

TAKING  
**COOPERATION**  
FORWARD



Webinar | March 30, 2020



## WP T2 - CE Hubs - Examples, Structure & Services, Economic Sustainability



Luc Schmerber | BWCON

- 1 CE HUBs - Understanding and further focus
- 2 City governments and their role in enabling a CE transition
- 3 Special focus: Clusters in the CE transition

CE HUBs : overview on cases / examples

- 4 Focus on city governments and clusters
- 5 Industrial symbiosis
- 6 Focus on regional and two “smaller” national HUBs



## CE HUBs

### Understanding and further focus

#### a) CE HUBs in the CITYCIRCLE application

- understanding

#### b) Classification of cities

- further focus when examining
  - literature
  - different approaches



## CE HUBs

### Understanding and further focus

#### a) CE HUBs in the CITYCIRCLE application

- Objectives
- Project relevance & approach

➔ Understanding of CE HUBs in  
non-metropolitan cities of Central Europe



## CE HUBs

### Understanding and further focus

#### b) Classification of Cities

- Why is a classification needed ?  
“Cities are different. So are solutions.”
- Different approaches
  - Ellen MacArthur Foundation
  - cscp | Bertelsmann
- ➔ Further focus when examining literature and examples



## CE HUBs

“City governments and their role in enabling a CE transition”

a) **Ellen MacArthur**

Urban policy levers

b) **European Investment Bank (EIB)**

The 15 circular steps for cities

c) **Urban Agenda for the EU**

What can a local authority do ?



## CE HUBs

Special focus: Clusters in the CE transition

Building partnerships for sustainable transition of  
SMEs

- Ambition of clusters
- Cluster support
- Study results from Denmark
- How clusters are powering the circular transition



## CE HUBs \_ cases / examples

Focus on city governments and clusters

### a) Learning Centres of CE

Transforming Municipality Districts

Case Maribor, Slovenia

### b) Learning Centres and Entrepreneurial Networks

IMPACT HUBS

### c) A Network of Regional Innovation Hubs

C-Voucher

### d) Clusters

Case Ostwestfalen-Lippe





## CE HUBs \_ cases / examples

### Industrial Symbiosis

a) Definition

b) Examples

FISSAC Project

Paperchain Project

Kalundborg Symbiosis



## CE HUBs - cases / examples

Focus on regional and two smaller national HUBs

### a) Regional Hubs

Circular Flanders is the HUB and the inspiration  
for the Flemish CE (+ webinar)

### b) National Hubs

Switzerland - Movement for a CE

Australia - The National CE HUB

**more examples (not further elaborated here)**

- SITRA, Finland & Kemi Circular and Bioeconomy Center, Lapland (+ webinar)
- Zero Waste Scotland, Scotland



The infographic illustrates the Circular Economy model through eight interconnected components, each represented by a dashed-line box with a line pointing to a specific part of a cityscape illustration at the bottom. The components are:

- Assets/products are *shared/leased* with end-of-life *recovery***: Points to a car-sharing icon.
- Urban bio-economy with organic by-product/waste recovery and urban farms**: Points to a factory with a recycling symbol.
- Reverse logistics to facilitate re-use, repair and remanufacturing**: Points to a recycling symbol.
- Digital tools facilitate sharing/recovery applications**: Points to a smartphone icon.
- Mobility systems are clean and shared**: Points to a high-speed train and a car-sharing icon.
- Production with local value loops and industrial symbiosis**: Points to a factory with a recycling symbol.
- Energy production is renewable and local**: Points to a wind turbine and a solar panel icon.
- Buildings are modular, shared, and designed for disassembly**: Points to a modern building with a recycling symbol.

The bottom illustration shows a cityscape with various elements: a high-speed train, a car-sharing icon, a factory with a recycling symbol, a wind turbine, a solar panel, a modern building, a house, and a car. The entire scene is set against a background of clouds and a sun.

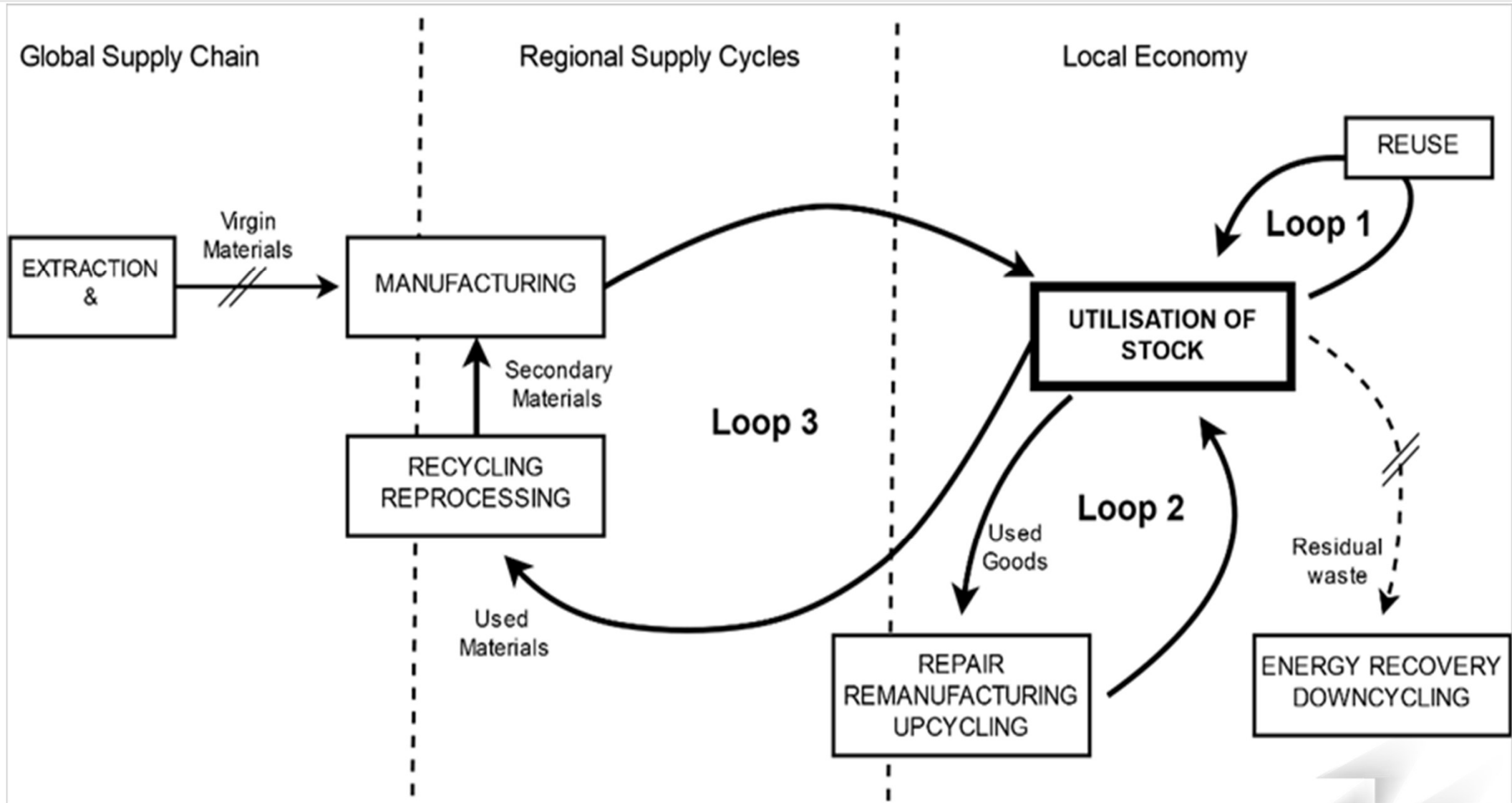
## Challenges and benefits of cities

Challenges	Benefits
<ul style="list-style-type: none"><li>▪ Structural waste and economic losses in cities</li></ul>	<ul style="list-style-type: none"><li>▪ Increase disposable income</li></ul>
<ul style="list-style-type: none"><li>▪ Ecosystem degradation and negative environmental impacts</li></ul>	<ul style="list-style-type: none"><li>▪ Reduce carbon emissions</li></ul>
<ul style="list-style-type: none"><li>▪ Consumer culture and lifestyles</li></ul>	<ul style="list-style-type: none"><li>▪ Increase livability</li></ul>
<ul style="list-style-type: none"><li>▪ Growing inequality within cities</li></ul>	<ul style="list-style-type: none"><li>▪ Potential for positive impact on employment opportunities in the city</li></ul>
	<ul style="list-style-type: none"><li>▪ Health benefits</li></ul>

[cscp | BertelsmannStiftung 2019: P21&32f.](#)



# INTRO \_ THE BASIC LOOPS OF CE



Source: modified from on Stahel and Clift (2016)



## CE HUBs

### Understanding and further focus

#### a) CE HUBs in the CITYCIRCLE application

- understanding

#### b) Classification of cities

- further focus when examining
  - literature
  - different approaches



## CE HUBs

### Understanding and further focus

#### a) CE HUBs in the CITYCIRCLE application

- Objectives
- Project relevance & approach

➔ Understanding of CE HUBs in  
non-metropolitan cities of Central Europe



## Application - objectives

1. Setting-up quadruple-helix CE hubs in partner cities - **non-metropolitan cities of Central Europe** in order to establish **linkages among key circular economy stakeholders** (companies, public administration, universities and citizens).

### Specific objective

All partner cities are dedicated to improve their innovative capacities by interlinking key innovation actors (public administration, companies, public utilities, R&D institutions, end-users) into circular economy hubs.

These new innovation networks (or existing networks transformed) will provide a space for designing new solutions in the CE field - material, waste, water, energy, soil, food circles supported by business models (PPPs, new value-chains, new services, policy solutions...). ...





## Application - objectives

2. enabling and facilitating the innovation processes in CE cities by educating quadruple-helix stakeholders and providing tools for the management of efficient CE innovation processes and to deploy CE solutions.

### Specific objective

Since the concept of CE is new to many stakeholders in partner cities, building a knowledge base in newly-established hubs is necessary to enable them to work in the field.

A set of tools will be provided to equip hubs with guidelines at the development of CE solutions. They will provide instructions and tips on how to design value-chains in CE and will also give RIS3 national strategy framework and showcases from all partner countries.



## Application - project relevance & approach

By establishing CE **quadruple-helix hubs** as **local innovation networks** of private and public institutions in partner cities, CITYCIRCLE will provide innovation systems to facilitate innovation and transfer of technology, services and business models.

By providing hubs with tools and knowledge, the project will enable the hubs to generate innovative solutions in CE in their urban ecosystems in a long-run.

CITYCIRCLE will provide cities with organizational infrastructure (quadruple-helix circular economy hubs), knowledge and tools (implementation kit, trainings) and assistance with design of local CE solutions - a bottom-up support to their RIS3 and their physical implementation on a project level.

Thus, CITYCIRCLE is placing the cities and their administrations in a heart of CE ecosystems and is introducing cross-sectorial horizontal approach with quadruple-helix partnership management structure.



# CITYCIRCLE - HUBS UNDERSTANDING

CE HUB _ Understanding	
▪ Where ?	▪ Peripheral urban centres = non-metropolitan cities of Central Europe
▪ Who ?	▪ quadruple-helix - establish linkages among key CE stakeholders → <b>public administration</b> , companies, public utilities, universities, R&D institutions, citizens
▪ What ?	<ul style="list-style-type: none"> <li>▪ improve innovative capacities</li> <li>▪ cross-sectorial horizontal approach</li> </ul>
<ul style="list-style-type: none"> <li>▪ By establishing CE quadruple-helix HUBs as local innovation networks of private and public institutions in partner cities.</li> <li>▪ These new innovation networks (or existing networks transformed) will provide a space for designing new solutions in the CE field – material, waste, water, energy, soil, food circles supported by business models (PPPs, new value-chains, new services, policy solutions...).</li> </ul>	
<ul style="list-style-type: none"> <li>▪ CITYCIRCLE will provide cities with organizational infrastructure (quadruple-helix CE HUBs), knowledge and tools (implementation kit, trainings) and assistance with design of local CE solutions - a bottom-up support to their RIS3 and their physical implementation on a project level.</li> </ul>	



## CE quadruple-helix HUBs

- key innovation actors
  - public administration,
  - companies,
  - public utilities,
  - R&D institutions,
  - end-users
- circular economy hubs
  - new innovation networks or existing networks transformed
  - will provide a space for designing new solutions in the CE field





- Who can enable the transition to a circular city ?
- a collaborative effort across the value chain is needed,
  - involving individuals,
  - the private sector,
  - different levels of government,
  - civil society.



## CE HUBs

### Understanding and further focus

#### b) Classification of Cities

- Why is a classification needed ?  
“Cities are different. So are solutions.”
- Different approaches
  - Ellen MacArthur
  - cscp | Bertelsmann
- ➔ Further focus when examining literature and examples



## Ellen MacArthur Foundation

**Publication:** City Governments and their Role in Enabling a Circular Economy Transition - an Overview of Urban Policy Levers: March 2019.

**Examples:** “Over 100 cases from more than 70 cities around the world have been included to provide short, practical examples of the various policy steps ...” ([Ellen MacArthur 2019](#): P9.)

**City levels:** taken into consideration

- Capitals
- Major cities
- Smaller cities

**Also mentioned:** regional / national level





“Cities are different. So are solutions.”

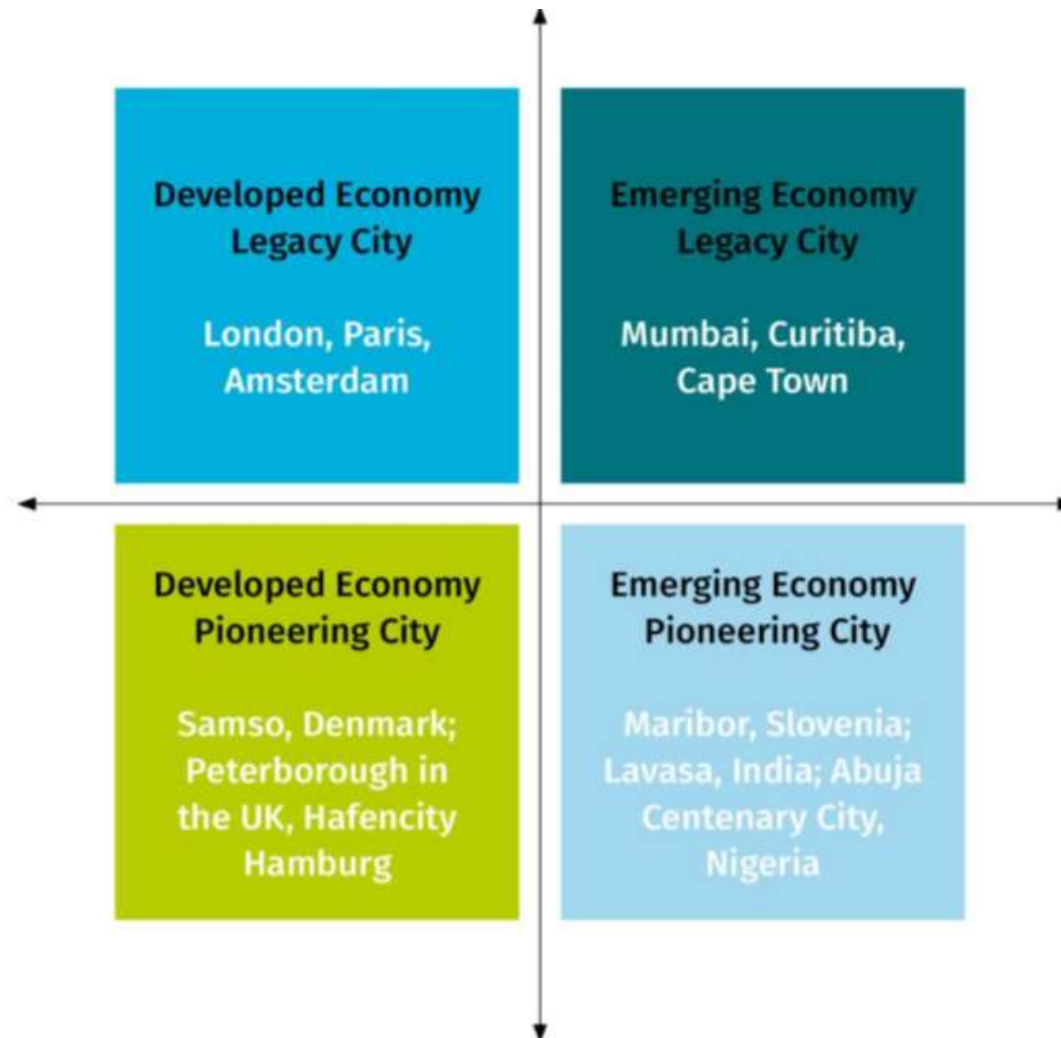
“The prospect of urban innovation excites the imagination. But dreaming up what a “Circular City” will look like in some gleaming future is, by its nature, a utopian exercise. The fact is that no two cities are same, what’s appealing for the young in Copenhagen certainly won’t help millions of workers in Dhaka or Lagos.”

