

Zero Waste Live!

18 February 2020 - 06.30 p.m. CET



CIRCULAR CITIES AND CLIMATE CHANGE

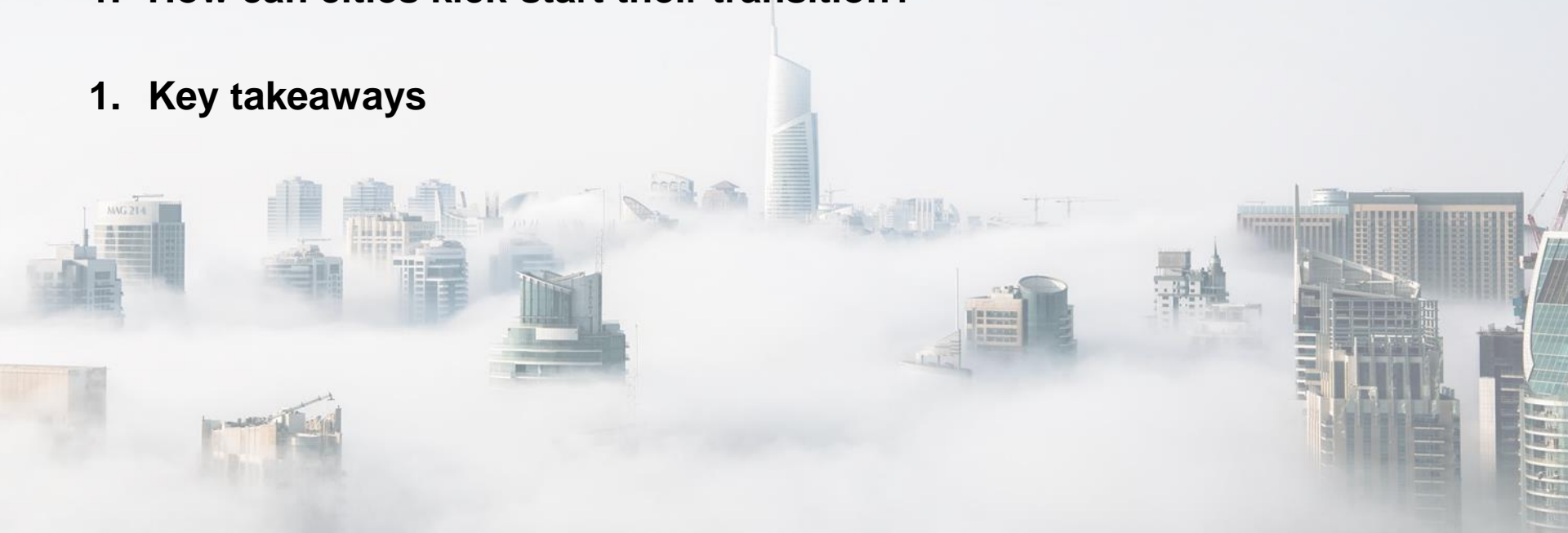


Max Russell

Project Manager - Circle Cities Programme -
Circle Economy

OUTLINE

1. What is the potential for circular cities to tackle the climate crisis?
1. How can cities kick-start their transition?
1. Key takeaways



