

A photograph of a city skyline at sunset. A tall, curved skyscraper with a blue glass facade is the central focus on the left. To its right are several other high-rise buildings of varying heights and colors. The sun is low on the horizon, creating a bright lens flare and casting a warm glow over the scene. In the foreground, there is a green lawn and a small body of water reflecting the sky and buildings.

CIRCULAR ECONOMY IN CITIES

URBANREC, November 2019

VITO CONVERTS IDEAS
INTO REALITY

VITO SUPPORTS THESE
SUSTAINABLE
DEVELOPMENT GOALS

FROM SCIENCE
TO APPLICATION



TRANSITION TO A CIRCULAR ECONOMY

“VITO is fully engaged in accelerating the transition towards a circular economy by:

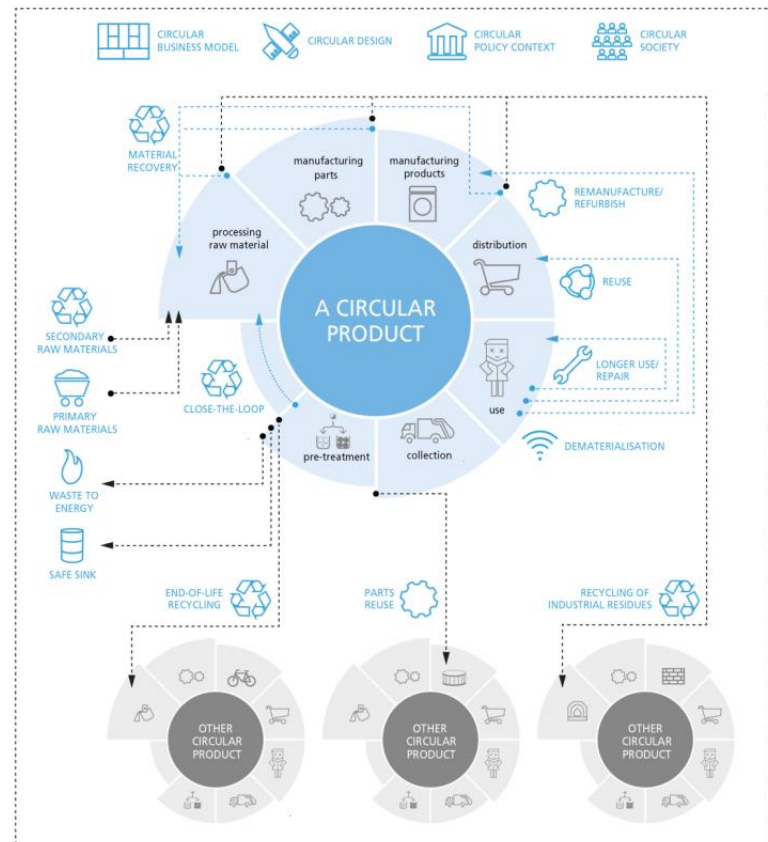
- *developing processes and technologies for industry to upcycle their waste streams into value added resources and products;*
- *unlocking the potential of a circular economy for Flanders and for Europe,,*

