



**SUSTAINABLE
PLACES 2025**

8-10 October 2025

Milano



BUILDING RENOVATION WORKSHOP

Scaling Impact

Pathways for Sustainable Building Renovation in Europe

DAY 2 | Room 2 | 11:00 – 12:30



Incremental
Renovation
Package

AEGIR



REHOUSE
ACCELERATING THE EUROPEAN
RENOVATION RATE



www.sustainableplaces.eu

Moderator & Speaker



Stavros Spyridakos
Energy Efficiency and
Stakeholder
Engagement Expert



Łukasz Wilczyński
Project Manager



Arnaud Jay
Research Engineer in
Energy Efficiency in
Buildings CEA



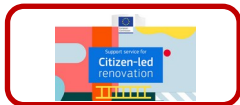
Mikael Börjesson
Director Future
Solutions & Public
Affairs/Member IAQS



**Javier Antolín
Gutiérrez**
Project Technical
Coordinator



Dr. Paola Zerilli
Director MSc
Sustainable Finance
University of York,
Scientific Coordinator



Agenda

11:00 - 11:05	Welcome
11:05 - 11:35	Project Pitches
11:35 - 12:10	Interactive Panel Discussion
12:10 - 12:25	Results from the discussion
12:25 - 12:30	Wrap-Up & Next Step

► Project Pitch CLR

Citizen-led Renovation



Put the citizens in the driver seat of renovation.



Assumption: people might be stronger motivated, when they feel free to act.



Further motivation: seeing others doing things, that they might want to do, but didn't dare or know how to do.

Project Details

CLR-Phase 1 (2023-2024)

CLR PHASE I (2023-2024)

4 PILOTS

-  Triple Sec, Ireland 
-  Coopernico, Portugal 
-  Energent, Belgium 
-  Izgrei, Bulgaria 

4 Lighthouses

6 Followers

Enablers Board



CLR-Phase 2 (2024-2025)

CLR PHASE II (2024-2025)

6 PILOTS

- Girona Provincial Council Spain 
- ZuidtrAnt, Belgium 
- Municipality of Alsómcsolád, Hungary 
- Castello Green House, Italy 
- CER Antrodoto, Italy 
- REC Postua & Guardabosone, Italy 

15 LEARNERS

38 FOLLOWERS

Enablers Board



Project Description

Aim of the Citizen-led renovation initiative

Aim: **empower communities and to put citizens in the driver's seat for energy renovations.**

The service is for you!

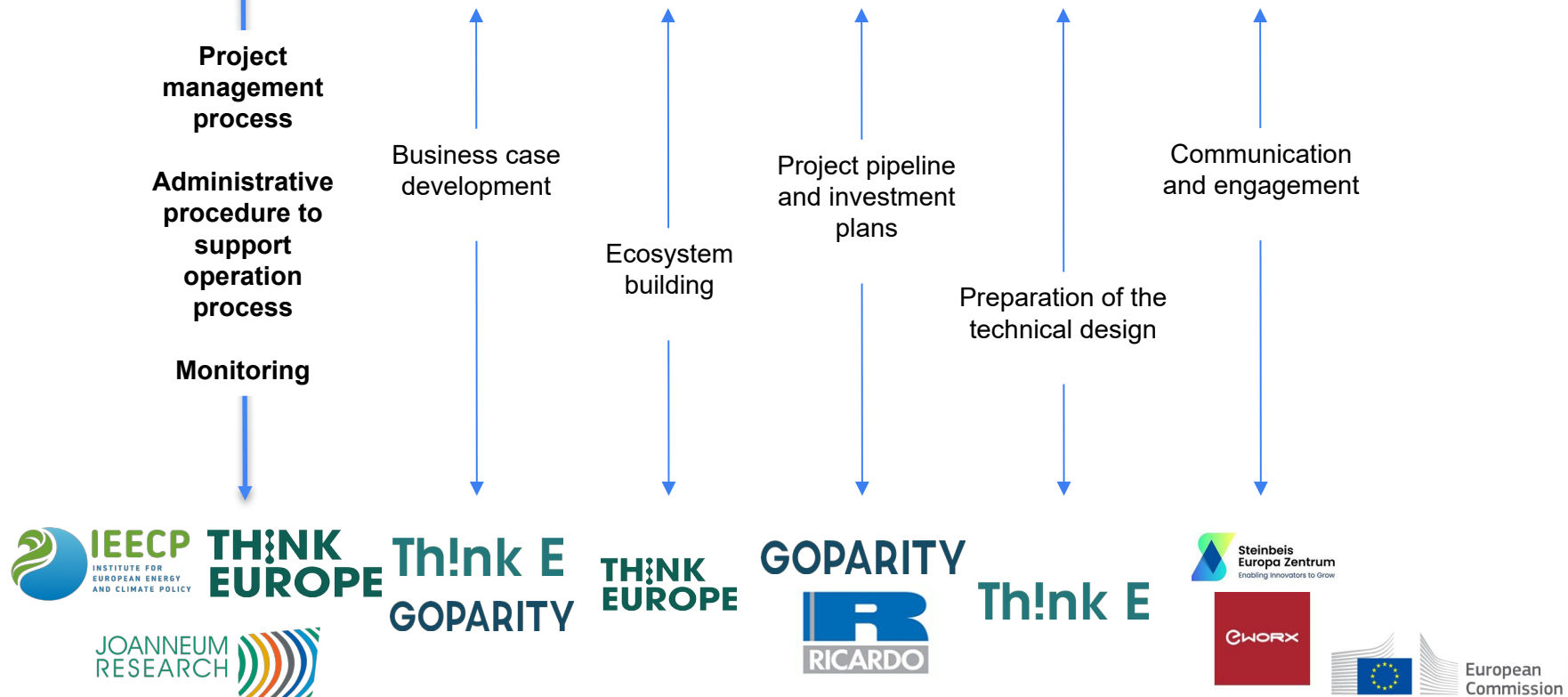
...to strengthen your community building.

...to assist in (replicating) programmes for energy renovations of the buildings of your members and others, including insulation, new technical systems and installing renewables.

...to help your community to overcome financial, legal, technical, and informational barriers to deliver future-proof residential buildings.



Project Description



Project Description

What support is offered in the Phase II:

Pathway 1 (5-8 Pilots)

Established communities receive comprehensive and tailored support in 6 pillars:

- Project management, administrative procedures, and monitoring
- Business case development
- Ecosystem building
- Project pipeline & investment plans
- Preparation of the technical design
- Communication and engagement

Pathway 2 (15 Learners)

Emerging communities are guided in developing their capacity for initiating renovation projects:

- one-to-one consultancy by experts
- interactive activities
- comprehensive learning package.

Pathway 3 (40 Followers)

Communities interested in exploring the concept of CLR and energy communities are provided with:

- insights
- learning materials
- one-to-one guidance sessions
- networking opportunities to prepare for future implementation.

Project Description



Castello Green House
| Italy

A cooperative Renewable Energy Community (REC) with mutualistic purposes, which pursues environmental, economic, and social benefits for its members, the community and the local areas in which it operates through the production and management of conscious, eco-sustainable and participatory RES.



CER Antrodoco | Italy

A municipality-led REC promoting energy autonomy, social inclusion, and sustainable local development. It focuses on the deep renovation of public buildings, rooftop solar PV, and a biomass district heating network.



REC of Postua and
Guardabosone | Italy

Two neighbouring mountain villages in Piedmont are forming a joint REC. The REC engages 15 residential buildings, including households experiencing energy poverty, in comprehensive energy upgrades.

Project Description



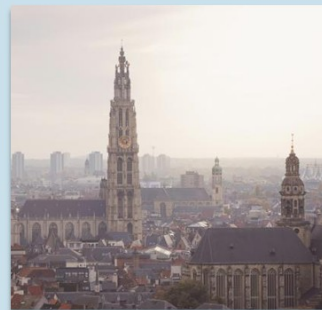
Municipality of
Alsómosolad |
Hungary

A proactive rural municipality integrating behavioural change, digital innovation, and strategic planning to launch a Renewable Energy Community.



