



GRÆNNI  
BYGGÐ

GREEN BUILDING  
COUNCIL ICELAND

# CIRCON

*The circular economy in  
construction: eco-design of  
circular buildings*

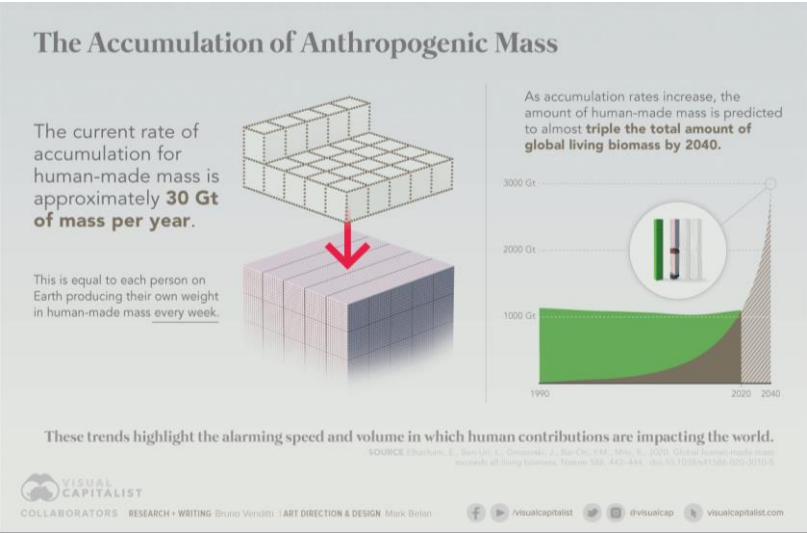
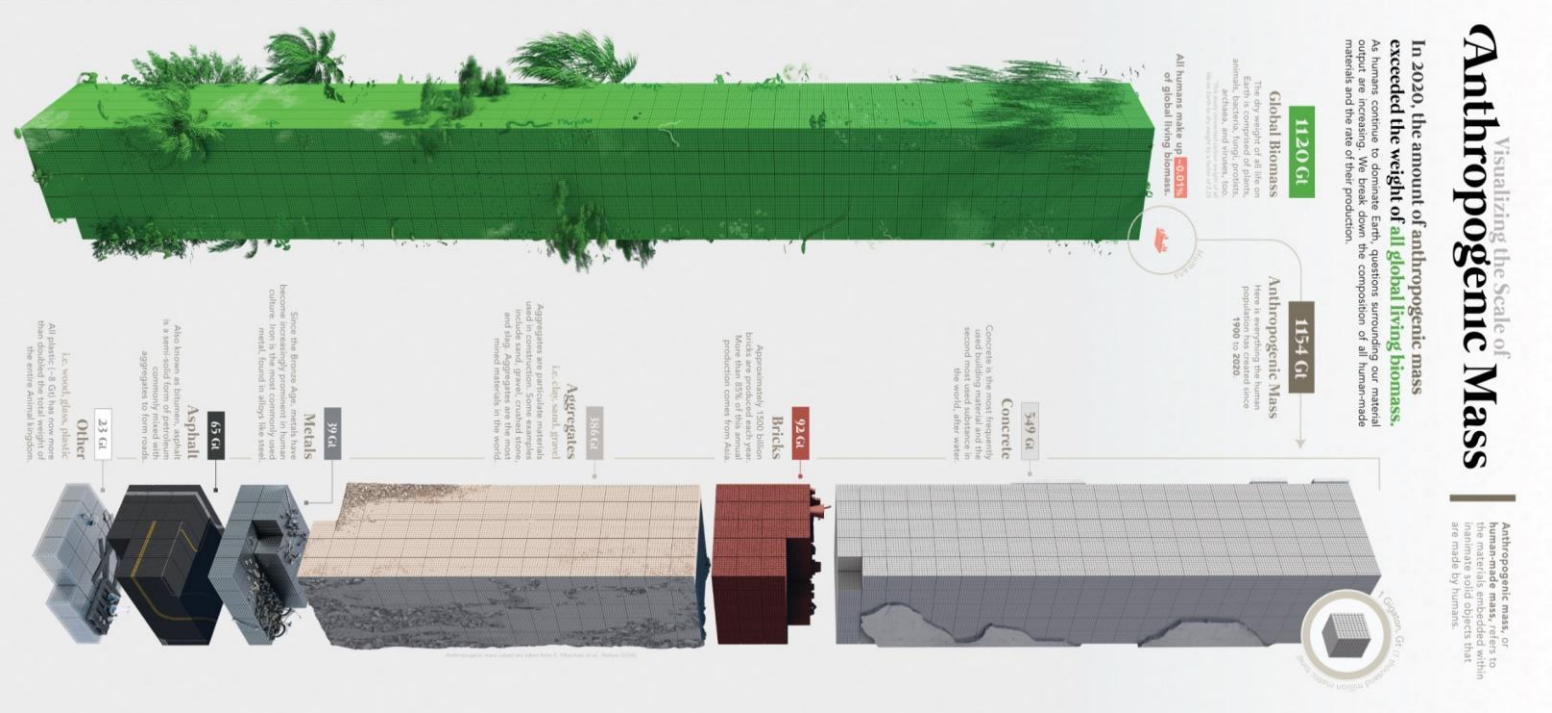
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Katarzyna Jagodzinska

