



Advanced Energy Performance Assessment towards Smart Living in Building and District Level

SmartLivingEPC Project

Aggeliki Veliskaki, CERTH/ITI

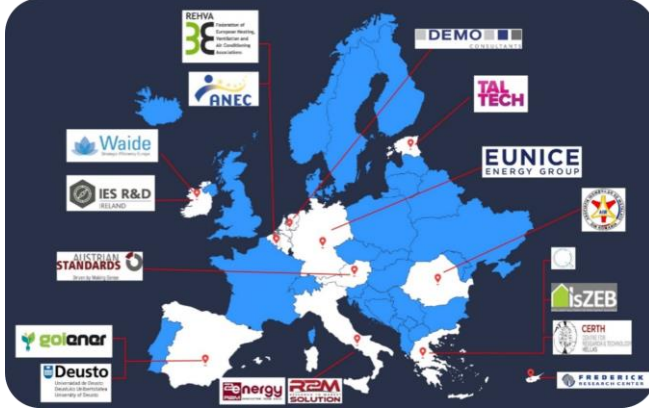
Project Coordinator:
Dr. Dimosthenis Ioannidis, CERTH/ITI

Buildings Clustering Meeting, 21-22 May, Brussels

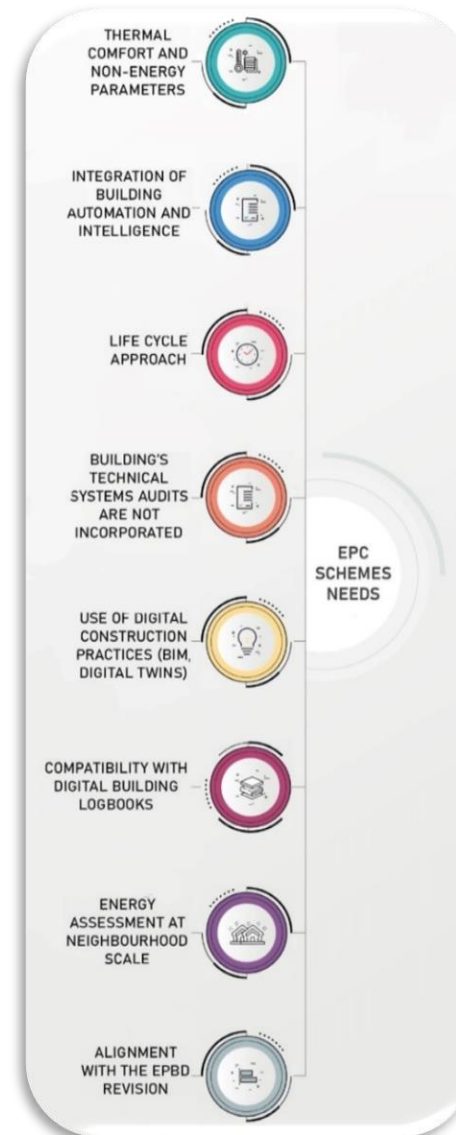


The SmartLivingEPC project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069639.

SmartLivingEPC - Project information & background

Grant Number	101069639
H2020 Call	HORIZON-CL5-2021-D4-01-01
Type of action	Advanced Energy Performance Assessment & Certification HORIZON Innovation Actions
Duration	36 months (Current month: 23)
Starting date	1 July 2022
Consortium	15 Partners and 2 affiliated entities From 12 Countries 

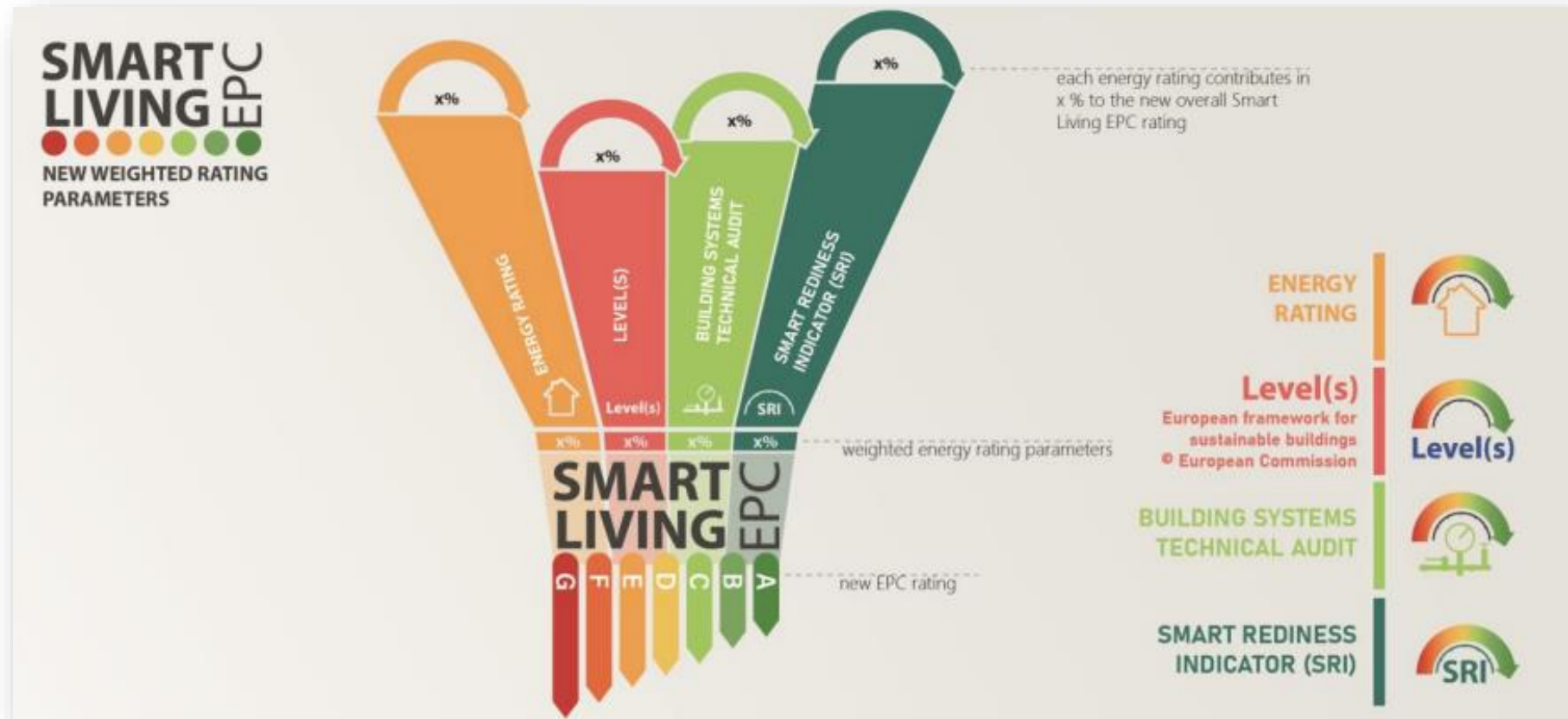
Needs and Challenges



The ambition

- Use of **digitized tools** and retrieve assessment information from **BIM literacy**
- Provide information on building operational behavior based on **life cycle performance, smartness, and technical system performance**
- Expand to cover **water consumption, noise pollution, and acoustics**, and be compatible with **digital logbooks**
- Certification on **2 Levels**:
 - building level (**Building EPC**)
 - building complex (**neighborhood scale**)

SmartLivingEPC – Approach, Impacts



Impacts

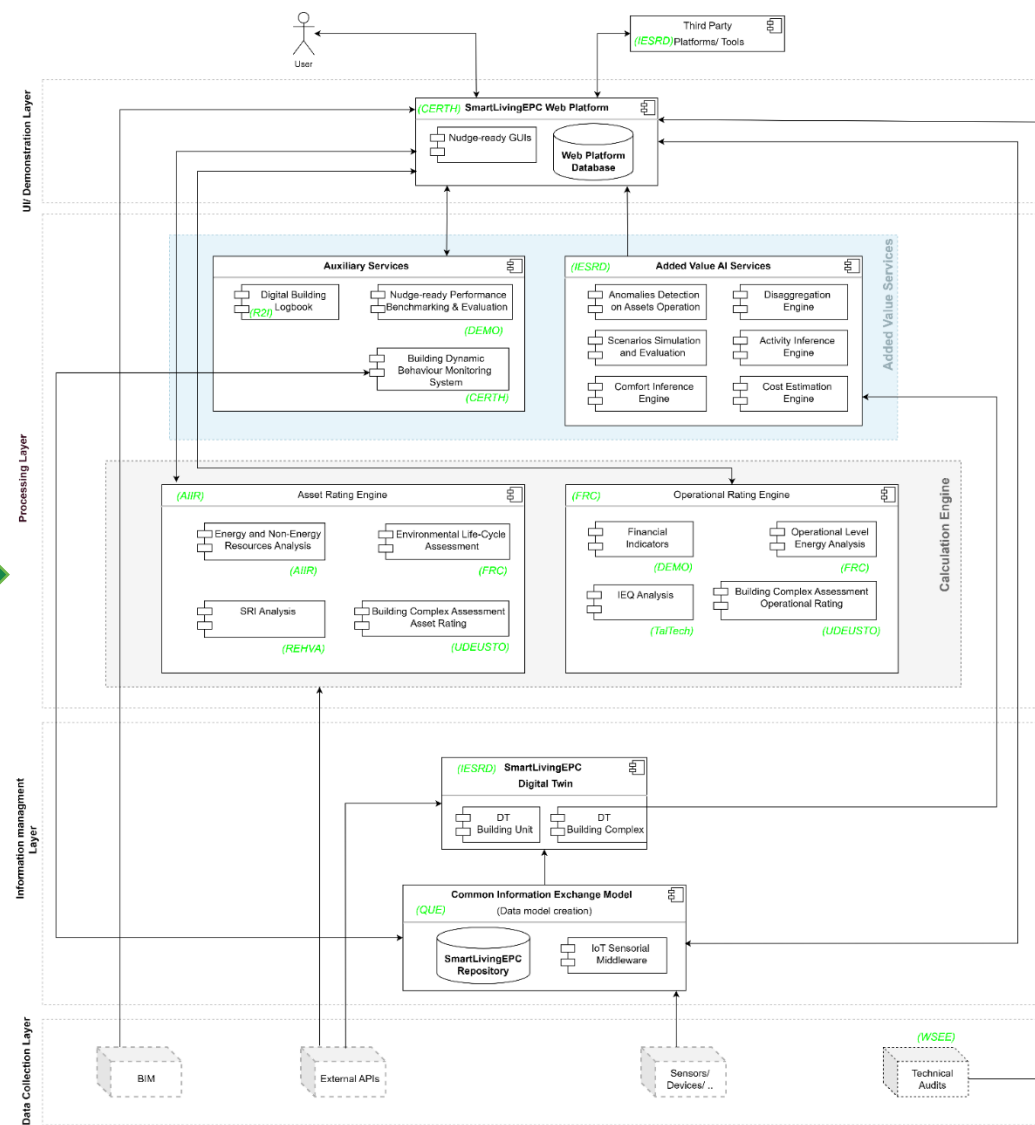
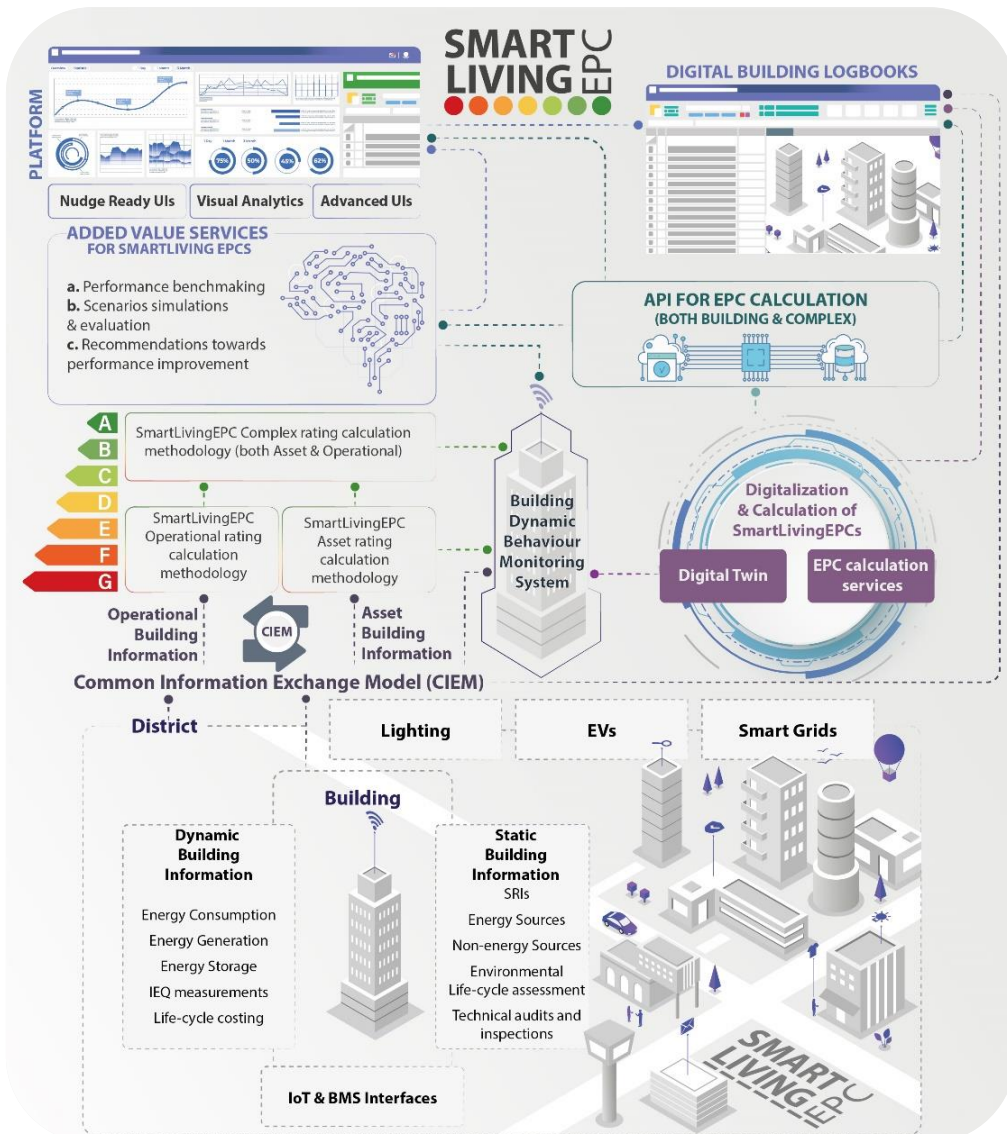
More **energy efficient** building stocks supported by an **accurate understanding** of buildings performance in Europe and of related **evolution**

Building stocks that effectively combine **energy efficiency**, **renewable** energy sources and **digital** and **smart technologies** to support the **transformation** of the energy system towards climate **neutrality**

Higher buildings' performance with lower environmental impacts through increased rates of **holistic renovations**

Higher **quality**, more **affordable** built environment preserving **climate**, **environment** and **cultural heritage** and ensuring better **living conditions**

SmartLivingEPC – Framework Architecture



SmartLivingEPC – Main achievements [A]

- 
- WP1** • **EPC rating schemes explored** in 10 EU countries, **identifying methodologies, barriers, stakeholder requirements, and market needs** for energy efficiency, culminating in defining **specifications** for the SmartLivingEPC framework alongside **business scenarios** and **technical use cases**.