Diputació de Girona
| Spain

The Girona Provincial Council's Environmental Service supports and accelerates the energy transition across five local RECs. It sets up a robust ecosystem of financing, technical partners, and local authorities and develops citizen surveys and engagement tools to tailor support to local needs.



ZuidtrAnt | Belgium

An active energy cooperation in Antwerp Province, driving social and technical innovation in community-led renovation. They focus on refining their business model to reduce grid connection costs and expand access, strengthening legal and regulatory understanding, and deploying IT tools for better impact monitoring. Additionally, they are scaling up with a ~€4 million heat network extension, co-funded by residents and municipalities

► Project Pitch MULTICARE

MULTICARE



Project Details

Duration: 48 months

Partners: 21

Pilot sites: 3



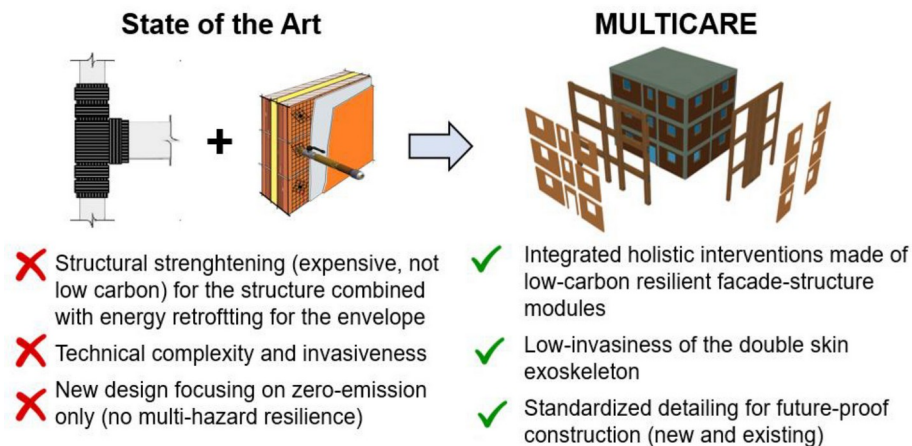
4 Universities
+
5 Research
Institutes/Agency
+
9 Companies/Firms
+
2 Municipalities
+
1 Housing Association



Development of Low-Carbon, Resilient Technologies - Circularity

MULTICARE:

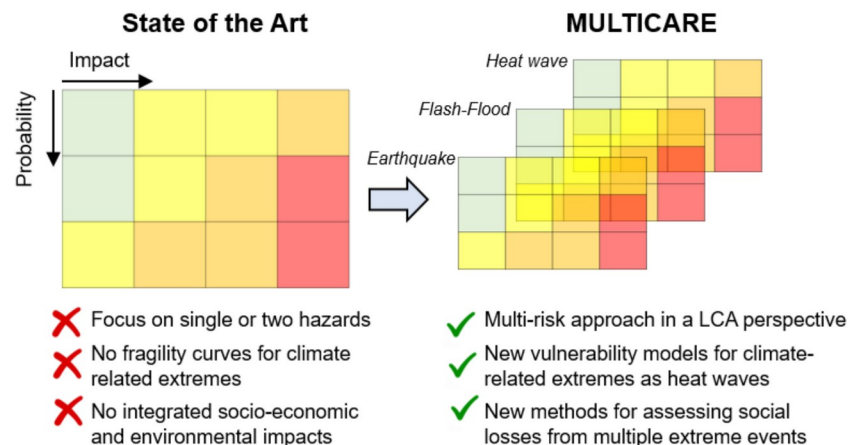
- Focuses on creating low-carbon, resilient solutions that cater to multiple hazards such as earthquakes, floods, and heat waves.
- These solutions are designed to be adaptable, scalable, and suitable for both new and existing buildings.
- The project emphasizes the use of modular, plug & play systems that are easy to install, reduce construction time, and minimize disruption during renovations.



Multi-Hazard Approach - Resilience

MULTICARE:

- Multi-hazard approach is central to the project's methodology, considering the various natural threats buildings face.
- Project develops solutions that ensure buildings can withstand and recover from multiple types of hazards, including seismic activity and extreme weather conditions.
- This holistic approach is expected to enhance the long-term durability and safety of buildings across different environmental scenarios.



Multi-Hazard Approach - Digitalisation

MULTICARE:

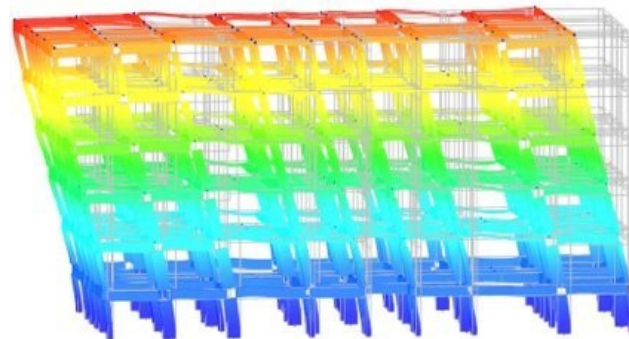
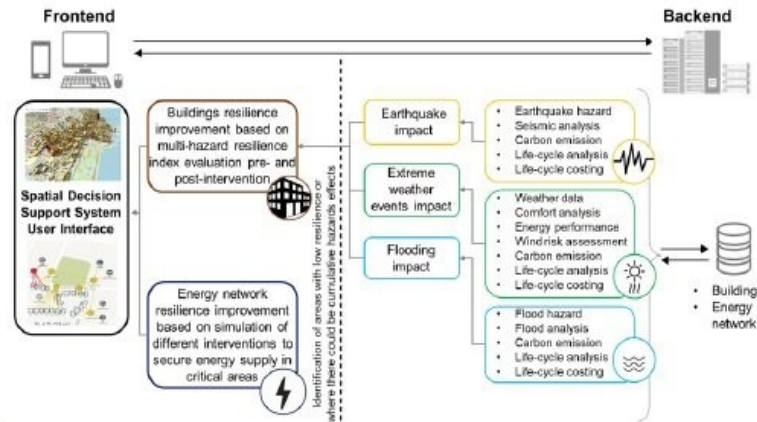
Aims to advance digital tools and services that support decision-making across multiple scales, from materials to urban environments.



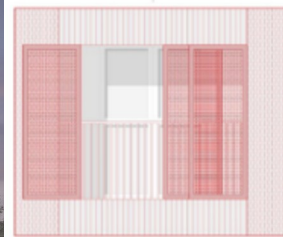
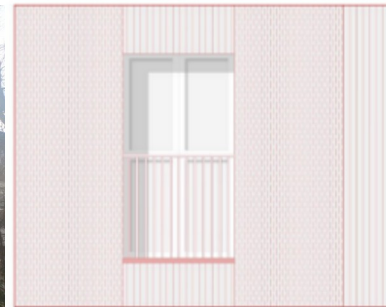
These tools include a digital library of resilient technological solutions and a suite of services for resilience assessment, design, and management.



The digital solutions will help stakeholders make informed decisions by quantifying potential losses due to disasters and evaluating the resilience of different building materials and technologies.



