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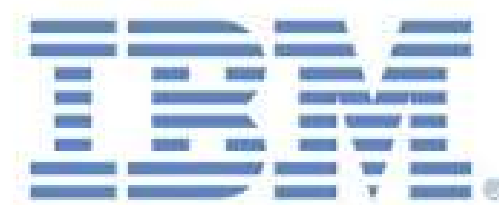
Buildings As Material Banks *Edifícios como Banco de Materials*

Ana Quintas BRE

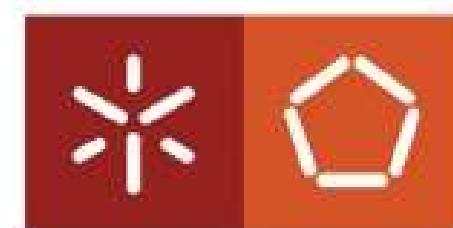
Ana Quintas | BRE



BUILDINGS AS MATERIALS BANKS – EU H2020 PROJECT



UNIVERSITEIT TWENTE.



Universidade do Minho



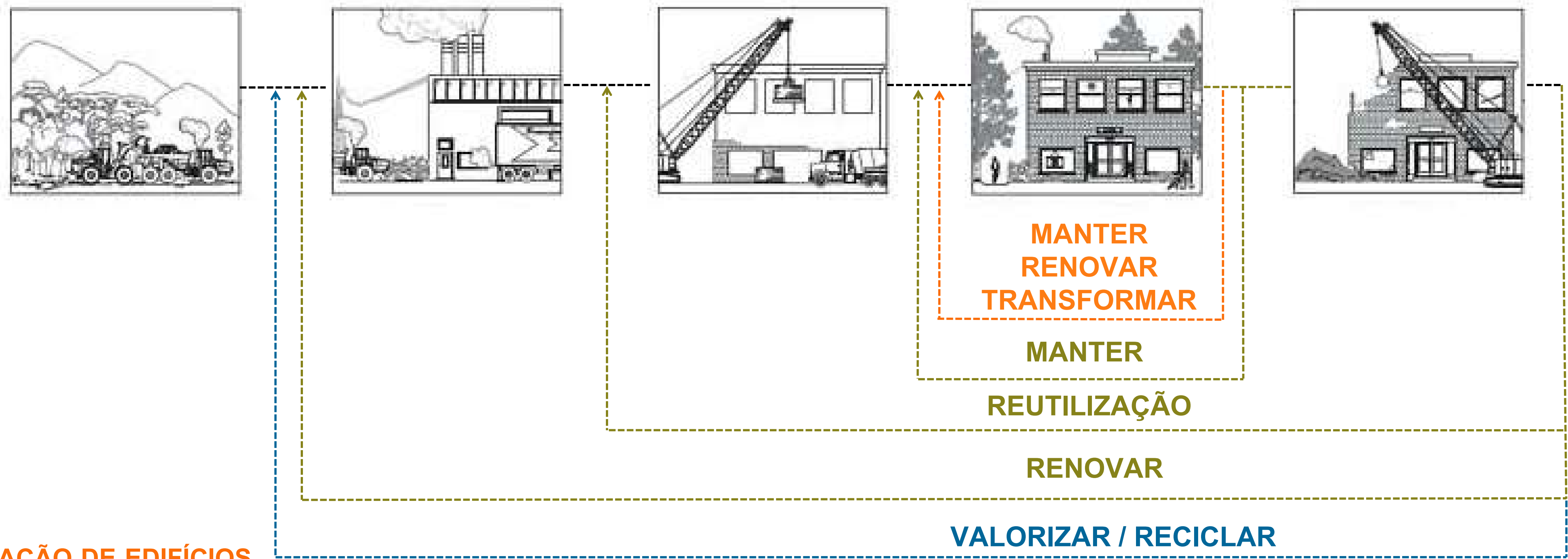
bre

DREES &
SOMMER

MUDANDO DE UM AMBIENTE CONSTRUÍDO ESTÁTICO E LINEAR ...

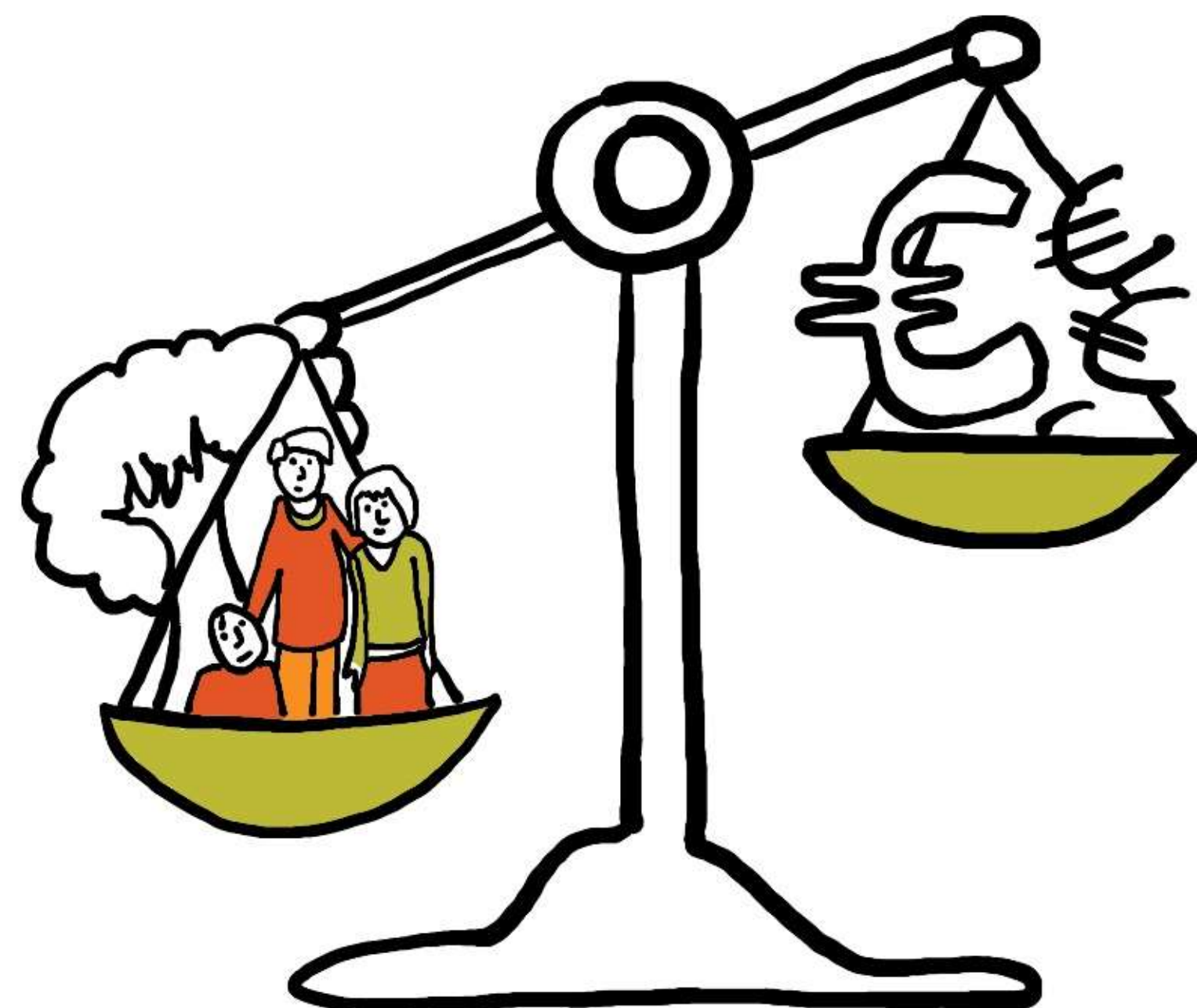
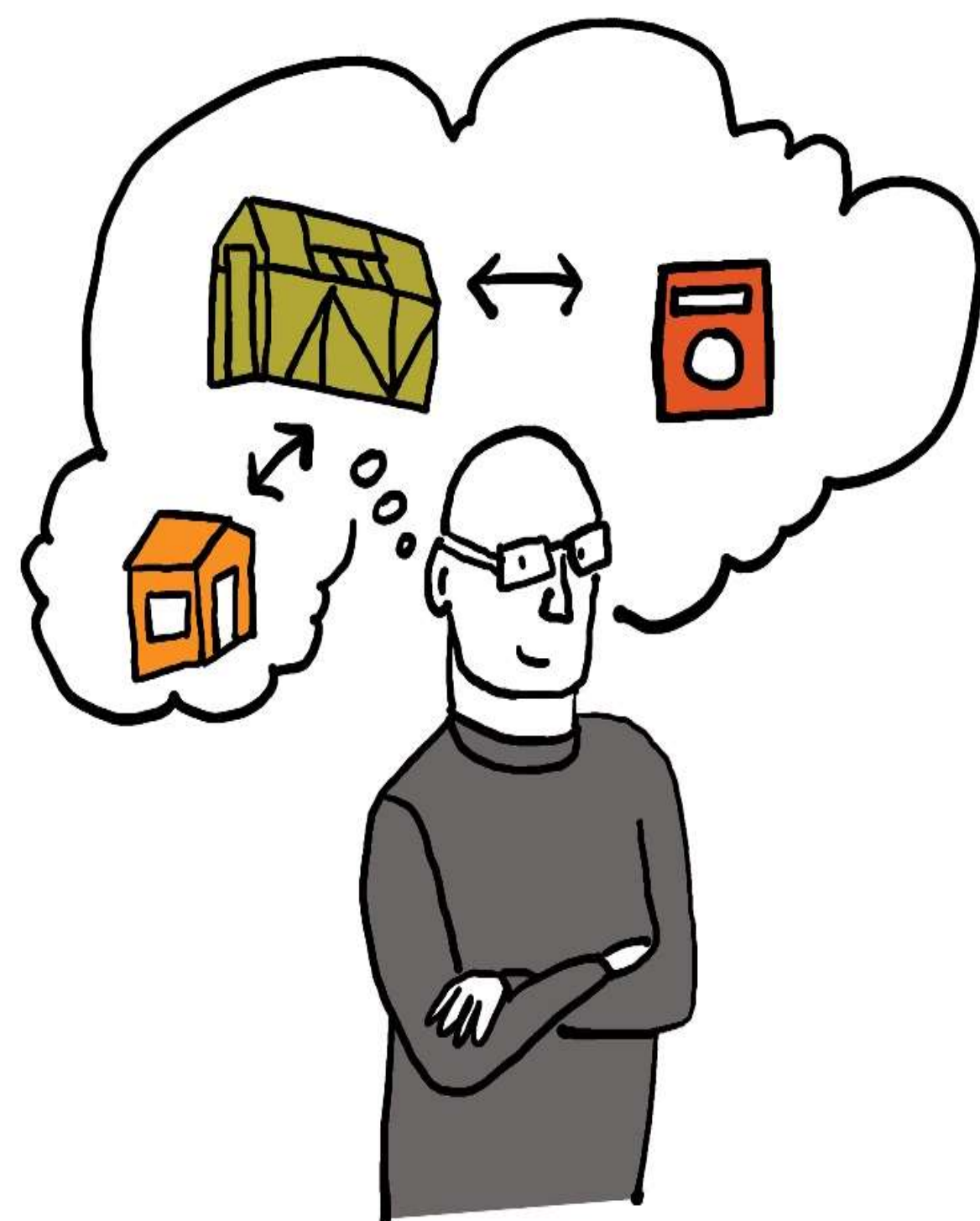


