



Innovative approaches for resource efficient, sustainable construction

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ROCKWOOL Group



ACHIEVING 'GROWTH WITHIN'

A €320-BILLION CIRCULAR
ECONOMY INVESTMENT
OPPORTUNITY AVAILABLE
TO EUROPE UP TO 2025

JOINT RESEARCH CENTRE
Circular Economy and Industrial Leadership

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Resource Efficiency for the Building Sector



10 INVESTMENT THEMES

- »»1 INTEGRATING MOBILITY SYSTEMS
- »»2 DESIGNING AND PRODUCING CIRCULAR CARS
- »»3 REMANUFACTURING CAR PARTS
- »»4 DEPLOYING REGENERATIVE AGRICULTURAL PRACTICES
- »»5 CLOSING NUTRIENT LOOPS
- »»6 FARMING THROUGH INDOOR URBAN FARMS
- »»7 DEVELOPING NEW PROTEIN SOURCES
- »»8 DESIGNING AND PRODUCING CIRCULAR BUILDINGS
- »»9 CLOSING BUILDING LOOPS
- »»10 DEVELOPING CIRCULAR CITIES

THE NEXT STEP
**CIRCULAR
PROCUREMENT**

CONGRESS → 20 APRIL
22 2016



Role of Public Procurement in Low-carbon Innovation

Background paper for the
Round Table on Sustainable Development
12-13 April 2016
OECD Headquarters, Paris

Richard Baron, OECD

the authority of the Chair of the Round Table on Sustainable Development at the
operation and Development (OECD). The reasoning and opinions expressed herein
official views of the OECD Secretariat or the governments of Member countries.

Resource efficient, sustainable construction:
Connecting the environmental and
societal challenges to achieve a
resilient society

Designing and producing circular building

Design and produce multi-usage highly modular and energy positive buildings made of durable non-toxic materials

Ellen MacArthur foundation / Systemiq / SUN,
 “Achieving Growth within”, January 2017

“Shifting to circular buildings would involve designing and producing buildings **made for looping**, using **renewable/recyclable healthy materials**, tracking **end-to-end**, planning for **modularity** and possibly **adaptability**, and ensuring that the finished construction is **energy-positive**.”

“designing and producing circular buildings can be done using **materials and technologies available today**, while further innovations (...) could be included (...) over time.”

Yvette Watson/Royal Dutch Library,
 GLOBE EU, May 2016

KB Koninklijke Bibliotheek
 Nationale bibliotheek van Nederland

There are no sustainable materials, only the sustainable usage of those materials

KB Koninklijke Bibliotheek
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Yvette Watson/Royal Dutch Library,
 GLOBE EU, May 2016

Verkoop

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Stewart Brand's 6 S's from How Buildings Learn

Rate of Change

- Stuff → 1 day – 1 month
- Space Plan → 3 – 30 years
- Services → 7 – 15 years
- Skin → 20 years
- Structure → 30 to 300 years
- Site → Eternal

“(...) they would be **unlocking benefits for the environment and society**, as well as differentiation strategies and revenue potential for construction companies and investors.”

Ellen MacArthur foundation / Systemiq / SUN,
“Achieving Growth within”, January 2017

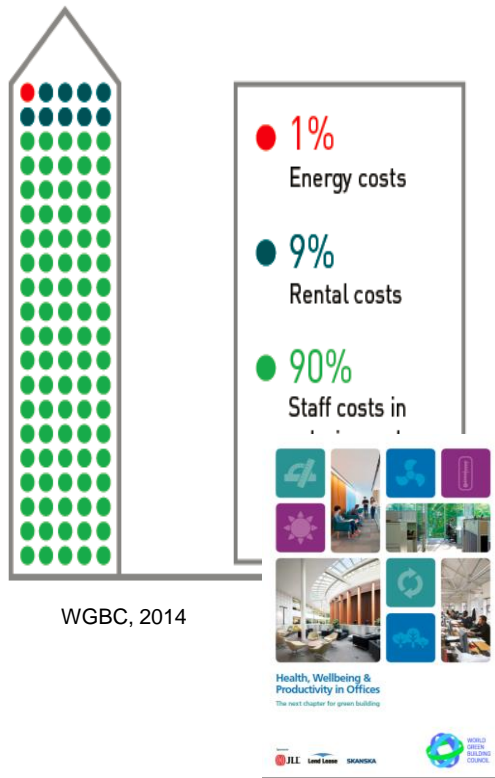
HEALTH & WELLBEING



Source: CNB (2016)

CSR Report 2015
ROCKWOOL
Benelux Holding

Typical business operating costs



“Benefits would also be felt by **those living or working inside these buildings**, such as greater flexibility and customisation, as well as better indoor air quality and **improved health and well-being** due to the use of non-toxic materials. All this contributes to increasing **employee productivity and reducing absenteeism**”

