



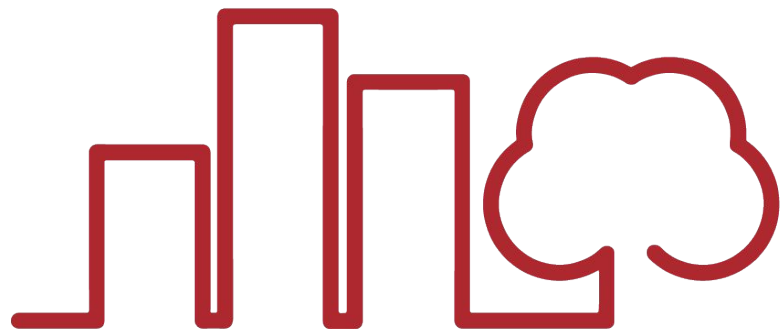
ICONS

INNOVATION STRATEGIES

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From demonstration to deployment

Bridging the gap to market uptake



SUSTAINABLE
PLACES **2025**

MODERATOR



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InEExS



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Supershine

AGENDA

1. Opening: why replication fails
2. Part A: Replication as a system-level challenge
3. Part B: Lightning talks from projects - what it looks like in practice
4. Outcomes and key takeaways
5. Conclusion

What do we mean by replication?

Replication is the process of **successfully applying or adapting the strategies, technologies, and results of a pilot or demonstration project to new contexts** –such as other cities, regions, or industries– to maximize impact and promote widespread adoption.

1. WHY REPLICATION FAILS

(even when the innovation works)

Why replication fails

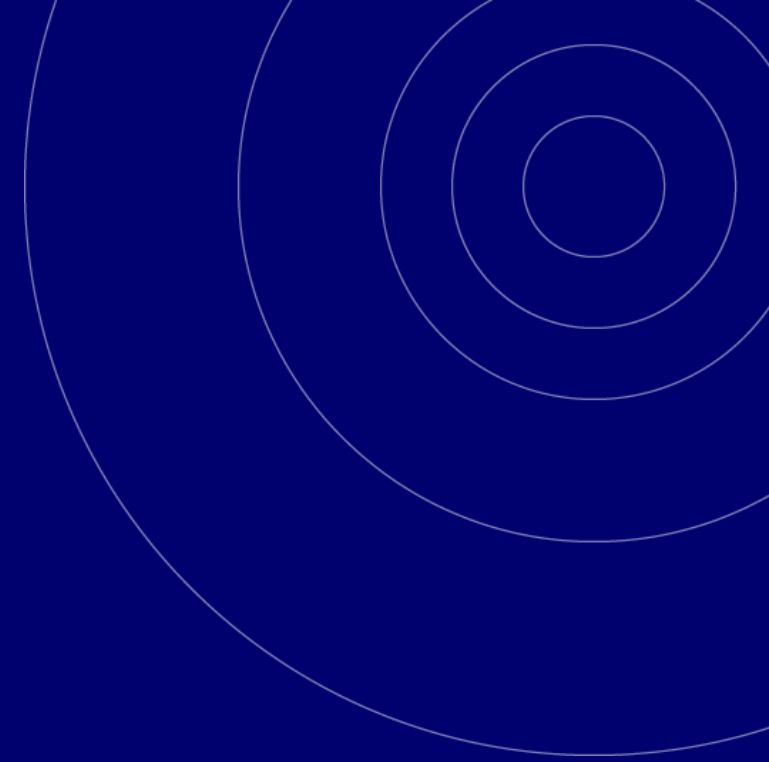
Many projects deliver working pilots. Few achieve widespread uptake. **Why?**

- Replication plans are often retrofitted at the end rather than embedded from the start
- Success is defined as “implementation,” not long-term uptake
- Technical readiness ≠ ecosystem readiness
- Assumptions that others will “just adopt” once results are public
- Too little attention to regulation, funding, timing, capacity, local politics

Result: promising solutions remain stuck in “pilot mode” □ replication gap

2. REPLICATION

AS A SYSTEM-LEVEL CHALLENGE



A SYSTEMIC VIEW

Readiness and coordination across layers. Every layer has a role, and misalignment can block the whole replication process

- MACRO: EU, national, regional policy
- MESO: cities, local governance, funding instruments
- MICRO: solution providers, stakeholders, users

REPLICATION IS NOT LINEAR

It's not about copy-pasting a solution from one place to another. It requires adapting and aligning:

- Local governance and policies
- Capacity of public and private actors
- Socio-economic context and community acceptance
- Timing within funding cycles and political agendas
- Business models, regulations, and infrastructure

In a nutshell: replication is **transformation** , not repetition

MYTHS THAT UNDERMINE REPLICATION

Myths ignore the complexity of real-world adoption

- “If it worked in the demo, others will pick it up.”
- “If we make the results public, someone will reuse them.”
- “Let’s save replication planning for the final year of the project.”
- “Replication = communication + toolkit.”

