

Urban innovation for a Circular Economy

Richard Harding

International Conference
Smart evolution – through innovation to sustainability
 Zagreb - May 2019



Richard Harding

Over 25 years in national/regional socio-economic development and EU Structural-type Funding

- **8 years as Desk Officer in EC-DG REGIO (1990-1999):**
 - Implementation of mainstream Structural Funds OPs – UK regions
 - Specialist in environmental and territorial aspects of EU Cohesion Policy
- **Project assignments in Croatia (2008-present):**
 - Team Leader and trainer – Training Programme on EU Cohesion Policy
 - UK Adviser on EU Cohesion Policy (British Embassy, Zagreb)
 - Team Leader - ‘Sustainable Urban Development’ and territorial programming for ESIF 2014-2020
 - Key Institutional Expert - Climate change adaptation, nature protection and Natura 2000 investments
 - Team Leader - Implementation of Integrated Territorial Investments (ITIs) in Croatia’s 7 largest cities
- **‘Industry 4.0’ project assignment (2018-present)**
 - EC-DG REGIO - Project Manager – Pilot Action on Industrial Transition
- **Recent MSc graduate ‘Sustainability & Adaptation in Built Environment’ (2016)**
 - Academic specialism covering, green building, green infrastructure and Circular Economy

Limitations of the linear economy

- Increasing scarcity of resources and volatile prices
- Lost value of materials and products, once used
- Waste generated, environmental degradation, climate change



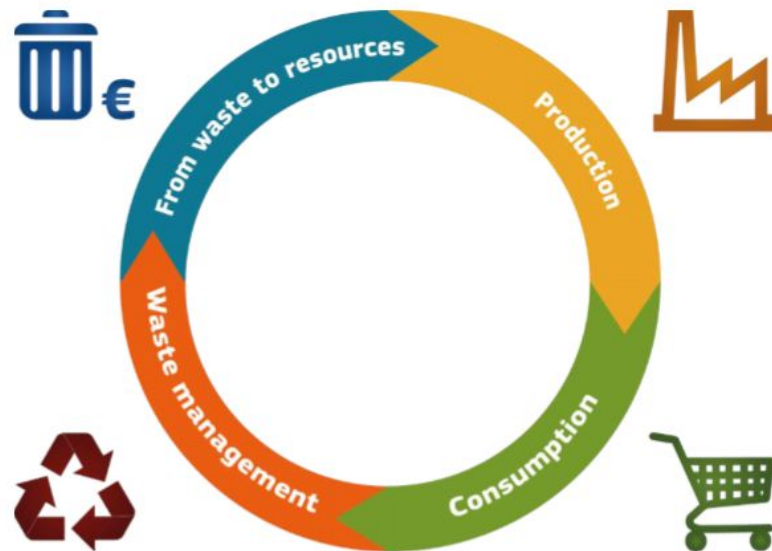
67% of GHG emissions are directly linked to management of materials

So what is the Circular Economy..?



Circular Economy is a new way of thinking about our growth model, where the value of products, materials and resources is maintained for as long as possible, whilst emissions and waste are significantly reduced or even eliminated.

Amalgam of definitions from EC, EEA, ESPON



“An economy that is restorative and regenerative by design”

Ellen MacArthur Foundation

Essential visit!

<https://www.ellenmacarthurfoundation.org/>

Circular cities

'The smallest loops are the most profitable' – Walter Stahel

City authorities can be principal drivers in boosting Circular Economy:

- **Waste management**
 - re-use / recycling / food waste
- **Water re-use**
- **Energy**
 - renewables / smart grids
- **Sharing Economy**
 - regulation and necessary facilities
- **Collaboration networks**
 - local manufacturers, retailers, repairers, citizens
- **Green Public Procurement**

