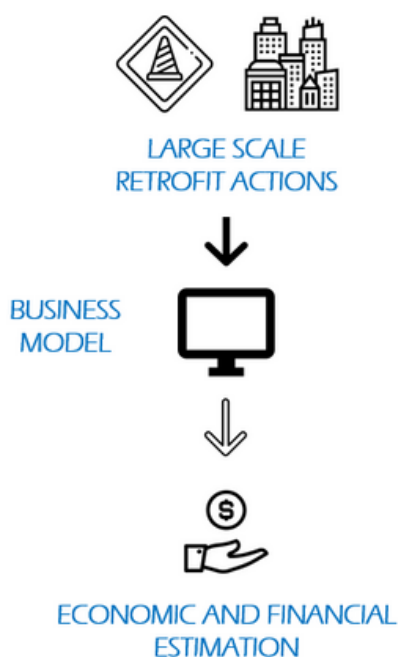


BUSINESS MODEL FOR RESIDENTIAL RETROFITS AT DISTRICT SCALE

ECONOMIC AND FINANCIAL INFORMATION FOR RETROFITTING ACTIONS



THE CONCEPT



ADDED VALUE

- Unique tool for large-scale retrofitting actions
- Helps decision-makers

TRL

8



CONTACT

- <https://irec.cat>
- KTT area
ktt@irec.cat
- +34 933 562 615

PRODUCT DESCRIPTION

- **Business model tool** to support reliable predictive **economic and financial large-scale retrofitting actions** under **Private Public Partnership (PPP)** frameworks
- Quantitative evaluation
- Analysis of the **critical elements** of the operation for the different types of end-users
- Tool targets large retrofitting actions ranging from 150 – 500 dwellings in several buildings (10-50) in a district

APPLICATIONS

- Tool for large-scale residential retrofitting
- Financial analysis and implementation support tool for retrofitting agents
- Strategic analysis of retrofitting actions of the building stock for municipalities

DESIRED PARTNERS

Private and SME stakeholders (e.g. investors, real estate agents, retrofitting managers, urban planners, construction companies), public sector (e.g. municipalities, regions, city councils) and end-users.

EXPECTED BENEFITS

- Large-scale actions
- Quantitative evaluation
- Customizable by stakeholders
- Analysis of critical elements

technical details

INNOVATION SOLUTION

The new tool is programmed in Python programming language and is useful to evaluate several strategies for the renovation of existing building stock. It moves from a quick list of input according to several Public Private Partnership models, in addition to other potential business models. Furthermore, the design of the model is supported by a step-by-step methodology in order to deal with a financial appraisal that is interactive in each context, customizable for each stakeholder, and user-friendly. This innovative tool has a stronger potential when it runs in a GIS-based software environment and interacts with a PostgreSQL database, as demonstrated in two case studies located in Spain.

KEY ELEMENTS

The most critical parameters can be analysed in a sensitivity analysis around a defined case base. The model computes a set of indicators as results of the analysed area and a set of parameters / variables which can be set depending on the case. The model works in Python with aggregated data for evaluating potential business model scenarios.

Several PPP business models can be considered (e.g. Retrofitting agent, Turnkey, Public) by customizing some of the parameters in the model.

The indicators are economical and financial conditions for the:

- End users: monthly quote, end-user savings
- City council: city operational costs; revolving fund size
- Retrofitting manager: operational costs, benefits, financial costs and financial needs.

IMPLEMENTATION

Applied and validated in two case studies. Under deployment in pilot areas in Palma de Mallorca and other districts in Italy, Austria, Portugal and Spain.