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# Project overview

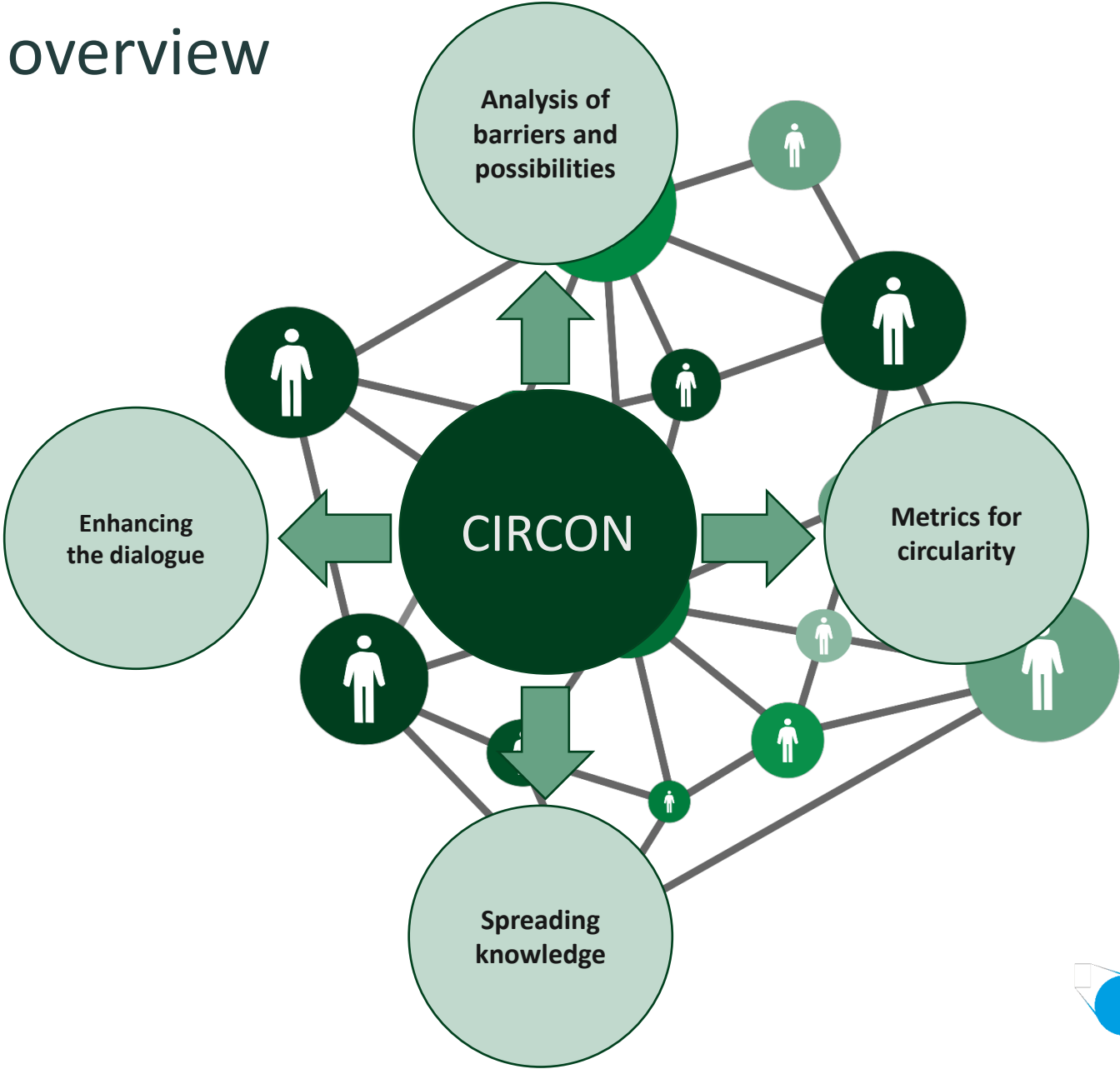


Iceland  
Liechtenstein  
Norway grants

Visual Capitalist



# Project overview



# Project overview

Partners



**PLGBC**

Polskie Stowarzyszenie  
Budownictwa Ekologicznego



**Silesian University  
of Technology**



Iceland   
Liechtenstein  
Norway grants



**Stjórnarráð Íslands**  
Umhverfis-, orku- og  
loftslagsráðuneytið



# Activities



Iceland  
Liechtenstein  
Norway grants

Working group  
meetings

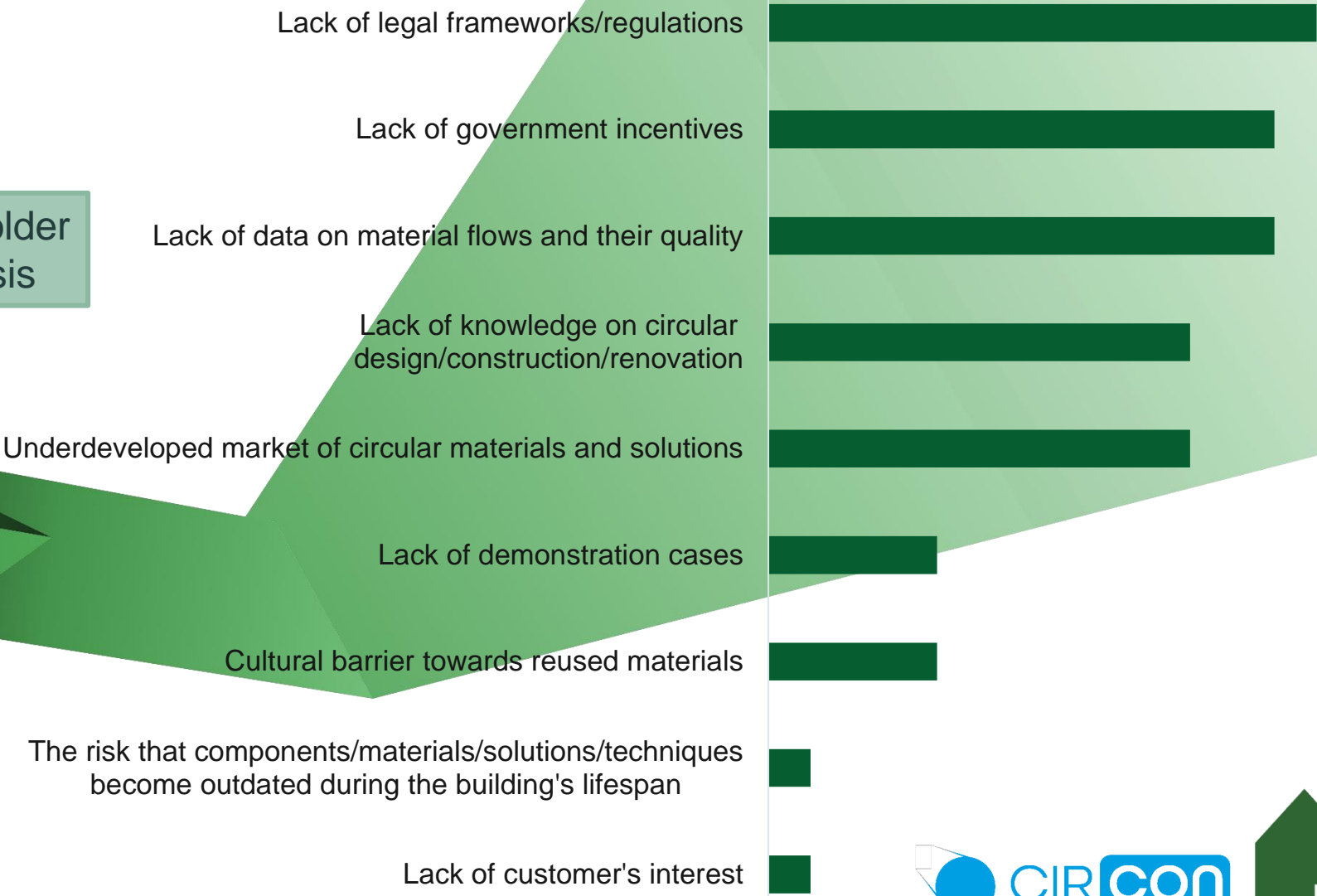
Iceland  
Liechtenstein  
Norway grants



# Activities cont.

## What are the most significant barriers to implementing a circular economy in the construction sector?

Stakeholder analysis



# Activities cont.

CIRCON  
conference

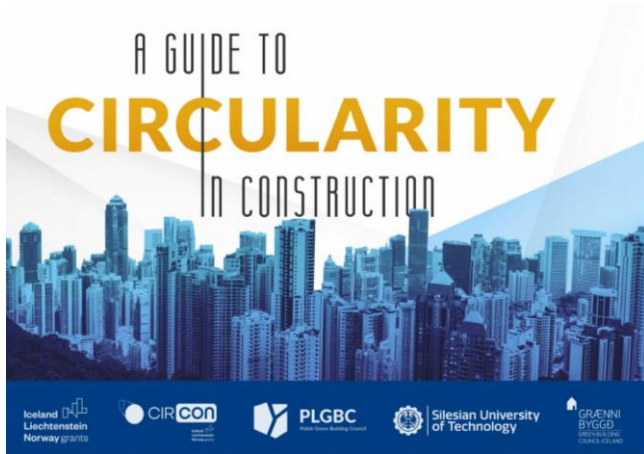


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**HÚS** Húsnæðis- og  
mannvirkjastofnun



# Activities cont.



# THE CHOSEN TIPS AND GUIDELINES FOR CIRCULAR BUILDING DESIGNS

### DESIGN STAGE

ASPECTS

INDOOR INSTALLATIONS AND TECHNICAL EQUIPMENT

- Design and select indoor technical equipment with the longest possible service life, which can accommodate changes and adaptations and be easily repaired.
  - service ducts (e.g., gas, water) not embedded in the building structure to improve access to them
  - easily accessible technical rooms and equipment, which facilitate the future replacement of technical equipment
