents the city hall and a pedestrian street in Ptuj.



9. Figure The city hall of Ptuj (source: C. Ambroz) and a pedestrian street (source: SRC Bistra Ptuj)

Ptuj has done some first steps toward circular economy and circular lifestyle in terms of waste separation; circular mobility (public free bus, cycling paths); establishment of a reuse centre, promotion of the circular economy, as well as education and awareness raising, mostly through EU-projects.

2.3.8 Würzburg historic centre (DE)

Würzburg is with 130,227 inhabitants in 2022 the seventh largest city in Bavaria. Its population has remained stable at the same level in recent years (City of Würzburg 2023). Since 2018 Würzburg is one of three regional centres in Bavaria (State of Bavaria 2018). During the Second World War almost 90% of the historic centre of Würzburg has been destroyed. The Würzburg Residence was also affected by the destruction. The rebuilding of the Residence, which cost around 20 million euros, was concluded in 1987. Already in 1981, the Würzburg Residence, together with the Residence Square and Court Garden, has been included on the UNESCO's World Cultural Heritage List and thus placed under special protection. (Würzburg Residence 2023) The Julius Maximilian University, founded in 1402, is the oldest university in

Bavaria. With 55 institutes and 28,000 students it is also one of the biggest Universities in Germany and an important employer in the region. (JMU Würzburg 2023)

UBA will implement a pilot in Würzburg in cooperation with the Zukunftshaus (lit: future house). The Zukunftshaus was opened in Würzburg in October 2022. It is initiated and managed by the cooperative Zukunftshaus eG. It offers sustainable consumption in the form of a department store. In one place, citizens can swap, rent or repair products. It is also possible to buy certified sustainable products (Zukunftshaus 2023). The Zukunftshaus is located in the historic centre of Würzburg and is thus very centrally located (Figure 10). The town hall, Würzburg Cathedral and the old Main Bridge are also in the immediate vicinity. There is also good access to various bus and tram lines.

10. Figure Figure city of Würzburg (source: Peter H, Pixabay) and Zukunftshaus (source: Lisa Spängler)

2.4 Synthesis of Local Strategic Papers and Challenges

In the next chapter, we introduce the main findings of local strategic documents with the application of gap analysis. Like in the case of the country-level documents, the classification of gaps is based on The Circular Economy in Cities and Regions: Synthesis Report by OECD in 2020.

2.4.1 Funding gaps

Local strategic papers have indicated some issues related to the funding available for circular economy initiatives. From the evidence showcased, it becomes apparent that little coherent information is available on the funding in general. From the evidence presented, it can be deduced that the main source of finance is through European funding, national easements and contributions, as well as local funding. The accessibility of funding made available for these objectives seems to vary between countries, but adequacy is questionable. Local finance flows

are subject to disposability by the local municipality, implying that lower income municipalities would simply not have sufficient means to make any project get off the ground. Furthermore, underfunded municipalities will typically lack not just the will, but the talent to initiate, manage, coordinate and bring to fruition any such project. Nevertheless, this is not to say that initiatives are doomed from the start: talented, open-minded and innovative local aldermen will typically go over and beyond to support such initiatives, though the probability of success will remain limited without meaningful external assistance. In fact, it can be deduced that states have been quite supportive of circularity initiatives, albeit to a varying degree, depending on their own priorities and financial means. Funding is generally made available by means of, and to the extent of European expectations, though some states do indeed do more to foster these initiatives.

An additional inherent risk within the funding programmes lies within the predictability and plannability of funding. At least some of the funding is made available by means of calls for proposals or on a discretionary basis, enforcing competition with the limited funding made available. This encompasses the risk of not funding projects which would serve future objectives well, and whose impacts might be good and socially desirable, but ultimately do not get financed due to the limited amount of funding made available. This is likely exacerbated by the internal organisational arrangements and the ad-hoc, informal nature of some groupings, which exposes grassroots initiatives to a greater risk of not getting funding. Indeed, there is at least some evidence to suggest that citizen's organisations are more likely to have to use more of their own financial resources and rely heavily on their creativity to cover funding needs. In effect, this forces them to keep initiatives local, focused, visible, but limited, and the coveted future expansion remains uncertain.

The consensus from the synthesis reports is that the organisations and groupings addressing the topic of circularity and circular lifestyles are generally smaller, their scope and physical domain for action is generally limited, and thus they hit a glass wall when trying to expand. In turn, it is possible that at least some of these initiatives appear as not attractive for funding, especially when private sector funds are to be enlisted, since the returns on monetary resources and efforts invested will appear meagre, at best. Furthermore, even if the activities are carried out by organisations in the form of for-profit or non-profit businesses, the coveted growth opportunities are typically limited. Effectively being forced to remain bare-bones organisations, an internal division of labour and specialisation in functions may be impossible, likely limiting the opportunity for visionary thinking and strategic planning. On the upside,

however, this may mean that members of these organisations retain a more hands-on feeling of the problems they are trying to solve and do not get detached from their objectives.

It is also evident from the synthesis reports that at present, private sector engagement is generally limited. For-profit private sector organisations will generally keep a close eye on their bottom lines, and though they may contribute resources to a community goal, they will want to have a clear picture of how they will be able to benefit from this in the short and long run. Nevertheless, it can also be stated that evidence suggests that even for-profit businesses will gladly cooperate under novel arrangements with governments and citizens for a common, long term, community goal. Indeed, evidence does suggest that whilst clear boundaries will remain in what businesses would be willing to do, local businesses, whose owners and operators are locals, would gladly act for their community, and even for each other.

2.4.2 Regulatory gaps

From the evidence presented in the synthesis reports, it may be deduced that in countries where a stronger, more consolidated multi-tier governance exists, a wider array of means and a greater diversity of vehicles is available for initiatives. This seems to be particularly true for federal (Austria and Germany) and provincial (Italy) states, where the lands/regions assume the role of an important player as financer and coordinator. In contrast, unitary states appear to perform less well in this area, as in these polities, the intermediate levels of governance (i.e. regions) are not organic, and the organic ones (i.e. districts or counties) are less well-endowed in finance, talent, and willingness to initiate. Nevertheless, it is plausible that in unitary states larger municipalities with sufficient economic weight and a larger population may successfully lobby for funding and assistance from the central government, due to a lower degree of power separation.

Whilst in some countries extensive domestic frameworks exist for supporting circularity, with essential legislature in place, and key bodies, organisations, platforms and plans available on multiple governmental levels and in several key areas, other countries lack this comprehensiveness. Indeed, it is not rare that though national level policies and strategies are in place, due to inadequate sub-national arrangements, local municipalities often lack the external guidance and encouragement which could prove useful in translating global objectives into local practices.

In some countries, critical industries and resources are not treated with adequate caution, neither on the national nor sub-national level. Though initiatives to this end do exist in certain countries, others demonstrate a clear lack in this area.

Each country in the consortium operates with a multi-tiered governance system, but there are considerable differences in centralisation and powers delegated to lower-level governments. This is reflected not just in the scope of local and regional legislation. Evidence suggests that if framework legislation exists to foster the goals of a circular economic model, these are not complemented by lower-level regulations or policies, which would facilitate an effective and efficient implementation of policy goals. These gaps leave more to chance, and a greater burden rests on the shoulders of local municipalities and organisations. This may fuel a vicious cycle described in the subsequent section.

2.4.3 Policy gaps

Based on the synthesis reports compiled by the partners, a varying degree of lack of vision may be observed between the various countries: some appear to be more engaged with formulating and implementing a vision, whereas others are less visionary. Additionally, in certain countries, it is questionable whether regional and local authorities share the vision (or the lack thereof) of the central government. Crucially, it can be identified that in countries where policy documents are not adequately treated as living documents which are methodically implemented and continuously reviewed and improved, local initiatives face greater obstacles in reaching their goals. This runs the risk of local visions diverging from the state's visions, and local policies becoming detached from central policies, or even, vice versa. A similar deduction can be observed between the coherence of multi-tiered policies and multi-tiered legislation: without adequate frameworks and institutions in place, effective and efficient policy crafting and implementation remains somewhat uncertain.

Fortunately, it is clearly evident that the governmental stakeholders assessed will generally make good use of at least some of the existing global or European policy frameworks, predominantly Local Agenda 21 and adjoining European policies. Nevertheless, it is also apparent that numerous local authorities do not yet fully capitalise on these frameworks, especially those not stemming from a fulfilment of obligations in international treaties and agreements. This is particularly true for the networks and organisations where professional exchange could take place accordingly. Local municipalities are often still not participating – actively, or at all – in European, international, or global initiatives, thus their efforts tend to lack policy cohesion, coherence, persistence and visionary thinking, and in turn, run the risk of implementing poorly designed objectives with an inadequate use of available strategic best practices.

SECAPs are regarded as a key instrument for planning and policymaking and are generally used for the intended purposes. Nevertheless, complementary policies covering gaps in policy areas are regularly not present.

Networks, being an essential platform for exchanging ideas and best practices, are frequently self-organised in certain countries, with little or no meaningful support from the central government. In turn, these either lack sufficient focus, or though they are focused on critical areas, they lack coherence between them; several may be focused on the same policy area whilst other policy areas are inadequately treated or not treated at all.

There is also a detectable lack of political will in some instances, where local initiatives will all but fall on deaf ears with the local municipalities, or they will be met with a degree of resistance from these. It can be deduced that this exists where there is a disproportionately large gap in political power and competences between two levels of governance. Even with the adequate political will present on the lower levels, this will likely limit projects and initiatives to remaining on their own level, particularly in an atomised or fragmented governance landscape, where municipalities, due to the obvious and paralysing finiteness of their resources, will likely focus on supporting initiatives that would benefit their own citizenry, but it is not in their interest to support dissemination and catalyse spillover effects, since this would cost them resources, but would not benefit them in a proportionate manner. It is not implausible that local political stakeholders can be brought on board to support initiatives and actions with policies and even financial means, provided that the advantages of doing so (including not losing the next election) can be made clear to them. This, however, requires a committed, engaging and well-organised citizenry, which may not be available in numerous cases.

2.4.4 Awareness gaps

There are numerous gaps in awareness within the various stakeholder groups. There is a detectable cultural barrier between and within the various stakeholder groups, which can be characterised using the following descriptors:

Cultural barriers for humans

- Age, young vs. old,
- Financial status, poor vs. rich,
- Social status, based on education, employment, etc.,
- Ideological conviction, progressive or conservative,
- Living circumstances, urban, suburban or rural.

Cultural barriers for businesses or organisations

- Organisational size, small vs. large, by employment or turnover/market share,
- Age, recently founded or established,
- Locale, as in, global, domestic or local business/organisation,
- Financial situation, including wealth, assets, ability to attract capital, profitability.

The main points from the synthesis reports are the following.