URBAN  WORKING TOGETHER FOR BETTER CITIES
AGENDA FOR THE EU

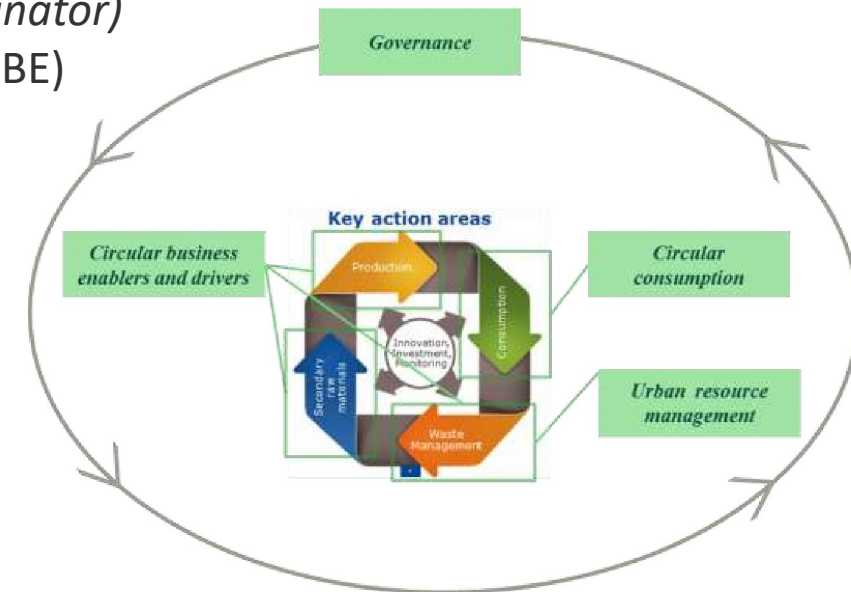
PARTNERSHIP ON CIRCULAR ECONOMY

Urban Areas

- Oslo (NO, Coordinator)
- Flemish Region (BE)
- Kaunas (LT)
- Porto (PT)
- Prato (IT)
- The Hague (NL)

Member States

- Finland
- Greece
- Poland
- Slovenia



See Action Plan

<https://ec.europa.eu/futurium/en/circular-economy/actions>

Amsterdam and Circular Economy

- **Circle Scan**

‘metabolism’ analysis tracing resource flows and waste

- **Circular Innovation Programme**

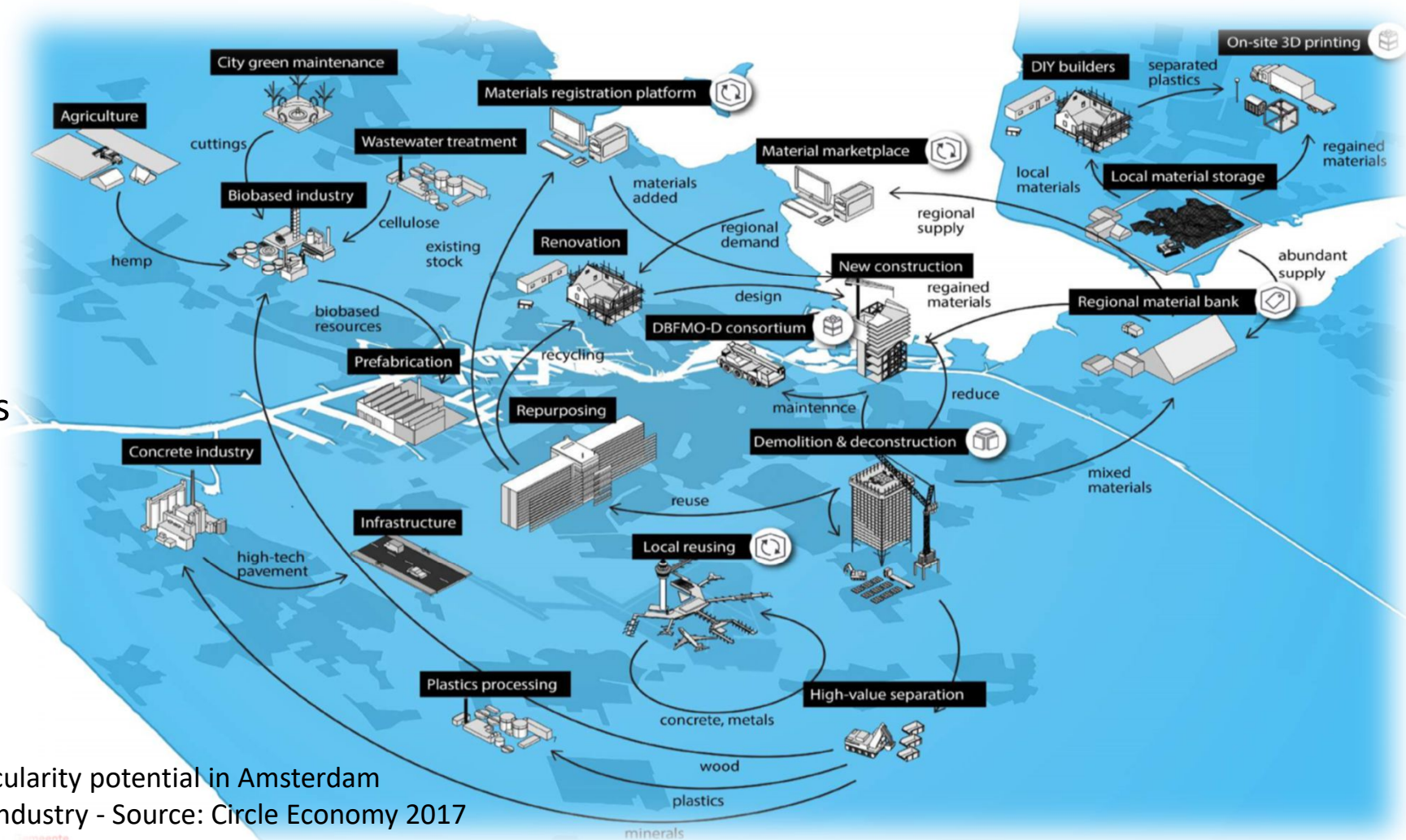
key value chains - construction, biomass, food, consumer goods

