

CIRCULAR ECONOMY IN INFRASTRUCTURE CONSTRUCTION



Edith Guedella Bustamante
Head of Roads & Environment
Construction Technology Centre
ACCIONA
edith.guedella.bustamante@acciona.com



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Circular economy in the built
environment: present challenges
and future vision

ACCIONA what if the smartest decision was to invest in the planet?

ACCIONA IN FIGURES

A stable, predictable growth business

+38,500

Employees
In over 40 countries on 5 continents

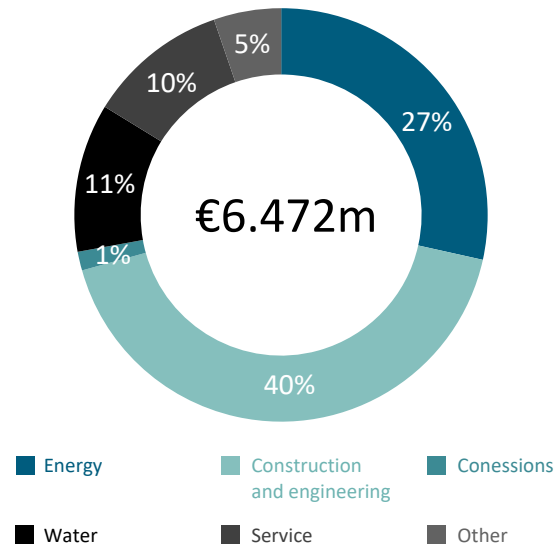
+75 years

Of history
50% family-owned (approx.)

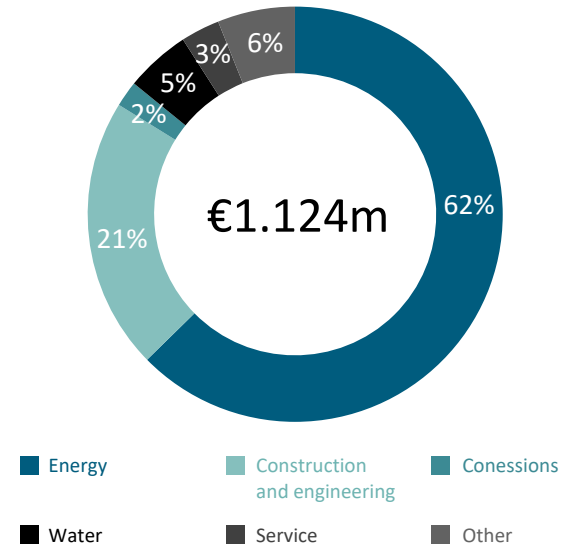
526 M€

total capex 2020

2020 REVENUES



2020 EBITDA



Data at 19.02.2021



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WE REIMAGINE INFRASTRUCTURE BY ENHANCING ITS REGENERATIVE CAPABILITIES

ACCIONA's goal is to be an acknowledged leader in developing regenerative basic infrastructure assets: designed to ensure people's well-being and the conservation of the planet

STRATEGY

A regeneration strategy implemented through the SUSTAINABILITY MASTER PLAN 2025



People-centric. They are our main competitive advantage.



Planet-positive. We seek a net positive contribution to the planet's biocapacity.



We strive to be leaders in sustainable transformation. To remain at the forefront by delivering innovative solutions and promoting the need to act through cleaner, more inclusive development models.



Integrating sustainable solutions to transform our businesses. Being able to make a sustainable difference in every project.

PRESENCE IN

Indexes and league tables, and other sustainability accolades

Acciona named world leader in sustainability by S&P Global and RobecoSAM

ACCIONA ended 2020 as the world's most sustainable utility, according to the Sustainability Yearbook 2021, with a score of 90 points out of 100.