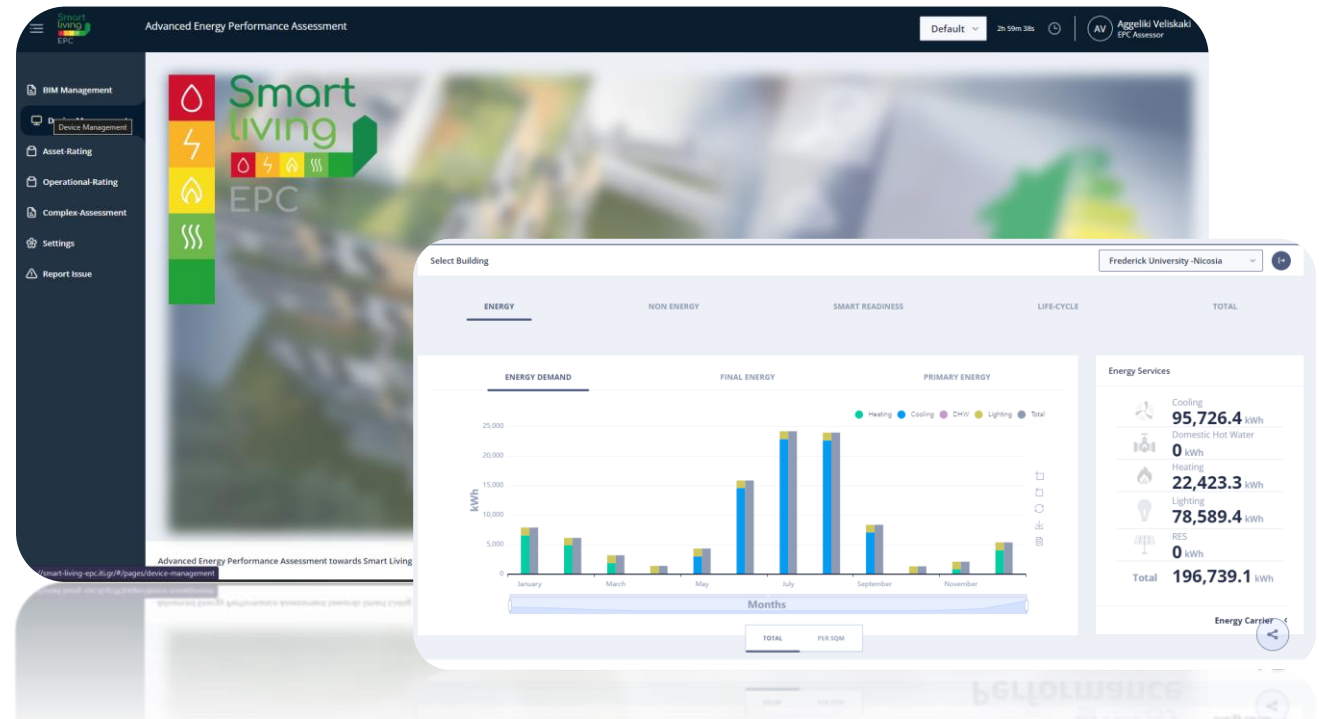
- WP2/** • **The indicators** for assessing building **asset and operational** performance **identified** and calculated.
- WP3** • Both **asset and operational rating calculation methodology developed** by combining all KPIs within a **single framework** & definition of API for calculating building indicators.

- WP4** • **Common Information Exchange Model (CIEM):** A first version of **CIEM 's Data Model & CIEM's architecture developed**
- **Building Dynamic Behaviour Monitoring: Occupancy estimation, profiling, and energy consumption forecasting models developed and tested** & An **alert system** with real time anomalies detection for building state insights **developed**
 - **SmartLiving Digital Twin (DT): DT architecture established** and BIM-based DT development explored through testing of pilot IFC files in ICL environment
 - **Digital Logbooks (DBL) for EPCs:** SmartLivingEPC **DBL concept is under development** and experiments are implemented in parallel in the SmartLiving Web Platform
 - **EPCs Calculation and APIs for 3rd Party Applications:** The **development of EPC calculations** is **on progress** and a **RETful APIs** for each individual calculation are under development

SmartLivingEPC – Main achievements [A]

- WP5**
- Definition of the functionality of **Added Values AI Tools** and **Benchmarking & Evaluation tool** and their data requirements
 - **Definition and development of the initial version of the Web Platform** (Remarkable Progress on the integration of SLE components into the Web Platform)

<https://smart-living-epc.iti.gr/#/auth/login>



- WP6**
- **Pilot preparation is completed and data collection is underway**

- WP7**
- Participation as sister project to the **Next Generation Energy Performance Certificates cluster** (Next Gen EPC cluster)
 - Contribution to the development of a [Next Gen EPC Policy Brief](#) centralizing policy recommendations for the **Energy Performance of Building Directive Recast**
 - Participation in **TC 371, Working Group 5 Energy Performance of Buildings — Operational rating Requirements for assessing Operational rating**



Advanced Energy Performance Assessment towards Smart Living in Building and District Level



The SmartLivingEPC project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101069639.

Thank you for your attention!



<https://www.smartlivingepc.eu/en/>



<https://www.linkedin.com/company/smartlivingepc/>



<https://twitter.com/SmartLivingEPC>



<https://www.youtube.com/channel/UC0SKa-20tiSabuwjtYDqRrQ>

Smart
living



EPC

Next Gen EPC cluster

Buildings Cluster Meeting

Tuesday, 21 May 2024, 13h30 CEST

Wednesday, 22 May 2024, 14h00 CEST



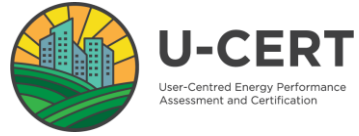
These projects have received funding from the European Union's Horizon 2020, Horizon Europe and LIFE programmes. The European Union is not liable for any use that may be made of the information contained in the documents prepared by the projects' consortia, which are merely representing the authors' view.



Next Generation Energy Performance Certificates cluster



2019



2020



2021



2022



2023



These projects have received funding from the European Union's Horizon 2020, Horizon Europe and LIFE programmes. The European Union is not liable for any use that may be made of the information contained in the documents prepared by the projects' consortia, which are merely representing the authors' view.





Smart Readiness Indicator cluster



2022

2023

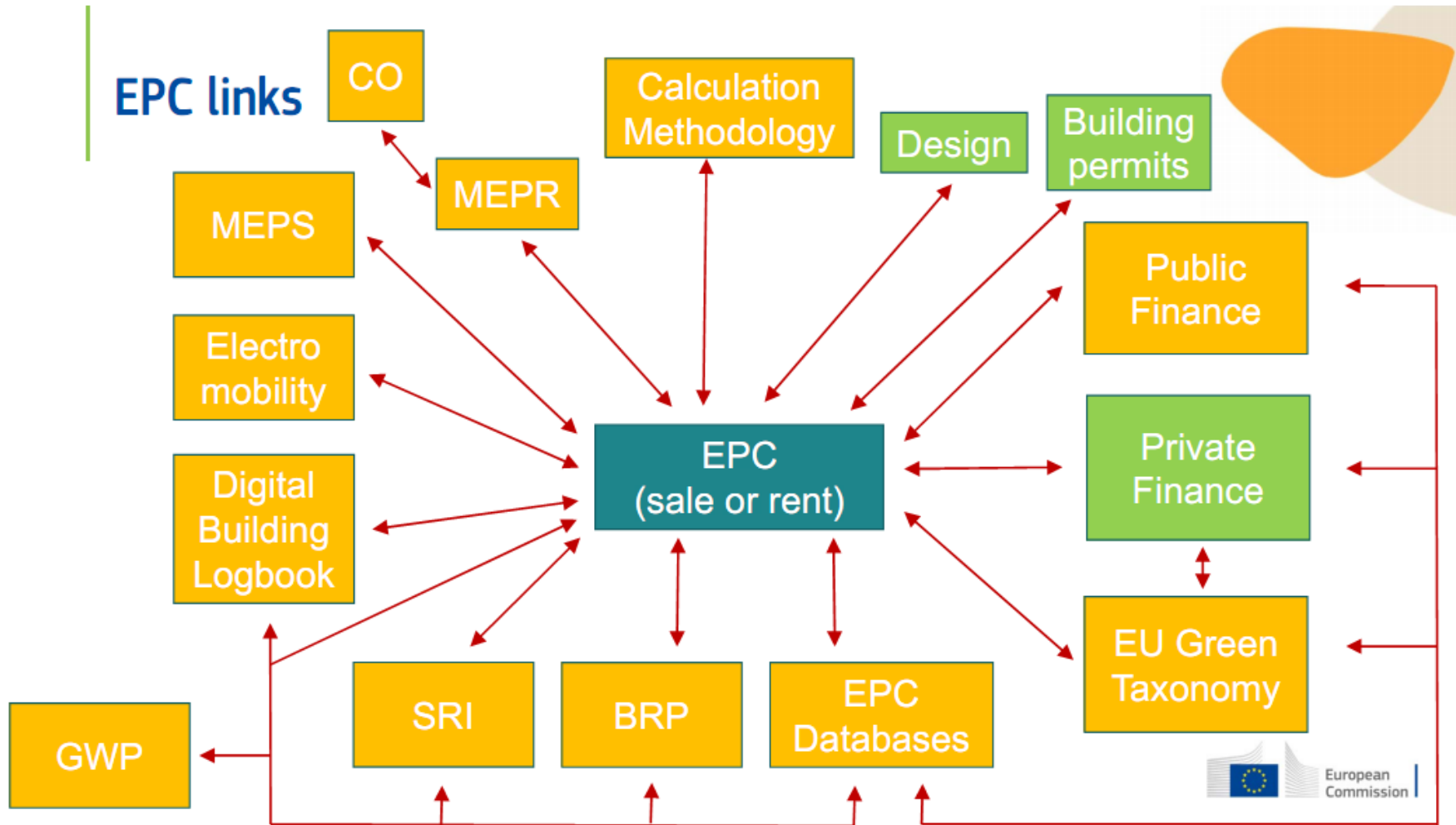


These projects have received funding from the European Union's LIFE Clean Energy Transition programmes. The European Union is not liable for any use that may be made of the information contained in the documents prepared by the projects' consortia, which are merely representing the authors' view.