[cscp | BertelsmannStiftung 2019](#): Monitor Sustainable Municipalities. Key topic Circular Economy. Report. P21.





## CE city framework - four quadrants



# CITYCIRCLE - CITIES CLASSIFICATION



## Initiatives - Emerging / pioneering

- The city of Maribor in Slovenia is redirecting its operations, the performance of its businesses and citizens, toward the efficient resource management model.
- Lavasa, India, a hill city prone to monsoons, droughts, and threats of erosion, has been modelled after the ecosystem of the dense forest around it incorporating the principles of Biomimicry.
- UrbanWINS project which is funded by the Research and Innovation Program Horizon 2020 that studies how eight cities in Europe consume resources and products, and how they eliminate the waste produced, in order to develop and test innovative plans and solutions aimed at improving waste prevention and management.
- Abuja Centenary City is using biomimicry on a systems level. The city is being modelled on nature's systems in terms of its transportation, water and waste management, energy production.
- The historic city of Izmir, Turkey is using the urban metabolic approach to harness the output of one urban system, like solid waste management, to fuel another, like electricity generation.



# CITYCIRCLE - CITIES CLASSIFICATION





# CITYCIRCLE - CITIES CLASSIFICATION



# CITYCIRCLE - CITIES CLASSIFICATION



## CE HUBs

“City governments and their role in enabling a CE transition”

a) **Ellen MacArthur**

Urban policy levers

b) **European Investment Bank (EIB)**

The 15 circular steps for cities

c) **Urban Agenda for the EU**

What can a local authority do ?



## Urban policy levers



Interlinkages & relationships between policy levers



**ROADMAPS AND STRATEGIES**

- No single route for developing CE city roadmaps exists
- Making use of urban metabolism tools
- Taking a sector-based approach
- Co-developing city visions with a wide range of urban stakeholders
- Stimulating skill development
- Running capacity-building workshops and development guides
- Supporting physical community innovation and repair hubs
- Developing material marketplaces and skills for new material applications
- Developing tailored capacity building programmes for local businesses and entrepreneurs
- Using participation mechanisms to uncover CE opportunities
- Making information on CE city plans and initiatives easily accessible online
- Hosting and supporting awareness-raising events
- Using communication campaigns to encourage new habits
- Sharing information on local services and needs to support CE practices
- Developing projects that can inspire and showcase the potential of a CE





## 15 circular steps for cities

PLAN	1. Characterise and analyse local context and resource flows, and identify idle assets
	2. Conceptualise options and prioritise among sectors with circular potential
	3. Craft a circular vision and strategy with clear circular goals and targets
ACT	4. Close loops by connecting waste/residue/water/heat generators with off-takers
	5. Consider options for extending use and life of idle assets and products
	6. Construct and procure circular buildings, energy and mobility systems
	7. Conduct circular experimentation – address urban problems with circular solutions
	8. Catalyse circular developments through regulation, incentives and financing
	9. Create markets and demand for circular products and services – be a launching customer
	10. Capitalise on new ICT tools supporting circular business models
MOBILISE/ MONITOR	11. Coach and educate citizens, businesses, civil society and media
	12. Confront and challenge linear inertia, stressing linear risks/highlighting circular opportunities
	13. Connect and facilitate cooperation among circular stakeholders
	14. Contact and learn from circular pioneers and champions
	15. Communicate on circular progress based on monitoring



## What can a local authority do?

### REORGANISE YOUR CITY

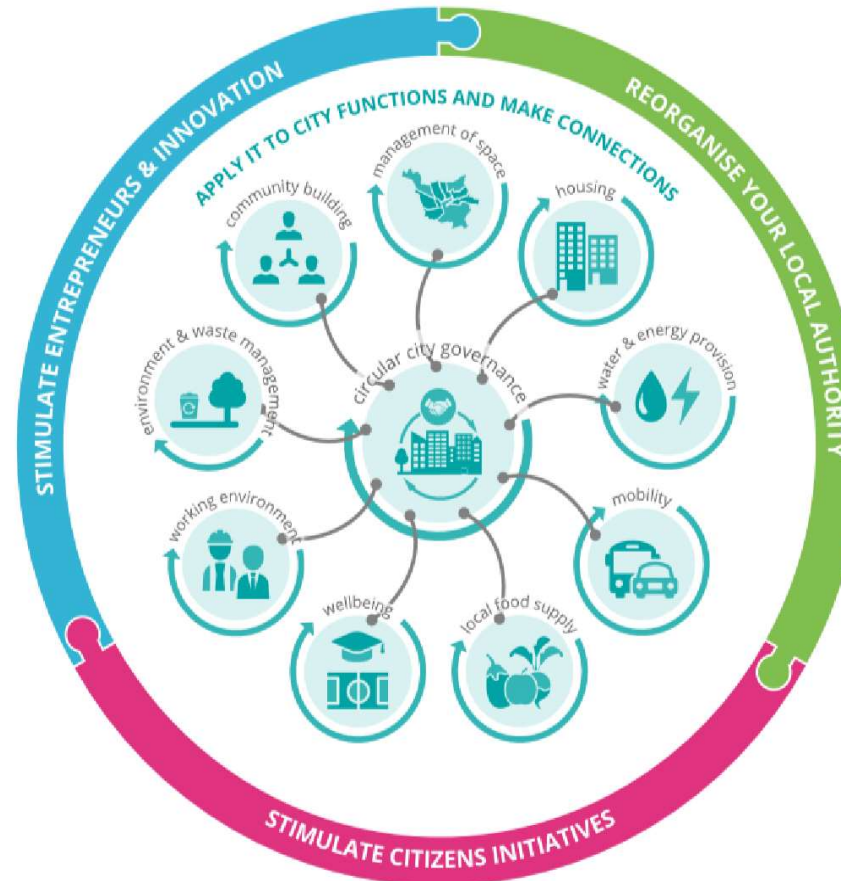
- 1 Create common long term ambition , with political support & use it in your branding
- 2 Set up cooperation between city departments and appoint a coordinator
- 3 Act circular (circular procurement, futureproof urban planning, sustainable building,...)
- 4 Get insights in your resources (waste, water, materials,...)

### STIMULATE CITIZENS INITIATIVES

- 5 Promote sharing & functional economy
- 6 Raise awareness and coach citizens
- 7 Support bottom up initiatives through legislation, funding, cooperation, communication,...

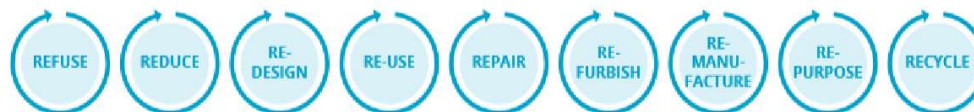
### STIMULATE ENTREPRENEURS & INNOVATION

- 8 Stimulate local symbioses through (business park) networks, smart technologies,...
- 9 Create incentives to attract circular business (offer space, taxes, subsidies,...)
- 10 Communicate success stories



## Circular strategies to focus on

### GENERAL AND TECHNICAL NUTRIENTS



### BIOLOGICAL NUTRIENTS



1	Create a circular strategy if possible, but, it can also be equally effective to integrate circular principles and actions in an existing long-term climate strategy, or in a LT plan to reach the Sustainable Development Goals. Several examples of a circular vision can be found at <a href="#">#CEStakeholderEU</a> .
2	A new method of collaborating - both between the city's various departments and its inhabitants and companies - is required to effectively implement a circular strategy. Through the infographic you can see how different functions in a city can lead to circular breakthroughs, e.g. sharing initiatives have a positive impact, both from a poverty prevention perspective and from an environmental department.
3	In their exemplary role, cities can have a huge impact on the implementation of a circular strategy. By using their purchasing power, they are able to grow the market for circular suppliers as well as lead by example. You can find some examples and context through <a href="#">The Urban Agenda on Public Procurement</a> and <a href="#">the European ProCirc</a> project with focus on circular procurement. The Urban Agenda CE Partnership and onLand Use Partnership created a handbook together on the reuse of buildings and spaces.
4	The lack of data and indicators for CE transition on a city level is an important barrier. Therefore, the Urban Agenda has listed 30 indicators to help cities with their strategy and in their use of data of resources for policy improvements. Collected data often end up in a drawer, but could be used as an input for circular actions.



# CITY GOVERNMENTS - ROLE

5	A city can support sharing initiatives originated by citizens by providing a space or people to help in the organization, but they can also share their own assets as cars, tools, or buildings. In close partnership with ESPON, the partnership for CE has created a Collaborative Economy Knowledge Pack for cities.
6	Cities who invest in awareness-raising and training of citizens, see an increase of bottom-up initiatives and a wider acceptance of necessary actions. The Urban Resource Centres described in the Urban Agenda are testbeds for circular solutions and influence the behaviour of citizens. Examples of collaboration with schools and Higher Education can also be found on the <a href="#">#CEstakeholderEU</a> .
7	When citizens organise events, repair cafes, and circular challenges, a city can help with the communication, promotion and with the exchange of knowledge and experiences. But, as a city you can also offer support with financial incentives. More information in the <a href="#">Circular City Funding Guide</a> .
8	Cities play a crucial role in local symbioses because they have the overview of resources and stakeholders in their region. The Circular Resource Management Roadmap created within the Urban Agenda CE Partnership helps cities to create a step by step resource efficiency plan.
9	Cities can support businesses by simplifying legislation, or adjusting the city tax system in favour of circular business models. Examples on financial support can be found in the <a href="#">Circular City Funding Guide</a> .
10	Startups or companies who invest in circular business models need extra marketing support to inform potential clients. Cities have a lot of communication tools to give those companies extra exposure, while a city also benefits from this publicity. Success stories can be posted and found on the <a href="#">#CEstakeholderEU</a> .





## Circular city governance: opportunities and challenges



### OPPORTUNITIES

- 1 Develop and communicate a long-term, holistic vision about the circular ambitions of the city
- 2 Introduce cross-thematic coordination and promote a culture of cooperation and knowledge exchange and creation within the own municipal organisation.
- 3 Identify, address and include non-municipal stakeholders early on in the transition process (e.g. businesses, knowledge institutes, citizens) - in order to craft the process to come to circularity within an urban context, together.
- 4 Analyse the urban metabolism (material and energy streams, bio-sources and sinks) as a basis for developing a strategic plan for the CE transition with contextualised priority sectors.
- 5 Use circular public procurement to create demand for circular innovations.
- 6 Educate consumers (and other stakeholders) in civil society and more in particular cities based on an inclusive and participatory approach. In order for the CE to thrive in an urban context, co-creation from the start with citizens is crucial.
- 7 Identify external sources of funding/financing for CE initiatives and projects available at EU and/or national level to complement the cities' own budgetary sources and get acquainted with their rules and procedures.
- 8 Facilitate appropriate spaces and funding for experimentation, (private) innovation, knowledge transfers and match-making in the field of CE for businesses, research institutions and interested citizens.
- 9 Create forums with like-minded cities at the national (and possibly also at EU) level to lobby for necessary changes in EU and national legislation that currently block the transition to a CE.
- 10 Continuous monitoring and evaluation of implementation of circular projects and initiatives, with the aim to develop a solid knowledge base and provide feedback to guide/adjust the transition process.



### CHALLENGES

- 1 Political support is key in creating a common long term vision on circular economy developments.
- 2 Confusion and a wide range of interpretations on what the circular economy is, what the transition to a circular economy requires, and why it is relevant.
- 3 The circular economy is often only regarded from a waste or environmental management perspective, instead of from a wider multi-sectoral economic development perspective.
- 4 Circular projects require new and far-reaching levels of cooperation and coordination amongst all stakeholders involved. This is difficult to organise and maintain.
- 5 Citizens awareness and participation is very low.
- 6 There are insufficient funds available to support circular projects and programmes.
- 7 Private innovation power for circular companies can be insufficient.
- 8 City development strategies are currently often made in silos.
- 9 The current tax system obstructs circular development.
- 10 Current (waste) legislation hinders innovative reuse and/ or recycling of products and materials.



## CE HUBs

Special focus: Clusters in the CE transition

Building partnerships for sustainable transition of  
SMEs

- Ambition of clusters
- Cluster support
- Study results from Denmark
- How clusters are powering the circular transition



## Clusters role

- Ambition of clusters must be to support companies - especially SME's -
  - to more efficiently tap into new knowledge and business opportunities in the CE,
  - to boost their specialization, possibilities for investments,
  - to internationalise and get access global value chains.
- Clusters support
  - changing mindsets,
  - developing new competences,
  - rethinking business models,
  - supplying living labs and
  - defining new costumers and green investors.

“Clusters in the Circular Economy” is co-financed by Interreg Baltic Sea Region Project Circular PP and Cluster Excellence Denmark. Sept 2019. P3 & 5.



## Study results from Denmark

- roundabout 250 green clusters in Europe with a high potential for pushing the CE forward faster and more efficient
- 2/3 of the Danish clusters are involved in CE
- also clusters not directly related to the classical green sectors are working with CE in their sectors

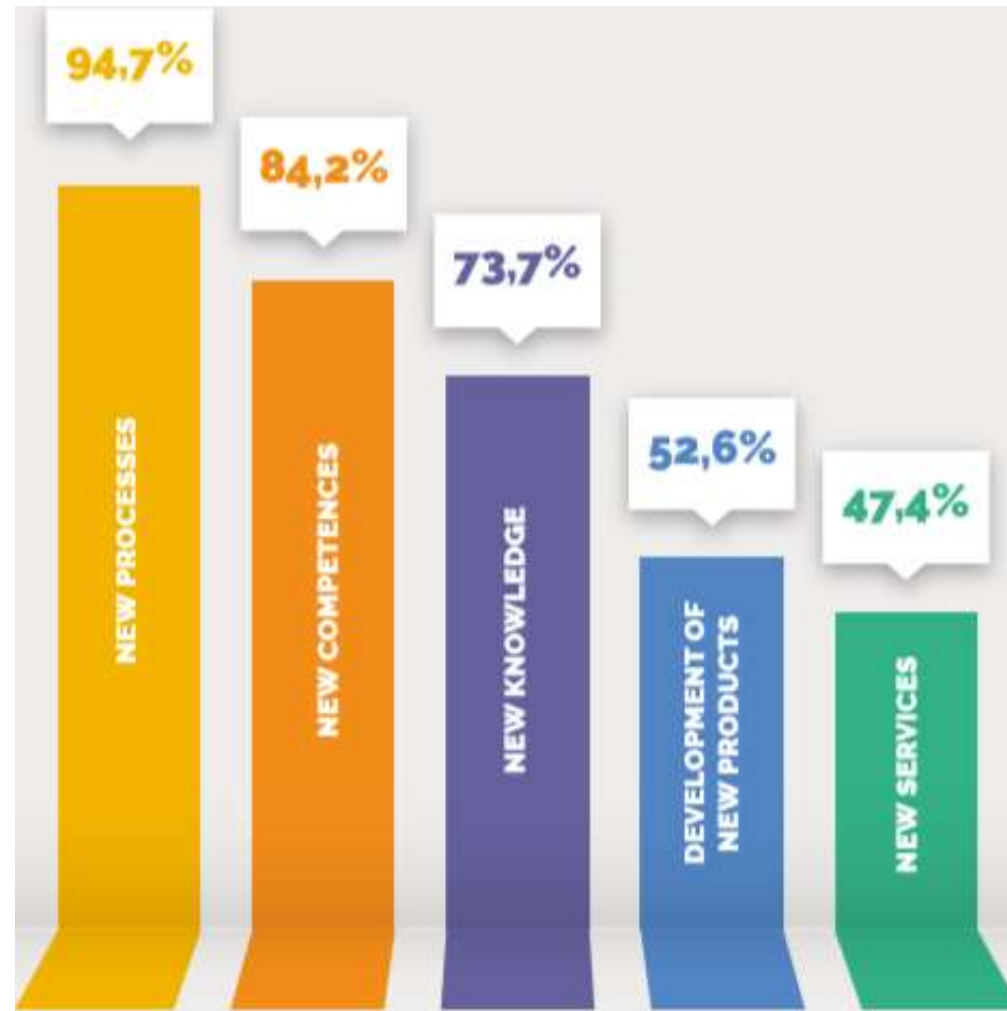
“Clusters in the Circular Economy”, 2019: P6.





## Study results from Denmark

- key impacts for companies are ...

