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BAMB

Learning by doing – BAMB in action

Flavie Lowres, BRE



In Europe, the construction industry is responsible for:

- 50% of resource extraction
- 30-45% of waste production
- 40% of GHG emissions

Buildings are not lasting as long as planned

The urban environment is rapidly changing

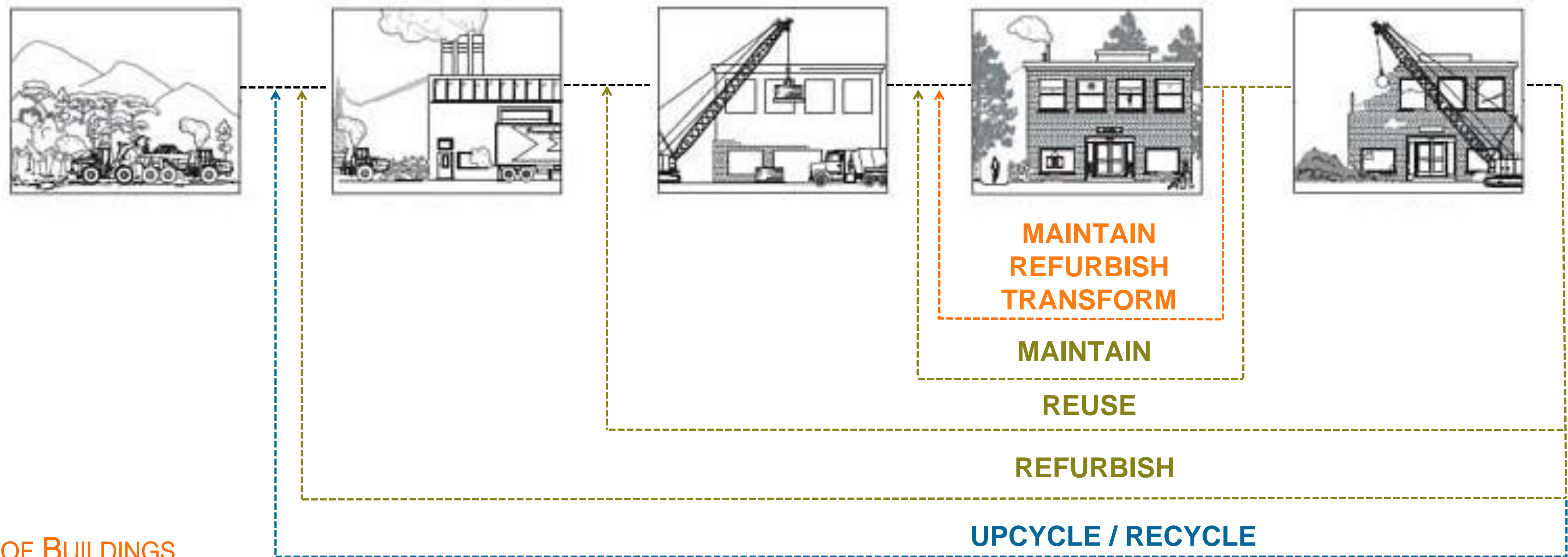
Resources are more difficult and expensive to access





Move from a linear and static built environment ...

... towards a circular and dynamic built environment



- REUSE OF BUILDINGS
- REUSE OF BUILDING PRODUCTS & SYSTEMS
- REUSE OF MATERIALS

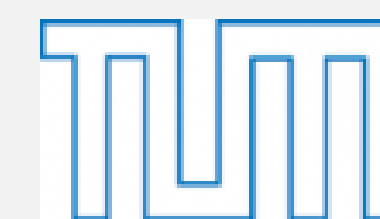
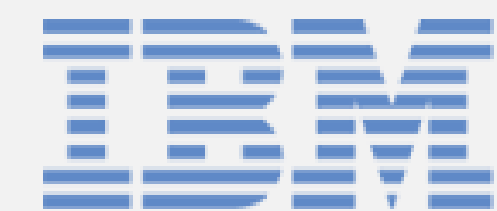


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15 partners from 7 European countries working together with one mission:

Enabling a systemic shift in the building sector by creating circular solutions





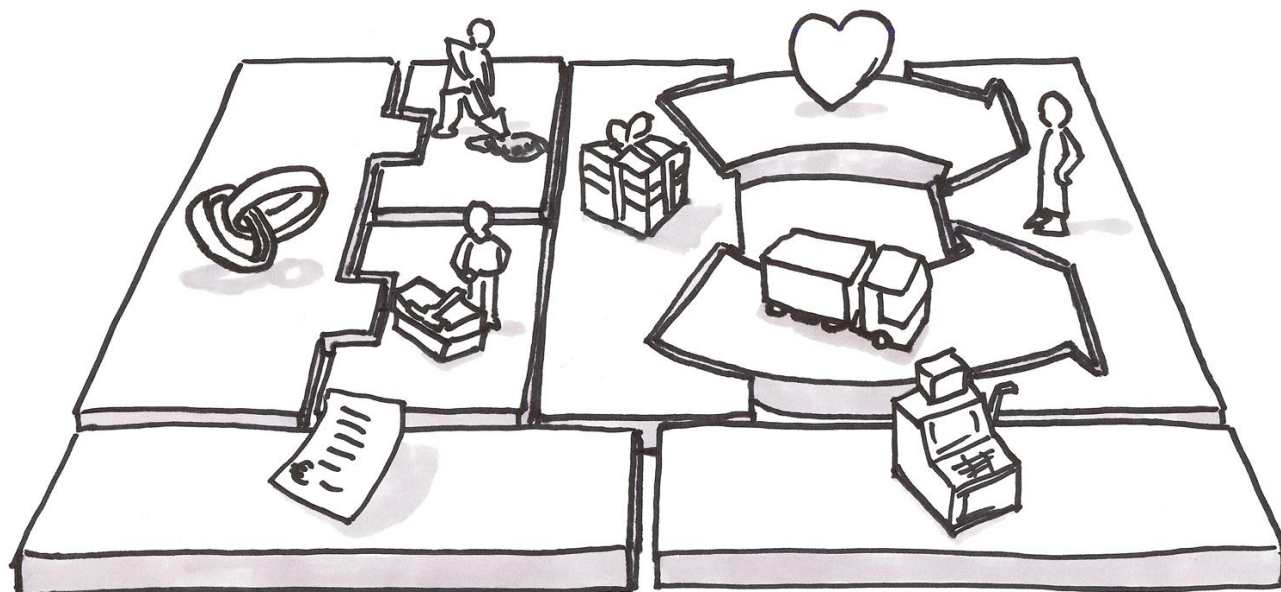
Buildings as Material Banks

Reversible Building Design

Materials Passports

Circular Building Assessment

Circular Value Network



Environmental Evaluation

Economic Evaluation

Reversible
Building