UNIT SUSTAINABLE MATERIALS: CIRCULAR ECONOMY TRANSITION

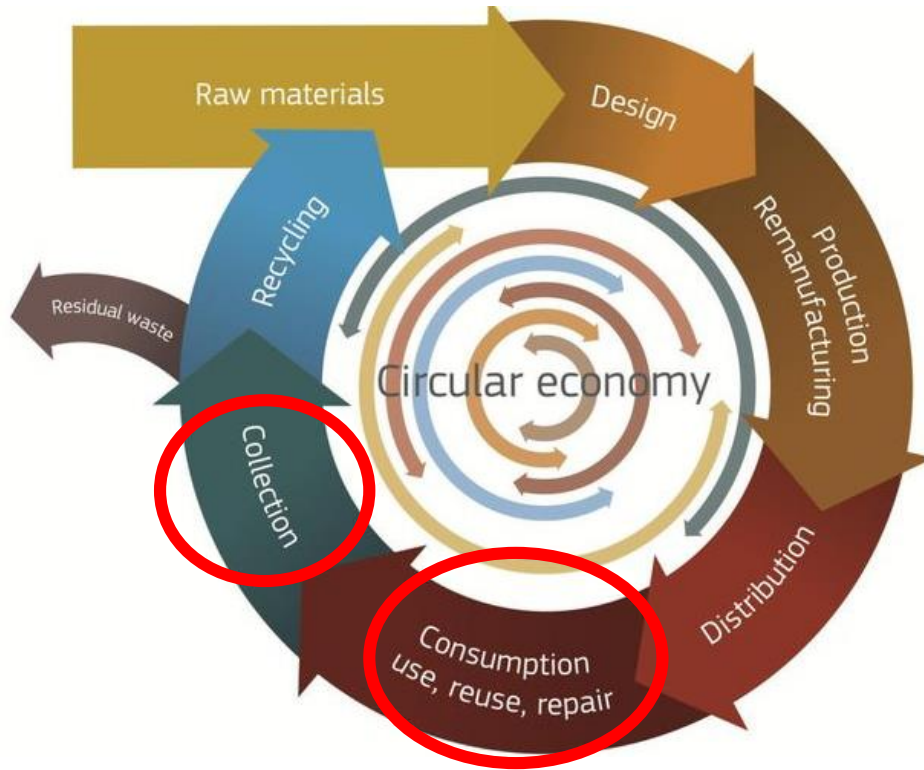
Circular economy strategies

Upcycle industrial waste into new products

Optimise products and processes



UNLOCKING THE POTENTIAL OF THE CIRCULAR ECONOMY FOR CITIES



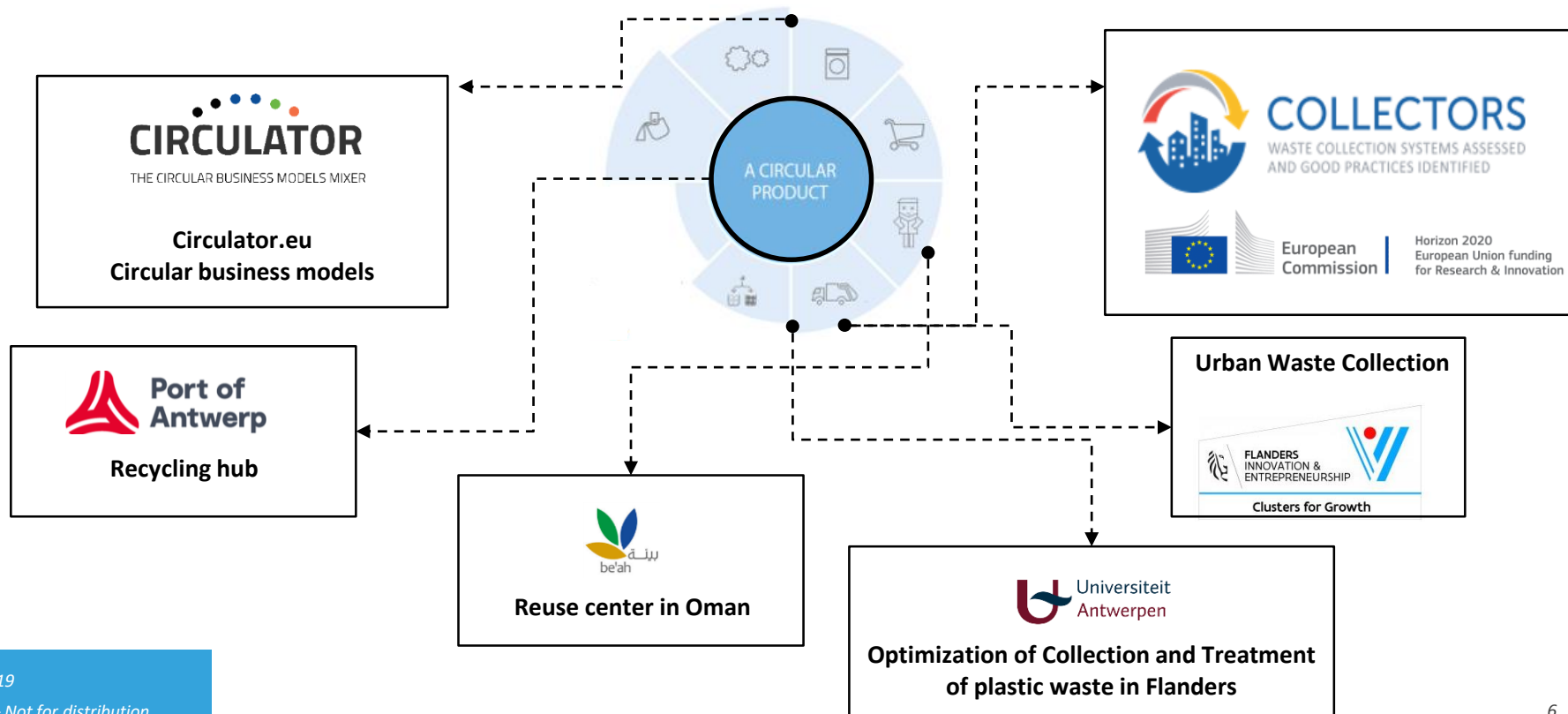
Circular Economy

An economic system 'where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste and emissions minimized'.

2 main opportunities for cities:

- **COLLECTION & RECYCLING**
- **REUSE**

PROJECTS EXAMPLE



CLOSING INNER CYCLES: REUSE CENTER MUSCAT, OMAN

Role of a reuse center

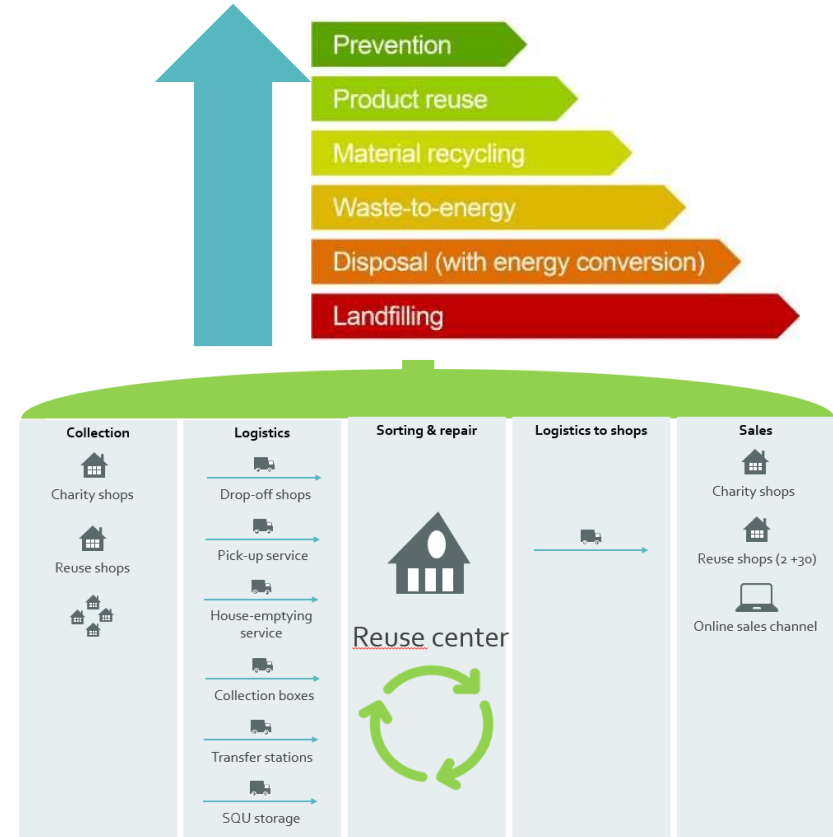
A reuse center plays a key role in the evolution towards a more circular economy.

It acts as a **consolidation point** in the **collection chain** and **identifies, repairs and refurbishes** goods to create high quality second hand products with warranty and guarantees proper treatment for the residual waste.