WHAT ACTUALLY ENABLES REPLICATION

From our cross-project experience, key enablers emerge:

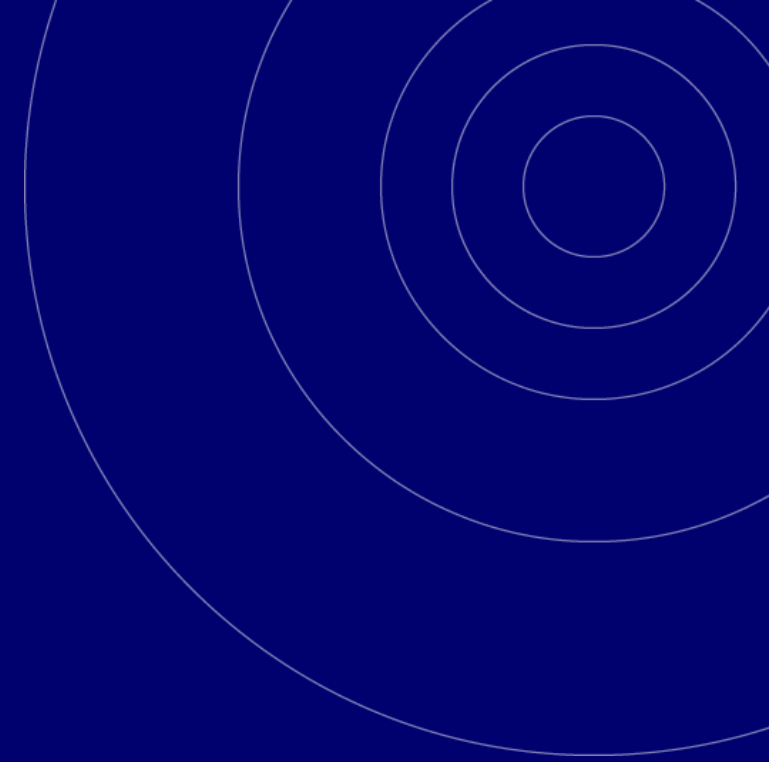
- Early planning (from proposal phase!)
- Clear replicator profile and value proposition
- Flexible delivery models (technical, financial, legal)
- Local adaptation with stakeholder co-creation and co-ownership
- Policy and funding alignment

A FRAMEWORK FOR REPLICATION READINESS

This flexible framework draws on ICONS' cross-project experience and can be used to stress-test replication readiness across sectors and scales

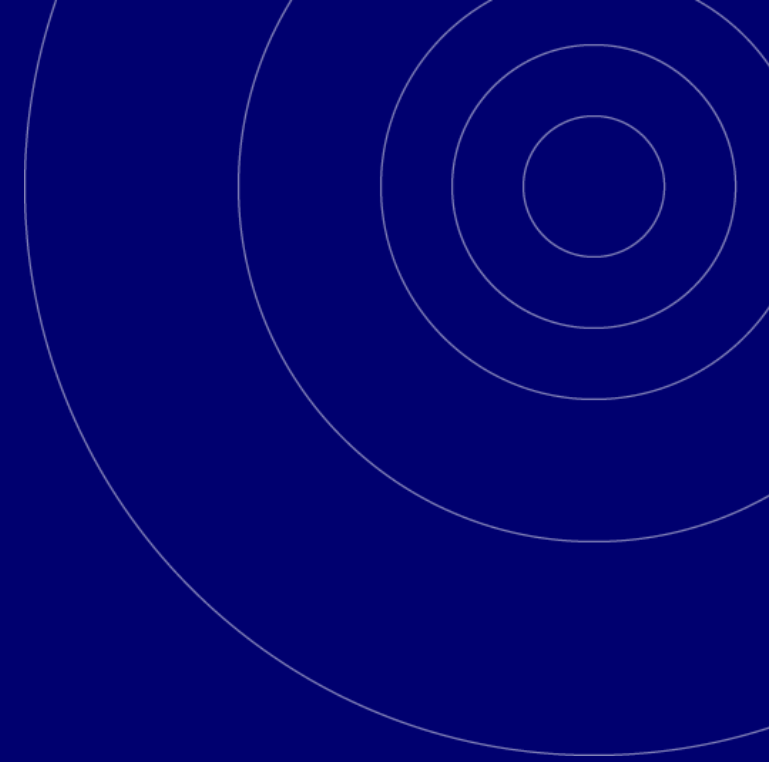
Dimension	What it means	Applied
Planning	Replication is built from day 1, not post-demo	Is replication part of your project design or just a final deliverable?
People	Identify and engage replications from the start	Who will actually replicate this? Do they have capacity?
Pathways	Offer adaptable models: technical, legal, financial	Is your solution one-size-fits-all, or modular and adaptable?
Place	Align with local context, needs, and timing	How does your solution fit into local political realities and funding cycles?
Policy	Anticipate regulation and incentives	What policy levers support or block replication at scale?