Ellen MacArthur foundation / Systemiq / SUN, “Achieving Growth within”, January 2017

OUTPUT & IMPACT*

National public data

VALUE

HEALTH

<p>Noise protection</p>	727,000	Severe noise annoyance instances
	33,700	Severe sleeping problems
	620	Noise related deaths
<p>Indoor climate</p>	66%	Performance loss when extracted due to noise?
	68%	Reported complaints indoor related

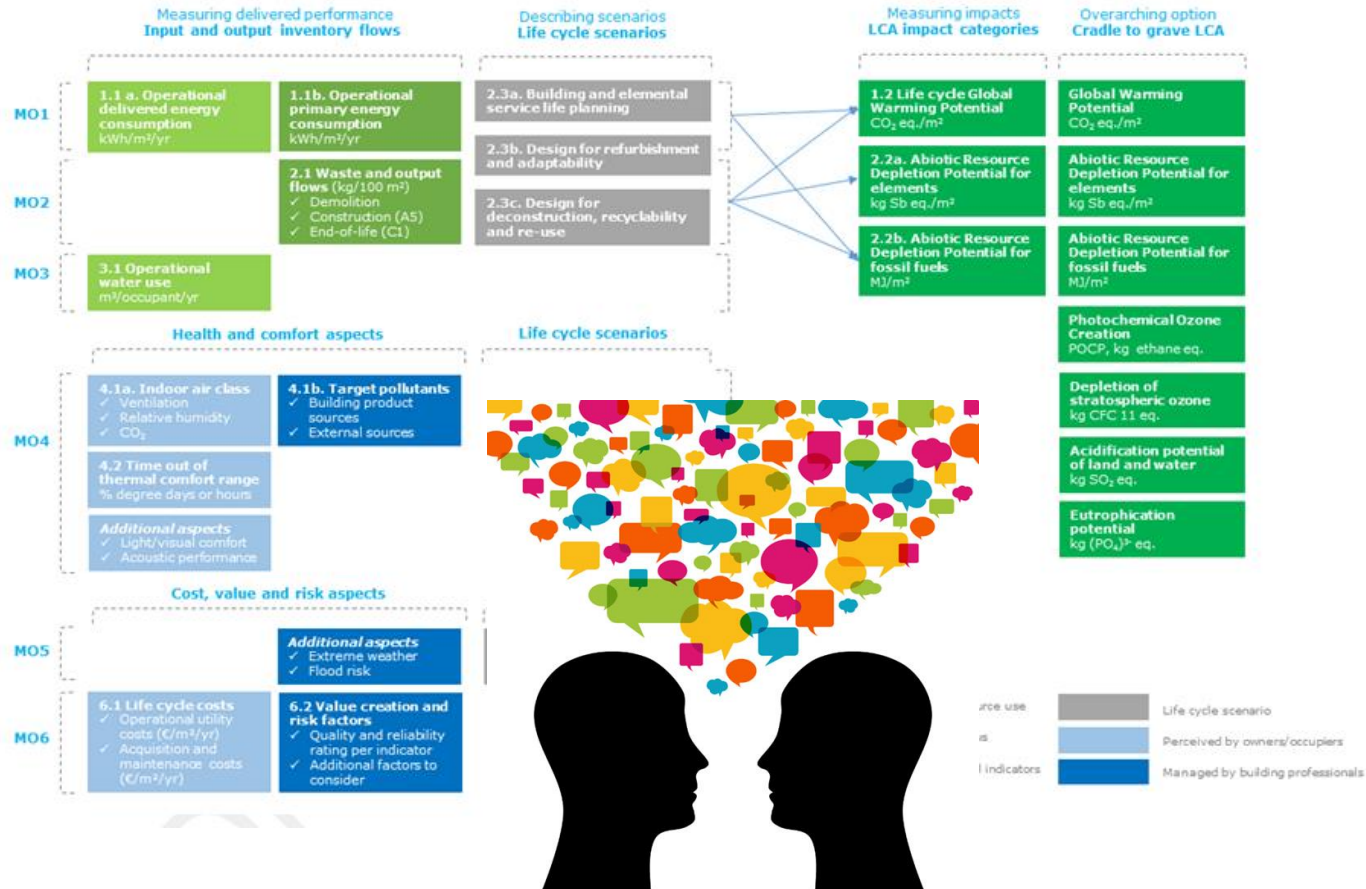
“shift value from the construction process and energy suppliers, to real estate managers who excel at **getting value out of existing buildings and deep retrofits.**”

Ellen MacArthur foundation / Systemiq / SUN, “Achieving Growth within”, January 2017

A common understanding: EU common Framework of indicators for assessing the environmental performance of buildings