... RUMO A UM AMBIENTE CONSTRUÍDO CIRCULAR E DINÂMICO

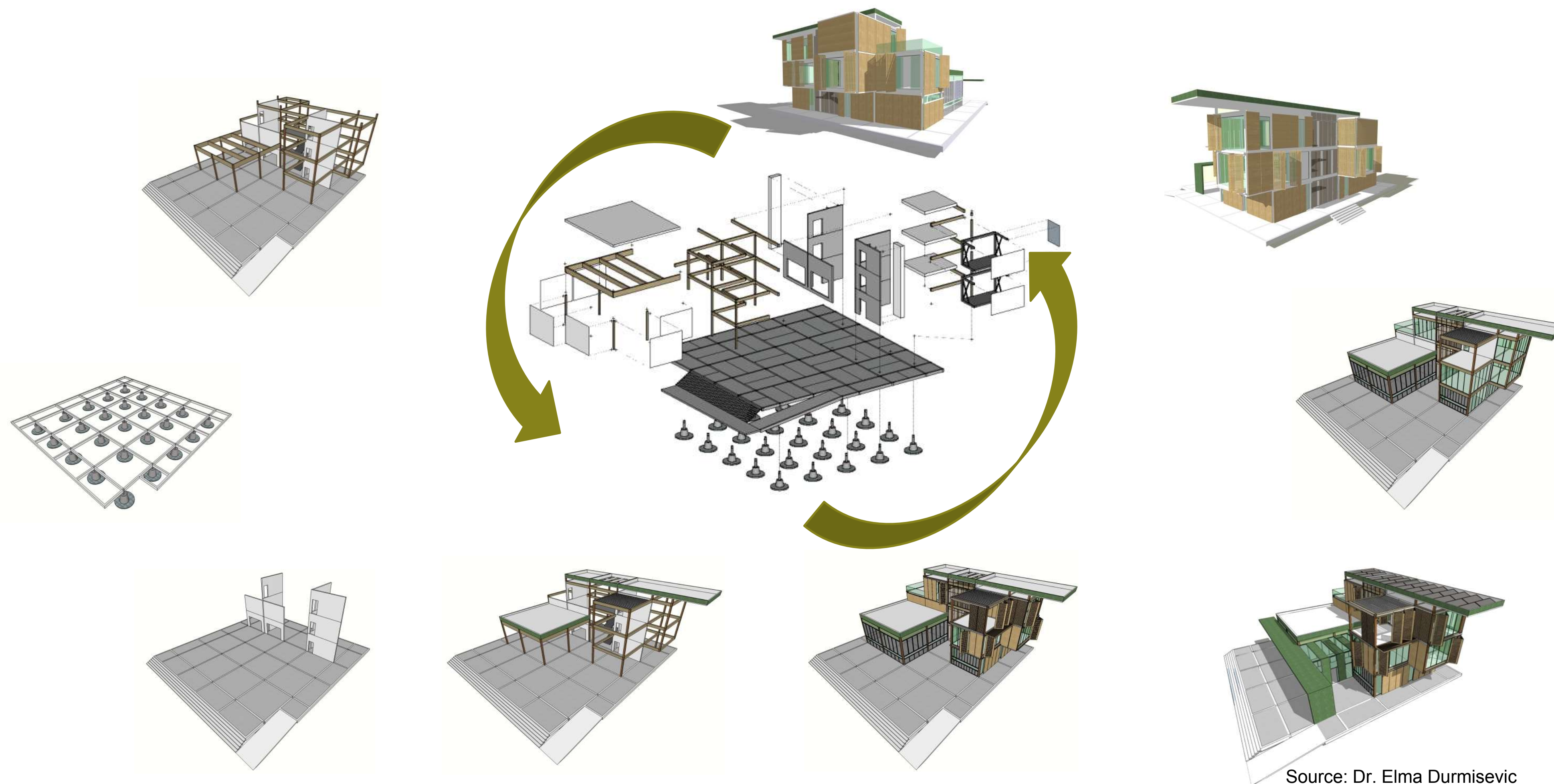


- **REUTILIZAÇÃO DE EDIFÍCIOS**
- **REUTILIZAÇÃO DE PRODUTOS & SISTEMAS DE CONSTRUÇÃO**
- **REUTILIZAÇÃO DE MATERIAIS**

APOIAR MUDANÇAS SISTÊMICAS



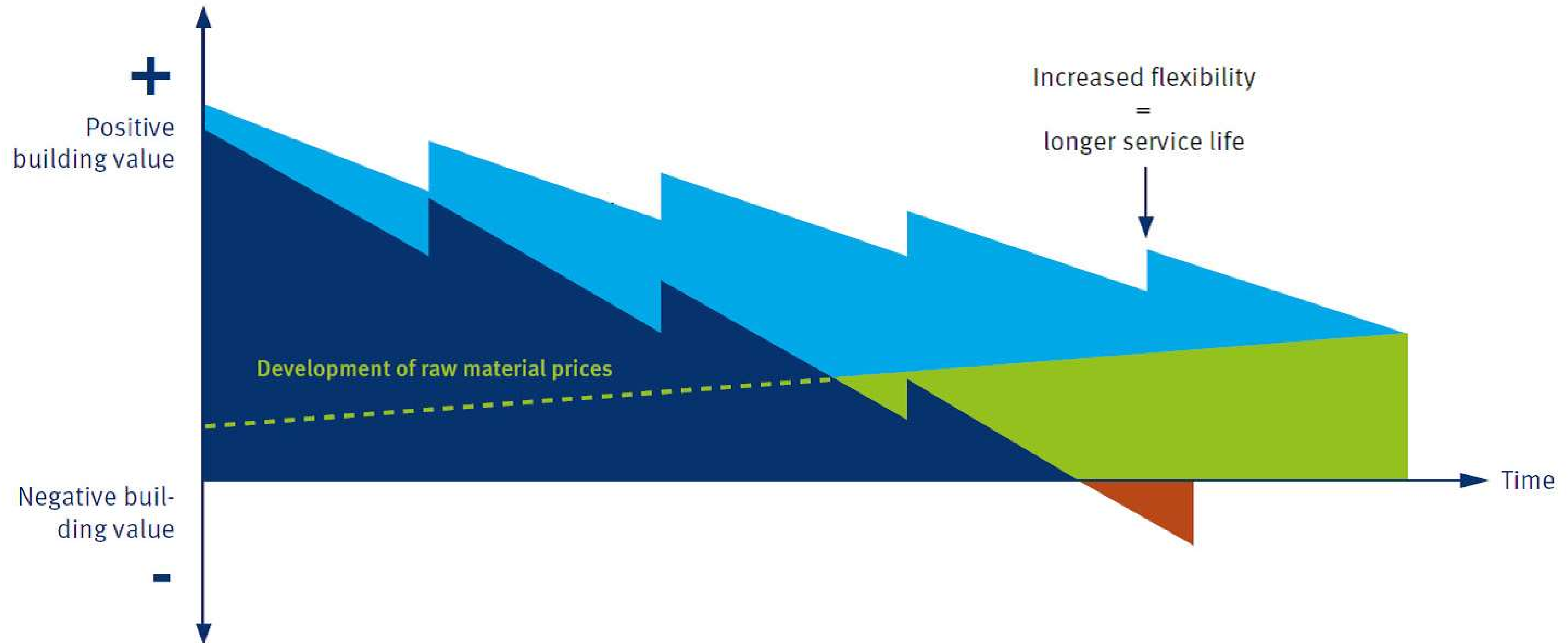
MUDANÇA NA CULTURA DE DESIGN/PROJETO



Source: Dr. Elma Durmisevic



MUDANÇA NA DEFINIÇÃO DE VALOR

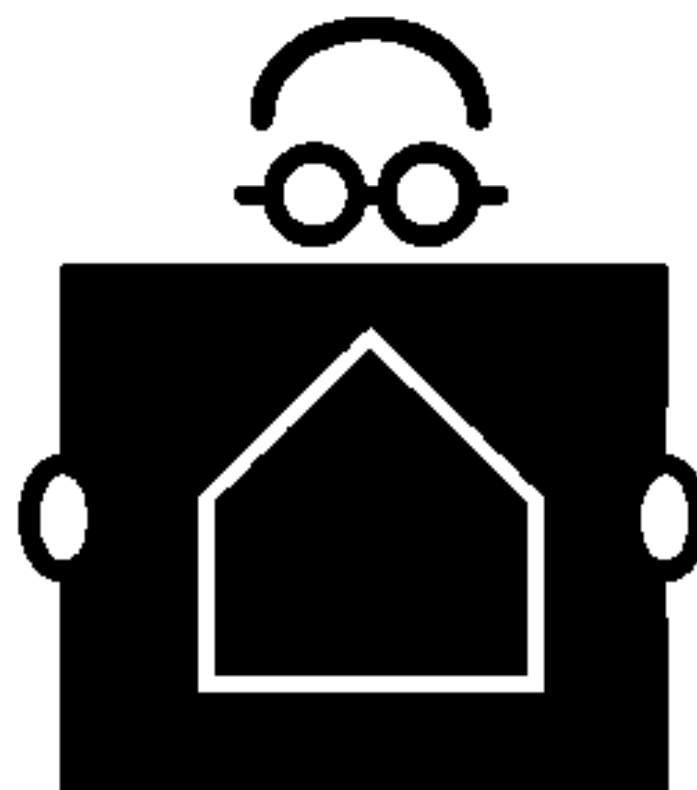


Source: Drees & Sommer – BAMB
August 2017

MUDANÇA NA COLABORAÇÃO ENTRE TODOS OS ATORES



Created by Wilson Joseph from Noun Project



Created by Joel Burke from Noun Project



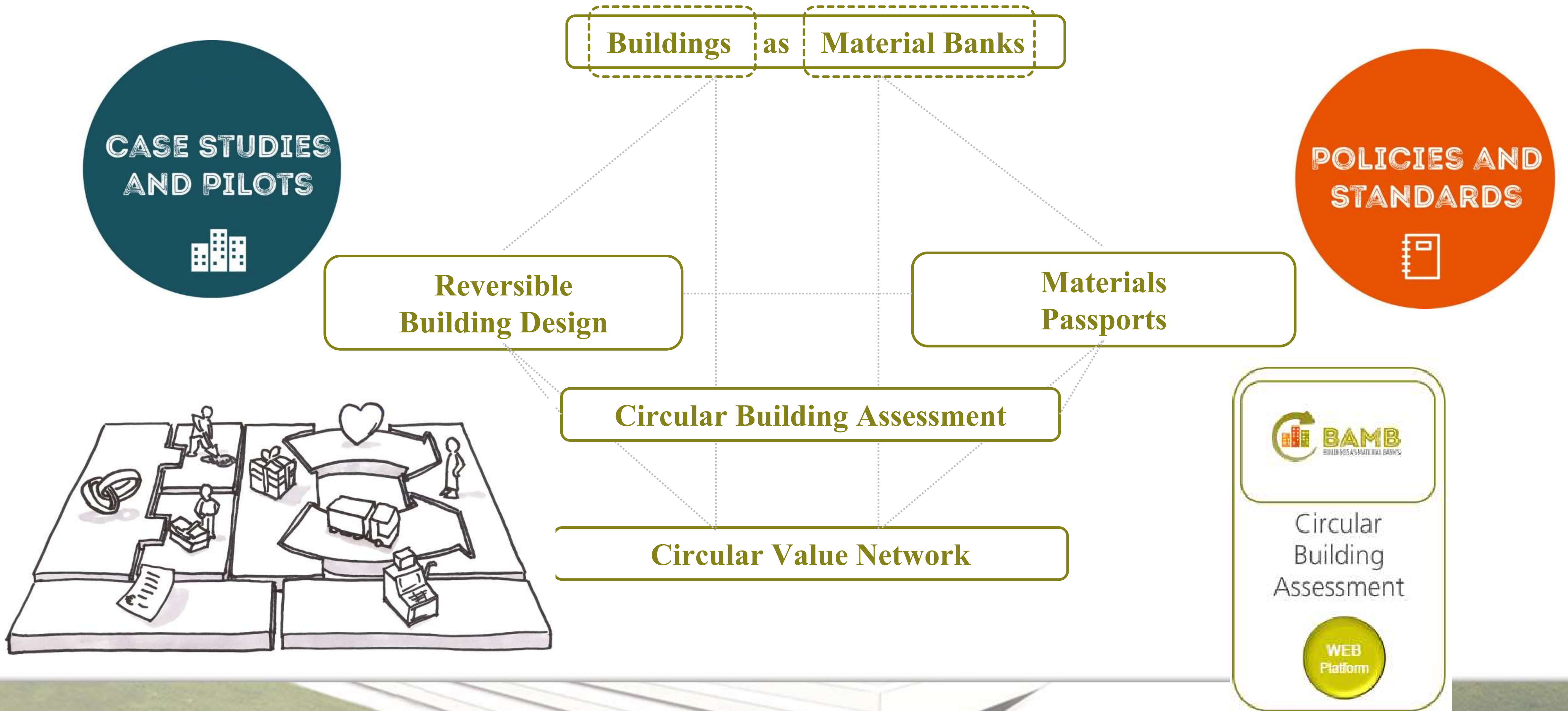
Created by Vector Market from Noun Project



