Towards a sustainable built environment in the Brussels-Capital Region

22 June 2022

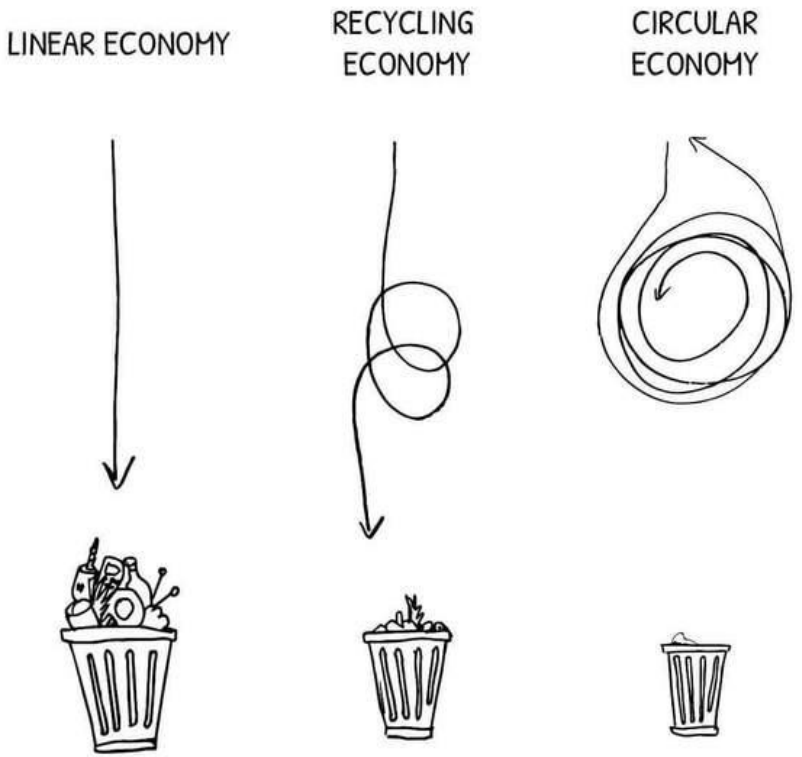
ROLE OF POLICY

Governments can play an important role on different levels:

- By providing a clear objective the market can rely on
- By preparing the regulation of tomorrow while supporting the market to get there
- By raising awareness and developing knowledge, along the different stakeholders of the value chain

Strategy for reducing the environmental impact of existing buildings in the Brussels-Capital Region by 2030 - 2050

