INFINITE
BUILDINGRENOVATION
Industrialised envelope solutions

eurac research

The challenge of building data management in deep renovation

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INFINITE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No **958397**

The context

Why does INFINITE exist?

The Context

- **Decarbonising** EU Bui STOCK
- **Renovation WAVE:** increasing deep renovation rate now at 0.2% (tot 11%, av. 1%)
- **Let's do it right fast**!
  - ✓LC-thinking & Circular economy
  - ✓Design for disassembling as End-of-life
  - ✓Use of sustainable materials
  - ✓User satisfaction and healthy indoor
- **Let's do it right fast**
  - ✓Large market uptake of solutions

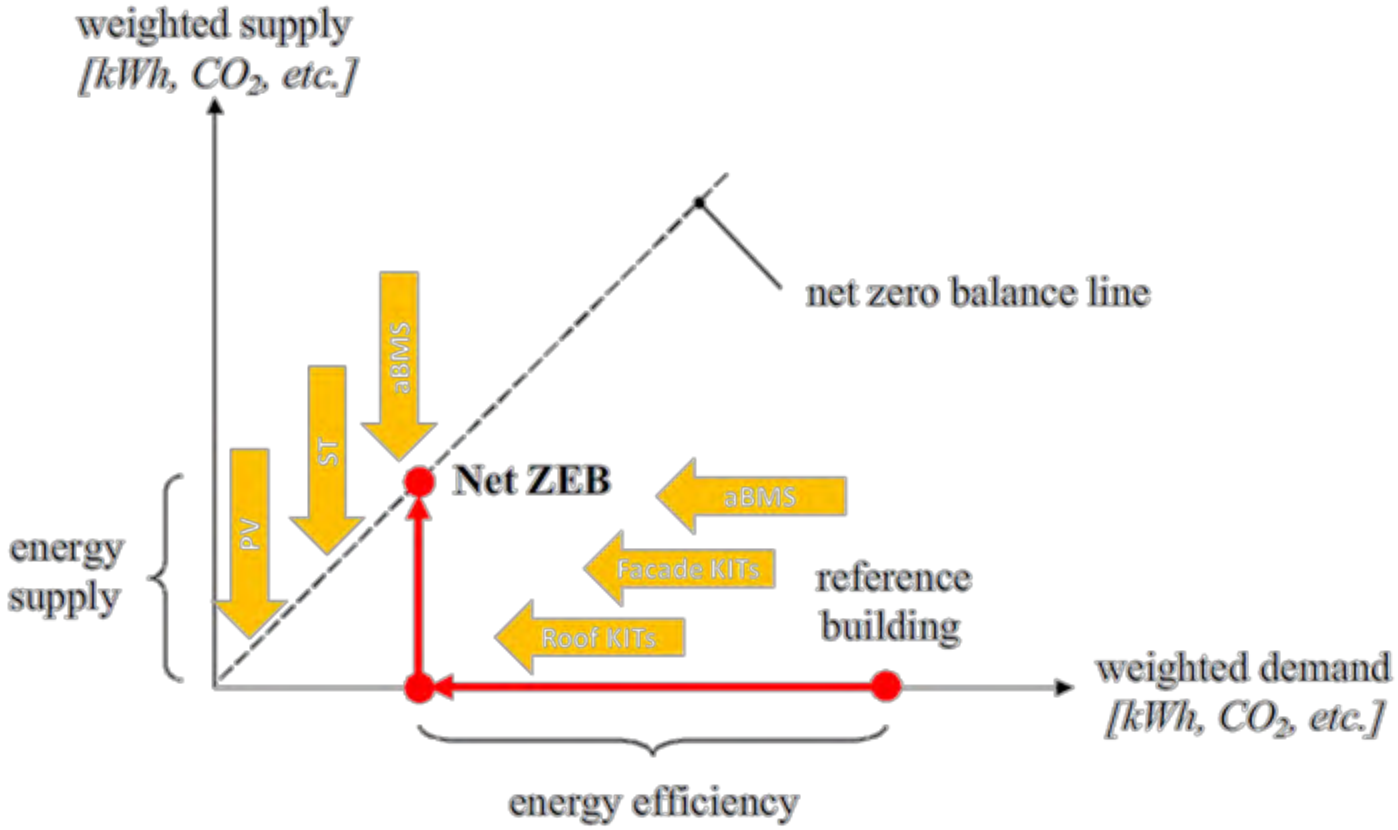
UNDERSTAND & UNTAP THE POTENTIAL OF

INDUSTRIALISATION RETROFIT

Increase the **market penetration** of **industrialised all-in-one** envelope systems for the **nZEB building renovation**

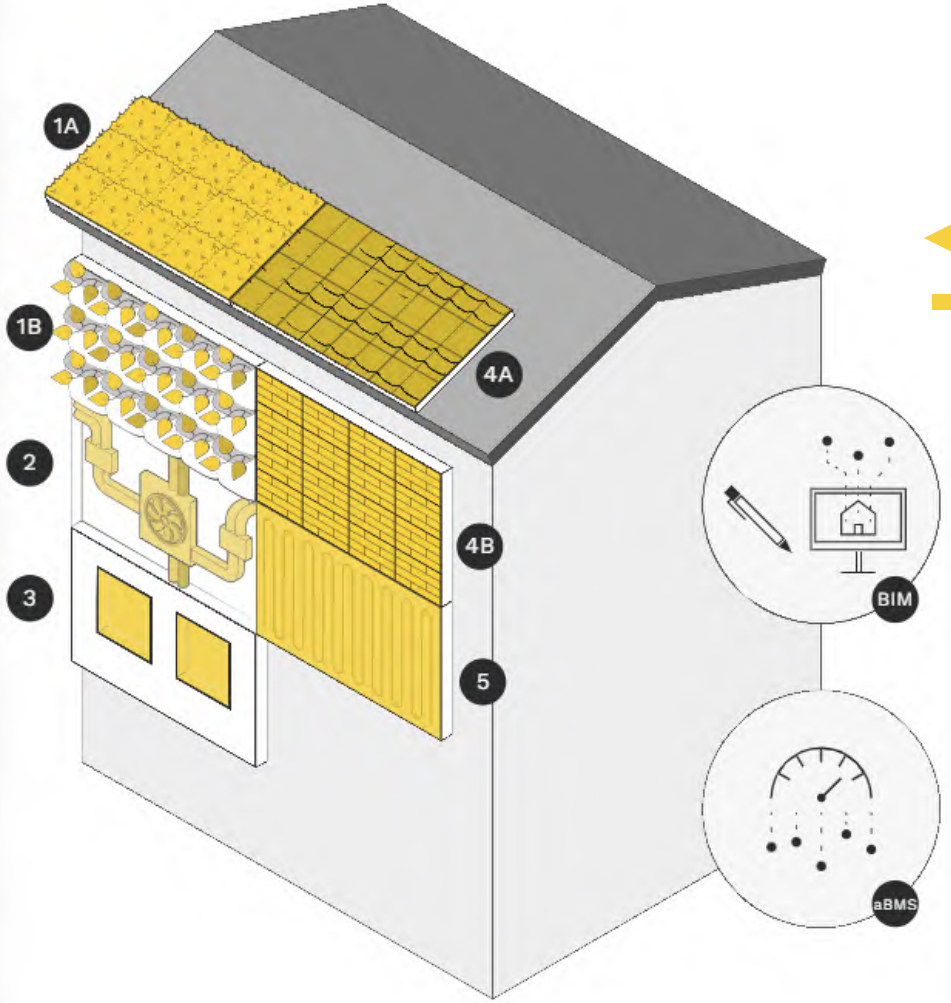
Deep Retrofit, nearly ZEB, w/ INFINITE

- Lowering energy demand
  - Efficient envelope
  - Solar generation
- Electrification (i.e. HP)
- Energy consumption covered by RES (i.e. PV)
- Prioritize self-consumption
- High indoor comfort
- People-centric approach
- Consider sustainability broadly