1

CITIES & THE CIRCULAR ECONOMY

THE POTENTIAL OF CIRCULAR CITIES



55%

of global population
lives in urban areas

70%

of global resources
are used in cities

80%

of global GDP is created in
cities

2/3

of global energy
is used in cities

THE POTENTIAL OF CIRCULAR CITIES



Cities account for

70%

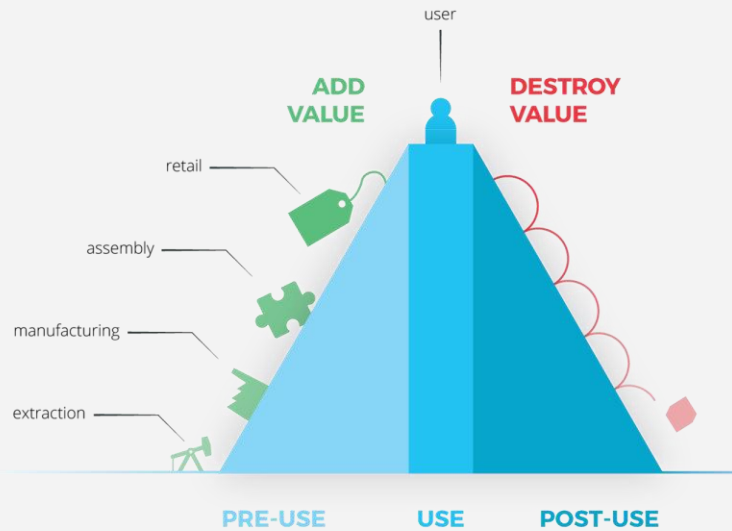
of global greenhouse
gas emissions

Up to a

60%

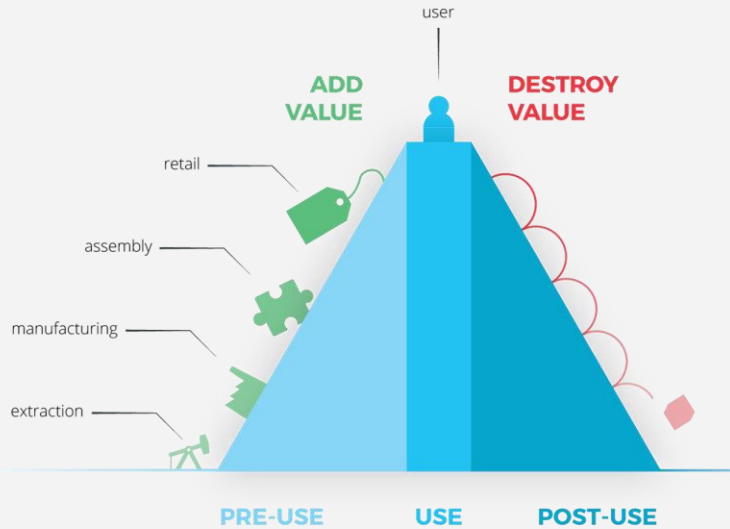
increase in a city's carbon
footprint through consumption-
based accounting