Design – tailored solutions for existing buildings

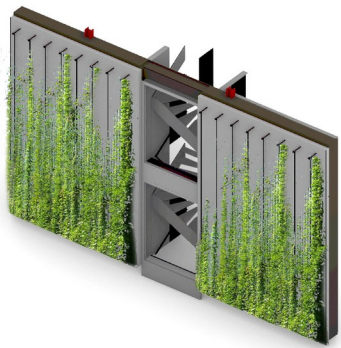


Design – flexible user-oriented options – social inclusion

1

Benchmark

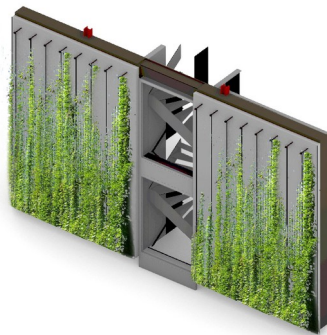
Composite Wall
+ trellis system



2

Low carbon

Composite Wall
+ Wooden Bio based
materials + Trellis system



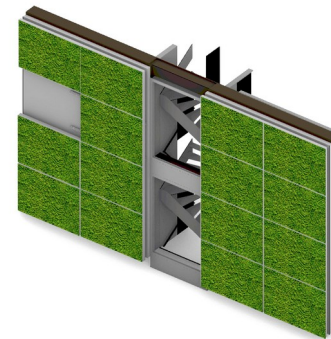
3

Extended facade options

Composite Wall
+ Living facade



Moss facade



► Project Pitch IAQS

Indoor Air Quality Society

Two cities & their indoor air

Improving Cardiovascular Health for
Disadvantaged Communities



Indoor Air Quality Society

- **IAQS brings together, industry, academia and regulators in an international collaborative network.**
- We are a partnership of international experts with a long record of research, publication and advocacy in IAQ.
 - Inform,
 - Educate,
 - Enable and support debate,
 - Influence policy-makers and governmental bodies.
- IAQS is a non-profit organization based in Belgium.



Collaboration



Project 1: Breathe Healthy Air Together



Pollutants and pathogens in indoor air have a **significant negative effect on human health**. Often with the poorest parts of society suffering the most.



There is a significant **gap in the knowledge and understanding** of the quality of air we breathe in our everyday environments by user groups, and the implications of this.



The Indoor Air Quality Society (IAQS) is proud to propose the **first major, live, comparative study of indoor air quality** across two major European metropolitan areas.



The project will **measure air quality across a range of indicators in key locations** such as healthcare facilities, schools and work-places.

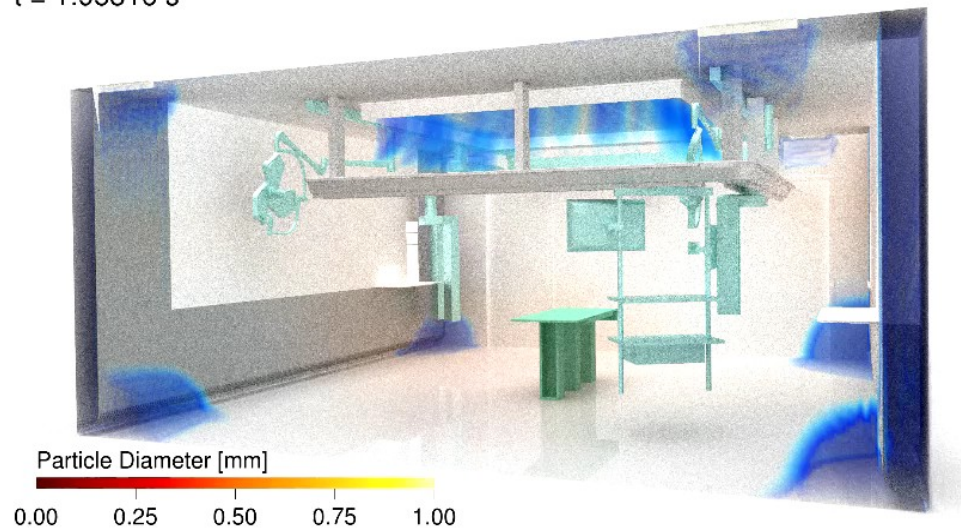
Project Pitch IAQS



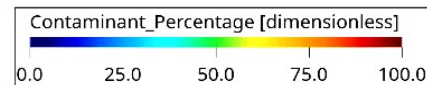
www.iaqsociety.org



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Assessment of the decontamination curves in the lecture hall of a university – the fully saturated environment is progressively flushed by clean air coming through two ceiling slots.



Educate, Inform and Improve



Inform and educate policy makers from the data and the improve to change policy for the better, particularly for underserved communities



Increase knowledge and awareness of own working environments



Comprehensive objective data in their own facilities of the beneficial application of these technologies



Positive effect on general health and for companies' staff morale and productivity.



Positive contribution to ESG, reduction in energy costs and supporting journey to Net Zero

Project 2: Improving Cardiovascular Health for Disadvantaged Communities

Goals:

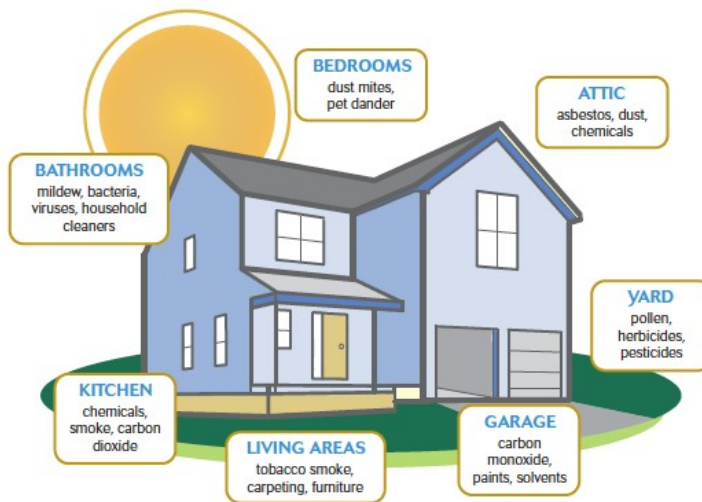
- Identify the relationship between **indoor air quality and heart disease**.
- Determine whether **SES or air pollution** is a stronger predictor of CVD risk.



Use **cardiac CT calcium scores** to quantify risk and correlate with air pollution levels

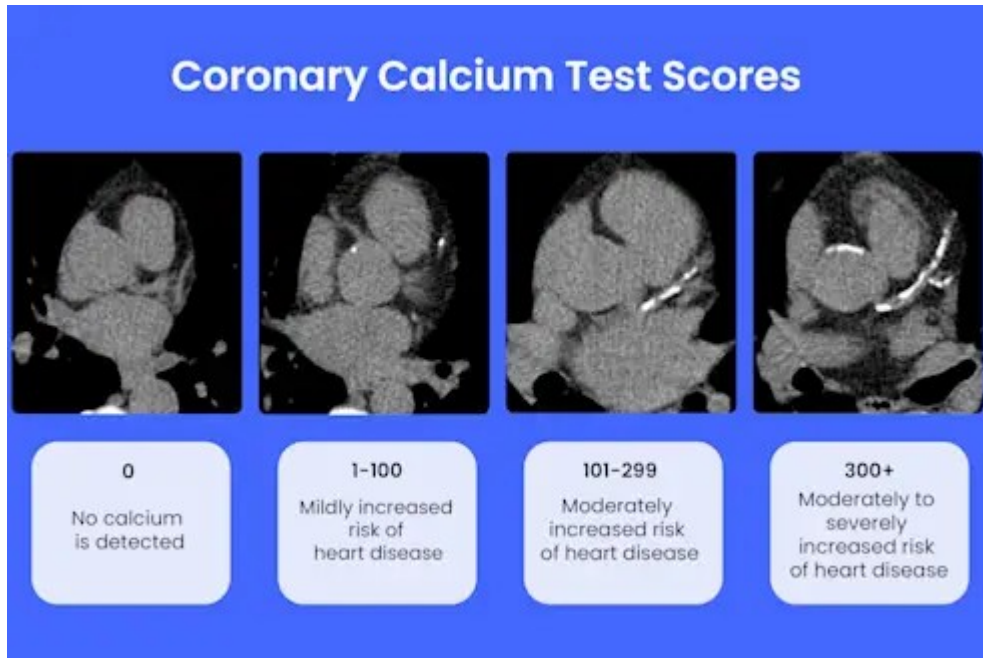
Philips Foundation/Cardiology
Centers of the Netherlands/UvA

Outdoor air: for cardiac disease, the danger is fine dust Indoor air pollution is very different from outdoor air pollution!