Brussels-Capital Region's Program for a circular economy



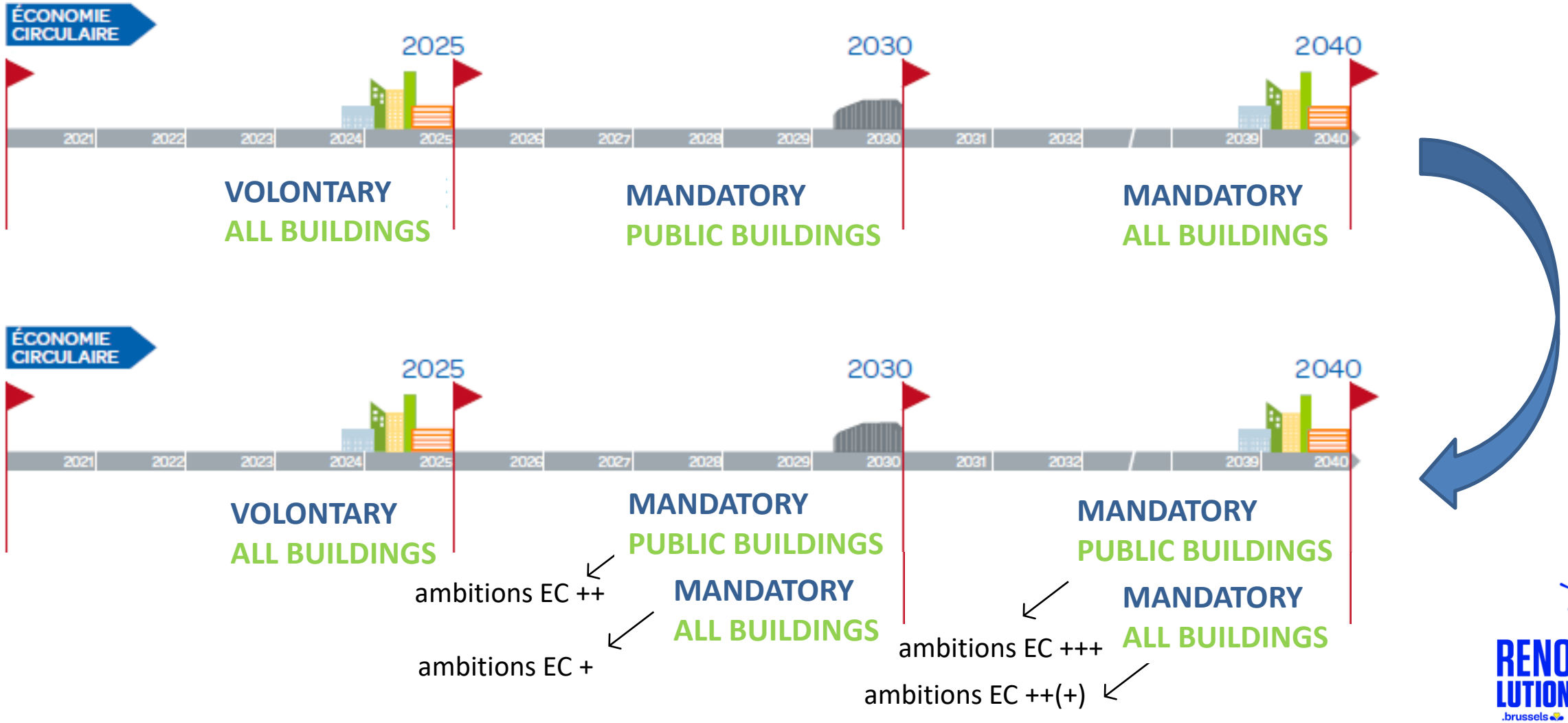
RENOLUTION

be circular

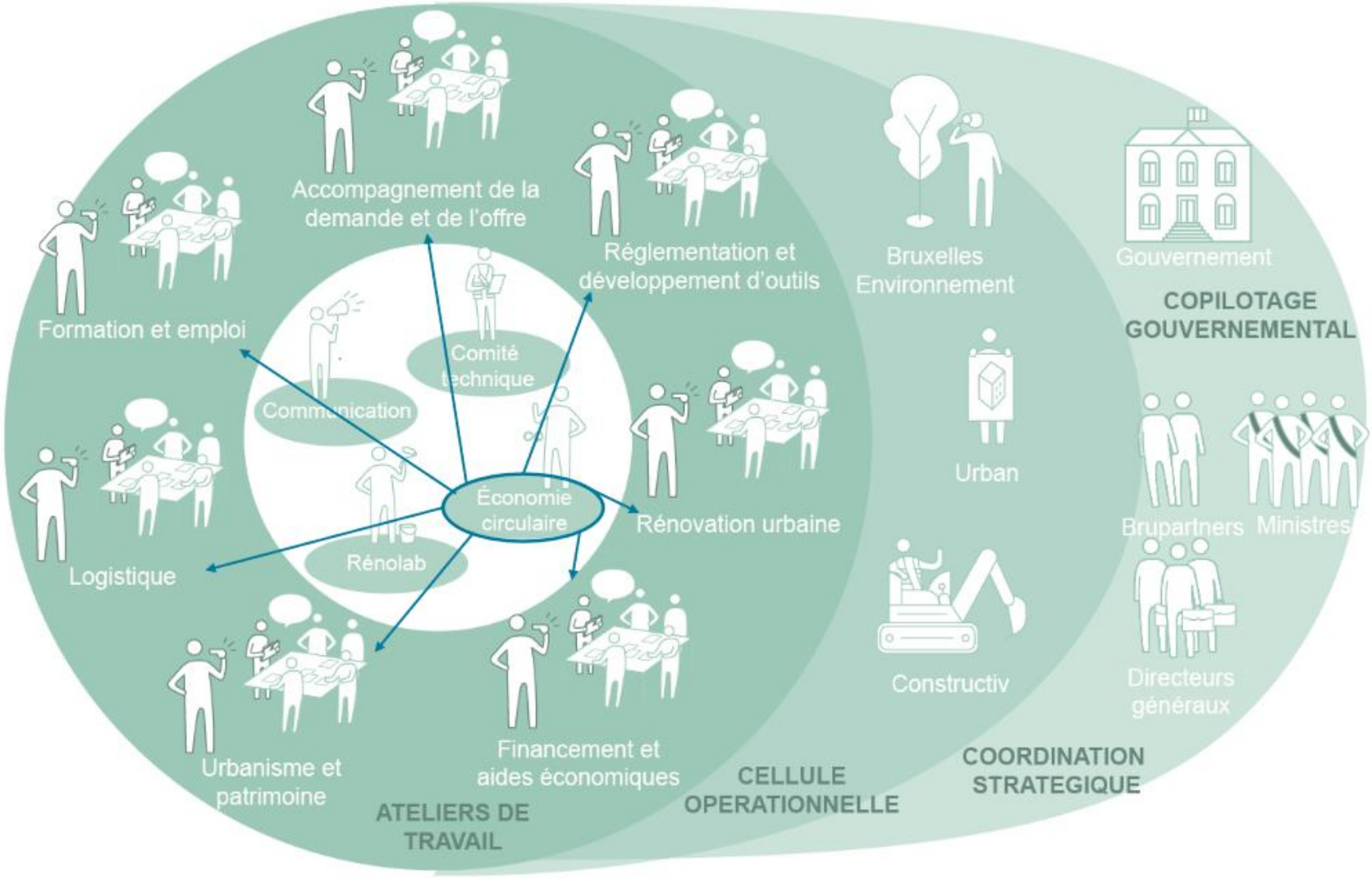
BRUSSELS-CAPITAL REGION'S PROGRAM FOR A CIRCULAR ECONOMY : ROAD MAP

MAINTAINING THE EXISTENT BUILDING STOCK	USE OF RECLAIMED MATERIALS	REVERSIBLE BUILDING DESIGN	LIFE CYCLE ANALYSIS

RENOLUTION – ADAPTING CIRCULAR ECONOMY POLICY OBJECTIVES



RENOLUTION - PUBLIC PRIVATE STAKEHOLDER ALLIANCE

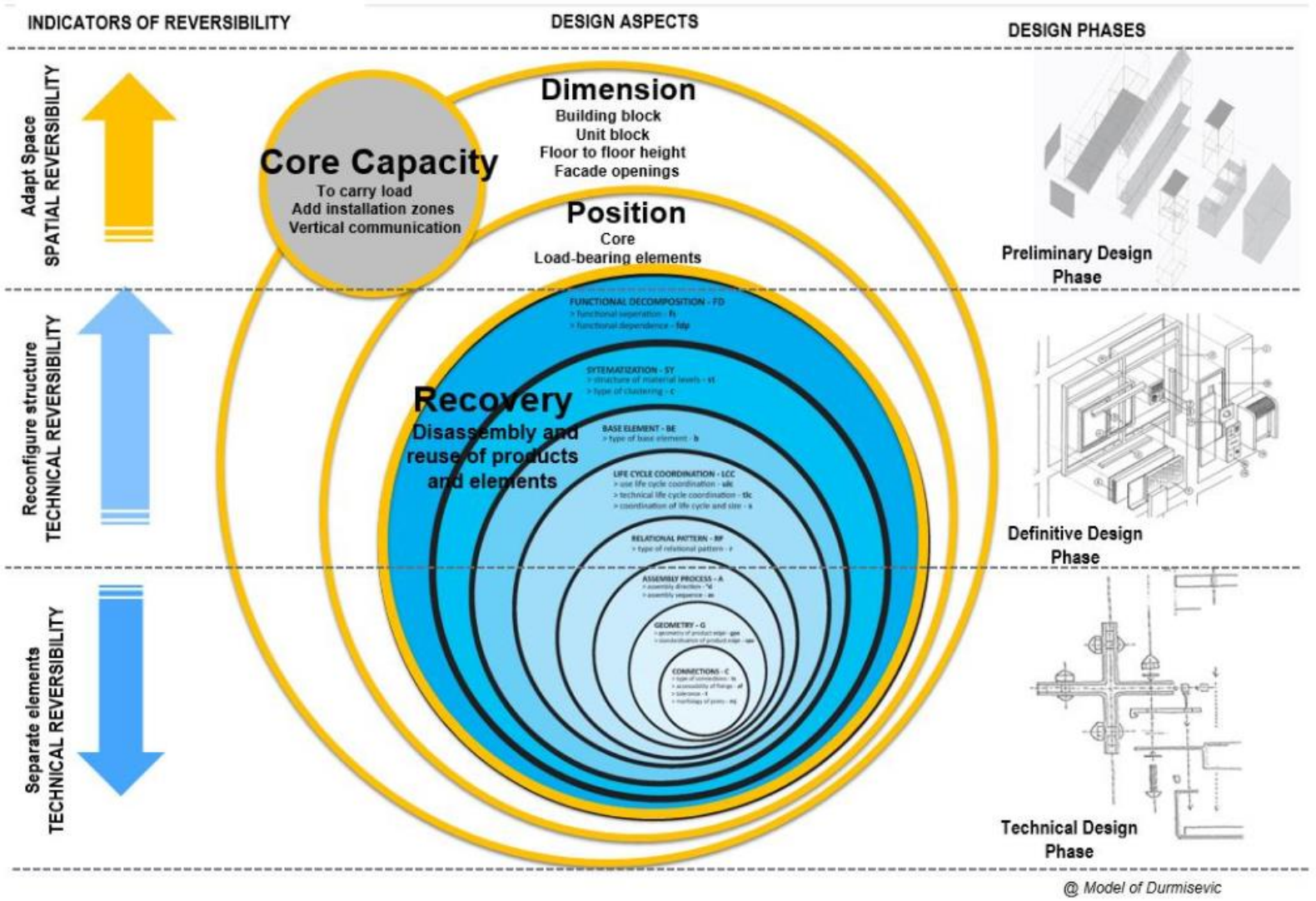


RENOLUTION – ACTION PLAN

REVERSIBLE BUILDING DESIGN

SPATIAL REVERSIBILITY

TECHNICAL REVERSIBILITY



REVERSIBLE BUILDING DESIGN protocol

Transformation capacity Tool

Reuse potential Tool

REVERSIBLE DESIGN - POLYCLINIC BRACOPS

CHECK-LIST REVERSIBLE BUILDING DESIGN

SPATIAL REVERSIBILITY

DESIGNING FOR LONGEVITY

OBJECTIVES

Describe here by means of **use scenarios**
- which flexibility in activities the building must be able to accommodate today (**adaptability of the plan layout, polyvalence of spaces**)
- and what activities the building must be able to accommodate in the future (**functional adaptability, expandability/contractability**)