LINEAR

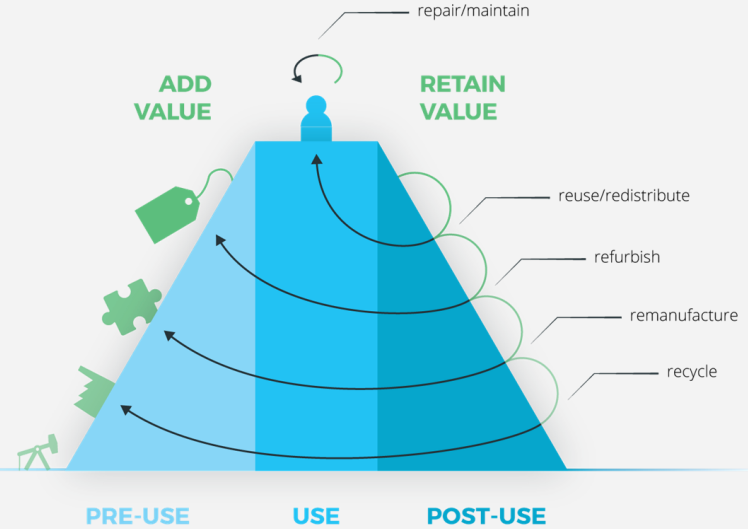


THE CIRCULAR ECONOMY

LINEAR



CIRCULAR





THE CIRCULAR ECONOMY: A KEY LEVER IN BRIDGING THE EMISSIONS GAP TO A 1.5°C PATHWAY

THE SITUATION

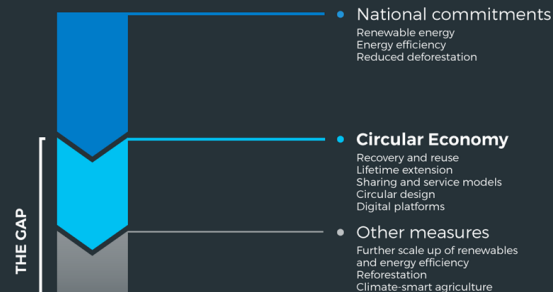
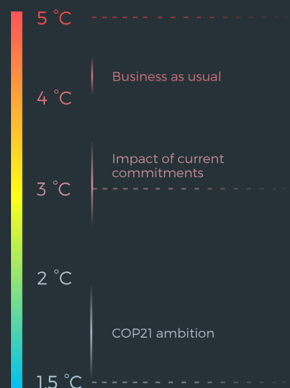
Under a business as usual scenario, the global temperature by 2100 will be more than 4°C above pre-industrial levels

THE END GOAL

To limit temperature rise to 1.5°C, we need to cut greenhouse gas emissions from 65 to 39 billion tonnes CO₂e per annum by 2030

THE SOLUTION

Current national commitments achieve about half of the required emissions cuts. Circular economy may fill about half of the remaining gap



THE POTENTIAL OF CIRCULAR CITIES

ECONOMIC, SOCIAL, AND ENVIRONMENTAL RESILIENCE



Value
creation



Job
creation



Better
air quality



Competitiveness
in global markets



Reduced CO2
emissions



Reduced
resource use

2

WHERE CAN CITIES
INTERVENE?

Cities are drivers for global change

The Circle City Scan is an action oriented, multi-stakeholder innovation process that helps to translate data into decisions



CIRCLE CITY SCAN



Socio economic
analysis



Material flow
Analysis



Circular strategies



Action plan

Cities are unique



Cities have unique identity, culture, governance, and ambitions for the future. *Our scan uses a multistakeholder model that puts* **key urban changemakers together in one room**



CIRCLE CITY SCAN



**SOCIO-ECONOMIC
ANALYSIS**

**WHICH SECTORS HAVE THE GREATEST
POTENTIAL FOR CIRCULARITY?**

CIRCLE CITY SCAN

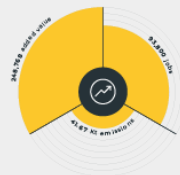


SOCIO-ECONOMIC ANALYSIS

Analysis of key economic sectors and policy directions



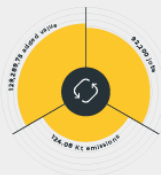
COMMERCIAL SERVICES



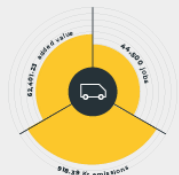
INFORMATION AND FINANCIAL SERVICES



PROFESSIONAL, SCIENTIFIC, AND ADMINISTRATIVE SERVICES



TRADE



TRANSPORT AND STORAGE

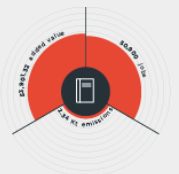


TOURISM

PUBLIC SERVICES



PUBLIC ADMINISTRATION

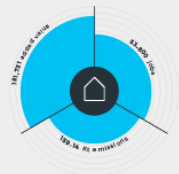


EDUCATION



HUMAN HEALTH AND SOCIAL SERVICES

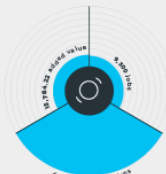
INDUSTRY



CONSTRUCTION AND REAL ESTATE

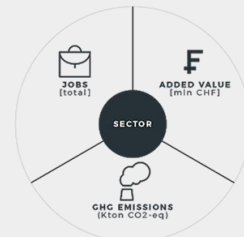


AGRICULTURE, AND MATERIAL EXTRACTION



ENERGY, WATER, AND WASTE MANAGEMENT

INDICATORS:



LEGEND

CIRCLE CITY SCAN

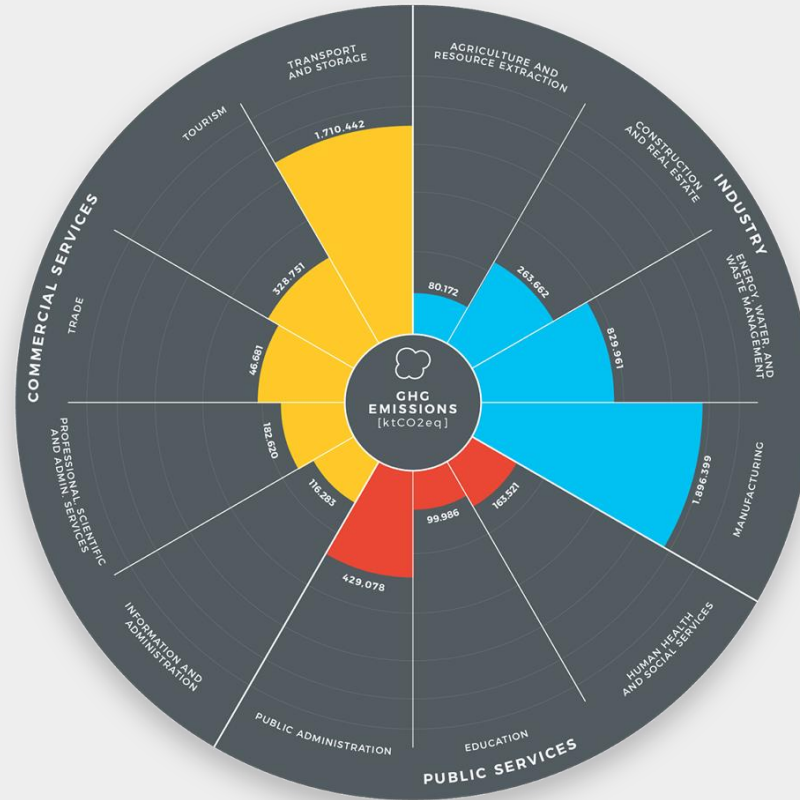


SOCIO-ECONOMIC ANALYSIS

Analysis of key economic sectors and policy directions



GREENHOUSE GAS EMISSIONS PER SECTOR



We help translate data into decisions



Our material flow analysis identifies the **key leverage points** where your city can have the largest impact; whether that be **GHG reduction**, **job creation**, or **more livable environments** for citizens



CIRCLE CITY SCAN



**MATERIAL FLOW
ANALYSIS**

**WHAT IS THE CURRENT CIRCULAR STATE
OF THE SECTOR?**

WHERE ARE THE OPPORTUNITIES?