Created by Gregor Črašnar from Noun Project



Created by Wilson Joseph from Noun Project



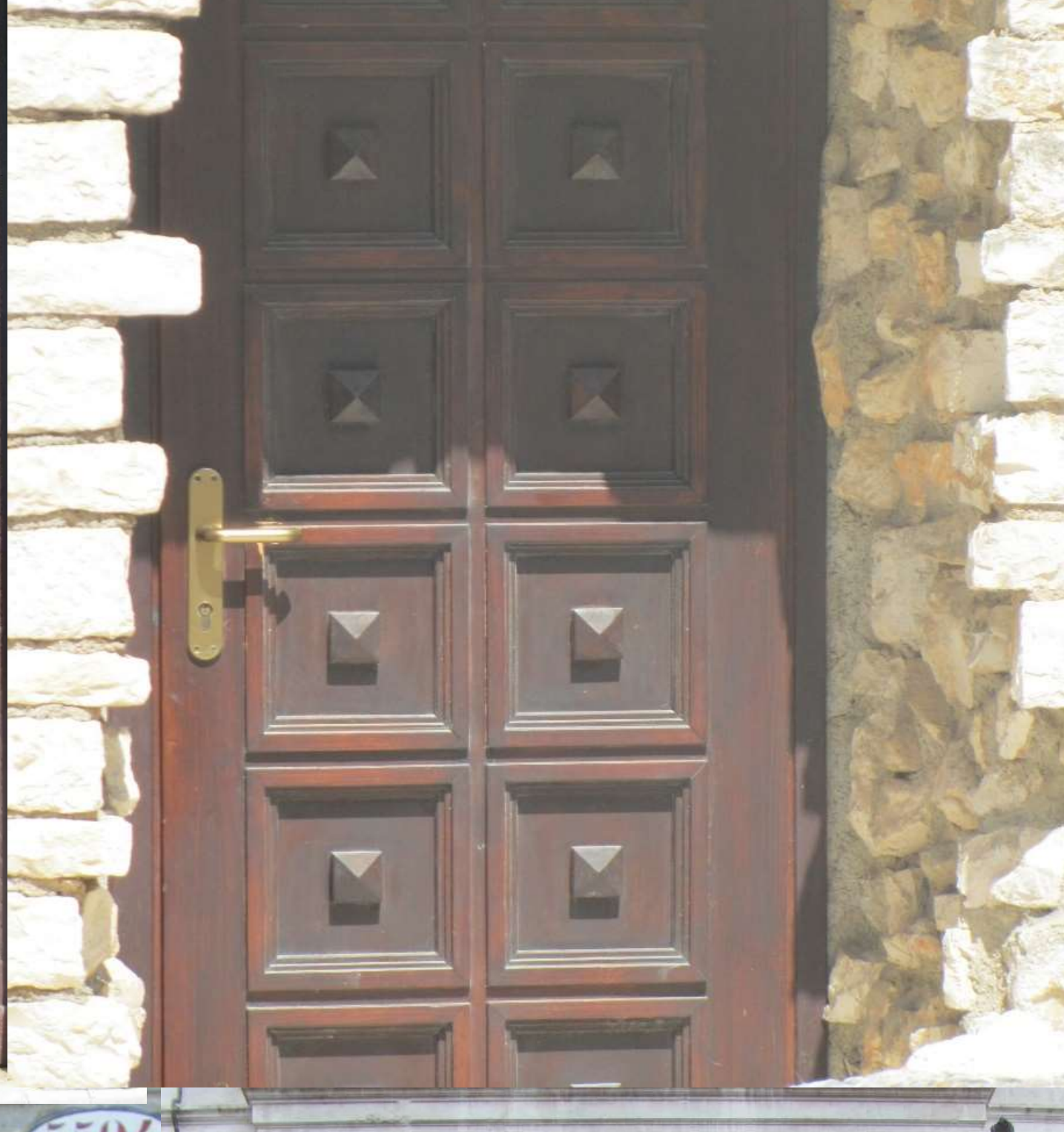


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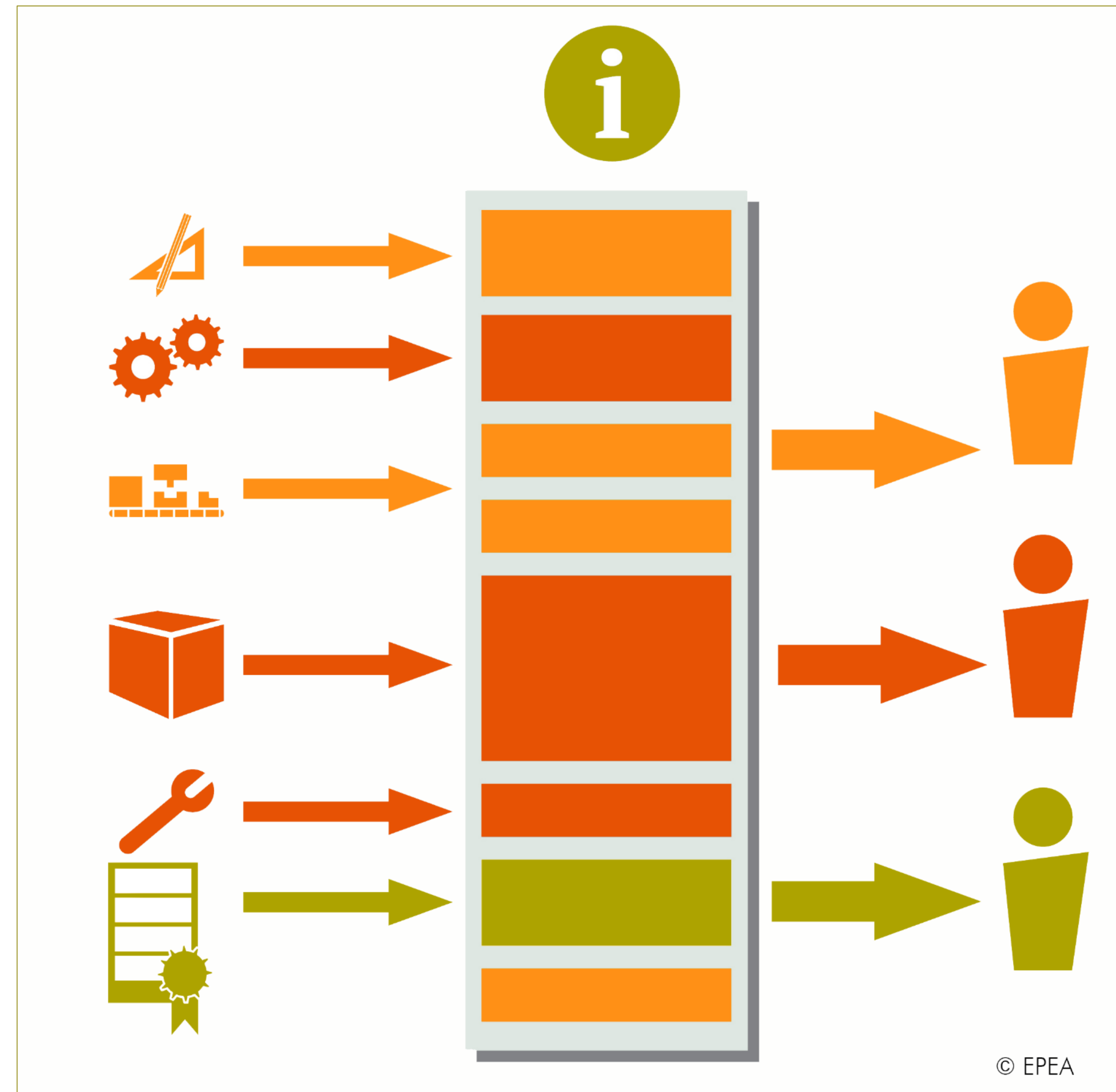


Passaportes de Materials





O QUE É?





+ Add Product

Products

Name ↓	Brand Name	Manufacturer	GTIN/EAN
Accoya® Wood	Accsys Technologies	Accsys Technologies	Unknown
Acrovyn® 4000 Wall Protection	Acrovyn® 4000	Construction Specialties Inc.	Unknown
airmaster	Desso	Desso	Unknown
Aluminium Door Furniture	AMI BV	AMI	Unknown
Axia 2.0 Office Chair	BMA Ergonomics	Flokk	
Balance Desk	Ahrend	Ahrend	Unknown
BB Light LEDpipe EVO	EVO/ BB Light Concepts	BB Light	Unknown
BERA GRAVEL FIX® PRO	Bera B.V.	Bera B.V. (NL office)	12345
BioFoam Biodegradable EPS	BioFoam	Synbra Technologies BV	unknown
Birch-multiplex board	FaberExposize	FaberExposize	Unknown

Product: HeartFelt® Ceiling System

Identifier

Value for User

Installation

Residues

Potentials

Materials health

Components

Installation instructions:

yes

[view attachment](#)

Maintenance instruction and/or maintenance schedule

yes

[view attachment](#)

Defined use period

> 25 years

Period of available spare parts (years)

> 25 years



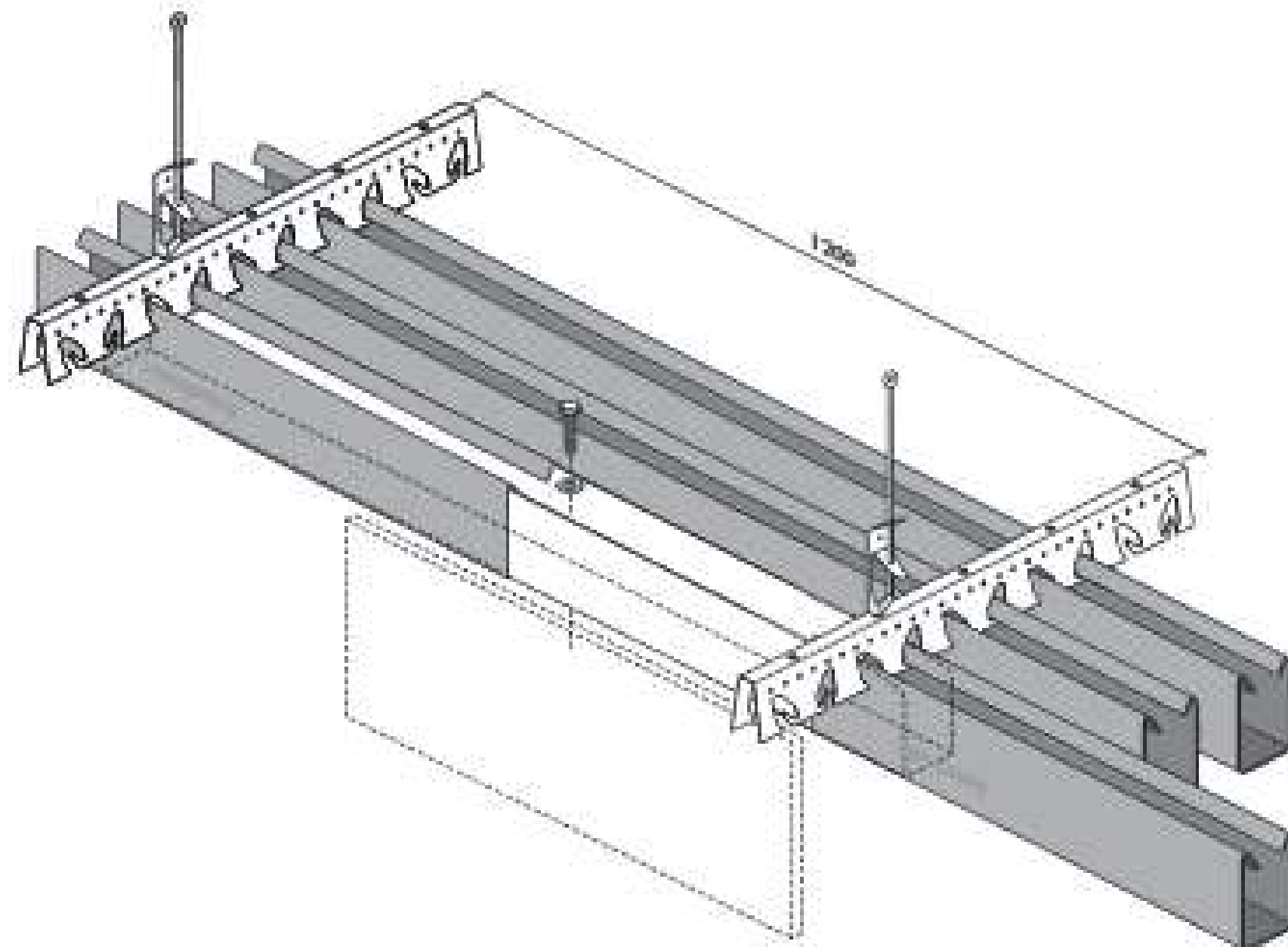
[Edit Product](#)

[Create copy](#)

[Mark As Old](#)

[+ Create Instance](#)

6 No reinforcements



Product complexity

- Basic Product comprised of components & materials that can be mostly disassembled by unskilled workers using tools. However, might include coatings or ingredients requiring further reprocessing. e.g. steel reinforcing, steel beams, framing wood.



MÓDULOS EXPERIMENTAIS REVERSÍVEIS

6-8 March – ecobuild London

**13-27 March – BRE Innovation Park
Watford**

**17-19 April – Building Holland
Amsterdam**

**October to December – Kamp C
Westerlo**



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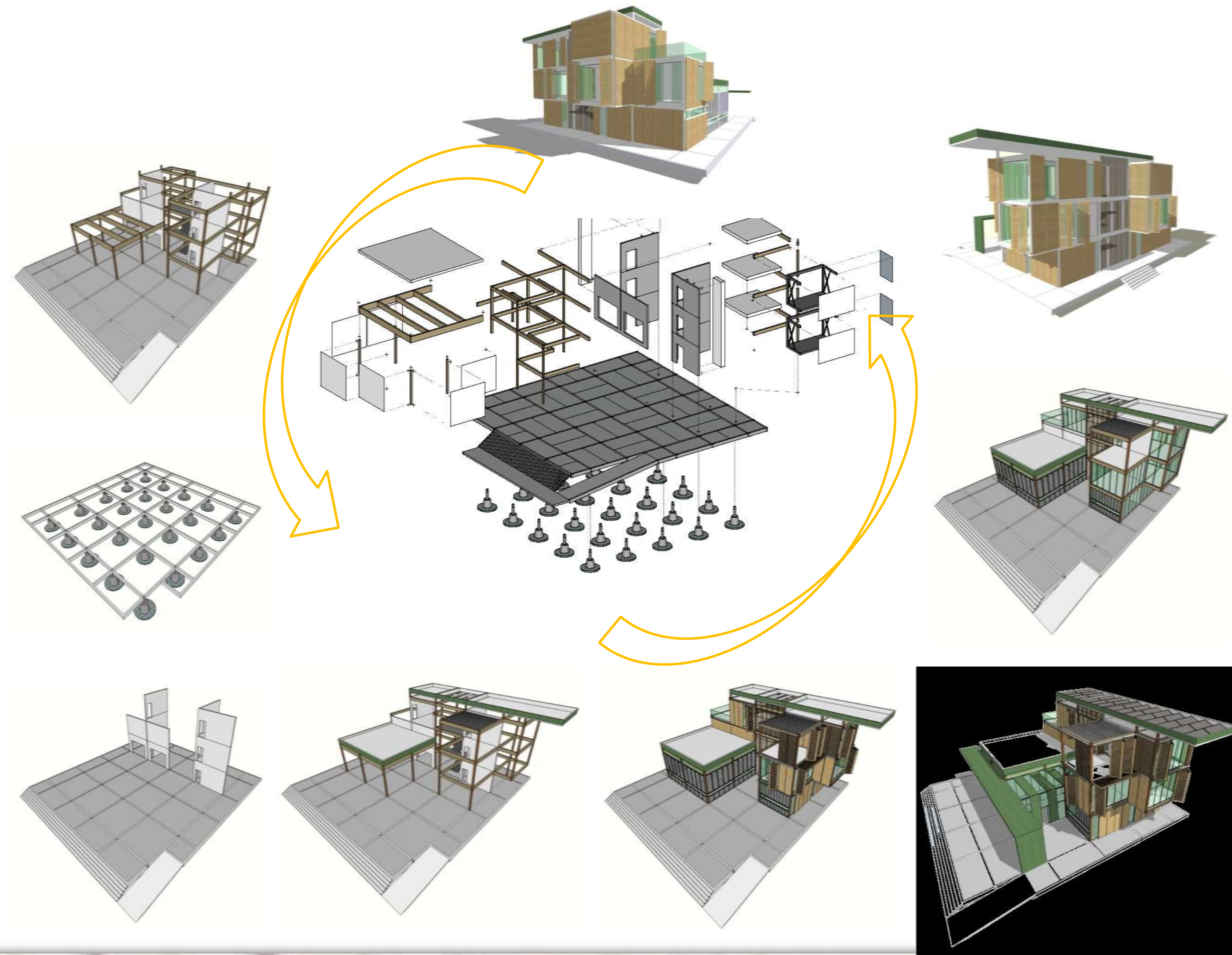