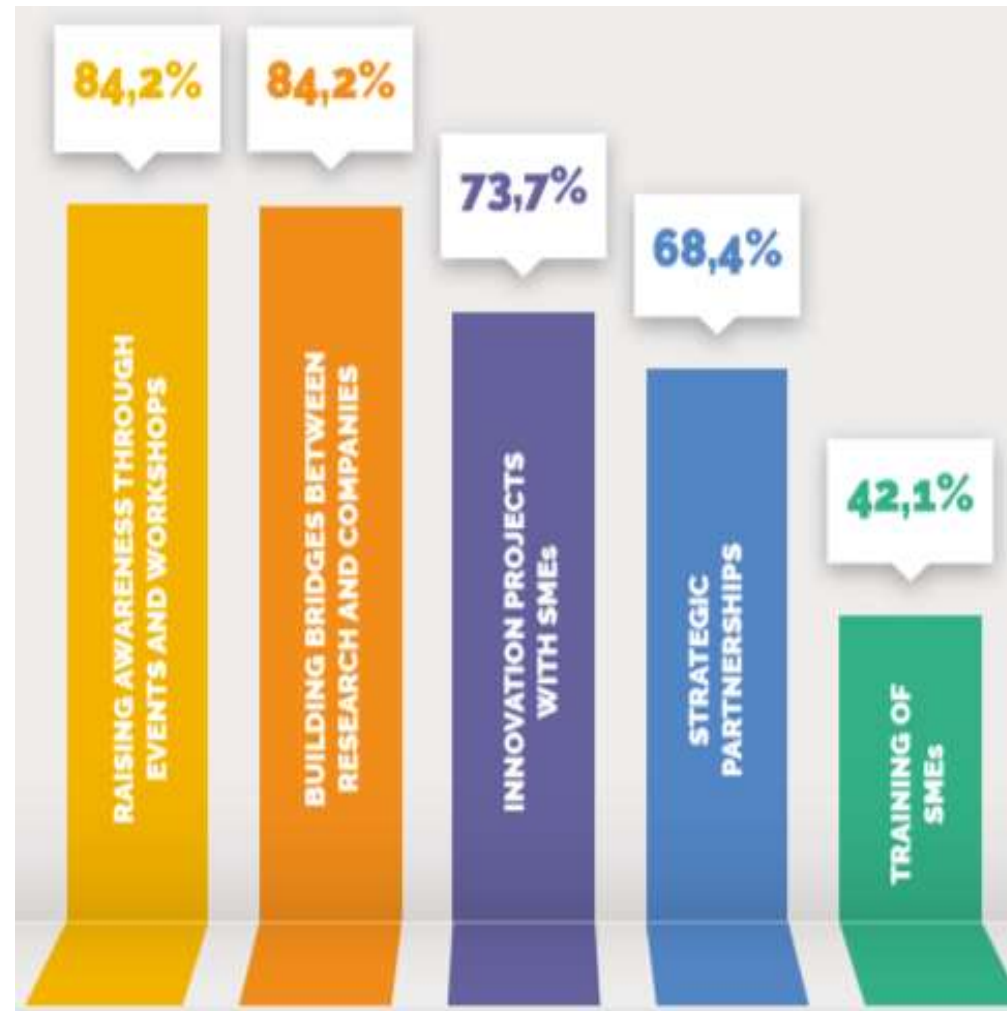


“Clusters in the Circular Economy”,  
2019: P6.



## Study results from Denmark

- Variety of services developed ...



“Clusters in the Circular Economy”,  
2019: P7.



## How clusters are powering the circular transition

- Clusters building bridges to circular knowledge
- Clusters putting circular policy into action
- Access to circular funding for SME
- Clusters and sustainable development goals
- Circular public procurement supported by clusters

[“Clusters in the Circular Economy”, 2019: P8ff.](#)



## CE HUBs \_ cases / examples

Focus on city governments and clusters

### a) Learning Centres of CE

Transforming Municipality Districts

Case Maribor, Slovenia

### b) Learning Centres and Entrepreneurial Networks

IMPACT HUBS

### c) A Network of Regional Innovation Hubs

C-VoUCHER

### d) Clusters

Case Ostwestfalen-Lippe



## CE at EIT Climate-KIC

- In the focus area CE “EIT Climate-KIC empowers entire regions, industries and communities to implement a bold transition towards circular economy. To us, this means combining tailored actions across **education**, **entrepreneurship** and **innovation** to change whole systems from linear to circular.”
- The Circular Cities project is investigating how a city district and areas can be a transforming agent and create smart and sustainable neighbourhoods.

EIT Climate-KIC: Transforming Municipality Districts into Learning Centres of Circular Economy. In partnership with the EIT Climate-KIC Circular Cities Project. 2019: P4.



## Transforming Municipality Districts

“The aim of this publication is to showcase how different municipalities create innovation platforms where entrepreneurs, NGOs and community groups can turn different waste streams into new products, new design, new innovative ideas and how these efforts can generate work and at the same time minimise waste.”

EIT Climate-KIC. 2019: P3.



## How municipal cases can work as drivers towards CE

- The report showcases 13 (14) examples of specific CE HUBs at a district and area level to explain how cities across Europe concrete circular economic concepts have been designed and executed, including a detailed explanation for the potential CE business cases and technologies which can cascade circular business opportunities.
- 2 pages per case with the following outline
  - Who was the team?
  - What was the vision/goals?
  - What is the local waste recycling context?
  - How did you do it? (your approach)
  - What was done? (activities)
  - What was achieved? (impact)
  - What were the challenges?
  - Next steps
  - City Contact Details
  - Summary
  - Time period
  - Information source



# CE HUBS \_ MUNICIPALITY DISTRICTS

CE topic	Where ?	What ?
Product reuse & remanufacture	<ul style="list-style-type: none"> <li>Gothenburg, Sweden</li> <li>Berlin, Germany</li> <li>Hjorring, Denmark</li> </ul>	<ul style="list-style-type: none"> <li>CURE Pathfinder project - Centres for Urban Remanufacture</li> <li>Repos project - People, preservation, purpose: Reuse of large household appliances</li> </ul>
Sustainable living & construction	<ul style="list-style-type: none"> <li>Trondheim, Norway</li> <li>Malmö, Sweden</li> <li>Maribor, Slovenia</li> </ul>	<ul style="list-style-type: none"> <li>Experimental housing at Svarlamon</li> <li>Sege Park - Urban district for circular living</li> <li>CINDERELA - Resource efficient construction sector</li> </ul>
Waste systems	<ul style="list-style-type: none"> <li>Maribor, Slovenia</li> <li>Trento, Italy</li> </ul>	<ul style="list-style-type: none"> <li>Sorting plant for mixed municipal waste</li> <li>Greencycle: introducing a Csystem to Alpine Space to achieve low carbon targets</li> </ul>
Engagement hubs and urban labs	<ul style="list-style-type: none"> <li>Trondheim, Norway</li> <li>Copenhagen, Denmark</li> <li>Helsinki, Finland</li> <li>Utrecht, Netherlands</li> </ul>	<ul style="list-style-type: none"> <li>City libraries as platforms for repair, exchange and lend</li> <li>Circular South Harbour</li> <li>Smart Kalasatama</li> <li>Werkspoorkwartier: Creative circular manufacturing</li> </ul>
Food and agriculture	<ul style="list-style-type: none"> <li>Aarhus, Denmark</li> <li>Maribor, Slovenia</li> </ul>	<ul style="list-style-type: none"> <li>From Grounds to Gourmet</li> <li>Urban soil 4 food</li> </ul>





## Findings

- City-led physical location where to learn and work with circular economy concept under the mantra "Reduce-Reuse-Recycle-Rethink" is an effective and low cost way to accelerating the transition to the CE and to scale out good ideas and test new innovative initiatives.
- Through engaging the general public, city administrations can expect to become more up-to-date with regards to the newest circular knowledge and ideas available.
- Most of the cases presented have created a social media outreach and created an ecosystem which thrives and accelerate to new ideas and create knowledge sharing.
- In the longer term, City-led CE learning centre can help facilitate a number of co-benefits including social engagement, profit, learning, inspiration and just make the circular transition an every-persons business.
- ➔ Through the provision of resources, material, data and professional feedback, cities can encourage and support individuals and start-ups whilst reaping the benefits of improved circular solutions tailor made for use in their situation.
- ➔ By reaching out to the community groups and entrepreneurs, the city administration can find itself more closely engaged with its public, promoting participation in city issues and increasing awareness of the climate and sustainability in general.
- ➔ Through adopting the Open Innovation concept and taking the lead in sustainable innovation processes, cities will be able to brand themselves as front-runners in the race to achieve their climate goals on the international stage.



## Barriers to successful implement circular learning centre

- Implementing circular learning centres into the operations of a city isn't necessarily straightforward.
- Regulatory barriers should not hinder that community, entrepreneurs and the general public get actively involved in the circular transition and use available city districts as testbeds to fast track a circular city transition
- Barriers such as the fragmented administrative landscape within the city municipal boundary can also be difficult to overcome.
- Certain solution providers find that the time frames that administrative municipalities commonly work to can be problematic with their own.
- It is apparent that a large proportion of the barriers to create more circular economy learning centres arise due a city's lack of resource capacity and or mismatch in skill set.
- In many cases, it is useful for progressive and ambitious administrations to enlist the help of experienced facilitators who can assist with the planning and organisation of the learning centres.



## Key learnings

### **Stakeholders need to be kept motivated.**

- CE learning centres, by definition, involves large numbers of actors, stakeholders and collaborators.
- Circular district can be difficult to manage, particularly when motivation to engage with the process is driven by the desire to create differing forms of value.

### **A varied stakeholder group often produces the best results - “multi-actor” platform.**

- CE learning centres is often more effective when it includes actors from different backgrounds - i.e. start-ups, SMEs, corporates, universities, the public sector etc.
- Access and exposure to the different knowledge, experiences and thoughts typically held by different types of individuals and organisations ensures that certain new, more alternative or up-to-date thinking, applicable to the desired solution(s) aren't missed.

### **Match-makers help, a lot.**

- Successful implementation processes in the CE learning centres benefit from supporting actors who connect and match stakeholders together, build bridges between them and act as brokers between the different sub-divisions of the collaboration.
- These match-making nodes are essentially acting as civic accelerators, building bridges between players.
- Match-makers can become key in keeping the overall process in motion.



## EIT Climate-KIC - another report

### Municipality-led circular economy case studies

- Published in collaboration with C40, this first project publication provides a unique overview of concrete circular economy initiatives from cities through 40 examples from around the world. It showcases how cities today are viably putting the circular economy concept into practice to realise systemic change on a district and city level, which can then be scaled-up, not only regionally, but internationally as well.

EIT Climate-KIC: Municipality-led circular economy case studies. In partnership with the EIT Climate-KIC Circular Cities Project. 2018.



# CE HUBS \_ LEARNING CENTRES

## City-wide circular strategy

<b>Amsterdam, The Netherlands</b> Amsterdam's circular economy roadmap and projects in the construction value chain	14
<b>Brussels, Belgium</b> Regional program for a circular economy: 'Be Circular'	18
<b>Cape Town, South Africa</b> Industrial symbiosis program	22
<b>Copenhagen, Denmark</b> Circular Copenhagen – resource and waste management plan	24
<b>Glasgow, Scotland</b> Inspiring businesses to innovate and become future-proof	26
<b>Gothenburg, Sweden</b> Circular Gothenburg	30
<b>Helsinki, Finland</b> The Kalasatama district's urban laboratory	32
<b>Kristiansand, Norway</b> Green business idea competition and growth support	36
<b>Ljubljana, Slovenia</b> A national roadmap leading to specific city-level actions	38
<b>Maribor, Slovenia</b> Circular economy strategy working closely with the public utility companies	40
<b>Paris, France</b> City-wide circular economy strategy	44

<b>Phoenix, USA</b> Redefining waste through a Resource Innovation Campus	46
<b>Samsø, Denmark</b> Circular economy for the whole island	50
<b>Seoul, South Korea</b> Sharing City Seoul, aiming to engage all 10 million citizens	54
<b>Tel Aviv, Israel</b> Commencing the journey for the City to reach 10 circular projects	58

## Urban refurbishment

<b>Houston, USA</b> Re-use warehouse for construction materials	64
<b>Paris, France</b> 3D mapping project supporting policies for low carbon buildings	66
<b>Sydney, Australia</b> Co-creating industry guidelines for circular office refurbishments	68
<b>Vienna, Austria</b> Supporting dismantling services for large industrial buildings	72

## Procurement

<b>Berlin, Germany</b> Ecological criteria embedded in the public procurement process	76
--	----

<b>Helsinki, Finland</b> Coordinating the reuse of excavated land mass in construction projects across the city	78
<b>Paris, France</b> Transnational responsible procurement working group	80
<b>Tokyo, Japan</b> Circular initiatives within the Tokyo 2020 Olympic and Paralympic Games' Sustainability Plan	82
<b>Toronto, Canada</b> Journey towards circular economy procurement	86

## Utilities

<b>Aguascalientes, Mexico</b> Water fund to support the City's water shortage	92
<b>Arras, France</b> Heat recovered from waste-water treatment for a public aquatics centre	94
<b>Basel, Switzerland</b> Gold award winner for Basel's progress towards a low-energy city	96
<b>Helsinki, Finland</b> The largest heat-pump plant in the world to produce heating and cooling	98
<b>Lille, France</b> Biointensive micro-farming in the Concorde district	100
<b>Malmö, Sweden</b> Industrial symbiosis in the harbour area	102

<b>Pécs, Hungary</b> One of the largest generators of energy from biomass in Europe	104
--	-----

## Civic waste

<b>Austin, USA</b> Online marketplace for re-using materials	108
<b>Eskilstuna, Sweden</b> The world's first circular shopping centre	110
<b>Kristiansand, Norway</b> Citizen and business collaboration centre	112
<b>Kristiansand, Norway</b> Secondhand store led by the municipal waste company	114
<b>New York, USA</b> Donation online market place and supporting initiatives	116
<b>Paris, France</b> Local production, repair and re-use initiatives	118
<b>Quezon, Philippines</b> Regulations on the use of plastic bags to help curb ocean plastics	120
<b>Stockholm, Sweden</b> The world's first large-scale 'biochar' urban carbon sink	124
<b>Vienna, Austria</b> Initial government support helped to create Austria's largest independent repair and service centre for electrical goods	128



## Further example

### CRCLR - Hub for Circular Economy in Berlin

- The CRCLR House is a Berlin based center for CE practices.
- CRCLR is a Think- and Do Tank and stands for “circular”.
- The CRCLR mission is to catalyse the transition towards a CE.

“The CRCLR team has created a unique, open space to explore creative community-based solutions to systemic global problems. It’s the place to be for all things circular in Berlin.” Joe Iles, Ellen MacArthur Foundation.

<https://crclr.org/about/about-crclr>





## Case MARIBOR, Slovenia

- Already mentioned in CITIES CLASSIFICATION \_ emerging economy / pioneering city \_ The city of Maribor in Slovenia is redirecting its operations, the performance of its businesses and citizens, toward the efficient resource management model.
- 3 times mentioned in the EIT Climate-KIC report

CE topic	Where ?	What ?
Sustainable living & construction	▪ Maribor, Slovenia	▪ CINDERELA - Resource efficient construction sector
Waste systems	▪ Maribor, Slovenia	▪ Sorting plant for mixed municipal waste
Food and agriculture	▪ Maribor, Slovenia	▪ Urban soil 4 food



## Webinar presentation

### Further Reading:

[WCYCLE Institute Maribor: Strategy for the Transition to Circular Economy in the Municipality of Maribor. Maribor, July 2018.](#)

### As well as on the next slides:

[WCYCLE Institute -](#)

Re-thinking the business model of Maribor

<https://www.circularcityfundingguide.eu/case-studies/wcycle-institute-re-thinking-the-business-model-of-maribor/>





## WCYCLE Institute - Re-thinking the business model of Maribor

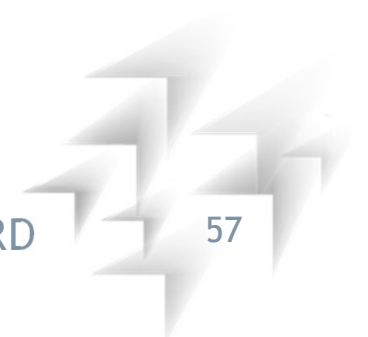
The City of Maribor recognized at an early stage the potential of the CE as an approach to regional development. However, the Slovenian city acknowledged that it did not have enough implementation capacity to fulfil its full circular potential and therefore established the WCYCLE Institute. The institute is established as a platform for the local utility companies to re-think their business models. The institute has become a good platform to discuss and initiate new CE projects for different stakeholders in the city and the region.

The focus of the institute is long-term, in line with the city's well-developed strategy for the transition to a CE. Implementation of projects, however, is already well on its way.

### WCYCLE

The WCYCLE Institute brings together the following five local utility companies:

- Snaga: public waste management company
- Energetika Maribor: public energy company
- Nigrad: public company for infrastructural works
- Mariborski vodovod: public water company
- Marprom: public company for urban transportation



## WCYCLE Institute - Re-thinking the business model of Maribor

Together, the five companies are responsible for the management of a majority of local material streams. The institute has identified twenty projects to improve the circularity of these streams and the related business case. To foster collaboration between partner organisations, it was agreed that initiated projects have participation from and should benefit at least two of the five utility companies.