It can be deduced that circular economy is popularly perceived as a waste management issue, recycling being the main strategy for achieving circularity, though experts concur that circularity is a much broader concept, encompassing improved design, maintenance and reuse, and sharing/access instead of ownership. This enables groups of stakeholders, humans and organisations alike, to regard this as external to them. Additionally, organisations, especially for-profit businesses may regard waste generation as a natural fact of doing business and trying to turn a profit, and anything to target the contrary is against their profit motives. Responsible consumption is recognised as an option and a necessity, but it is acknowledged that personal sacrifices must be made, even if that is painful. Smart solutions, digitalisation and a steady decrease of energy intensity is also recognised as an option, but without specific options in mind, generalised attempts have little point. Ownership is often still regarded as superior to access, as the ownership of certain assets may be regarded as a status symbol. Even without being status symbols, goods might be purchased prematurely or unnecessarily due to adverse incentives, including tax breaks, grants and subsidies. This is true for both private and corporate purchases and includes seemingly sustainability-centred items such as electric vehicles, solar panels and heat pumps. Ultimately, purchases without due consideration will likely do more harm than good.

Education is reaffirmed as perhaps the most powerful catalyst for change. However, even with lifelong learning being the norm in our day and age, change is typically slow to occur. Cultural differences are apparent between countries, regions, and areas within the countries, but there are also differences between demographics, based on wealth, age, social status and others.

In contemporary growth-driven economies, (industrial) companies often rely on heavy marketing to sell more products, which is justifiably perceived as contradictory to a self-restraining, circularity-oriented lifestyle. In general, citizens tend to think about everyday goods when they imagine circularity, yet a crucial factor in circularity is the consumption rate and fate of durable assets, especially urban land and real estate construction. For example, whilst

people acknowledge that housing should be built to last, many still prefer to move into newly built properties. This internal contradiction is yet to be resolved.

Citizen assemblies help facilitate the exchange of ideas and experiences, and advance cooperation between citizens. Though these do exist, they cannot be considered as a universal fixture everywhere.

2.4.5 Capacity gaps

It is apparent from the synthesis reports that though a considerable number of people are involved with circular economy related frameworks and programmes, however their employment and form of involvement varies. Permanent salaried workers, working full-time or part-time jobs, are typically employed by governments on various levels, including municipalities. Nevertheless, they may be dedicating only a part of their time to these projects, and thus their priorities may change over time, or they may lie elsewhere. Temporarily contracted project employees, working full-time or part-time on these projects are likely directly employed by the specific organisation involved with the circularity project, but may be on the payroll of a municipal or governmental body. Due to the temporary nature of involvement, we can expect a steep learning curve and gradually declining dedication to the project objectives as time progresses towards expiration. Examples may include communication staff, experts, and even artisans. Cost compensated volunteers may have a part of their own expenses compensated, in the form of material expenditures or similar, and are financed by the limited funds pooled by members or from financial support obtained. Finally, there are uncompensated volunteers, who dedicate their time and sacrifice their own resources for a common goal. Even though a considerable share of the workforce is employed in the self-declared circular economy sectors in certain countries, other countries greatly lack in sheer manpower figures. Nevertheless, efficiency and effectiveness are often not clearly addressed. Based on the evidence provided in the synthesis reports, initiatives and actions in the domain of circular economy appear to be more coherently organised in countries where a functioning multi-tier regulatory and governance system is in place. It appears that the tasks are better chunked and distributed between and within the stakeholders on different tiers of government where a multi-tiered system exists. From the evidence presented in the synthesis reports, circularity is still largely regarded as a waste management issue rather than a more complex paradigm, technical solutions are still frequently characterised by “buying something to make a problem go away”, that is, applying a patch to a systemic failure. Furthermore, it appears that the general legal, policy and technical frameworks are there, at least on a national level. What is included in these technical frameworks varies from state to state, with some states exhibiting

some gaps in technical frameworks, primarily down to a lacklustre policy attitude. Local technical frameworks are frequently set up to allow the execution of specific objectives, again mostly in the domain of waste management. However, a technical environment suited to fulfil less obvious circularity objectives, such as research, planning, the achievement of long-term objectives is all but absent on the local level.

2.4.6 Summary

From the evidence exhibited in the synthesis reports, we can draw the following overarching conclusions.

There are numerous critical gaps in key areas, including funding, regulation, policy, awareness, and capacity. Although the general, overarching frameworks are mostly in place in all countries, sub-national frameworks are inadequate in some instances. Particularly in unitary countries, local municipalities appear to have a more difficult task in establishing the frameworks required for a smooth and seamless transition to a circular lifestyle. There are gaps between the levels, and there are gaps within the levels in the form of atomisation and fragmentation. Initiatives tend to focus on single, isolated issues, and do not tie in sufficiently with other issues or initiatives and seem to treat the lasting legacy of the project inadequately. Indeed, coordination shortfalls appear to exacerbate the problems.

Nevertheless, despite the gaps addressed in this section, one can draw positive conclusions as well. The synthesis reports demonstrate that the frameworks are generally present, meaning that the work ahead is not about creating those, but rather, utilising them to the fullest of their potential. Furthermore, meaningful projects and initiatives exist across all partner countries, with goals of different level of ambition. And finally, it is apparent that the citizenry and local business community tends to show interest and involvement towards local circularity issues, even without clear financial gains.

3 STATUS QUO OF SUSTAINABLE CONSUMPTION PATTERNS AND SUPPORTING BUSINESS MODELS

3.1 Needs analysis of target groups

In the next chapter, we introduce synthatized findings from NiCE pilot settlements based on interviews, focus groups, workshops, living lab discussions and desk research.

3.1.1 Summary of Interviews, Focus Groups, Workshops

The aim of the needs analysis of our target groups (cities and initiatives / providers of new business models, existing networks, stakeholders) is to have a comprehensive picture of the strengths and weaknesses, enabling and hampering framework conditions of circular lifestyle in the cities. What is the key to offer and disseminate circular models in the long term? What are differences between different Central European regions and different sizes of cities? What changed during the Corona pandemic?

In the analysis, project partners have applied self-tailored research methods including focus group discussions, interviews, workshops, living lab approach and questionnaire surveys.

In this chapter, we highlight research results of partners on how target groups:

- comprehend the meaning of circular lifestyle,
- would enhance the transition toward circular lifestyle,
- observe the barriers to the use of alternative consumption offers,
- evaluate the effects of the pandemic.

Meaning of circular lifestyle

Interviews at BME (HU) indicate that circular lifestyle is comparable to circular economy applied on an individual level. It is based on the idea of using or keeping the products in use for a longer period and driving maximum utility of products before disposing of them. The circular lifestyle can be accomplished by reusing, reselling, recycling, decomposition, and reducing waste (Figure 11).

11. Figure Word cloud of circular lifestyle meaning (developed by Waqas Mazhar). Source: BME

Similarly to BME, **focus group discussions at CIKE (SK)** aimed to analyse the meaning of circular lifestyle. The participants shared a range of perspectives on the circular economy. Some viewed it as a return to a more traditional, sustainable model of economics with minimal waste production, as they or their grandparents might remember from the past and it seemed natural back then. Others focused on the practical aspects of reuse and repair in daily life, often triggered by life milestones such as having kids or moving.

"For me, it means that I can… for example, a very simple thing, sew a pair of sweatpants that I just had torn and that I don't throw them away, or donate them, or swap them, but just use them again." (Participant)

There were also discussions about circularity as a self-sustaining cycle, driven by the ecosystem's interdependence, and the importance of community engagement. Additionally, connections were drawn between the circular economy, environmental sustainability, and cost-saving practices. Participants have mentioned the following initiative types they are familiar with:

- Thrift stores,
- Bazaars,
- Clothing, plant, and book swaps,
- Repairing services,
- Upcycled products,

- Packaging-free stores,
- Shared vehicles. (Synthesis report of CIKE).

The results of the **Environmental Awareness Study 2022 by UBA** departmental research (DE) call attention to reducing the throwaway mentality as key to circular lifestyle.

"The respondents consider several policy fields of environmental protection and climate action to be relevant. The issue of plastic waste is at the top of the list: 61% of the population perceive plastic discharges into the environment as very threatening. And an even larger majority of 75% consider it very important that less plastic ends up in the environment. 72% also think it is very important to increase recycling of plastic and other materials through the concept of a circular economy, to promote long product use and to reduce the throwaway mentality." (BMUV 2023, 15)

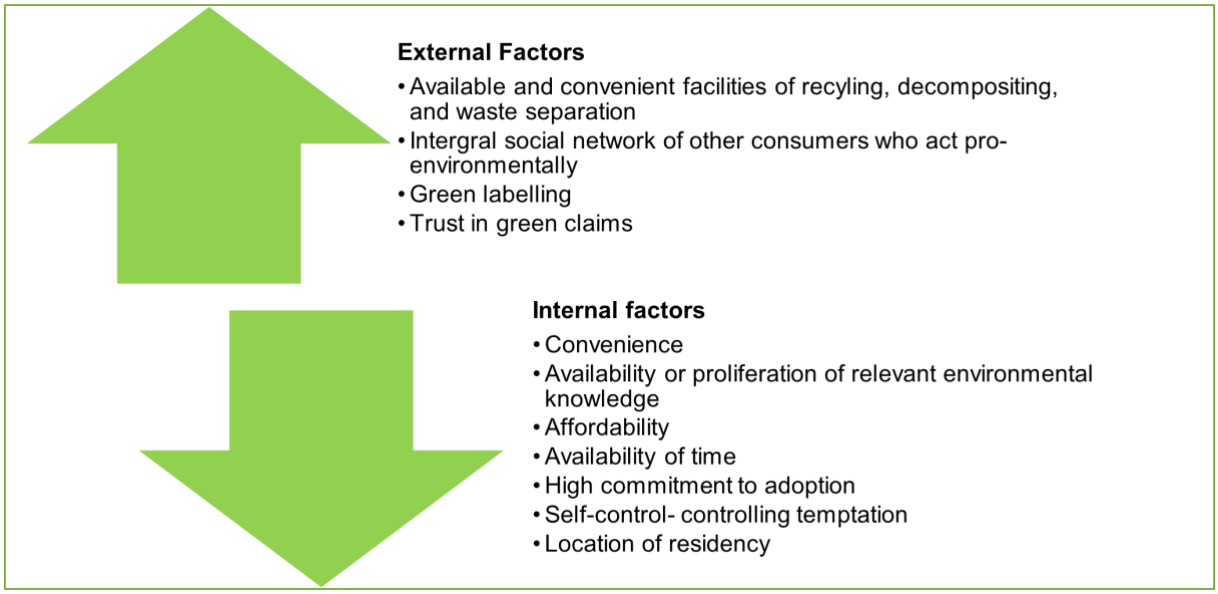
During the **workshop in Brzeg Dolny (PL)**, the meaning of circular lifestyle has been identified as zero waste activities in everyday life. As understood by the workshop participants, these are aimed at minimising the amount of waste produced and maximising its reuse.

- Avoiding Disposable Products: Using reusable bags, bottles, cups and cutlery.
- Recycling and Composting: Separating/sorting waste and composting organic residues.
- Shopping Consciously: Choosing products with less packaging, shopping in bulk.
- Repair and Reuse: Repairing broken items instead of throwing them away.
- DIY and Handicraft: Creating your own everyday products using various handicraft techniques (sewing, crochet, knitting, embroidery, etc.), making your own cosmetics or cleaning products (cleaning fluids, washing products, dishwashing products, etc.).
- Minimalism: Reducing excessive consumerism and buying only what is really needed (using shopping lists, planning home menus, using seasonal fruit and vegetables), learning to prepare preserves, growing fruit and vegetables, etc.
- Education and Awareness: Participate in environmental initiatives and educate the environment about zero waste (swapping clothes, plant exchange, selling unwanted equipment, garage sales, sharing unwanted food).