- Air pollution caused 8.8 million extra deaths i
- The World Health Organization (WHO) estimates smoking kills about 7 million people a year globally

Target group: cardiac patients that undergo a CT Scan



Quantitative outcome: Calcium score

Goals & Objectives

Measure IAQ & Outdoor Pollution: Deploy air quality sensors in patients' homes.

Assess Cardiovascular Risk: Collect & analyse **CT calcium score**.

Analyse Socioeconomic Influence: Compare **location**, and **health outcomes**.

Develop Data-Driven Insights: Support public health policies to improve outcomes.

► Project Pitch AEGIR

AEGIR project:

DigitAI and physical incrEmental renovation
packaGes/systems enhancing envIronmental and
energetic behaviour and use of Resources.

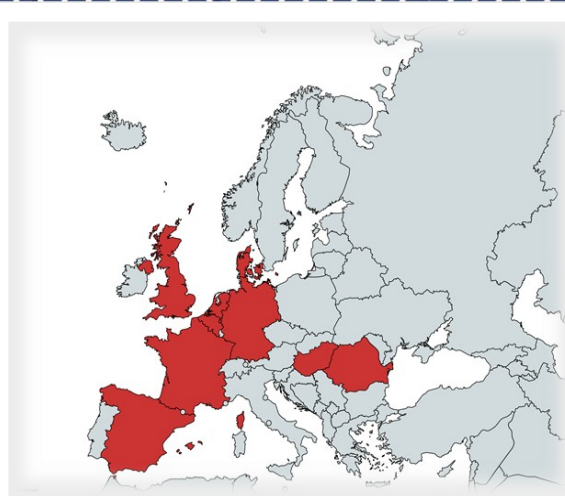


Project Details

MATERIALS	COMPONENTS	SYSTEMS	DIGITAL	DESIGN	CONSTRUCTION	DEMOS	ASSOCIATIONS / DISSEMINATION	RTOS
  	   	 	 	 		   	   	    

- Partners: 29; Countries: 9
- Duration: 48 Months
- Start: 01/10/2022; End: 30/09/2026

WebPage: <https://aegirproject.eu/>



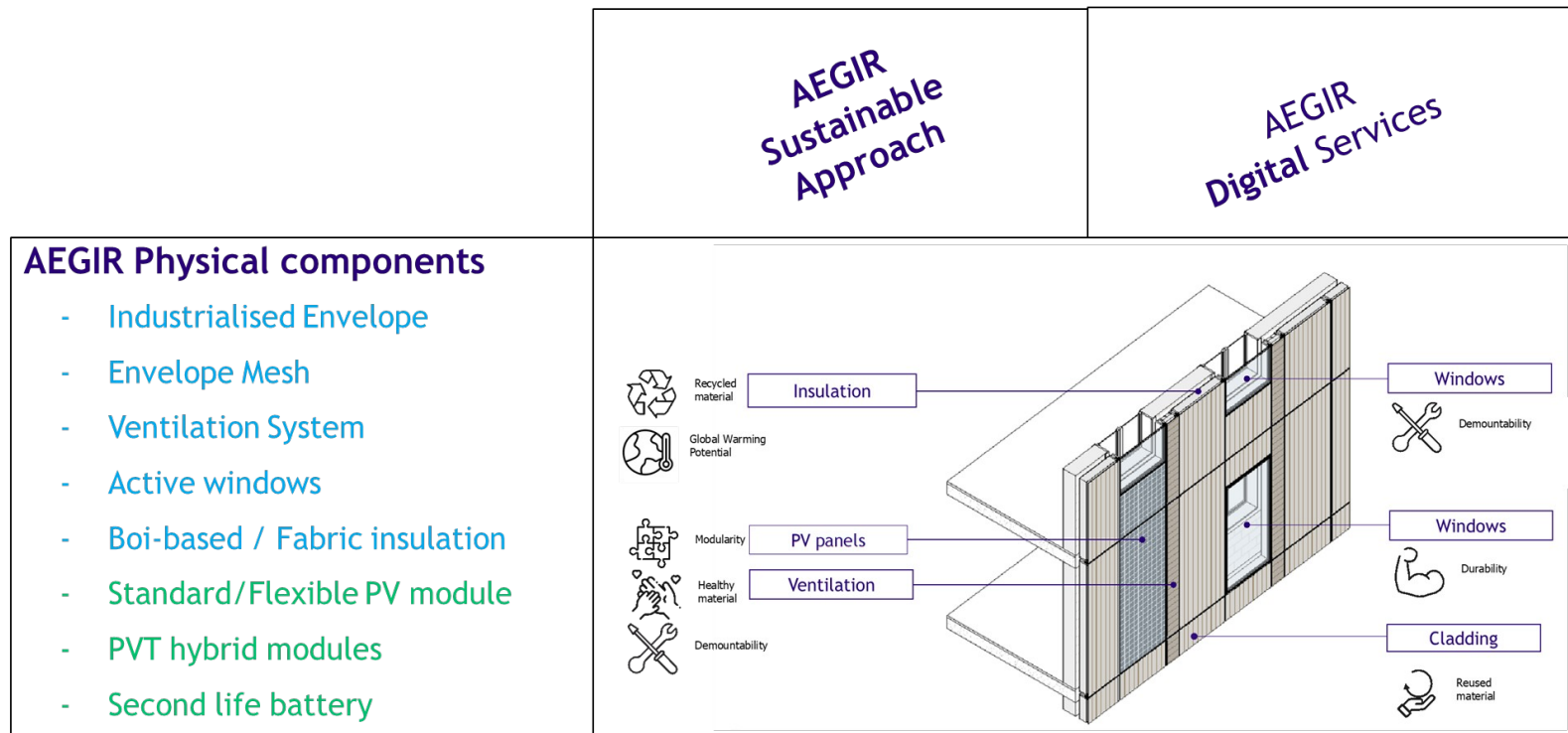
AEGIR Project Description

An holistic retrofitting approach to enable sustainable nearly zero energy buildings (NZEB) thanks to:

- Modular and industrialized solutions
- Integration of renewable components and smart energy management
- Sustainability-first approach
- An ecosystem of digital tools and services ensuring a seamless process from design to operation.

Demonstrated on 4 real buildings

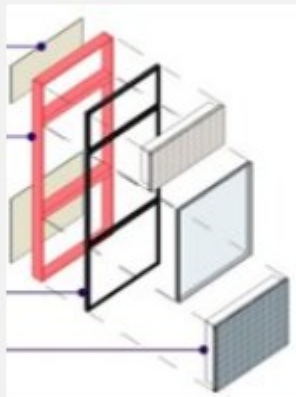
AEGIR Project Description



AEGIR & Circularity

Component

- Measure circularity
- Apply Circular Economy strategies and broader sustainable principles on different levels
- Create a business plan
- Raising awareness on existing standards.