3. Project testimonials

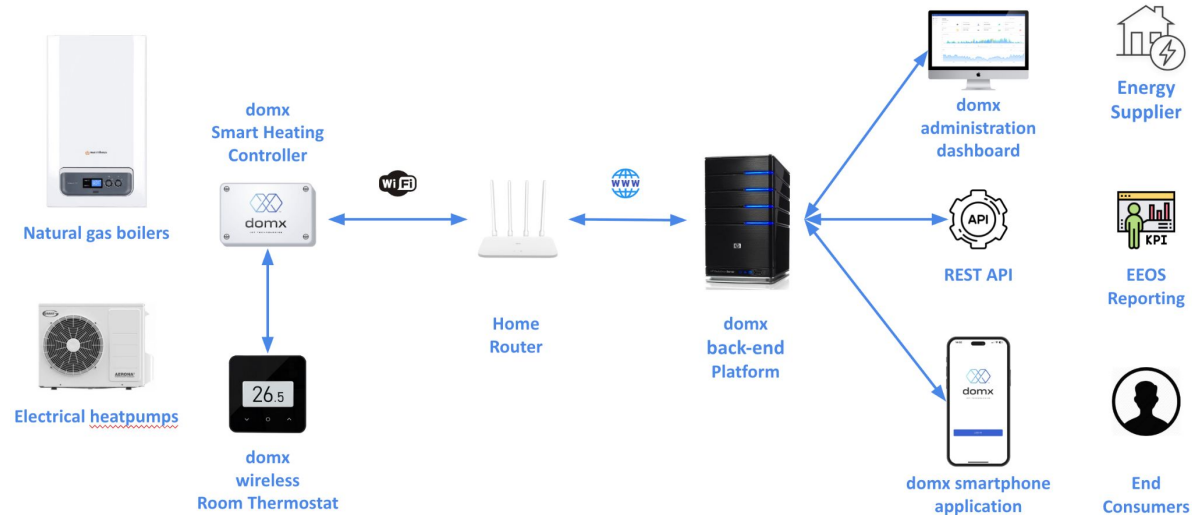


ICONS

InEExS (DomX)



Energy efficiency and flexibility services through smart heating



In 2023, The INDEX framework enables:

- End consumers equipped with natural gas boilers or electrical heatpumps to monitor their achieved energy savings and comfort based on reliable data
- EEOS obligated parties (Energy suppliers) to align with EEOS through a reliable, automated and verifiable energy efficiency reporting mechanism

The Energy Supplier (EEOS) initially finances the deployment of DOMX smart heating controllers at end consumer households, a solution that is able to achieve up to 30% of energy savings without affecting the occupants' thermal comfort.

Focused on the targeted and involved Stakeholders:

- **Obligated parties (Electricity/Natural gas suppliers, District Heating operators)**
- **End consumers (residential, commercial, public)**
- **Implementation Partners (ESCOs, Installers, Technology providers)**
- **Regulation & Verification Bodies (Ministry of Environment and Energy, CRES)**

How, what, who, when

- **2 Replication workshops with >40 key invited stakeholders**
- **3 Participations in Targeted Events (EnergiATEC, Verdetec, NWC)**
- **>10 Bilateral physical meetings with selected parties (CRES, Suppliers, Energy Communities, ESCOs, Technology Providers)**



Successful replication with 2 entities:

- **1 Energy Supplier in Greece**
- **1 Technology Provider in Spain**

Lessons learned:

- **Robust monitoring and verification mechanisms build trust and ensure that reported savings are credible**
- **Digital tools are critical for scalability, enabling data-driven verification through IoT and smart meters while reducing costs and bureaucracy**
- **Tangible incentives and effective enforcement are essential to drive uptake and maintain compliance in efficiency measures**
- **Capacity building within institutions (e.g. CRES) strengthens long-term sustainability and enforcement capacity**

Best practices:

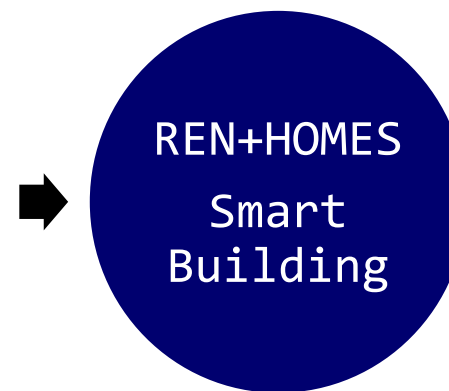
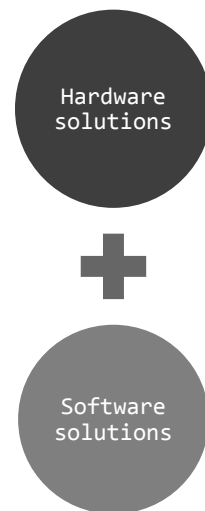
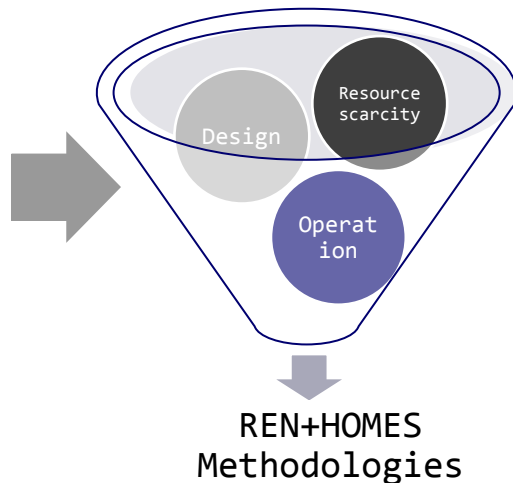
- **Standardized M&V methodologies — ensure consistency and reduce administrative burden for all stakeholders (IPMVP)**
- **Sustainable M&V platforms — automate data collection, validation and reporting**

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RenplusHomes + Sircular (RINA)

REN+HOMES

+ More Energy
- Less Emissions
**= A new method
for positive buildings**



23 Partners
From 7 European countries



42 Months
June 2023 – November 2026

REN+HOMES

WP1

*Replication
framework*

- Comparison and upgrade of 8 national methodologies for building's certification based on the Institutes present in the consortium
- Deployment of a Universal Positive Homes methodology and 6 National declinations

WP4

*Demonstration
phase*

- Insights and lessons learned from the demonstration campaign will be gathered to replicate PEHs
- design and implementation of replication models for the other building's campuses (Estonia and Romania)

WP5

*Replication
and upscaling*

- Development of a market-oriented replication roadmap detailing short, medium, and long-term actions for upscaling RENplusHOMES technologies and CPEH methodologies
- Stakeholder & Policy dialogue to facilitate replication & capacity building
- Analysis of funding mechanisms (e.g. ESCO models, energy communities, green loans, EU/national incentives) that can support large-scale adoption

REN+HOMES

Enablers:

- Strong cross-country demonstration base to validate transferability.
- Co-design and stakeholder engagement ensure social acceptance and contextual fit.
- Digital platforms support data-driven replication scenarios.
- Innovative business models foster financial viability and community participation.