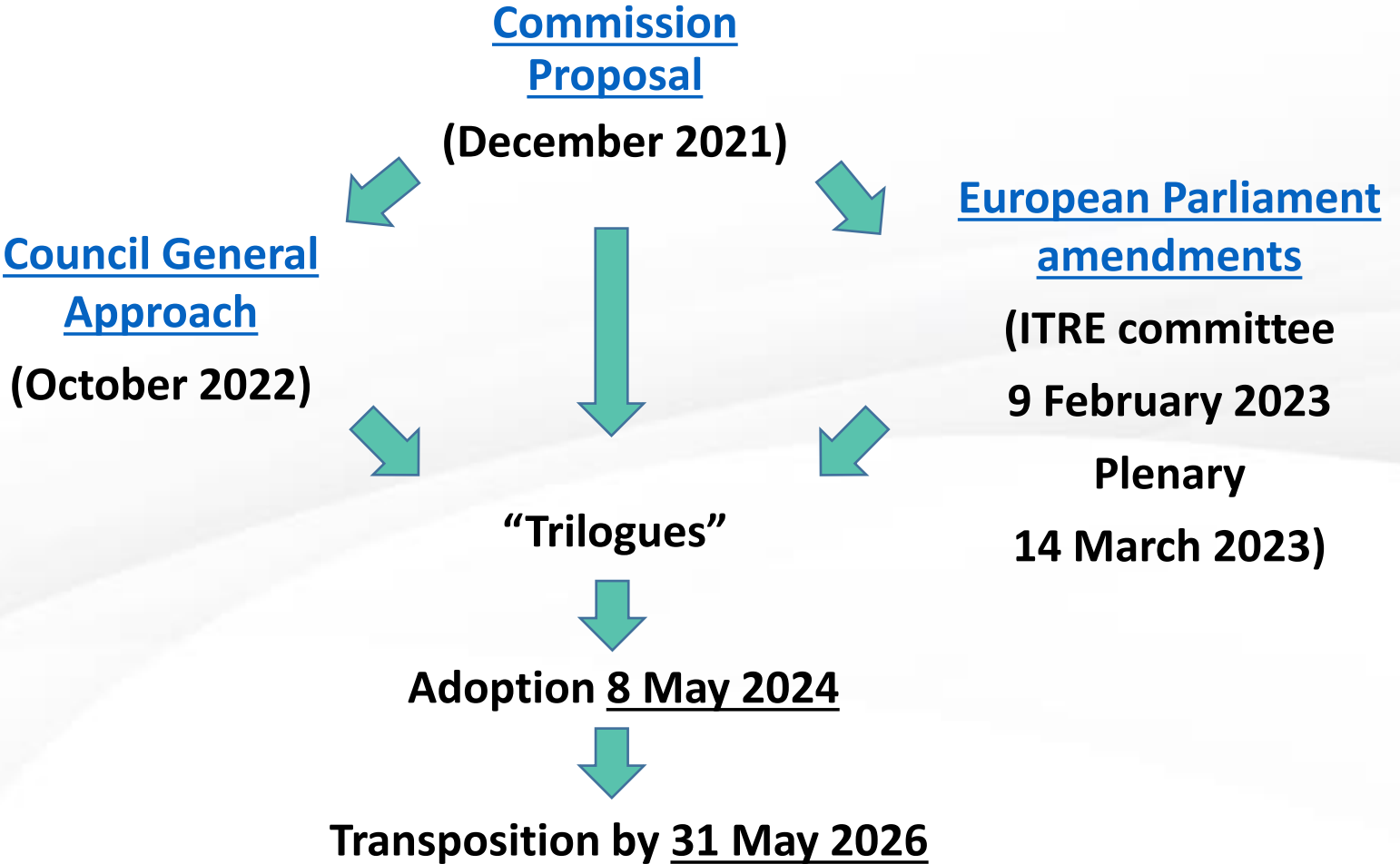


Energy Performance Certificates are linchpin





The EPBD revision



- Roadmap**
Feedback period
22 February 2021 - 22 March 2021
FEEDBACK: CLOSED
- Public consultation**
Consultation period
30 March 2021 - 22 June 2021
FEEDBACK: CLOSED
- Commission adoption**
Feedback period
15 December 2021 - 01 April 2022
FEEDBACK: CLOSED



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement number 839937. The European Union is not liable for any use that may be made of the information contained in this document, which is merely representing the authors' view.



WHY cluster?

- ✓ For **making a meaningful, impactful and lasting contribution** to the evolution process of the European Building Performance Assessment, Certification and Management - both mandatory and voluntary - the Next Gen EPC cluster of projects strongly believes in **enabling and facilitating an open dialogue and structured exchange in between the sister initiatives**.
- ✓ The coordination efforts aimed at **collectively exploring synergies for successfully implementing the individual projects** and overall **maximizing the impact at cluster level**.
- ✓ This is especially relevant in terms of **communication, dissemination, exploitation and technical advocacy**, at both EU and national levels, and, **as much as possible, also in terms of technical activities**.
- ✓ The team members of all Next Gen EPC cluster of projects can **exploit together Key Exploitable Results (KERs) in a coordinated, coherent and converged approach at EU level**, increasing the market uptake and roll-out of the cluster results at both EU and national levels, while **supporting overall the transposition, implementation and monitoring of the EPBD related policy instruments**.



Annual Conference



BUILD UP presents Final Conference

The road to enhanced and future-proof energy performance certificates

6 July 2022, L42, Brussels
LIVESTREAM

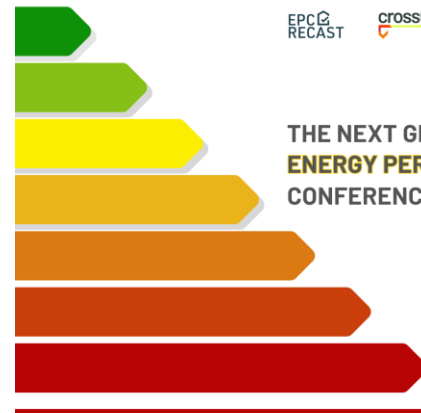
 These projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 845958 and 839937.

BUILD UP
The European Portal For
Energy Efficiency In Buildings

JOINT FINAL CONFERENCE
Next Generation Energy Performance Assessment,
Rating and Certification
Towards a Smart and Decarbonised Future for European Buildings



24 May 2023
Le Plaza, Brussels

THE NEXT GENERATION ENERGY PERFORMANCE CERTIFICATES CONFERENCE

EPBD RECAST EDITION

23 MAY 2024
Mundo Madou, Brussels
and online

 These projects have received funding from the European Union's Horizon 2020 programme.

21-22 May 2024

Next Gen EPC cluster, Buildings Cluster Meeting



Horizon Results Booster

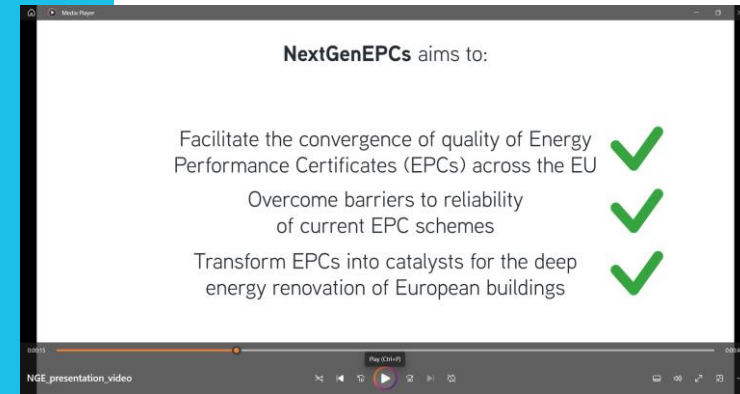
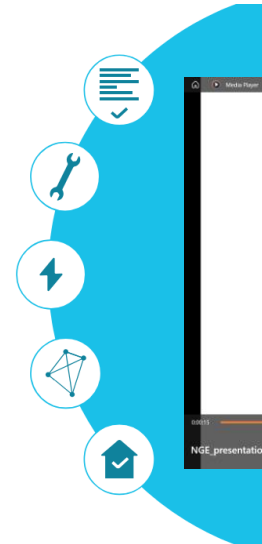


NextGenEPCs

Enhancing the evolution of Energy Performance Certificates

The Cluster focuses on the implementation and improvement of technologies and processes linked to EPCs, providing:

- Guidelines and recommendations for the development of people centred EPCs products and services
- A toolbox enabling public authorities to improve the current EPC scheme
- Smart Energy Performance Assessment Platform
- A transnational framework serving as an EU-wide digital building performance information hub
- Building Renovation Passports to complement EPCs in guiding upgrades to the building stock



General

Posts

Files

Notes



+ New

Upload

Edit in grid view

Share

Copy link

Sync



All Documents



Documents > General



Upcoming

Supporting the EPBD Recast transposition & implementation

- Mapping (Executive Summary) on areas of interest / topics → DG ENER recommendations / guidance documents
- EPBD Recast framework (nothing against) or more ambitious!
- Very practical for implementation (how to be swiftly put in place / fit for consumption / condensed / specific)
- May – June – July – September 2024 contribution → December 2024 final draft → Early 2025 publication
- Build Up Portal dedicated section embedding also the Guidance Documents prepared by the EU stakeholders

The Commission published 2 recommendations in 2019, including guidelines for EU countries related to these rules.

- [Commission recommendation on building renovation \(EU\) 2019/786](#)
- [Commission recommendation on building modernisation \(EU\) 2019/1019](#)

Home > EUSEW 2024 > Sessions > Session Details

Energy efficiency

Implementing the Energy Performance of Buildings Directive recast

11 June 2024
14:30 - 16:00 CEST

This policy session, organised by EPB Center and the Next Gen EPC cluster in collaboration with EPBD.wise, aims to address the EU-wide transposition and practical implementation challenges of the EPBD Recast. It will explore the complexities involved in aligning diverse legal and regulatory frameworks across EU member states, integrating multiple stakeholder inputs, ensuring practicality and feasibility, harmonizing efforts, and effectively disseminating information. The Build Up Portal will be highlighted as a key resource, offering a single-entry point for accessing comprehensive EPBD guidance documents and other resources to support stakeholders.

Speakers

- Andrei Vladimir Litiu**
Executive Director | Buildi...
EPB Center/REHVA
- Stefan Moser**
Head of Unit, DG ENER
European Commission
- Ulrike Nuscheler**
Senior Project Adviser,...
European Commission
- Afroditi Psatha**
Project and Events Manager
EuroACE/Renovate Europ
- Georg Vogt**
Head of ICT Innovation...
empirica Communication...

21-22 May 2024



SP2024 Previous Join Newsletter Contact

SUSTAINABLE PLACES 2024

R2M RESEARCH TO MARKET SOLUTION

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY LIST

23 - 25 SEPTEMBER 2024

EUROPEAN CONVENTION CENTER LUXEMBOURG

Next Gen EPC cluster, Buildings Cluster Meeting



Thank you without end!

- ✓ Let's continue
- ✓ going farther together
- ✓ as opposed to fast alone!



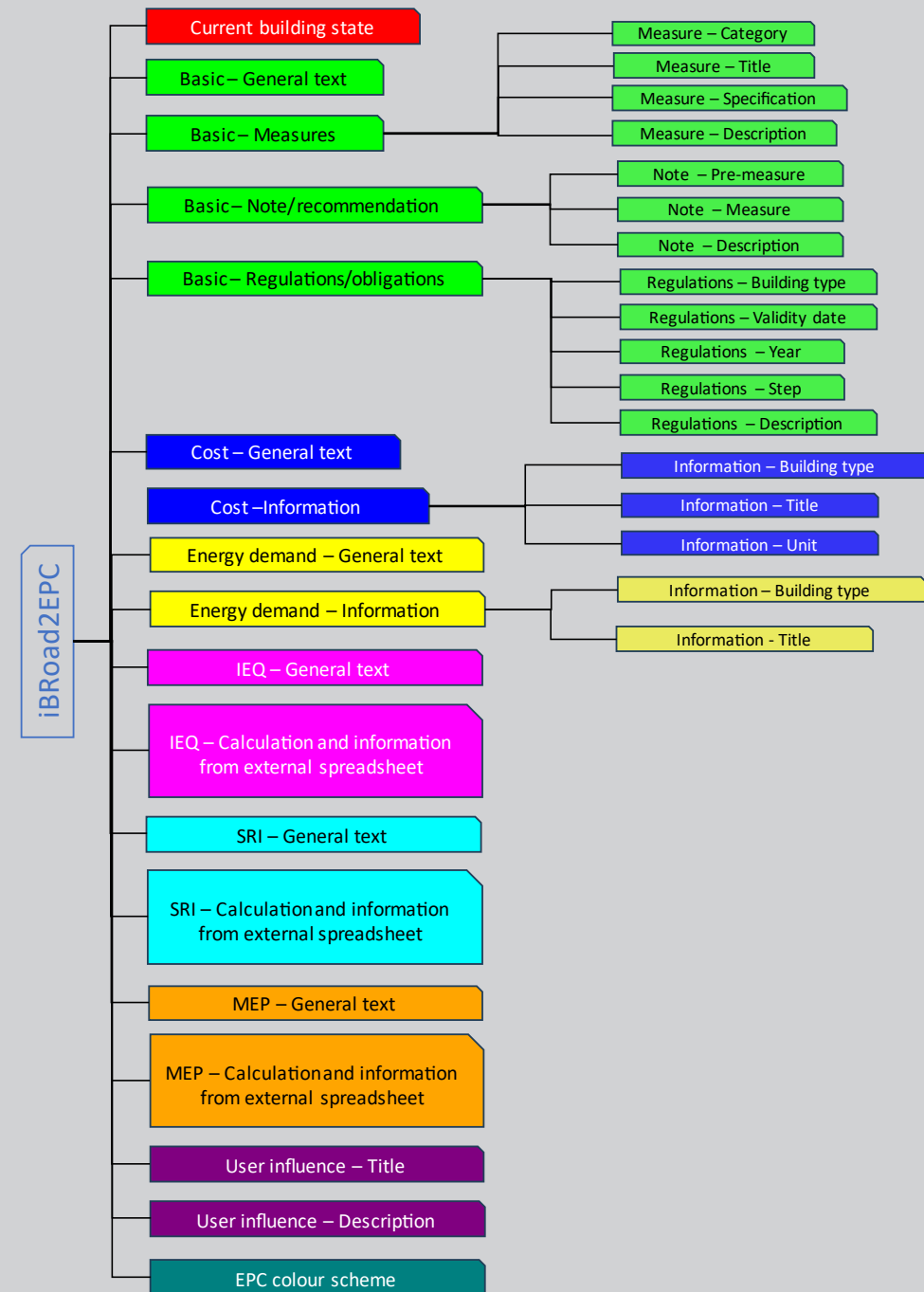
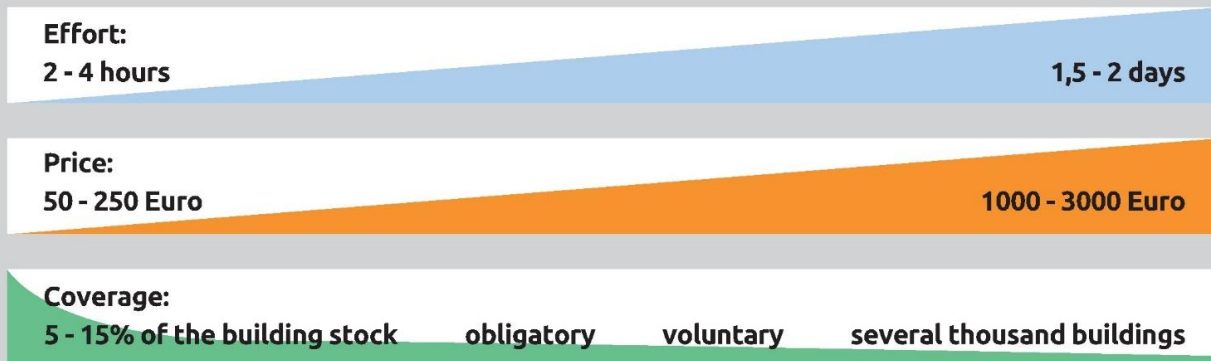
NextGenEPCs