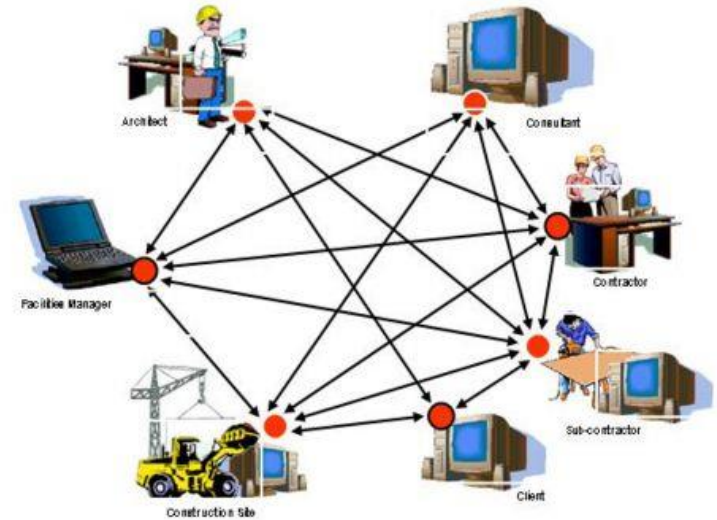
Resource Efficiency for the Building Sector



Resource efficient, sustainable construction:
The role of stakeholders
in the construction chain

Ellen MacArthur foundation / Systemiq / SUN, "Achieving Growth within", January 2017

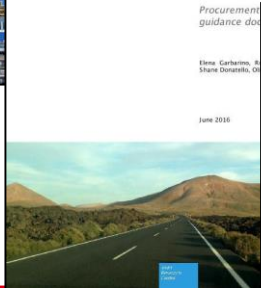
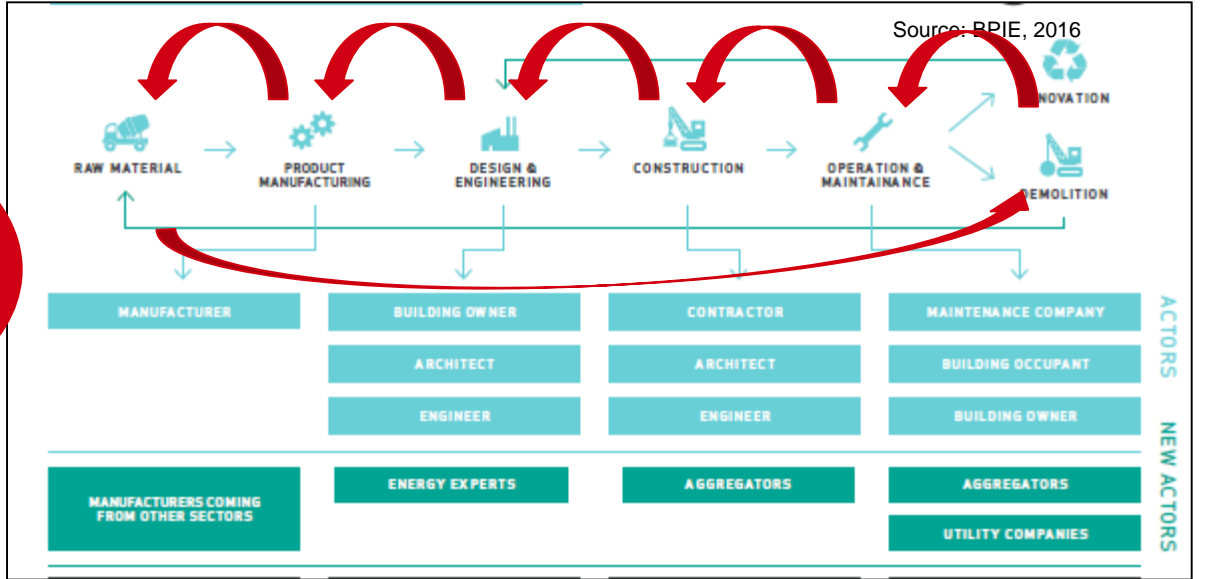
“the business case for selling circular buildings is typically too risky due to **high upfront costs** and due to **fragmentation** in the construction sector.”