Challenges and lessons learned:



Regulatory framework



Limited knowledges



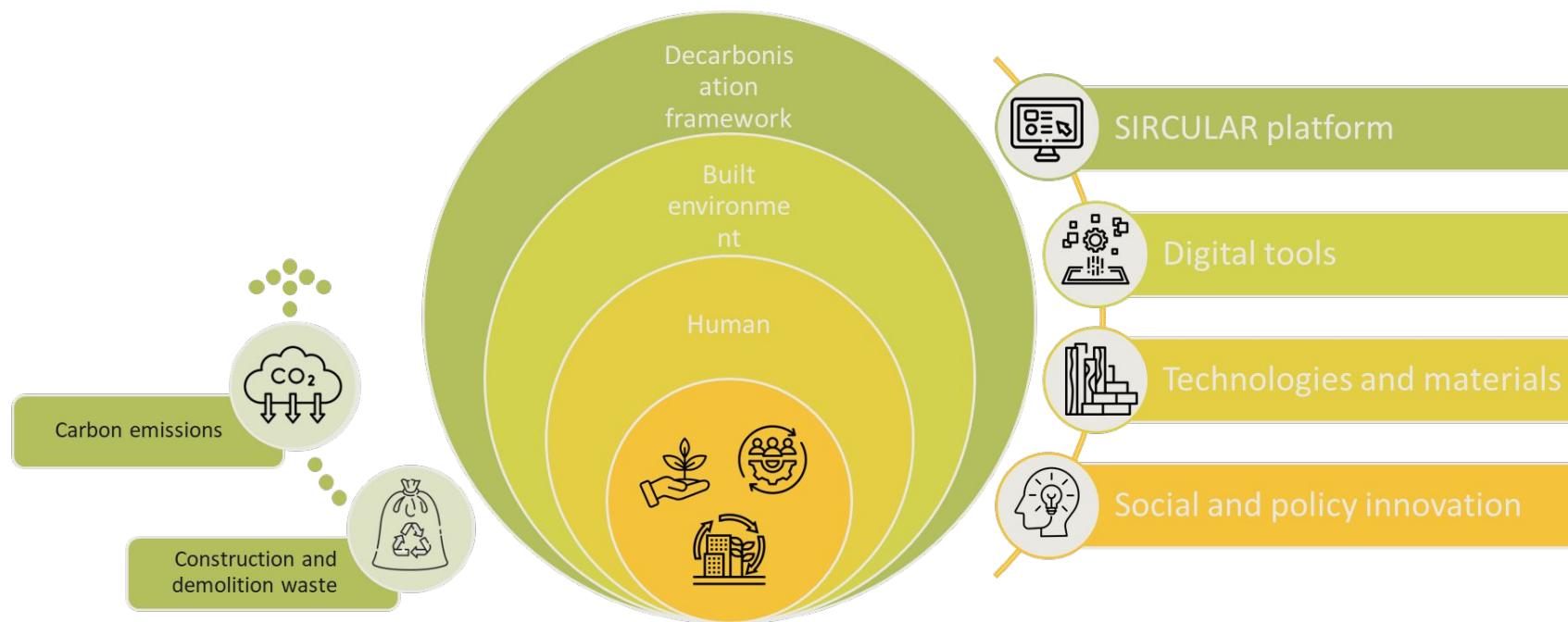
Financial incentives



User acceptance and engagement



SIRCULAR



22 Partners

From 6 European countries



42 Months

June 2024 – November 2027



SIRCULAR

Approach:

- Based on a *Living Lab methodology*: co-creation, testing, and validation with stakeholders.
- Supported by *Regulatory Sandboxes* to adapt and test policies and standards.
- Driven by *evidence from demonstration* and digital tools. Workshops with replication group of cities.

Actors Involved:

- Demo owners → provide real-life validation data.
- Local authorities & policy makers → regulatory and urban planning alignment.
- Industry & SMEs → technology adopters and suppliers.
- Citizens & end-users → ensure social acceptance and inclusiveness.
- Research & academia → monitor sustainability, impact, and upscaling potential.

Timeline:

- 2025–2026: Replication planning, stakeholder engagement, and scenario definition.
- 2026–2027: Testing, adaptation, and validation through Living Labs.
- 2027–2028: Roadmap to TRL9 and market uptake.

Outputs:

- Replication Roadmaps for different contexts.
- Policy recommendations and business models for scaling.
- Framework for digital-based replication (using the SIRCULAR Platform).



SIRCULAR

Early Insights:

- Replication starts early → requirements for scalability must be embedded already in demo design.
- Data interoperability and digital tools (like the SIRCULAR Platform) are key to ensure comparability and transferability between pilots.
- Stakeholder alignment across local, regional, and EU levels is critical — co-creation prevents future barriers.