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ACCIONA AT THE CORE OF THE LOW CARBON TRANSITION

A company that manages an extensive portfolio of solutions that contribute to a "zero emissions" world



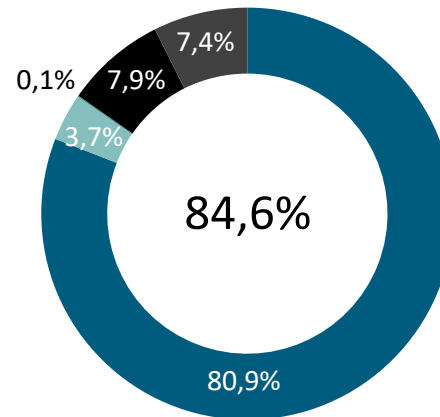
BREAKDOWN

of ACCIONA activities 2020 included in the european union's taxonomy of low-carbon activities

- Taxonomy-aligned
- Extraordinary taxonomy-aligned activity due to acquisition of projects in Australia
- Non-taxonomy-aligned activity due to methodology update in 2020
- Non-taxonomy-aligned activity
- Extraordinary non-taxonomy-aligned activity due to acquisition of projects in Australia

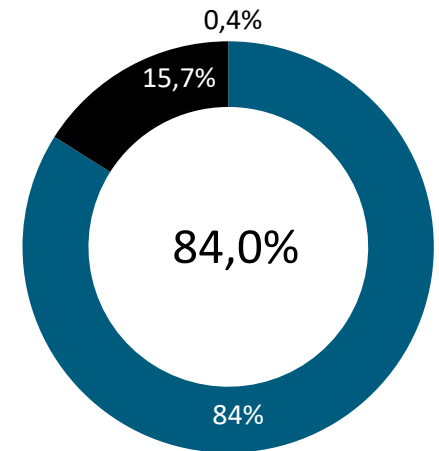
EBITDA

in line with activities in the EU taxonomy



CAPEX

in line with activities in the EU taxonomy

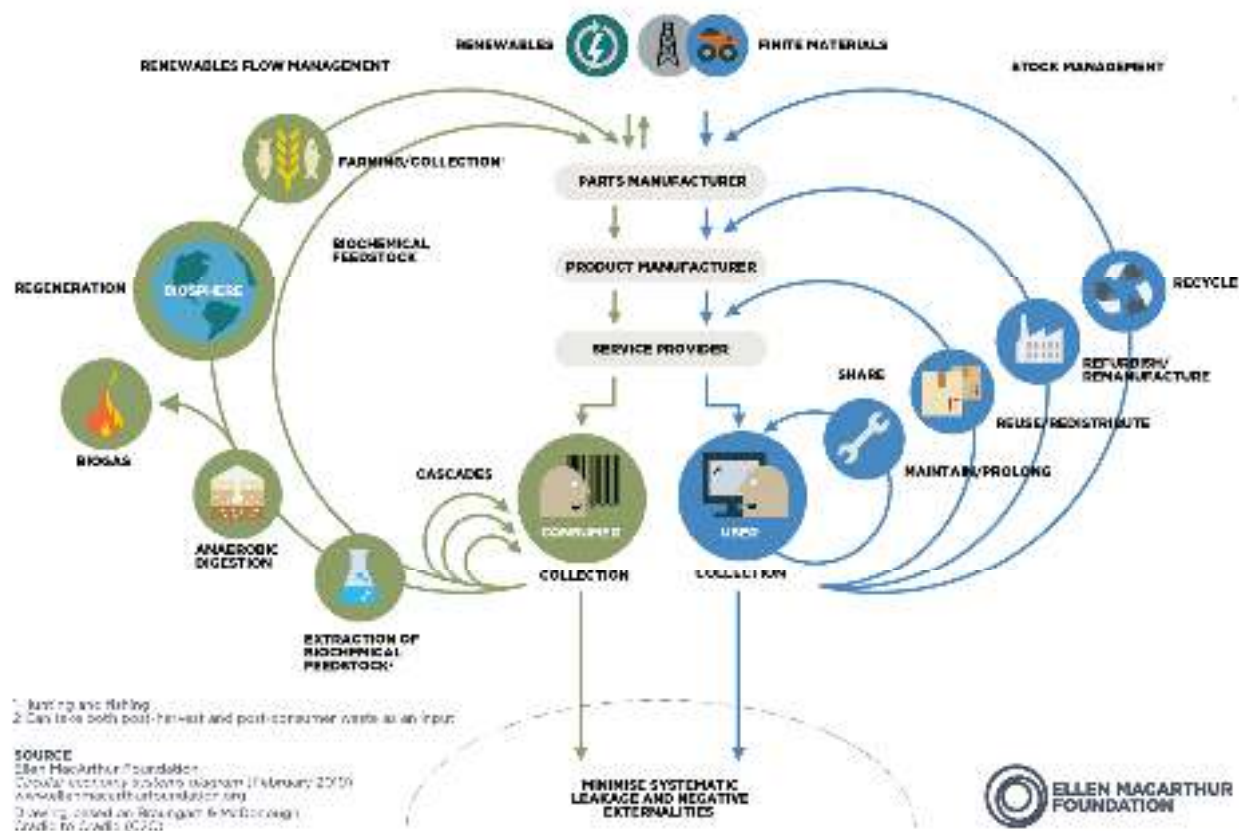


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CE DEFINITION

Ellen MacArthur Foundation Diagram

- Eliminate waste and pollution. We need to consider waste and pollution as design flaws rather than inevitable by-products of the things we make.
- Circulate products and materials
- Regenerate nature