### Implementation of projects

The preparatory phase of the institute, around 2016, coincided with the development and start of a project for the Interreg Alpine Space Programme called Greencycle. This project was initiated to define a strategy for the circular transition in Maribor, with the central idea that CE provides a holistic approach for the implementation of low-carbon strategies. In 2018, the Strategy for the Transition to CE was finalised and it now provides a strong basis for the implementation of new projects.



## WCYCLE Institute - Re-thinking the business model of Maribor

The Institute identified, in this respect, the following initiatives to improve the circularity of local resource streams:

- Automated waste sorting plant: the construction of the plant started in 2017. The plant has a capacity to process almost 40.000 tonnes per year of mixed municipal waste. The ambition of the plant is to eventually extract 77% of the waste inputs as materials for recycling and 9% for energy recovery, leaving only a small share for landfill disposal.
- Urban Soil 4 Food (Urban Innovative Actions): in this project, organic waste is composted and mixed with soil from construction works in the city to create a soil that can be used for food production, in parks, and for construction.
- Cinderela project (Horizon 2020): in 2018, Maribor started collaborating with twelve partners from seven countries in this project that aims to create CE business models to achieve more sustainable urban infrastructure.
- Winpol Interreg Europe: in this project, the city collaborates with eight other European cities with a common focus to implement new waste innovation technologies. In the project, the City of Maribor optimised its waste collection transport routes and introduced a Re-use market.



## WCYCLE Institute - Re-thinking the business model of Maribor

### Lessons learned

Based on the achievements of WCYCLE and the City of Maribor, several lessons can be learned:

- Establishing a platform involving local actors can be an effective way to foster collaboration in your city or region. The WCYCLE Institute's experience shows that this collaborative approach can help implement projects aiming at closing material loops.
- When looking for ways to make a city more circular, it can be helpful to use the circular perspective to assess current costs with a view to identify inefficiencies and cost-saving solutions. In Maribor, the absence of a bio-waste treatment facility required waste to be transferred to an external facility for treatment, with associated high transport and treatment costs. By building a composting facility in the city, the bio-waste could be turned into compost locally at a lower cost, with a revenue stream from the sale of compost.
- Grants were used to fund the pilot activities of the City of Maribor and the WCYCLE Institute. Co-funding requirements and the short-term character of these funding mechanisms can often limit their applicability for scale-ups and larger projects.

TAKING COOPERATION FORWARD

<https://www.circularcityfundingguide.eu/case-studies/wcycle-institute-re-thinking-the-business-model-of-maribor/>



## IMPACT HUB

### Entrepreneurial Networks as Drivers for Positive Change

«We are one of the world's largest networks focused on building entrepreneurial communities for impact at scale – home to the innovators, the dreamers and the entrepreneurs who are creating tangible solutions to the world's most pressing issues.»

- IMPACT HUBs offer:
  - Community and Workspace
  - Startup Support
  - Programs and Events

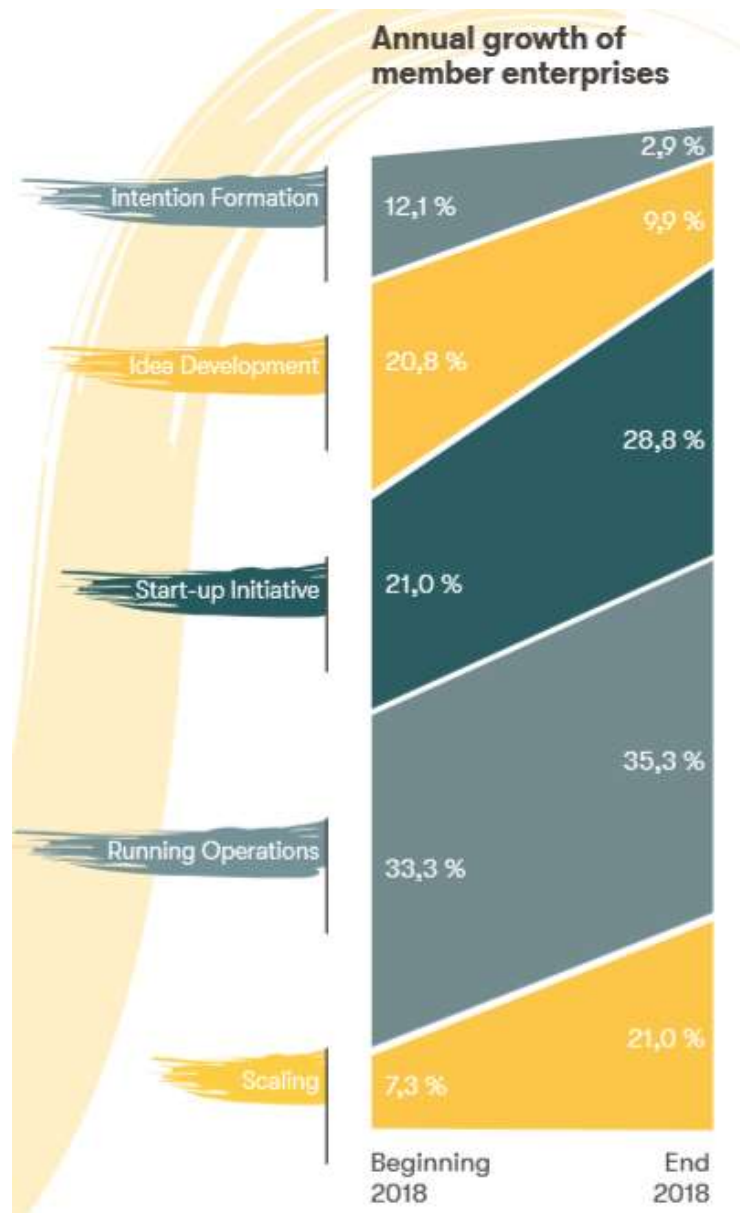








# CE HUBS \_ IMPACT HUB



## Locally Rooted, Globally Connected.

A network of committed entrepreneurial communities can truly create positive change at scale. Diverse and inclusive, it fosters collaboration by bringing together different actors that would otherwise not meet and exchange. Our network is locally rooted to adapt to the regional context and globally connected to replicate and learn from one another, while creating a robust entrepreneurial support infrastructure.

<b>Africa &amp; Middle East</b>	<b>Europe</b>	<b>Munich</b>	<b>Metropolitan Area<sup>®</sup></b>
Accra	Amsterdam	Odessa	Ottawa
Bamako	Athens	Ostrava	Pittsburgh <sup>1</sup>
Bujumbura	Barcelona <sup>1</sup>	Prague	Salt Lake City
Dakar	Bari	Reggio Emilia	San Francisco
Dar es Salaam <sup>2</sup>	Basel	Rome	Seattle
Dubai	Belgrade	Ruhr	
Harare	Bergen	Stockholm	
Johannesburg	Berlin	Stuttgart <sup>1</sup>	<b>Latin America &amp; Caribbean</b>
Khartoum	Bern	Syracuse	Antigua
Kigali	Bratislava	Trento	Belo Horizonte
Lagos	Brno	Turin	Bogotá
Lusaka	Bucharest	Vienna	Brasília
	Budapest	Vigo	Buenos Aires <sup>2</sup>
	Donostia	Zagreb	Caracas
<b>Asia Pacific</b>	Dresden	Zaragoza	Curitiba
Almaty	Florence	Zurich	Florianópolis
Jakarta	Geneva		Managua
Kuala Lumpur	Hamburg <sup>1</sup>	<b>North America</b>	Manaus
Kyoto	Inverness	Austin	Medellín
Manila	Islington	Baltimore	Mexico City
Phnom Penh	Istanbul	Boston	Monterrey
Shanghai	King's Cross	Honolulu	Port-au-Prince
Taipei	Leipzig <sup>2</sup>	Houston	Recife
Tbilisi	Lisbon	Minneapolis	San José
Tokyo	Madrid	Saint Paul	San Salvador
Yangon	Málaga <sup>2</sup>	Montreal	Sao Paulo
Yerevan	Milan	New York	Tegucigalpa
Waikato <sup>3</sup>	Moscow		

IMPACT HUB Report 2019: P7.



## TAILORED Support Programs

Our understanding of the different needs of social entrepreneurs throughout the various stages of their entrepreneurial journey, combined with our broad network of talent, tools, partners and infrastructure, ensures that we can tailor the support we offer. Subsequently, we ran **over 100** successful entrepreneurial support programs in 2018, focused on business and entrepreneurial skills as well as networking opportunities. The results speak for themselves, with **program participants attributing 40% of their professional success to Impact Hub** and feeling supported by us to:

**75%**

Develop new skills and capabilities

**81%**

Strengthen personal motivation

**75%**

Gain visibility and credibility for my venture

**82%**

Connect with experts and advisors that support my growth

**83%**

Partner and collaborating with peers

**88%**

Feel part of a larger community and network

**100+**

entrepreneurial support programs

**100+**

collaborative innovation programs focused on SDGs and ecosystem development



The environmental business, Ioniqa, attracted a €12 investment and a partnership with Unilever after taking part in the Plastics Free Ocean Accelerator run by Impact Hub Amsterdam and WWF Netherlands. Their platform technology upcycles coloured plastics back to virgin materials, for its reuse as food-safe packaging, and investment will go towards the launch of their upcycling process for the infinite use of PET plastic materials. They are also developing applications for other materials, such as textiles and carpets and aim for universal adoption of innovative technology via [www.ioniqa.com](http://www.ioniqa.com)

<http://www.ioniqa.com>



## PARTNERING for Impact

There are ample opportunities to create and implement solutions to the world's most pressing issues. We are matching these opportunities with programs to achieve tangible progress towards the SDGs.

Join us to scale our collective impact and drive positive change!

### Learning & Education

The global SDGs have provided a common language for the issues that demand our urgent attention and action. We need to increase awareness and share stories that inspire and engage more people in every corner of the world, especially focusing on the youth who will shape our future. We also need to explore and share lessons learned,



best practices and trends that can help lead to solutions driving systemic change.

### Startup Support from Ideation to Scale

Startups have proven to be dynamic and powerful vehicles for solutions with truly transformative impact. Entrepreneurs need support throughout their challenging journeys; as ideas form and solutions develop, but also as they fail, pivot, and grow. Even the most effective startups need support to transform themselves into a scalable operation.



Access to market and financing are key to this transformation, particularly when considering vulnerable entrepreneurs in markets that demand a high level of resilience.

### Corporate Innovation

Established institutions and corporations are facing an urgent need to innovate in a world that is faster and more interconnected than ever before. Entrepreneurs have become an important source of inspiration and learning for leading organizations, when it comes to how they can think in new ways, design solutions and products, and operate in constantly changing environments. Impact Hub immerses institutional partners in the entrepreneurial ecosystem,



giving them access to hundreds of high potential enterprises and leading edge innovations, as well as sustainability methods, tools, and experts.

### Convening

Solving the world's most complex problems requires more than the brilliance of a few — it takes the collaboration of many. Our programs bring bottom-up innovators together with institutional players; invite new perspectives from scientists, artists, activists, and youth; and include those who are the most affected, but whose voices are often not heard. We use formats and methodologies



that get the best out of such diversity and drive meaningful action.

## IMPACT AT SCALE

### Ecosystem Development

Impact cannot happen in isolation; it takes shape



in interdependent, lively ecosystems comprised of diverse actors, inspiring interactions, enabling policies, and robust resources. Impact Hub provides collaborative environments where many of these elements come together. Even in some of the most challenged parts of the world, we provide a safe space for the foundation of ecosystems where minimal infrastructural support already exists.

Impact Hub is proud to have collaborated with leading organizations from a variety of sectors to amplify our impact. Here are some of our strategic partners:



## IMPACT in Action

Here are a few examples taken from the 200+ programs Impact Hubs ran in the past year.

### My life in my hands

Run by Impact Hub Caracas, 'My Life in My Hands' tackles early pregnancy, violence and drug use among youth: crucial topics in the country with the highest rate of teen pregnancy in Latin America. Through a holistic range of methodologies, it has improved the quality of life of 280 children in slums, providing 7,500+ meals, and teaching them how to lead a worthy life.

### Startarium

Impact Hub Bucharest and ING Romania created Startarium, a program supporting entrepreneurs by using mentorship, online courses and networking in three areas: learning, testing and financing. With a total of 35,000+ community members, 60+ mentors, 400 learning materials and 3,500+ business ideas, Startarium is unique in combining the mechanisms of incubators and accelerators to assist entrepreneurs.

### LatAM Scaling Program

With the support of the Argidius Foundation and EU's AL-INVEST program, Impact Hubs in Brazil, Colombia, Costa Rica and Mexico identified 60 enterprises with great potential to increase their social, environmental and economic impact. They were supported in preparing to scale their operations and given invaluable assistance in attracting investments as well as entering new international markets.

### Socialchallenges.eu

EBN and Impact Hub created a pioneering social-challenges platform, which supported almost 50 cities and regions in defining social and environmental challenges, from sustainable food to urban mobility. Some 500 social innovators and SMEs (small and medium-sized enterprises) pitched their existing solutions. In addition, socialchallenges.eu gave the 80+ most promising entries 30,000€ each to test their solutions in the new markets.

### Carrefour Impact

In an attempt to improve eating habits, Impact Hub Taipei and Carrefour Taiwan Foundation opened Carrefour Impact, the hypermarket's first healthy-living concept store. The store sells a range of purpose-driven goods, while also encouraging healthy eating and sustainable living through in-store education. It is also fast growing into an event space, inviting local companies and individuals to pitch their ideas for talks and workshops.

### Circular Economy Transition

Circular Economy Transition is a pioneer initiative from all 5 Swiss Impact Hubs that aims to accelerate the transition of Switzerland to a circular economy by fostering collaboration along the value chain. Designed around four pillars of action to support and inspire different key actors and sectors, 30 Swiss corporate partners will be supported on their journey to circularity by 2021.

### BEYOND (un)employment

Beyond (un)employment is a regional convening program supported by Robert Bosch Stiftung that developed and prototyped 20 citizen-led solutions to local unemployment challenges, ranging from skillbuilding for youth to advocacy for the elderly. 12 solutions, each developed by key actors in each market representing various sectors, were successfully implemented and will continue operations - solving issues from the bottom up, one step at a time.

### Global Social Innovation Festival

Impact Hub Florianópolis hosted 1,000+ participants at the Global Social Innovation Festival, a day of knowledge exchange between impact entrepreneurs, social innovators and partners. The day celebrated diversity in Brazilian culture, with arts performances, 30+ workshops and 30+ speakers from public servants, indigenous leaders and even favela makers, each giving their unique perspective on addressing key global challenges.

### MedUP!

MedUPI is a project funded by the European Commission and led by Oxfam Italy in consortium with Impact Hub, aiming to drive job creation and growth by promoting social entrepreneurship in the Middle East and Africa. MedUPI provides financial and technical support to 100 social enterprises, reinforces 60 social entrepreneurship support organizations through capacity building and networking activities, and promotes national and international policy and advocacy initiatives and dialogue.

### Resilient Entrepreneurs Program

Impact Hub and Inter-American Development Bank partnered to strengthen the entrepreneurial ecosystem in Central America, choosing the challenging markets of El Salvador, Honduras and Nicaragua. The partnership created thriving communities and ran incubation programs in each country. With 100+ entrepreneurs supported, they are paving the way for multiple new communities and programs to promote and scale impact in the region.



## CONNECT

- everybody can ...
  - join the network - Sharing the Knowledge & Community to connect with Like-Minded-Partners
  - become a member - Building the Infrastructure for Effective Trans-Local Entrepreneurial Support
  - partner with IMPACT HUB - Providing Robust Insights to Improve Impact Strategies in Business & Society
- You can also [open an Impact Hub](#) !!!





## C-VoUCHER

### Circularize ValUe CHains across European Regional Innovation Strategies

#### Project information

- HORIZON 2020
- Grant agreement ID: 777773
- Start date: 1 April 2018 - end date 31 March 2021

#### Objective

C-VoUCHER aims to develop new circular (cradle to cradle) value chains, disrupting traditional linear (cradle to waste) business models by means of cross-fertilization with Design Thinking experts and Circular Disruptors.

<https://cordis.europa.eu/project/id/777773>





## Regional Innovation Hubs (RIHs)

### Regional agencies specializing in innovation and support to SMEs and communities

6 RIHs plus a cluster and an RTO identified sectoral challenges, cross-sectoral challenges plus, to some degree, relations to the Regional Smart Specialization Strategies:

- The Swedish Agency for Economic and Regional Growth - Sweden
- Agencja Rozwoju Mazowska S.A. - Poland
- Vejle Kommune - Denmark
- Lifestyle and Design Cluster - Denmark
- Systematic - France
- Agentia de Dezvoltare Regionala Nord-Vest - Romania
- Axengia Galega de Innovación - Spain
- Force Technology - Denmark, RTO



## Objective

C-VoUCHER aims at generating new cross-sectoral and cross-border value chains with a CE approach, by combining industrial value chains with enabling Technologies (Digital, Hybrid & Engineering), through design thinking concepts.