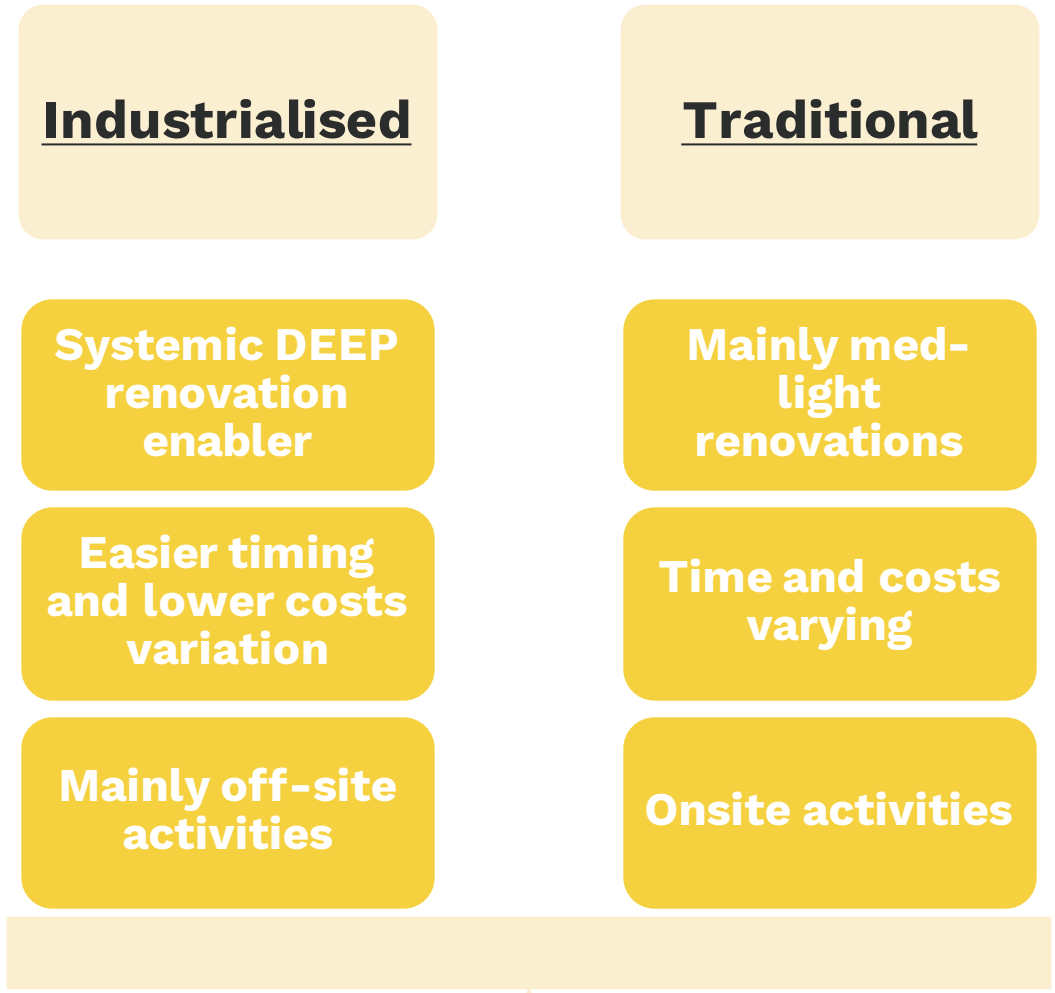


Deep Retrofit, nearly ZEB, w/ INFINITE

- PASSIVE ECO-COMPATIBLE & GREEN ENVELOPE KIT (1B, 1A)
- ENERGY AND FRESH AIR DISTRIBUTION KIT (2)
- SMART WINDOW KIT (SMART GLAZING) (3)
- ENERGY GENERATION BIPV KIT (4B, 4A)
- SOLAR-THERMAL GENERATION KIT (BIST) (5)
- ADAPTABLE BMS (aBMS)
- BIM PLATFORM (BIM)