Demonstrate in plan and in cut that these scenarios are possible for the aspects listed below. Monitor them throughout the project.

Demonstrate using plans and cross-sections that these scenarios are possible for the aspects listed below. Monitor them throughout the project.

Description of the project goals and requirements by the client:

Design approach and outline of the project by the design team:

proposal | preliminary design | final design | tender | provisional acceptance | final acceptance

STRATEGIES

1. VOLUMETRICS AND SPATIAL ORGANIZATION OF FUNCTIONS

strategies	priority (x)	application	achieved (x)
1.1 **Location and orientation** of the building volumes allow for a logical, spatial organization of the desired functions for each use scenario	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
the spatial organization of functions can be tested in terms of: *- thermal zoning: definition of the conditioned building volume, position and clustering of functions according to their heating/cooling demands* *- access to daylight: orientation, ratio between depth and height of spaces* *- access to outside air: natural ventilation possibilities (single sided, two sided, stack ventilation); restrictions with regard to outside air quality, noise pressure, etc.* *overcapacity (excess space) is avoided in any scenario*	*+info (FR):* Dimensions du volume bâti Dimensions des unités du bâtiment		
1.2 The **depth of the building volumes** allows for a logical, spatial organization of the desired functions for each use scenario	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
building depths, atrium depths and space depths in relation to the intended space use, daylight availability, ...	*+info (FR):* Profondeur du volume bâti Dimensions des baies par rapport à la lumière naturelle Hauteur sous-plafond		

CHECK-LIST REVERSIBLE BUILDING DESIGN

TECHNICAL REVERSIBILITY

DESIGNING FOR DISASSEMBLY AND FUTURE REUSE

OBJECTIVES

The client and the design team define for **which elements, layers or components** in the building the technical reversibility is optimized and the **type of optimization** that is envisaged.
- type of disassembly: disassembly of elements, disassembly of components
- type of accessibility: for maintenance, for repair, for disassembly and relocation, for disassembly and adaptability, ...
- type of reuse: direct reuse, reuse by minor modification, reuse by remanufacturing, high-value recycling, ...