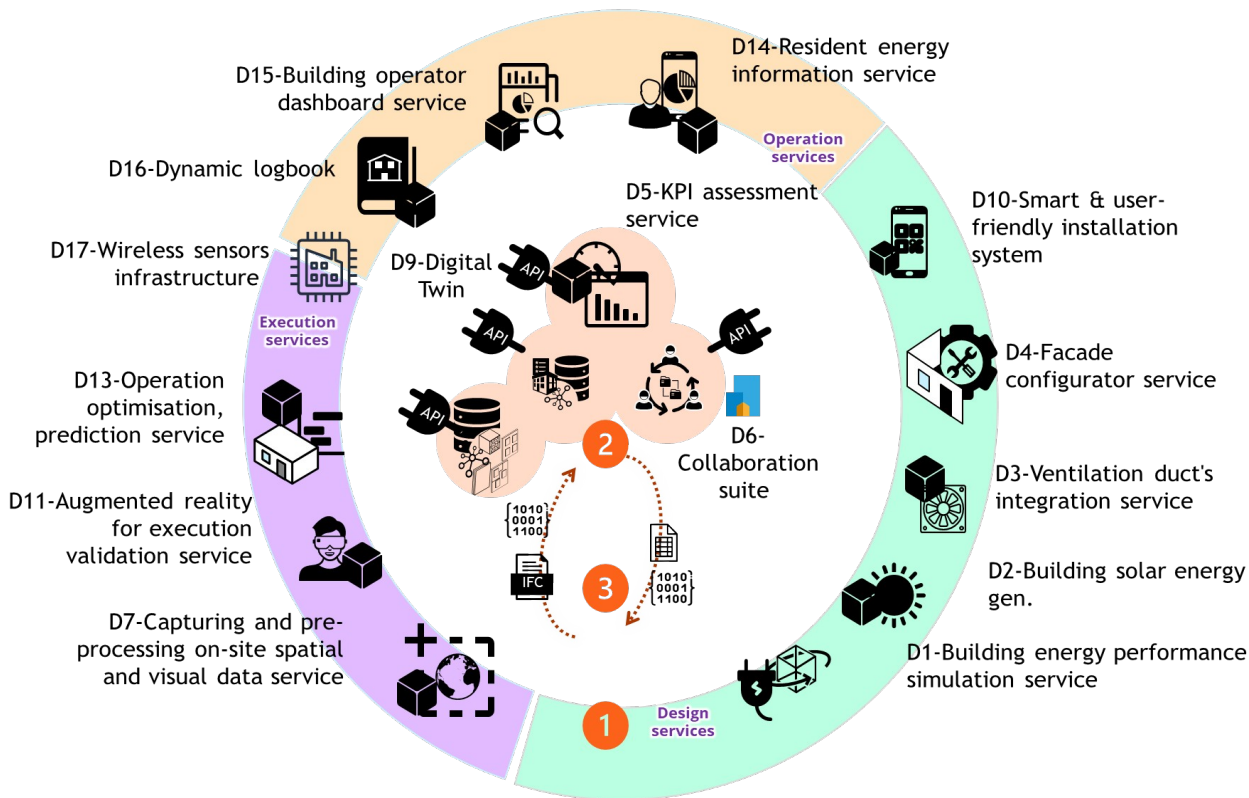
Assembly



Building



AEGIR & Digital Tools



► Project Pitch REHOUSE

REHOUSE

Accelerating the European Renovation Rate

Javier Antolín Gutiérrez (CARTIF)



Co-funded by
the European Union

Project funded by



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

Project Overview

REHOUSE: Renovation packagEs for **HOListic** improvement of EU's buiLdingS Efficiency, maximising RES generation and cost-effectiveness.

Development of **fully-functional prototypes** and demonstrate in operational environment [TRL7] **8 renovation packages** of promising technology innovations designed for a wide range of building renovation actions, including deep renovation, that **overcome the main barriers that slow down the current EU renovation ratios**.

4 Demo-sites:



REHOUSE renovation principles

- Prefabrication and industrialisation of construction works
- Integration of onsite RES
- Smart management of energy transfers
- Multi-functionality of building envelope solutions
- Use of recycled and/or bio-sourced materials
- Affordable renovation solutions

The Project



Horizon Europe / IA
10/2022 – 09/2026

25 Partners
8 Countries



CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS

PSYCTOTHERM

HEATING, REFRIGERATION & AIR CONDITIONING



Steeltech
PURA EVOLUZIONE

Nobatek INEF4
INSTITUT POUR LA TRANSITION ÉNERGÉTIQUE

Platánplán
MÉRNÖKI IRODA

Steinbeis
Europa Zentrum
Enabling Innovators to Grow

University of Applied Sciences and Arts
of Southern Switzerland

SUPSI



RINA

tera

Renel
ENERGY & POWER
ENGINEERING

BIOmai
canapa



ENEA
Agenzia nazionale per le nuove tecnologie, l'energia
e lo sviluppo economico sostenibile



RI
GROUP



WOODSPRING

techniwood
L'innovazione nasce costruita

HIT GYÜLEKEZETE

ams
ADVANCED
MANAGEMENT
SOLUTIONS

SYNAGE
SOLAR BUILDING SKIN

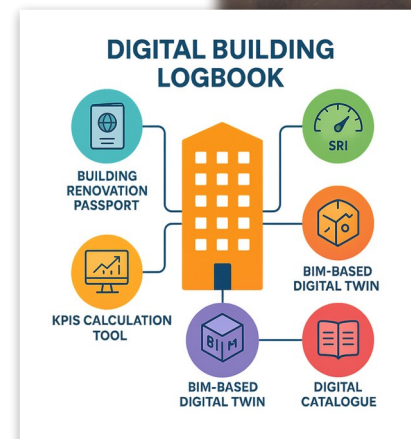
Project's Objectives

- Implement a **people-centric social engagement strategy** (Social Task Force).
- Upgrading **8 renovation packages (RPs) from TRL4/5 to TRL6** integrating bio-sourced/reused/recycled materials, multi-functional designs and onsite RES valorisation.
- Application of a **BIM-based workflow and deploy an Integrated Project Delivery (IPD) methodology** during the renovation activities including design, construction and building operation phases.
- Deployment of **4 buildings renovations** in **Kimmeria (GR)**, **Budapest (HU)**, **Saint-Dié-des-Vosges (FR)** and **Margherita di Savoia (IT)**, including detailed design, pilot set-up, demonstration and evaluation **to validate in operational conditions (TRL7) the 8 renovation packages**.
- Definition and demonstration of several **renovation business cases**, and **novel business models**. Definition of a clear and robust **pathway to the market** per RP.
- Boost **market uptake, scalability and replicability** of REHOUSE RPs towards TRL9. **Standardization** of the RP through a set of guidelines.
- Deployment of **dissemination and communication** channels and synergies with other relevant projects and EU level initiatives.



REHOUSE contributes to circularity and digital tools

- **Circular Design and Reuse:** REHOUSE integrates circularity principles throughout the project, with a strong focus on the reuse and recycling of components at end-of-life, ensuring that renovation solutions are sustainable and minimize waste.
- **Prefabricated, Modular Components:** The project uses multifunctional prefabricated components and bio-based façade systems, which not only reduce on-site construction time but also support circularity by enabling easier disassembly and reuse of building elements.
- **Digital Tools:** Digital tools such as Building Renovation Passports, Smart Readiness Indicator and Digital Building Logbook are used to track materials and components, streamlining project planning and facilitating the reuse and recycling of building materials across Europe.



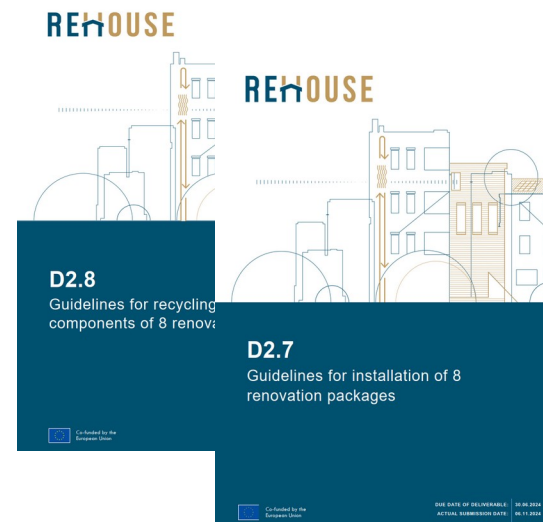
REHOUSE contributes to **social inclusion and resilience**

- **People-Centred Renovation:** REHOUSE places people at the centre of its activities, ensuring that renovations are minimally disruptive, economically viable, and enhance occupants' indoor comfort and wellbeing.
- **Social Innovation Activities:** The project has established Social Task Forces and user-centred planning methods to foster civic participation and local engagement at demonstration sites.
- **Industrialised, Modular Renovation Packages:** The use of multi-functional prefabricated components and digital modelling increases the resilience of renovation processes by reducing on-site construction time by up to 50% and enabling rapid adaptation to different building types.