Follow our hashtag [#NextGenEPCs](#)

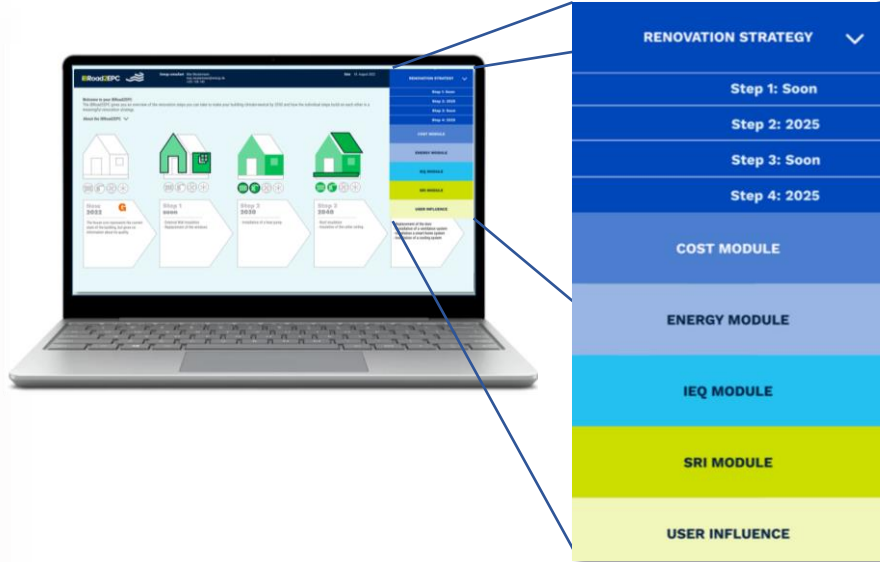
Join us on our mission to make the EPCs evolution a reality



Market positioning of iBRoad2EPC / Database structure



iBRoad2EPC modular/open approach



Step 2 2030

D

Energy source
electricity-heat pump

Final energy demand
95 kWh/m²a
GHG emissions
50 kg/m²
Energy costs
1.900 €/a

Step 2 2030

13.000 € Maintenance Costs
+ 2.000 € Energy-related Costs
15.000 € Investment Costs

5.000 € Funding

Funding is rated in "Subsidies-EU"
www.subsidies-in-your-country.eu
(Status as of 24.11.2022)

«XTENDING the energy performance assessment and certification schemes via a modular approach»

Feature 4

Real energy consumption

Guidelines
April 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 847056.

Factors responsible for under-heating				Factors that reduce under-heating			
Geography				Location			
Country: Poland				Location of the building: City			
Climatic zone: Climate zone V				Site characteristics			
Site characteristics: Mutual shading of glazed areas from trees/buildings in winter: No				Barriers to wind (e.g. trees, buildings etc.):			
Building characteristics: Existing buildings before and after renovation would have significant difference in indoor comfort levels due to insulation against thermal discomfort and are primary components of heat loss in the fabric of buildings.				Exposed thermal mass			
Insulation (wall/roof/floor): Walls+Roof+Floor				Central heating system			
Windows: Single				Heat gain			
Heat loss: Age of the building is a determinant of the degradation of the envelope and its capacity to provide air-tightness.				Orientation of windows			
Age of the building: Post 2010							

Smart Readiness Indicator for Buildings

The SRI calculations have been performed with an experimental tool. Please note that the scores and the visual presentation of results are solely provided for testing purposes. Using this experimental tool can by no means lead to any claims on an actual score or certificate for a building.

SRI spreadsheet tool Version 4.5

TOTAL SRI SCORE: 100,0% **SRI CLAS: Higher than 90%**

IMPACT SCORES

Energy efficiency	100,0%
Energy flexibility and storage	100,0%
Comfort	100,0%
Convenience	100,0%
Health, well-being and accessibility	100,0%
Maintenance and fault prediction	100,0%
Information to occupants	100,0%

DOMAIN SCORES

Heating	100,0%
Domestic hot water	100,0%
Cooling	100,0%
Ventilation	100,0%
Lighting	100,0%
Dynamic building envelope	100,0%
Electricity	100,0%
Electric vehicle charging	100,0%
Monitoring and control	100,0%

DETAILED SCORES

	Energy efficiency	Energy flexibility and storage	Comfort	Convenience	Health, well-being and accessibility	Maintenance and fault prediction	Information to occupants
Heating	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Domestic hot water	100,0%	100,0%	0,0%	100,0%	0,0%	100,0%	100,0%
Cooling	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Ventilation	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Lighting	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Dynamic building envelope	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Electricity	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Electric vehicle charging	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Monitoring and control	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Smart Readiness Indicator (SRI)

ASSESSMENT PACKAGE: PRACTICAL GUIDE SRI CALCULATION FRAMEWORK v 4.5

Authors: Ylvaq Ma, Stijn Verbeke, Christina Protopapadaki (VITO), Sophie Dourfens-Quaranta (R2M Solution)

Date: April 2023

Step 2 2025

IEQ value

5.0

Comfort Asset Rating Procedure (CARP)

User-guide

Version 1.0

2022

This document describes Comfort Asset Rating Procedure (CARP) Dated 21.04.2022.

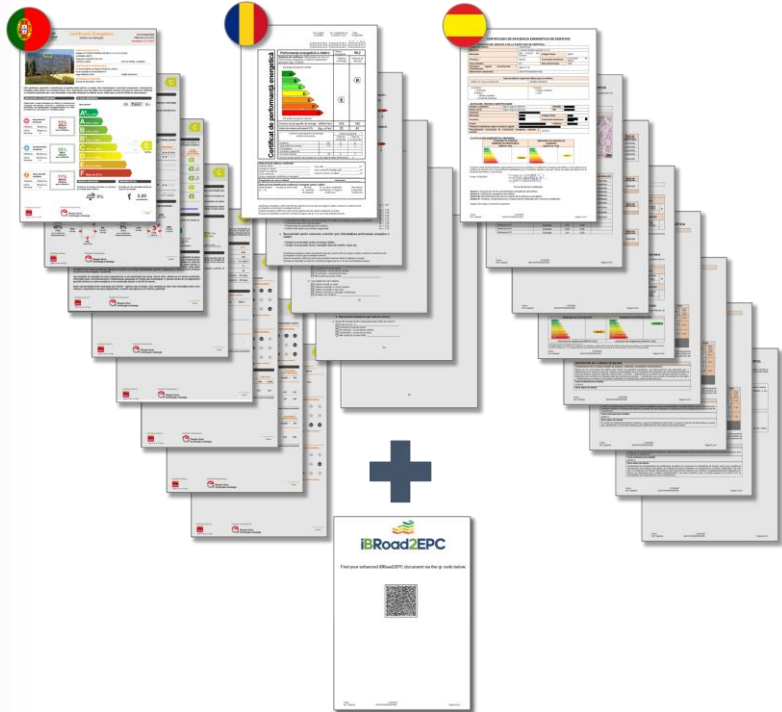
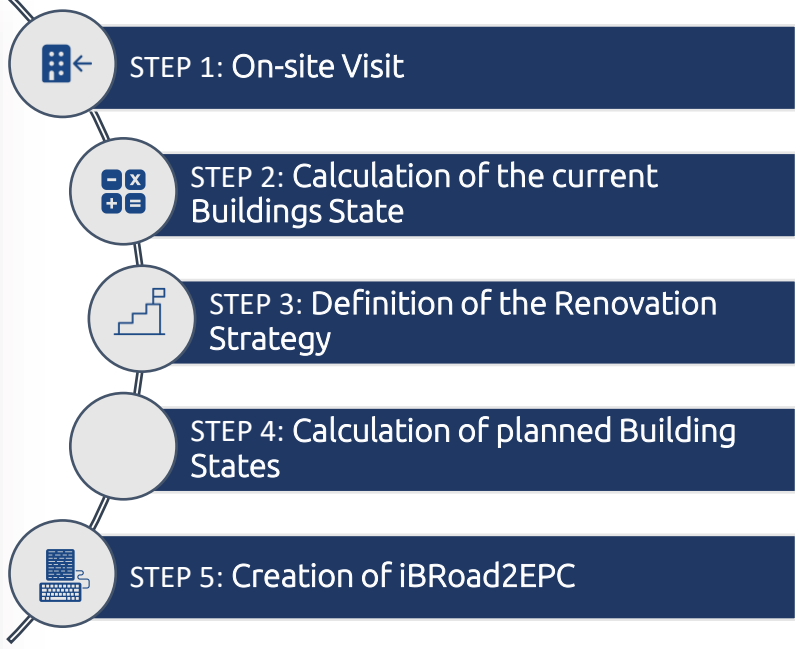
This version is applicable to new and existing residential buildings, schools and offices that are unoccupied.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 847056.

Step 2 2025

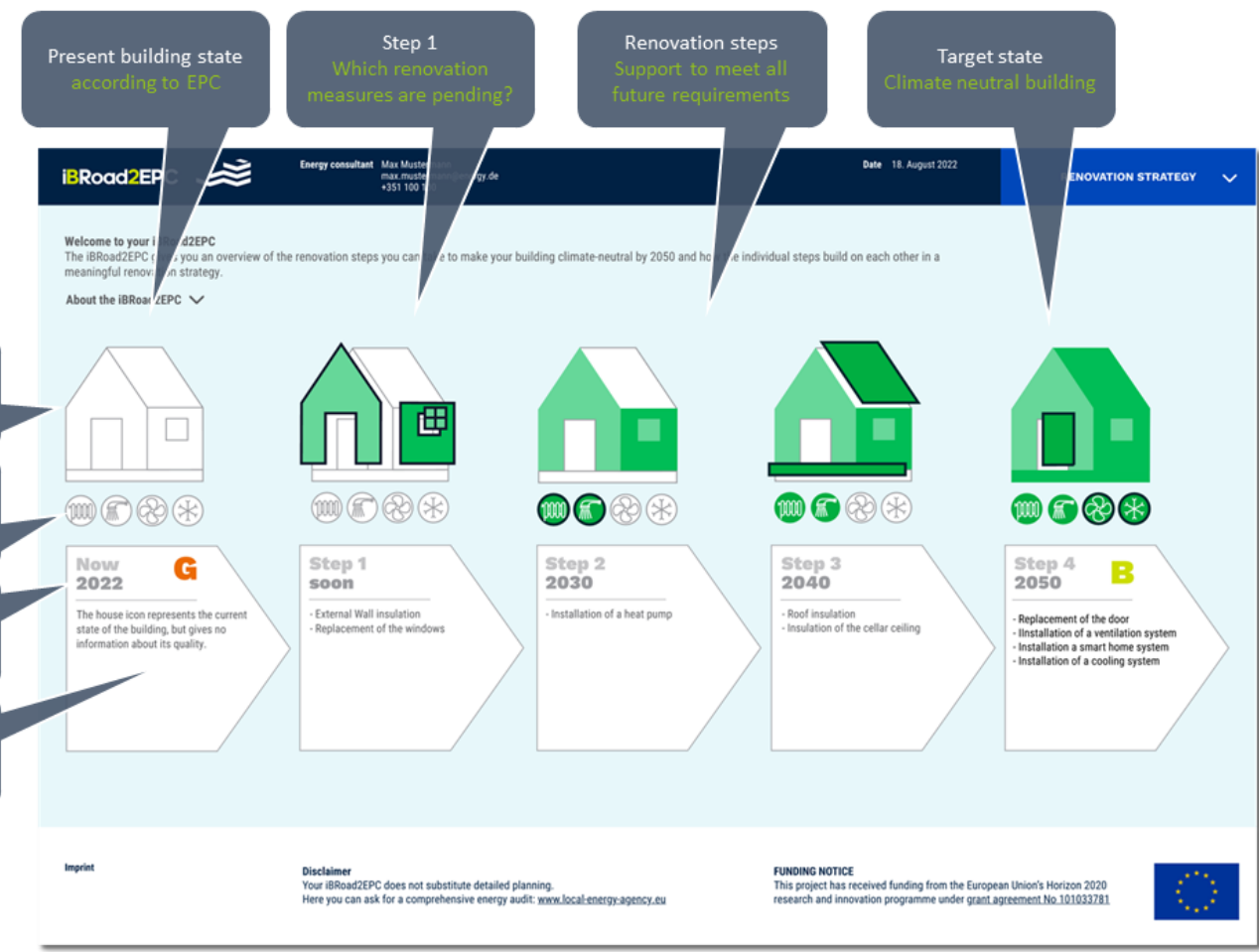
SRI score

33.0



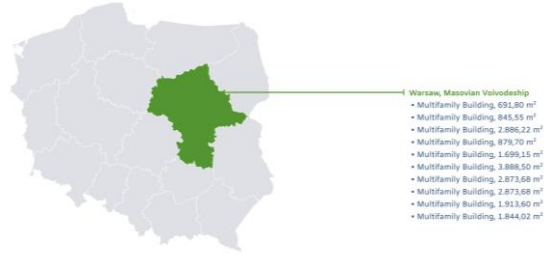
Year of construction	Energy improvements / renovations in the past	Step 1: 2020 no applicable requirements	Step 2: 2030 at least class E	Step 3: 2040 at least class D or better on low loss fuel boilers	Step 4: 2050 climate neutral building
Building	1967			Life insurance payout	
substantants			Roof insulation, New tiles		
roof	1967				External insulation house windows
outer walls	1996	double glazed windows			
windows / doors	1996	insulated windows	Insulate from below		
floor / cellar	1967			Air/water Heat pump	
heating system	2007	condensing boiler			Ventilation with heat recovery and (boiling)
domestic hot water	2007				
ventilation	none				
cooling	none				