- **Circular districts**

De Ceudel and Buiksloterham
‘Living lab’ approach

Targets from NL National Strategy

- Fully functioning Circular Economy by 2050
- Green Public Procurement > 50% by 2025
- 50% retention in-use of virgin materials by 2030



Graphic of circularity potential in Amsterdam construction industry - Source: Circle Economy 2017

New ownership models

e.g. 'Pay-per-lux' - Philips / Thomas Rau Architects Amsterdam

- Philips designs system
- Philips remains owner of all the luminaries
- Client buys only the light (i.e. lux)
- 55% energy saving – huge materials saving



Source: <https://atlasofthefuture.org/project/pay-per-lux/>

'Sharing Economy' Action Plan...



...from *Proprietas* to *Usus*

- Unifying power of the Internet & smartphones
- New economy and younger generation
- Less ownership (purchasing)
- More access (renting, sharing, swapping)

Source: D. Rossetti - 2015

'Upcycling'



- Designer bench for public space
- **3D printed from 1,500 used plastic bags**

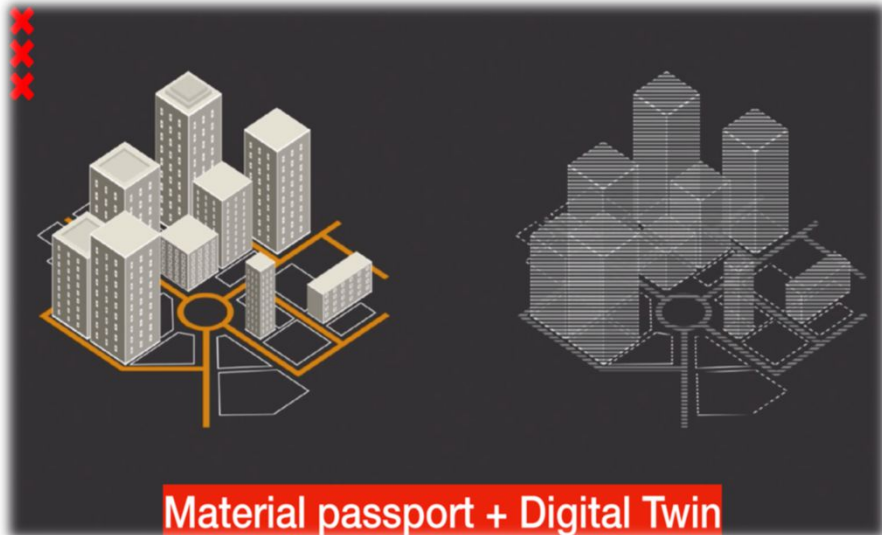
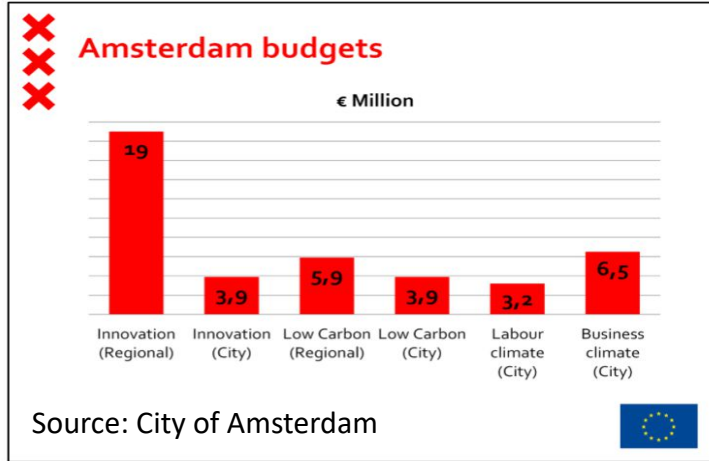
Source: City of Amsterdam

See also: 'Industrial symbiosis', 'Secondary raw materials', 'Cradle-to-cradle', 'Reverse logistics'...