Lessons from Similar EU Projects:

- Context matters: successful replication depends on adapting to local policy, market, and cultural conditions.
- Multi-criteria decision tools help balance environmental, economic, and social factors.
- Early engagement of investors supports smoother market uptake.

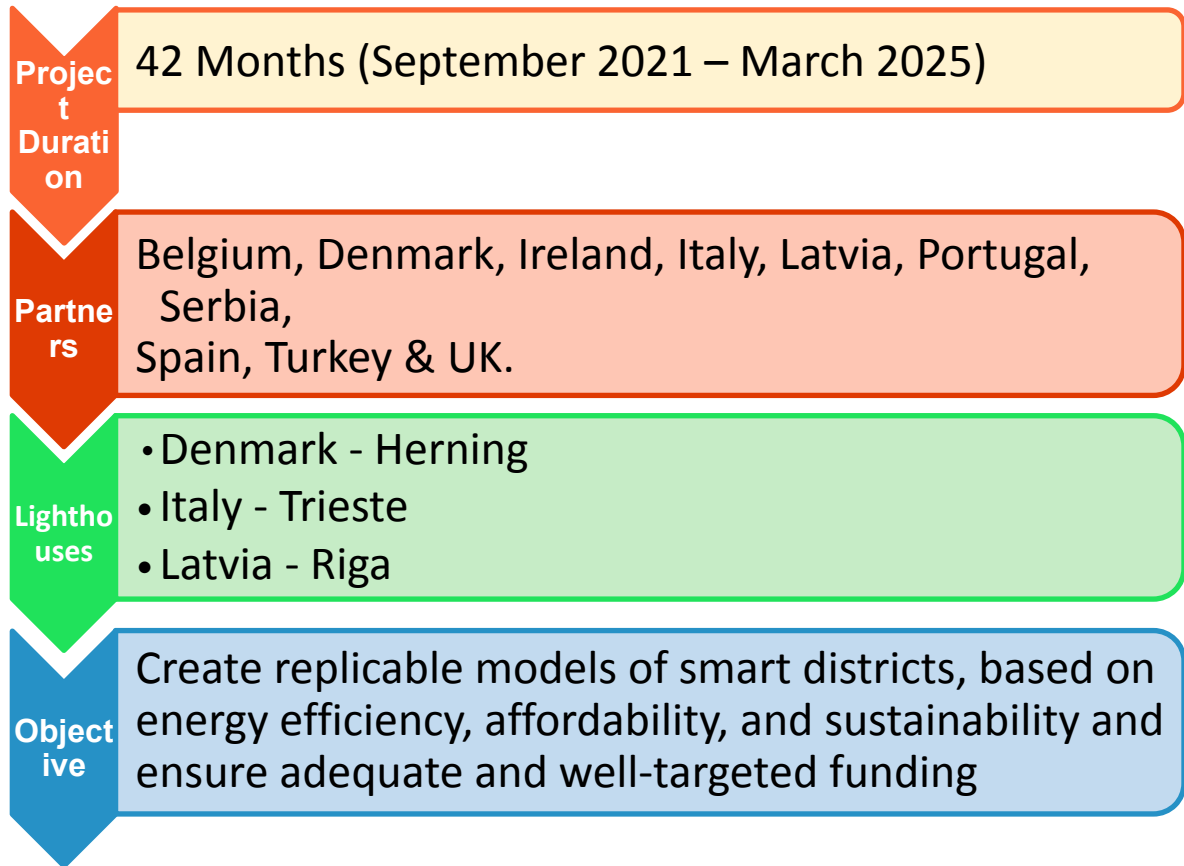
Expected Impact:

- Scalable models for circular and decarbonised renovation.
- Increased investor confidence through de-risking strategies.
- Policy support for circular building practices across Europe.

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Supershine (University of York)

Project overview



Fellow cities in SUPERSHINE

- **Zaragoza (Spain) – ACTUR District / Zaragoza Vivienda**
- **Setúbal (Portugal) – Social Housing Areas managed by ENA & Municipality of Setúbal**
- **Belgrade (Serbia) – Block 29, New Belgrade / City of Belgrade**
- **Kadıköy – Istanbul (Turkey) – Managed by Kadıköy Municipality**
- **Ireland**

