

# Circular Economy in Maribor



**CIRCUiT workshop, Brussels / 10 .10. 2019**



**UN Urban Agenda for Circular Economy - implementation at city level**



**City of Maribor, Klemen Risto Bizjak, senior adviser**

# The City of Maribor does not have a landfill site and does not want to have one



- Maribor is the capital of the province of Styria and the second largest city in the country with 115.000 inhabitants
- It is a pleasant small 850 year old university town set in the beautiful surroundings of Pohorje hills on one side and the wine hills on the other, divided by the river Drava
- It is the economic and cultural center of northeastern Slovenia with rich industrial history



European Commission

# URBAN AGENDA FOR THE EU



## PARTNERSHIP ON CIRCULAR ECONOMY

# Actions in accordance with the 2015 UN Agenda 2030 SDGs



### what?

The Partnership on Circular Economy will identify, analyse, review and recommend the need for better regulation, better funding and better knowledge sharing to help cities expedite the transition of the economy from a linear to a circular one. This will help cities to promote new growth and job opportunities.

### why?

Cities are an attractive starting point for making the transition to a circular economy. They are where products are produced, consumed and discarded in large quantities and their high population density and industrial productivity mean that waste streams can be cost-effectively collected, transported and recycled.



The following parties are represented in the Partnership on Circular economy alongside the coordinator Oslo: The Hague, Prato, Porto, Kaunas, Flanders, Finland, Poland, Slovenia, Greece, CEMR, EUROCITIES, URBACT, EIB and five European Commission Directorates-General

For a set of four selected themes - governance, urban resource management, circular business enablers and drivers, circular consumption - the Partnership will review the specific problems and barriers, the effectiveness of existing policies, and propose solutions that will contribute to the uptake of the circular economy in the urban environment.

### who?

### how?



### Coordinator



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The Urban Agenda for the EU is a joint initiative of the European Commission, Member States, cities and other relevant stakeholders to address urban challenges

# The Wcycle project



## ***Basic model design for the transition to circular economy in the City of Maribor***

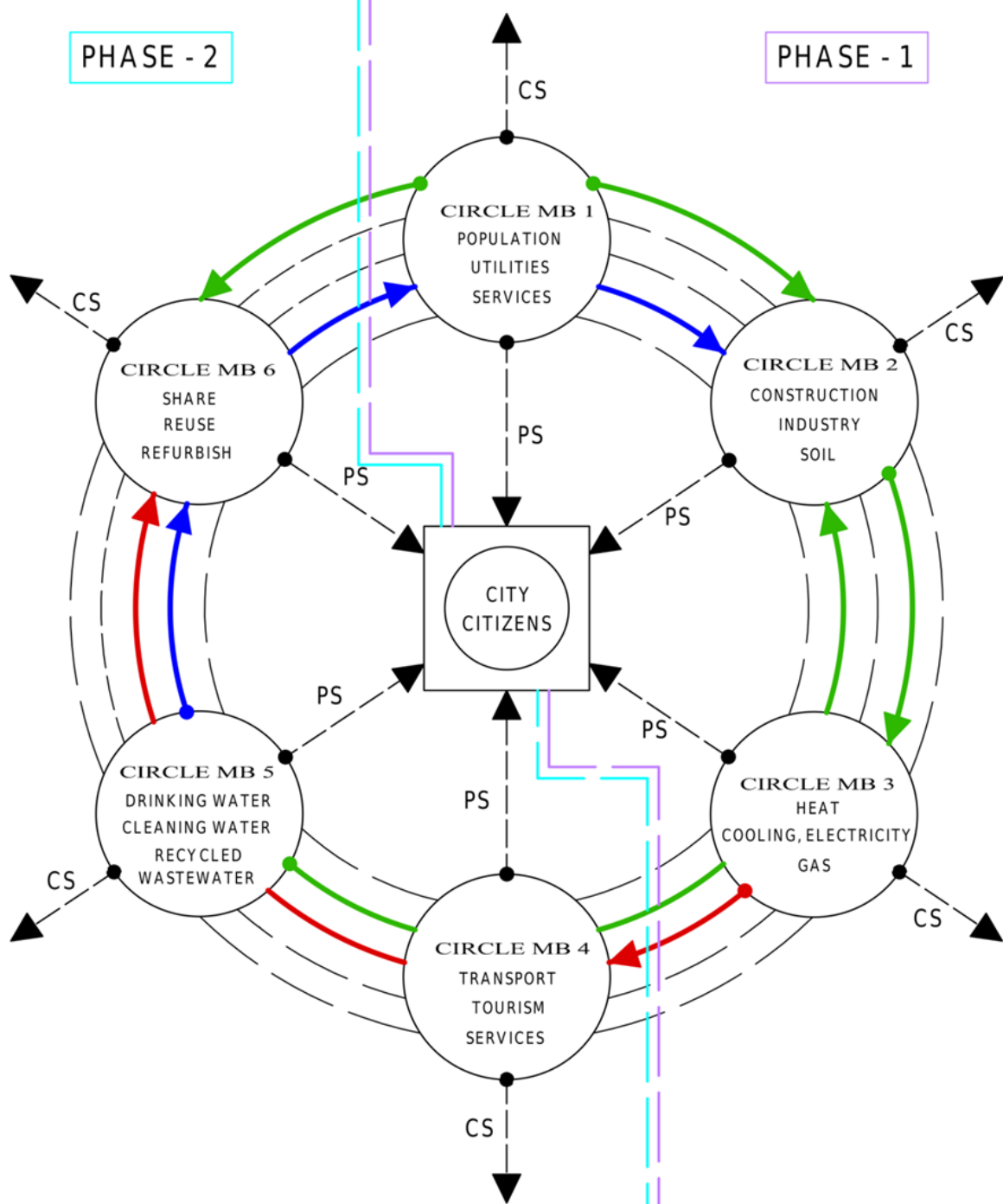
is based on the design and implementation of the Wcycle project as a new business and economic model of efficient resource management, based on the policy of circular economy.