Industrialised VS Traditional Deep Retrofit



- New windows, insulation, ventilation machine →**Integrated envelope kits**
- Solar thermal and PV **integrated** façade + roof
- **Inclusion** of monitoring and control
- **Durability** and **sustainability**

- New windows, insulation, ventilation machine →Disturbance
- Solar thermal and PV **only on the roof**
- More than 1 monitoring and control
- On site activity, quality issues

Results highlights

Useful results along the value-chain

Results for the value-chain stakeholders

Life-Cycle

Building asset evaluation | Pre-Design | Concept and executive design | Manufacture Assemble Transport | Installation Commissionig | O&M | End-of-life

- Final user
- Energy-Facility Manager
- Investors – Customers
- Design team leader
- LCA-LCC-energy specialists
- Manufacturer - installer
- Technology provider

Industrialised renovation Knowledge hub

R4, Market Potential Map

R5, IDR Observatory

R1, Bim-P & Plugins

R2, Ind. AllIn1 Envelope Kits

R3, aBMS

Results for the value-chain stakeholders

Potentials, investment, concept design | **Design, implementation, commissioning** | **Use, maintenance, EoL**

R1, Bim-P & Plugins

- 100% ready

Features
- Plugins and BIM-P interconnected
- Use at concept phase w/ simplified data (energy, LCA, LCC)

R2, Ind. AllIn1 Envelope Kits

R3, aBMS

R4, Market Potential Map

- 60% ready

Features
- Different users & interaction levels

R5, IDR observatory

- 15% ready

Features
- Engaging stakeholders
- Networking w/ other initiatives

Industrialised renovation Knowledge hub

Results for the value-chain stakeholders

Potentials, investment, concept design | **Design, implementation, commissioning** | Use, maintenance, EoL

R1, Bim-P & Plugins

- 100% ready

Features:

- Refine performance calculations (energy, LCA, LCC) at design level, feeding design choices
- Installation + O&M plugin

R2, Ind. AllIn1 Envelope Kits

- 100% ready

Features

- Datasheet, Performances verified
- Optimal prefab level
- Designed for Assembling

R3, aBMS

R4, Market Potential Map

R5, IDR observatory

Results for the value-chain stakeholders

Potentials, investment, concept design → Design, implementation, commissioning → **Use, maintenance, EoL**

R1, Bim-P & Plugins

- 100% ready

Features:
- Installation + O&M plugin

R2, Ind. AllIn1 Envelope Kits

- 100% ready

Features
- Design for Disassembling

R3, aBMS

- 50% ready

Features
- Monitor of real performances
- Compare design target
- Define nZEB level

R4, Market Potential Map

R5, IDR observatory

Let’s renovate faster and better

...with the industrialised renovation!

Consortium

Coordinator

eurac research

Project Partners

HUYGEN INGENIEURS & ADVISEURS

GreenDelta

EDERA

GRÜN STATT GRAU

one team

Nobatek INEF4 INSTITUT POUR LA TRANSITION ENERGETIQUE

BOUYGUES CONSTRUCTION

RUBNER

LEITAT managing technologies

IRI UL Institute for Innovation and Development of University of Ljubljana

GENERALITAT VALENCIANA Vicepresidencia Segunda y Conselleria de Vivienda y Arquitectura Bioclimática

IVE INSTITUTO VALENCIANO de la EDIFICACIÓN

NextSense

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vilogia

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FANTI GROUP COSTRUIRE IN LEGNO

INFINITE
BUILDINGRENOVATION

Thank you

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