Projeto de Construção Reversível

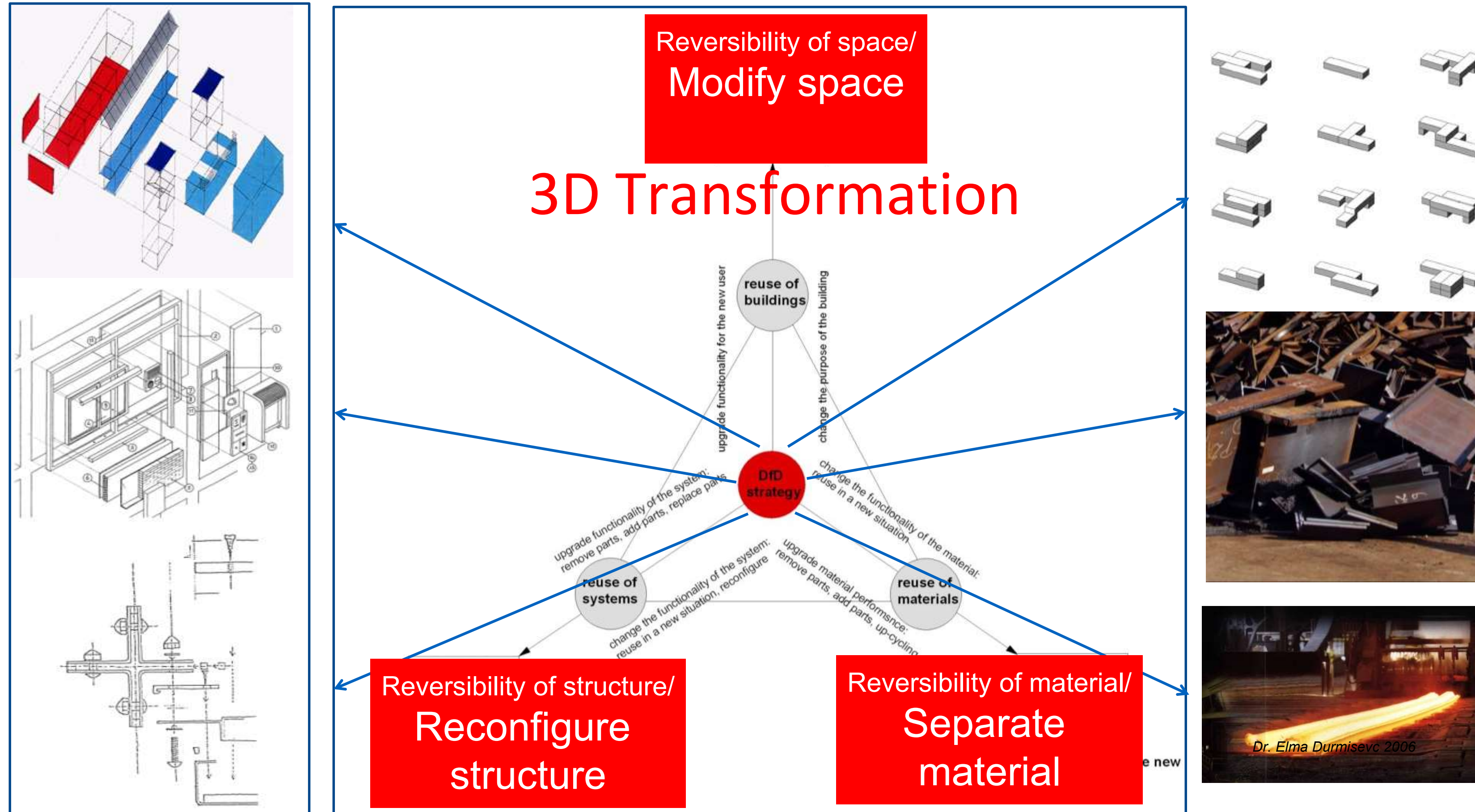


REVERSIBLE BUILDING DESIGN

Tools and Protocols



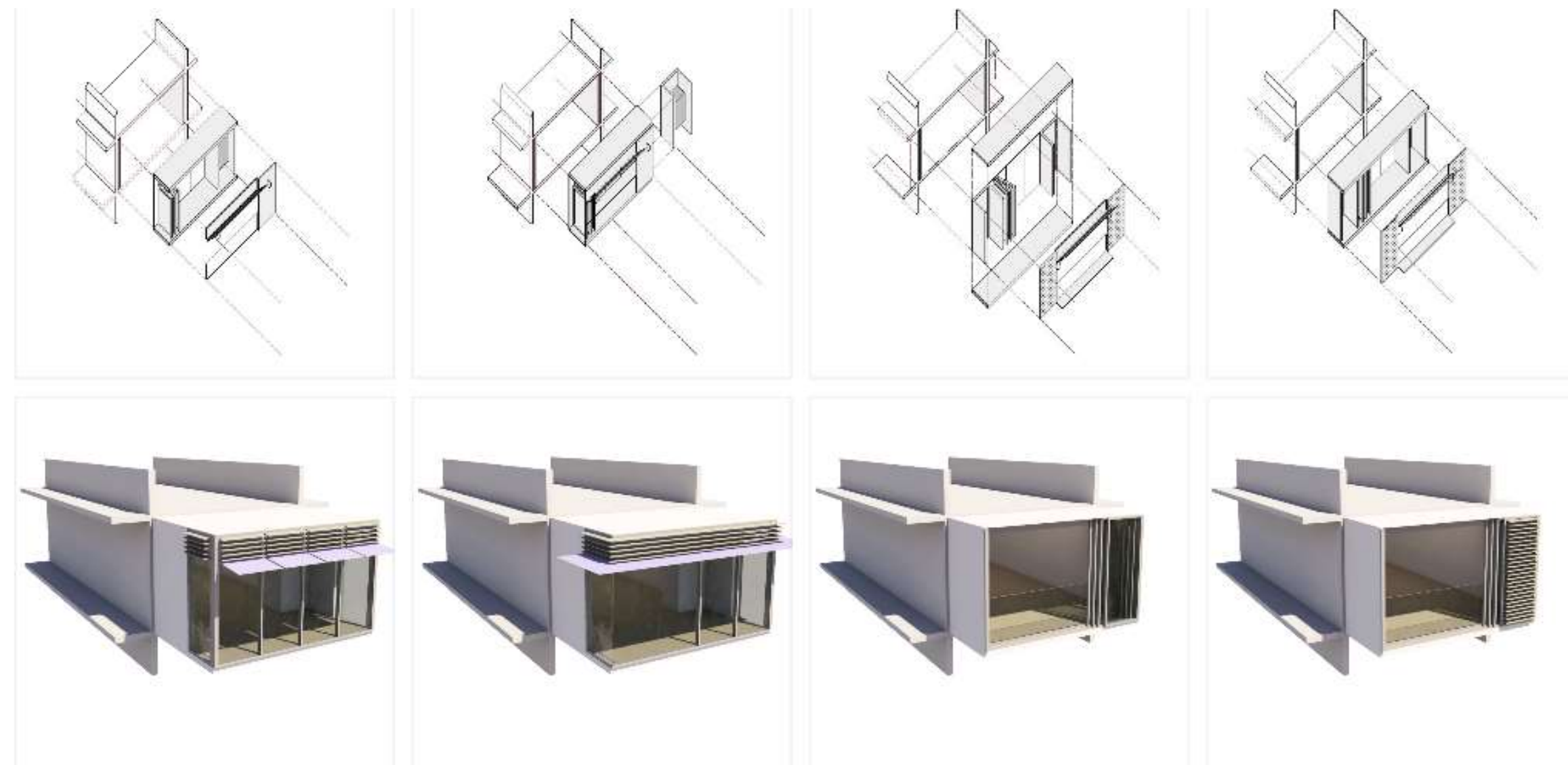
Value creation through multiple dimensions of transformations