Amsterdam – 2017 Smart City Award for Circular Economy

Smart City Expo World Congress, Barcelona

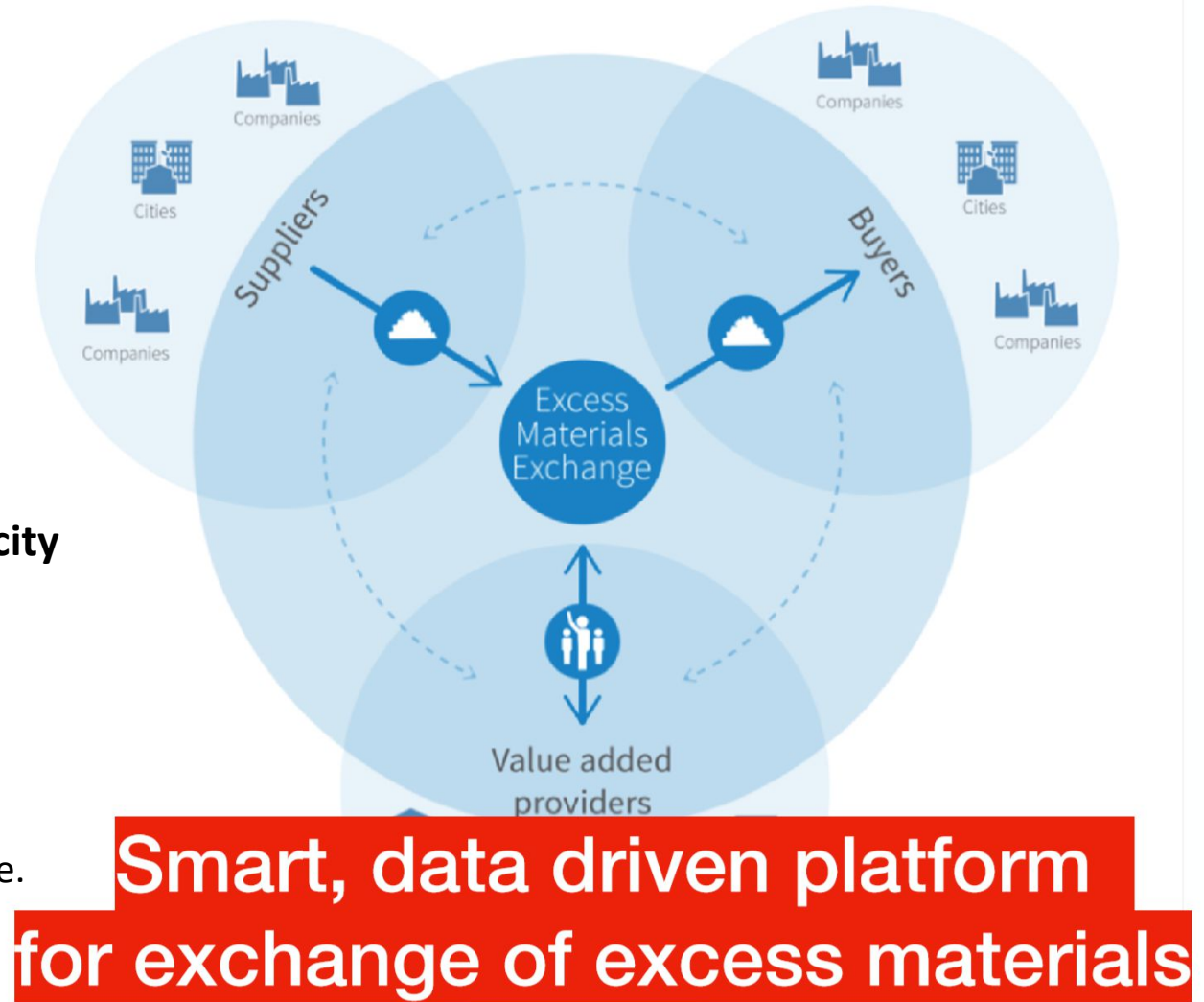
Amsterdam
ERDF
allocations
2014-2020
Note –
strong
emphasis on
innovation



Digital Twin of city

Logs location and condition of all materials in city buildings and infrastructures.

100% open-source.



Smart, data driven platform
for exchange of excess materials

Perspectives for Croatia to 2030

- ***Promoting the transition to a Circular Economy*** is a Specific Objective of EU Cohesion Policy 2021-2027
- ...alongside ***Promoting energy efficiency, renewable energy and developing smart energy systems...***
- National or city-level approaches..?
- **Programming starts now..!**



CIRCL Pavilion, Amsterdam

Demonstration in circular building – features event spaces and ‘circular restaurant’ Source: ABN Amro

Useful Circular Economy links

Official EU Bodies



European Environment Agency

<https://www.eea.europa.eu/> - Search 'Circular Economy'



EC Policy Portal on Circular Economy

https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy_en



EC Green Public Procurement guidance

http://ec.europa.eu/environment/gpp/index_en.htm

Upcoming events

World Circular Economy Forum

Helsinki: 3-5 June 2019



<https://www.sitra.fi/en/projects/world-circular-economy-forum-2019/>

Circular Urban Economy



Study Visit and Seminar

Amsterdam: 19-20 September 2019

Richard Harding for ETCP

<http://etcp.fr/training-programme/circular-economy/>