CIRCLE CITY SCAN



MATERIAL FLOW ANALYSIS

Analysis of material flows, and key leverage points for impact



Circular opportunity:
Increase use of secondary materials



Circular opportunity:
Improve data on materials in built environment



Circular opportunity:
Circular construction & demolition criteria

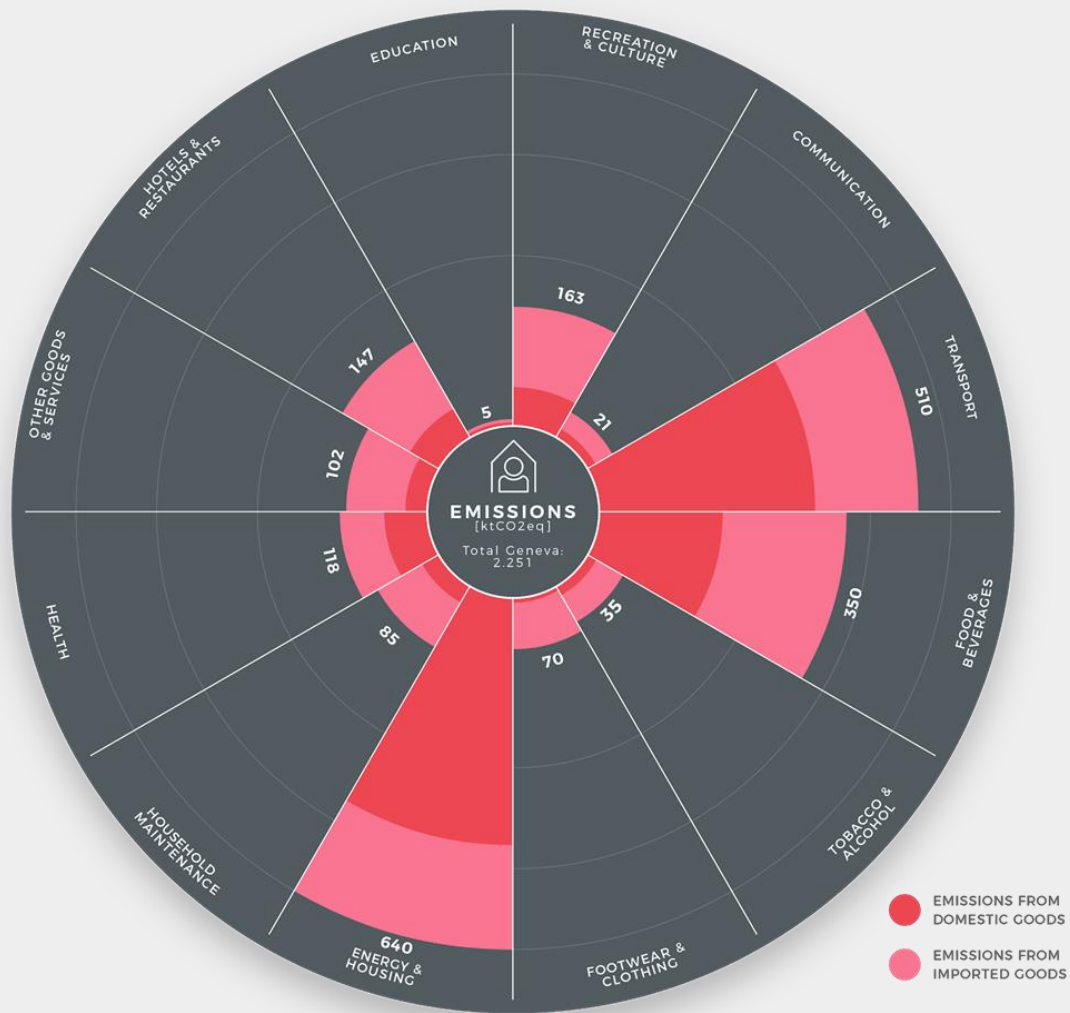


CIRCLE CITY SCAN



MATERIAL FLOW ANALYSIS

Analysis of material flows, and key leverage points for impact



CIRCLE CITY SCAN



CIRCULAR
STRATEGIES

**WHAT CIRCULAR ECONOMY APPROACHES
CAN DELIVER BEST RESULTS?**

CIRCLE CITY SCAN

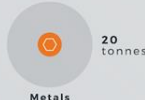
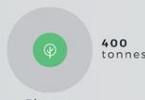
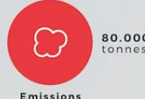


CIRCULAR STRATEGIES

Actionable strategies
measured on key KPI's



IMPACTS



GLOBAL TRENDS



Prioritise regenerative resources

The increase implementation of **renewable energy systems** calls for more energy storage technologies and a more interconnected **smart grid**. Large facilities, such as warehouses, can play a key role in the electricity grid of their community. Working as energy storage units as well as clean energy providers.