REVERSIBLE BUILDING DESIGN

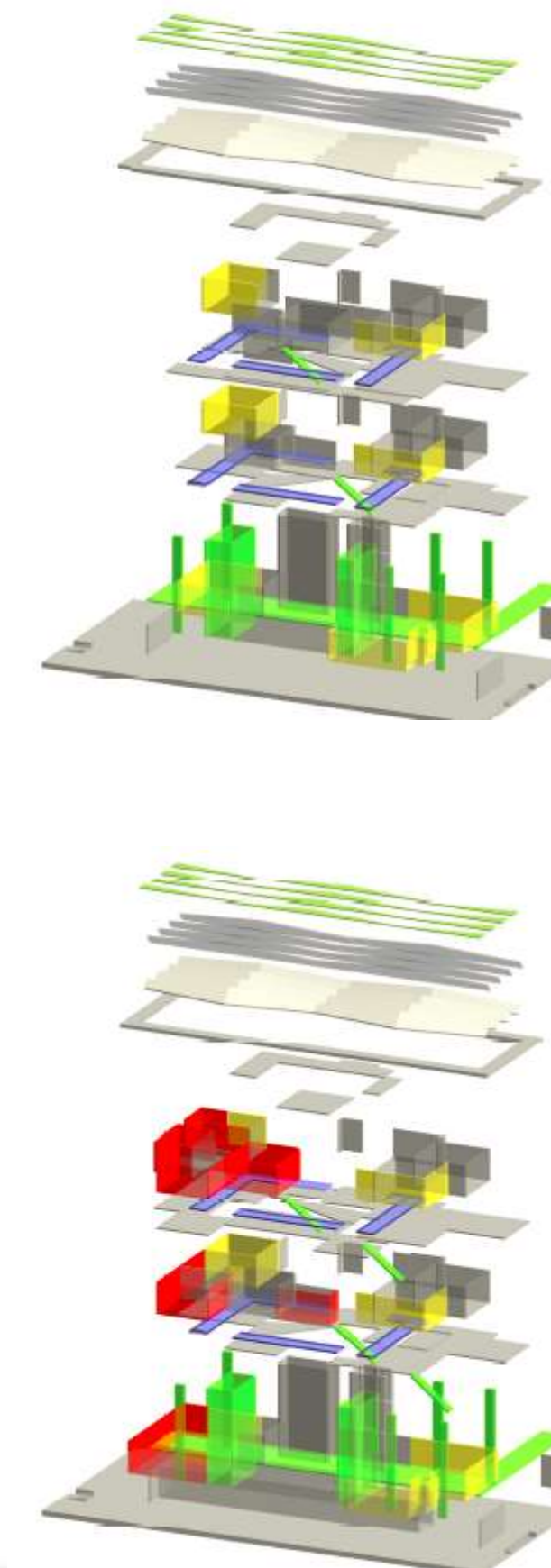
Technical Reversibility

Spatial Reversibility



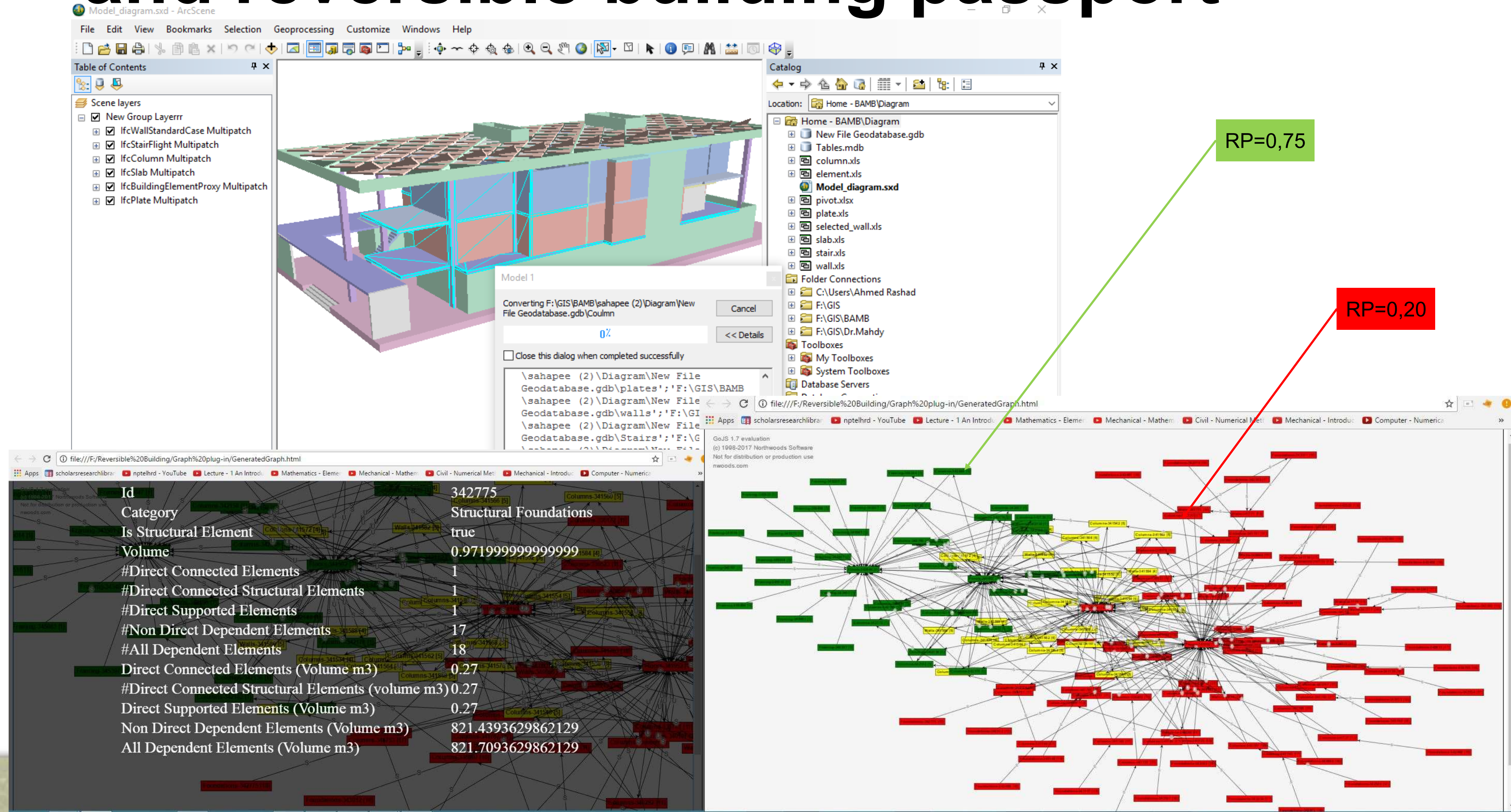
Reconfigure structure

Separate materials



Adapt space

TOWARDS REVERSIBLE BIM and reversible building passport



Model 1

Converting F:\GIS\BAMB\sahapee (2)\Diagram\New File Geodatabase.gdb\Coulnn

0%

Close this dialog when completed successfully

Id	342775
Category	Structural Foundations
Is Structural Element	true
Volume	0.9719999999999999
#Direct Connected Elements	1
#Direct Connected Structural Elements	1
#Direct Supported Elements	1
#Non Direct Dependent Elements	17
#All Dependent Elements	18
Direct Connected Elements (Volume m3)	0.27
#Direct Connected Structural Elements (volume m3)	0.27
Direct Supported Elements (Volume m3)	0.27
Non Direct Dependent Elements (Volume m3)	821.4393629862129
All Dependent Elements (Volume m3)	821.7093629862129

RP=0,75

RP=0,20



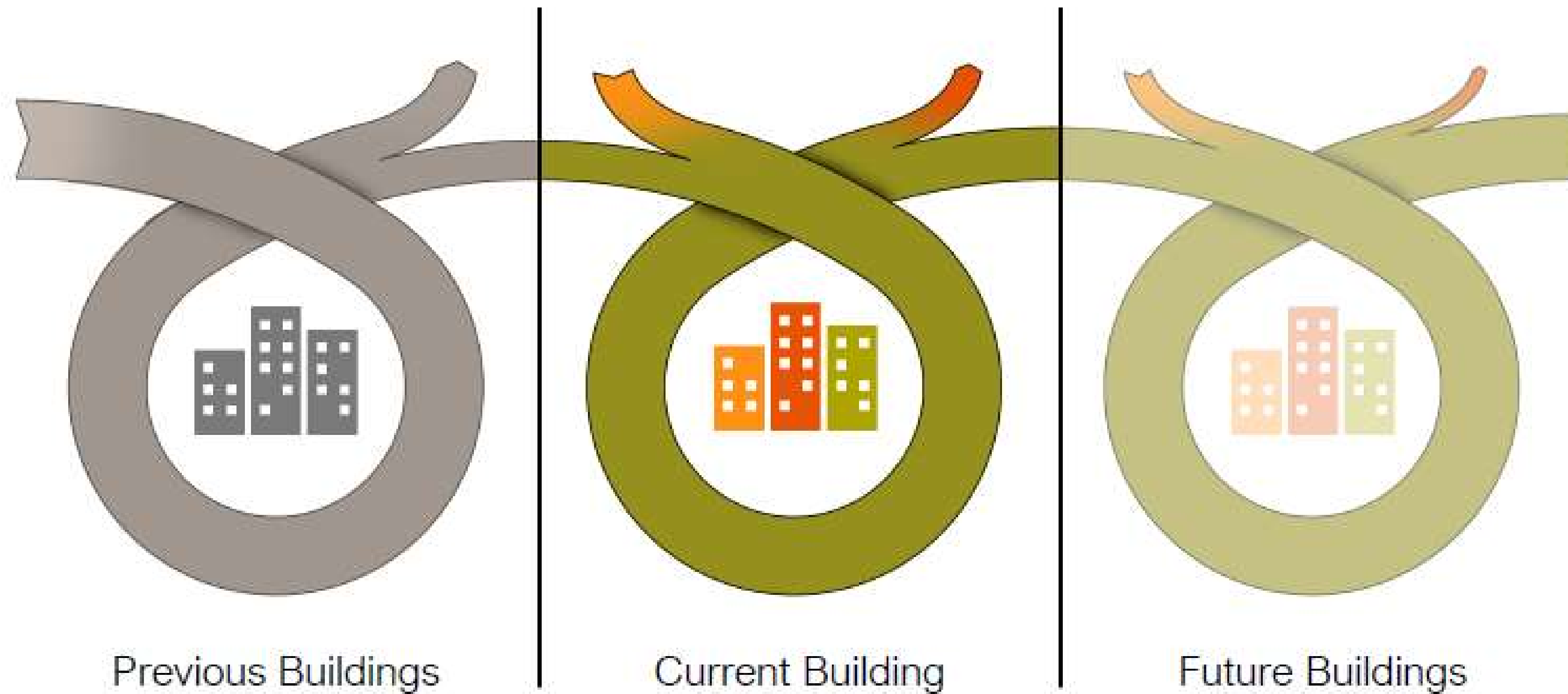
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Avaliação Circular de Edifícios



ÂMBITO E CENÁRIOS DA CONSTRUÇÃO CIRCULAR

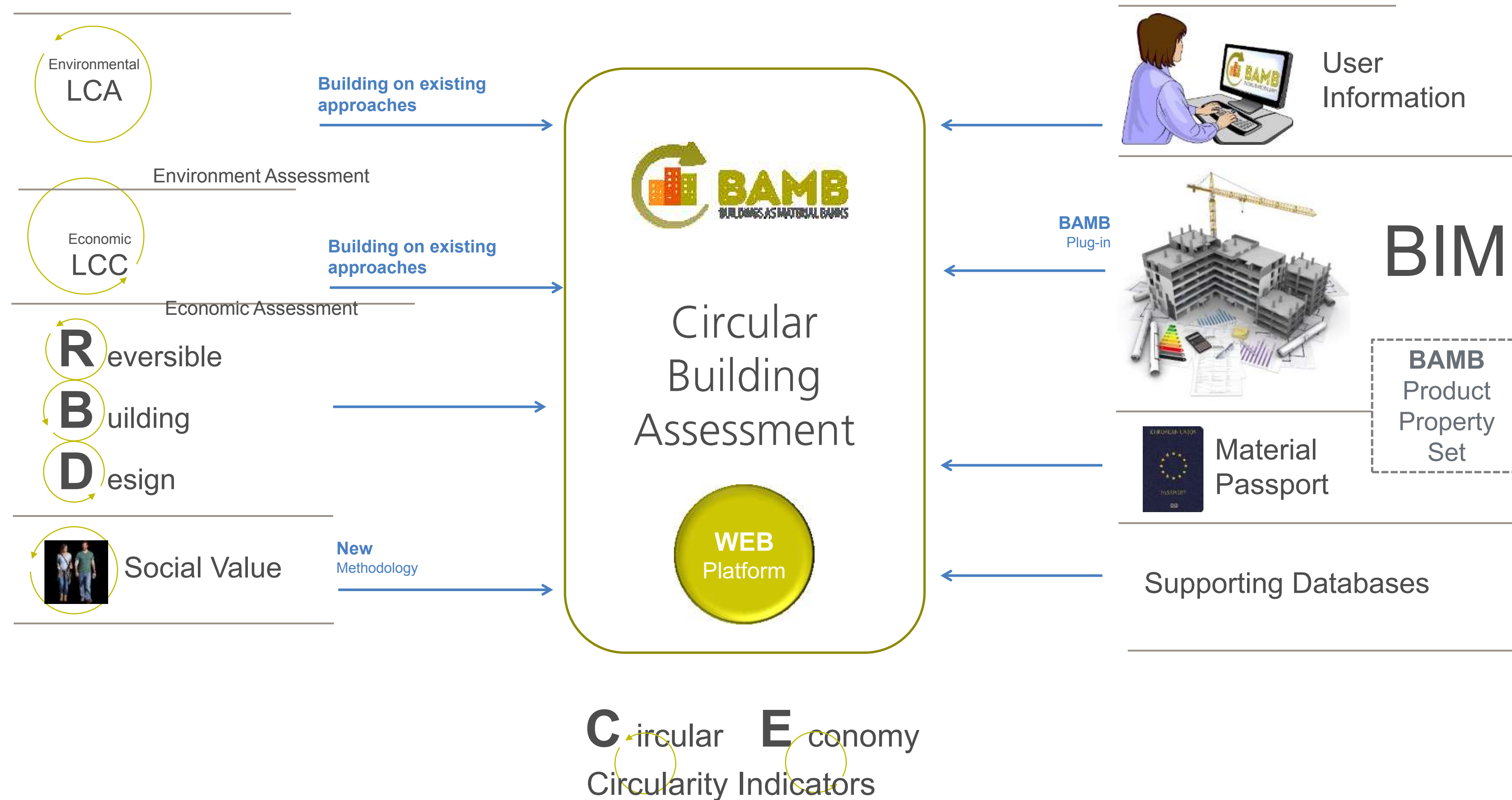


**Desperdício de novos
produtos & materiais**

**Capacidade de
transformação**

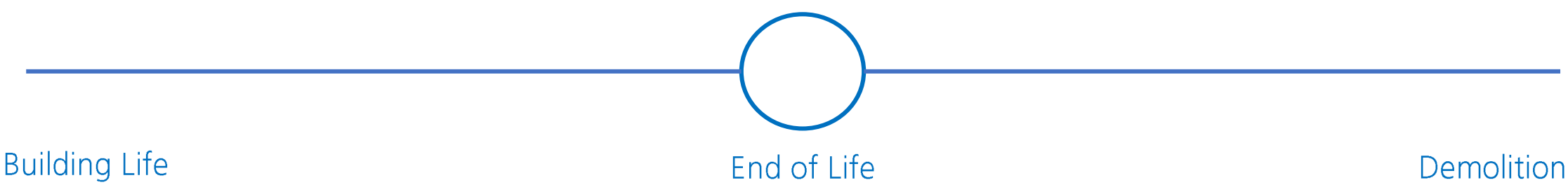
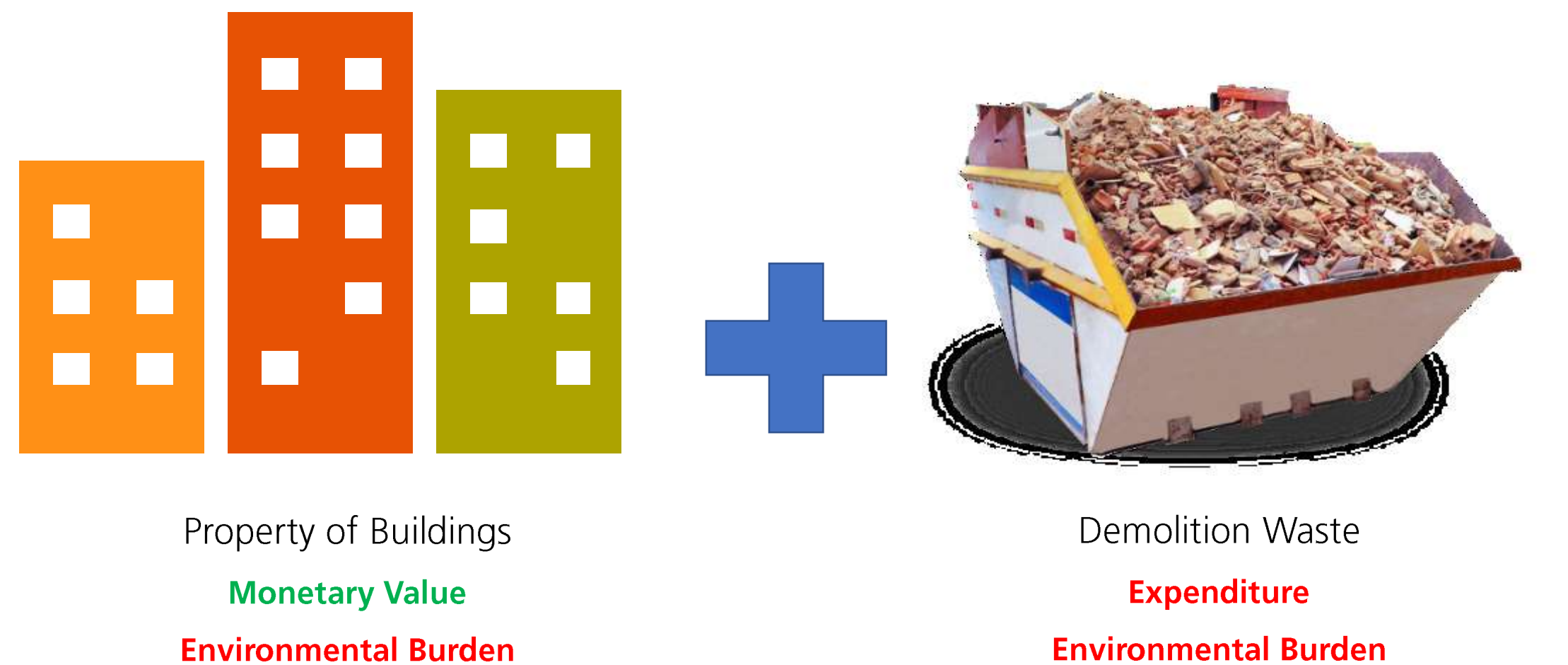
**Potencial
reutilização**