Description of the project goals and requirements by the client:

Design approach and outline of the project by the design team:

proposal | preliminary design | final design | tender | provisional acceptance | final acceptance

STRATEGIES - ELEMENT (CONNECTION BETWEEN LAYERS/COMPONENTS)

Describe the element here: e.g. ground floor slab

1. INDEPENDENCE

strategies	priority (x)	application	achieved (x)
1.1 Layers/components with different functions or lifespans are **independent** of each other	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
1.2 The **order of assembly** of the layers/components is such that the parts with the shortest lifespan remain the most easily accessible, replaceable and modifiable	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
1.3 The layers/components can be removed, replaced and modified without disturbing the **integrity and performance** of adjacent layers/components	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
1.4 The **number of layers/components** with which the layer/component is connected is limited	☐	☐	☐ ☐ ☐ ☐ ☐ ☐

2. REVERSIBILITY OF CONNECTIONS

strategies	priority (x)	application	achieved (x)
2.1 The connections between layers/components are **reversible** or reversible with minor damage	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
2.2 The connections are not formed by **containment**	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
2.3 The connections are easily **accessible**	☐	☐	☐ ☐ ☐ ☐ ☐ ☐
2.4 Disassembly of the connections is **quick and easy**	☐	☐	☐ ☐ ☐ ☐ ☐ ☐