Design

BAMB
BUILDINGS AS MATERIAL BANKS

Circular Building Assessment

WEB Platform

User Information

BIM

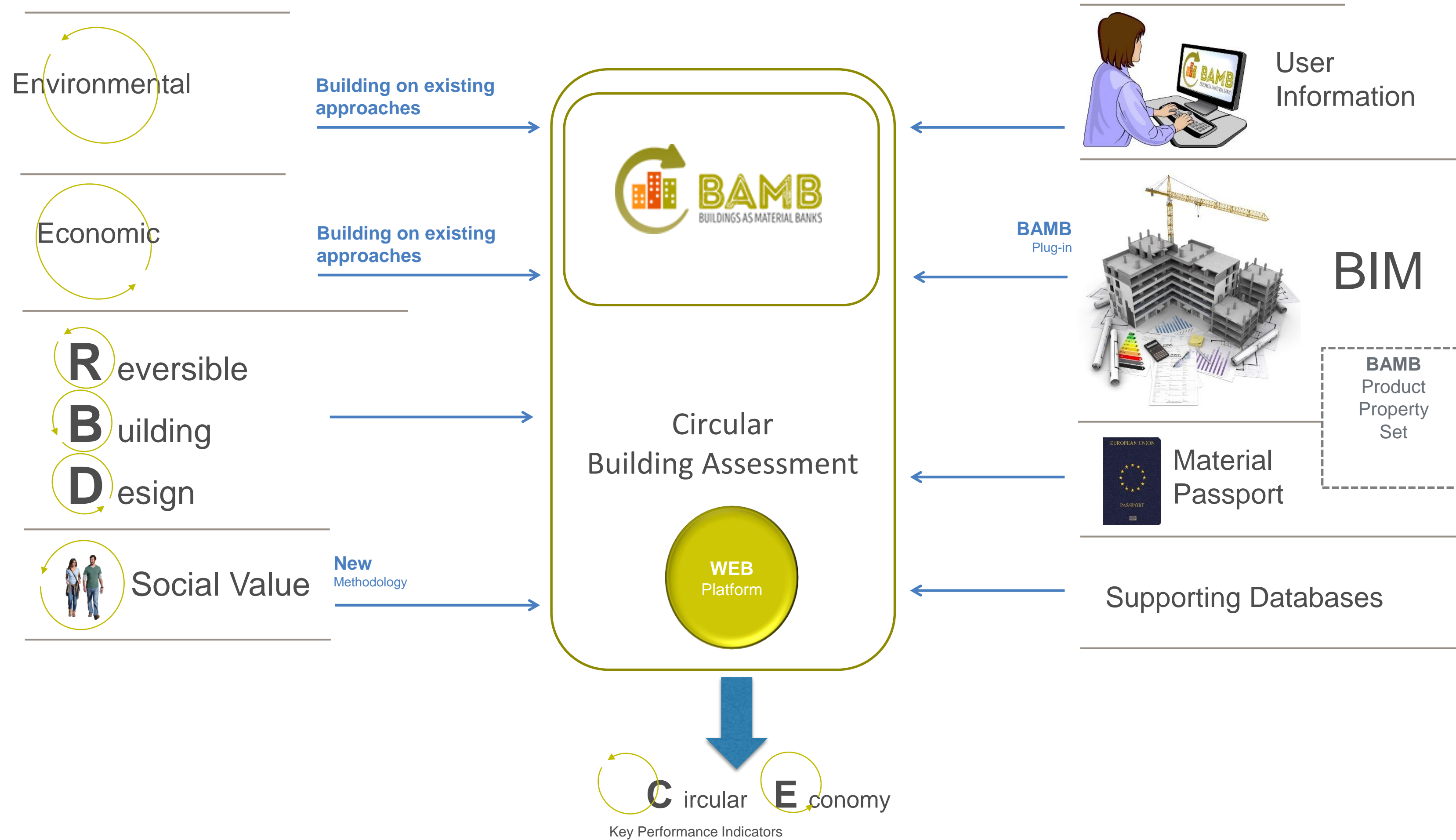
Material Passport

Default values

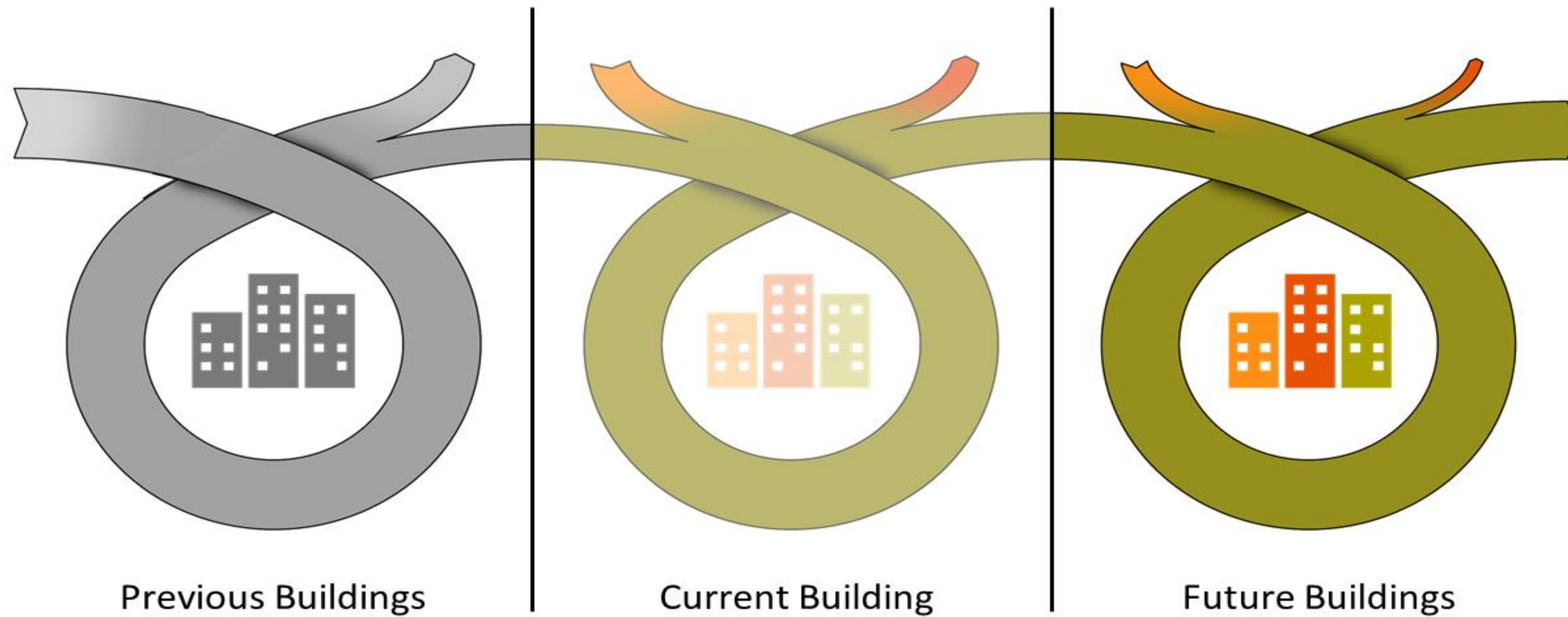
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Circular **E**conomy
Key Performance Indicators