In Italy, during the event "La Notte dei Ricercatori" (European Researchers' Night), held in Bologna on 29th September 2023, a survey has been conducted collecting 19 self-compiled pools. The interviewees were mostly students or workers active in some scientific field. Their awareness level about environmental impacts and risks has been measured through a graduation self-assessment ranging from 1 to 5, with 1 corresponding to "barely aware" and 5

to “completely aware”. All participants thus considered themselves aware, even if they were not familiar with mitigation and adoption actions against environmental risks. Speaking of the promptness in changing their own habits to counter climate change, more than half of the interviewees (63.2%) stated to be fully prompt. **The 84,2% of the sample reported to be already adopting good behaviours to reduce water consumption, mainly by shortening the time of their showers.** (Synthesis report of ENEA)

Living a circular lifestyle is affected by various internal and external factors (Figure 12). Internal factors are associated with consumers’ own sociodemographic and psychographic characteristics. Whereas the external factors include forces in consumers culture, environment, and available opportunities to perform pro-environmentally. Following are examples of internal and external factors affecting consumers circular lifestyle or adoption of circular lifestyle.



12. Figure External and internal factors affecting the adoption of circular lifestyle (content by Waqas Mazhar, editing Mariann Szabó). Source: Synthesis report of BME

Transition toward circular lifestyle

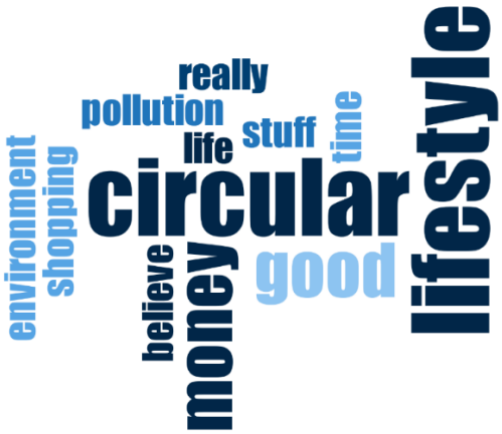
Findings at BME (HU) indicate that students are looking for help and guidance in defining priorities related to a sustainable lifestyle, for example, reducing energy consumption, choosing environmentally friendly travel methods, reviewing eating habits, and choosing clothing and durable goods can be a good starting point. There are many solutions available, some coupled with apps, which seemingly support circular economy related approaches, but

only stimulate further consumption. All respondents agreed on the university's role in promoting environmental knowledge and fostering environmental awareness by offering sustainability related courses. Moreover, the university should implement circularity within its campuses to create a model representation of the concept. To promote circular lifestyle among students, university should recruit some influencers from the students who can be useful to promote the lifestyle among its followers. Another participant suggested to initiate some research projects related to circular economy and these projects should be executed within campus with a collaboration among different departments. To encourage students to enhance their knowledge, one participant suggested that universities should design courses including practical assignments about circular lifestyle and circular business models.

Participants shared other ideas to promote circular economy among citizens of Budapest, among them are:

- Conducting seminars on circular business models for business communities,
- Collaboration with local government and municipality on projects,
- Enhancing awareness among citizens via social media and website. (Synthesis report of BME)

Findings from interviews indicates positive attitudes toward circular lifestyle (Figure 13).



13. Figure World cloud of attitude towards circular lifestyle (developed by Waqas Mazhar). Source: BME

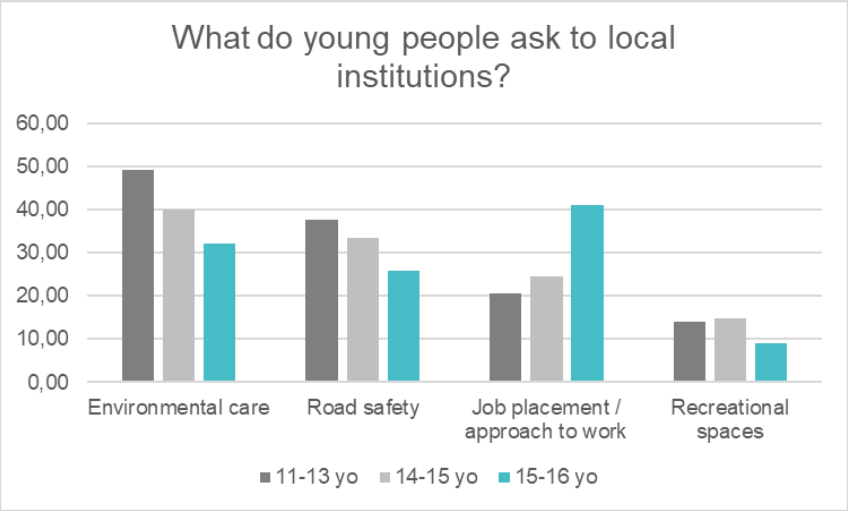
Research of ENVIROS (CZ) identified that achieving sustainability at local level is quite challenging, because local sustainability consists of/depends on attitudes and everyday behaviour and (small) choices of a variety of individual stakeholders, such as citizens, consumers, businesses, and other institutions, which the city cannot directly manage and

control. The city can work towards the highest level of sustainability by leading by example and supporting local initiatives and actors who promote and implement circular economy and sustainable lifestyles activities. Usually, it is individuals rather than organisations that try to move things forward and carry out various initiatives, but they often have a tendency and natural authority to motivate others. Such individuals and initiatives already exist in the pilot city of Jihlava, too. Support from regional and central government are also beneficial for circularity transitions. For instance, the Ministry of Environment manages the programme on Local Agenda 21 at central level, which includes methodological support of municipalities as well as personal and financial support of coordinators and evaluators. The programme provides a general framework for the implementation of specific activities at city/municipal level. (Synthesis report of ENVIROS)

Focus group discussions with circular economy companies in Graz (AT) have pointed out that the participants experience similar challenges, work enthusiastically on their topics, and need more visibility and resources in order to get out of a niche. Everybody was very much interested in the idea of a joint sustainability hub in the centre of Graz and were willing to work on that topic together in the next months. In the next meeting, they shall focus on how to make circular economy more visible and on a joint vision of a sustainability hub in the centre of Graz. The first focus group discussion showed that it is still difficult to activate property owners to support initiatives and ideas of CE e. g. by offering empty spaces for a reduced rent. Only very few property owners participated in the focus group. (Synthesis report of StadtLABOR)

Focus group discussions carried out by ENEA (IT) provided opportunity to discuss some findings of a previous project lead by ENEA “RECIPROCO” which had several synergies with the NiCE project. RECIPROCO’s focus was on the implementation of tools and initiatives on circular economy for the benefit of consumers. The project included the realization of pathways for co-design of sustainable and circular solutions in the Bologna territory and the implementation of training and awareness-raising activities on urban circular economy issues aimed at citizens, and activities for their active involvement, through the Urban Living Lab (ULL) methodological approach, for the co-design of circular economy solutions and best practices suitable for the target territory. Project findings were some co-devised and co-designed project proposals to raise awareness, especially on the issue of water consumption and valorisation. In order to explore the relationship between Youth and Environmental Issues, an online meeting was held with some of the representatives of Emilia-Romagna Region and Bologna Municipality working in the field of Youth Policy and Services. Some considerations emerged from the report “Being adolescents in Emilia-Romagna”, in which a survey was conducted

during the pandemic period, involving just under 6,000 young people between 11 and 16 years old residing in the Emilia-Romagna regional territory and aimed to investigate, in such a complicated moment for adolescents, their lifestyles, opinions, perceptions and expectations with the aim of planning more targeted public policy interventions. From the survey emerges that environmental problems are the first area in which children ask for focused actions to improve the territory they belong to: this applies to both the youngest group (11-13 years old) and the intermediate one (14-15 years old), while for the 15-16 years olds the most important issue is the approach to work, for which they ask for concrete initiatives (Figure 14).



14. Figure Areas for policy interventions. Source: Synthesis report of ENEA

Concluding the interviews in Ptuj (SI) it can be stated that waste minimisation is a priority in the city, and the initiators focused on all waste prevention activities, as well as on reusing waste, while conserving vast amounts of resources, both material and energy. Some of these material resources can be reused, repaired, and refurbished in local/regional systems, stimulating local economies and job creation.

The survey about the planned Zero Waste Multicentre in Brzeg Dolny (PL) indicates that target groups are willing to take part in various activities. All topics proposed within the Multicentre's planned activities were popular, including:

- Education on types of waste and their impact on the environment,
- Understanding the product life cycle and waste disposal processes,
- Education on the problems associated with plastics, including microplastics,
- Understanding of recycling processes and how to separate waste,
- Promoting the re-use of objects and packaging,

- Composting as a way to dispose of organic waste,
- Promoting purchases based on Zero Waste principles, such as the use of reusable packaging,
- Supporting community action on Zero Waste,
- Building local initiatives and working together to achieve Zero Waste goals,
- Promoting an overall approach to a sustainable lifestyle,
- “Zero-Waste” practical workshop.

In addition to this, residents of the Municipality are more likely to support the circular economy if they see benefits for future generations when they are presented with the long-term effects of actions taken today. (Synthesis report of Brzeg Dolny)

The first **Living Lab discussion in Košice (SK)** indicated that entities represented by Living Lab participants possess some partially successful products, processes, or initiatives aligning with the principles of a circular economy. However, these entities are often unaware of the corresponding terminology and trends. Their efforts are typically driven by other motivations, such as financial efficiency, waste reduction, or the implementation of effective processes for increased profits. In the final discussion about a future re-use centre, initial proposals centred around the physical space, its framework, city positioning, potential chains of similar establishments, and the distribution of goods. (Synthesis report of CIKE)

Barriers to the use of alternative consumption offers

Even as there is a growing trend for circular offers and zero-waste solutions, there are many barriers to the use of alternative consumption offers like second-hand, repair, swapping or renting (Gimkiewicz et al. 2022, 71). These include:

- Too little choice,
- Hygiene concerns,
- The view that second-hand clothes are more for the needy,
- Lack of knowledge about the ecological impact of production,
- An assumed poorer quality of clothes that have already been worn often,
- Access and participation,
- Ingrained consumer routines,

- Insecurities regarding the price advantages of second-hand purchases. (Synthesis report for UBA)

One of the barriers to implement circular business models is knowledge about such business. Businesspersons are new to circular business ideas, and it is hard for them to understand the potential benefits offered by such businesses. Moreover, knowledge is not the only problem here, it is also hard for circular businesses to attract investment because sustainability related business ideas are new and less known to investors. In case the business has been initiated, then the consistent commitment of employees towards sustainability will be the next challenge for the business. Furthermore, it is also a challenge to persuade customers to buy circular products such as second-hand clothing. Customers are still rigid towards various products and services which are against their status quo. (Synthesis report of BME)

During the focus group discussions in Košice (SK), participants discussed their ideas about why circular activities are not widespread enough and what we can do about it:

- Accessibility and timing: Access to and participation in circular activities were discussed in terms of time, space, and finances. The concerns were mostly about the scheduling of events, making the one-off events inaccessible to a wide range of people, highlighting the importance of access to permanent circular activities.
- Bubbles of awareness: Participants acknowledged that they often interact with like-minded individuals who promote circular activities. They recognized the importance of reaching out to those who may not be as aware of these practices.
- Marketing and promotion: When asked what their chosen source of information about circular activities in town is, most participants mentioned social media. Participants who were not present on social media were surprised by the number of circular activities examples others could think of. This means word-of-mouth marketing and face-to-face promotion is still very important.
- Educational challenges: Transitioning to low- or zero-waste living requires time, education, and the changing of habits. It can be a long process, and people often require guidance and support. Also, the importance of teaching children eco-friendly behaviours from an early age was highlighted, as they are likely to adopt these habits for life and can inspire their family members.
- Cooperation and networking: Participants discussed the need for networking and cooperation between companies and entrepreneurs to facilitate the flow of secondary resources.