3. SIMPLICITY AND STANDARDISATION

To evaluate, this block of strategies can be copied and completed

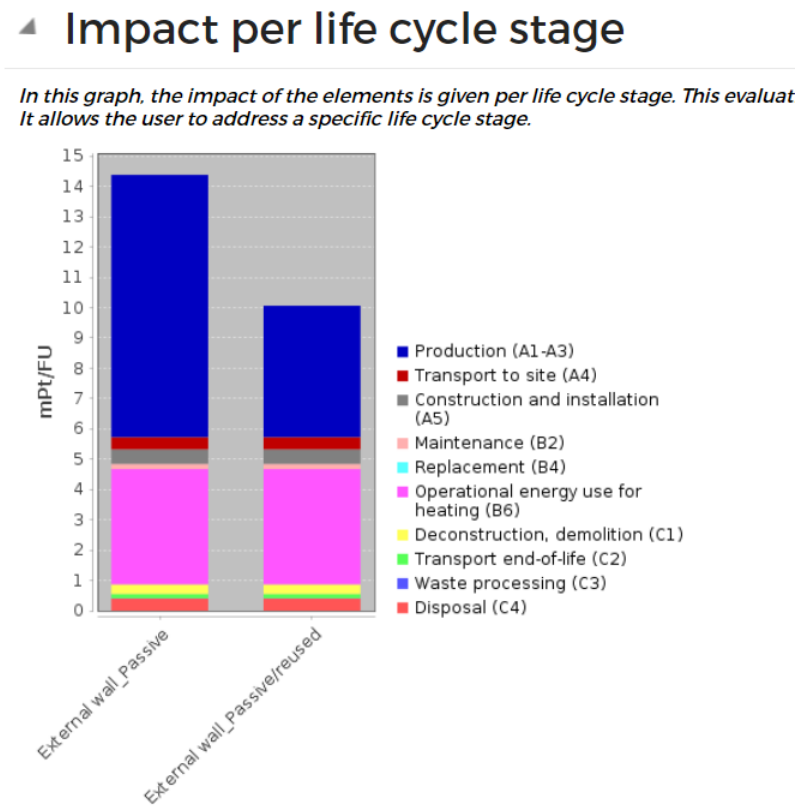
CHECK-LIST REVERSIBLE BUILDING DESIGN

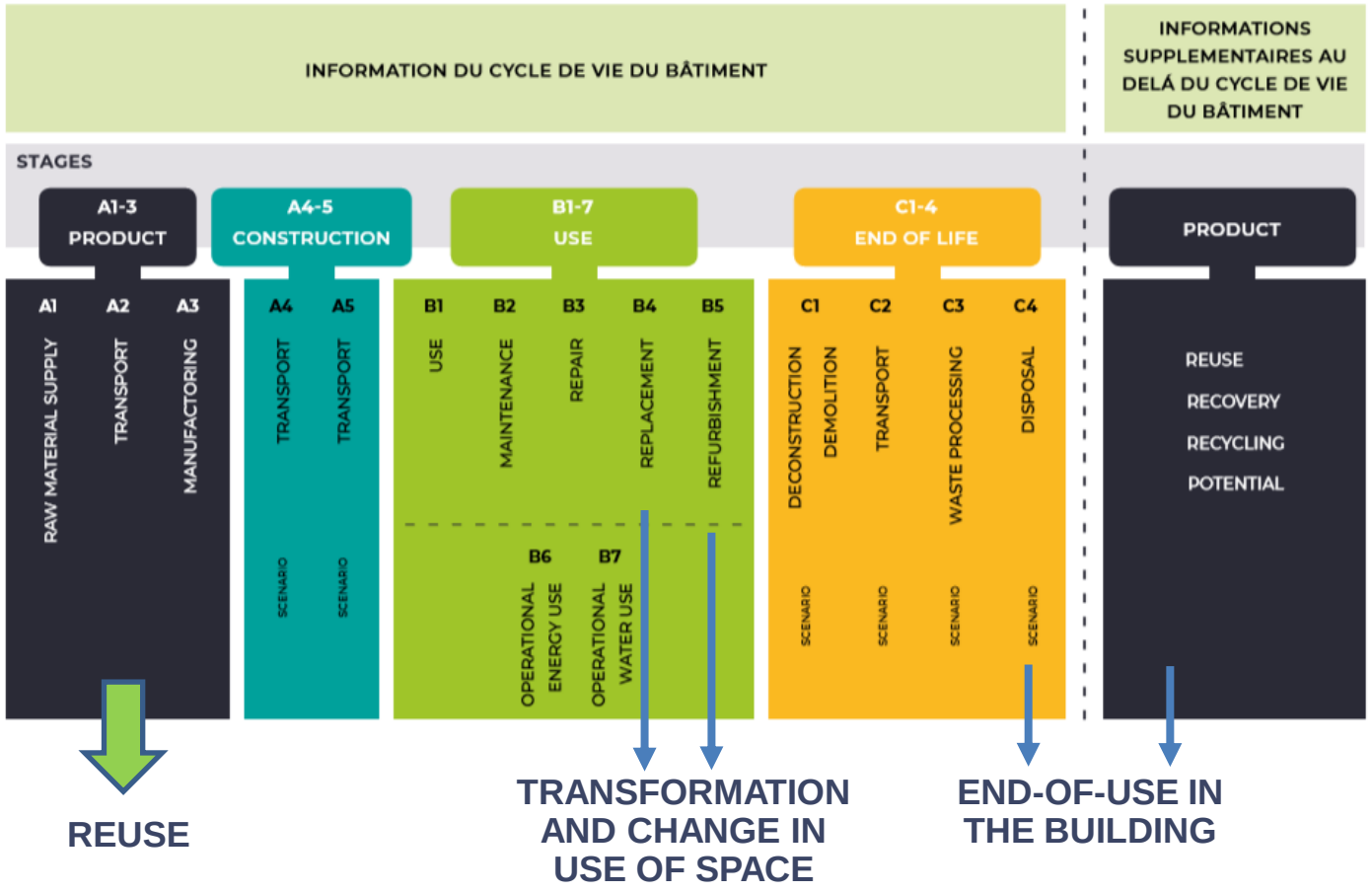
GREEN
PUBLIC
PROCUREMENT

REGIONAL
PLANNING
REGULATION

ONGOING STUDIES

LINKING TOTEM AND RPT