AVALIAÇÃO CIRCULAR DOS EDIFÍCIOS - VISÃO GERAL

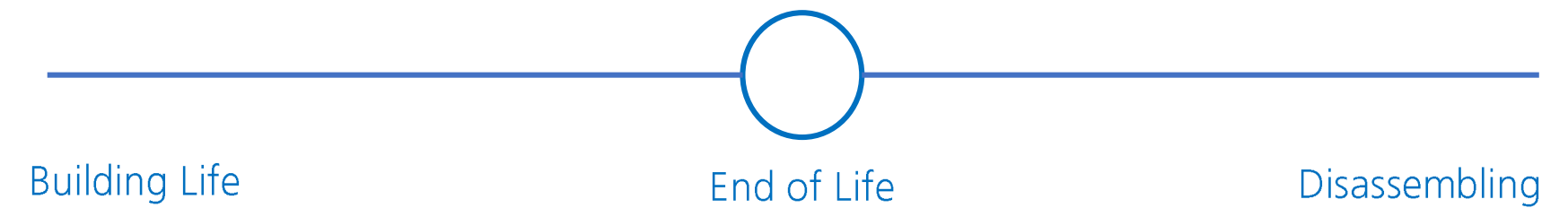
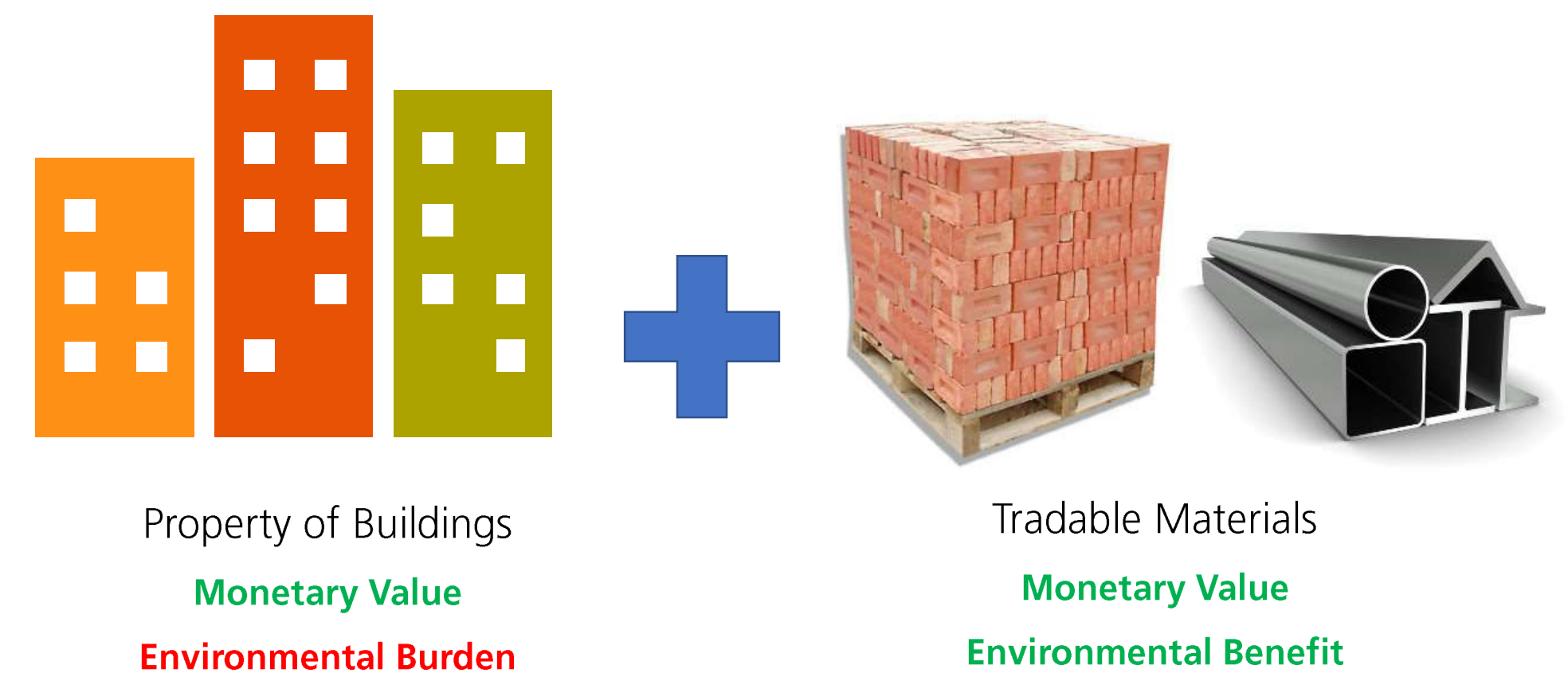


AVALIAÇÃO AMBIENTAL / ECONÔMICA

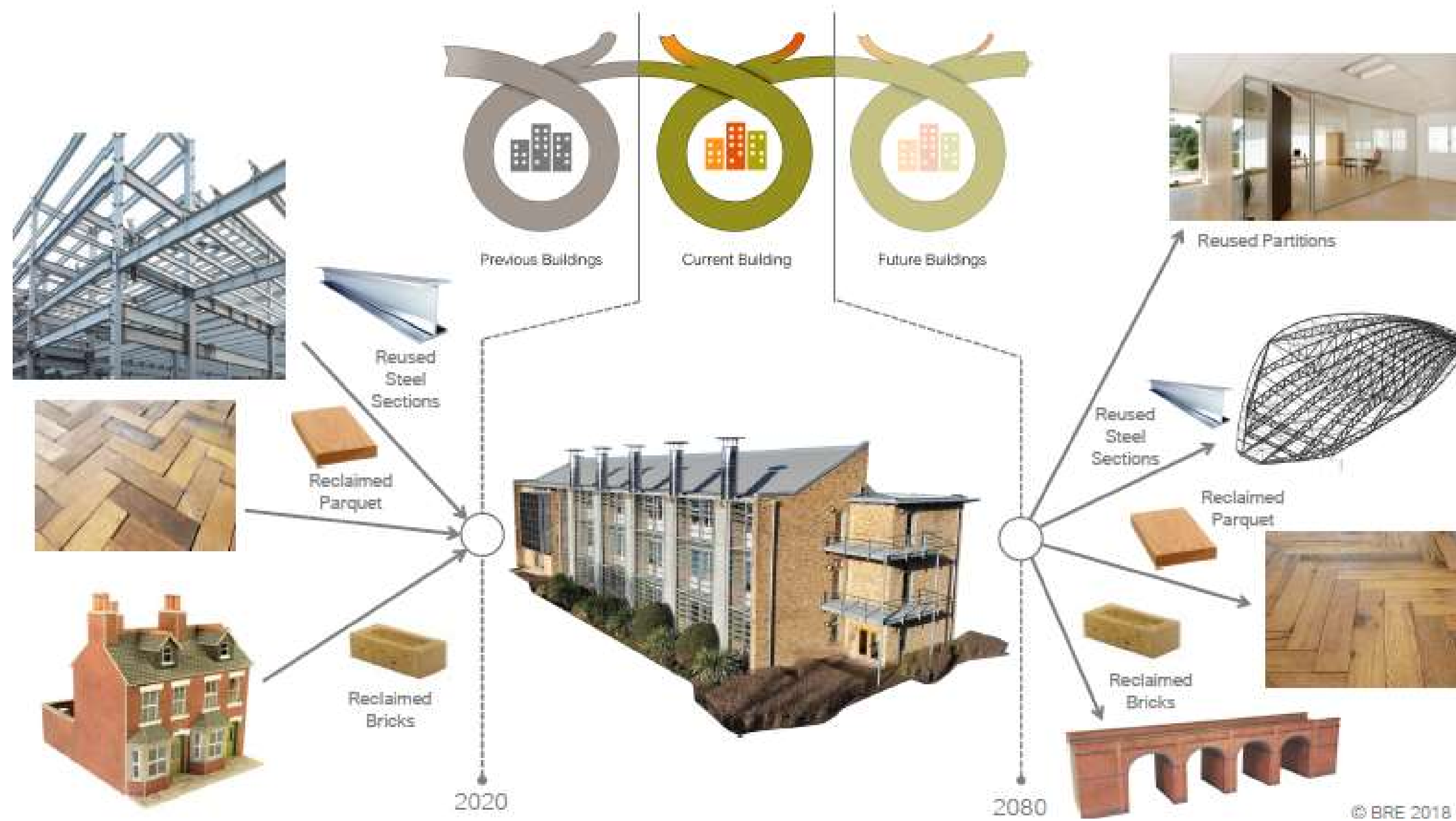
Current Scenario



Future Scenario



EXEMPLO DO EDIFÍCIO AMBIENTAL DO BRE



Cenários de EC modelados:

- 80 000 tijolos recuperados
- Futuro potencial da reutilização de tijolos
- Estendendo o ciclo de vida do edifício
- Divisão reconfigurável