BAMB - CIRCULAR BUILDING ASSESSMENT CONCEPT



Circular Building Scenarios



Previous Buildings

Current Building

Future Buildings

Displacing new products & materials

Transformation capacity

Future reuse potential

D14 – BAMB PILOT PROJECTS

<https://www.bamb2020.eu/wp-content/uploads/2019/03/20190228-BAMB-D14.pdf>

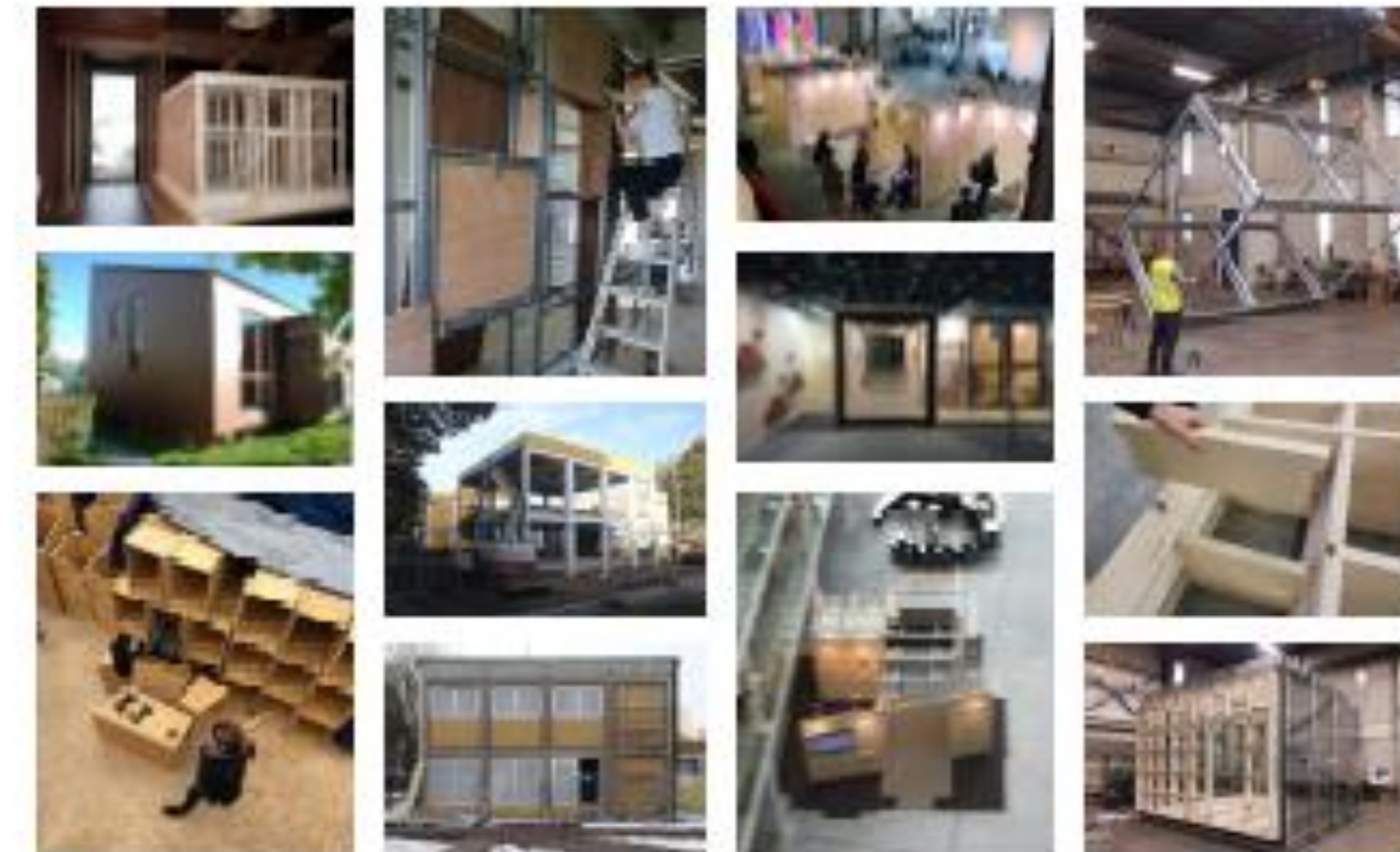


BUILDINGS AS MATERIAL BANKS

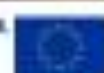
TESTING BAMB RESULTS THROUGH PROTOTYPING AND PILOT PROJECTS

D14 – 4 pilots built + Feedback report

28.02.2019



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PILOT PROJECT – BRIC

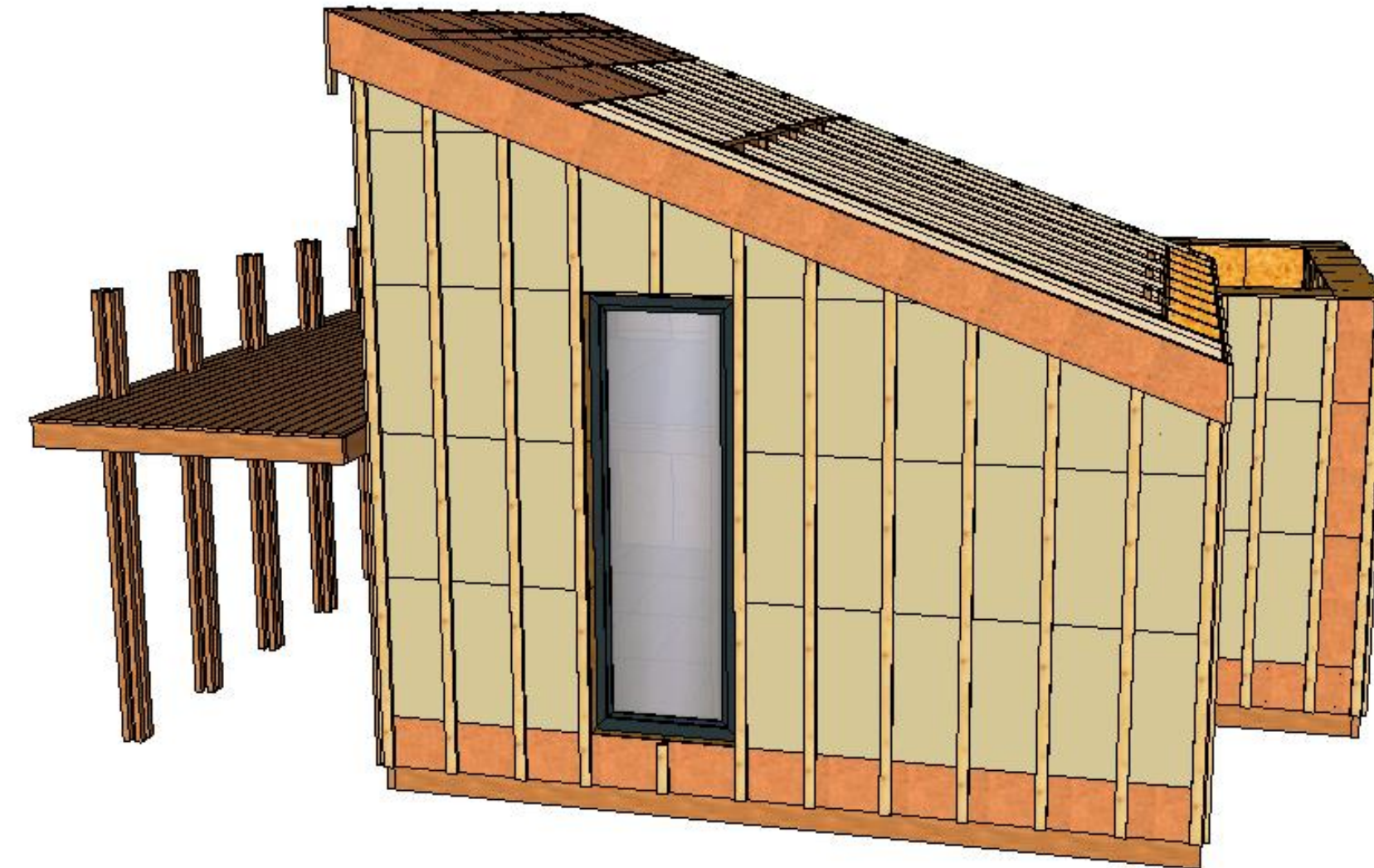