## Circularity Open Space

Previous to those programs, C-VoUCHER will create an open space with:

- A Circularity Designers-in-Residence (DiRs) Pool to help SMEs design their new solutions.
- A Disruptors Catalogue with technologies ready to use.
- A network of Regional Innovation Hubs (Circularity RIHs).
- A Circularity Challenges Catalogue highlighting key topics for the open calls.

## Circularity Program

This 9 months program will help Circularity SMEs reach "Circularity Solutions". It offers:

- Support services from a Designer-in-Residence (DiR) and business mentors to plan a Circular Solution Predefinition, and
- Innovation vouchers to interact with disruptors for the take up of "enabling technologies" in the frame of Circular Economy Building Blocks.

Up to 24 Classic SMEs will be selected through 2 Open Calls to take part in a previous Prototype-athon, and the best 12 best will be invited to the Circularity Program to create new solutions.

To see indicative dates go to the **Open Calls section**.

## Circularity Value Replication Program

This 3 months program aims at Adopter SMEs willing to incorporate or get inspired by the Circularity Solutions developed. It offers designers in residence professional services to define their own road map and incorporate those solutions in their processes (Feasibility Plan).

42 adopter SMEs that will take part in the program will be selected through 2 Open Calls.



## Community

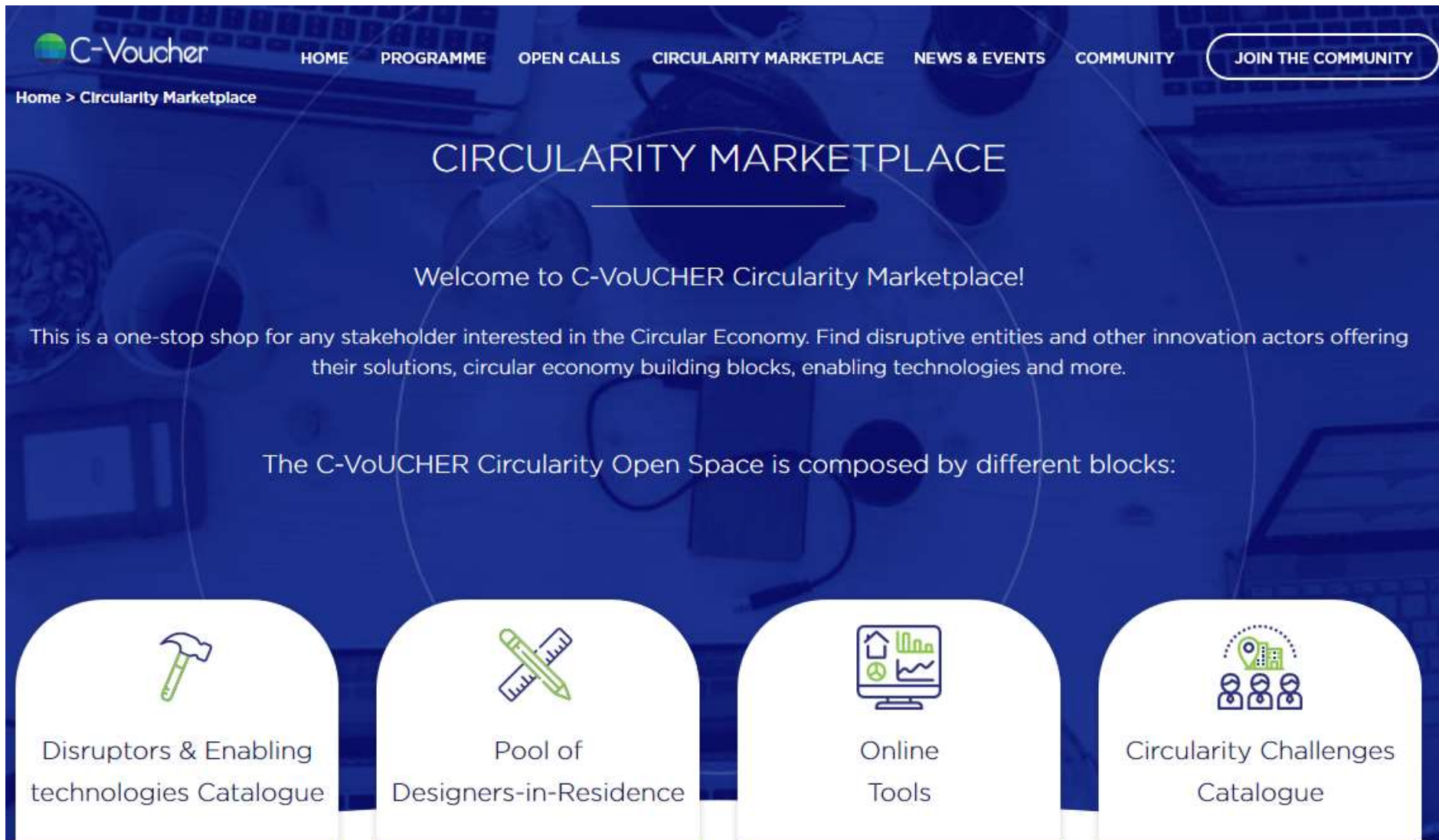
### Bring your CE ideas on!

«Under the frame of C-VoUCHER project, we have created a community that integrates C-VoUCHER Marketplace and gathers the main stakeholders of the European circular economy ecosystem:

- SMEs
- Design Thinking experts
- Disruptors
- Adopters SMEs
- Investors
- Policy Makers







The screenshot shows the homepage of the C-Voucher Circularity Marketplace. The header includes the C-Voucher logo and navigation links: HOME, PROGRAMME, OPEN CALLS, CIRCULARITY MARKETPLACE, NEWS & EVENTS, and COMMUNITY. A 'JOIN THE COMMUNITY' button is also present. The main heading is 'CIRCULARITY MARKETPLACE', followed by a welcome message and a description of the platform as a one-stop shop for the Circular Economy. Below this, it states that the Open Space is composed of different blocks, which are listed in four white boxes at the bottom: Disruptors & Enabling technologies Catalogue (with a hammer icon), Pool of Designers-in-Residence (with a pencil and ruler icon), Online Tools (with a computer monitor icon), and Circularity Challenges Catalogue (with a location pin and people icon).

**C-Voucher** HOME PROGRAMME OPEN CALLS CIRCULARITY MARKETPLACE NEWS & EVENTS COMMUNITY [JOIN THE COMMUNITY](#)





Home > Circularity Marketplace

## CIRCULARITY MARKETPLACE

Welcome to C-VoUCHER Circularity Marketplace!

This is a one-stop shop for any stakeholder interested in the Circular Economy. Find disruptive entities and other innovation actors offering their solutions, circular economy building blocks, enabling technologies and more.

The C-VoUCHER Circularity Open Space is composed by different blocks:

-  Disruptors & Enabling technologies Catalogue
-  Pool of Designers-in-Residence
-  Online Tools
-  Circularity Challenges Catalogue



## Case Ostwestfalen-Lippe (OWL)



OWL is "at the very top of North Rhine-Westphalia":

- 5 innovation networks
- more than 600 members from business, science, associations, chambers, business development agencies and representatives of civil society
- activities - range from the optimisation of business and technology processes, knowledge and technology transfer to the initiation and support of cooperations and the development of new, innovative topics and business areas





## The innovation networks in OWL

5 innovation networks make a significant contribution to the future viability of the OWL region:

- Energie Impuls OWL,
- InnoZent OWL,
- Food Processing Initiative,
- OWL MASCHINENBAU and
- ZIG - Zentrum für Innovation in der Gesundheitswirtschaft OWL

### The innovation networks

- combine their expertise for the benefit of the region and play an important role in making OWL "fit for the future".
- convinced in the ERDF competition 2019 with its regional development project **CirQuality OWL** which focusses on the potential of circular value creation and is dealing with a broad-based capacity building.



## CirQuality OWL - a production site closes loops

- Project partners:  
5 innovation networks  
VDI OWL (Association of German Engineers)  
university of applied sciences Bielefeld
- Project focus:  
on the potentials arising from circular value creation,  
i.e. products, buildings, components or materials are designed  
from the beginning to be used in a continuous cycle without  
ending up in landfills or downcycling
- Project goal:  
to develop solutions which qualify the companies at the OWL  
production site and the necessary environment for the growing  
CE markets.  
  
The entire innovation ecosystem OWL is to be used and  
optimized in order to design CE-based product ideas for the  
next product generations and to realize them with new  
business models.



## CirQuality OWL - a production site closes loops

### Roles of the project partners

- 5 innovation networks ensure targeted adaptation in specific economic sectors.
- University analyses and optimises internal company processes and systematises external factors for the purpose of integration into the respective CE development process
- VDI the entire spectrum of the engineering world is involved in the constructive discussion and the way is paved for the inclusion of important impulses in future standards as well as in engineering education



## CirQuality OWL - fields of action



- Discover CE
- Regional capacity building
- Qualifying actors
- strengthening regional identity
- Providing strategic support to actors
- transfer results



## CE HUBs \_ cases / examples

### Industrial Symbiosis

a) Definition

b) Examples

FISSAC Project

Paperchain Project

Kalundborg Symbiosis



## Definition

Industrial symbiosis is a form of brokering to bring companies together in innovative collaborations, finding ways to use the waste from one as raw materials for another. The word “symbiosis” is usually associated with relationships in nature, where two or more species exchange materials, energy, or information in a mutually beneficial manner.

Local or wider co-operation in industrial symbiosis can reduce the need for virgin raw material and waste disposal, thereby closing the material loop - a fundamental feature of the circular economy and a driver for green growth and eco-innovative solutions. It can also reduce emissions and energy use and create new revenue streams.

However, in order to make industrial symbiosis a wide-spread commercial reality, more needs to be done to manage the flow of waste material from different sectors and industries, and there is still much to understand about:

- environmental and societal impacts
- harmonization of technologies, processes, policies
- civil society engagement to a circular economy at EU level
- waste resources information
- waste treatment technologies
- business models and coordination between value chain actors





## Definition and types

- An approach that engages several organisations across different fields in a process of developing mutually beneficial transactions to reuse waste and by-products.
- Can be implemented in any type of regions or area, depending of the types of resources transacted.
- Depends on governance and policy factors.
- Originates in two ways:
  - As self-organised activity (e.g. Kalundborg, DK)
  - As managed process; 2 types:
    - Facilitated networks
    - Planned networks



## Overview

Fostering Industrial Symbiosis for a Sustainable Resource Intensive Industry across the extended Construction Value Chain.



### Project information

- HORIZON 2020
- Grant agreement ID: 642154
- Start date: 1 September 2015 - end date 29 February 2020



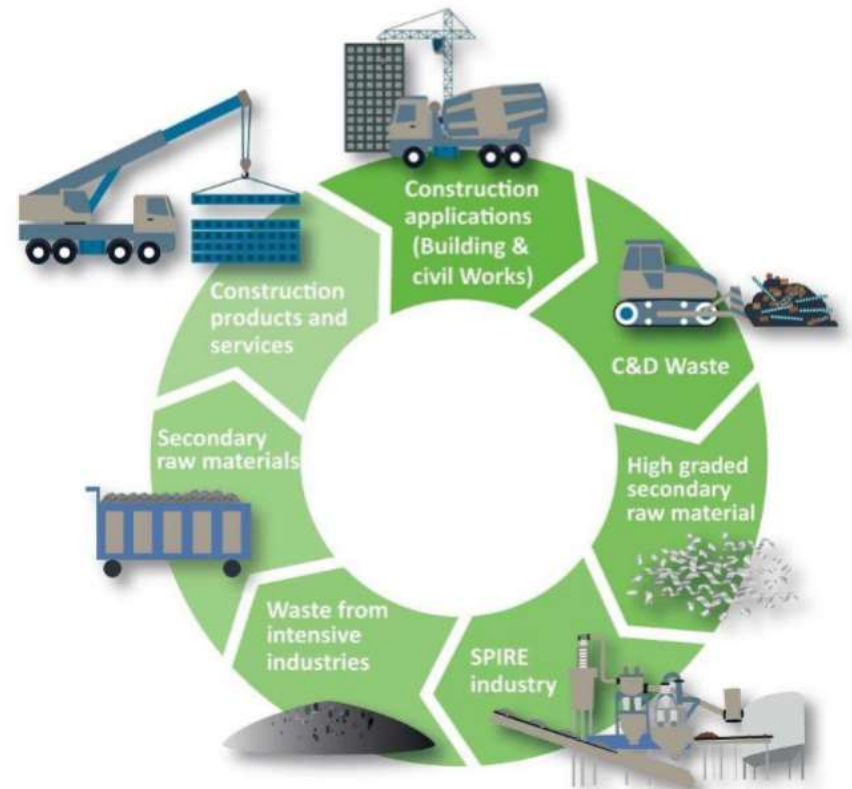
## Concept

FISSAC project involves stakeholders at all levels of the construction and demolition value chain to develop a methodology, and software platform to facilitate information exchange, that can support industrial symbiosis networks and replicate pilot schemes at local and regional levels.

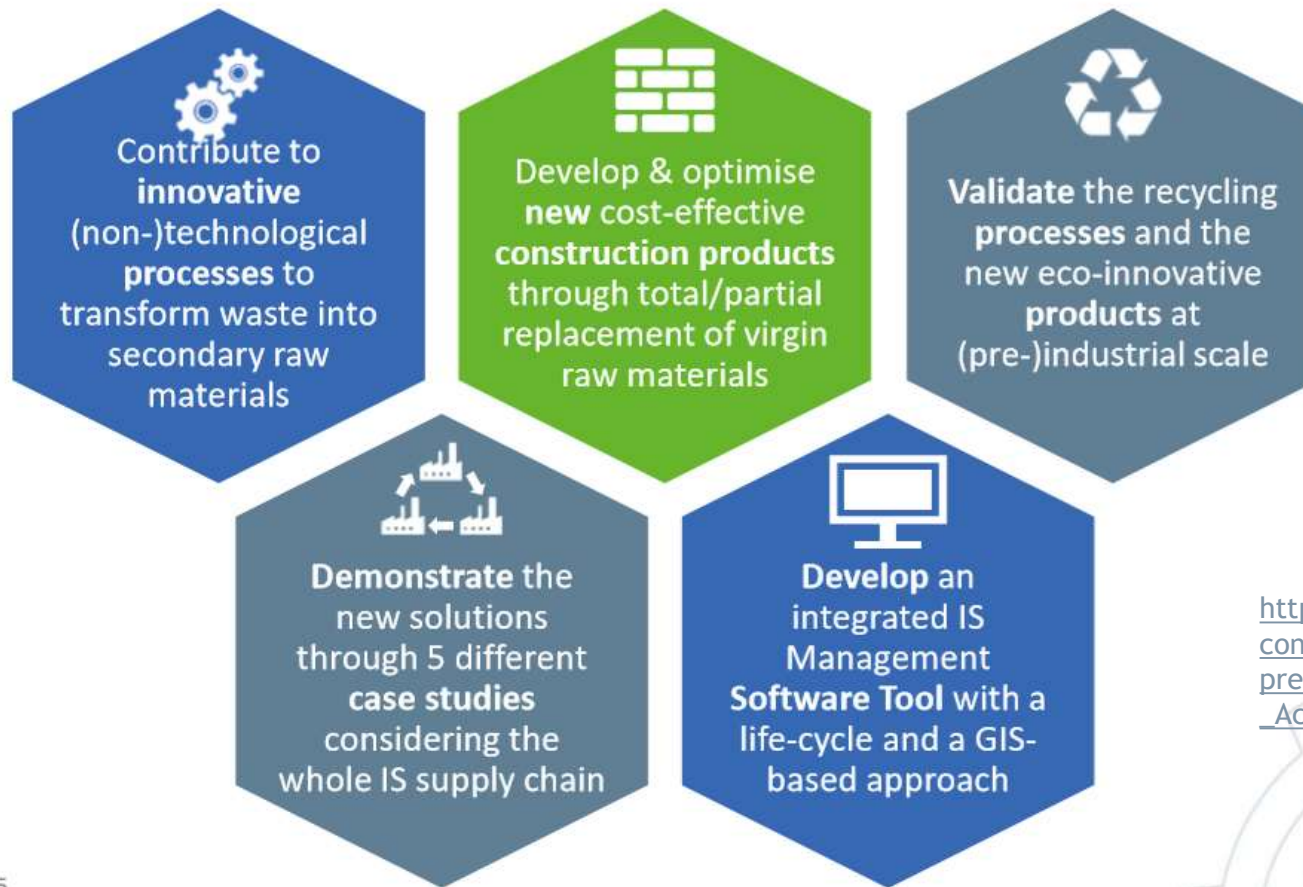
**The model will be based on 3 sustainability pillars - environmental, economic, social (taking into consideration stakeholder engagement and impact on society).**

The ambition is that the model created can be replicated in other regions and other value chain scenarios.