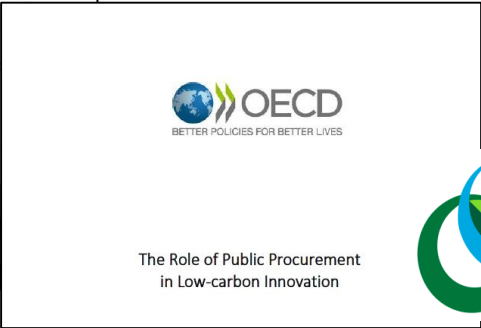
Policy maker intervention options

	Setting direction	Policy changes	Stakeholder platforms	Financial support
Designing and producing circular buildings	Resource efficiency opportunities Circular Economy Competitiveness of the construction sector	Adjust legislation to drive the inclusion in standards and regulation Promotion and communication	Support innovative business models that allow for sharing risks to stimulate material looping	Public procurement Support for innovations

GREEN PUBLIC PROCUREMENT



DEMAND – DEMAND – DEMAND
Performance – Service – Value



Wie idealen heeft, moet het bedrijfsleven in. Klimaatverandering, diversiteit, glazen plafonds: vroeger wees de politiek welke kant het op moest. Maar in 2017 gaan multinationals voorop, richting toekomst.

Door Wieteke van Zell

Paradigmaverschuiving (zelfst. nw., v.) spreek uit: para'doma van schuivstij; het moment wanneer de gebruikelijke of geaccepteerde manier van doen of denken over iets compleet verandert.

Het staat niet op de voorpagina's, is geen hoofdonderwerp bij talkshows, voert niet de boventoon in het politieke debat en was tot voor kort nauwelijks zichtbaar in reclames en persberichten.

blebrandstof, bestaande uit gebruikt frituurvet. Op het gebied van klimaatbeleid, maar ook van diversiteit, inclusiviteit en gendergelijkheid heeft een deel van het bedrijfsleven het voortouw genomen. Bedrijven kunnen snel beslissingen nemen en grijpen deze thema's aan om te innoveren en geld te verdienen. Waar de politiek blijft kibbelen of niet, worden ze in de industrie als noodzakelijk beschouwd. Ook als noodzakelijk beschouwd. Ook als noodzakelijk beschouwd. Ook als noodzakelijk beschouwd.

nen. Dit jaar gingen de over maatschappelijk bewustzijn. Audi, Volkswagen, Coca-Cola, Budweiser, Kia, Airbnb: ineens zijn het waardebrenners geworden, als inspirerende Kia, bijvoorbeeld. Het actrice Melissa McCarthy op hilarische wijze goed voor het milieu zijn, na een paar totaal mislukte pogingen om walvissen en bomen te redden, berust erin ook een bijdrage aan het milieu te leveren door te rijden in een hybride Kia. Airbnb toonde een Benettonachtige waagzaamheid met

aan Trumps immigratiebeleid met een film over een Duitse vluchteling die Amerika binnenkomt, wordt besprongen en uitgejouwd en de brouwerij Budweiser het Amerikaanse bier. En afgelopen week bij de Grammy's een regeerrecht gospoedies. In de door kas geregisseerde comeden toesporthers als Sel Laibron James en Gabbrielen van het sportveld i de samenleving, terwij

de Volkskrant

February 15, 2017

Businesses take the lead



COP21-CMP11 PARIS 2015 UN CLIMATE CHANGE CONFERENCE



Value creation by connecting environmental and societal challenges throughout the chain





PLATFORMS

Share!

Develop an (online) platform for GPP and the built environment

- Central information sharing point (best practises / approaches / lessons learned)
- Contact and meeting point for Industry and public authorities (defragmentation of the value chain)
- Demonstrating proof of concept (matching supply and demand)
- Setting specific goals together for resource efficiency (give direction)



Royal HaskoningDHV, GLOBE
EU, May 2016



Collaborate and engage



Yvette Watson/Royal Dutch Library, GLOBE EU, May 2016

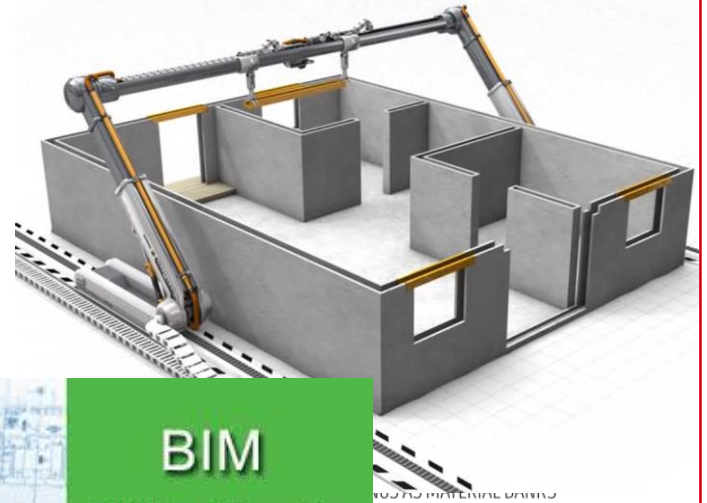
SUPPORT

Innovation –
Digitalisation -
Communication tools



BIM

Building Information
Modeling



THANK YOU!

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