OUR PERSPECTIVE TO SUSTAINABILITY

OUR JOURNEY:

SINCE 2010 **_Responsability**

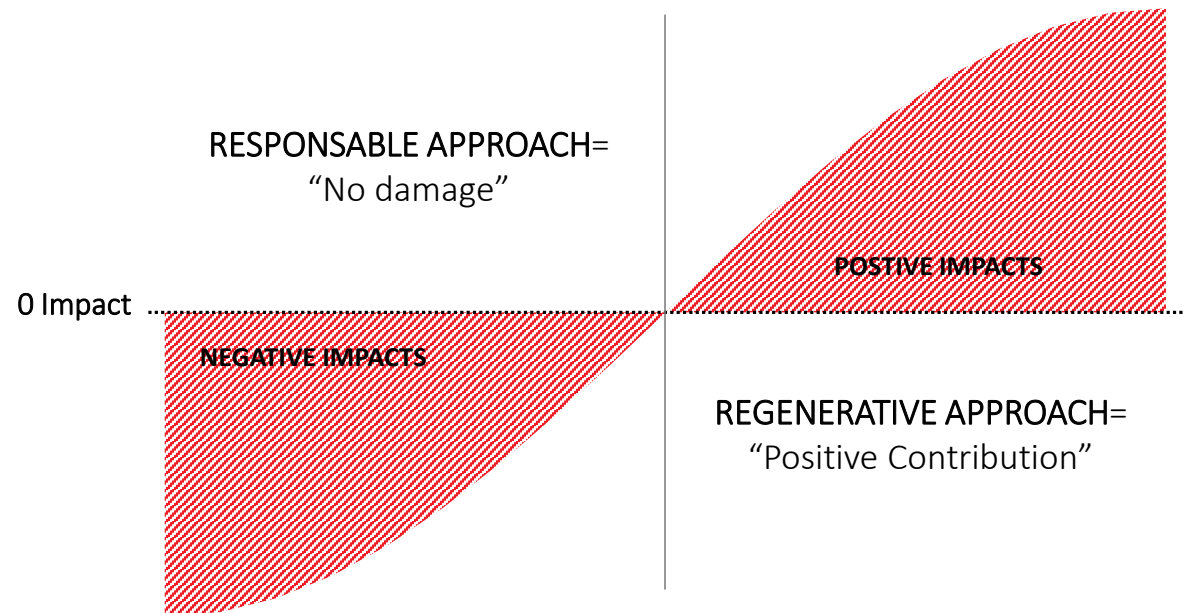
Sustainability integrated as a corporate compromise and our stakeholders

