Solutions and technologies for deep energy renovation process uptake

Innovative Solutions Supporting the NZEB renovation Workshop @ SP2020

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StepUP general overview

Solutions and technologies for deep energy renovation processes uptake

- European project funded under the topic: *LC-SC3-EE-1-2018-2019-2020 - Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation*
- **3,5 years** duration, from 1/08/2019 to 31/01/2023
- **Budget**: 4,9 M€, of which 3,6M€ funded by the EC
- **9 participants** from **7** different **European countries**
- Coordinated by **Integrated Environmental Solutions LTD**
- **Grant agreement ID**: 847053

Consortium

10 partners from 7 European countries

6 (5)	1	1	2
Industrial companies (SMEs)	NPO	RTOs	Owners and contractors

The context

Making decarbonisation of existing buildings a reliable and attractive investment

- The European **Energy Performance of Buildings Directive (EPBD)** identifies **deep renovation** as a key action to **drastically reduce energy demand** and achieve the EU vision of a **decarbonised building stock by 2050**.
- The **Renovation Wave** initiative is aimed to increase the rate and quality of renovation existing buildings and help to decarbonise building stock.
- **Most of the technology to achieve this reduction is available on the market today**. However, shallow retrofits persist with low impact on energy consumption.

*Currently, only **1% of European buildings are being renovated yearly***

The StepUP Approach

Cost-effective deep renovation technologies to make buildings decarbonisation a reliable, attractive and sustainable investment

- **StepUP** develops a new process for deep renovation for decarbonisation, to minimise performance gap, reduce investment risk and maximise value.
- To achieve this, the project uses continuous **feedback loops and promotes an iterative deep energy renovation approach**, based on data insights, which positively impacts on energy costs, Indoor Environmental Quality (IEQ) and comfort.

*"The **StepUP approach** relies on a set of solutions and technologies applied at different phases of the implementation of the renovation methodology"*

Objectives

Make renovation more attractive and reliable with a new methodology based on near-real time data intelligence

Reduce the performance gap to 10% by developing an integrated life-cycle software platform

Optimise renovation investments by developing innovative financial models

Minimise time on site to 40% of current renovation onsite work by creating a market-ready modular renovation package of Plug & Play technologies

Accelerate the renovation market via an interoperability protocol for renovation solutions, enabling compatibility of StepUP with third-party market products

StepUP solutions

1 **Plug & Play Envelope System**
Pre-assembled enveloped panel integrating windows and provisions for the technical systems

2 **Plug & Play SmartHeat solution**
Groundbreaking technology for flexible consumption of thermal energy monitored and optimised through StepUP data tools