- Greenwashing: The issue was brought up, underscoring the importance of transparency in the circular economy.
- Challenges to recycling: Participants raised concerns about the need for better waste sorting at the individual/community level, since it is connected with people's mindset about resources in general. They also discussed legal obstacles and the need for improved systems. (Synthesis report of CIKE)

Effects of the pandemic

Findings from Slovakia suggests that for some organisations, the pandemic resulted in significant delays in their projects and operations. This was particularly evident in cases where permits and approvals for new ventures took longer to process due to lockdowns and administrative disruptions. These delays translated into financial losses, as organisations had to continue paying rent and other overhead costs without generating revenue. The timeline for obtaining permits stretched, sometimes up to eight months, leading to substantial financial setbacks. (Synthesis report of CIKE)

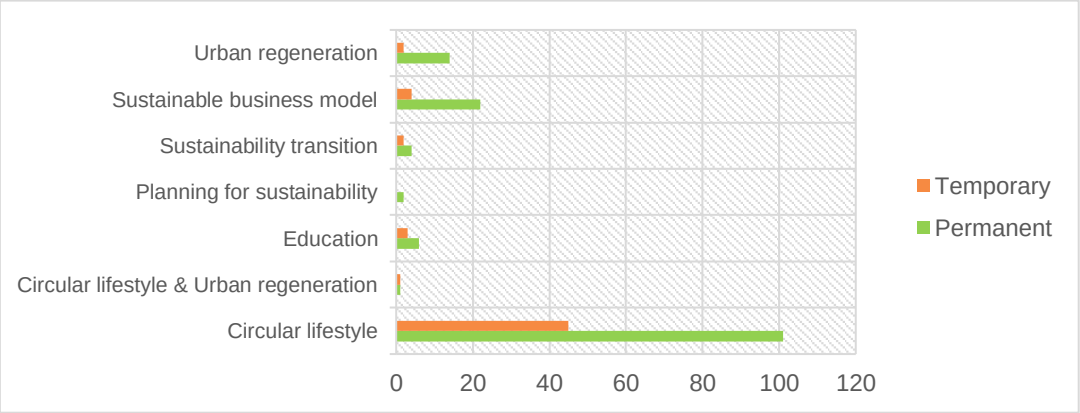
Surveys show that the importance of the city centre as a source of supplies is fundamentally declining, with shopping in the city centre only playing an important role for 40% of the people under 30 (CIMA Beratung + Management 2022, 9). A study by Alipour et al. (2022) shows, based on an evaluation of credit card figures by postcode areas, that supply activities have shifted in recent years not only to the digital space, but also to the residential areas of cities. This could be the case because of the increasing importance of home office since the beginning of the Corona pandemic. (Synthesis report of UBA)

As one of the interviewees in Hungary has pointed out, the pandemic has significantly set back the business. Just before the outbreak, the previous owner had opened a new outlet, which failed to take off due to the epidemic. In addition, people's minds also had negative associations with unpackaged products, given that people fearing infection were less likely to regard these products as safe. For many, the fear caused by the disease undermined the importance of environmental efforts. At the same time, the outbreak led to business innovations, with the launch of a web-shop. Nevertheless, in other cases, like the business Redy - period underwear and Impact Design Limited Liability Company, the pandemic boosted the businesses since people were open to new marketing channels and eco innovations. (Synthesis report of BME)

In Bologna, research results revealed a sharing of specific themes among nine examined Living Labs. The funding source consistently remained public, with MISE, the European Union, and the Italian Government as major supporters, without relevant involvement of private economic resources. The analysis of the context and stakeholders emerged as a central element before the commencement of each project. Challenges in the development process of Living Labs included unpredictable external factors, such as the 2020-2021 pandemic, community fatigue associated with the over-organization of participatory events in the Bologna area, and the need to define clear and specific objectives to ensure the continuity and success of projects, avoiding the threat of distrust. As a result, all these project outcomes underscored the territorial vocation to collaboration, innovation, and sustainable practices. (Synthesis report of ENEA)

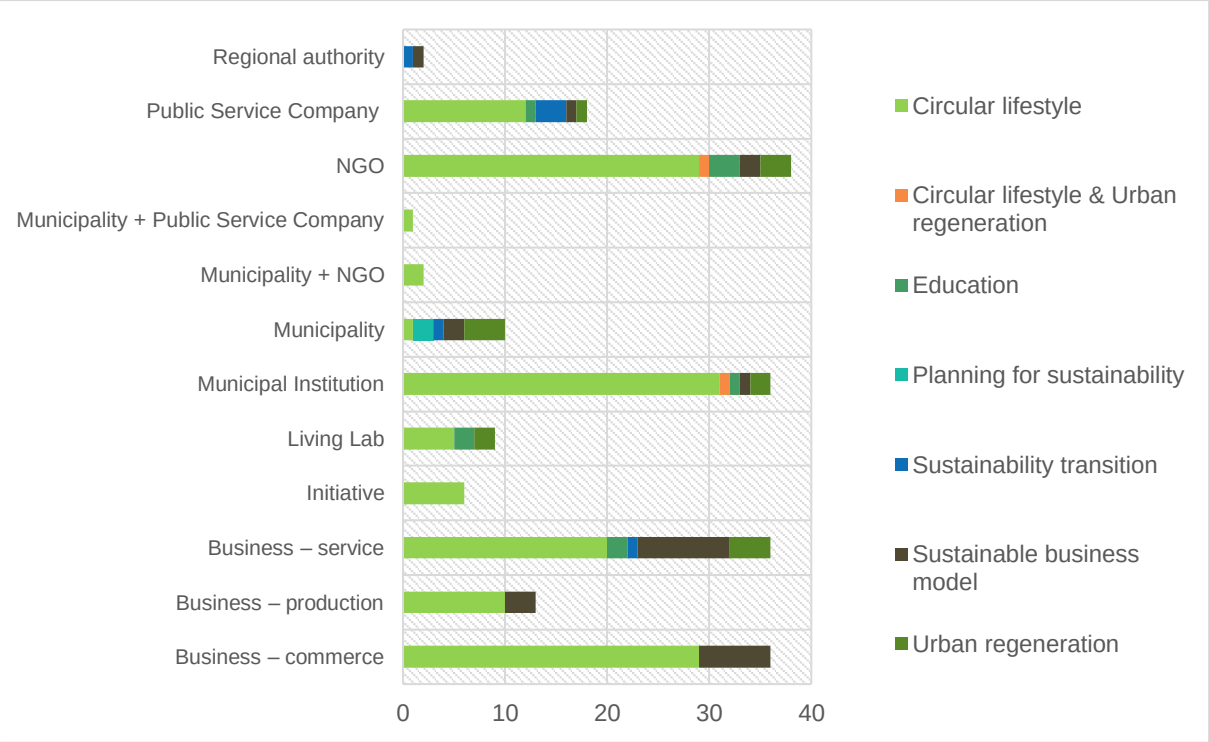
3.1.2 Pathways to Circular Lifestyles

In order to comprehend the needs of the target groups, desk research has been carried out by NiCE partners. The desk research aimed to collect good examples of circular lifestyle and offers. By desk research, six topics have been identified in partner cities and towns as potential means for circular lifestyle. Education, planning for sustainability, sustainability transitions, sustainable business models, urban regeneration, and offers for circular lifestyle have been defined as key areas. During our research, we devoted attention to the fact that offers can be permanent or temporary. Figure 15 indicates that our findings on good examples of circular lifestyle and offers are dominantly of a permanent nature, meaning that stakeholders would reach that offers continuously, while temporary actions including fairs, events or special programmes devoted to circular lifestyle are temporarily available.



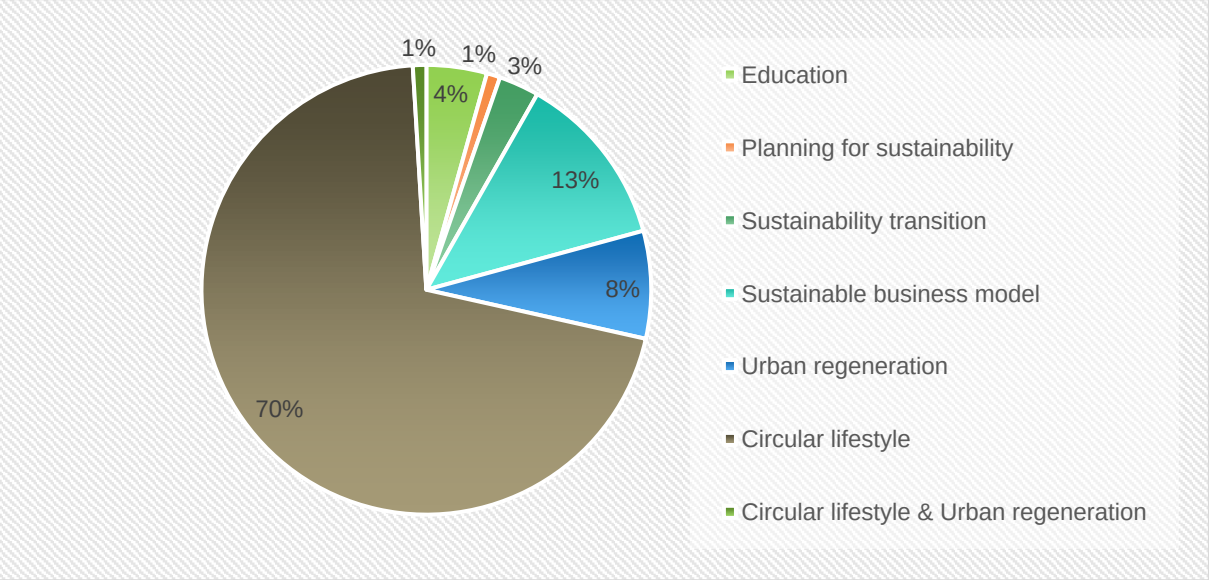
15. Figure Temporary and permanent offers for circular lifestyle. Source: own compilation

As discussed before, the ecosystem of circular economy and lifestyle covers a wide range of stakeholders. During our research, we have found that circular offers are provided by numerous different initiators including public and private institutions, enterprises, authorities, NGOs, municipalities (Figure 16).



16. Figure Portfolio of circular offers 'initiators. Source: own compilation

Figure 17 Indicates the distribution of collected good practices by topics.