A successful reuse center will require an integrated set of **collaboration processes between the different stakeholders: government, waste management companies, knowledge centers, universities, charities, retail outlets,**

The reuse center and the integrated collection chain will also act as a **knowledge and awareness catalyst** to accelerate the process towards a **sustainable and circular society**.

Towards a circular society



Vision on the reuse center

Objectives



- 1 Go circular: Divert waste from landfills & reduce carbon footprint



- 2 Build a general awareness on sustainable consumption



- 3 Perform research & education projects



- 4 Be financially sustainable



- 5 Create meaningful employment



- 6 Develop In-Country-Value by retaining quality material within the economy & creating business opportunities for SMEs



- 7 Collaboration & Partnerships with existing initiatives








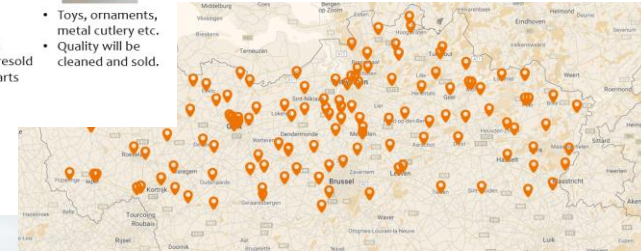
'De Kringwinkel' in Belgium (Flanders)

Social recycling economy

One brand

- 30 re-use centers
- 147 stores
- 83,000 Tons of goods collected
- 30,500 Tons of goods sold (5kg/inhabitant)
- 6 mio sales transactions
- 5,400 employees (80% social economy)

Clothes & Textiles	Books	Electrical Appliances	Furniture & Bulky Items	Miscellaneous Household Items
				
<ul style="list-style-type: none">• Clothes, textiles, shoes, bags, belts, towels, etc.• Hand sorted.• Quality will be donated or resold.• Damaged will be recycled.	<ul style="list-style-type: none">• Books in good condition to be donated or resold.	<ul style="list-style-type: none">• Kitchen appliances, hairdryer, washing machine, fridge, computer monitors, TV etc.• Visual inspection.	<ul style="list-style-type: none">• Quality will be donated.• Damaged will be refurbished and resold or stripped for parts and used/sold.	<ul style="list-style-type: none">• Toys, ornaments, metal cutlery etc.• Quality will be cleaned and sold.



Key objectives of 'De Kringwinkel'

1. Create jobs and growth for people with distance to the labor market = Social Economy
2. Diminishing waste by reuse



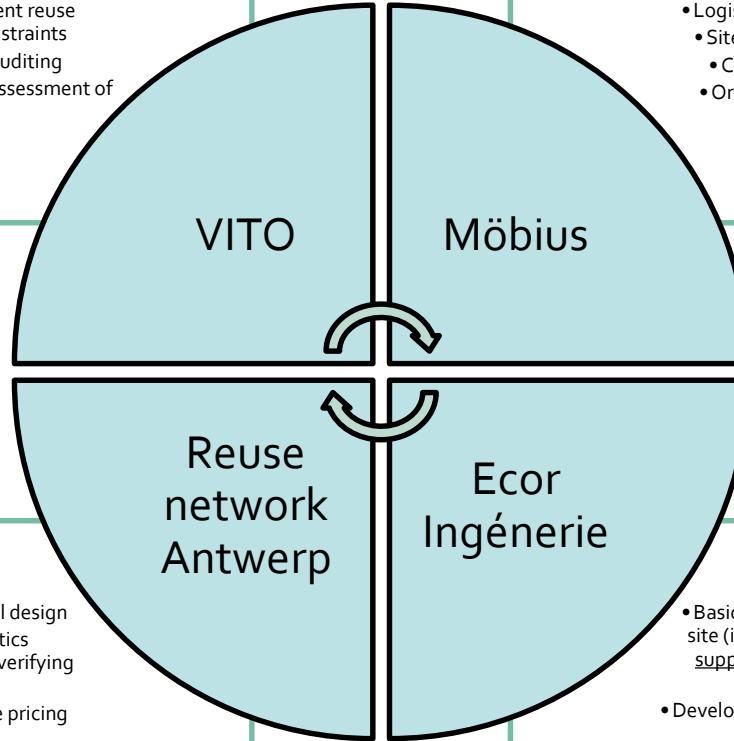
Partners in the project

Different responsibilities



(Project consortium
lead, responsible for
project management)