Incorporate digital technology

E-Commerce: The internet has completely changed the way we live even the way we do shopping. In the retail sector, e-commerce is providing the opportunity to re-think the way small retailers and wholesalers serve their customers, providing a large range of instruments to improve customer satisfaction and trust.

The internet of things includes a broad range of innovations from artificial intelligence, digital technology, smart devices etc. The integration of all these technologies together with **big data** facilitate change and create opportunities for businesses.



Collaborate to create joint value

Companies increasingly recognize the value of **reverse logistics** as a means of capturing more value and as an enabler for the circular economy. The wholesale sector has the potential and the right position to establish reverse logistics operations.



Rethink the business model

Supply chain information: From consumers who want to buy directly from producers to small businesses that are expanding their business models to offer products across lines of trade (B2B), the impact of these new purchasing behaviours could have a disruptive effect in the way wholesalers do business.



Design for the future

Over the past decade international freight trade has grown exponentially, providing new challenges in effectively and efficiently reducing weight and environmental impact through trade. Various international initiatives focus on shared packaging systems, or alternative packaging materials that allow for **efficient packaging**.

LOCAL ACTIVITIES



Prioritise Regenerative resources

Electrification and smart grids are high on the agenda in the Basque Country. The Basque government aims to have 10% electric vehicles in 2020. Furthermore 'smart grids' Basque Country aims to renovate the electricity grid with smart grid technologies in Bilbao.



Incorporate digital technology

The wholesale sector is at the heart of the supply chain and logistics operations, and looking for new ways to create joint value. For instance several initiatives are looking into models that combine the collection of waste with the delivery of goods.



Collaborate to create joint value

Several wholesalers have shown interest on creating a **digital platform** to provide e-commerce channels for its consumers. In Euroski for instance, big data are used to propose interest in creating personalized offers to consumers. Furthermore big data could provide room for implementing more sustainable reverse logistics operations thanks to consultation of spatio-temporal real-time data.

STRATEGIES

Electric delivery



Smart reverse logistics



Alternative packaging



Urban waste hub

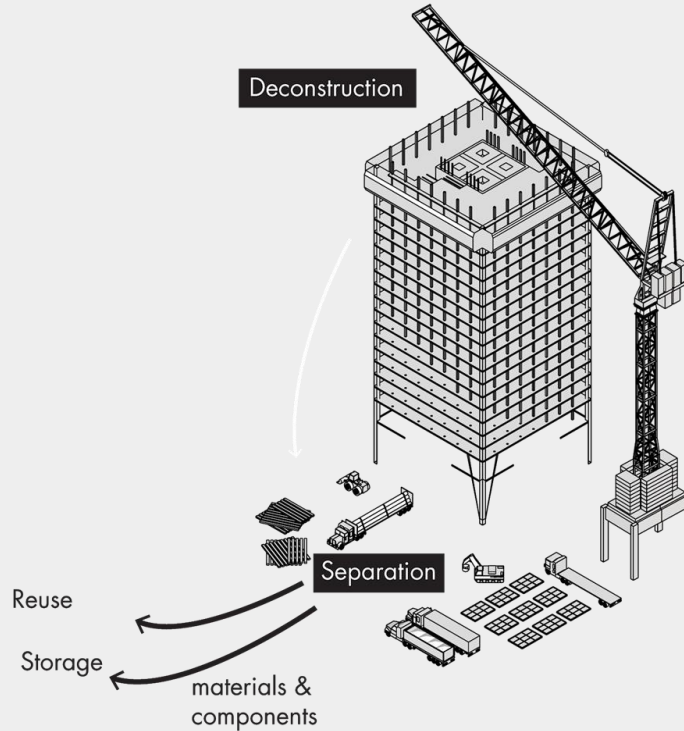


Circular strategy: High-value selective deconstruction



CIRCULAR STRATEGIES

Actionable strategies
measured on key KPI's



VALUE
CREATION

€25
MILLION

JOB
GROWTH

200x↑

MATERIAL
SAVINGS

0
KTONS

CO₂
REDUCTION

100
KTONS

CIRCLE CITY SCAN



4

ACTION
PLAN

HOW TO IMPLEMENT AND SCALE CIRCULAR ECONOMY?