FISSAC aims to demonstrate the effectiveness of the processes, services, and products at different levels.



## Scientific & technical goals



<http://fissacproject.eu/wp-content/uploads/2020/01/FISSAC-General-presentation.-Final-Conference-2020-Acciona.pdf>

## SW platform

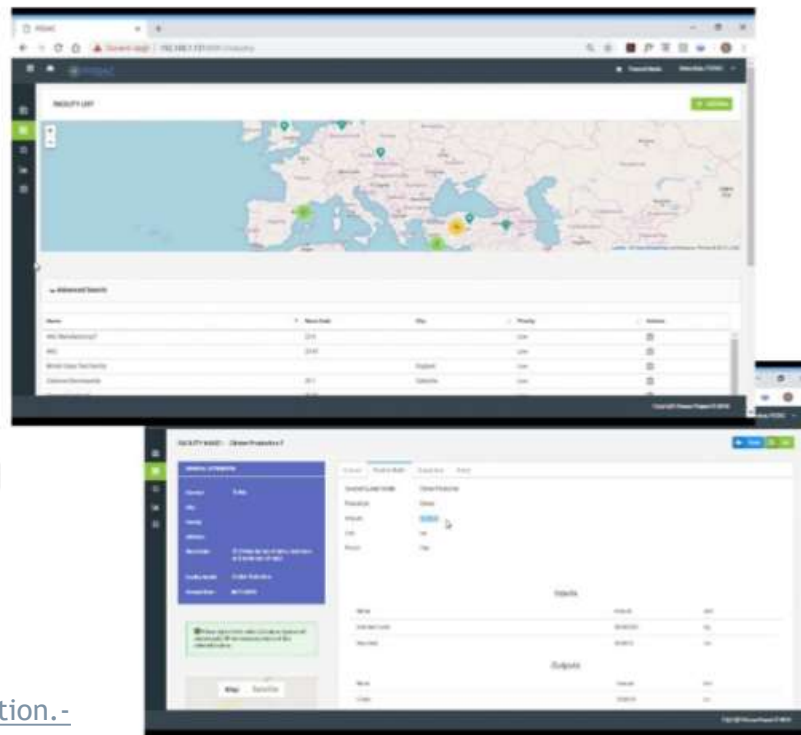
An important objective of the project is the introduction of a model for Industrial Symbiosis. For this, a specific tool is being developed and will be evaluated within the project: the **FISSAC Software Platform**.

It will feature amongst others a Life Cycle based Multiple Factor Analysis, network indicators and GIS based capabilities.

### Capabilities

- Life-cycle assessment
- Life-cycle costing
- Material and energy flow analyses
- Multi-objective optimization
- Visualization & Diagrams
- Network analysis through industrial ecology metrics
- Graph and network topologies and industrial system modeling
- Innovative circular economy and industrial symbiosis indicator-based assessment

[http://fissacproject.eu/wp-content/uploads/2020/01/FISSAC-General-presentation.-Final-Conference-2020-\\_Acciona.pdf](http://fissacproject.eu/wp-content/uploads/2020/01/FISSAC-General-presentation.-Final-Conference-2020-_Acciona.pdf)





## Webinar platform



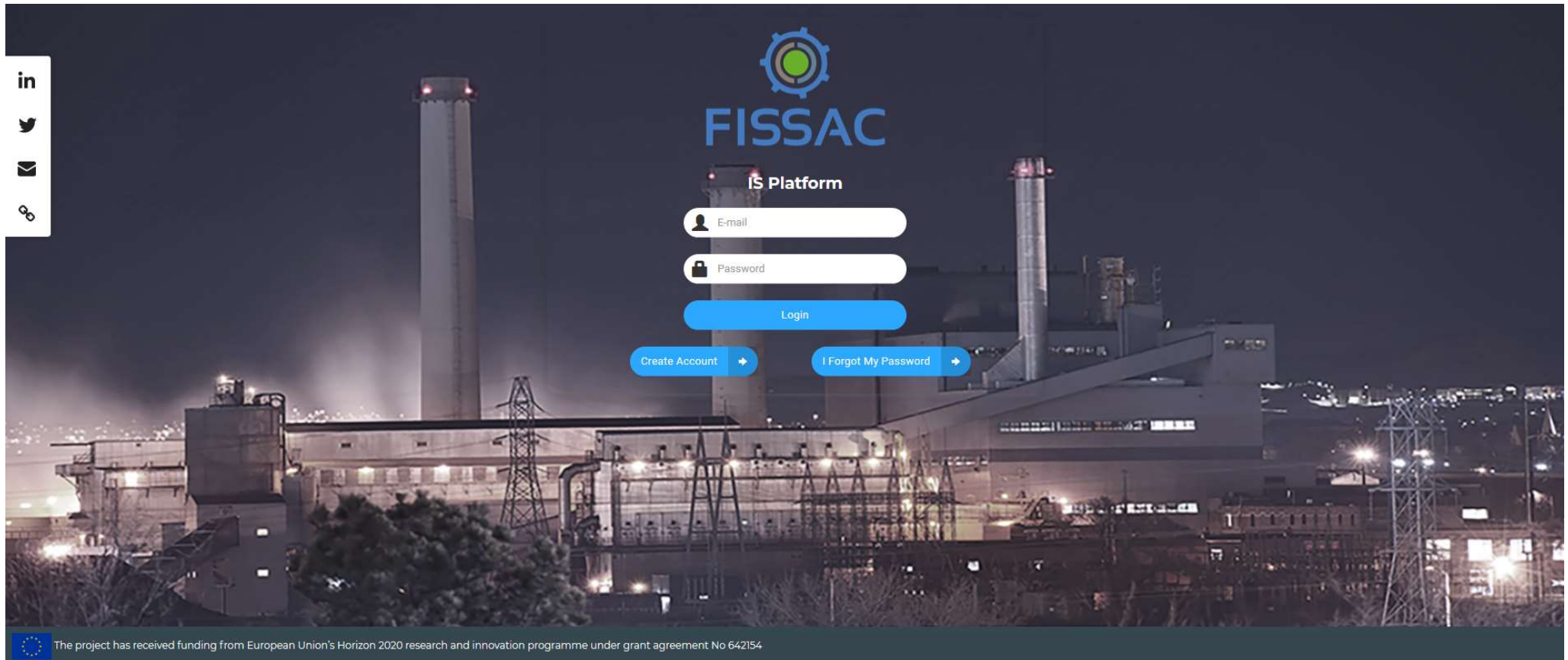
[View the recording !](#)





# FISSAC PROJECT - IS PLATFORM

## IS platform









## Information & objective

### Project information

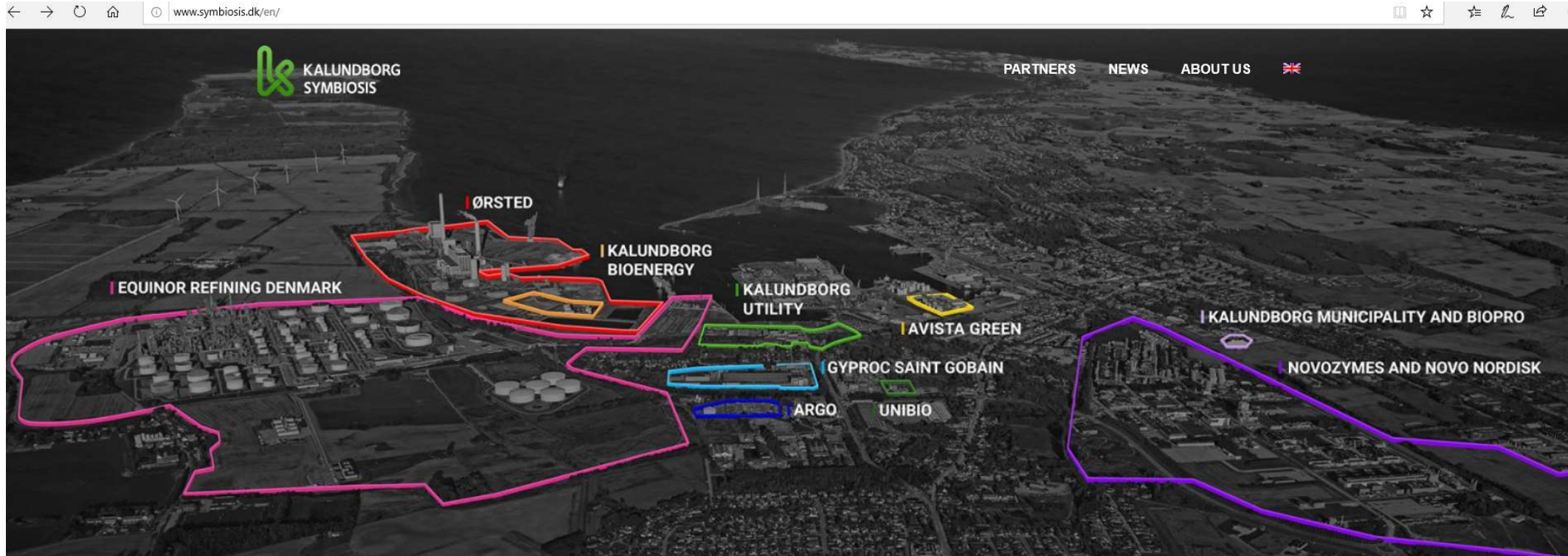
- HORIZON 2020
- Grant agreement ID: 730305
- Start date: 1 June 2017 - end date 31 May 2021

### Overall objective

- PAPERCHAIN is to deploy five novel circular economy models centred in the valorisation of the waste streams generated by the PPI as secondary raw material for a number of resource intensive sectors:
  - construction sector,
  - mining sector and
  - chemical industry.
- PAPERCHAIN aims to unlock the potential of a resource efficient model based on industrial symbiosis which will demonstrate the potential of the major non-hazardous waste streams generated by the PPI as valuable secondary raw material.



# KALUNDBORG SYMBIOSIS



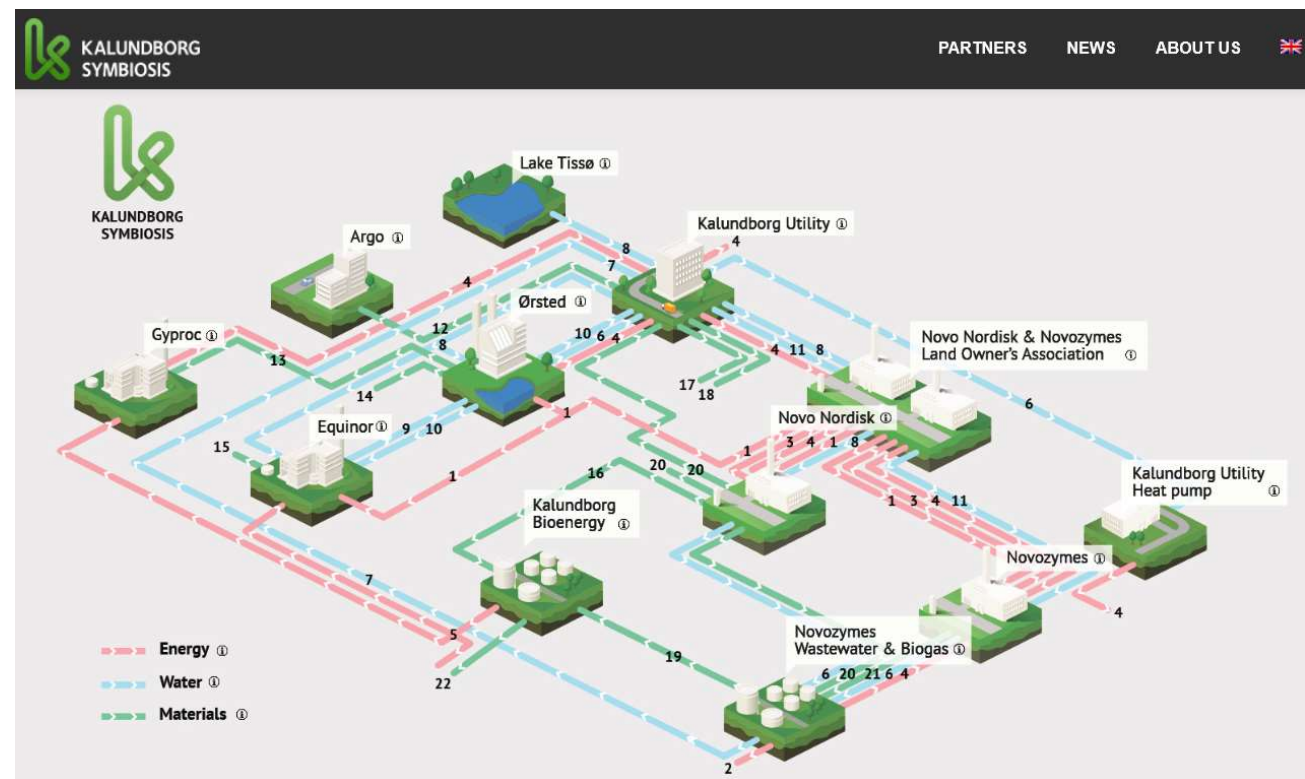
Winner of  
WIN-WIN GOTHENBURG SUSTAINABILITY AWARD 2018



## Partnership

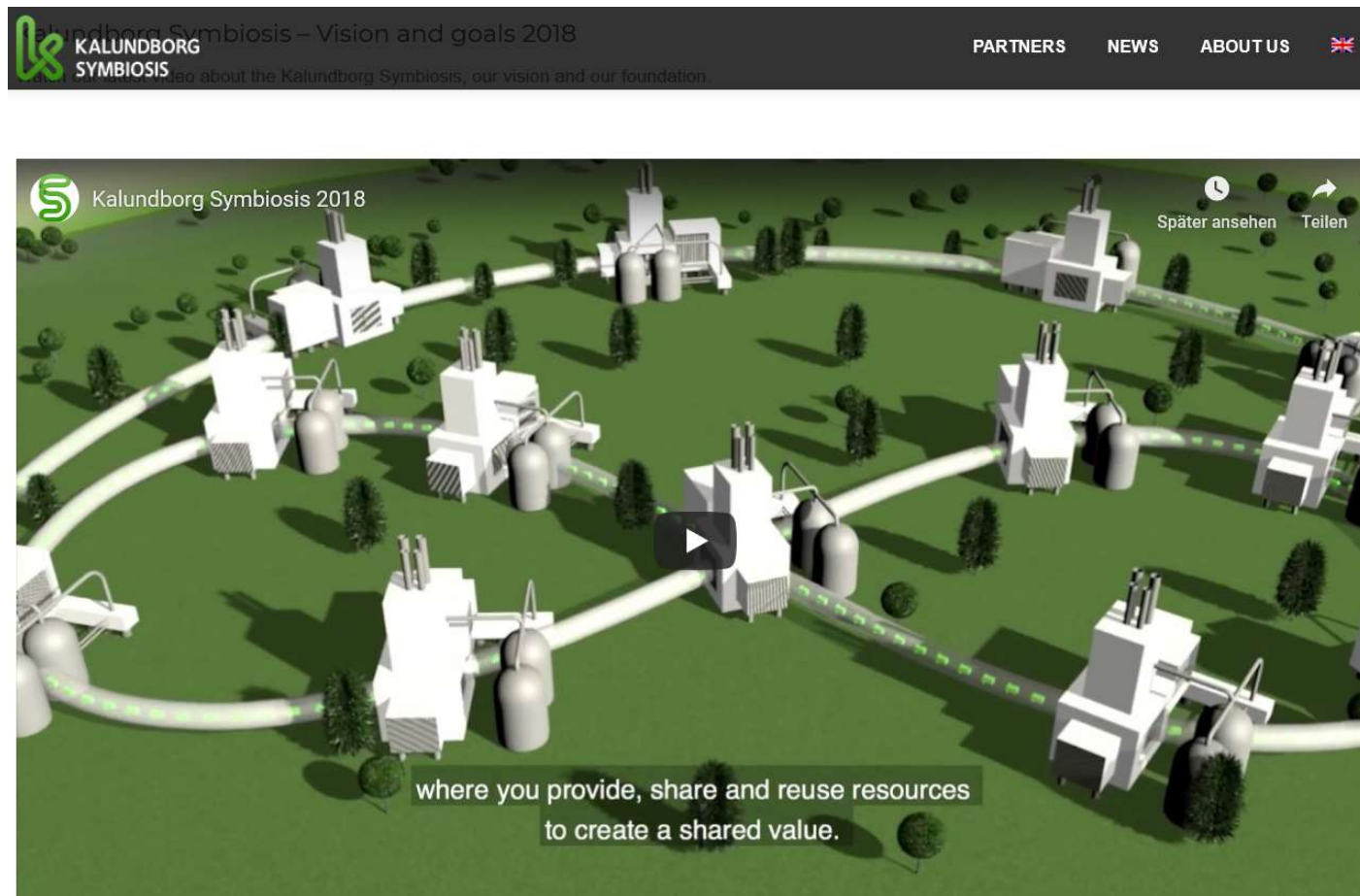
The Kalundborg Symbiosis is a partnership between 11 public and private companies in Kalundborg.