17. Figure Topics of desk research. Source: own compilation

Educational activities cover both competence and good practice transfer for diversified topics in sustainable development, sustainable consumption, and circular lifestyle. The “Fondazione Villa Chigi” is active since 2001 to foster environmental education and awareness. It offers educational and outdoor activities for schools, while providing the public with excursions, activities and experiences inside and outside the park. It also features a vegetable garden where training and therapeutic activities take place. Another highlighted case is BME International Climate Change Role-Play - during this course students represent specific countries, and must perform negotiations about climate decisions.

Planning for sustainability focuses on platform development for participative planning, knowledge sharing and pilot implementation. The online platform for the implementation of Local Agenda 21 in Jihlava and “Partecipa”, the digital platform of Municipality of Bologna’s help fostering and facilitating citizens’ participation and collaboration on diverse topics for sustainable lifestyle.

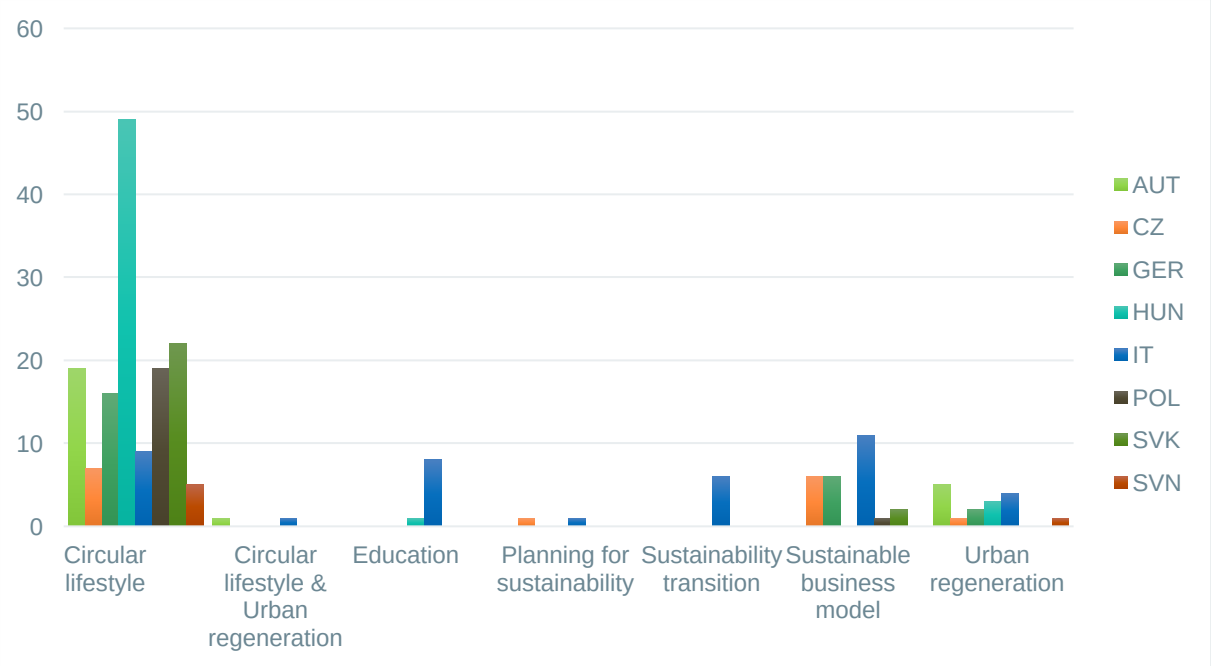
Under sustainability transition we understand innovative methods and cooperation forms which help to enhance the circular economy and lifestyle patterns. For instance, Sfridoo is an Italian company that, through the principles of the Circular Economy, helps small-medium enterprises and large industrial groups to innovate their waste management processes through the adoption of different solutions. It offers services for the optimization and valorisation of residues, waste, and production leftovers. Another example would be CiboAmico, which represents a concrete action to encourage the development of the circular economy through the fight against food waste.

Sustainable business models cover profound solutions to sustainability transitions with their value proposition to customers and wide range of stakeholders. Businesses and NGOs would operate in different sectors and have the potential to contribute to the realization of various sustainable development goals. The collected good practices cover examples of material-recycling, promotion of eco-conscious/ local/ fair products, sustainable production methods, environmental-friendly delivery options, second-hand shops, repair services, and software solutions for waste management.

While **urban regeneration** has a direct connection to circular economy by nature, in the NiCE project we concentrated on those solutions which enhance different means of circular lifestyle.

Highlighted examples of the desk research are: Jupiter Hamburg, a former warehouse, which has been transformed into a living place, where recently one can explore Art, Design, Workshops and Performances. Trash Hero Jihlava urban initiative is a volunteer activity (part of an international movement) that aims to clean up waste from the public places while not producing more waste. Ressourcenpark in Austria offers space for the collection and separation of over 80 types of waste, allowing more waste to be recycled. Stara steklarska - A new youth and cultural centre in the heart of Ptuj promotes social inclusiveness. The Bartók Béla Boulevard concept in Budapest is developed by the Bartók Boulevard Association which aims to build a community, mediate contemporary art, and organize cultural programs. In Italy, the “Borgo Ecologico” is an industrial district renovated and ecologically reconverted, in which solar energy is locally produced and where tons of e-waste are treated and recovered.

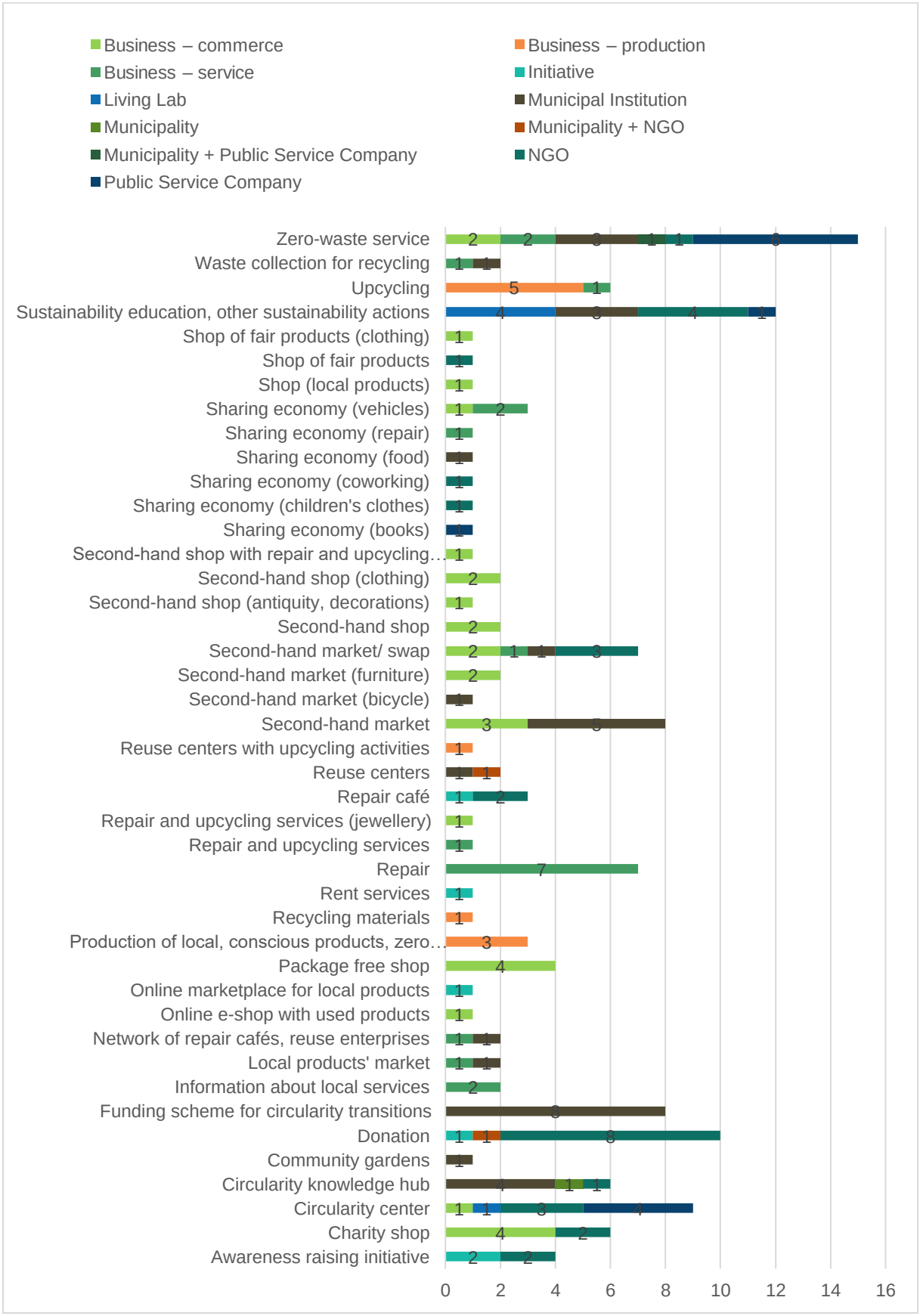
Figure 18 Indicates the distribution of collected good practices by topics and countries.



18. Figure Good Practices collected by Partnery during desk research. Source: own compilation

A dominant share of the collected examples, Good Practices belong to different concrete means of circular lifestyle. From the partners’ synthesis reports a database has been developed with the interpreted good practices. For the ‘circular lifestyle’ topic we created sub-categories to group the 146 cases from the eight participating countries, cities. In addition to that, we analysed the practices according to service providers. Businesses in service, production and commerce, as well as public service companies, NGOs, municipalities,

municipal institutions, living labs, and different initiatives would provide offers for circular lifestyle (Figure 19).


Business – commerce
Business – production
Business – service
Initiative
Living Lab
Municipal Institution
Municipality
Municipality + NGO
Municipality + Public Service Company
NGO
Public Service Company
Zero-waste service
Waste collection for recycling
Upcycling
Sustainability education, other sustainability actions
Shop of fair products (clothing)
Shop of fair products
Shop (local products)
Sharing economy (vehicles)
Sharing economy (repair)
Sharing economy (food)
Sharing economy (coworking)
Sharing economy (children's clothes)
Sharing economy (books)
Second-hand shop with repair and upcycling…
Second-hand shop (clothing)
Second-hand shop (antiquity, decorations)
Second-hand shop
Second-hand market/ swap
Second-hand market (furniture)
Second-hand market (bicycle)
Second-hand market
Reuse centers with upcycling activities
Reuse centers
Repair café
Repair and upcycling services (jewellery)
Repair and upcycling services
Repair
Rent services
Recycling materials
Production of local, conscious products, zero…
Package free shop
Online marketplace for local products
Online e-shop with used products
Network of repair cafés, reuse enterprises
Local products' market
Information about local services
Funding scheme for circularity transitions
Donation
Community gardens
Circularity knowledge hub
Circularity center
Charity shop
Awareness raising initiative
0
2
4
6
8
10
12
14
16

19. Figure Providers and types of circular lifestyle offers. Source: own compilation

The identified good practices cover a wide range of offers which enable circular lifestyle:

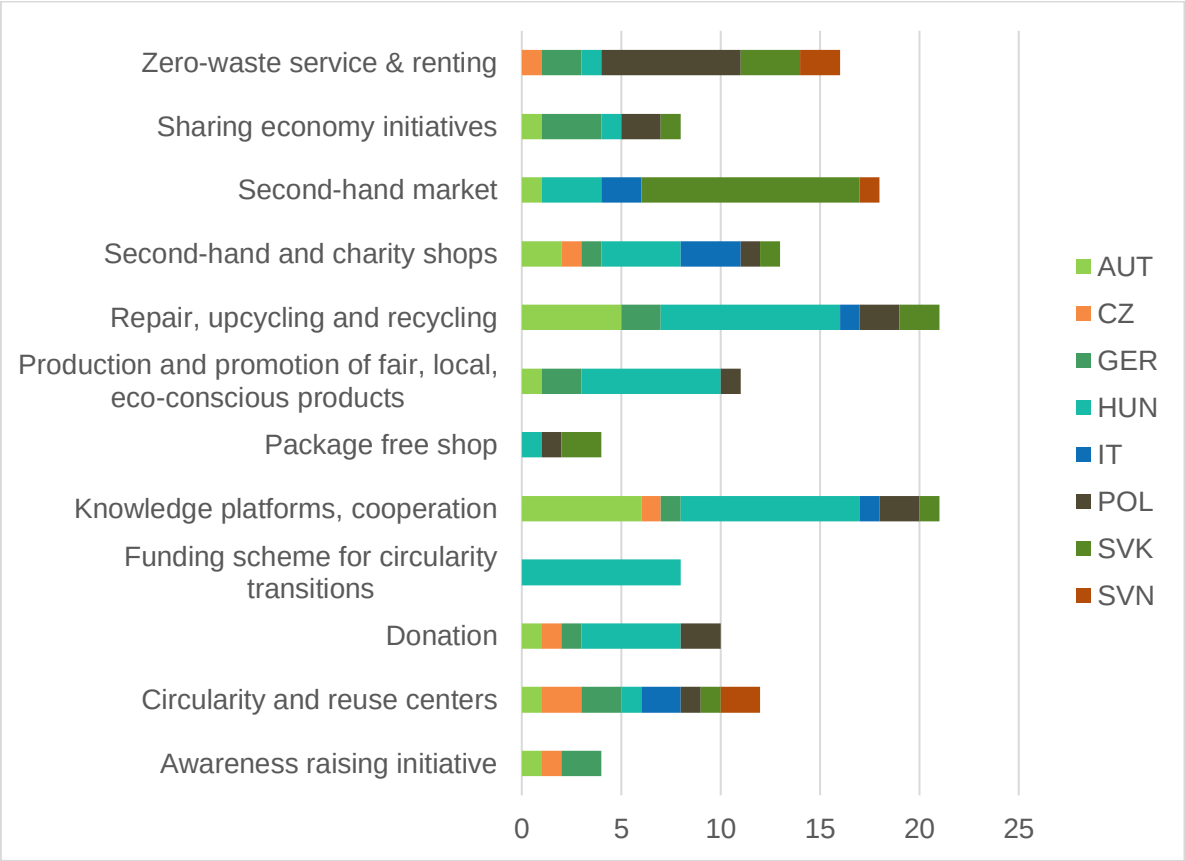
- **educational and awareness raising initiatives and knowledge hubs**, information about local services helps stakeholders to be informed about circular lifestyle, which would engage them in behavioural changes,
- **circularity centres** provide a wide portfolio of offers including reuse, swapping, education, repair etc.,
- **community gardens** are not just enhancing the self-sufficiency of stakeholders but encourage social cohesion too,
- different **funding schemes for the inhabitants** would allow reaching important environmental targets,
- **sale of second-hand products** either permanently or temporarily would enhance the reuse, exchange of different second-hand goods including online shops, reuse centres, general or thematic second-hand markets and shops, charity shops, donation,
- **sale of local, fair products** in different outlets and markets, including package-free shops,
- **sharing economy initiatives, renting, repair services and zero-waste service** including innovative solutions for waste collection and products reuse,
- **businesses in production** applying sustainable design with upcycling, development of local, eco-conscious products providing benefits to various stakeholders,
- **networks of circular offer providers** enable good practice transfer, communication, and knowledge spillover effects.

Before we examine the patterns of circular lifestyle offers from an urban and country perspective, we develop larger groups for the analysis:

- Awareness raising initiatives,
- Circularity and reuse centres,
- Donation,
- Funding scheme for circularity transitions,
- Knowledge platforms, cooperations including circularity knowledge hubs, community gardens, network of repair cafés, reuse enterprises; sustainability education, other sustainability actions,
- Package free shops,

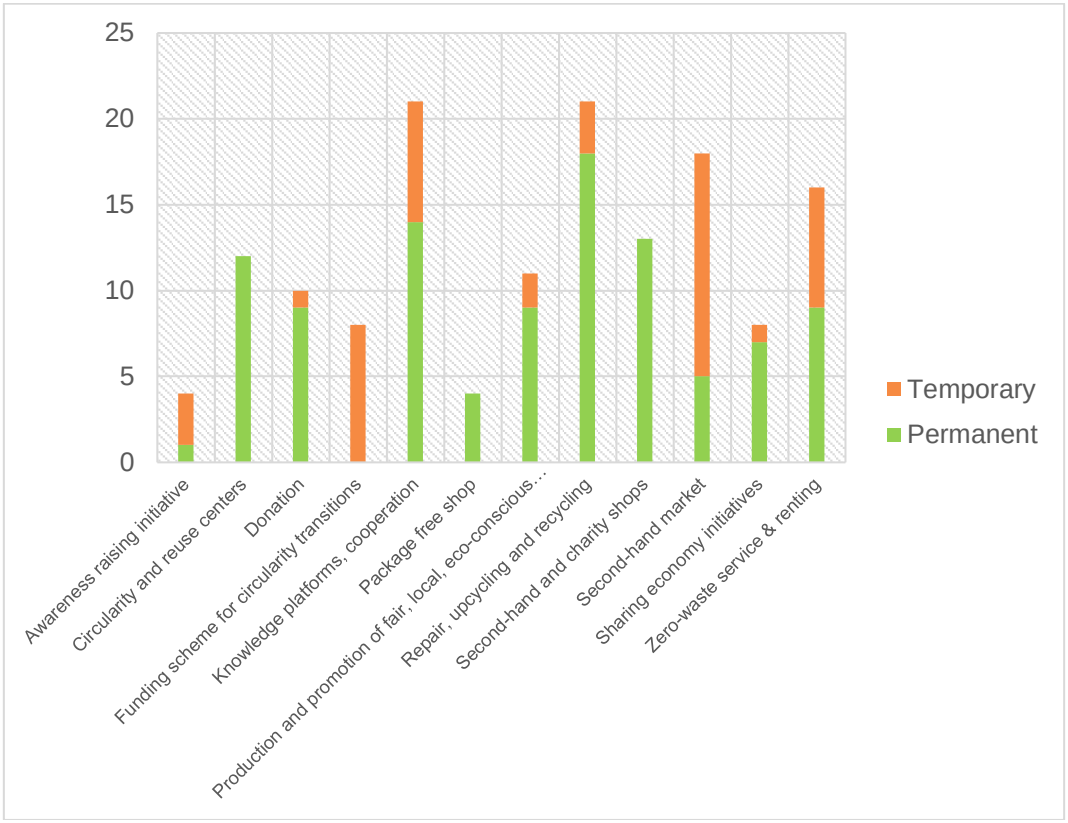
- Production and promotion of fair, local, eco-conscious products,
- Repair, upcycling and recycling including repair cafés, repair services, businesses for upcycling, recycling, waste collection for recycling,
- Second-hand and charity shops,
- Second-hand markets,
- Sharing economy initiatives,
- Zero-waste service & renting.

Figure 20 indicates circular lifestyle offers by distinct categories by countries.



20. Figure Circular lifestyle offers by distinct categories by countries. Source: own compilation

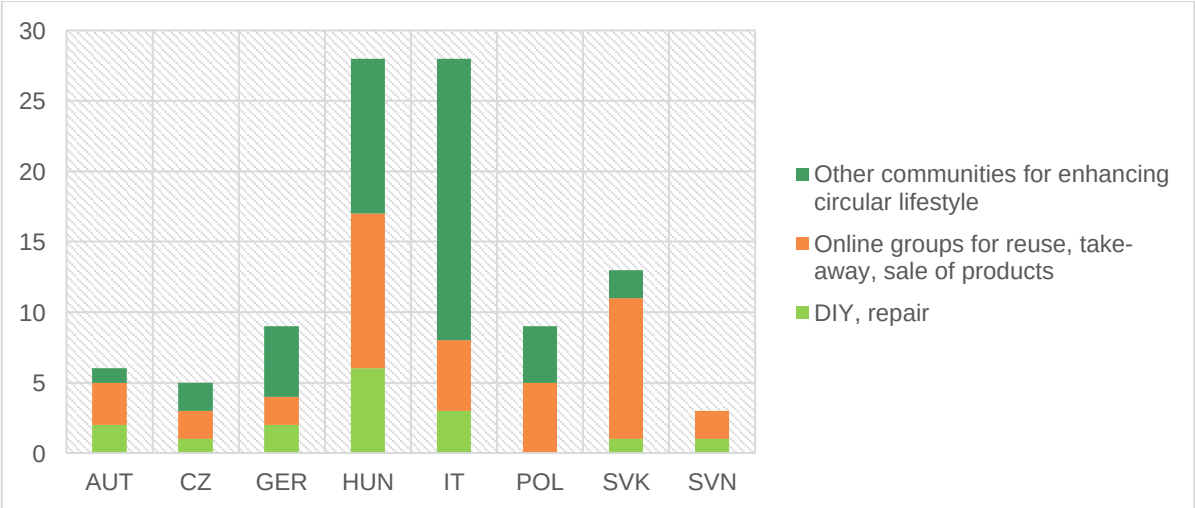
Finally, we examine the share of temporary and permanent activities by offers for circular lifestyle categories (Figure 21). As we can see, besides permanent forms, the temporary initiatives either in the form of pop-up stores, markets, event-based marketing, special calls would enhance circular economy and lifestyle patterns.



21. Figure Permanent and temporary offers for circular lifestyle. Source: own compilation

3.1.3 Interest Groups, Communities & Initiatives

With the wide spread of info communication technologies, the use of internet and community websites, a dominant share of online exchange and donation, as well as awareness raising knowledge platforms have emerged (Figure 22).



22. Figure Online groups for exchange of products, donation and knowledge sharing by partner cities, countries. Source: own compilation

3.1.4 Projects

The following section provides an overview of a selection of current or recent projects relevant to sustainable development and a transition to circular economy. In total, a selection of 40 projects has been identified by partners, whose objectives are relevant to the NiCE project.

Circular economy – from concept and principles to practice, mainstreaming and upscale: A handful of projects aim to transfer the principles of circularity into practice, to mainstream and upscale these practices. Projects include circular labs (living labs) and pilot projects that aim to upscale existing circularity models.

Resource use reductions through improved design: Several projects focus on reinventing resource use and flows through innovative solutions. These are primarily focused on three main topics: renewables, biological materials, and wastes. In detail, they focus on the replacement of fossil resources with renewables. A project for example aims to help decarbonise the “final mile” of products purchased online. Those aiming to transform the use of biological materials focus on agricultural biomass utilisation, the sorted collection of biological waste, implementation of biological materials to increase recycling rates. Waste reduction projects include those aimed at reducing waste at large-scale public events and reducing waste from electric and electronic equipment. Other projects focus on improving efficiency, especially in energy utilisation in public buildings. Finally, some projects aim at facilitating strategic change by advancing re-use options instead of recycling and landfilling, including by means of eco-designs.