RECUPERACAO DE TIJOLOS

80,000 tijolos



VS



Tijolo Recuperado

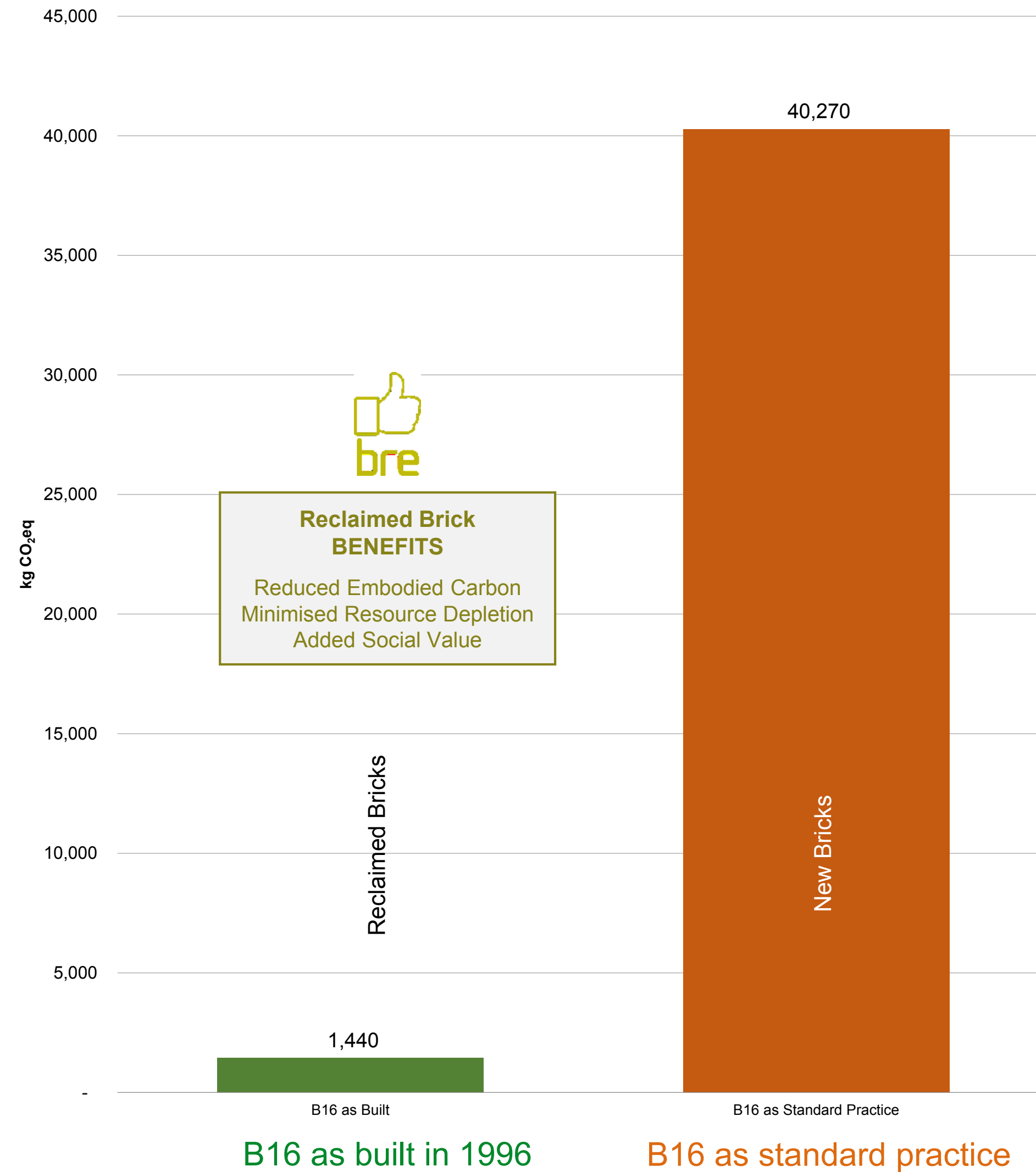
Carbono Incorporado

0.018 kgCO₂eq/tijolo

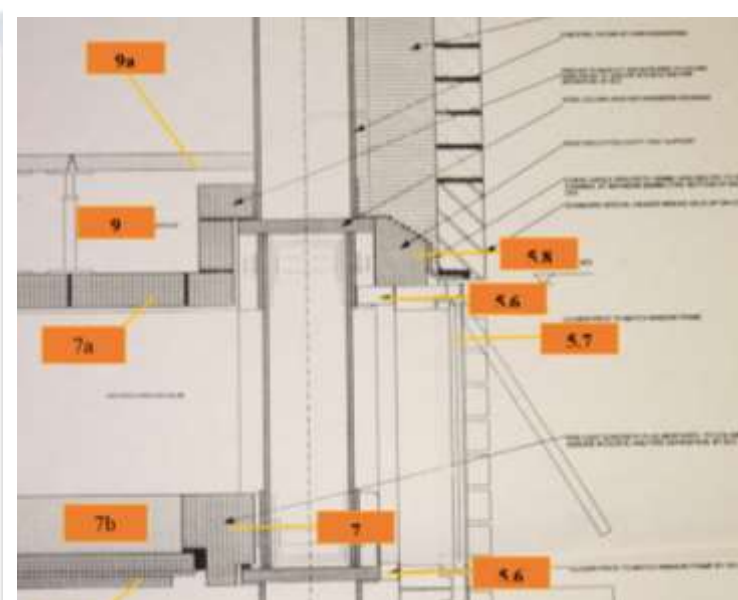
Novo Tijolo

Carbono Incorporado

0.503 kgCO₂eq/tijolo



PLATAFORMA DE AVALIAÇÃO CIRCULAR DE EDIFÍCIOS



Roof Structure

Roof Tiles

External Walls

Windows

Upper Floor Types

Internal Partitions

Ground Floors

Circularity Indicators

1,570.00	Cost
896	Embodied Carbon
896	Embodied Environmental Impact
52%	Reclaimed Content
41%	Virgin/primary resource indicator
67%	Recycled Content
7.24	Reuse Potential/ RBD score
60	Life cycle co-ordination
5.75	Transformation capacity
6.24	Recyclability

Coming soon!



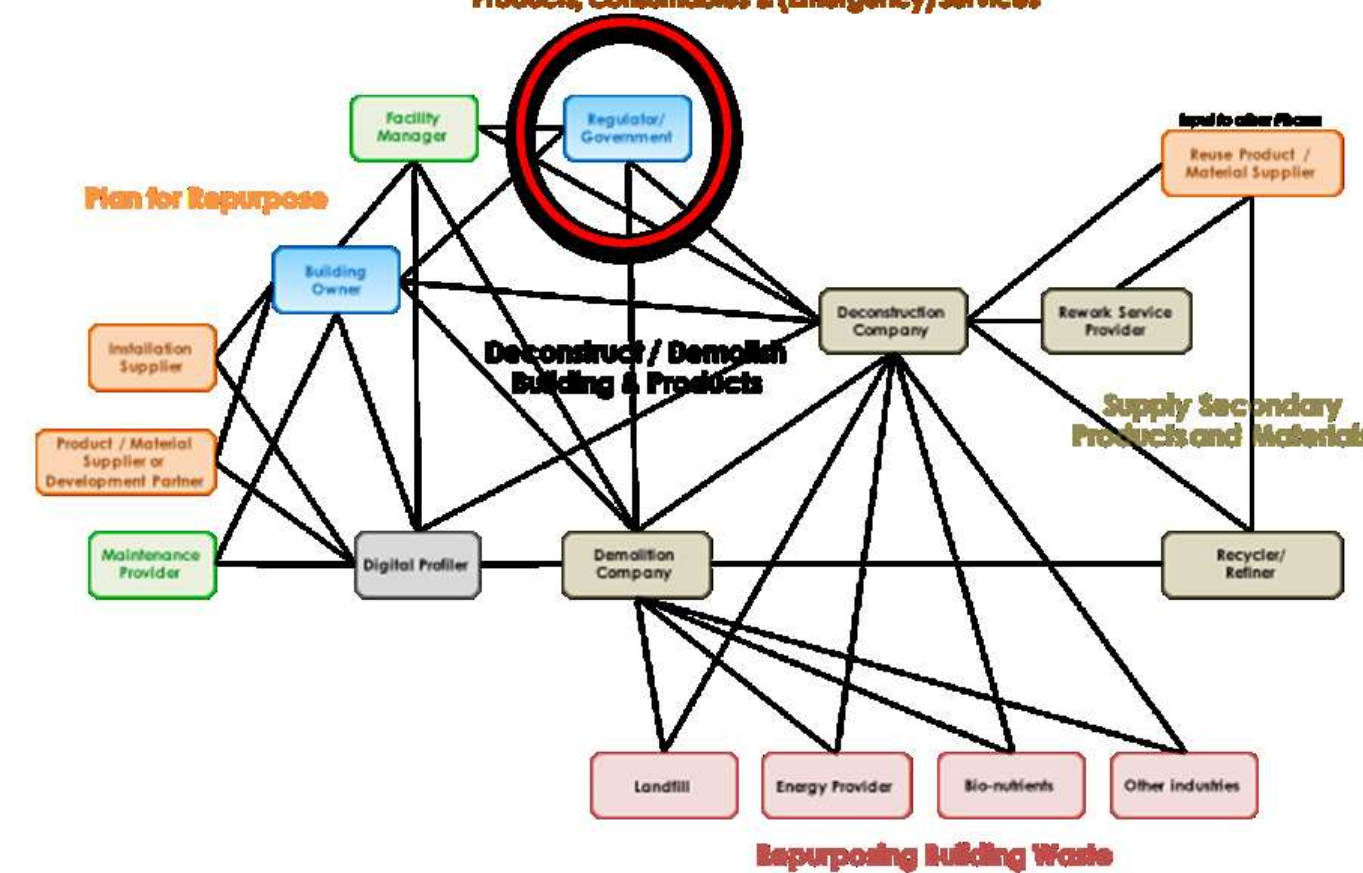
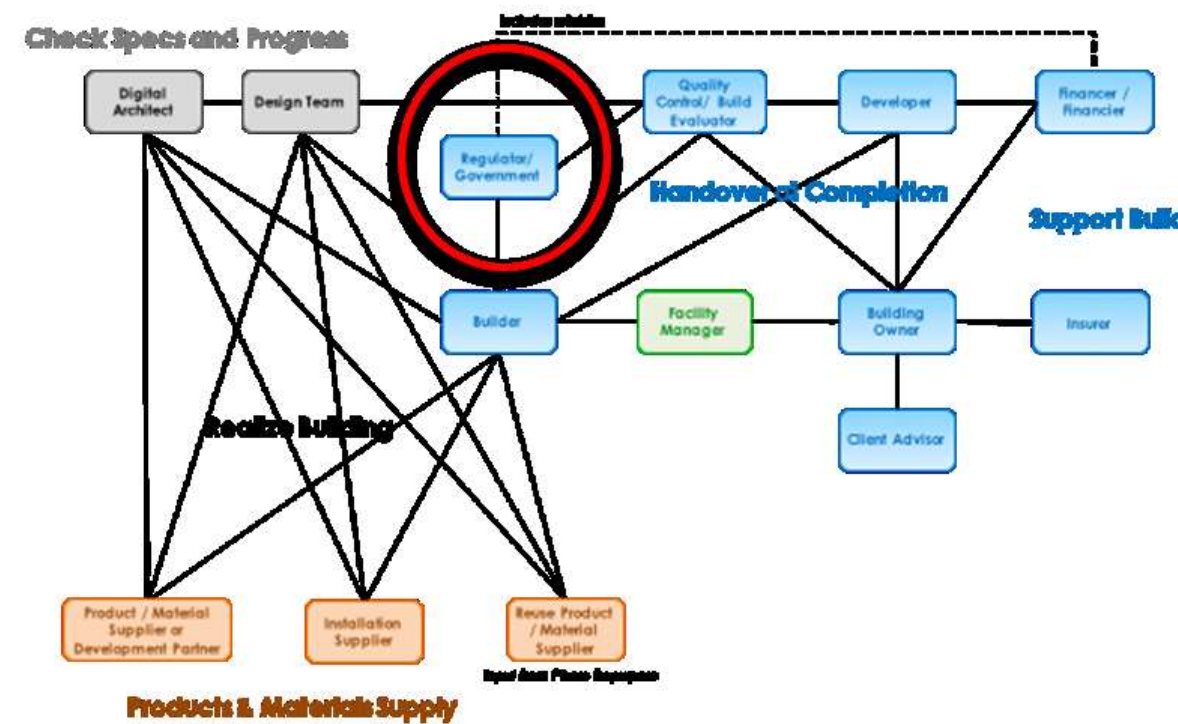
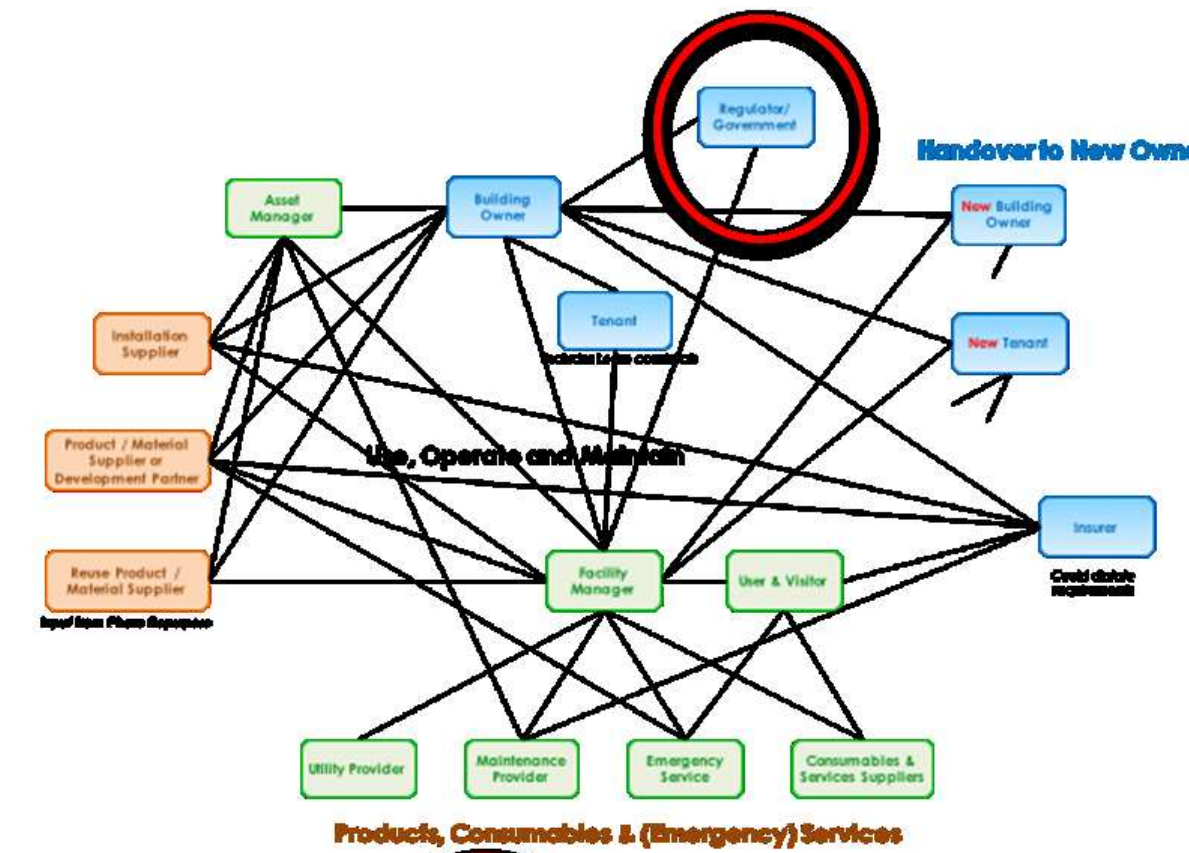
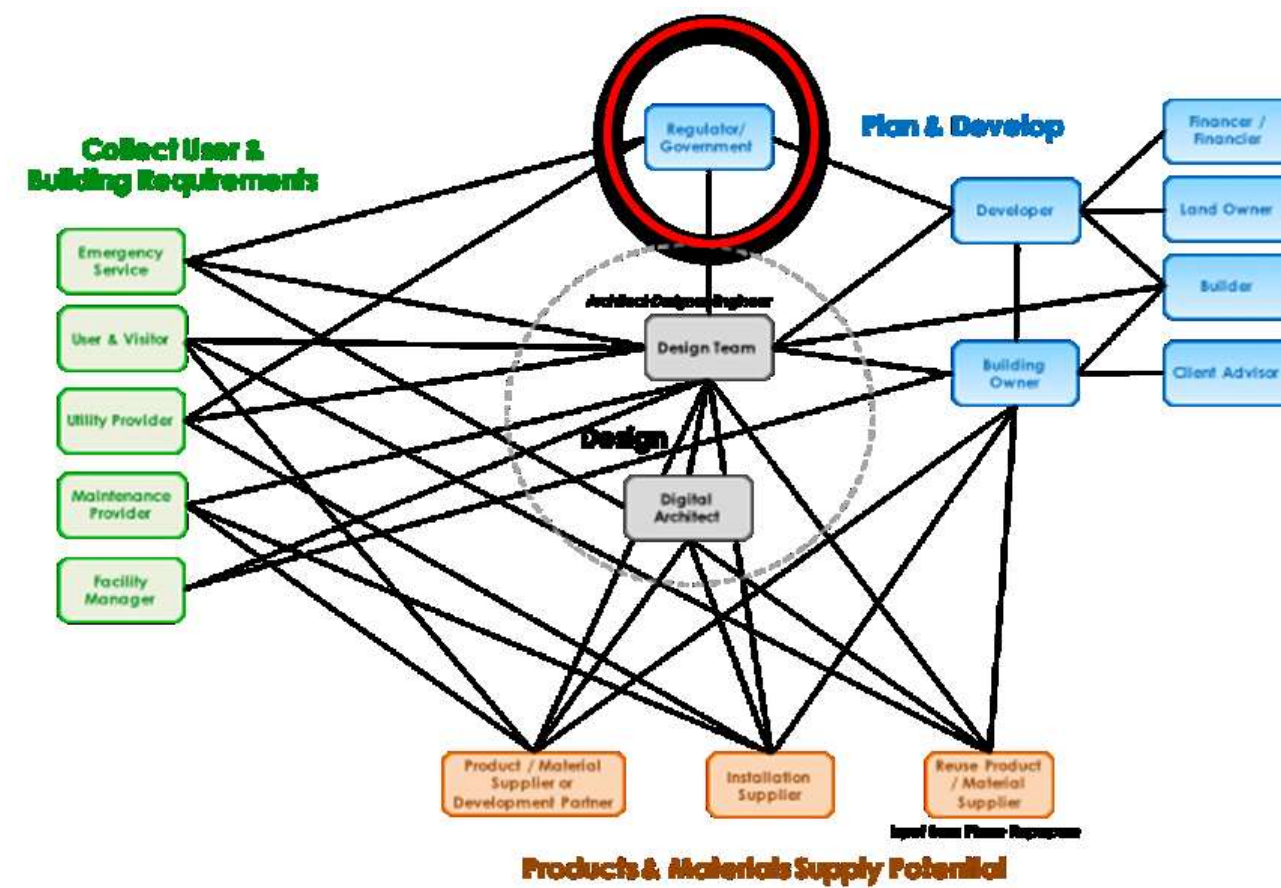
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Avaliação de Impacto de Políticas