REHOUSE contributes to **policy alignment**

- **Alignment with EU Strategies:** REHOUSE directly supports the European Commission's '**Renovation Wave for Europe**' strategy, aiming to double renovation rates and prioritize deep energy renovations in line with the EU's climate neutrality and sustainability goals.
- **Standardization and Market Replication:** The project is advancing market replication through business models and standardization strategies, fostering the adoption of EU-wide construction standards.
- **Policy Recommendations:** In its final phase, REHOUSE will provide concrete policy recommendations and implementation guidelines to support the EU Green Deal, aiming to inform decision-making at citizen, professional, research, and political levels.



► **Project Pitch SUPERSHINE**

SUPERSHINE

Prof. Paola Zerilli
Economics Department, University of York



Project Details

Project
Duration

42 Months (September 2021 – March 2025)

Partners

Belgium, Denmark, Ireland, Italy, Latvia, Portugal, Serbia, Spain, Turkey & UK.

Lighthouses

- Denmark - Herning
- Italy - Trieste
- Latvia - Riga

Objective

Create replicable models of smart districts, based on energy efficiency, affordability, and sustainability and ensure adequate and well-targeted funding

<https://super-i-supershine.eu/supershine/about/>



ENERGY EFFICIENCY
in Industrial Processes



ICONS



SPACETIME LLC





EE renovations:

- **Walls:** external plaster and thermal insulation
- Double glazed **windows** with aluminium frames
- Green **roof**, thermal insulation and internal plaster of the **roof**
- **Floor** tiles, concrete screed, thermoacoustic panel, thermal isolation panel and internal plaster



EE renovations:

- Wall cavity insulation
- Triple glazed **windows**
- Insulation of **roof** (400 mm rockwool granulate)
- Insulation of division between **floors** towards cellar

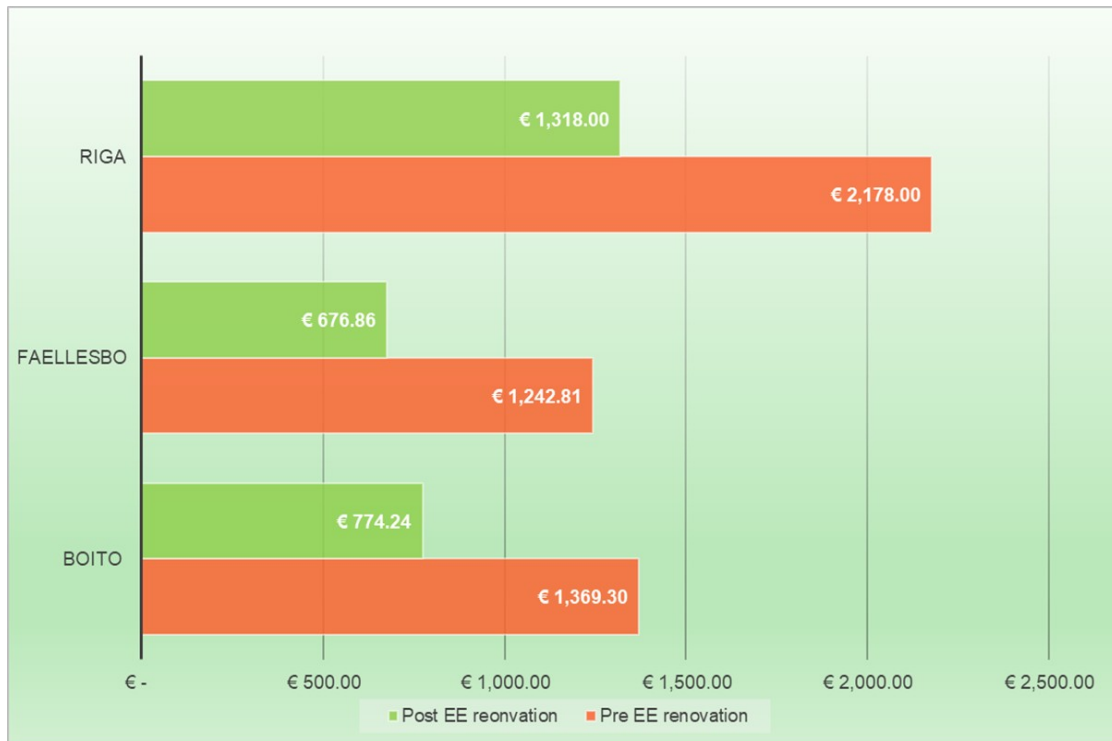


EE renovations:

- Insulation of external **walls**
- Double glazed **windows**
- Insulation of cellar's **roof**.
- Insulation of attic **floor** and insulation of **foundations**



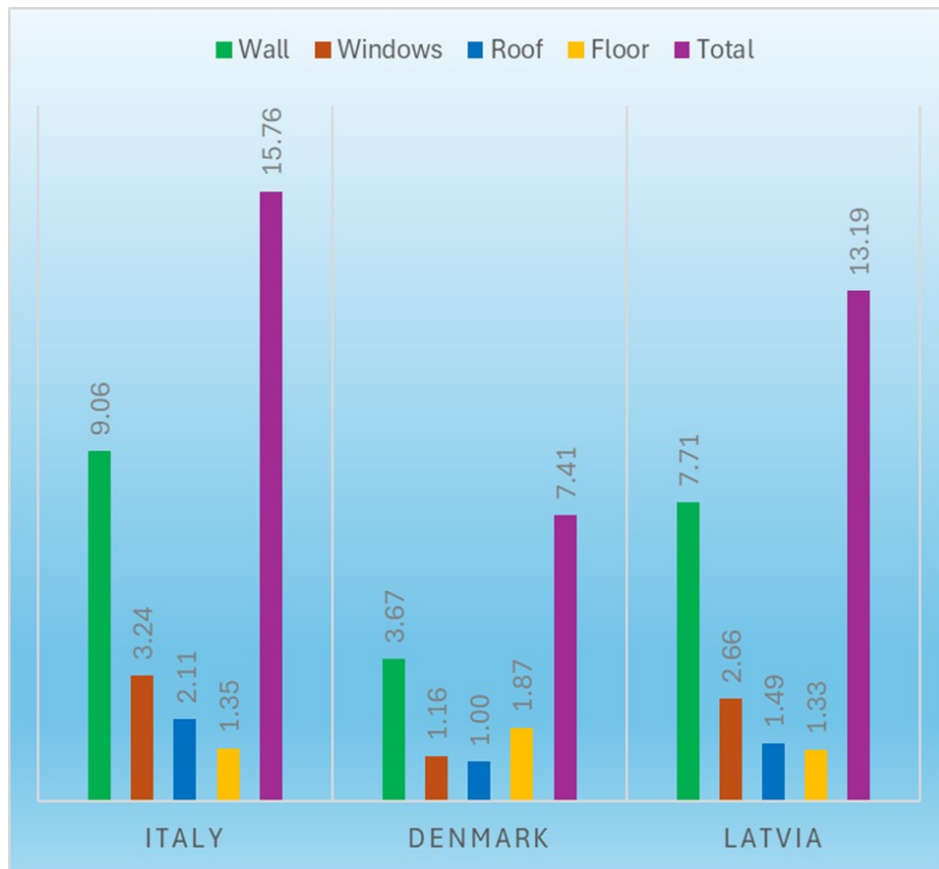
SUPERSHINE – Annual energy consumption per dwelling