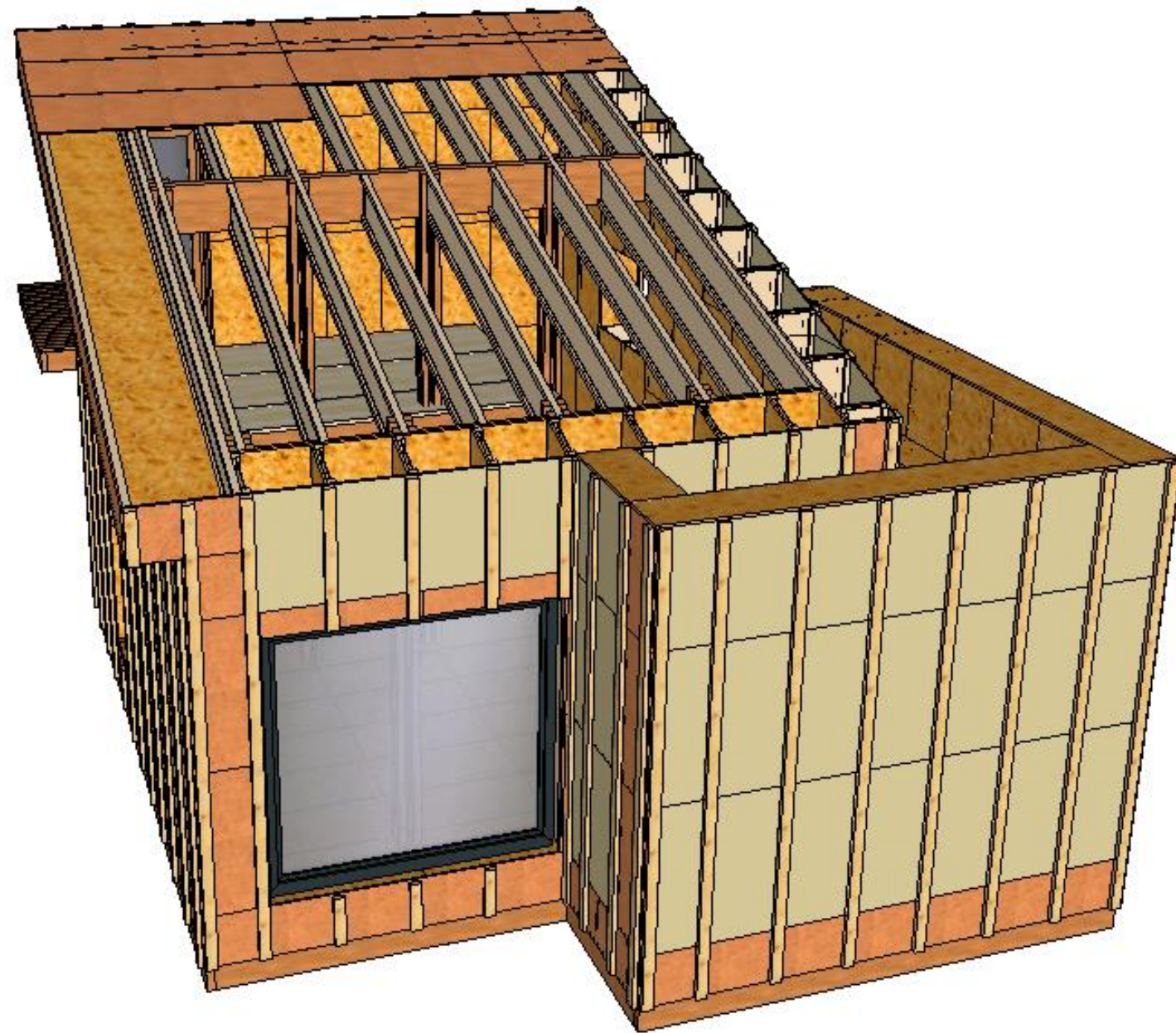


Focus on

- Reversible design
- The use of new circular building materials and reclaimed/reused materials
- High energy performance and sustainable use of water

- Pedagogical module build at educational center EFP
- 3x Build – Deconstruct– Rebuild within 3 years