Education and information: Dissemination of state-of-the-art knowledge on sustainability and circular lifestyles is targeted by a handful of projects, raising awareness about and creating targeted training on novel waste collection, management and recycling options, and cross-border awareness on waste, innovative-, and eco-friendly products. These projects are primarily aimed at non-governmental stakeholders, for example citizens, businesses and civic associations. Projects aimed at the governmental sector are detailed in the next section.

Municipal management and operations: Tying in with the informational and educational objectives in the previous section, similar projects on the education, information and sensitisation of government and municipal employees have been targeted by some projects. These are aimed at improving the quality of service provided by municipal employees and improving transparency, which are mostly tangentially related to circular economy. However, some projects aim to sensitise municipal employees towards sustainability and circularity goals. Yet others aim to design sustainable development management schemes and to devise

municipal climate strategies. Crucially, projects also aim at increasing citizen participation, an essential factor in the success of adopting circularity lifestyles.

Urban land use: Within the urban space, some projects aim to transform the current status-quo into fostering sustainability and circularity. In order to achieve this, they are aimed at urban resilience. Others focus on green spaces and urban farming, ecosystems-based approaches in urban planning, urban green and natural spaces, preservation of recreational spaces, addressing the problems stemming from expanding cities and land use conflicts, sprawl, soil sealing, brownfields misuse/underutilisation. Finally, some projects focus on land reuse by addressing industrial heritage reutilisation through creative means.

Better buildings: Within the urban environment, some projects are addressing buildings and the construction sector. In particular, some focus on improved water usage and water management in buildings (rainwater and greywater), and the removal of hazardous substances from buildings, building sites and building materials. Finally, they address the circular and digital renewal of the Central European construction sector through green labelling, end-of-waste criteria and green public procurement.

Businesses: A good part of the projects focuses on business related issues. More generic projects aimed at supporting more sustainable business models, the exploration of new value chains for businesses focusing on closed material flows and encouraging closing loops in business practices in SMEs. Other projects focused on more targeted issues, like fostering knowledge exchange, mutual cooperation and innovation among SMEs, making the most of existing schemes, especially EMAS, to make products more circular, and to capitalise on existing digital innovation hubs to promote circular economy practices.

3.2 Priorities for Pilot Planning and Implementation – Results from the Transnational Think Tank Workshop

NiCE concentrates on the joint development and piloting of approaches and related solutions that increase the level of circular lifestyles (and foster sustainable consumption) in cities and lead to behavioural changes of citizens, enterprises, and local public authorities. Through this transformation towards sustainable and circular structures urban centres are revitalised, social and cultural exchange between inhabitants is stimulated and new employment opportunities are facilitated.

In this chapter, we summarize and synthetize the results of primary and secondary research results of NiCE partners and lessons learned during the Transnational Think Tank workshop.

3.2.1 Circular Lifestyles and Circular Economy

The circular economy model developed by the European Parliament Research Service (Figure 23) highlights the domains of CE. The circular economy model is based on using less raw materials, creating less waste and fewer emissions. The circular lifestyles phenomenon is part of the model – indicated by the consumption, reuse and repair domain.

23. Figure The circular economy model. Source: European Parliament Research Service at European Parliament (2023)

3.2.2 Reinforcement of Circular Lifestyles

This synthetized analysis is based on the work of small groups in the Transnational Think Tank Workshop, which have discussed the same questions.

Most important feature of the circular economy

The most important feature is the systemic approach required to tackling a sustainability challenge. Resilience needs to be integrated and fully embedded in local systems. It is crucial that stakeholders are carefully identified on both the supply and demand side. Not least so, material and energy streams need to be identified, as these allow the better preservation of primary resources and derivative, storable intermediary products. The participants defined different characteristics of the circular economy concentrating on different parts of the value chain.

- Reconsidering the concept of waste which reflects to the idea of industrial symbiosis. Appropriately collected and stored waste can be used as raw materials, thereby reducing the need for new inputs.
- Focusing on the products themselves, longer lifetime and repairability should be an integrated approach in product design. In this way, we can save a lot on both the input and waste side.
- Raising awareness, and better education would lead to the tenet of sufficiency – purchasing only what is necessary.

These ideas encompass both the production and consumption processes and apply to technological and behavioural changes. Transparency in communication, education, information, advertising, getting people emotionally involved, and offering participation are all means of engagement. Raising awareness among stakeholders about impacts of consumption on natural ecosystems may lead to societal transformation. As one of the respondents pointed out: *"A lot has been done, but there is a lot to do."*

Most important activities cities can undertake to promote circular lifestyles

On the output side, appropriate waste identification, categorisation, and in turn, appropriate management is crucial as these waste streams can be important secondary inputs for processes. Some waste is typically utilised within the framework of low-level recycling efforts; however, high level recycling, reutilisation and upcycling have better prospects for resource preservation. An example of a functioning circularity scheme is the existence of well-organised, functioning, and convenient recyclable waste collection. However, when prompted, it has been pointed out that this typically results in low-level recycling, which falls far short of the expectations stakeholders have about circularity initiatives. Whilst it remains true that some circularity initiatives, predominantly those focusing on recycling have a key impact on the reduction of demand for primary resources, these only cover a small section of the scope of circularity initiatives. Convenient facilities with easy access, composting second-hand workshops, textiles for donation, sharing cars & bikes with appropriate communication measures for visitors, tourists, use of public transport, promotion on posters, education in school or kindergartens, a sustainable food system, awareness raising about impacts of food consumption, alternative diets (locavore or Mediterranean, etc.), intermediate actors between cities and rural areas, information on how food is produced, measurement of health of students or pupils, awareness raising of social problems, social determinants have been highlighted by participants. On a systematic level, the enhancement of industrial ecology, establishment of

circular districts, pursuing urban regeneration with brownfield redevelopment projects, as well as introduction of waste taxes have been discussed.

Additional benefits circular lifestyles may have apart from an improvement in the state of the environment

Besides the environmental benefits, circular economy fosters many additional, societal ones. Broadening knowledge, more and better relationships via sharing resources, enhancing social equity, more jobs created, green technology development by innovation and design, production and management processes, and all in all, leading to a more efficient economy and growth. Circular lifestyles ensure a personal state of health, increase the base of trust among stakeholders and between producers and consumers thus giving new business opportunities, improve local policy perspectives for sustainability, ensure good results and income for the economy, create incentives and a common understanding of the importance of consumption. Improved social relations, elimination of contradiction, development of technical skills of citizens and growing interest in cultural aspects are possible benefits.

Most important barriers to circular lifestyles in cities

A crucial limiting factor for successfully implementing circular lifestyle initiatives lies in knowledge, or rather, the lack of knowledge about the concept and the practices existing. Thus, education has been identified as the most crucial factor that could change these attitudes. Opinions differed whether it is sufficient to educate the public towards the end of their secondary education, thus they would be more receptive since they have had most of their formal education completed, or whether it is better to start at a very early age and thus allow sustainability and circularity lifestyles to become people's natural behaviour. In the end, it was concluded that education has the greatest impact if the good practices are introduced at the earliest age possible, albeit with their tailored messages and focus points. As one respondent has pointed out one of the biggest barriers: "It is more convenient to maintain the same system". Bad perception of CE solutions – e.g. association of second-hand shops with low quality could be barriers too. Economic obstacles are present. Job demand has been identified as an important factor. It has been suggested that it cannot be reasonably expected that circularity initiatives would create and pay for a significant number of jobs. As these initiatives have virtually no profit margins, they cannot afford to pay for staff. Indeed, it has been identified that while these circularity initiatives do require a lot of hands-on contributions from people, remuneration available for these jobs is either limited or virtually non-existent. In fact, it has been emphasized that without external financial assistance from municipalities or other fiscally

potent stakeholders, it cannot be reasonably expected that people would work on these initiatives for a prolonged period of time. However, relying on volunteers only is not a viable option, since with time, volunteers' dedication will likely dwindle, and initiatives may grind to a sudden halt. However, one participant insisted that for recycling materials, there has always been a strong business case, which could help pay for the staff required. It has also been pointed out that this strong business case is generally true for industrial sorted waste recycling, but considerably less true for household waste collected for recycling. Some further barriers have also been mentioned by the participants and some possible measures to overcome them. For example, new materials should be invented in the building industry. They should be lasting and at the end of their lifecycle, easily recyclable - which can be seen as contradictory. If these sorts of materials already exist, policy - by the law - should regulate their usage in construction, including rules of decomposition as well. Green public procurement is also a crucial and mostly policy- and management-based direction. Finally, a more conventional but still essential resource can be mentioned: money. Abundant financial sources and their efficient and transparent allocation are a stand of the system.

Most effective tools to overcome barriers to circular lifestyles

Spaces and facilities have been identified as a critical factor for the success of circularity initiative schemes. Cities have been identified as a special domain for circularity lifestyles. Some participants pointed out that elements of urban infrastructure, including urban streets and buildings, and the existence of certain institutions facilitate and foster circularity initiatives. Indeed, it has been pointed out that existing circularity initiatives have been supported by existing urban infrastructures and institutions, which could even facilitate greater social cohesion. Places where circularity exchanges take place can become important loci for greater social interaction, where people of different social statuses, age, gender, and even political convictions can come together and interact, thus fostering a greater sense of community and belonging, and bursts of creativity and activity may bubble up consequently. Getting young people involved is considered important by many, as they can bring new ideas into the general ways of thinking. Such catalysts would be very welcome in some locations, where municipalities are struggling with urban revitalisation. It would be therefore beneficial if unused properties, including disused retail units and empty plots of land could be made available temporarily, in a "pop-up" fashion, to these initiatives. Turning to the motivational side, we concluded that education and awareness raising is the all-time jolly joker since many difficulties and inadequacies arise from the lack of knowledge and appropriate attitude when talking about consumers, producers or policymakers. Having had the knowledge and skills, financial

incentives and institutional support can help the adaptation of modern technologies that are the pillars of the circular economy. Providing general infrastructure like roads, railways, or energy networks (that are concentrated in an industrial park, for instance) is also crucial where national and local politics can help a lot. Municipalities can help the dissemination of second-hand shops and small repairing enterprises by reforming local taxes, giving (in)direct donations, and providing space and legal support. Participants agreed on that circular lifestyles must be attractive, representing cool and fun characteristics.-Messages about circular lifestyles should not to be so heavy or burden. For the promotion of circular lifestyles workshops, festivals are needed with the use of social media targeting younger generation with nice positive examples.

Indeed, some of the existing and successful approaches to circular economy initiatives stems from reusing clothing, in the form of second-hand and vintage clothing, or second-hand and vintage furniture, each for and by their respective markets. One of the participants declared: “buying old furniture needs to be sexy. Just like riding a bicycle was not sexy,” it is now, and it is hugely popular and transformative. Indeed, one of the obstructive factors with these both is that they are frequently regarded as driven by poverty, rather than by mindset. For high-level recycling, reuse and upcycling, reparations might be needed. With some products, especially contemporary electronics, ownership does not extend to reparability, effectively preventing future use and enforcing users to discard unusable products instead of repairing them. Bad perception can be compensated by information provision and education. To fight against knowledge gaps, the harmonization of efforts would be welcome – by an individual or organisation that all actors trust (NGO/academia); regulation (EU and national level) is also an important pre-condition since municipalities have little impact on market forces.