Through the Wcycle project Maribor will effectively manage the following output sources:

- wastes
- lost energy
- wastewater
- unused space
- improvement of the social environment

PHASE - 2

PHASE - 1



(public) companies in the urban environment to share information and work together to achieve the highest possible reuse of resources

Combining Competition and Cooperation



The municipality is responsible for softer contents (sharing, repair, reuse, self-supply)

LEGEND :

- PS - PUBLIC SERVICES
- CS - COMMERCIAL ACTIVITY
- MATERIAL WASTE FLOW
- ENERGY FROM WASTE
- RECYCLED WASTE WATER

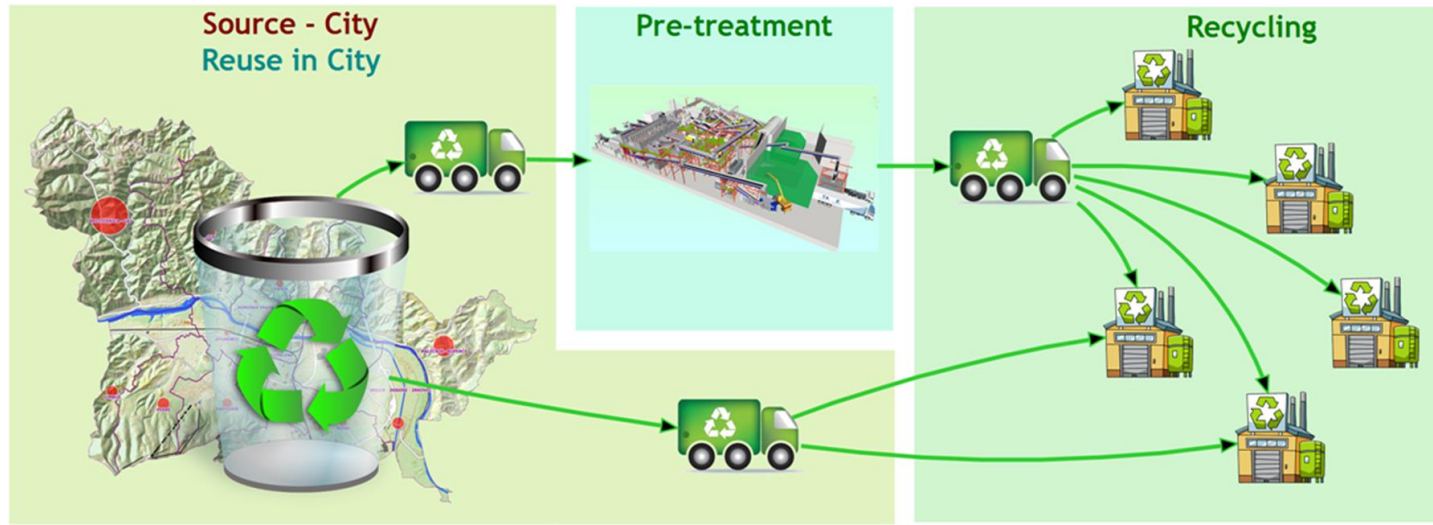
# CE Strategy – a holistic approach

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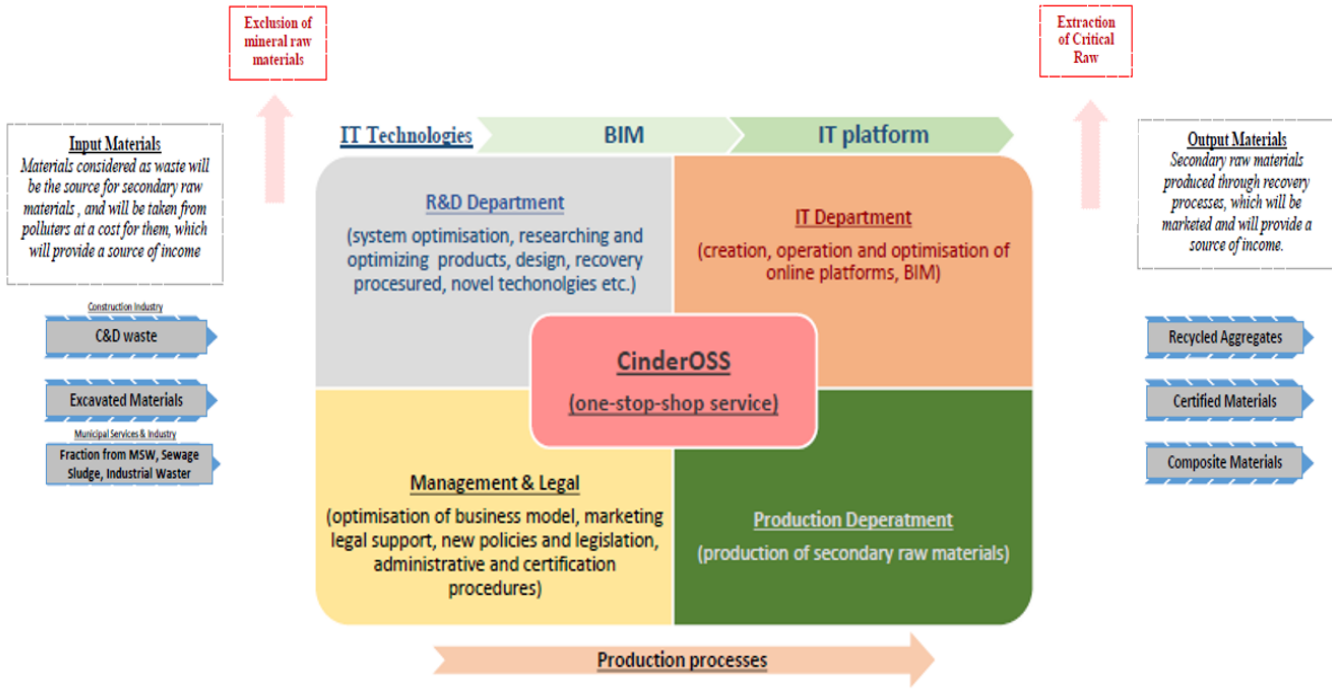
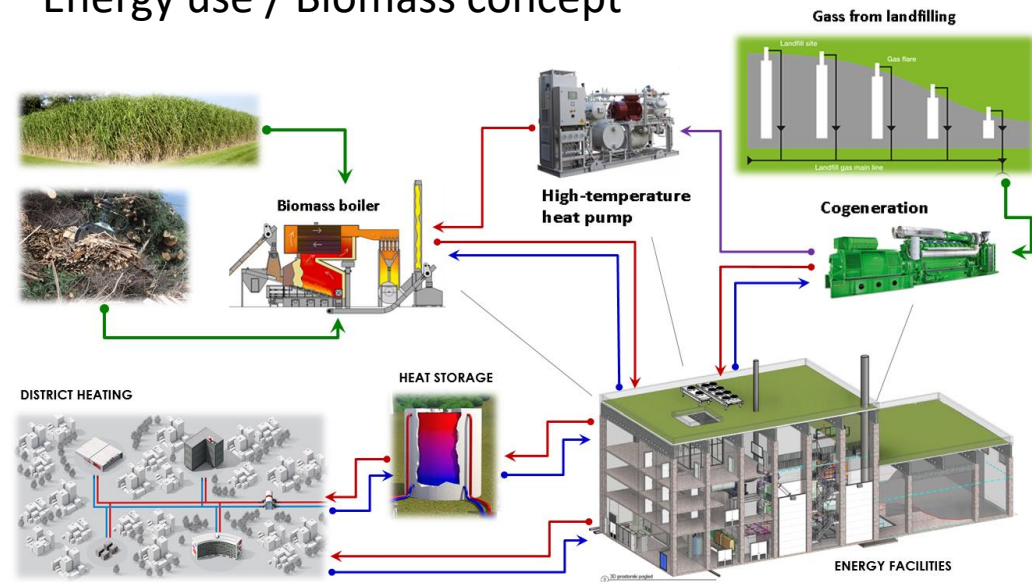
Strategic project areas in the strategy:

1. Municipal waste management
2. Handling of construction and industrial waste
3. Waste energy management
4. Management of transport services
5. Reuse of water
6. Cooperative economy

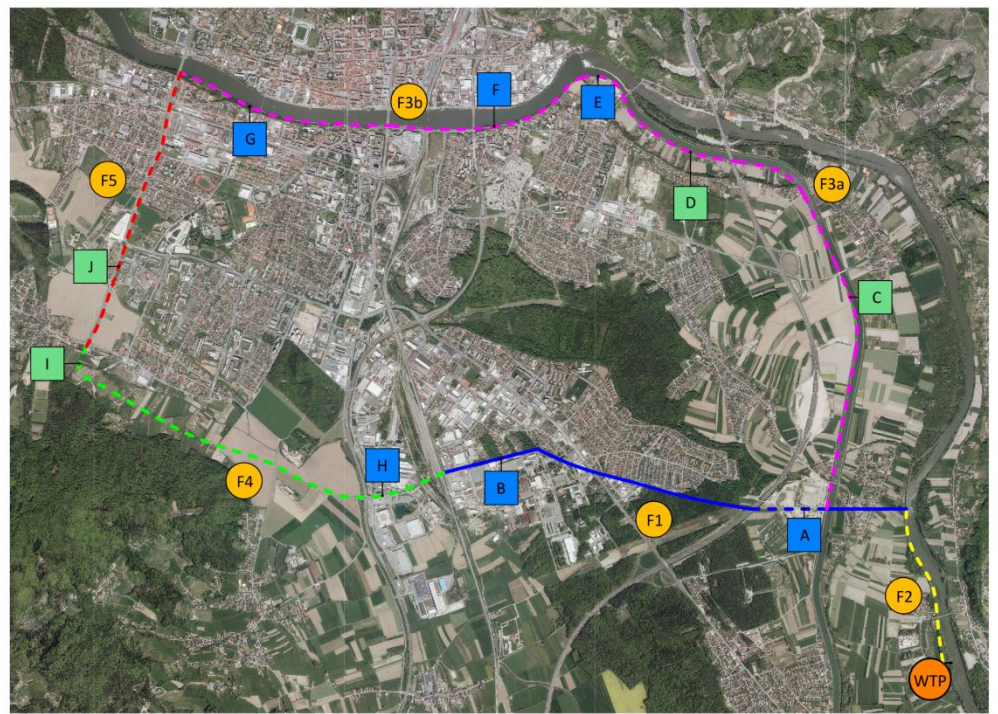
# Municipal waste / Logistics optimization



# Energy use / Biomass concept



Fillers and Composites



Return line for recycled water / spatial concept

The project connects nine partners (Maribor is the leading partner) all from the Alpine Region of the EU. Together the partners will develop a circular economy system for partner cities, building on available practices and existing low-carbon strategies. Furthermore, the project partners will provide **implementation strategies** and establish cross-sectoral cooperation and governance. Also, a toolbox for circular economy deployment and a transnational **circular economy marketplace** – cooperation platform will be established. The toolbox was tested by pilot project implementation in all partner cities. The are in: Freiburg, Maribor, Vorau, Pays Viennois and Trento. **City CE managers** are appointed and **transnational network** is established. He/she is a key person that could help the development of the GREENCYCLE transnational marketplace (that will collect/manage data from every city). The **CE Manager**: the key person to actuate your City CE Strategy. He/She is the **CE Focal Point in the city administration**, connecting also with the local network with businesses, stakeholders and associations. the CE network is co-developing a more precise CE Manager **Job Description** in order to facilitate other cities to introduce **the same professional figure inside thir organization structure**.