SUPERSHINE Lighthouses



SUPERSHINE



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

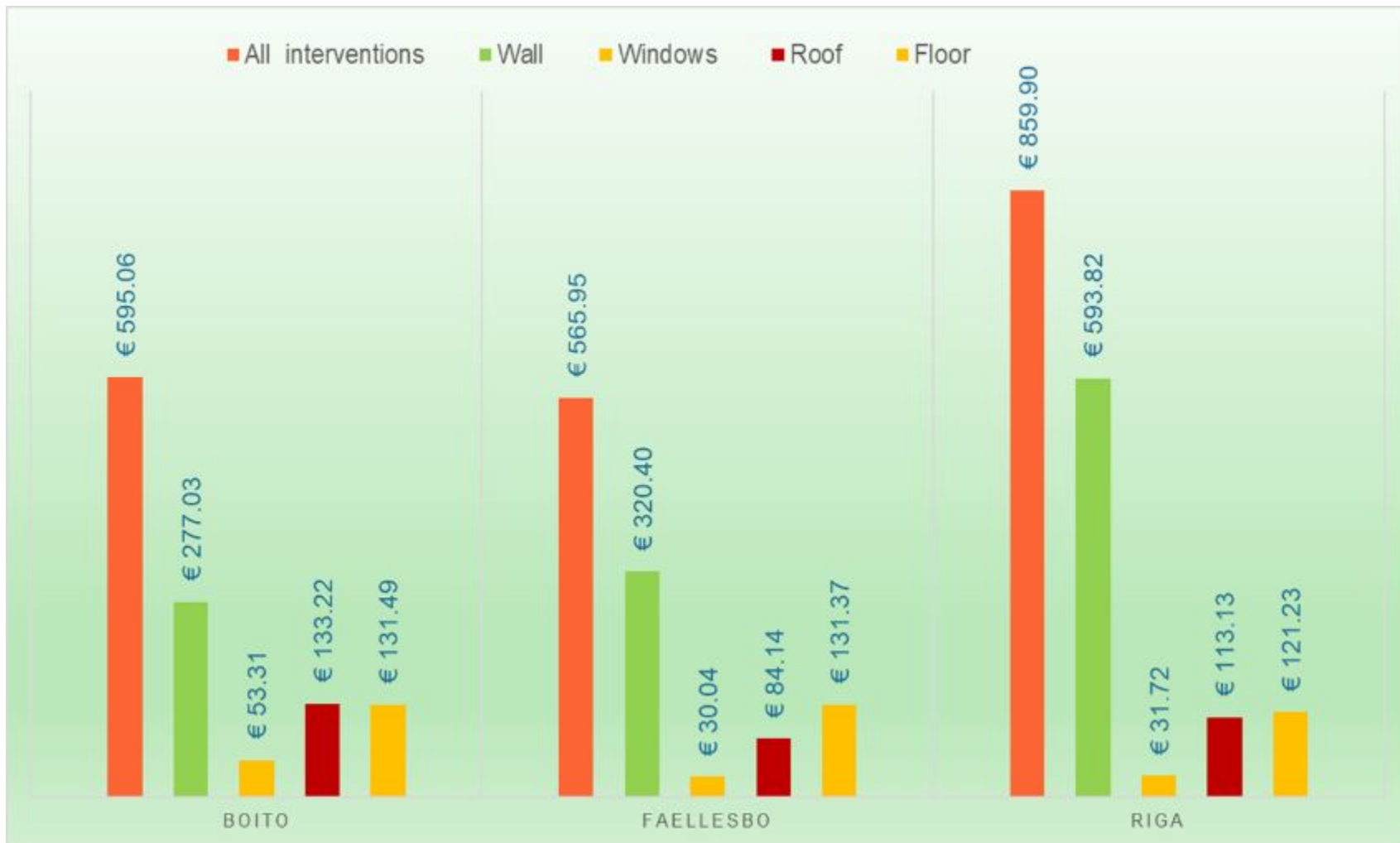


EE renovations:

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

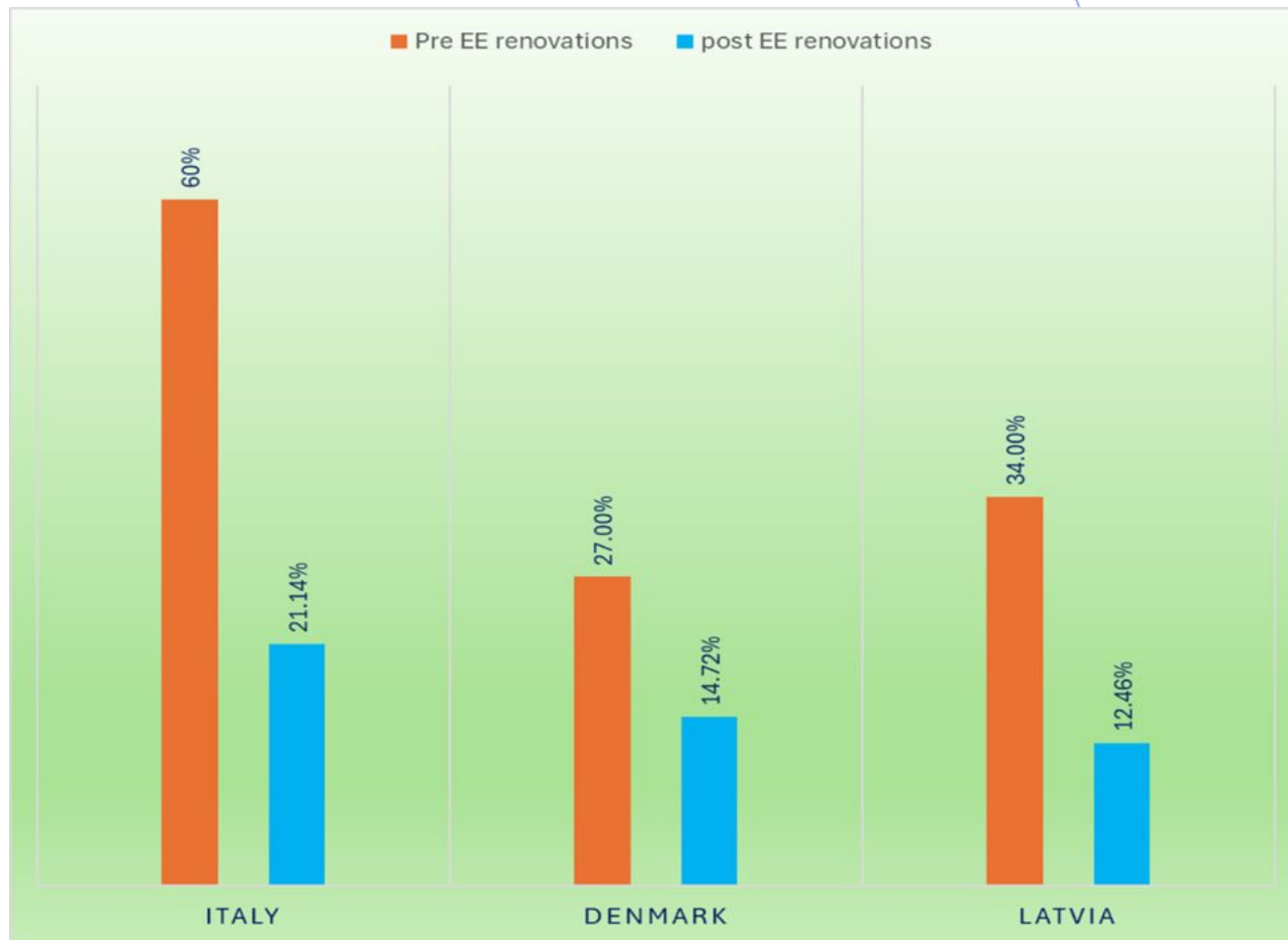


Potential energy savings



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Percentage of residents unable to keep their houses cool or warm during summer and winter



Replication strategy



Replication strategy	How	Who	Barriers	Enablers
Transfer the successful solutions from Lighthouse districts to Fellow cities using adaptable SUPERSHINE Blueprints .	1- Bottom-up replication: Tailor each blueprint to local needs, barriers and policy contexts. 2- One-Stop Shop: Combine financial, LCA, SLCA tools and business models. 3- use real data from fellow cities to test energy saving, ROI and social acceptance before implementation	•Zaragoza Vivienda (Spain) •ENA & Municipality of Setúbal (Portugal) •City of Belgrade (Serbia) •Kadıköy Municipality (Turkey) •Ireland	1- Limited local financing capacity and regulatory barriers. 2- Low technical capacity and data gaps in some cities. 3- Low social acceptance and resident engagement.	•Availability of EU and national funding instruments •Strong municipal leadership and social housing agency involvement •Growing policy alignment with the European Green Deal

Lessons learnt



SUPER SHINE

Shared saving contract is the most suitable PPP contract for the lighthouse cities followed by guaranteed savings contract

Energy saving account adoption would provide guarantees and security to the social housing ESCOs and involved investors. A bank account opened by the housing association to deposit the monetary value of extra energy savings (energy savings - guaranteed savings), to offset any future declines in energy savings below the guaranteed savings.

The ESCO-supplier platform will connect its users with potential funding sources suitable for their specific EE projects and needs

The proposed SUPER SHINE EE renovation packages would lead to at least 58% in energy savings

5. DEDALUS (ENGINEERING)

Project Identity

Bringing comfort and power connection for everyday living Tagline	ENG Engineering S.p.A. Coordinator	HORIZON IA Horizon Innovation Action Funding	7.359.075,00 € Total Cost
10 Countries (Italy, Greece ,Spain, Turkey, Slovenia, Austria, Denmark, Belgium, Romania, Norway) Countries	23 Participants Consortium	Data-driven Residential Energy Carrier-agnostic Demand Response Tools and Multi-value services Title	5.999.801,25 € EU Contribution
HORIZON-CL5-2022-D4-01 Call / Grant	1st May 2023 —→ 30 Aprii 2026 36 Months Lifetime		

Main Objectives

Using **SSH** for a better **engagement** of energy consumers in the residential DR

Extend ENERSHARE **Energy Data Space Interoperability and Trust layer**

Combine eDREAM, BRIGHT, MATRYCS and DigiBUILD **building-level data-driven models, algorithms and flexible assets** DTs with end-users' consumption and beyond consumption profiling models