CIRCLE CITY SCAN



ACTION PLAN

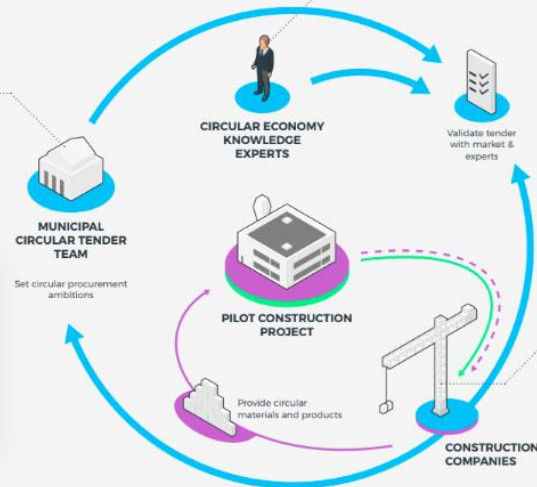
Actionable policy/business plan pathway

Circular strategy: Circular tendering for construction



Municipal circular tender team
The Circular Tender Team are responsible for the creation of clear circular specifications, criteria and ultimate tender, and selection of an appropriate pilot project.

- ✓ Reduction in Total Cost of Ownership & Total Cost of Use
Positive environmental impacts
Stimulates innovation & competitiveness in construction sector
Knowledge creation & skill development in circular procurement
- 📅 Leadership, internal coordination, and management support
Market consultation
Internal learning and innovation process
- 📋 The Circular Tender Team should be composed of representatives from local district departments of Real estate, Sustainability and Procurement, IPH, City Council



Circular Economy Knowledge Experts
Circular economy knowledge experts can help to develop an appropriate and feasible circular tender for the pilot project, as well as broadly disseminate the findings and feedback of the process.

- ✓ Gained knowledge on the circular economy in the construction sector
Access to a network of circular stakeholders, both within the Municipality of Prague, and the Construction sector
- 📅 Time to partake in market roundtables
- 📋 UCEEB, INCiEN

Construction companies
Companies in the construction value-chain bid for the tender and ultimately deliver the desired circular results. Stakeholders have an important role to validate tender specifications in market consultations, as well as provide feedback when the tender is evaluated.

- ✓ Gained knowledge and experience in working with circular materials and business models
Access to a network of circular construction stakeholders
Competitiveness and innovation through experience with working with circular products, materials and business models
- 📅 Time to both partake in market roundtables as well as write a proposal for the tender
Expertise and skills to provide circular products and materials
- 📋 Skanska, Sekys Group, Metrostav, AZS 98, ERC TECH, Czech Chamber of Architects

- ✓ **BENEFITS**
- 📅 **INVESTMENTS**
- 📋 **LOCAL STAKEHOLDER**

- **KNOWLEDGE & INFORMATION**
- **MATERIALS**
- **MONEY**

Since 2015, Circle Economy has worked with about **20 cities and regions**, helping to implement over 150 circular pilot projects.



Prague
e.g. Biomass to
BioCNG



Glasgow
e.g. Bread to beer



Amsterdam
Over 125 pilot
projects



Bern
e.g. Circular living lab

Key takeaways

- 1. The circular economy is key to reach a 1.5°C future, and cities have a critical role to play
- 1. Circular strategies helps cities to address their direct (scope 1&2), as well as consumption-based (scope 3) emissions
- 1. Cities can capitalise on their existing energy and expertise to drive momentum towards circularity
- 1. New forms of governance and collaboration are needed (especially between energy and 'waste management')



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