Issuing the iBRoad2EPC

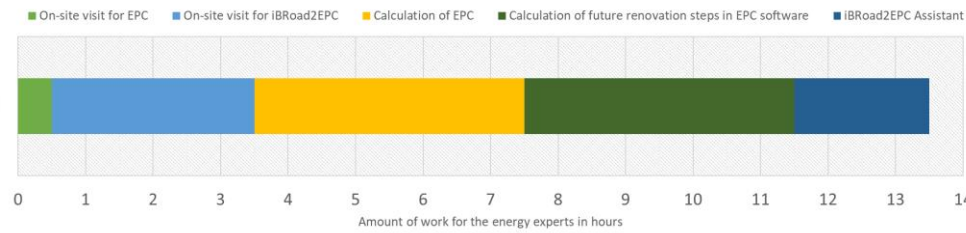


Pilot testing

iBRoad2EPC Field Tests in Poland



- Warsaw, Masovian Voivodeship**
- Multifamily Building, 691,80 m²
 - Multifamily Building, 945,55 m²
 - Multifamily Building, 2,886,22 m²
 - Multifamily Building, 878,70 m²
 - Multifamily Building, 1,699,15 m²
 - Multifamily Building, 3,889,50 m²
 - Multifamily Building, 2,873,68 m²
 - Multifamily Building, 2,873,68 m²
 - Multifamily Building, 1,913,60 m²
 - Multifamily Building, 1,844,02 m²



iBRoad2EPC Field Tests in Romania



- Timiș**
- Multi-family building (private), 1,486,8 m²
 - Single-family building (private), 190,0 m²
 - Building for education (public), 232,1 m²
 - Office building (public), 207,2 m²
- Ialomița**
- Single-family building (private), 218,8 m²

iBRoad2EPC Field Tests in Portugal

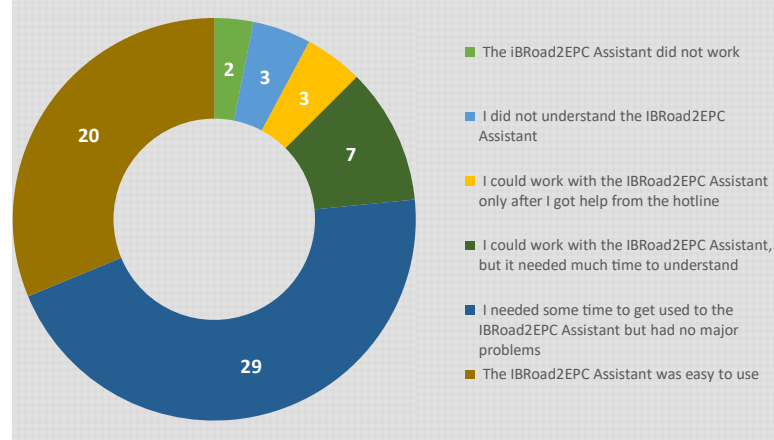


- North Region, Porto Metropolitan Area, Porto**
- Single family house, 28,96 m²
- Central Region, Leiria Region, Pombal**
- Secondary school in Pombal (central Portugal) - managed by Construção Publica E.P.E. Public Company, 10,638,17 m²
- Greater Lisbon, Lisbon**
- Large non-residential building - Offices - headquarters of Construção Publica E.P.E. Public Company, 31,578,40 m²
 - Multifamily building owned by SCML - social services institution and privately rented to residents, 479,75 m²
 - Multifamily building (social housing building managed by GEBALIS - Lisbon Social Housing company), 2,160,00 m²
 - Multifamily building (social housing building managed by GEBALIS - Lisbon Social Housing company), 1,026,00 m²
 - Single family house building (owned by SCML - social services institution and privately rented to residents), 291,91 m²
 - Single family house (social housing building managed by GEBALIS - Lisbon Social Housing company), 17,31 m²
 - Single family house (social housing building managed by GEBALIS - Lisbon Social Housing company), 51,67 m²
 - Bi-family house (owned by SCML - social services institution and privately rented to residents), 66,60 m²

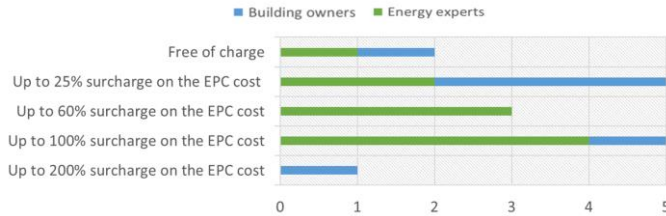
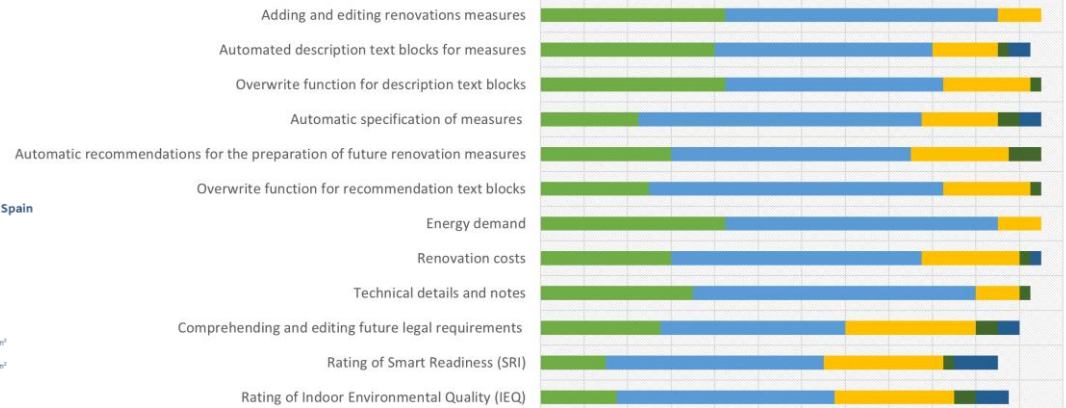
iBRoad2EPC Field Tests in Spain



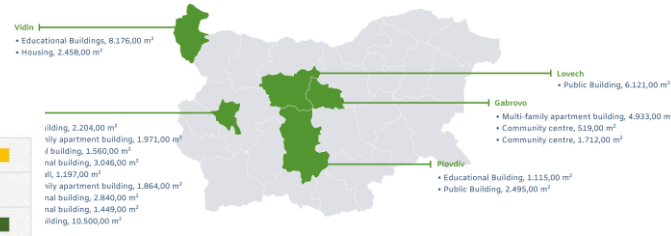
- Basque Country**
- Multi-family private building in Vitoria, 742,77 m²
 - Multi-family private building in Vitoria, 639,6 m²
 - Multi-family private building in Vitoria, 527,75 m²
 - Multi-family private building in Vitoria, 2,000,41 m²
 - Multi-family private building in Vitoria, 506,05 m²
 - Multi-family private building in Vitoria, 1,131,00 m²
 - Multi-family private building in Vitoria, 996,00 m²
- Catalonia**
- Public-owned, sports building in Barcelona, 4,333 m²
- Community of Madrid**
- Madrid: Public-owned, private-use office building, 28,280,41 m²
 - Madrid: Public-owned government office building, 116,223 m²



Extremely useful Very useful Somewhat useful Slightly useful Not useful

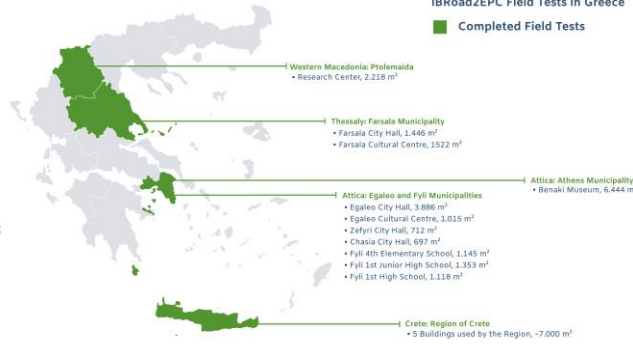


iBRoad2EPC Field Tests in Bulgaria



- Vidin**
- Educational Buildings, 8,176,00 m²
 - Housing, 2,458,00 m²
- Lovech**
- Public Building, 6,121,00 m²
- Gabrovo**
- Multi-family apartment building, 4,933,00 m²
 - Community centre, 519,00 m²
 - Community centre, 1,712,00 m²
- Plovdiv**
- Educational Building, 1,115,00 m²
 - Public Building, 2,495,00 m²

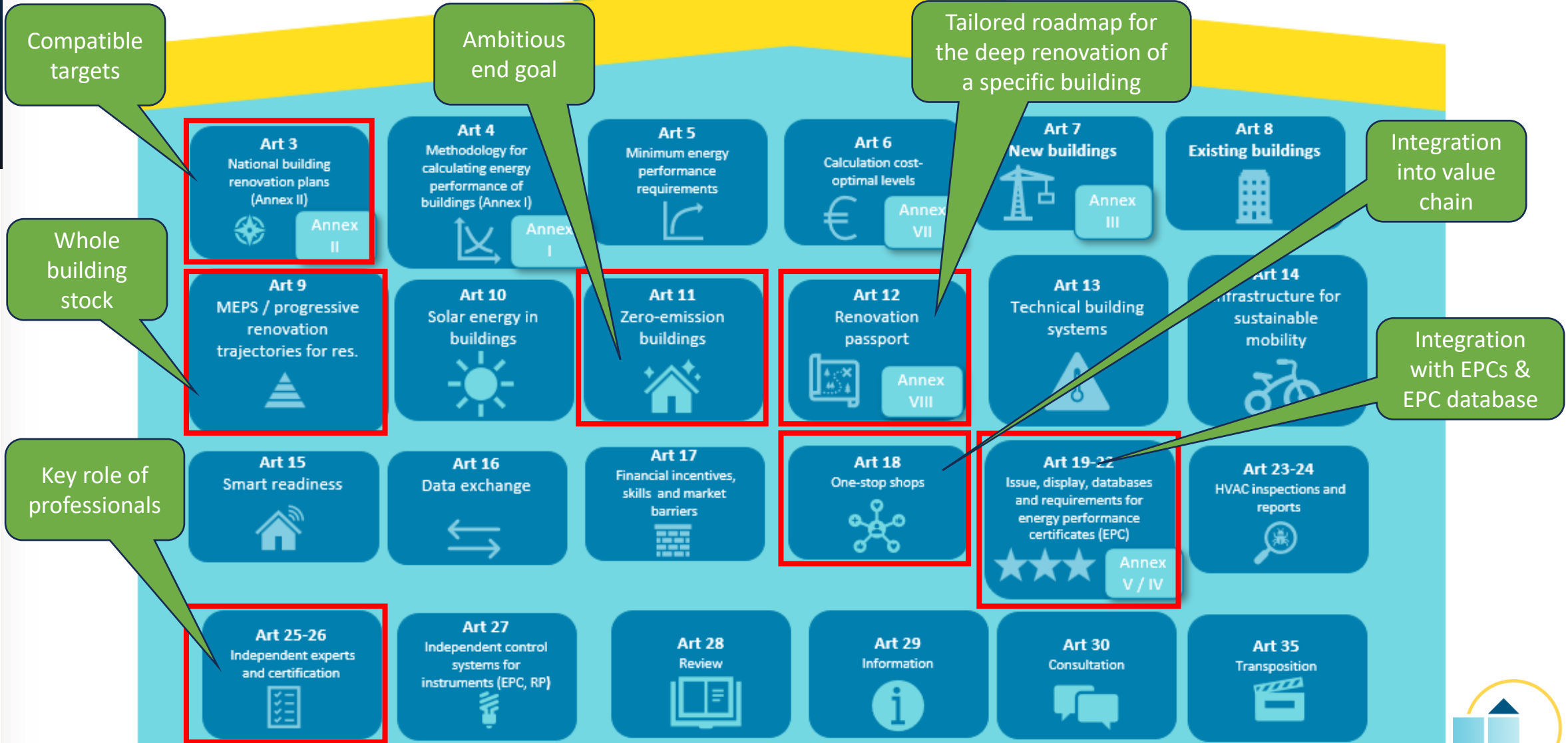
iBRoad2EPC Field Tests in Greece



- Western Macedonia Ptolemaida**
- Research Center, 2,218 m²
- Thessaly: Farsala Municipality**
- Farsala City Hall, 1,146 m²
 - Farsala Cultural Centre, 1,522 m²
- Attica: Egaleo and Fyli Municipalities**
- Egaleo City Hall, 3,886 m²
 - Egaleo Cultural Centre, 1,015 m²
 - Zefyri City Hall, 712 m²
 - Ossia City Hall, 693 m²
 - Fyli 4th Elementary School, 1,145 m²
 - Fyli 1st Junior High School, 1,353 m²
 - Fyli 1st High School, 1,118 m²
- Attica: Athens Municipality**
- Benaki Museum, 6,444 m²
- Crete Region of Creta**
- 5 Buildings used by the Region, ~7,000 m²

Indicative relevance to recast EPBD

Energy Performance of Buildings Directive (EPBD)





22/05/2024

Presentation of the EPBD.wise project

Buildings Clustering Meeting / Breakout Session Buildings Rating Instruments

HEAD OF BUILDINGS AND RESOURCES
EFFICIENCY AT ADENE

Rui Fragoso

rui.fragoso@adene.pt

POLICY AND PROJECT OFFICER AT EUROACE

Rose Hartwig-Peillon

rose.hartwig@euroace.org



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them





EPBD.wise in a nutshell

→EPBD.wise provides **on-the-ground support to six countries** for the implementation of the EPBD *recast* (**Poland, Hungary, Romania, Bulgaria, Greece and Ukraine**).