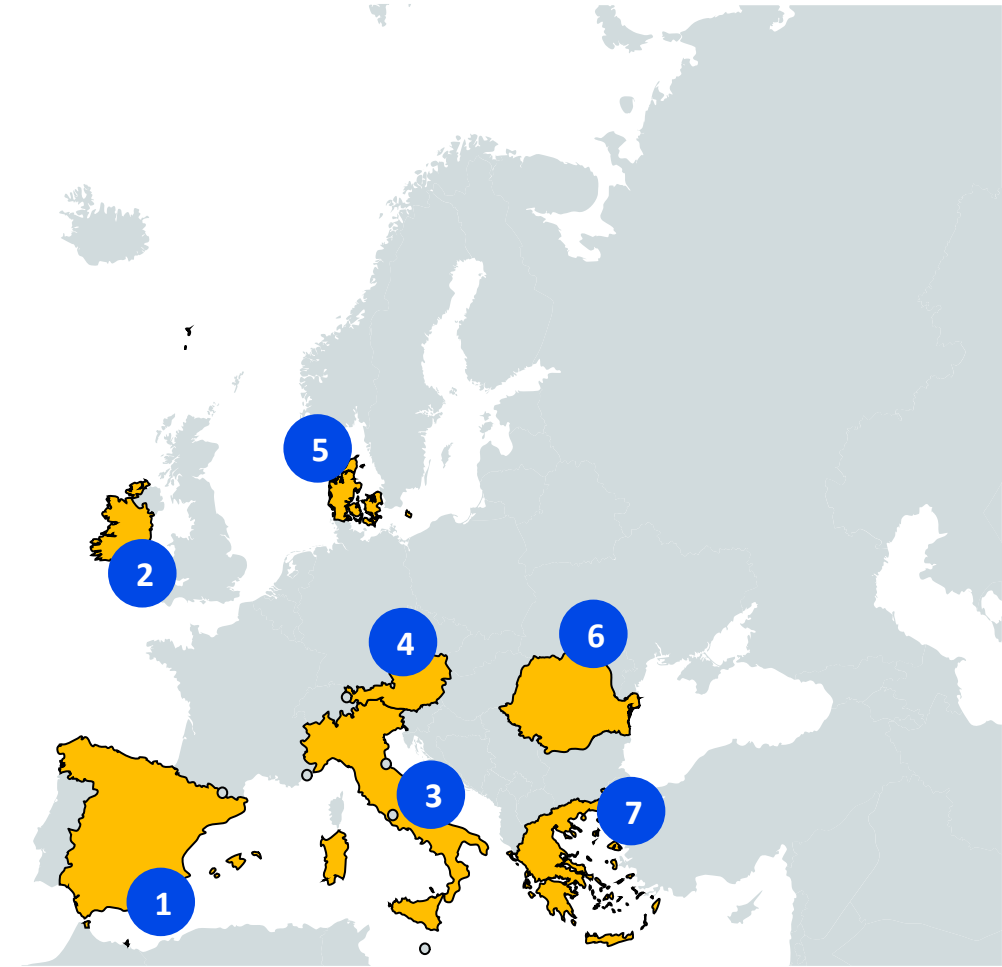
Deliver **data-driven, value stacking cross-stakeholder/cross-commodity/cross-value chain DR algorithms, models, and ICT-based services**, for DR in energy-efficient residential buildings

Develop new **business models** from sharing economy, multi-carrier system-level perspective and with social innovation and non-financial benefits capture for DR

To enable effective consumer participation and support regulatory harmonisation for residential DR, ensuring efficient communication, dissemination, and alignment with EU initiatives.

7 Real pilots across Europe

- 1 **Spain** - District-level DR for increasing community-level self-consumption while providing flexibility to local DSO
- 2 **Ireland** -Decentralised Power2heat cross-commodity optimal heat vs electricity social housing flexibility aggregation
- 3 **Italy** -Trading off comfort with energy consumption in DR programs for elderly people living in serviced apartments
- 4 **Austria** - Flexibility pre-aggregation for building-level energy community
- 5 **Denmark** - Energy efficiency and DR optimal interactions between district heating and electricity networks in social housing
- 6 **Romania** – Blockchain solutions for DR Management and flexibility aggregation
- 7 **Greece** - Multi-value DR for multi-segments of residential energy (electricity and gas) consumers



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Replication is complex: success depends on technology, society, governance, and policy alignment

Replication strategy

- Social part
- Tech part
- Business part

Scope: DEDALUS services and proposed business models to reach their full potential

Strong belief from partners in social replication — business, not so much

Demonstrations prove technical feasibility, but do not guarantee market or business sustainability

Replication limitation

Inputs from DEDALUS partners:

- User acceptance
- Property rights
- Lack of data
- No awareness
- Regulatory barriers
- Non flexible contracts
- Energy/digital literacy
- Too complex

Key aspects to replicate

Inputs from
DEDALUS partners:



Obstacles for replication

Inputs from
DEDALUS partners:



Next step: resolution

6. What poses the greatest challenges to replicate the DEDALUS project? Please consider unsuccessful outcomes and obstacles.

Access to data, lack of European flexibility standard/ market structure, not clear value proposition.

Lack of infrastructure, low level of user acceptance, lack of economic incentives, different regulation frameworks and lack of awareness

Not finding a convincing value proposition for the users. The technology and contracts are not always connected to interest/understanding/use of tenants.

Dialogue is crucial

Clear leadership, inclusive communication, and a shared vision for sustainable energy practices are essential for achieving a coordinated and impactful energy transformation.



“

**Replication needs living tools —
interactive platforms that can be
updated with new policies, standards,
and best practices as they emerge**

Replication of DEDALUS services

- DEDALUS services have been successfully developed and deployed in the respective Front Runner pilots and are currently being replicated in the Multiplier pilots.
- Differences in the levels of residents' engagement, the technical requirements, and the available data among the pilots have led to different software developments adapted on a case-by-case basis.
- Insights from the replication activities among the pilots will provide feedback for replication outside the boundaries of the DEDALUS project and promote their market uptake.

5. OUTCOMES & TAKEAWAYS

Overarching patterns across projects

- **Replication is not plug-and-play** : even strong innovations face uptake challenges due to local realities, policy fragmentation, or capacity gaps
- Replication works best when planned from the beginning
- Digital tools and data-driven approaches are key enablers
- Stakeholder engagement is a constant hurdle –especially in diverse, local contexts
- Business model flexibility and demand-side incentives can accelerate uptake
- Territorial and regulatory diversity require adaptable, modular replication pathways

TAKEAWAYS

- **Innovative financing is key**
 - Limited public budgets means an opportunity for developing new business models and PPP
 - Models like shared savings contracts, one-stop shops, and green loans help overcome investment barriers in diverse contexts
- **A call for clustering**
 - Aggregating projects and building critical mass can unlock economies of scale and policy leverage

Open question:

Do you have questions or comments? Do you wish to share a success story?



Thank you for your attention

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