- Develop reuse vision
- Assessing current reuse efforts and constraints
- Material flow auditing
- Performance assessment of reuse center



- Operations consultant
- Logistics process design
- Site conceptual design
- Cost-benefit analysis
- Organizational design



- Site conceptual design
- Design of logistics processes and verifying internal ops
- Developing the pricing approach

- Basic engineering of the site (internal/external) to support the cost benefit analysis
- Developing an interior layout plan

de kringwinkel

Antwerpen

SITE VISIT MUSCAT



References

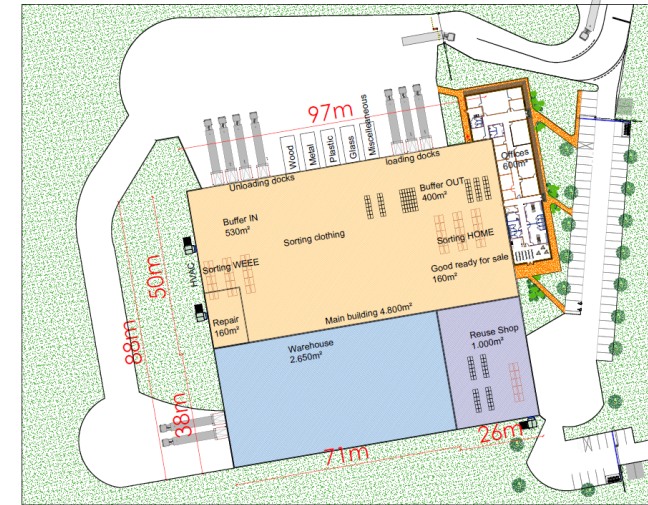
SQU –Oman: Design reuse center

Strategic moment:

Be'Ah and SQU want to introduce circular economy into Oman by a reuse center that should host circular events, workshops and speakers and where all Omani could come and buy high-quality second-hand goods (awarenesse is key!)

Results

- Vision on the reuse center and its role in Oman society
- Financial analysis of three possible scenarios
- Social and environmental impact analysis of the three scenarios
- Recommendations on how to manage the future internal operations
- Proposition of warehouse lay-out



CLOSING OUTER CYCLES: H2020 PROJECT COLLECTORS

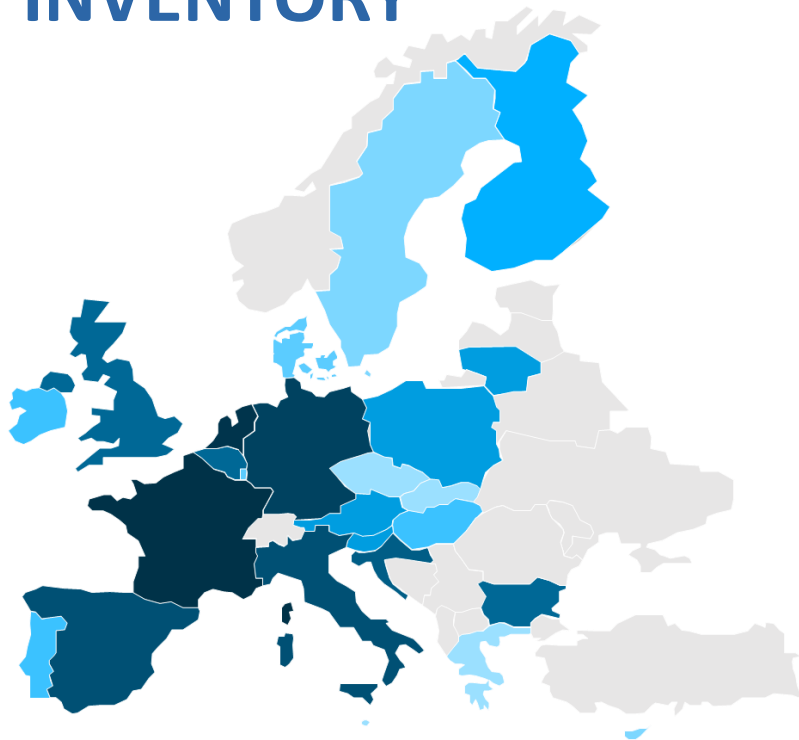
H2020 PROJECT: COLLECTORS

Many territories in the European Union still lag behind when it comes to achieving current recycling targets, due to specific challenges or lack of resources