Resources Marketplace ▾ Transnational Network ▾ Greencycle Manifesto Opedata More about

Greencycle > How to join the resources marketplace platform

## How to join the resources marketplace platform

The Greencycle Marketplace is open to other cities and regions, organizations, businesses and even simple citizens to publish/request any kind of resource useful to start a Circular Economy project in you region, or even actuate you strategy..



SIGNATORIES OF THIS

# MANIFESTO FOR CIRCULAR ECONOMY

CONFIRM THEIR COMMITMENT TO MAKE EFFORTS TO THE FOLLOWING

## 12 KEY PRINCIPLES FOR A TRANSITION TOWARDS A CIRCULAR ECONOMY

 <p><b>IMPLEMENT CIRCULAR ECONOMY PRINCIPLES INTO LOCAL POLICIES</b></p> <p>TO ENABLE LOCAL TRANSITION TOWARDS CIRCULAR ECONOMY AS MORE SUSTAINABLE AND MORE RESOURCE EFFICIENT</p>	 <p><b>STRIVE TOWARDS THE UN SUSTAINABLE DEVELOPMENT GOALS</b></p> <p>WITH SPECIAL FOCUS RESPONSIBLE CONSUMPTION AND PRODUCTION AND CLIMATE ACTION</p>	 <p><b>NETWORK TRANSNATIONALLY</b></p> <p>WITH INSTITUTIONS COOPERATING IN THE FIELD OF CIRCULAR ECONOMY</p>	 <p><b>SUPPORT MULTI-SECTOR COOPERATION</b></p> <p>AND EMPOWER CIVIL SOCIETY, BUSINESSES AND NGO'S TO ADVANCE CIRCULAR ECONOMY INITIATIVES</p>
 <p><b>LEAD BY EXAMPLE</b></p> <p>AND START WITH THE PRINCIPLES IN OUR OWN INSTITUTION AND ENCOURAGE CULTURAL CHANGE TOWARDS CIRCULAR ECONOMY</p>	 <p><b>EDUCATE THE PUBLIC</b></p> <p>ON "RETHINKING ON WASTE" TO ENCOURAGE WASTE PREVENTION, REPAIR, SECONDHAND AND BETTER SORTING</p>	 <p><b>PROMOTE CIRCULAR PRODUCTS</b></p> <p>THAT ARE EASY TO SHARE, EASY TO LEASE, EASY TO REUSE, EASY TO REPAIR, EASY TO BE REPROCESSED AND RECYCLED</p>	 <p><b>PROMOTE SUSTAINABLE CONSUMPTION PATTERNS</b></p> <p>TO AVOID FOOD WASTE, PRODUCT WASTE AND ENERGY LOSS</p>
 <p><b>SUPPORT RESEARCH INNOVATION AND QUALIFICATION</b></p> <p>TO ADVANCE CIRCULAR ECONOMY</p>	 <p><b>IMPLEMENT FINANCIAL INCENTIVES</b></p> <p>TO PROMOTE A TRANSITION TO A MORE CIRCULAR ECONOMY</p>	 <p><b>INVEST IN INFRASTRUCTURE</b></p> <p>THAT ENABLES MATERIAL AND RESOURCE CIRCULATION AND INVEST IN SMART GRIDS AND RENEWABLE ENERGY</p>	 <p><b>MONITOR AND MEASURE</b></p> <p>MATERIAL, WASTE AND ENERGY FLOWS AND CLOSE THE LOOPS AS LOCALLY AS POSSIBLE</p>