SUPERSHINE – Potential annual energy savings per dwelling



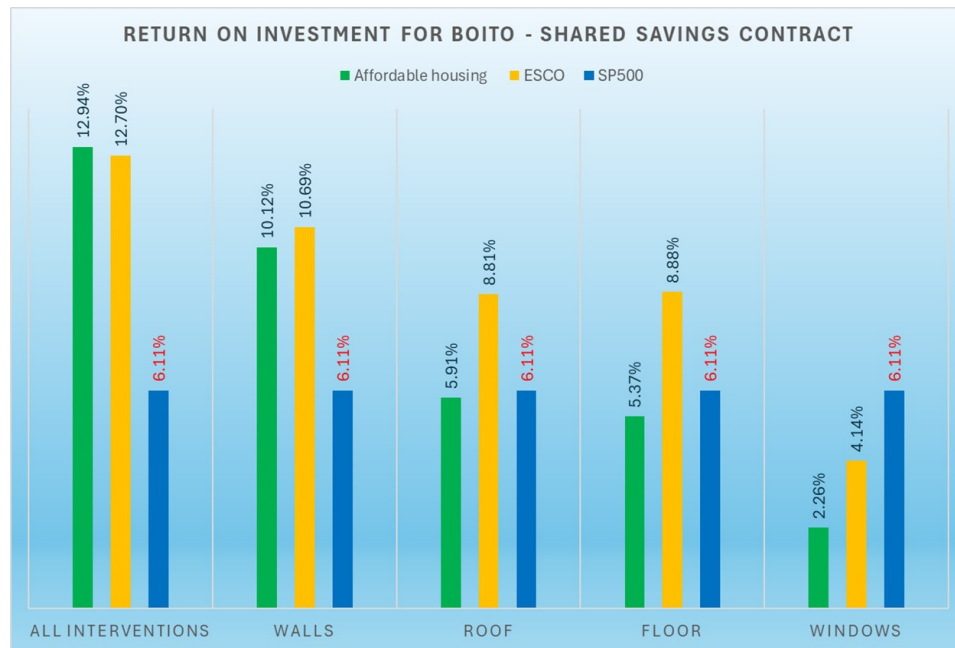
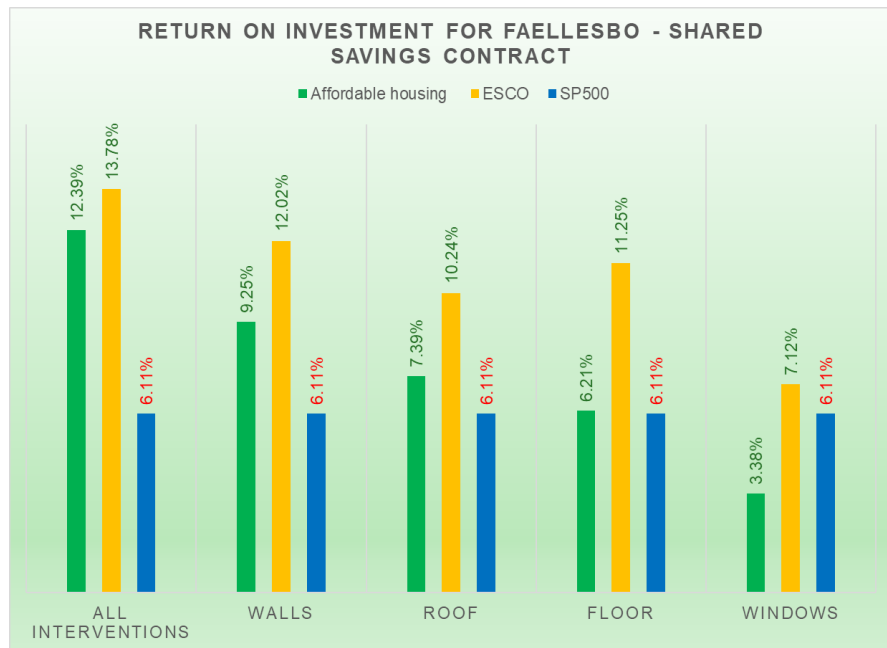
SUPERSHINE – Annual CO2 emissions per dwelling in tonnes