Conditions of the successful use of tools to overcome barriers to circular lifestyles

Participants mentioned clear objectives in the longer term, and performance indicators with which advancements can be measured and comparisons can be made. For the evaluation of the progress, tools and skills are also necessary. All this cannot be implemented without a strong political commitment on every level. It is important to note that extra effort is expected from individuals – leaving their comfort zone for pursuing circular lifestyles. Accordingly, producers must ensure correctness of use of products and would develop sufficient knowledge

of consumers: *it works "if people believe in it"*. Education is important (especially for young generations), but so are "patterns from home" – as seen in the example setting role of family/parents. For businesses, an innovative atmosphere is dominantly present.

3.2.3 Synthesized Results of SWOT Analyses

Partners have developed a SWOT analysis about circular lifestyle patterns in partner cities, towns. It is based on the needs analysis of the target groups and status quo of circular offers of each city and refers to the implementaion of the pilots and other circular lifestyle offers. Thanks to the Transnational Think Tank Workshop some additional conditions have been assessed.

Strength	**Weaknesses**
• diverse portfolio of circular offers and viable business models for enhancing circular lifestyle • circular businesses often build on trust on two tiers: trust between the focal enterprise and suppliers and trust between the focal enterprise and buyers' community • NGOs, different institutions (repair cafés, circularity centres, reuse centres) for promoting zero-waste, environmentally conscious and circular lifestyle • networks, cooperations for circular lifestyle • peer to peer exchange of goods • peer to peer exchange of ideas, experiences regarding circular lifestyle • various stakeholders interested in and motivated for sustainability actions • community engagement, commitment • young generation wishes to comprehend the whole picture regarding priorities in circular lifestyle • preconditions for NiCE pilots are available • support of local governance for sustainability actions • diverse communication channels for targeting stakeholders • generally good quality of waste management of partner cities	• eco-friendly, conscious goods and zero-waste solutions are available on a higher price level • eco-friendly/sustainable alternatives are often perceived as of lower quality • focal enterprises as umbrella businesses in circular offers (like the package free shops or other commercial outlets) are highly dependent on the adaptability of suppliers • limited efficiency of communication on how to change the lifestyle, • no clear messages about the environmental impact of various products, services from a Life-Cycle Assessment point of view • regulations do not encourage small, local business • eco-innovations' marketing requires huge efforts • some stakeholder groups do not have sufficient knowledge on why circular lifestyle is important • lack of public education on CE • dependency on traditional business models, lack of innovation • lack of responsibility of individuals, institutions, lack of infrastructure • lack of communication and marketing of circular lifestyle initiatives
Opportunities	**Threats**
• general interest is growing related to local, enduring and conscious goods and services • ICT technologies can enhance the prosumer culture (sale or donation of goods), digital transformation • growing sympathy for used, pre-loved, and second hand products • climate-related and general sustainability targets would trigger actions • cooperation with other cities, networks in the field of circular transitions • city branding in terms of circularity	• dependency on external factors (energy, transportation costs) directly influences the viability of focal businesses, pilots in the long run • increasing cost of living leaves smaller portions for specific local, conscious products • shock events, pandemics ruin community-based initiatives • growing uncertainties in funding mechanisms • changing legislative frameworks, lack of legislative support • lack of a common framework for public-private partnerships • limited monitoring and evaluation options • competition for materials of recycling or reuse activities – threshold issues • decreasing level of local autonomy for designing and financing circular economy projects • services that are based on voluntary work and subsidies are taken for granted (if voluntary and subsidised services are no longer available, people are not prepared to spend money themselves and make use of the same services, for e.g. bicycle service for frequent and safe cycling)

3.2.4 Mission Statement of NiCE

In the Transnational Think Tank Workshop, partners and external experts agreed on the following mission statement of the project. The mission statement of the NiCE project aims to transform central places in cities to enable citizens to implement sustainable lifestyles as well as to (re)invigorate centres in a more circular way; by

- providing support for local governmental bodies to design appropriate policies, strategies, and roadmaps,
- piloting projects in a selection of settlements with the involvement of relevant stakeholder networks,
- encouraging other settlements in Central Europe and beyond to adopt the results, through the communication and dissemination of the outcomes of the project.

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APPENDICES

Circular Economy Transitions and Roadmaps State of the Art (Short Description of Annex 1)

Annex 1 is dedicated to introduce the scientific background on circular economy transitions and highlighted roadmaps. It is divided into two main parts: circular economy transitions in cities and roadmaps.

The first part introduces:

- The Circular Economy in Cities and Regions: Synthesis Report (2020) developed by the OECD,
- The Circular Economy in Cities: Policy levers (2019) developed by The Ellen MacArthur Foundation,
- Mapping Sustainability and Circular Economy (CE) in Cities based on a scientific article by Alonso, I. B., Sánchez-Rivero, M. V., & Pozas, B. M. (2022) in the Journal of Cleaner Production,
- The Circular City Analysis Framework (CCAF) based on a scientific article by Cavaleiro de Ferreira, A., & Fuso-Nerini, F. (2019). for Porto in the journal Sustainability,
- The Circular Cities Barometer by bloomberg.com,
- SMART Sustainable Circular Municipality focusing on model of PBL Netherlands Environmental Assessment Agency (2018).

The second part introduces the Road Map to a Circular Economy in Viet Nam (2022), Amsterdam Roadmap (2015), London's Circular Economy Route Map (2017), Helsinki's Roadmap for Circular and Sharing Economy (2020) and Roadmap of City of Calgary (2020).

These policy documents emphasize that governments, including city governments, can set the enabling conditions for circular economy transitions. The Synthesis Report (2020) by OECD calls the attention to five governance gaps for a circular economy (funding, regulatory, policy, awareness and capacity gaps), as well as it identifies the promoters, facilitators, and enablers of circular economy transitions. The different roadmaps suggests a holistic approach on the assessment of circular economy patterns for the enhancement of better governance. Common feature of the roadmaps that they define specific focus areas for interventions (for e.g. built environment, food, textiles, electrical, plastics In case of London).

National Status Quo of Political Frameworks & Circular Economy Country Profiles (Short Description of Annex 2)

Annex 2 introduces the political framework for circular economy transitions in Austria, Czechia, Germany, Hungary, Italy, Poland, Slovakia, Slovenia. The first part highlights the status quo of circular economy deployment at national level. The second part highlights patterns in the national documents including:

- Circular economy country profile,
- Circular Economy Strategy,
- Framework Strategy on Sustainable Development,
- Clean Development Strategy,
- Environmental Protection Program,
- Resource Efficiency Programme or Raw Material Policy,
- Others.

The third part introduces the “country profile” document which has been prepared for every EU member state and some further countries, that is, it is relevant for all partners. The documents were published in 2022 by European Environmental Agency’s European Topic Centre on Circular Economy and Resource Use, providing relatively up to date information. The country profiles focus on:

- National level circular economy policies especially elements that go beyond EU mandatory elements;
- Best practice in the country, focusing on policy innovation.

The last chaper summarizes findings regarding organizations and initiatives supporting circular economy on national level. The organisations and initiatives were grouped into main categories by type. These are the follows:

- National Council for Sustainable Development,
- Business Council for Sustainable Development,
- Institutions of Environmental Protection,
- Organizations of Circular Economy,
- Association of Environmental Enterprises,
- Networks and Platforms of NGOs or stakeholders,
- Others.

Assessments on Local Level in NiCE Pilot Cities (Short Description of Annex 3)

Annex 3 introduces assessments on local level in NiCE pilot cities including stakeholder mapping, collection of circular offers, and relevant projects.

The first part of the annex introduces the pilot locations. Cities and towns of different size and clutural-economic and environmental conditions constitute the portfolio for analysis and enhancement of circluar lifestyles whithin the project. NiCE project targets transnational development of pilot approaches, implementation, evaluation, and assessment of activities in tandems. Eight partners will implement a pilot activity in settlements of various sizes. In this chapter, we introduce the pilot cities, where local strategies, action plans, needs of target groups, circular offers, interest groups, communities, initiatives, and implemented projects have been analysed. The pilot cities are: Bologna and Porto-Saragozza district in Italy, Brzeg Dolny in Poland, Budapest and Újbuda district in Hungary, City of Jihlava in Czechia, Graz in Austria, Košice in Slovakia, Ptuj in Slovenia and Würzburg in Germany.

The second part highlights results from the local stakeholder mapping. Why stakeholder mapping is important? In NiCE project partners has engaged to show various practical approaches in different settings that strengthen new forms of consumption and make them visible in urban centres while bringing all relevant stakeholders together. Transition towards circular economy and lifestyles requires the collaboration between diverse stakeholders, in different socio-technical ecosystem settings:

- Seen from Amsterdam Roadmap (2015), a comprehensive analysis of the value chains that connect multiple sectors within the city was conducted to determine which chains can achieve the greatest impact from a circular perspective. The results were discussed later during a round table discussion with representatives from the municipality and local stakeholders, resulting in the decision to perform a detailed analysis of the construction chain and the organic residual flow chain.
- In case of London's circular economy route map (2017) the stakeholder groups identified the eight themes as being key to creating the right conditions for a circular economy to flourish in London.

The report also introduces secondary research findings regarding offers for circular lifestyles and revevant projects.

Recent Debates and Trends about Circular Economy Good Practices (Short Description of Annex 4)

Annex 4 highlights rationale for the selection and evaluation of good practices for the enhancement of circular lifestyles. It highlights:

- Why good practices are important?
- International good practices.
- Annotated bibliography of relevant literature.

For an effective implementation of circular economy principles, good practices are important to be examined along with the concepts, strategies and tools that underpin them. The report aims to provide a brief insight into good practice discussion as well as examples. The adoption of closed-loop systems was one of the first principles introduced in the discussion of keys to good practices (Jawahir & Bradley, 2016). Designing products and materials to be reused, remanufactured or recycled is necessary to achieve this. Thus, not only waste is reduced but also resources are conserved. While this approach prevails in many descriptions and examples of good practices, the discussion has shifted to a novel understanding of what is waste or whether it is even a good term while aiming for circularity. As “waste” implies something without value, this might hinder the impulse we need for innovation. We can count practices such as repairing or repurposing that are emerging circular economy approaches while not necessarily related to traditional concepts with a focus on waste. While these practices are not necessarily new, the examples are considered to revitalize a forgotten practice by adding a notion of sustainability to it.

Altogether twelve good practices are introduces from the following domains: packaging (food and drink & households), end-user products, fashion, procurement, food, built environment and agriculture.

Nine articles are introduced briefly on: (1) A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems, (2) Mapping the diffusion of circular economy good practices: Success factors and sustainable challenges, (3) Empirical assessment of the circular economy of selected European countries, (4) Comparing European countries’ performances in the transition towards the Circular Economy, (5) Major Cırcular Economy Networks in Europe, (6) Circular Economy Good Practices in Waste Management and Prevention in The Food System, (7) Circular economy and sustainability in the tourism industry, (8) Addressing the Social Aspects of a Circular Economy and (9) Circular Economy: The Concept and its Limitations.

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