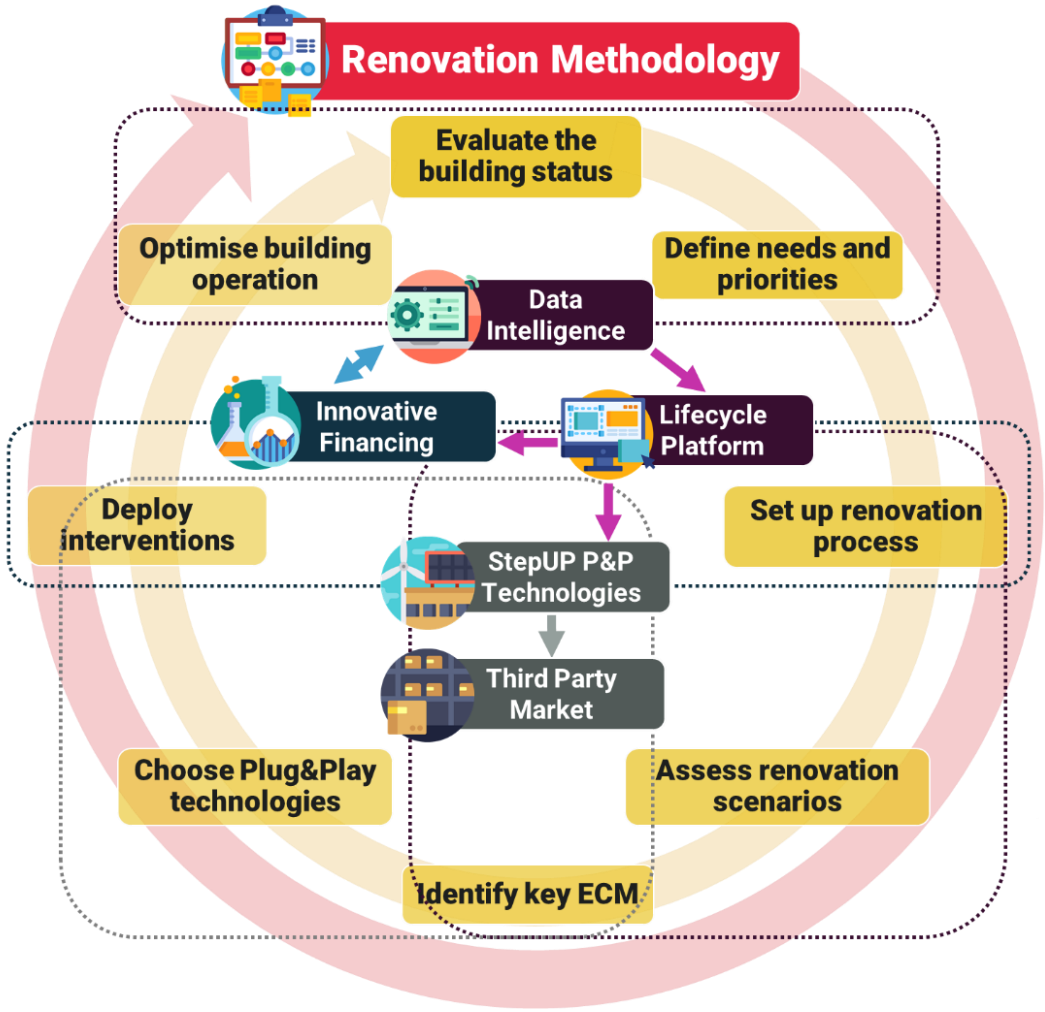
3 **Innovative financing tools for deep renovation**
Energy Performance Contracts (EPCs) based on co-investment, continuous performance measurement and management

4 **Software tools and platform for data collection**
Data intelligence solutions to generate a sound base for the continuous measurement and verification of the renovation

StepUP methodology

An iterative and holistic methodology

- Methodology for a systematic whole building renovation, incorporating the **stakeholders' needs** at the centre.
- **StepUP** methodology, based in Data Intelligence, has the objective to deliver affordable deep renovation technologies, another step towards EU building decarbonisation.



*At the core of the StepUP project relies an **incremental, iterative renovation methodology** aimed to cover every phase of the renovation process to make each step more effective*

StepUP pilots

StepUP solutions will be demonstrated in three different types of buildings

1. **Public non-residential buildings** (Hungary)
2. **Rental private office buildings** (UK)
3. **Multi-family residential dwellings** (Spain)

StepUP pilots - Schools

Zöld-Liget Kindergarten

- Located in the **18th District of Budapest (Hungary)**, the Zöld-Liget Kindergarten is a representative case of the needs for deep renovation in public buildings.
- The current energy performance of the building is poor due to significant heat loss through the roof and walls.

> *This pilot will demonstrate StepUP solutions for public authorities*

StepUP pilots - Offices

The IES HQ office

- A virtual pilot in the IES HQ office located in Glasgow (Scotland).
- Chosen to demonstrate a common case for missed opportunities in deep renovation in the European built environment: **the long-term office lease**.

> *This pilot will test StepUP analysis and diagnosis in working conditions*

StepUP pilots - Apartments

Pamplona Pilot (Spain)

- Multi-owner apartment blocks from the 70-80s.
- StepUP helps owner communities to make a good decision on renovating their building.
- One building in neighbourhood as pilot: high replication potential.

> *Applying StepUP to common European private housing*

StepUP

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SUSTAINABLE PLACES 2020

THANK YOU!

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StepUP Project

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