  - longitudinal ducts for running services, which provide flexibility for placing the service points
  - higher ceilings for service ducts (e.g., gas, water) so that they are not embedded in the building structure increase the flexibility of their routing
  - providing separate servicing to individual parts/wings of the space, which increases their substituting potential and enables the individual maintenance of sanitary facilities.
- Design a building with high energy efficiency, according to the current regulations contained in the national building code (if existing), using renewable energy sources.
- Avoid or possibly minimize energy use from sources negatively impacting the environment.
- Design solutions to reduce water consumption, using rainwater and graywater for domestic purposes.
- Design appropriate building automation and control systems for optimal energy savings.
- Consider using heat recovery.

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### CONSTRUCTION STAGE

ASPECTS


MATERIAL TRANSPORTATION BUILDING CONSTRUCTION

- Obtain building materials from local sources whenever possible.
- Maximize and optimize transportation efficiency.
- Pay attention to the type of packaging of the supplied materials - it should be reusable or recyclable.
- Use high-quality equipment, machinery, and appliances with high energy class to reduce electricity consumption.
- Use circular elements that support the construction process, e.g., 3D printed parts, prefabricated parts, or any other reusable materials (e.g., formwork).
- Utilize renewable energy sources and rainwater during the construction process.

### CIRCULARITY INDICATORS

THE SUB-INDICATORS ARE:

- SMU SECONDARY MATERIALS USE INDICATOR
- MRP MATERIALS REUSABILITY POTENTIAL INDICATOR
- SR SPATIAL REVERSIBILITY INDICATOR
- SSP SPACE SHARING POTENTIAL INDICATOR



A CIRCULAR BUILDING IS A BUILDING THAT, THROUGHOUT ITS LIFE CYCLE, DOES NOT DEplete THE EARTH'S NON-RENEWABLE RESOURCES AND DOES NOT DEGRADE THE ECOSYSTEM

To achieve this, the building should:

- be designed, operated, and dismantled following the above principle
- be made entirely of materials that were already in use
- be energy efficient in the construction and use phases, and be based on renewable energy that does not deplete the Earth's non-renewable resources over its entire life cycle
- minimize waste generation during the construction and use phases
- allow for its flexible use and expansion
- allow its reuse in whole, in parts, or as individual materials.

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### CASE STUDIES



# Activities cont.



PBL



**HÁSKÓLI ÍSLANDS**

Website

Grænt stökk í mannvirkjagerð

Lecture at Aalto University, Finland

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**More is coming 😊**

Series of meetings

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Thank you for the attention

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