SINCE 2015 **_Resilience**

Sustainable approach integrated in our way of doing business

SINCE 2020 **_Regeneration**

Focus on the creation of sustainable added value in the projects that we develop



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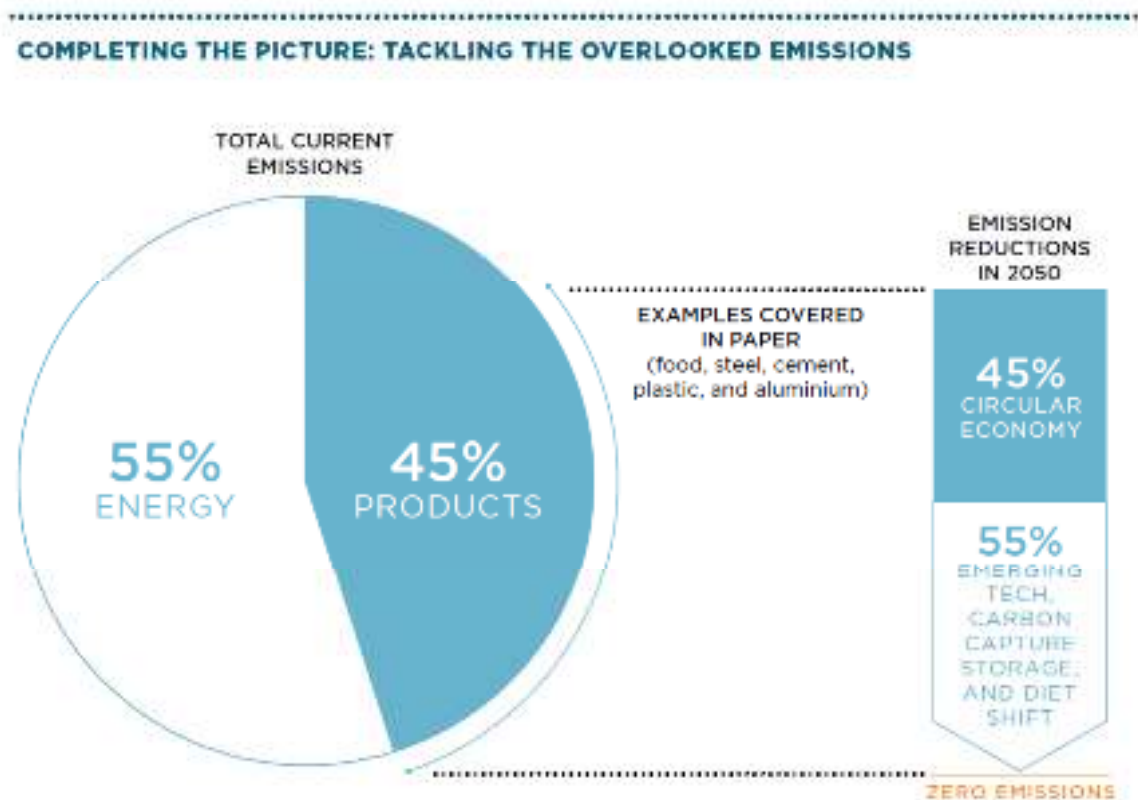
CIRCULAR ECONOMY AND SDGS CONTRIBUTION

The Circular Economy has direct impact on 80% of the SDGs with an extraordinary transformation capacity of **work creation and economic development**



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CIRCULAR ECONOMY AND CLIMATE CHANGE



Source: Completing the Picture: How the Circular Economy Tackles Climate Change. Ellen MacArthur Foundation

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ACCIONA CIRCULAR ECONOMY CAPABILITIES

And ACCIONA capabilities are fully aligned with the Circular Economy
Action Plan guidelines of the European Union



Green
Infrastructure



Efficient
Use of
resources

Natural resources and secondary
raw materials efficient use



Integral
Waste
Mgmt



Mitigation
& Resilience
Mgmt

Global Recyclability, Waste Reduction,
Integral Management



Restoration
and
Refurbishment



Resilience
Mitigation
Facilities

Extension of Life Durability,
Reparability, Reuse



Integral Ecosystem
Management



Hazardous substances replacement

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ACCIONA CIRCULAR ECONOMY CAPABILITIES

ACCIONA has more than **thirty years of experience** and **dozens of ongoing projects** in the five Circular Economy Business Lines



ACCIONA CIRCULAR ECONOMY CAPABILITIES. EU CEAP

Circular use of excavated soils

Treatment of Acid Sulphate Soils

Example -Hardwood Bridge Project in Australia:

- 22,000m3 Acid Sulphate Soil excavated
- Quick lime replacement by Electric Arc Furnace Steel Slag

Material Recovery Targets

- **Cleaning and sorting technologies** for on site valorization
- Maximizing use of the **existing pavement**
- **Re-use CDW** from the existing structures
- **Study** demolition activities + **advice** on waste separation and stockpiling

Sustainability performance

First company in the world in obtaining an **EPD** of a whole road infrastructure

Durability and Adaptability of Built Assets

Problem: High-speed railway tunnels, 24km-long, with the problem of continuous water infiltration.

Innovation Proposal: Development of FRP panels as lining for the tunnel waterproofing.