→EPBD.wise provides on-the-ground support for the implementation of **5 key elements of the EPBD**:

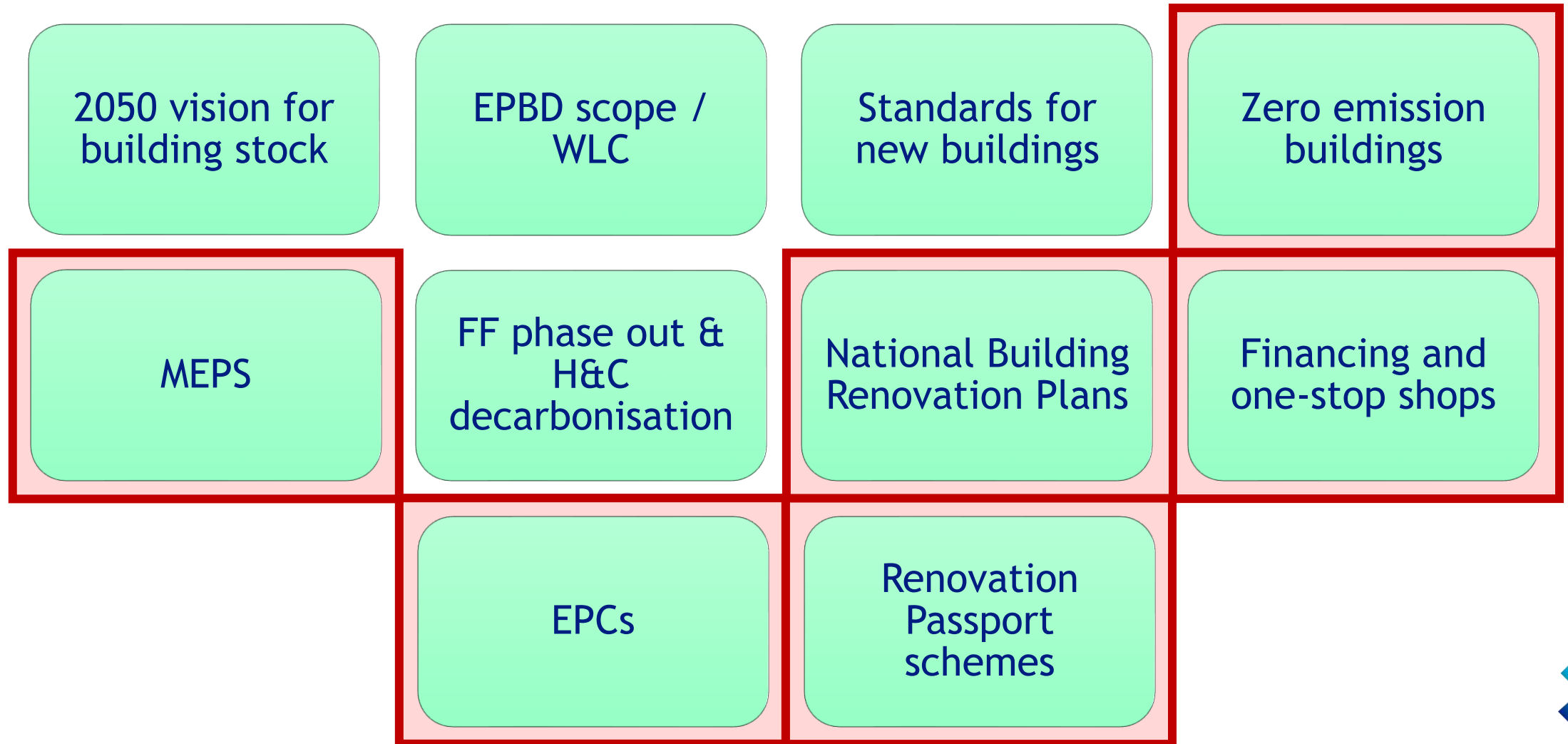
- **Minimum Energy Performance Standards**
- **National Building Renovation Plans**
- **Energy Performance Certificates**
- **Renovation Passports**
- **Zero Emission Buildings**



Goals of the project

- **Support Member States** in aligning new policies with EPBD and European, national, and regional targets
- Assist in ensuring **consistency among policies** affecting buildings to enhance their impact
- **Integrate monitoring and reporting** mechanisms into policy design for continuous evaluation
- Enhance understanding and **knowledge of building policy planning and design** among public administrations
- **Foster collaboration among implementing bodies** within and across Member States for effective EPBD implementation

Relevant sections from 2024 recast EPBD for EPCs+RPs



Challenges and synergies on EPCs + RPs



Challenges:

- ✓ **Awareness:** Building awareness about RPs and its role; training professionals for their issuance is crucial.
- ✓ **Cost and Affordability:** Balancing the cost of implementing RPs with existing EPC
- ✓ **Standardization and Transparency:** Currently, EPCs show high variation across member states, making comparisons difficult. Similarly, links between EPC databases and RPs are missing.
- ✓ **EPC Recommendations:** Most EPCs lack information on payback periods, cost-benefits, GWP, and indoor environmental quality (IEQ).

Synergies:

- ✓ **Role of EPC & RP:** Opportunity to define a clear role between EPC (support decision and information) and RP (support action)
- ✓ **Joint Issuance:** EPCs and RPs can be jointly issued, streamlining the process and potentially replacing EPC recommendations with the more detailed RP information.
- ✓ **Database Linkages:** Linking EPC databases with RPs can provide a more comprehensive overview of the national building stock for informed policy making.
- ✓ **Financial Incentives:** EPCs can be used to verify renovation improvements and link them to financial incentives while RP drive renovation.

EPBDwise

Thank you for your time!



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them



OneClickRENO –

Buildings clustering meeting

21st-22nd May, Brussels

**Instituto Valenciano de la
Edificación (IVE)**
Project coordination

Blanca Larraz



one click
reno

May 2024



About the project

OneClickRENO objective:
automatically generated and
customizable BRPs

- GIS based web environment
- Existing tools
- Building location and user profile

The screenshots illustrate the user interface of the OneClickRENO platform, which provides energy efficiency recommendations and performance reports for buildings. The interface is multilingual, as indicated by the flags on the left.



Expected outcomes

BRP Module – already existing tool

Input data

Diagnosis pre-post



one click reno

How can you improve your building?

- 1
- 2
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa.
- 3
 - Roadmap 01
 - Roadmap 02
 - Roadmap 03
 - Roadmap 04



ZEB

building

BRP

- 1

Lorem ipsum
- 2
- 3
- 4
- k

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa.

Energy	CO2 emissions	X
Group 5	PE consumption	X
Group 6	Lorem ipsum dolor	X
Group 7	Lorem ipsum dolor	X
Group N	Lorem ipsum dolor	X

reference building

Stages

Indicators



Thank you



www.oneclickreno.eu





energie
sprong



giga
regio
factory

Project pitch

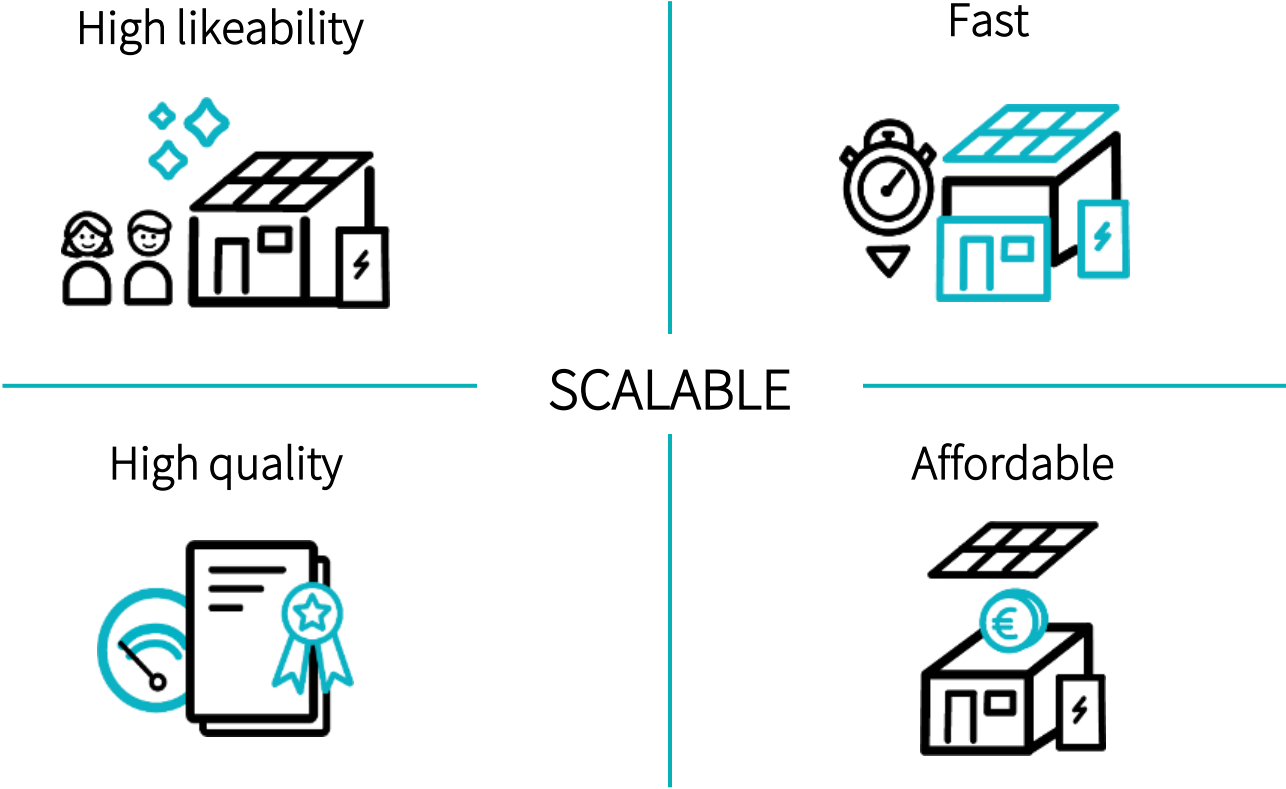
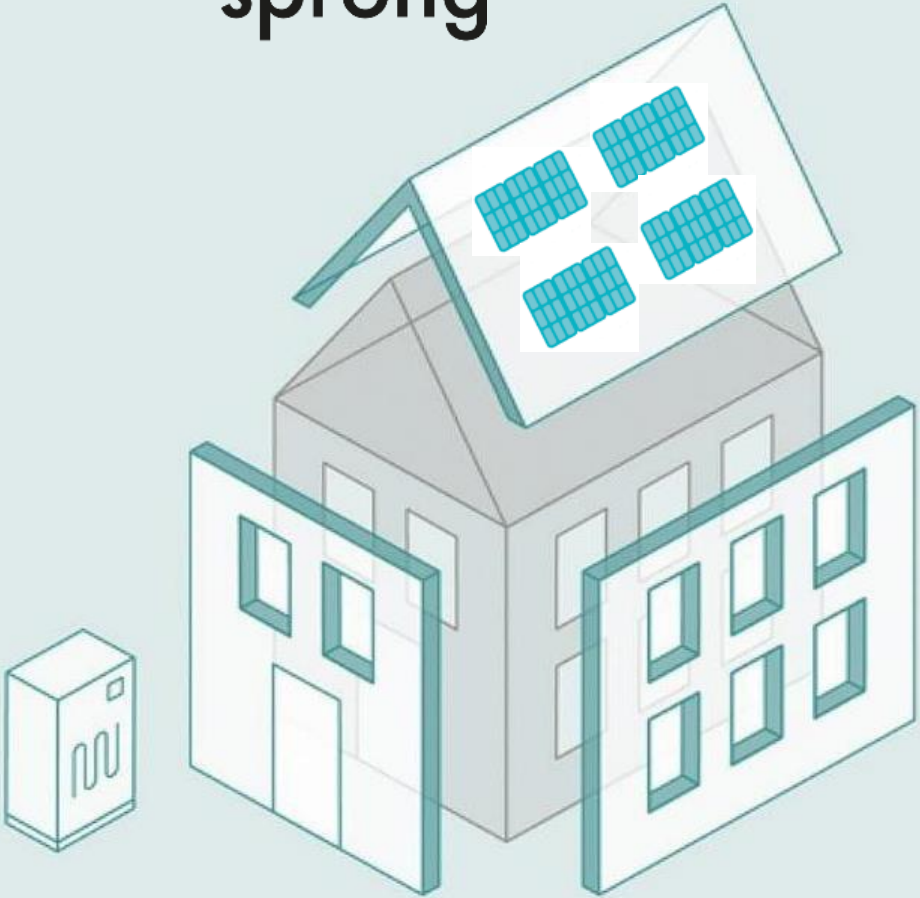
> CINEA Buildings Clustering Meeting 21-22 May