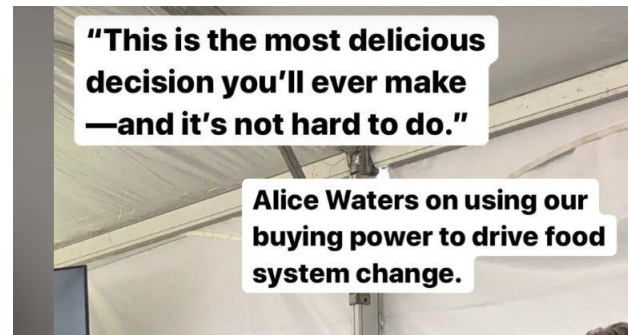
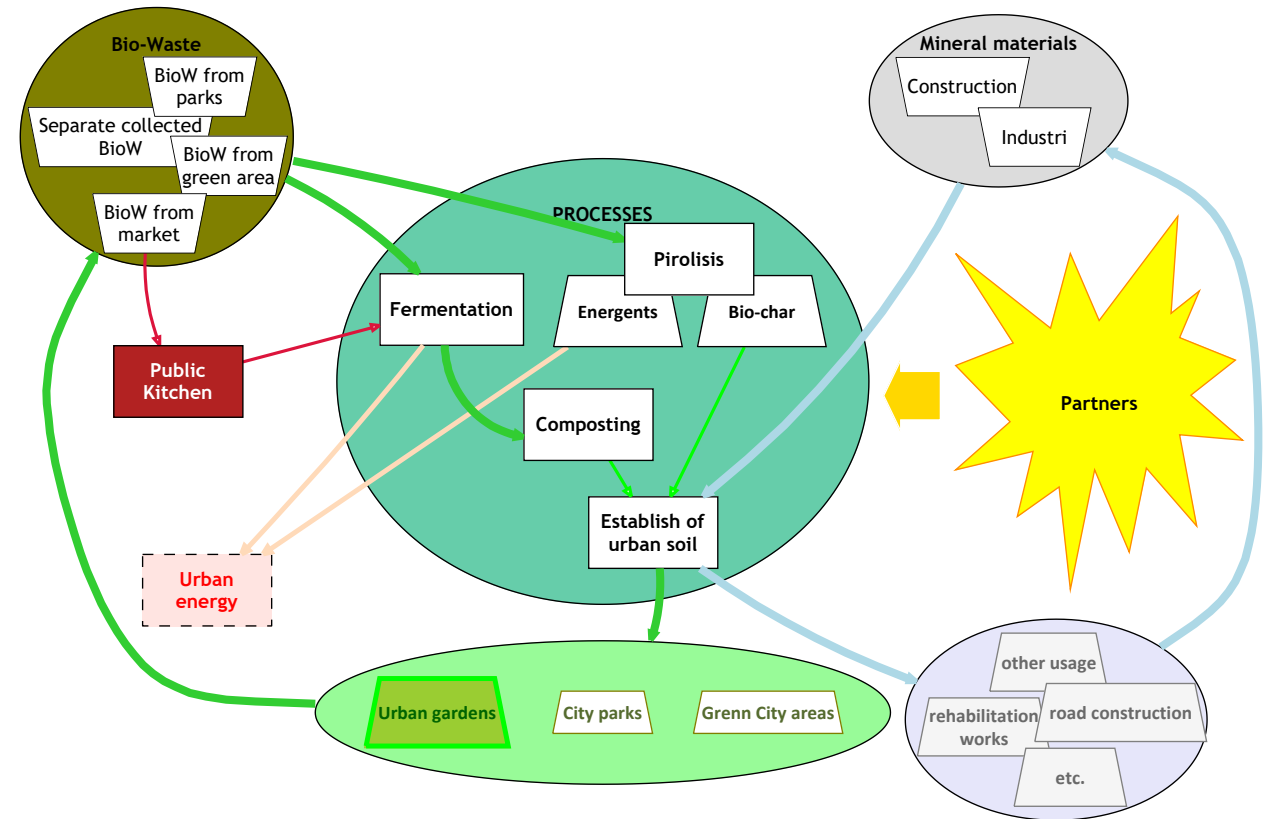
New **automated sorting plant** sorts municipal solid waste. Out of 100% of municipal solid waste we receive 38% of the so-called heavy waste that is outsourced for bio-treatment before disposing, 35% of RDF, the rest - 27% are differently sorted waste fractions. **But at the moment the market only takes approximately 6% of sorted material (aluminum and PET sorted by color). Other materials such as plastics, Fe-fractions and paper are currently not interesting for the market.** The plant is not intended only for mixed municipal waste, but is also equipped for future separation of collected mixed packaging waste.



In 2018 we started with an Interreg Europe Project WINPOL where the public waste management company Snaga d.o.o is a project partner together with eight other international partners. Within this project we will provide good practices about the **use of intelligent systems in waste management discussed between and beyond project partners (pay as you throw)**. Furthermore - based on case studies in the second phase - results in form of programs, **strategies and local decrees** and nevertheless financial sources are going to be set.