LCA in Public Assets

Experience in **creating evaluation methodologies** in building and road sustainability

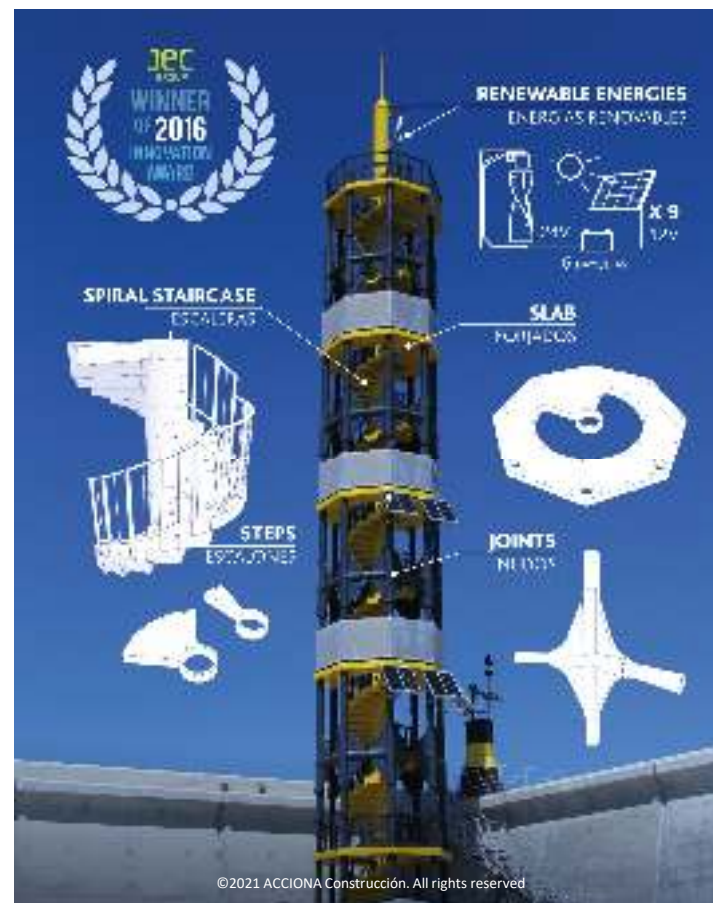


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ACCIONA CE EXAMPLES IN THE CONSTRUCTION LIFE CYCLE

Life cycle stage	Circular economy aspect
Design	DfD Design for adaptability and flexibility Design for standardisation Design out waste Design in modularity Specify reclaimed materials Specify recycled materials
Manufacture and supply	Eco-design principles Use less materials/optimize material use Use less hazardous materials Increase the lifespan Design for product disassembly Design for product standardisation Use secondary materials Take-back schemes Reverse logistics
Construction	Minimise waste Produce reused materials Produce recycled materials Off-site construction
In use and refurbishment	Minimise waste Minimal maintenance Easy repair and upgrade Adaptability Flexibility
End of life	Deconstruction Selective demolition Reuse of products and components Closed-loop recycling Open-loop recycling
All stages: management of information including metrics and datasets	