Co-funded by
European Union

Energiesprong wants to solve the CO2 problem of our buildings by developing a mass-market for scalable nearly zero-energy solutions for existing buildings

energiesprong



➔ We manage that with innovative design for serial refurbishment solutions as a complete product







USH
Pays de la Loire
Association régionale HLM




















Now, from thousands to millions

**giga
regio
factory**

by energie
sprong



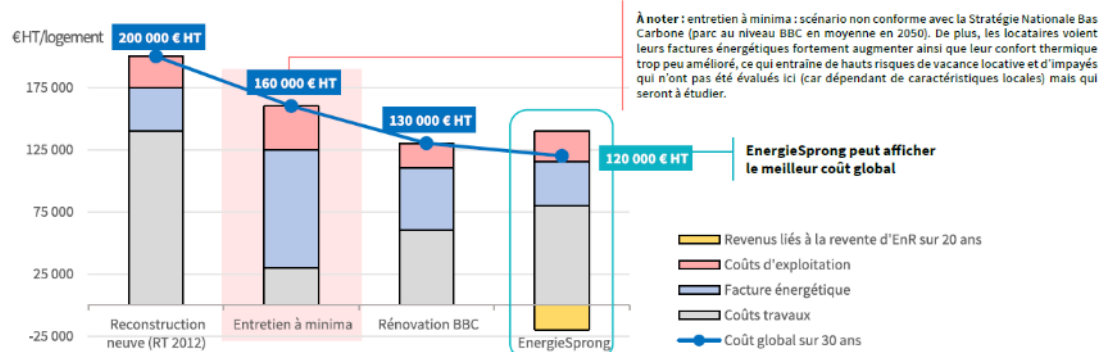
To scale up, we have to lower the costs, and it means better understanding buildings archetypes

Costs of operations

Linked to ...

Typologies of buildings

Coût global sur 30 ans en individuel - pour la typologie de référence - hors travaux hors EnergieSprong



Maison individuelle

3 typologies de maisons construites entre 1945 et 2000, représentant 60% des consommations énergétiques finales tous usages des maisons individuelles



	Maison isolée sur la parcelle	Maison en bande	Maison semi-isolée
Nombre et % sur le parc social construit entre 1945 et 2000	≈ 75 000 soit 17%	≈ 100 000 soit 22%	≈ 275 000 soit 61%
Nombre et % sur le parc résidentiel construit entre 1945 et 2000	≈ 7.5 M soit 75%	≈ 650 000 soit 6%	≈ 1.9 M soit 19%
Élévation	RDC ou R+1	R+1 généralement	RDC ou R+1
Toiture	Inclinée, double pente	Peu inclinée, double pente	Inclinée, double pente



Logement collectif

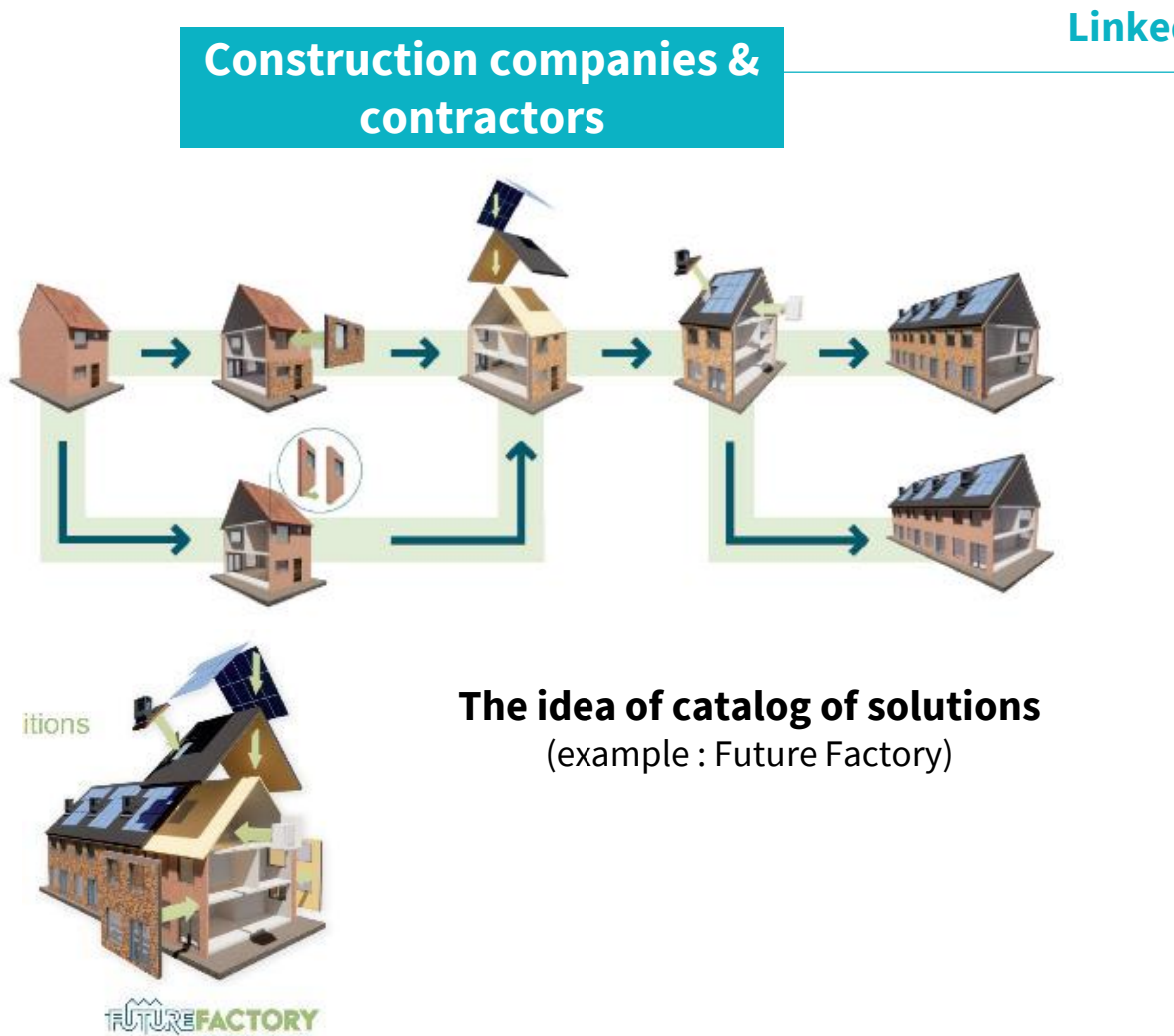
3 typologies de bâtiments construits entre 1945 et 2000, représentant 75% des consommations énergétiques finales tous usages des logements collectifs



	Petit collectif isolé sur la parcelle	Petit collectif en bande	Grand collectif
Nombre et % sur le parc social construit entre 1945 et 2000	≈ 200 000 soit 7%	≈ 150 000 soit 5%	≈ 2.5 M soit 88%
Nombre et % sur le parc résidentiel construit entre 1945 et 2000	≈ 800 000 soit 14%	≈ 600 000 soit 10%	≈ 4.4 M soit 76%

➔ It is not only a question of volumes, the building archetypes are also important and better selecting them should help us to lower the costs

> To scale up, there is a potential for improvement in terms of culture and industrial capacity



Linked to ...

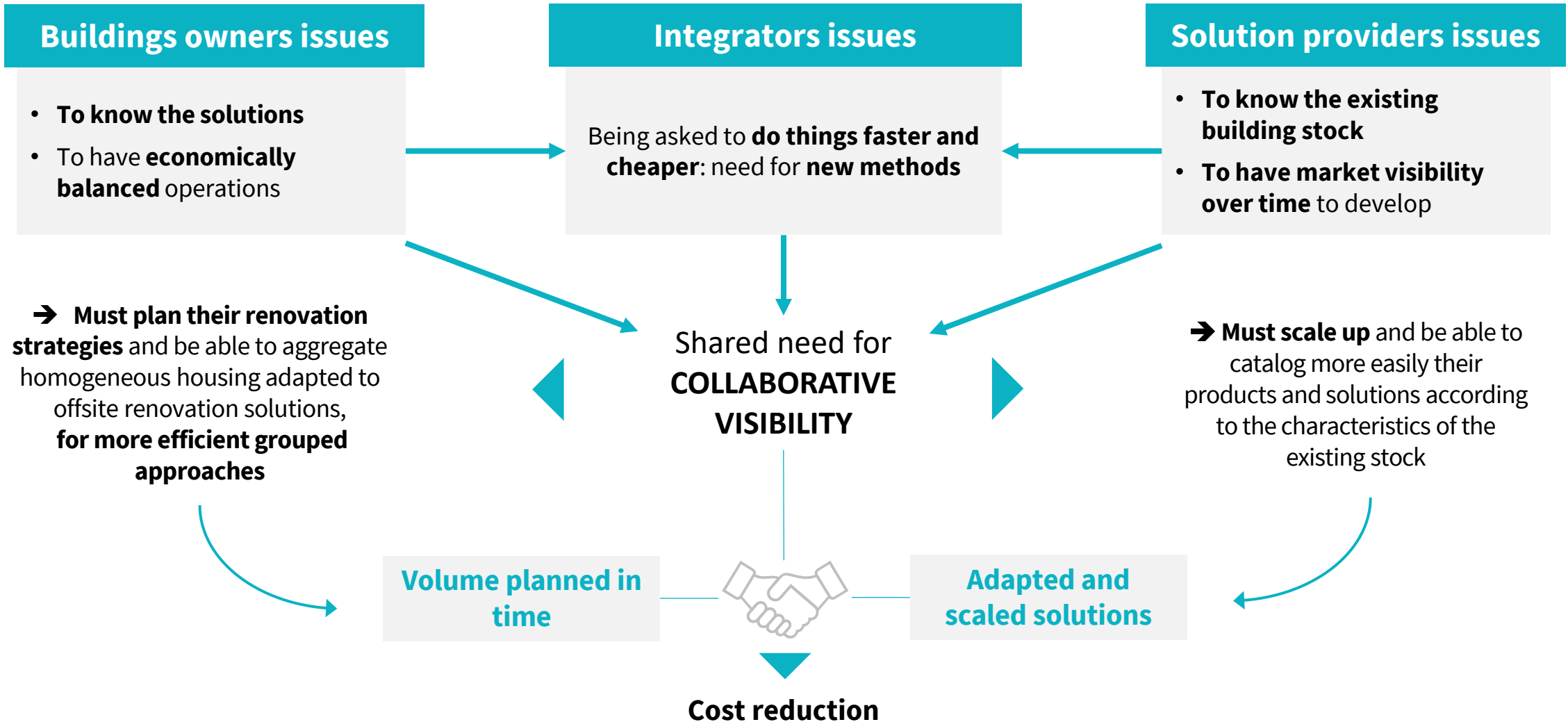
Industrial capacities



Have to scale up if they want to meet demand

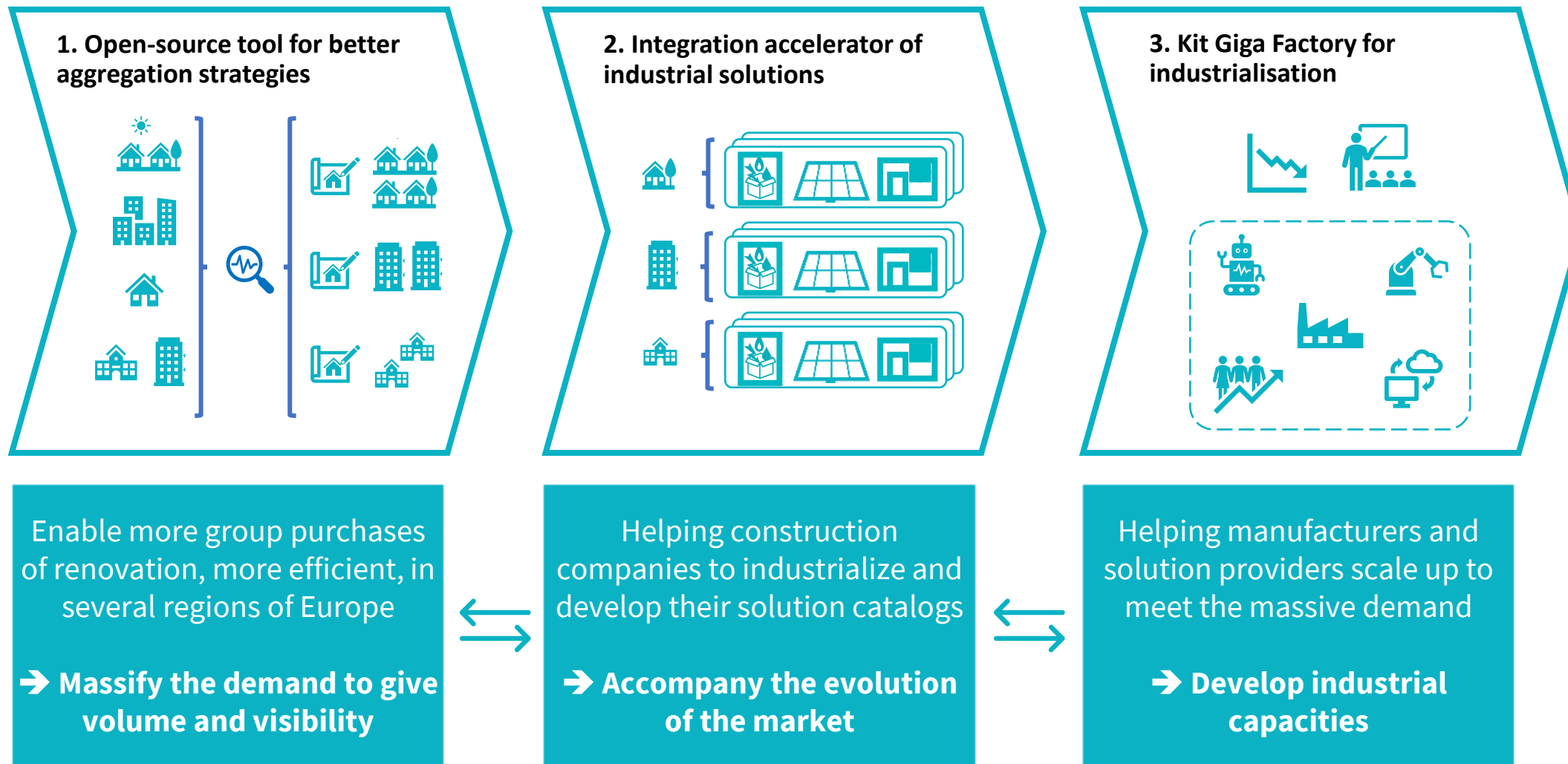
➔ Product development is the most important to lower costs and deliver serial deep renovation : doing off-site for single projects is not enough

> There is therefore a need to work better together to: plan to allow industrial development and thus reduce costs





Life Giga Regio Factory's response: to facilitate this work by helping demand and supply side actors to scale up



> Giga Factory concept: dare to make nearly zero-energy renovation a desirable industry

Cars, batteries, materials, IT:
OK!