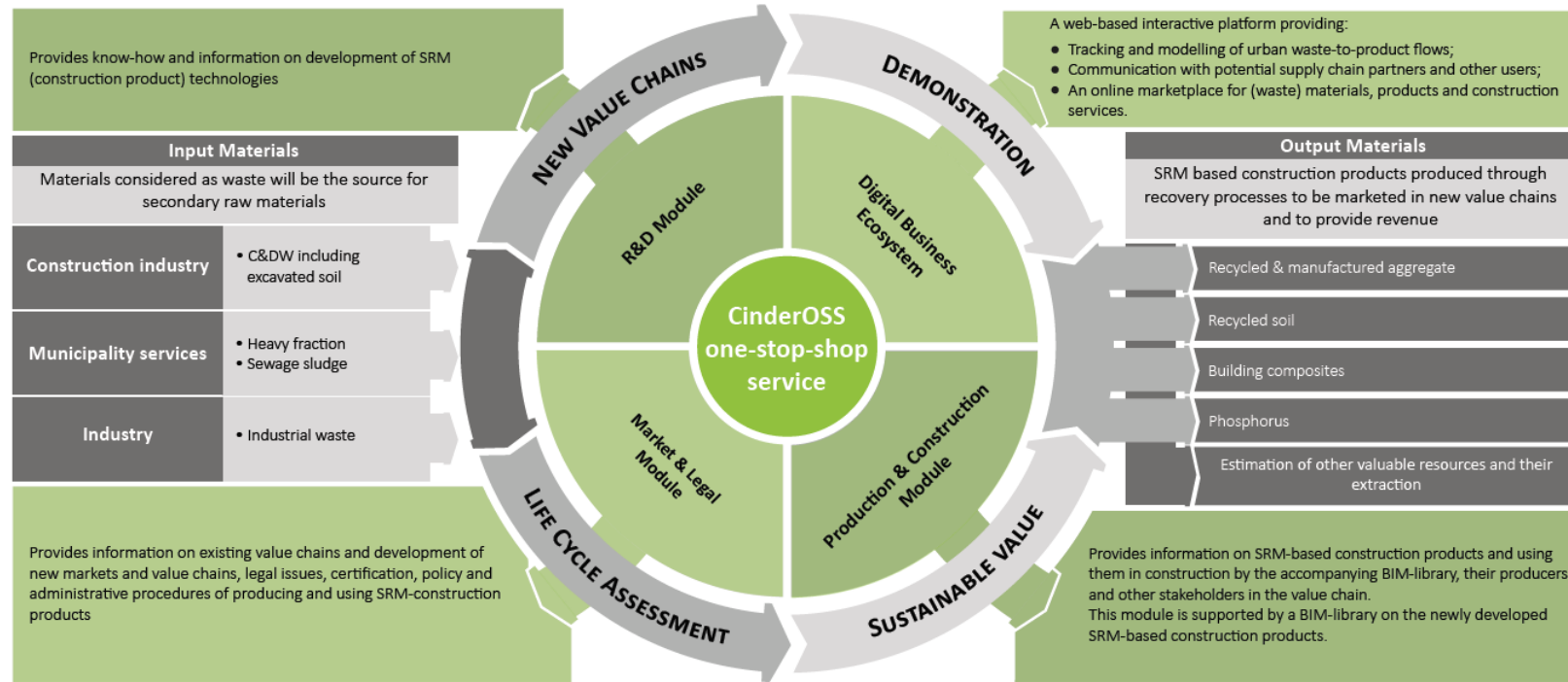


**URBAN SOIL 4 FOOD** project starts from the challenge of using cities' waste (biological and mineral) **to produce soil, which could later be used for meeting different needs of the city, such as food production, park maintenance and construction.** As the main innovative output of the project, project partners will develop safe and certified soil by energy production (by using technology of fermentation and pyrolysis). The project will be articulated around four circles (material, food, open innovation, knowledge) and backboneed with two key investments: the **establishment of a pilot system for urban soil production** and the **establishment of urban gardens.** The material circle will analyze the material flows of waste within the city that are usable for production of urban soil. The knowledge circle will share the knowledge stemming from the project to other cities in Slovenia and in the EU, ending with development of certificates and patents in order to bring urban soil technology to an international level.



**CINDERELA** project aims to develop a new Circular Economy Business Model (CEBM) for the use of secondary raw materials in urban areas, connecting different industries and the general public with the support of **CinderOSS**, a **“One-Stop-Shop” service**, articulated in (i) an on-line ICT platform (ii) production and marketing of (SRM) based construction products and (iii) building with SRM based construction products supported by building information modelling. Different streams of waste will be exploited in the project. Their suitability for use for building materials will be demonstrated through a large scale of demonstration activities, one also in Maribor. The project will contribute to 20% reduction of environmental impacts along the value and supply chain, reducing virgin material exploitation and converting wastes to products. Sustainability of CEBM will be proven with the environmental, economic and social assessment through whole life (LCA, LCC and S-LCA).

### CINDERELA Circular Economy Business Model (CinderCEBM)



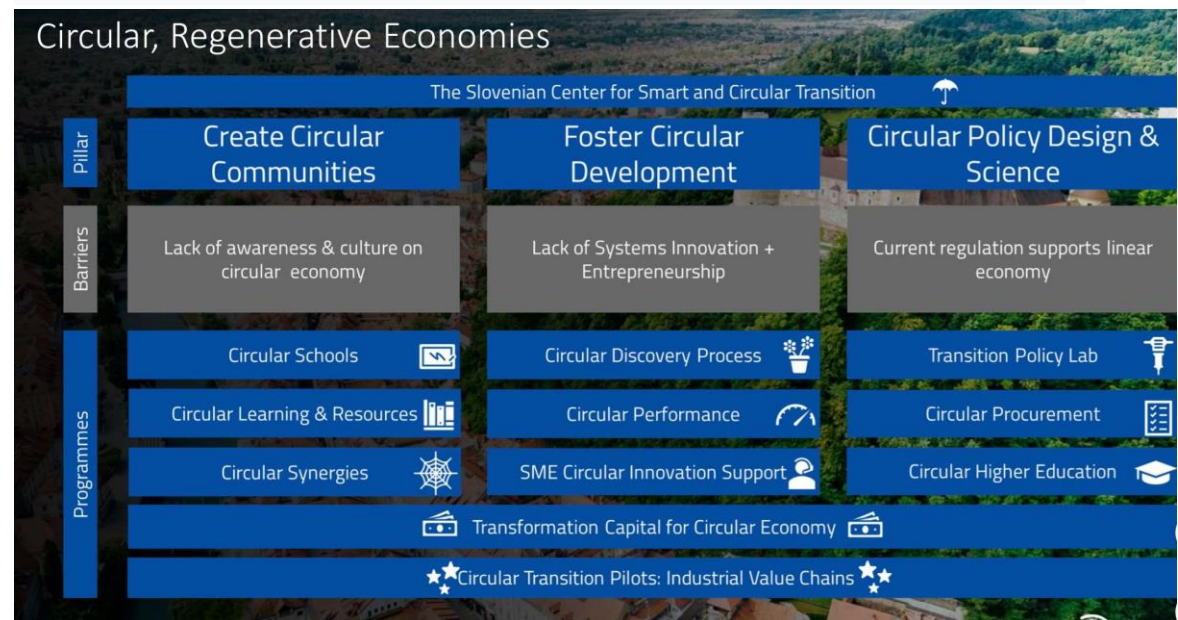
**URGE (circUIaR building citiEs) (URBACT network)** aims to design integrated urban policies on circularity in the building sector – a major consumer of raw materials – as there is a gap in knowledge on this topic. The result is an in-depth understanding of this theme and a first plan for a tailor-made methodology that allows the circular dimension to be widely integrated in the large construction tasks the URGE partnership is facing. URGE thus accelerates the transition towards a circular economy. Urge wishes to address a specific challenge - how cities can develop next generation urban resource centers that fit with the priority of the waste hierarchy, promote the circular economy and invite citizens, new businesses and start-ups to co-create new ways of closing the resource loops at local level in an economically sustainable way.