Source: Adam *et al.* 2017



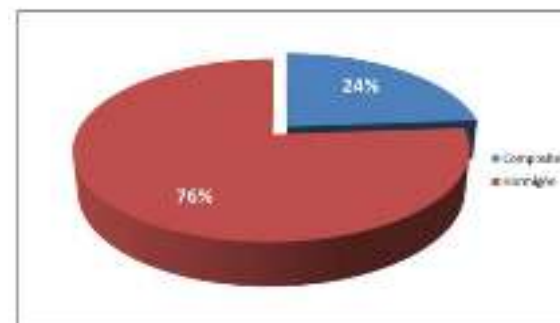
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Construction	<ul style="list-style-type: none"> Minimise waste Procure reused materials Procure recycled materials Off-site construction
In use and refurbishment	<ul style="list-style-type: none"> Minimise waste Minimal maintenance Easy repair and upgrade Adaptability Flexibility
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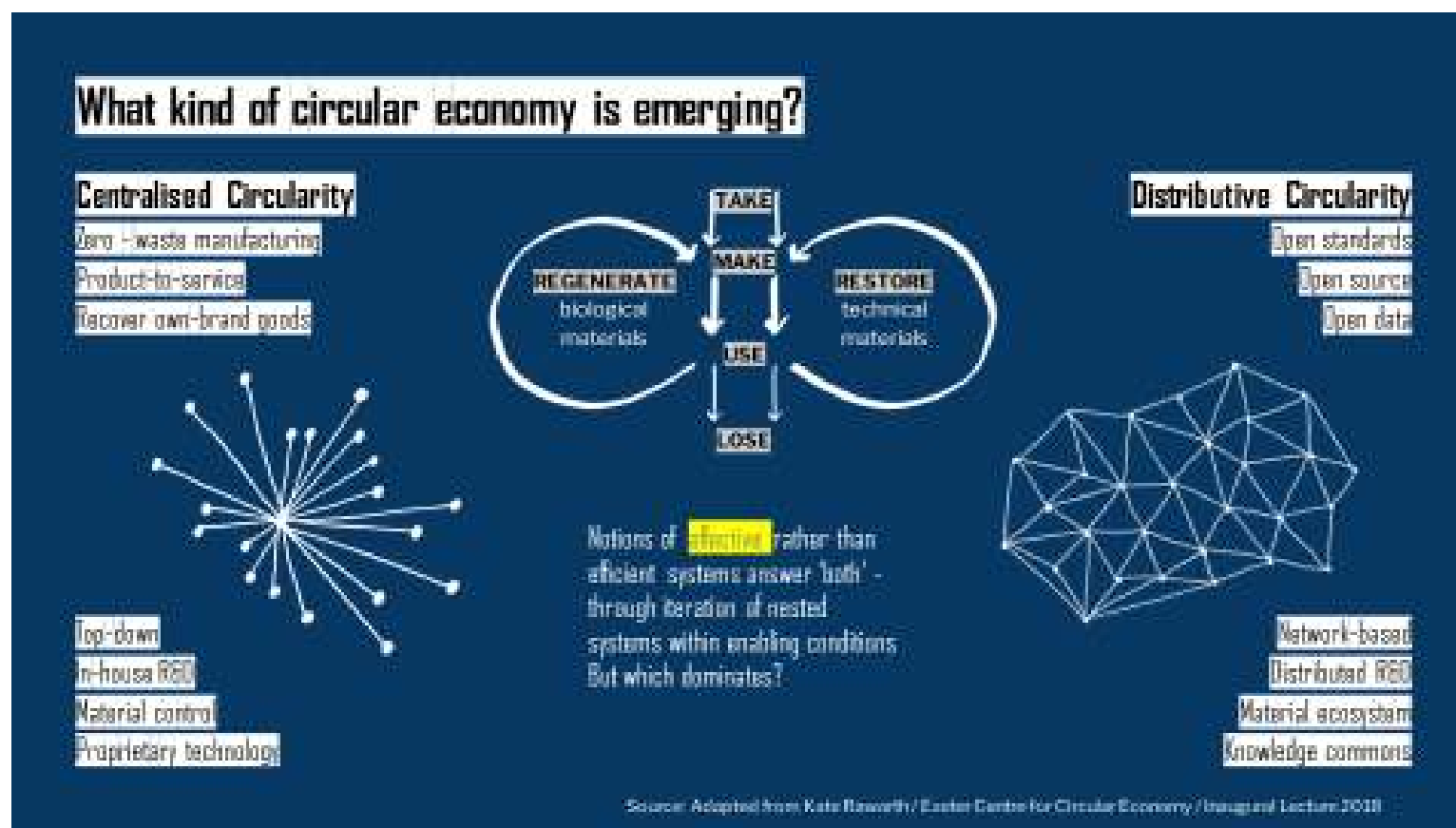


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THE NEED OF COLLABORATION



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EXAMPLES OF INDUSTRIAL SYMBIOSIS STRATEGIES



Acid Sulphate Soils Treatment: Harwood Bridge Project. NSW. Australia



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EXAMPLES OF INDUSTRIAL SYMBIOSIS STRATEGIES



This project has received funding from the European Union's Horizon 2020 research and innovation Programme under grant agreement N° 730305

ADMINISTRATIVE AND TECHNOLOGICAL BARRIERS

ADMINISTRATIVE BARRIERS

- Byproduct declaration
- Waste management
- Need of new circular procurement models
- Life cycle thinking in procurement
- Innovation in procurement
- Social acceptance of innovation and circularity

TECHNOLOGICAL BARRIERS

- Need of standardization of SRM
- Need of technical specifications in the use of SRM
- Harmonization in certifications (ETV, TC,...)
- Need for standardized durability tests
- Opportunities for new business models

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OPPORTUNITIES FOR CE



Circular Economy could generate \$ 4.5bn in additional economic production by 2030.



Circular Economy could allow the increase in European productivity up to a 3% per year till 2030

€1,8 bn in direct and undirct profits in materials and production processess

