

Future-proof renovation planning

Challenge

Standard approaches to renovation planning are often reactive, short term, and focus on small-scale projects (e.g. building by building). So far, housing companies across Europe have struggled to plan the refurbishment of their building portfolios in a more strategic and long-term manner. This has been due to the lack of suitable support solutions. The DREEAM tool aims to close this gap.

What is the DREEAM tool about?

The DREEAM tool developed at Chalmers University of Technology supports housing companies and municipalities in planning their renovations in a strategic manner. In doing so, it helps them address key questions that are of increasing importance for an 'informed portfolio management':

- *What part of the portfolio should be renovated and what improvements are technically and/or economically feasible?*
- *How to incorporate policy-related targets (e.g. nZEB standards) into portfolio renovation planning?*
- *How to maximize energy demand reduction and at the same time meet other key targets, e.g. ROI, NPV etc.?*

How does the tool work?

The functioning of the DREEAM tool can be broken down into three key parts:

1. INPUT DATABASES

Portfolio inventory: describes the technical properties of the building portfolio.

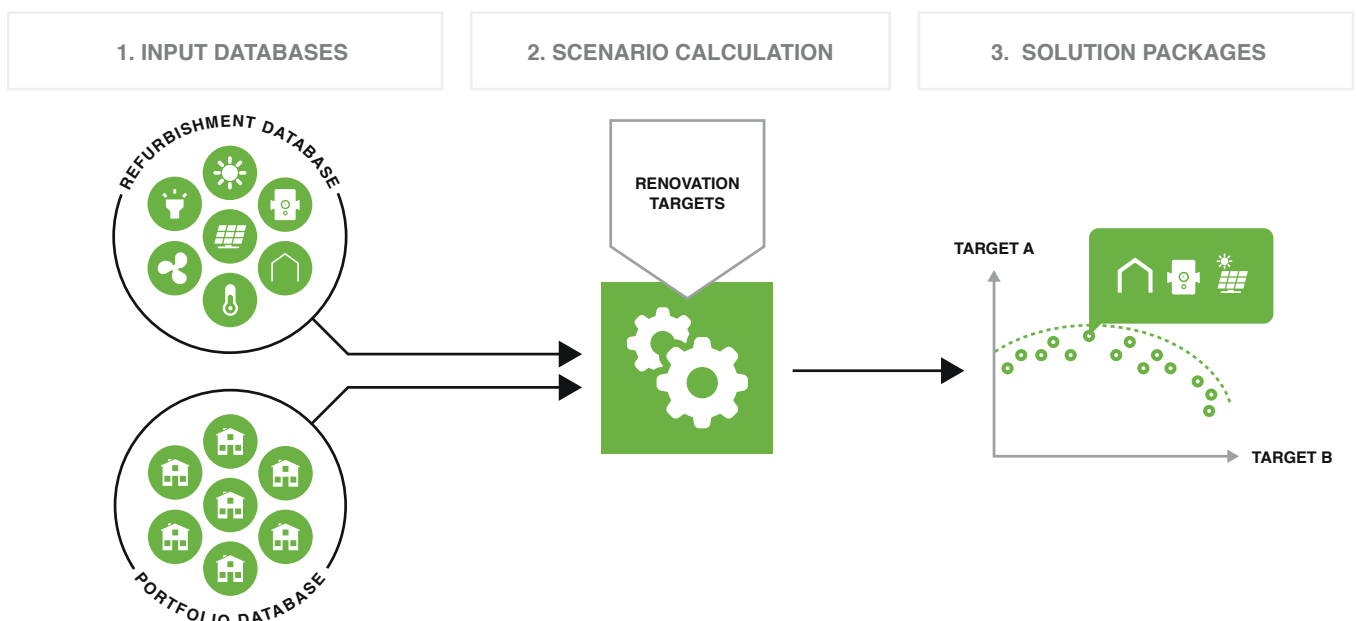
Refurbishment database: consists of location-specific renovation solutions and renewable energy technologies, described in terms of technical properties and price.

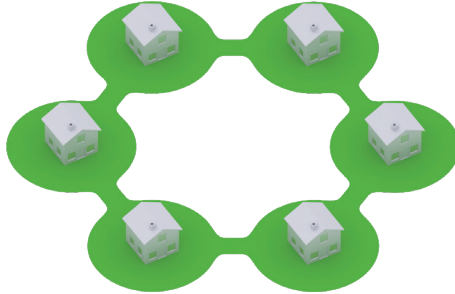
2. SCENARIO CALCULATION

The core of the DREEAM tool is the calculation of optimal renovation scenarios according to multiple target criteria (e.g. max. energy demand reduction vs. ROI). Thanks to the application of intelligent algorithms that refer to the INPUT DATABASES, the tool first calculates the energy performance of the selected building portfolio and then matches the outcome with suitable renovation solutions. As a result, a selection of optimal renovation scenarios that meet the set target criteria is generated.

3. SOLUTION PACKAGES

The generated solution packages are visually presented on a pareto-curve that highlights the trade-offs between the set renovation targets. Each renovation package can be analyzed in detail for a transparent and informed decision making.





Dreem - think big, save big!

DREEAM is a pan-European project focusing on nZEB renovation of residential buildings. The uniqueness of DREEAM's approach is its multi-building focus. The project investigates the benefits of large-scale renovations on potential energy efficiency gains, inclusion of renewables and access to funding. DREEAM supports housing companies and cities in scaling up their renovation ambitions through an integrated set of services coming into play at different stages of a fully-fledged deep renovation project: investment planning, renovation design, quality assurance, energy consumption analysis, and tenant engagement.

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