**Future Cities of South East Europe.** Our mission is to **transform a group of South-eastern European cities** into some of the best possible places in Europe to live, work and visit by 2025.

Starting in the cities of Maribor, Sarajevo, Skopje, Križevci and Niš, we will achieve our mission through achieving these priority goals:

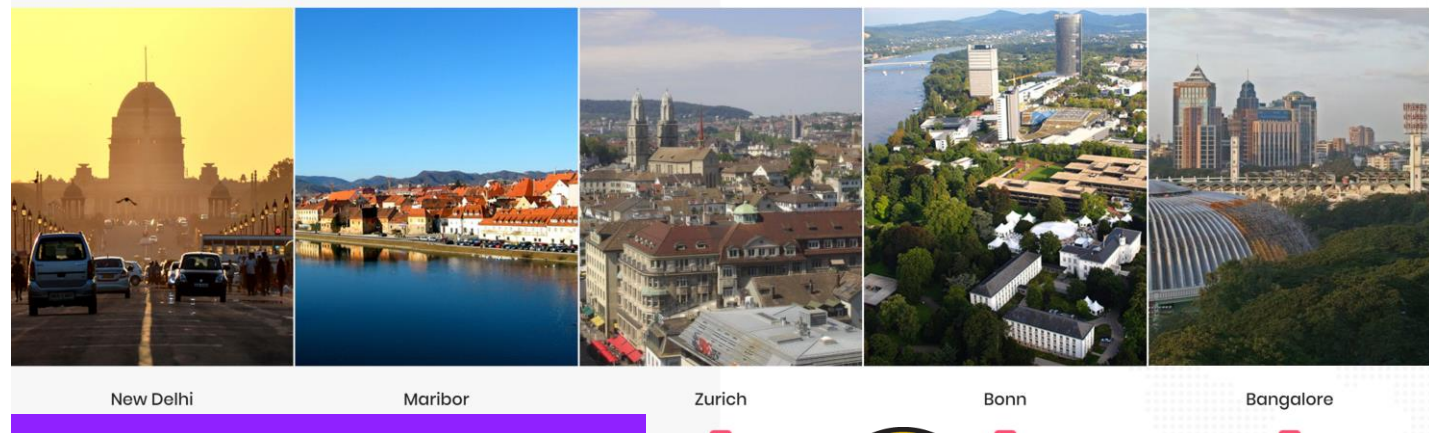
- Bring air quality in our cities to within World Health Organisation recommended limits by 2023
- Achieve circular and net-zero greenhouse gas emission economies by 2030**
- Ensure that by 2025 all members of our community have equitable access to the fundamentals of wellbeing: decent housing, healthcare, education, mobility, food, water, green and vibrant public spaces, security and productive work opportunities
- Reduce year on year the impacts of heat and flooding on our communities



The CWC project aims to help municipalities to reform outdated urban water infrastructure systems via applying a circular economy approach, which offers many economic and environmental benefits. This will be achieved by the project by promoting a water saving culture, including the use of non-conventional water resources and by taking the lead in **adopting urban rainwater harvesting and utilisation as well as greywater recovery measures on city level**. The partners join forces to create a knowledge base for **urban circular water management**. This will be made available as digital learning resources for all willing to learn more about the topic. The partners will also co-develop with local stakeholders a set of innovative methods and tools (cutting-edge technological and nature-based solutions, smart governance tools exploring **novel cooperation and financing schemes**) usable all around central Europe.

Computational Social Science COSS at ETH Zurich, the city network ICLEI and Climate-KIC launch a new kind of global cooperation, **the Climate City Cup**.

The aim is to encourage people to measure environmental data, question their individual behavior and make a positive contribution to life in their city. For four months, from 18 July to 18 November, **people around the world search for the most innovative solutions in the areas of emissions, mobility, energy, sustainability and circularity**. Thus, the Climate City Cup opens up a new perspective in the fight against climate change, an opportunity to playfully stimulate the population to make individual contributions to a more sustainable planet.



**Circularity**  
Measured through food  
waste management.  
Go to [circularity discussion room](#)

**THE CLIMATE CITY CUP**  
POWERED BY [Climathon](#) and [FuturICT 2.0](#)

The diagram consists of a central blue globe with a grid. Surrounding it are four circular icons: a green circle with a leaf, a yellow circle with a sun, an orange circle with a sun, and a blue circle with a water drop. Arrows connect these icons in a clockwise cycle around the globe.

## SHARING – Stocktaking and assessment of **typologies of Urban Circular Collaborative Economy initiatives**

This project is looking at **Urban Circular Collaborative Economy which is a global phenomenon with strong local characteristics. Commercial digital platforms** (e.g. Uber and AIRBNB), as well as activist grass-roots initiatives (e.g. Transition Towns), are susceptible to local cultural dimensions. By gaining a thorough understanding of these initiatives, their cultural context, and relevant multilevel policies, evidence-based policy options can be identified, and place-based strategies can be developed to provide appropriate support to these dynamics.