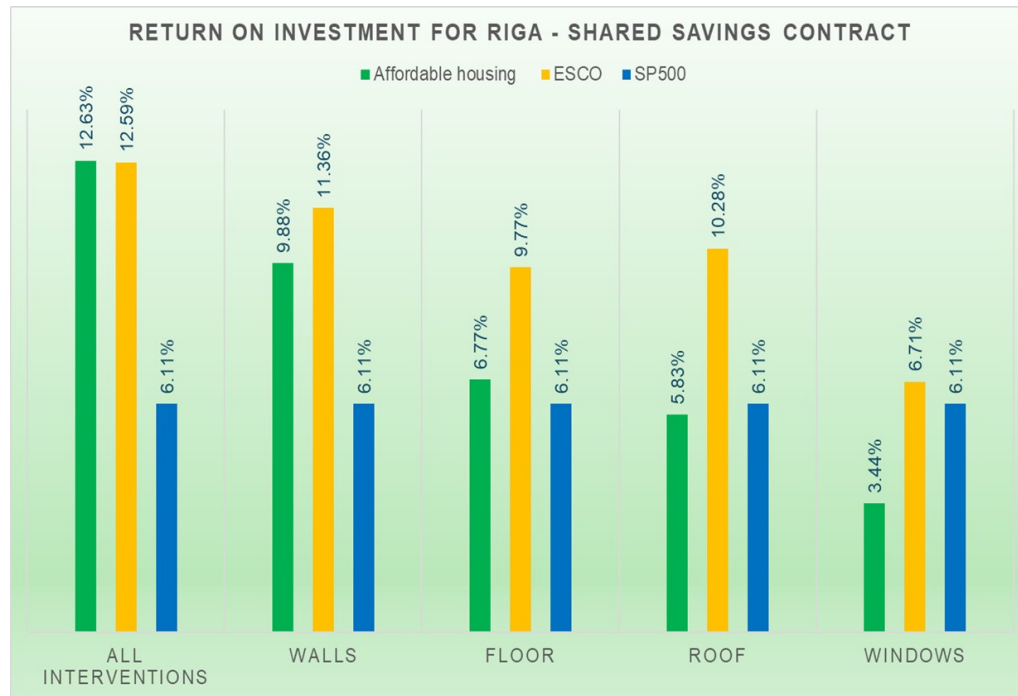


SUPERSHINE - Resilience

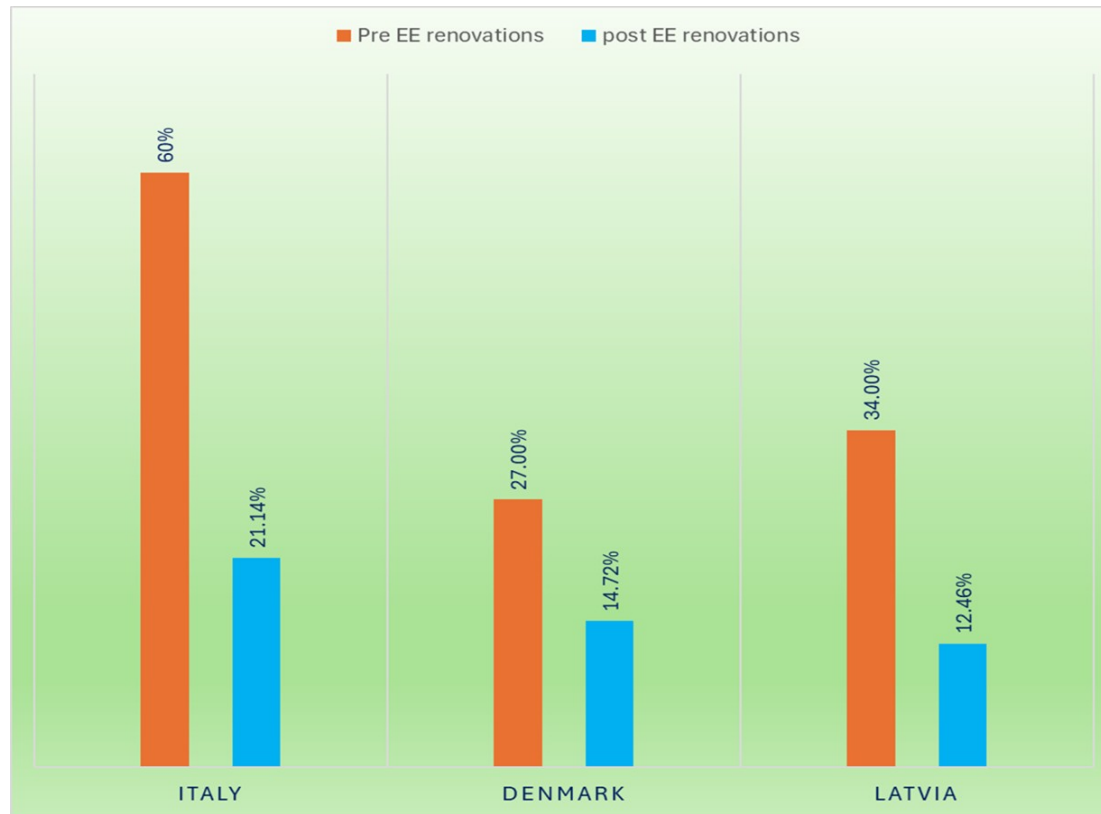
- **Blended Financing and Grants:** SUPERSHINE combines EU, national, and regional grants with private capital. By covering 50–66% of costs through public funds, projects lower the financial burden on housing associations and tenants.
- **Risk-Sharing Contracts (PPP Models):** Public-Private Partnership (PPP) contracts such as shared savings, guaranteed savings, and energy supply contracts allocate risks between housing associations, ESCOs, investors, and tenants.
- **Stable Returns and Payback Security:** Financial analysis shows that bundled renovation packages deliver **11–13% ROI** with a payback of 10–12 years.
- **Shared savings PPP contract** was observed as the most suitable contract for Italy, Denmark and Latvia



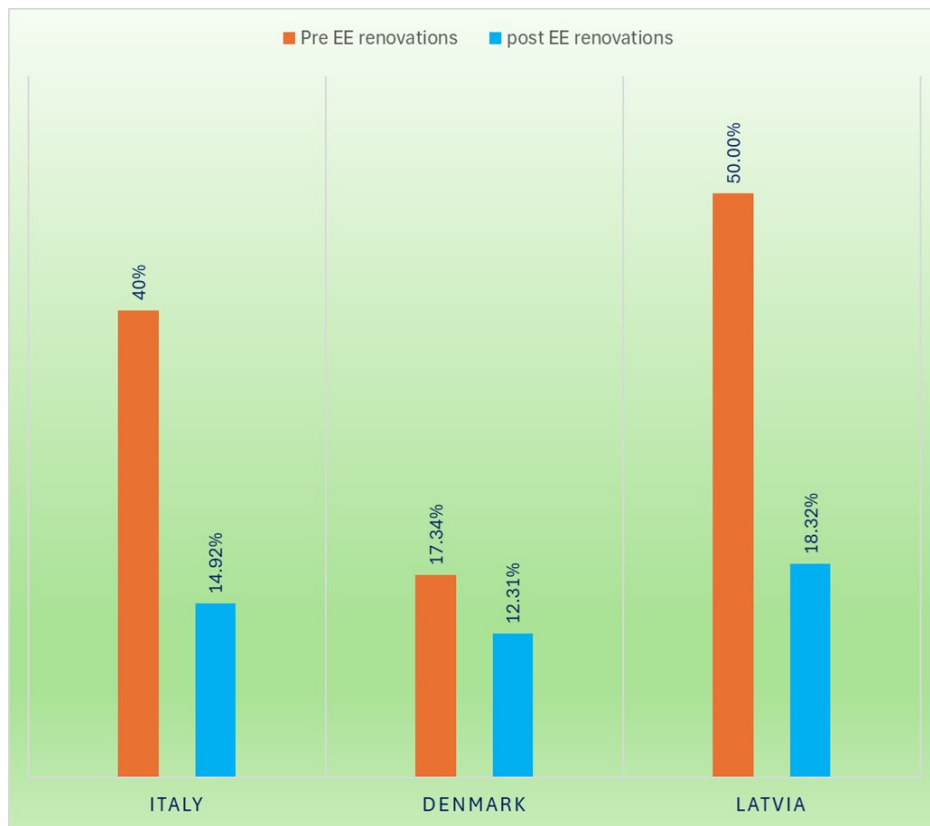




Project Pitch SUPERSHINE **SUPERSHINE** Percentage of residents unable to keep their houses cool or warm during summer and winter

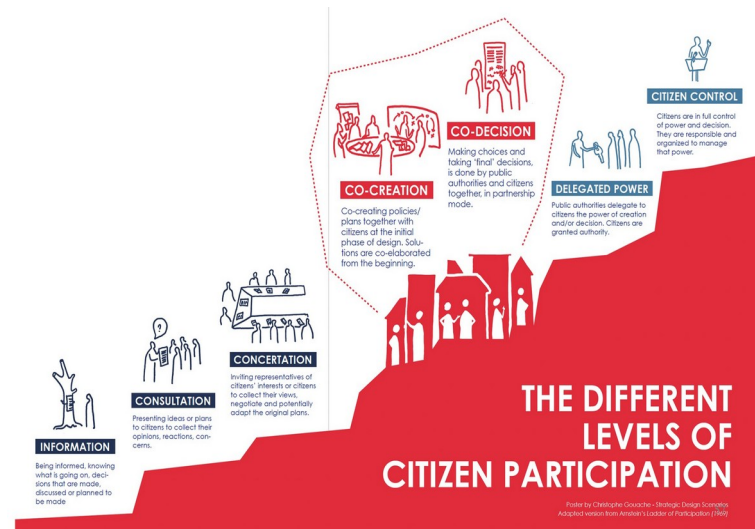


SUPERSHINE – Energy poverty: Energy Expenditure as a percentage of income



SUPERSHINE – Social inclusion

- **Active Resident Participation and Co-Design:** SUPERSHINE puts residents at the center of the renovation process. Through workshops, consultations, and advisory groups, tenants can help design building improvements, green areas, and community services. This ensures solutions match local needs and builds trust in the project.
- **Support for Vulnerable Groups:** The project addresses energy poverty and affordability challenges in social housing districts (Riga, Herning, Trieste). By reducing bills and providing financial tools, it directly supports low-income households, elderly residents, and single-parent families, making energy-efficient living accessible to everyone.
- **Inclusive Decision-Making Structures:** In Denmark, tenant democracy gives residents direct power to approve renovation plans. In Italy and Latvia, participatory planning ensures residents, local authorities and NGOs are all involved. This inclusive governance model empowers citizens and increases long-term acceptance.
- **Community Building and Togetherness:** Engagement activities such as neighborhood events, workshops, and community days strengthen social bonds. By promoting shared use of green areas, community gardens, and new common spaces, SUPERSHINE fosters a stronger sense of belonging and pride in the neighborhood



Interactive Panel Discussion

Let's Talk Renovation

Circular, Digital, Inclusive – Together

Please raise your hand, to get involved in the discussion.



Questions

- The IAQS presentation highlights two projects that focus on indoor air quality and its impact on health, productivity, and overall well-being.
 - Do you believe that indoor air quality should be considered an integral part of the EU's renovation ambitions?
 - In your opinion, how should indoor air quality be addressed in future renovation plans or legislation?

Question from Multicare: What challenges are you facing during the encouragement activities toward residents on the intervention/renovation of their building. Is only money a main thing?

Let's Talk Renovation

Circular, Digital, Inclusive – Together

Wrap-Up & Next Step

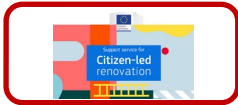
Wrap-Up & Next Step



Thank you!

Scaling Impact

Pathways for Sustainable Building Renovation in Europe



Connect with us

