

## CALECHE Decision Support System For Historic Building Renovation

### What is the aim of the tool?

- ▶ The tool will help project teams in **setting up and implementing a historical building renovation project, considering the various stakeholders** involved and different types of **benefits they could value**.

### Which types of buildings does it target?

- ▶ It targets **historic buildings of commercial scale**, which need **renovation** and/or are considered for a **new usage**.
- ▶ The tool targets in priority **public-owned buildings** such as universities, hospitals, schools, social housing, etc. But it can also be used by **private organisations** owning these same types of buildings.

### Who is it for?

- ▶ It is for **teams** in charge of managing the above-mentioned buildings and of deciding the related renovation projects.
- ▶ For instance: **asset managers** within municipalities, local or national public institutions; asset managers within private organisations handling building stocks; **and the team of specialists they will gather around their project** (architects, engineers, consultants, conservation experts, etc).

### What does the tool do in practice?

It has two objectives:

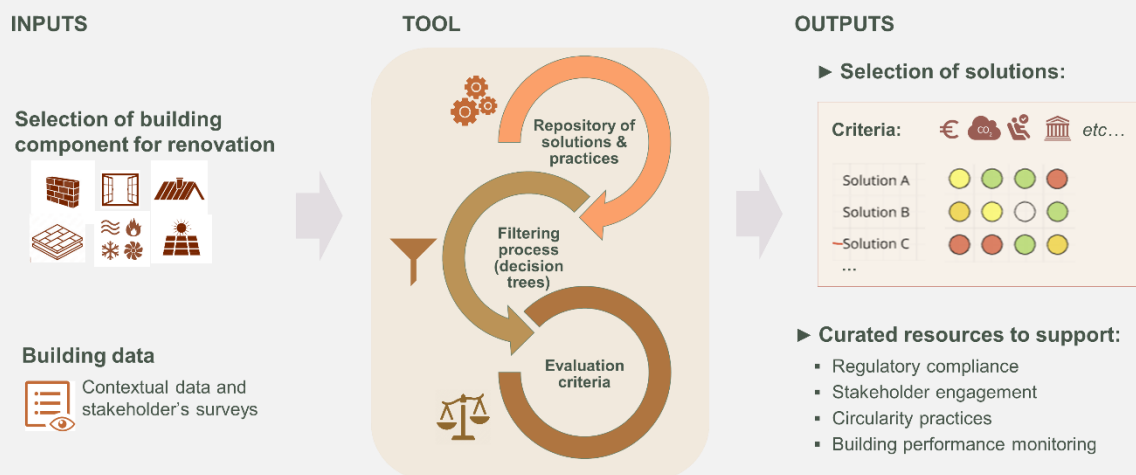
- ▶ **Education & guidance:** the tool guides the team through the **questions to be asked, competences to be gathered, stakeholders to be engaged**, and **data to be collected** in order to design the historical renovation following the approach proposed by the EN 16883 Standard.
- ▶ **Decision-support:** the tool proposes a **short-list of renovation solutions** per building component, that are **scored** against cultural, social, economic and environmental criteria. It also enables to **compare different building renovation scenarios** and showcases **best practices**.

## How does the tool work?

- It will be an online tool, structured in two progressive steps: 1/ Educate & Inspire; and 2/ Evaluate renovation scenarios.

## What can the user do in Step 1/ Educate & Inspire?

- Step 1/ aims to **explore renovation solutions at the level of a single building component**: wall, window, electricity generation, HVAC, roof/loft, and ground floor.
- It provides a **framework to guide and facilitate the discussions** between stakeholders about renovation options.
- Based on the building description and inputs from stakeholders' surveys, the tool proposes **different renovation solutions that are scored** against a set of decision criteria.
- These solutions are selected amongst a **repository of technical solutions**, via a filtering process using **decision trees**.
- Solutions are **scored against eight criteria**: Cultural Heritage, Comfort & Wellbeing, Energy Use, Carbon footprint, Circularity, Resilience, Technical Performance, Financial.
- **Guidelines and recommendations** are also provided to support **stakeholders' engagement, life cycle cost analysis, circularity practices** and **building performance monitoring**.



## What can the user do in Step 2/ Evaluate renovation scenarios?

- Step 2/ aims to **assess quantitatively** different renovation scenarios at building level, based on more extensive input data.
- It delivers a **baseline of energy and CO<sub>2</sub> consumption** of the building, and an **evaluation of the savings** that could be reached with each renovation scenario.
- Each renovation scenario is also evaluated against the eight decision criteria mentioned in step 1/.