SCENARIO – 3D MODEL OF BRIC1

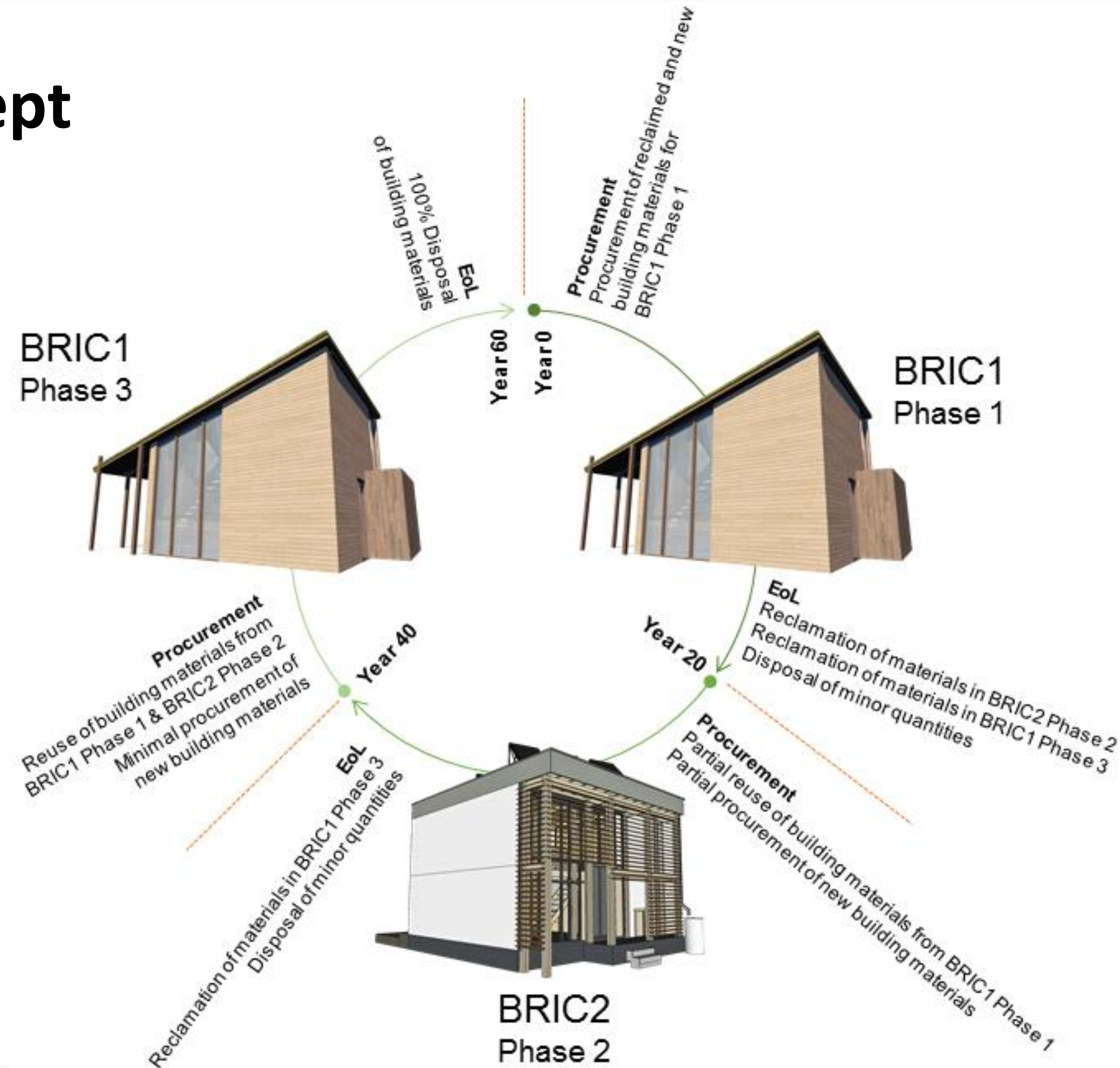


Pilot 2 Building Reversible in Concept

BRIC - Brussels

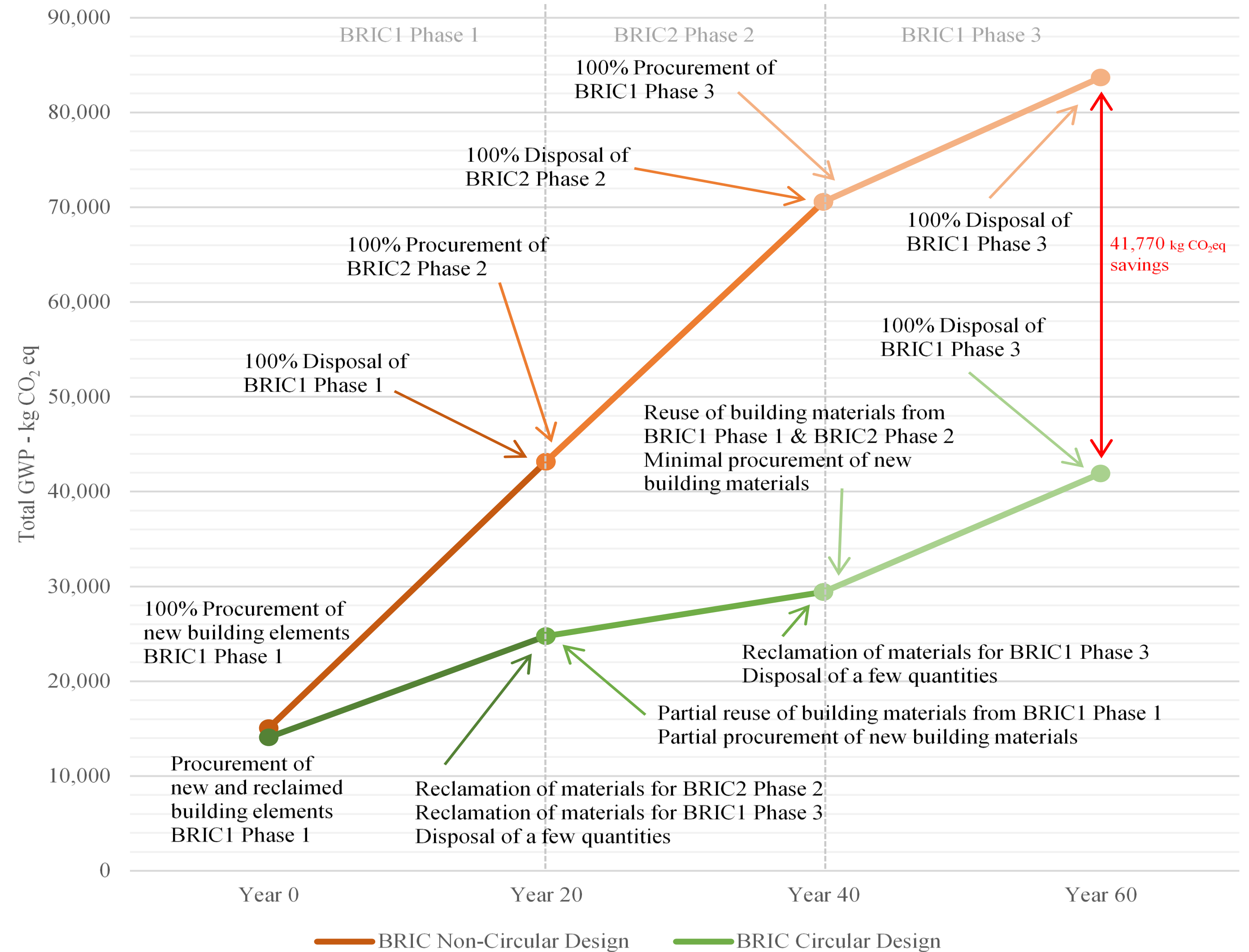
BUILDING LEVEL ANALYSIS

- Over a study period of 60 years, three buildings (BRIC Phase 1, Phase 2 & 3) were built and demounted after a 20-year life cycle
- Analysis 1 - Circular Design vs Non-Circular Design
- Analysis 2: Cumulative Impact Over Time Analysis: Circular Design vs Non-Circular Design



BRIC - cumulative results

Cumulative impact over a 60-year achieved approximately 41,770 kg CO₂eq saving by adopting Circular Design instead of Non-Circular.



CIRCULAR ECONOMY – KEY POINTS

Circular economy is an approach that can enable impact reduction

Measurement is necessary to validate decisions

Understanding impact of decision taken now on future recycling/reuse potential is important

More work needed on understanding residual value of components

Digitalisation can play an important role in enabling circularity in the built environment

Setting up key principles for future buildings is good, but understanding how to apply them to existing buildings is more challenging

CIRCUIT

About CIRCUIT

A four year collaborative project with 30 multisectoral partners across London, Copenhagen, Hamburg and Helsinki region. Focus is in the areas of:

- Demolition and reuse
- Refurbishment and transformation
- Principles for designing new circular buildings and future developments

The project also explores city-wide systems such as:

- Governance and planning
- Material and data flows
- Training and knowledge sharing.



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Thank You!

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