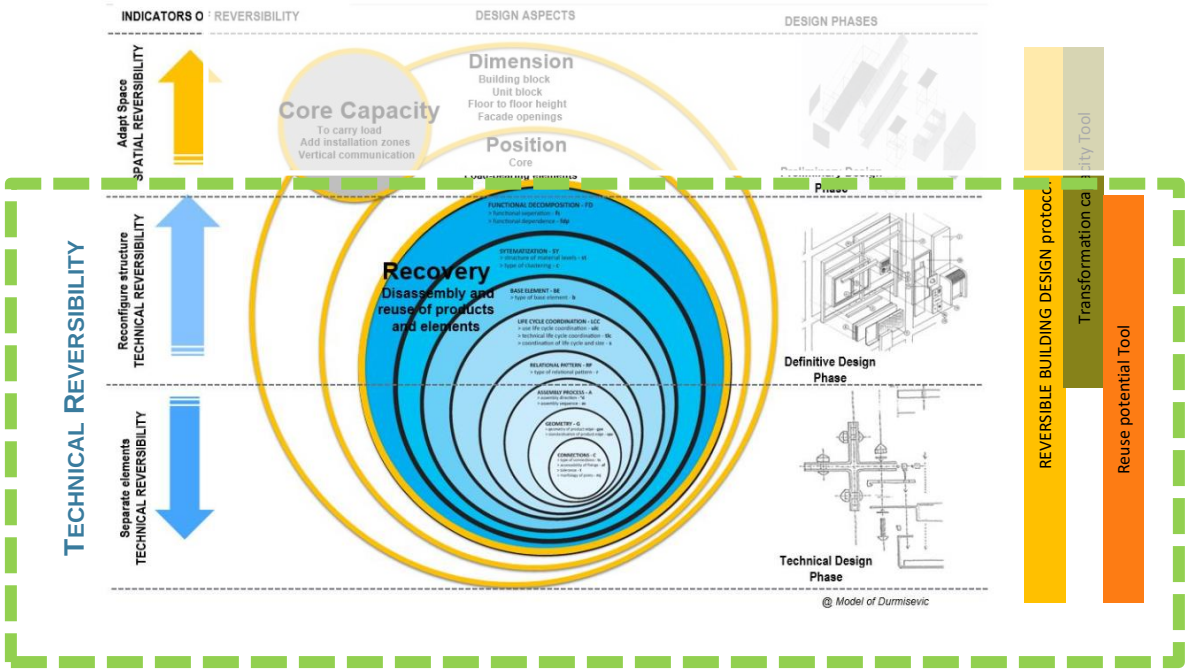




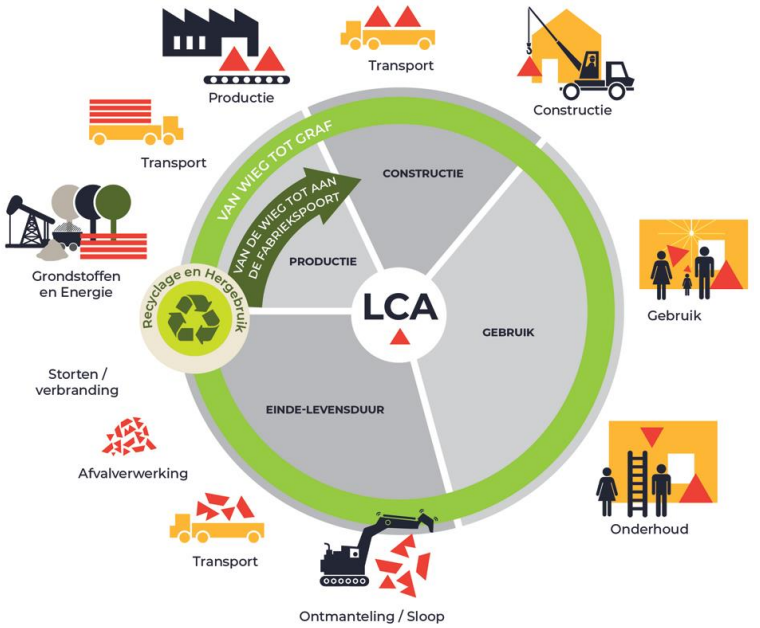
Source: BAMB

ONGOING STUDIES

LINKING TOTEM AND RPT



- Element and building level
- 8 indicators
- Aggregation towards 1 unique score



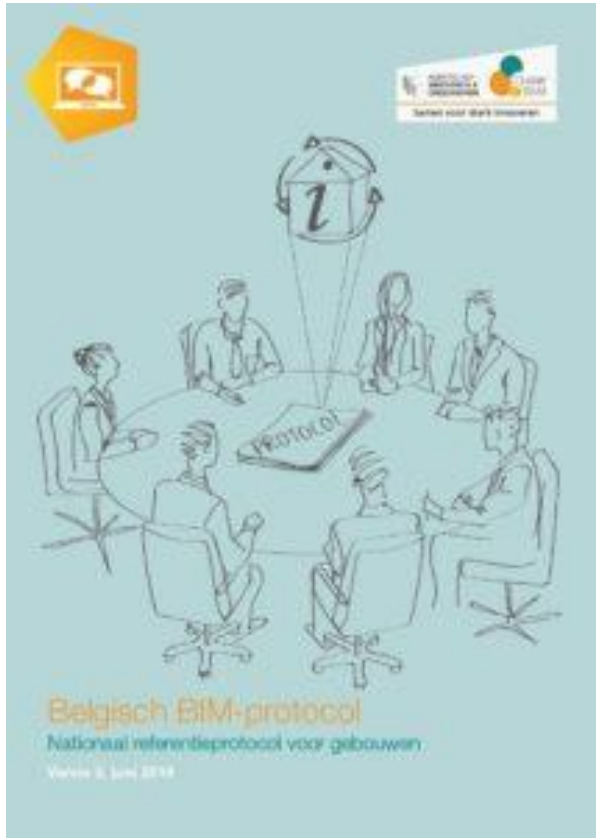
totem
CREATE | EVALUATE | INNOVATE
OVAM
Wallonie service public SPW