This Targeted Analysis activity will contribute to better understand how Urban Circular Collaborative Economy initiatives are being implemented in different EU cities and **how they are influenced by regulations at different levels of government, from the local to the national and the EU.**

The main objective is to identify and categorize different types of implementation, approaches, and strategies to enable other cities to learn from those who are taking the lead as well **as develop a ‘common language’ across Europe.** The project will also provide recommendations on how the Collaborative economy can be better understood, communicated, shared, and implemented across Europe.



The Strategic Research and Innovation Partnership – Networks for the transition into circular economy is a connection of Slovenian business subjects, educational and research institutions (RDI), non-governmental organisations and other interested parties, in collaboration with the state, aiming to establish new value chains according to the economic principles of closed material flows. **The Strategic Research and Innovation Partnership – Networks for the transition into circular economy (SRIP – Circular economy)** is a connection of Slovenian business subjects, educational and research institutions (RRI), non-governmental organisations and other interested parties, in collaboration with the state, into new value chains according to the economic principles of closed material flows.

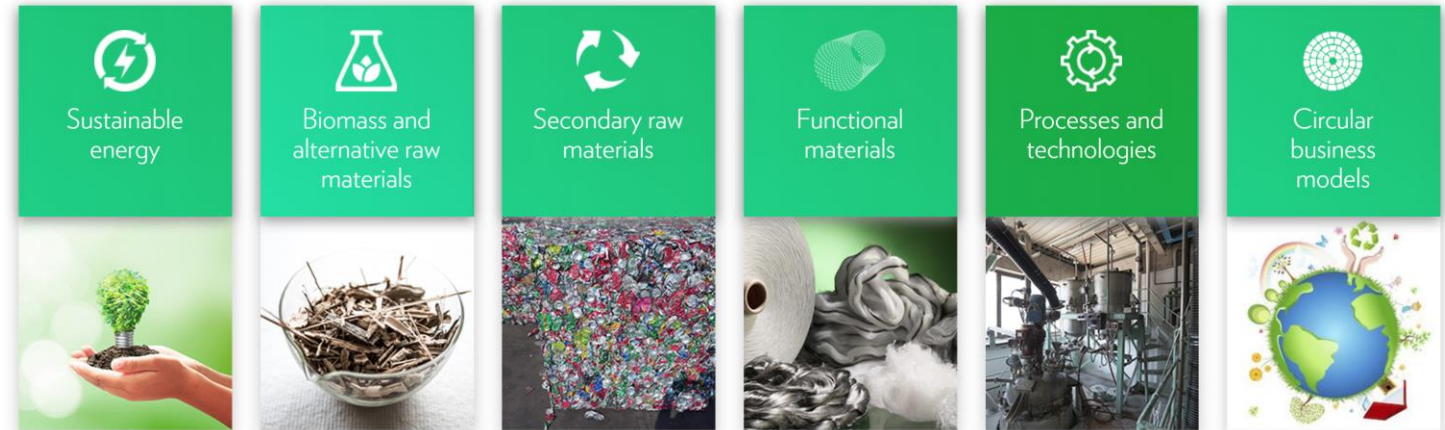
The vision of the SRIP – Circular economy is to sustainably increase the efficiency and competitiveness of the domestic economy in the transition into circular economy.

The long-term effect of the SRIP – Circular economy involves contributing to the recognisability of Slovenia as a circular economy hub that will set the reference standard for top professionals and foreign investors through its knowledge, R&D infrastructure, breakthrough technologies and services, as well as its regulatory support environment.

#### GOALS

- 1) Long-term public-private partnership
- 2) Improvement of the material efficiency index / productivity from 1.07 (2011) to 1.5 (2020)
- 3) Establishment of new value chains with closed material flows
- 4) New business models

#### Focus areas



Share of people (aged 18-29) who think their lives are meaningless and without purpose, 2017. (%)

-  FRA: 79%
-  GBR: 78%
-  BUL: 75%
-  GRE: 71%
-  BEL: 70%
-  ITA: 69%
-  ROU: 69%
-  ESP: 65%
-  GER: 52%
-  NED: 50%
-  SWE: 45%
-  DEN: 44%
-  POL: 38%
-  NOR: 31%

(Eurostat)



Daniel Ramos – Porto – changemaker





High aspirations and  
political support.

Application submitted today.



*An initiative of the  
European Commission*



## Future projects:

- **Upscaling the pilot** production device funded in Urban Soil 4 Food project into a fully operational plant for **production of urban soil** out of all municipal bio waste, green trimmings and excavated materials.
- **Building of the Composite Waste Plant** based on pilot production device in Horizon 2020 Cinderella project for production of secondary raw materials, basic construction products made of construction and demolition waste, sewage sludge, industrial waste and heavy fraction from MSW.
- **Establishing a Reverse Water Supply Network** based on experience in City Water Circles Interred Central Europe project to bring recycled wastewater to certain locations in the city to be used instead of drinking water (e.g. for snow production, for Composite Waste Plant, washing of buses and municipal vehicles, for road cleaning and watering urban green surfaces).
- Creating a **Cogeneration Plant** to use **biofuel** made of miscanthus giganteus planted **at the closed landfill** and connect it to the district heating network.
- Devising a network of **heat exchangers in the city's sewerage network** harvesting waste heat in wastewater and bringing it to the district heating network.
- Establishing a city-wide network for **circular heritage** defining all heritage protected buildings and their needs, listing all the available materials and establishing an urban circular heritage depo, where these materials would be available to be used for heritage regeneration.
- Establishing and starting to **use Urban Underground Space (UUS)** with a new parking garage in the city, with the aim of closing the city center, and the establishment of new green areas on the existing surfaces.

## **Do we need another report?**

“..sometimes you can get impression that more people are writing the reports as there are people reading them.”

DV MOVE

# CONTACT

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