Since 1972 Kalundborg has developed the World's first industrial symbiosis with a circular approach to production. The main principle is, that a residue from one company becomes a resource at another, benefiting both the environment and the economy





## Watch the video !



## CE HUBs - cases / examples

Focus on regional and two smaller national HUBs

### a) Regional Hubs

Circular Flanders is the HUB and the inspiration  
for the Flemish CE (+ webinar)

### b) National Hubs

Switzerland - Movement for a CE

Australia - The National CE HUB

**more examples (not further elaborated here)**

- SITRA, Finland & Kemi Circular and Bioeconomy Center, Lapland (+ webinar)
- Zero Waste Scotland, Scotland



## Circular Flanders is the HUB and the inspiration for the Flemish CE

### **Vision 2050. A long -term strategy for Flanders.**

The vision sees Flanders as an inclusive, open, resilient and internationally connected region that creates prosperity and wellbeing for its citizens in a smart, innovative and sustainable manner.

In order to facilitate the vision, the Government of Flanders selected 7 transition priorities:

1. CE
2. Smart living
3. Industry 4.0
4. Lifelong learning and a dynamic professional career
5. Caring and living together in 2050
6. Transport and mobility
7. Energy



## Circular Flanders - issues addresses

- **Demographical trends:** population growth, ageing and rejuvenation of the population, migration.
- **Scientific and technological trends:** the emergence of disruptive and exponential technologies, driven by science and innovation.
- **Ecological trends:** climate change and the burden on natural resources.
- **Economic trends:** disruptions due to technological breakthroughs, shift of the world's economic centre to the East, industrial transformations, new relationships between producers and consumers.
- **Political and administrative trends:** changing geopolitical relationships, transformation of governments and institutions.
- **Social trends:** individualisation and diversity.



## Circular Flanders - a true circular partnership

Partnership of governments, companies, civil society, and the knowledge community that will take action together. 17 organisations build the core - each one has committed to carrying out a specific action:



## Circular Flanders - 6 core activities

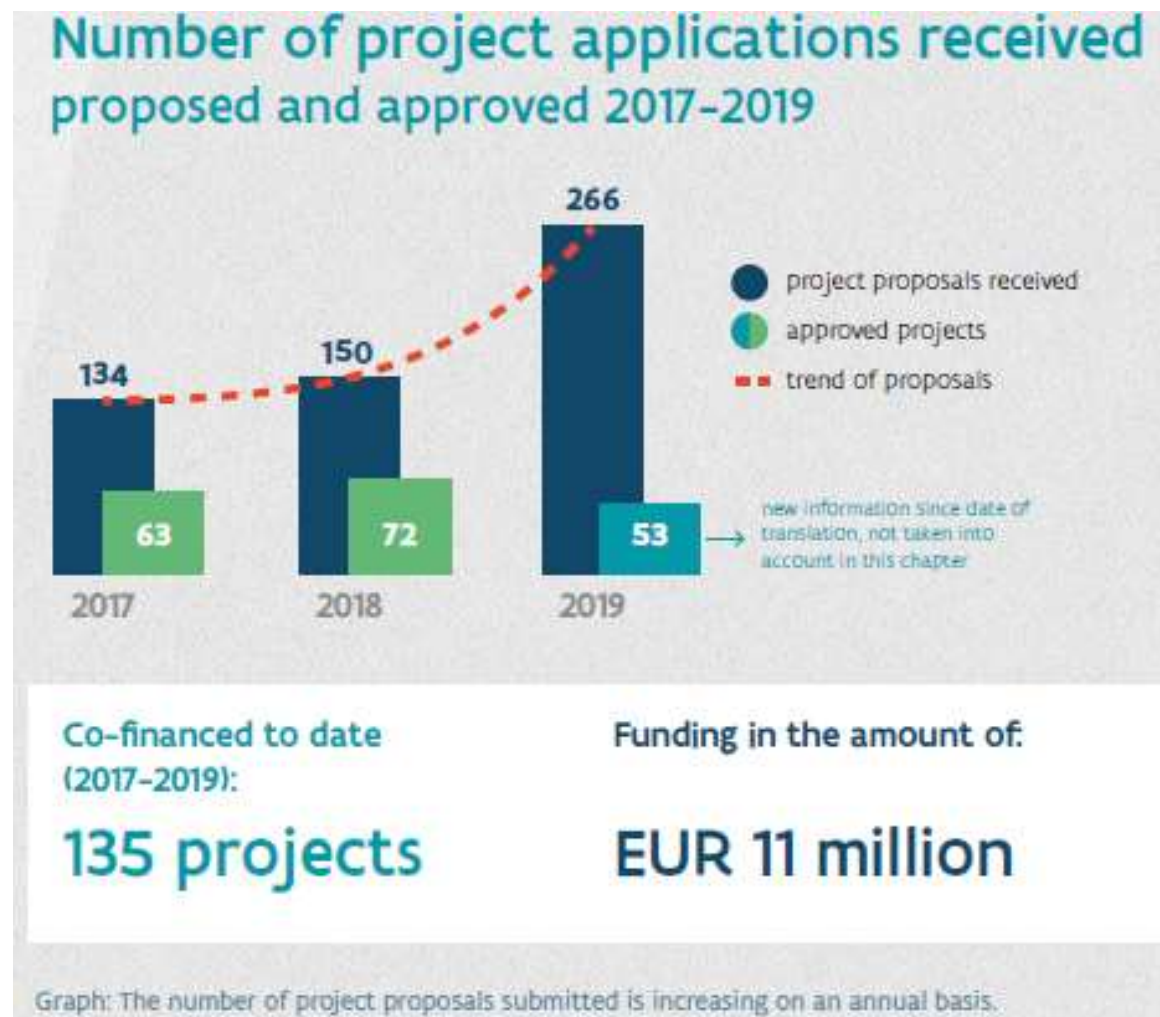
1. Network & Community > We connect and co-create.
2. Knowledge & Education > We build and share our knowledge.
3. Innovation > We enable.
4. Catalyst > We make it happen.
5. Policy > We support.
6. Embedding > We make it grow.



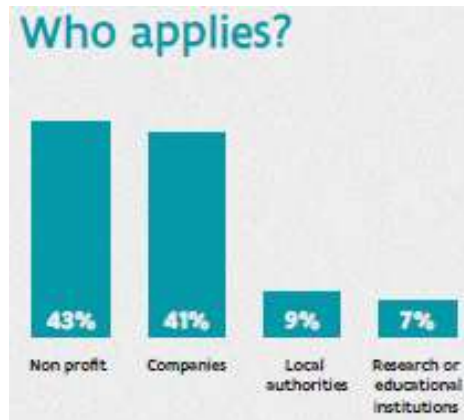


## Circular Flanders - Open call - experiments

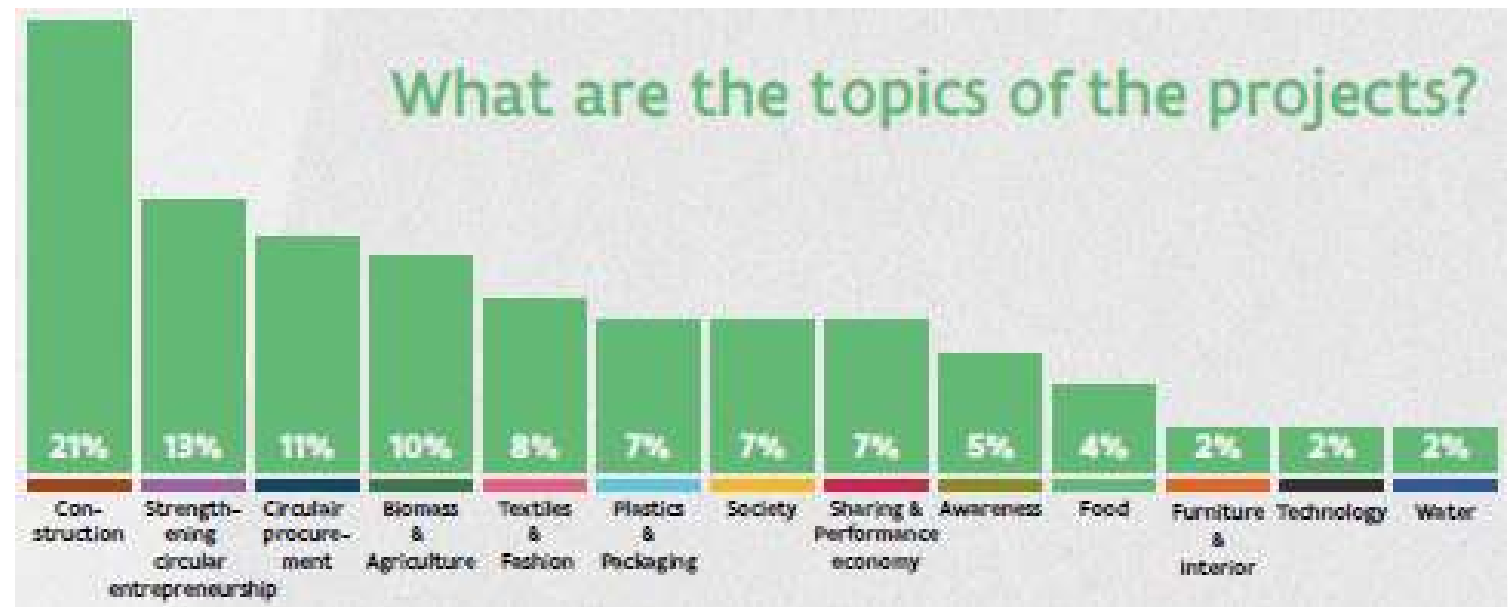
Financial support  
to CE projects  
via Open Call



## Circular Flanders - Open call - topics



Open Call -  
high number &  
wide range of  
thematic projects



## Circular Flanders - Open call - budget

### 3 categories of projects

1. 'city and entrepreneurship' projects;
  2. 'circular procurement' projects;
  3. revamped '2017 city and entrepreneurship' projects.
- average grant amount is EUR 89,000 (with a max of EUR 100,000)
  - for an average project budget of EUR 136,000.

### What's the budget?

		# projects	budget
<b>2017</b>	city and entrepreneurship	52	4.588.249,31 €
	procurement	11	209.110,00 €
<b>2018</b>	revamped 2017	15	1.455.365,56 €
	city and entrepreneurship	53	4.656.044,38 €
	procurement	4	65.255,00 €
		<b>135</b>	<b>10.974.024,25 €</b>



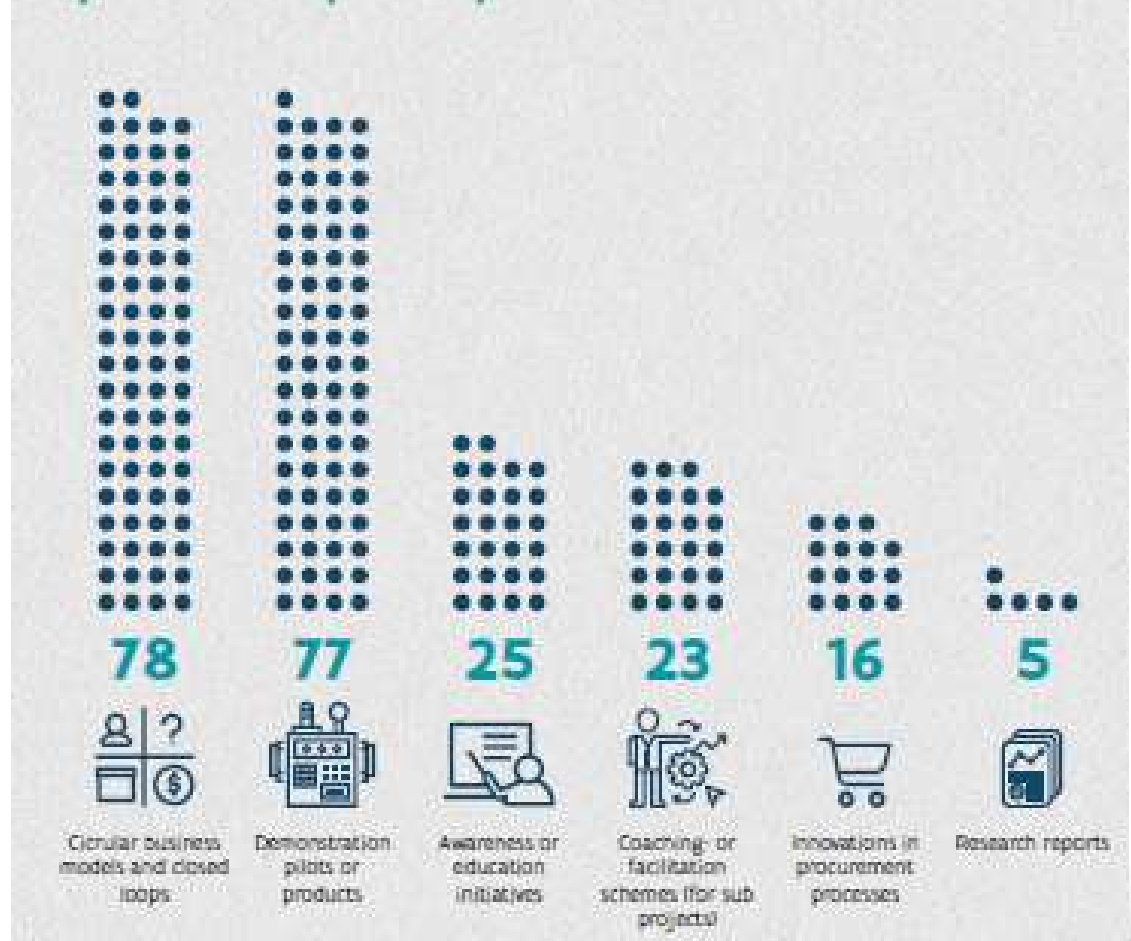
## Circular Flanders - Open call - output

Open Call -

typology of output types:

- circular business models and closed chains
- demonstration plants or products
- awareness-raising or education initiatives
- coaching or facilitation processes
- innovations in the procurement process
- research reports

Expected outputs Open Call 2017-2018



## Circular Flanders - Lessons learned

- Broad societal support helps in identifying relevant circular topics and eventually good projects. Moreover, it increases the likelihood that project results are implemented as planned.
- To improve the quality and diversity of projects, it is important, as a funder, to reflect on previous calls for projects and see how these can be improved. In the case of Circular Flanders, asking more specific and clear questions helped to improve the instrument and the turnout of the calls.
- Letting go of the expectation that all projects have to be successful could lead to more interesting and innovative project proposals being submitted. It should be recognised that also less successful projects can provide important lessons and inspiration.
- Providing subsidies also leads to the optimisation of policy and laws, as they allow for the noticing of practical bottlenecks that would not have been discovered if the subsidies had not been granted.



## Webinar presentation

### References

#### ***Vision 2050. A long-term strategy for Flanders.***

- Jan 2019 - <https://www.vlaanderen.be/publicaties/vision-2050-a-long-term-strategy-for-flanders-0> (long version - 104 pages)
- Dec 2019 - <https://www.vlaanderen.be/publicaties/vision-2050-a-long-term-strategy-for-flanders> (short version - 36 pages)
- 2016 - [http://financeflanders.be/sites/default/files/atoms/files/Vision\\_2050\\_eng.pdf](http://financeflanders.be/sites/default/files/atoms/files/Vision_2050_eng.pdf) (short version - 24 pages)

#### **Retrospective Report 2017 - 2019**

- [Circular Flanders - Retrospective Report 2017 - 2019; an overview of our activities for the CE in Flanders - first period.](#)





*Circular Flanders -  
Retrospective  
Report 2017 - 2019;  
an overview of our  
activities for the  
CE in Flanders -  
first period.*

The Circular Flanders  
Report is an interactive  
PDF.

On 104 pages an  
overview of the work  
carried out during 2017 -  
2019 is given.