- Element and building level
- 18 indicators
- Aggregation towards 1 unique score

Source: BAMB

ONGOING STUDIES

ANALYSIS AND METHODOLOGICAL PROPOSALS TO ALLOW A GOOD ARTICULATION BETWEEN THE BIM AND THE REUSE POTENTIAL TOOL

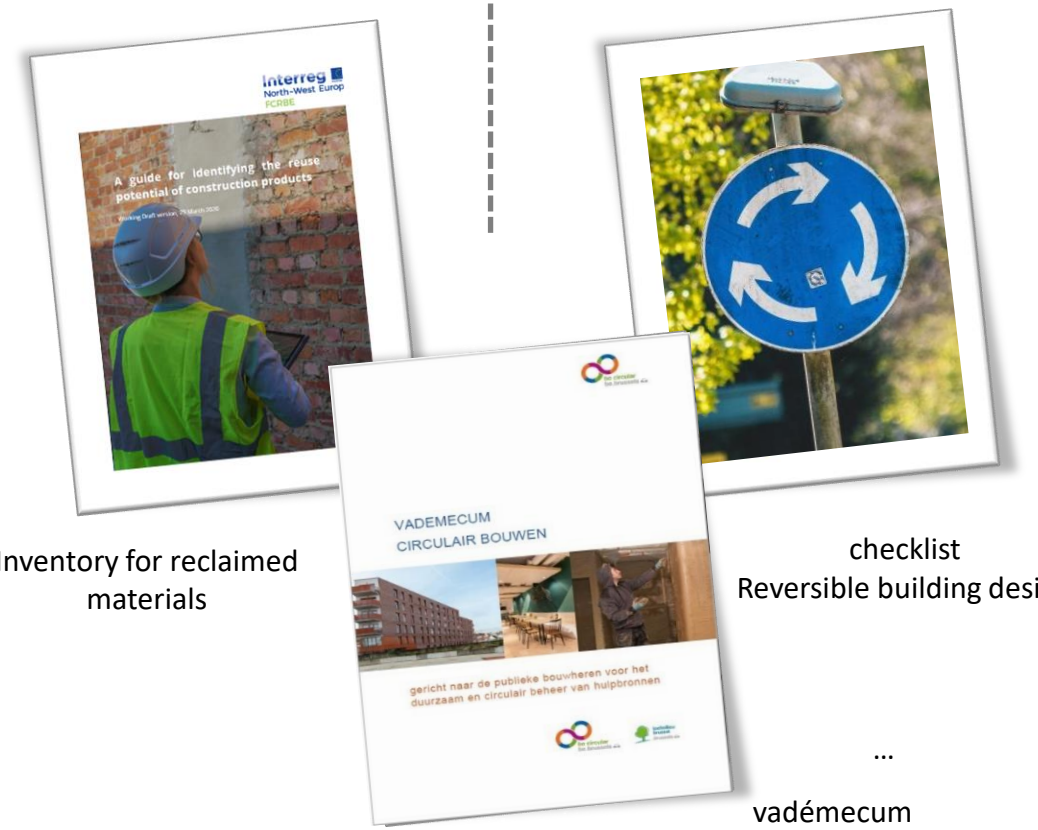


- Developing a Reversible BIM Protocol
- Developing a simplified Reuse Potential assessment methodology

Source: BAMB

TOOLS SUPPORTING CIRCULAR ECONOMY POLICIES

guidance



Inventory for reclaimed materials

checklist
Reversible building design

...

vadémecum
bâtiment circulaire

assessment

LCA

...

reuse
potential tool

Source: BAMB

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