O PAPEL DAS POLÍTICAS E NORMAS NA CADEIA DE VALOR



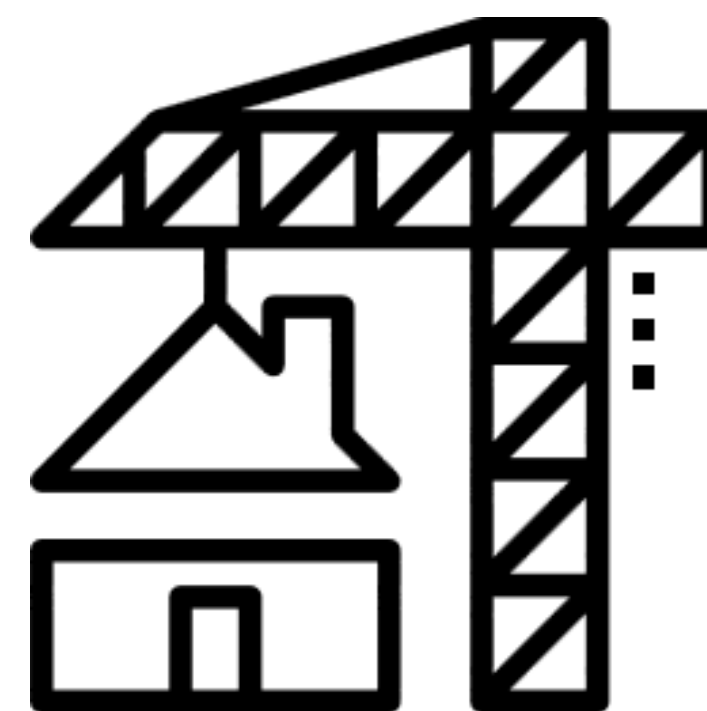
ENQUADRAMENTO PARA FUTUROS REGULAMENTOS E NORMAS



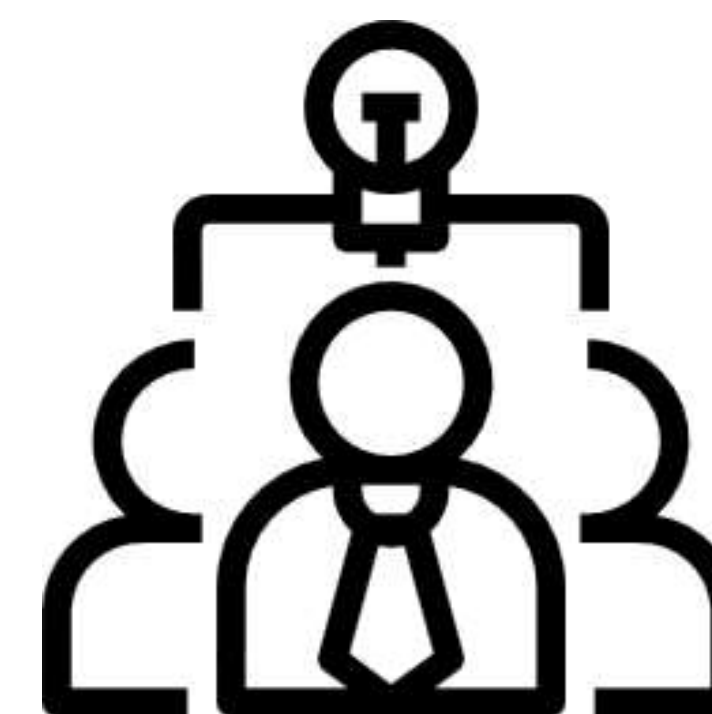
AVALIAÇÃO DE IMPACTO DE QUATRO POLÍTICAS



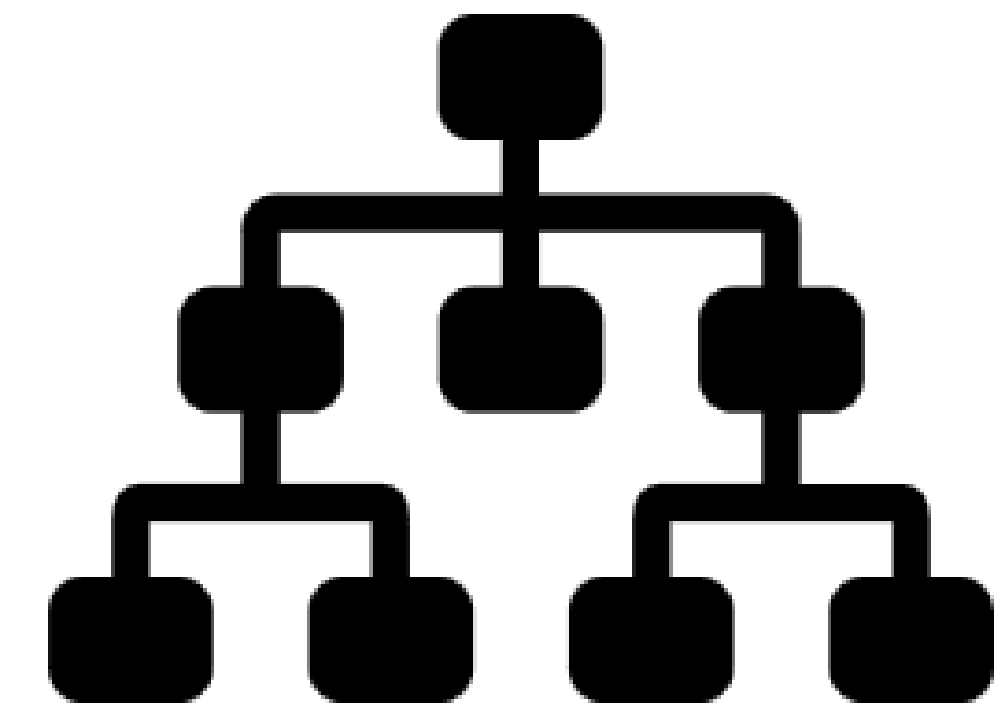
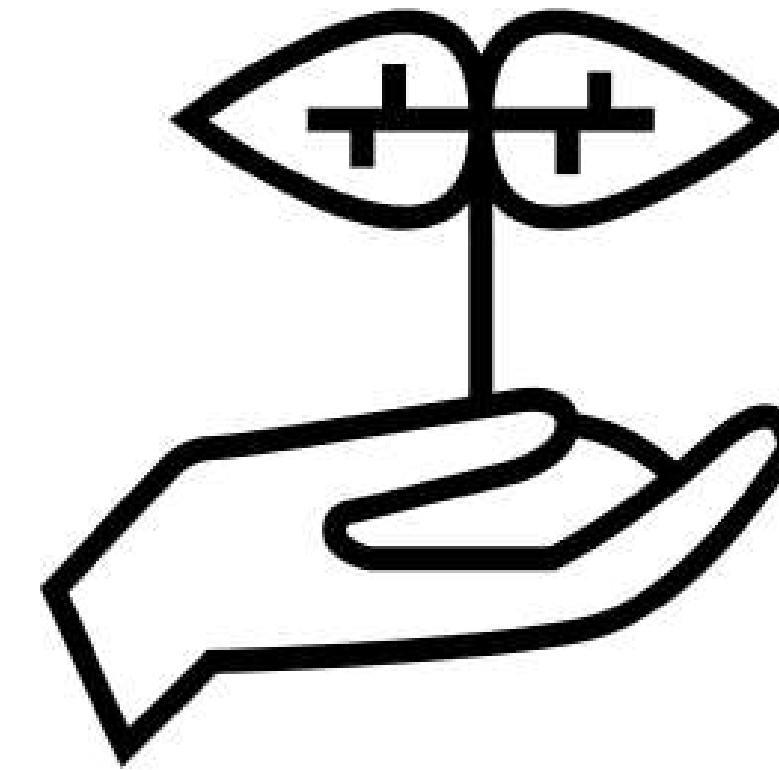
IMPACTO A LONGO PRAZO DA REGULAMENTAÇÃO DE GESTÃO AMBIENTAL DE ESTALEIROS NA EFICIÊNCIA DE RECURSOS



RECOLHA DE DADOS PARA SUPORTE DAS POLÍTICAS PÚBLICAS

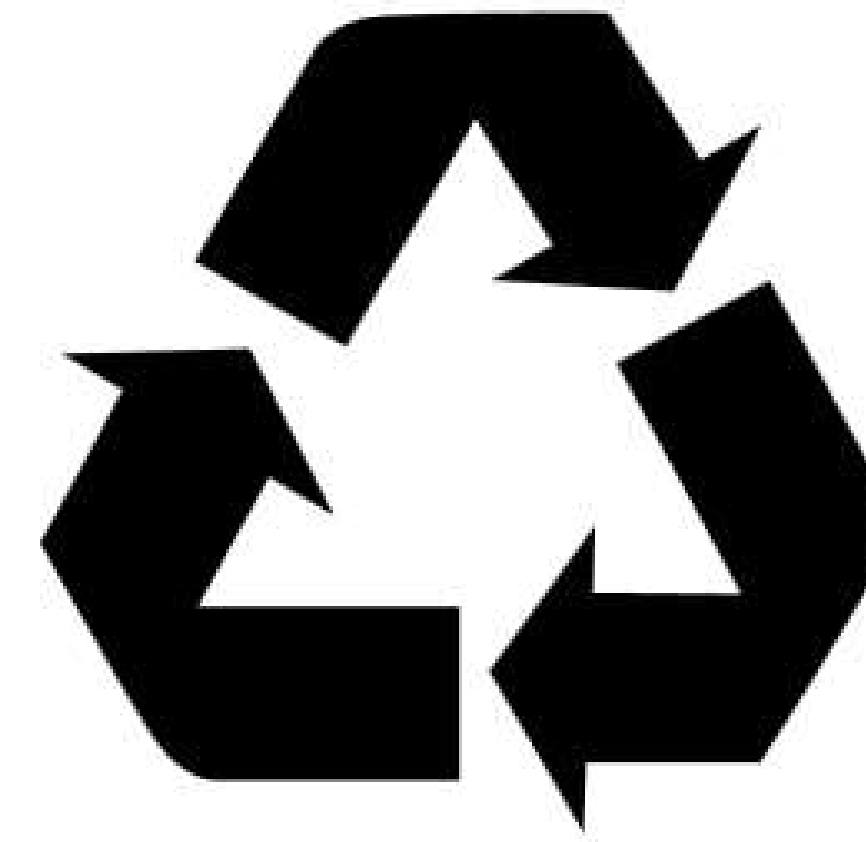


EFICÁCIA DE MEDIDAS E POLITICAS



Icons by Freepik and Gregor Cresnor from www.flaticon.com

EFICÁCIA DE MEDIDAS E POLITICAS



Icons by Freepik from www.flaticon.com

UTILIZAÇÃO DE 5% DE MATERIAIS RECICLADOS EM OBRAS PÚBLICAS



Icon by Freepik from www.flaticon.com



<https://pt.surveymonkey.com/r/5MTG7B7>



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Obrigada!

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