<b>1 / ABOUT US</b> <ul style="list-style-type: none"><li>A. A partnership</li><li>B. Our approach</li><li>C. Our partners</li><li>D. Three pillars</li></ul>	<b>5 / OPEN CALL</b> <ul style="list-style-type: none"><li>A. CE experiments</li><li>B. A broad support network</li><li>C. Funding</li><li>D. Output(s)</li></ul>
<b>2 / CIRCULAR PROCUREMENT</b> <ul style="list-style-type: none"><li>A. The deal in detail</li><li>B. The GDCP projects</li><li>C. Allies</li><li>D. Timeline</li><li>E. Tools</li><li>F. The next step: Procirc</li></ul>	<b>6 / MARKETING &amp; COMMUNICATION</b> <ul style="list-style-type: none"><li>A. Products &amp; channels</li><li>B. Service point</li><li>C. In the press</li></ul>
<b>3 / CIRCULAR BUSINESS</b> <ul style="list-style-type: none"><li>A. Green Deal on Circular Construction</li><li>B. Developing levers</li><li>C. Jobs and skills</li><li>D. Ecodesign</li></ul>	<b>7 / INTERNATIONAL</b>
<b>4 / THE CIRCULAR CITY</b> <ul style="list-style-type: none"><li>A. Public activities</li><li>B. Urban Agenda</li><li>C. Smart circular cities</li><li>D. Circular space(s)</li><li>E. Circular metabolism</li><li>F. Productive circular cities</li></ul>	<b>8 / THE CE CENTER</b> <ul style="list-style-type: none"><li>A. Research and expertise</li><li>B. 8 research paths</li><li>C. Publications</li></ul>
	<b>9 / OUR TEAM</b>



## Switzerland - Movement for a CE

“In recent years various projects in the field of CE have emerged in Switzerland. A variety of private companies and public organizations pursue the goal of making the Swiss economy more circular with creative solutions and innovative initiatives. It is now important to bring together these numerous activities and actors, to exploit synergies and to give a new boost to the CE in Switzerland.”

Kick-off 04. Feb 2019



## Circular Economy Switzerland

A core team of 10 dedicated organizations has joined forces:

- Supported by the MAVA Foundation and the Migros Engagement Fund, the network will act as a catalyst for a new Swiss-wide CE movement with various projects and events.
- Circular Economy Switzerland sees itself as a coordination and exchange platform and is open to further initiatives in the field of circular economy.



## The CE Switzerland Charter

- **Character** The Charter is a self-declaration. Those signing show their intention to commit themselves to the CE in Switzerland and are committed to the principles set out in the Charter.
- **Vision** **Switzerland has completed the transition from a linear economy to a circular economy. In this way, the country is contributing to global sustainable development and is strengthening its own position as a location for business.**
- **Mission** Our mission is to promote the CE in Switzerland at all levels. Our movement is the driving force behind the efforts to create a market for CE products and services and to raise awareness of the concept of the CE in the business world and among the general public.

CE Switzerland brings together enthusiastic proponents of the CE from the private sector, civil society, politics and administration and promotes cooperation and knowledge sharing across all industries and fields.



## The CE Switzerland Charter

- **general** In a CE, resource consumption, waste, emissions and energy losses are minimised by closing, slowing and narrowing material and energy loops. This is achieved through long-lasting and regenerative design, maintenance, repair, reuse, refurbishing, recycling and cascade utilisation and through specially designed business models which focus on use rather than ownership.
- **4 principles**
  1. Understanding of the CE
  2. General/governance
  3. Cooperation
  4. Knowledge sharing
- **Who can sign** companies, organisations, NGOs, associations, research and educational institutions, philanthropists, politicians, administrative bodies and private individuals





## CE Switzerland - projects

- **general**      The core team of CE Switzerland already implements 6 innovative projects and acts as a catalyst for a new Swiss-wide movement in the CE.
- **Projects**      Circular Cities Switzerland  
                    [CE Transition](#) → see next  
                    [Make Furniture Circular](#)  
                    [Circular Hub](#)  
                    [SHIFT Switzerland](#)  
                    [CE<sup>2</sup> - CE Entrepreneurs](#)  
                    [#MoveTheDate Switzerland](#)



## CE transition

- **General** CET is a pioneer initiative that aims at accelerating the transition of Switzerland to a CE.  
The initiative will help drive the new paradigm for the future of business, politics and society.  
  
For the moment it takes place in the Impact Hub cities - Basel, Berne, Geneva, Lausanne and Zurich.
- **Collaboration** Implementing partners: Impact Hub Switzerland, sanua durabilities  
Funding partner: MAVA Foundation  
Supporters: UBS, movetia
- **Activites** CE Incubator  
Business Lab  
Community Events



## CE incubator

- **Program** **Swiss-wide program for early-stage Startups in the CE**
- **Call for projects**

The Incubator enables teams and startups to prototype and solutions contributing to accelerate the transition towards CE. These teams and startups can apply in a call for projects. Per call a maximum of 25 places will be available for early-stage projects from all over Switzerland with circular business models.
- **Activities**

CE Incubator  
Business Lab  
Community Events



## CE incubator \_ timeline

Timeline from call for projects until closing ceremony



## CE incubator \_ program for selected entrepreneurs

- **Program** 12 weeks
- **Activities** with the support from advisors, experts and the network of impact investors the selected entrepreneurs work on developing their minimum viable product and validating their business model,.
- **Support** main pillars of support
  - Community and space
  - Startup support
  - Events and connections
  - Swiss-wide visibility

The entire support provided accounts for CHF 15.000 per team.  
The CE Incubator has a zero equity and fees policy.





## Australia - The National CE Hub

- Australia is behind world leading countries in implementing CE policy, new policies that are either specific to the CE or strongly influenced by CE principles are beginning to emerge.
- Australia has a strong need for a platform that inspires and facilitates the collaboration and networking necessary for the transition to a CE.
- Planet Ark is taking the lead on creating the National CE Hub and Marketplace, which will be Australia's leading platform to accelerate the transition to a CE.
- The activities started in May 2019.



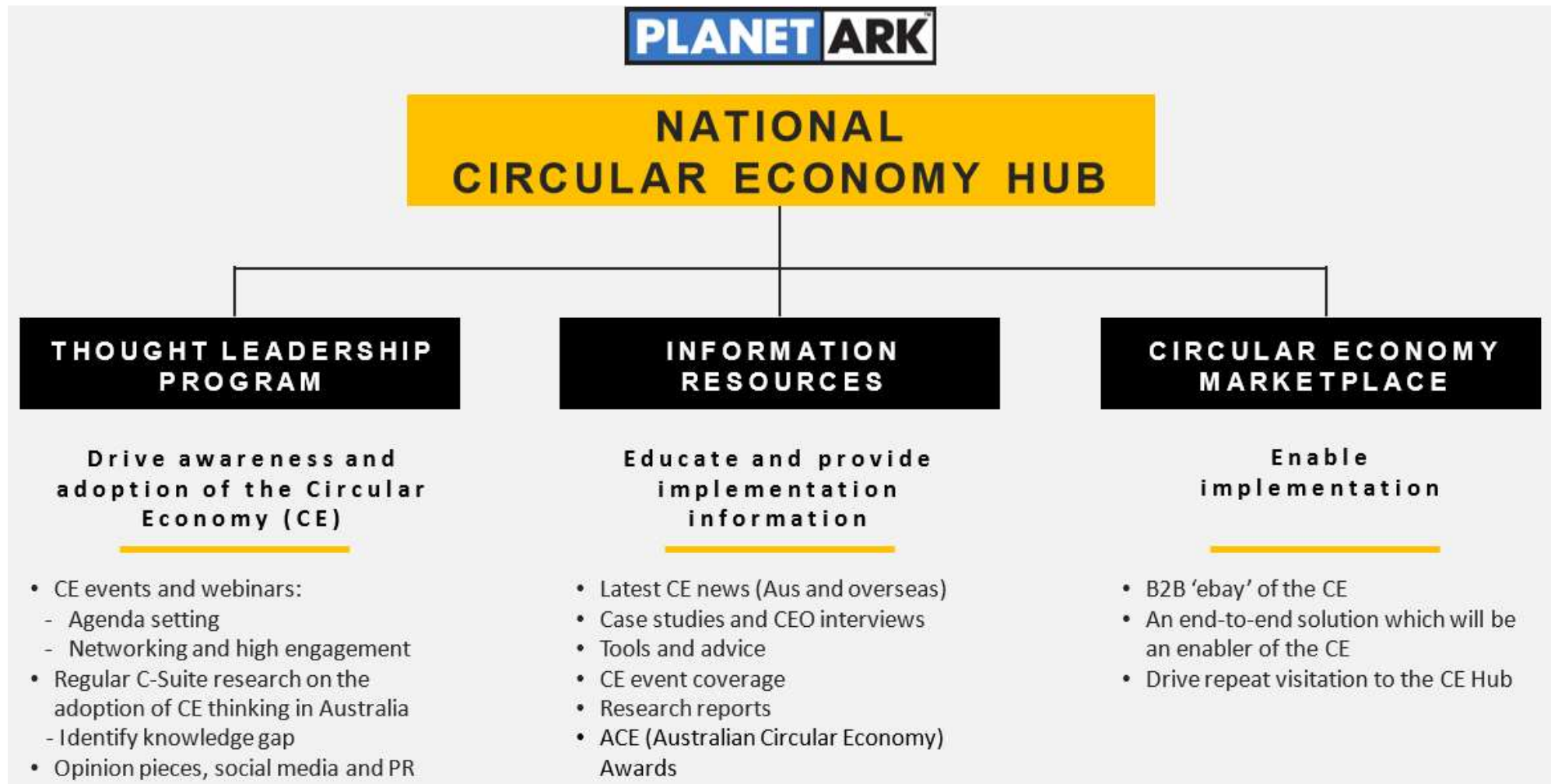
Planet Ark - The leading environmental not-for-profit will create the B2B ‘eBay’ to help Australian businesses implement the CE.”

Planet Ark ...

- is national, independent and non-political
- is a well known and trusted environmental not-for-profit with a long history in recycling education and product stewardship
- has a wealth of knowledge and experience in creating and growing database-driven digital platforms such as Recycling Near You and Business Recycling
- has a strong history of effective collaboration with the most recent examples being the Australasian Recycling Label and PREP with APCO and PREP Design









## CIRCULAR ECONOMY MARKETPLACE

A dynamic platform designed to meet the needs of the CE participants including:

- A system for matching buyers and sellers in waste resources. Provides an end-to-end solution including;
  - Material identification & specification
  - Transport and financial transaction.
  - trust rating for market participants and digital ledger to help ensure integrity.
- A CE procurement system for finished goods & services



**ENABLER OF THE CE**



**B2B 'EBAY' OF THE CE**



**REPEAT VISITATION**





## SITRA, Finland

- **SITRA** is an active fund for the future who studies, researches and brings together partners from different sectors in open-minded trials and reforms
- **Vision** Finland as a pioneer of sustainable well-being.  
Sustainable well-being means a good life that is lived within our planet's boundaries - here, now and in the future.
- **6 principles**
  1. Addressing well-being in a holistic way
  2. Adjusting to planetary boundaries
  3. Empowering individuals and communities
  4. Moving to a regenerative and collaborative economy
  5. Building competencies for a complex world
  6. Developing inclusive and adaptive governance



## SITRA \_ Kemi-Tornio economic region in Lapland ➔ The Circular and Bioeconomy Center

The Centre for CE originated from nationwide need

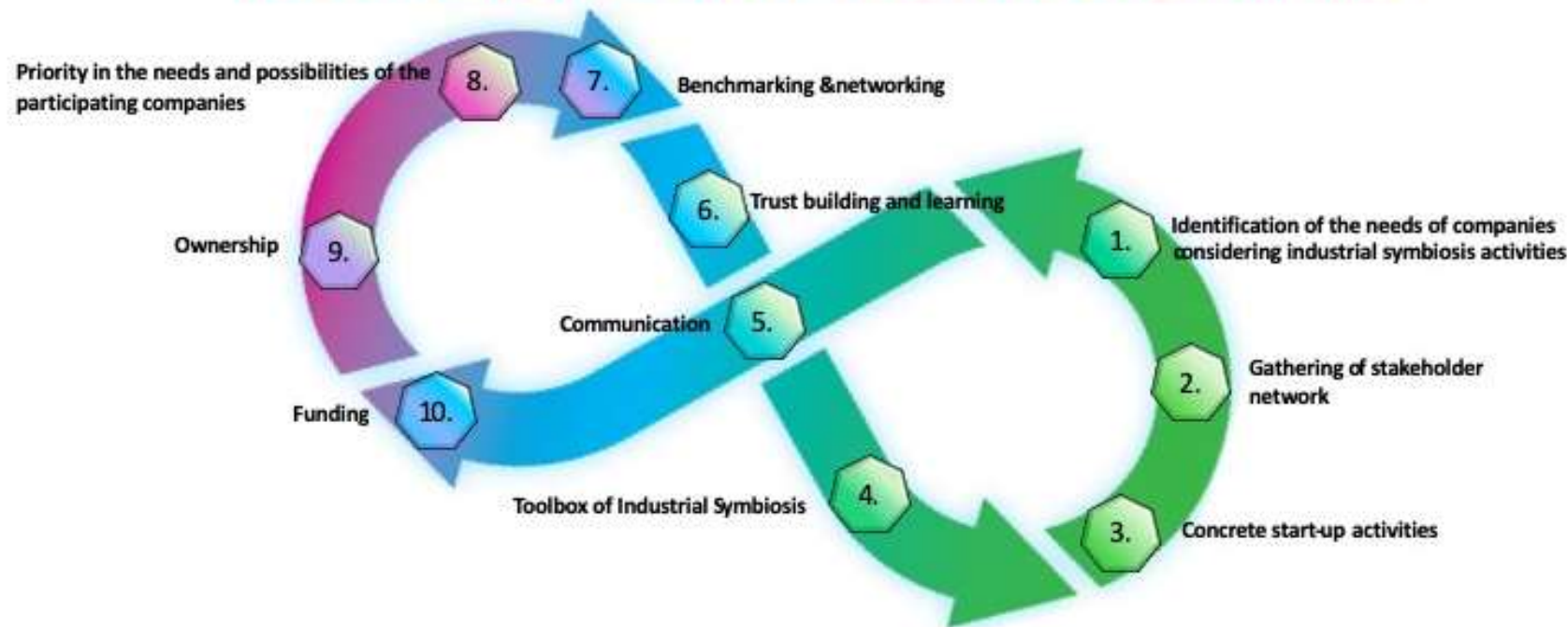
- Kemi - Preparation of an ecosystem for industrial circular economy 2012-2017.
- SITRA compiled 2016 world's first national road map for promoting CE with a goal of creating a shared ambition to advance CE in the society and determining the most efficient methods for that.
- SITRA named the Industrial CE Innovation Platform, led by Kemin Digipolis Oy, as one of the key projects of the road map.
- The next step was a project where the Competence and Training Centre for Industrial Symbiosis in Kemi-Tornio was established. Founding members of and key operators at the Centre for Circular and Bio Economy are Digipolis, the City of Kemi and the Lapland University of Applied Sciences (strategic focus area - development of circular and bio economy).
- Establishing the CE Center a logical continuation of Digipolis's work on promoting CE.



## The Circular and Bioeconomy Center

- Goal** - to develop a more competitive business environment for companies involved in the CE

### DESCRIPTION OF OPERATIONAL MODEL: TEN PILLARS



## Webinar presentation

### References

Websites: The Circular and Bioeconomy Centre: <https://www.digipolis.fi/en/teollinenkiertotalous>

Digipolis - Kemi Technology Park: <https://www.digipolis.fi/en/front-page>

SITRA: <https://www.sitra.fi/en/>



## Zero Waste Scotland, Scotland

- **Zero Waste** has been established in 2014, since then a lot has been achieved

- **Next plan** **Zero Waste Scotland's Corporate Plan 2019-2023**

- **The strategy** The purpose:

“To lead Scotland to use products and resources responsibly.”

The way:

“We will direct with evidence, inspire by demonstration, and influence through partnerships and promotion.”





## The strategy

### Start with evidence

- Work with our key partners to gather and assess information on the problems we currently face.
- Learn from international best practice to adapt successful approaches in Scotland.
- Analyse complex systems to identify opportunities.
- Focus efforts towards interventions with the highest impact.

### Test and demonstrate

- Work in partnership with our customers to co-create projects that demonstrate potential solutions.
- Pose the challenges we need solutions for.
- Embrace a culture where ideas are tested and thoroughly assessed.
- Learn from our work and develop compelling calls to action.
- Use all available channels, advocates and partners to promote our work and stimulate change.

### Form valuable partnerships

- Be more intentional about forming strategic partnerships - using a variety of approaches and skills.
- Develop propositions which are shaped by customers.
- Use cutting-edge behaviour science to rethink how we can be influential.
- Be flexible and open to new ideas.
- Deliver interventions (such as funding or consultancy services) on a partnership basis.



## References

- Website: <https://www.zerowastescotland.org.uk/>
- Brochure: [Zero Waste Scotland: Corporate Plan 2019 - 23. 2019.](#)
- Good Practice: [Good practice: Zero Waste Scotland. Interreg Europe.](#)