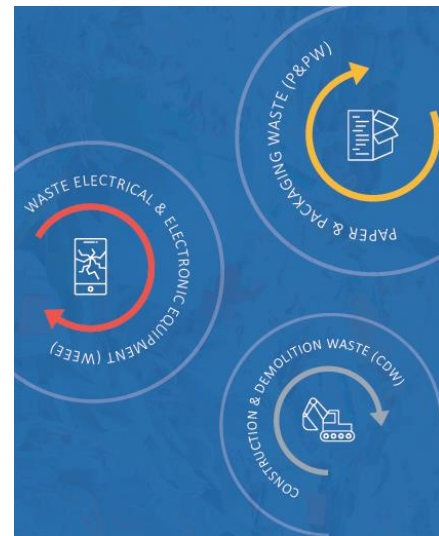
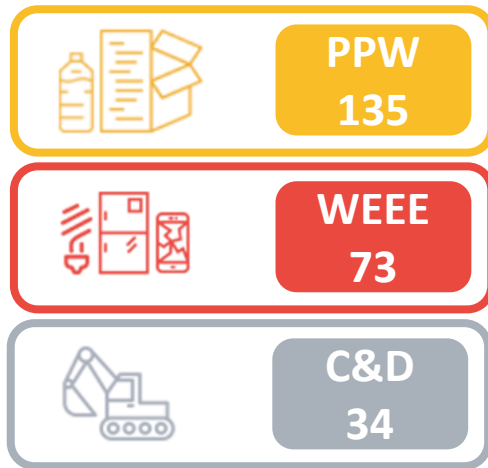
“The COLLECTORS-consortium is convinced that good performing regions and cities have the potential to serve as good practice examples for **regions with similar local contexts**”



INVENTORY



242 waste collection systems identified and described on ~30 parameters
Covering 25 European countries



ASSESSMENT

Selection of 12
cases studies

Assessment of performances

Material quality for recycling
Societal acceptance (citizens)
Economic performance (CBA)
Environmental performance (LCA)

Identification of
complementarities,
trade-offs, and
opportunities.

RESULTS CIRCULAR ECONOMY ANALYSIS FOR WEEE & PPW

COMMUNICATION is key!

Very limited information shared along the value chain between municipalities, Producer Responsibility Organizations and recyclers

Enhanced cooperation & information sharing between collection, sorting, recycling and producers of would improve the quality of recyclable outputs and uptake of markets

5 TAKE HOME MESSAGES

1. Two main opportunities for circular economy in cities:
 - **COLLECTION & RECYCLING**
 - **REUSE**
2. Take into account how changed consumer behavior & new technology will impact society
3. Communicate, cooperate, share information with all stakeholders in the value chain
4. Education & awareness for the circular economy are crucial
5. Circular economy can create meaningful employment

Let's make the world a better place!

THANK YOU!

Contact:

Dr Andrea Winterstetter

Expert Sustainable Materials Management

andrea.winterstetter@vito.be

+32 14 33 51 51

WIN – WIN – WIN



- Environmental awareness
- Help achieve diversion goals
- Material flow management



Government



Commercial Entities



Investors



Students

- Increase in public welfare
- Job opportunities for disadvantaged sector

- CSR Opportunity
- Increased availability of second hand goods

- CSR Opportunity

- Participation in reuse initiatives
- Trainings opportunities



General Public



Reuse Center



Outlet Market



Charities



Scrap Dealers

- Job opportunities
- Easy avenue to donate
- Increased availability of second hand goods

- Cash positive project

- Increased availability of second -hand items
- Items pre-certified for safety and quality; no expense spent on repairs

- Additional revenue stream
- Larger donation network

- Source of raw material