But why not the renovation of
buildings?



**giga
regio
factory**
by energie
sprong

→ Create an image that
considers renovation as an
industry, just like other sectors

European Commission | English | Search

Internal Market, Industry, Entrepreneurship and SMEs

Home | Single market and standards | **Industry** | Entrepreneurship and SMEs | Access to finance | Sectors | Tools and databases

Home > Industry > European industrial strategy

European industrial strategy

Industrial alliances

- European Raw Materials Alliance
- European Clean Hydrogen Alliance
- European Battery Alliance
- Circular Plastics Alliance
- European Alliance for Industrial Data, Edge and Cloud
- Industrial Alliance on Processors and Semiconductor Technologies
- Renewable and Low-Carbon Fuels Value Chain Industrial Alliance

Cluster policy

Clusters are groups of specialised enterprises, often SMEs, and supporting actors in a location that cooperate closely. Together, SMEs can be more innovative, create more jobs, and register more international trademarks and patents than alone.

Energy-intensive industries

The Commission aims for climate-neutral competitiveness. The challenge is to lower emissions while keeping industry competitive and positioning it to exploit the huge potential global market for low-emission technologies and services.



To carry out this project, a consortium composed of 13 partners in France, Germany, Italy and Belgium

9 experts in consulting and social and environmental innovation

GreenFlex HORS SITE
FORMER | INFORMER | ACCOMPAGNER

énergies demain 3ressorts POUGET Consultants

cstc.be GREEN WIN
Recherche • Développement • Information FROM INNOVATION TO BUSINESS

green Invest BERLIN EDERA



4 beta testers: supply and demand side partners

est METROPOLE HABITAT AURA Hlm
Association régionale Hlm

BULPO HOUSING EUROPE

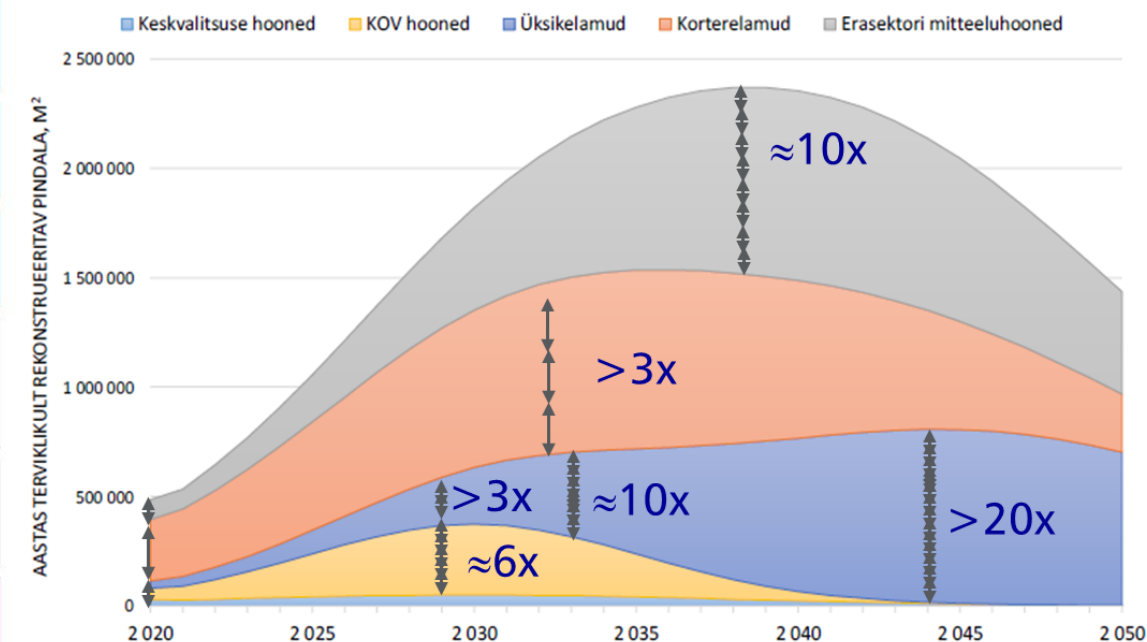
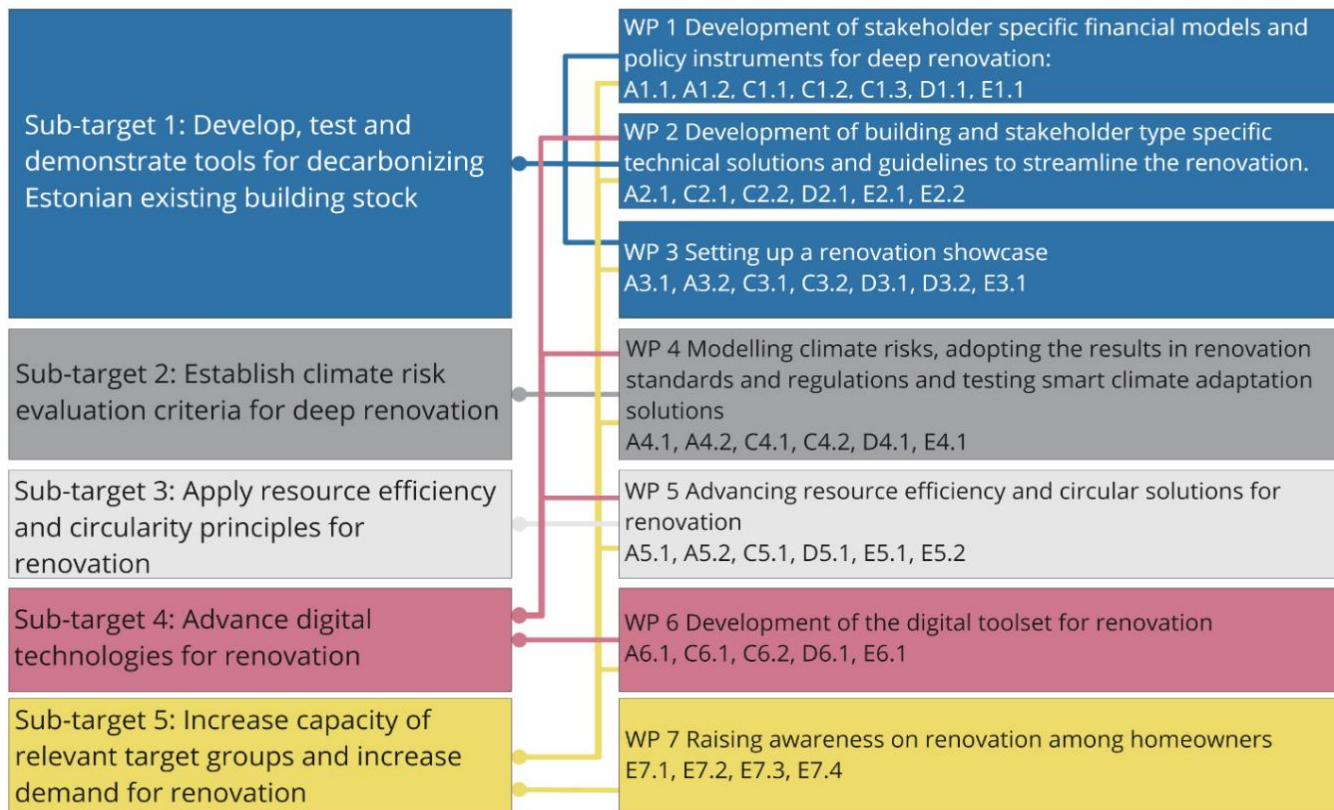
This project aims to capitalize on the first industrialized zero-energy renovation operations carried out in France and in Europe, to support the change of scale

LIFE IP BuildEST – renovation marathon in Estonia



www.kliimaministerium.ee/buildest

2022-2028, 16,2 MEUR, 17 partners



Joonis 1. Kumulatiivne aastane rekonstrueerimise vajadus.

2003-2007

Loan: 8+%, short periods, insufficient funding
Grant: 10% (11 mln) – single works

2009-2014

Loan (KredEx): fixed~4%, 20y period, sufficient funding
Grant: 15, 25 and 35% (38 mln) – first deep renovation attempts
(bad ventilation solution)

2015-2017

Loan: fixed ~2,5% 5y, 15-20y period, sufficient funding
Grant: 15, 25 and 40% (102 mln) – improved ventilation, more complexity, technical consultants

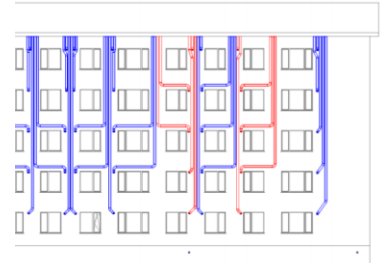
2018-2022

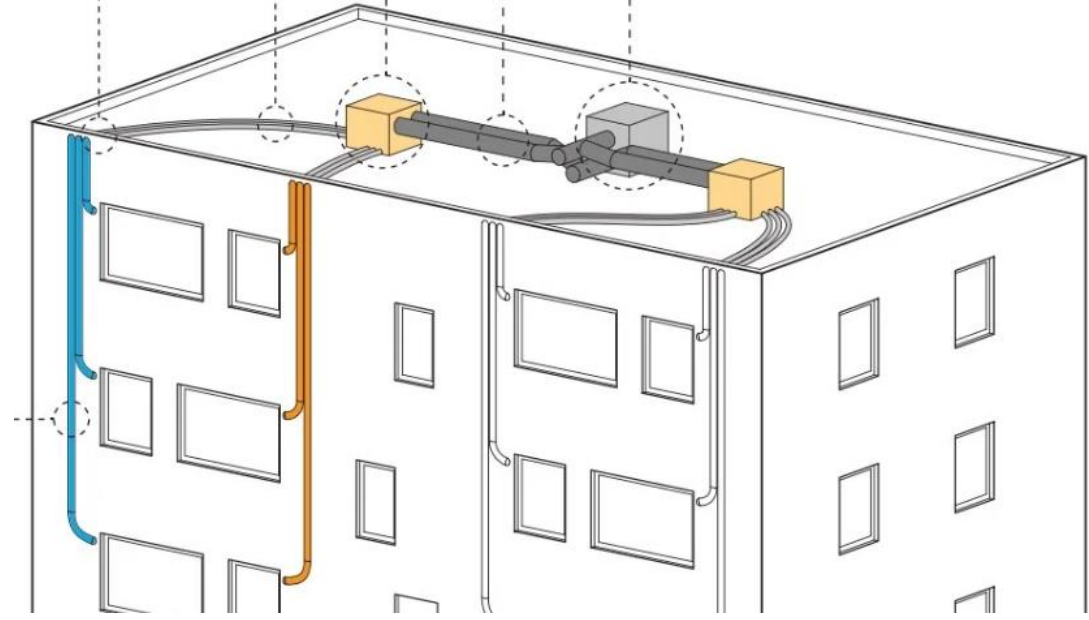
Loan: ~2,5% 20+y period, sufficient funding + KredEx loan for buildings with low value (bank not interested)
Grant (regional aspect): 30, 40 and 50% (ca 90 mln), different measures (partial, PV)
Pilotgrant for prefabrication: 50%, 19 buildings (ca 20 mln)

2023-2027

Loan: ~2,5% 25y period, sufficient funding + KredEx loan
Grant: 30 40 and 50% (330 mln) – even more regional aspect, more grant for prefabricated technology

Increased depth, quality, **ventilation** and energy savings, consultation, capacity building





Zehnder



Arcwood







Main project idea/purpose and implementation aspects, achievements/success stories

Dr.-Ing. Paris A. Fokaides, Euphyia Tech Ltd

paris@euphyia-tech.com

CINEA Cross-programme Buildings Clustering Meeting
21-22 May Brussels



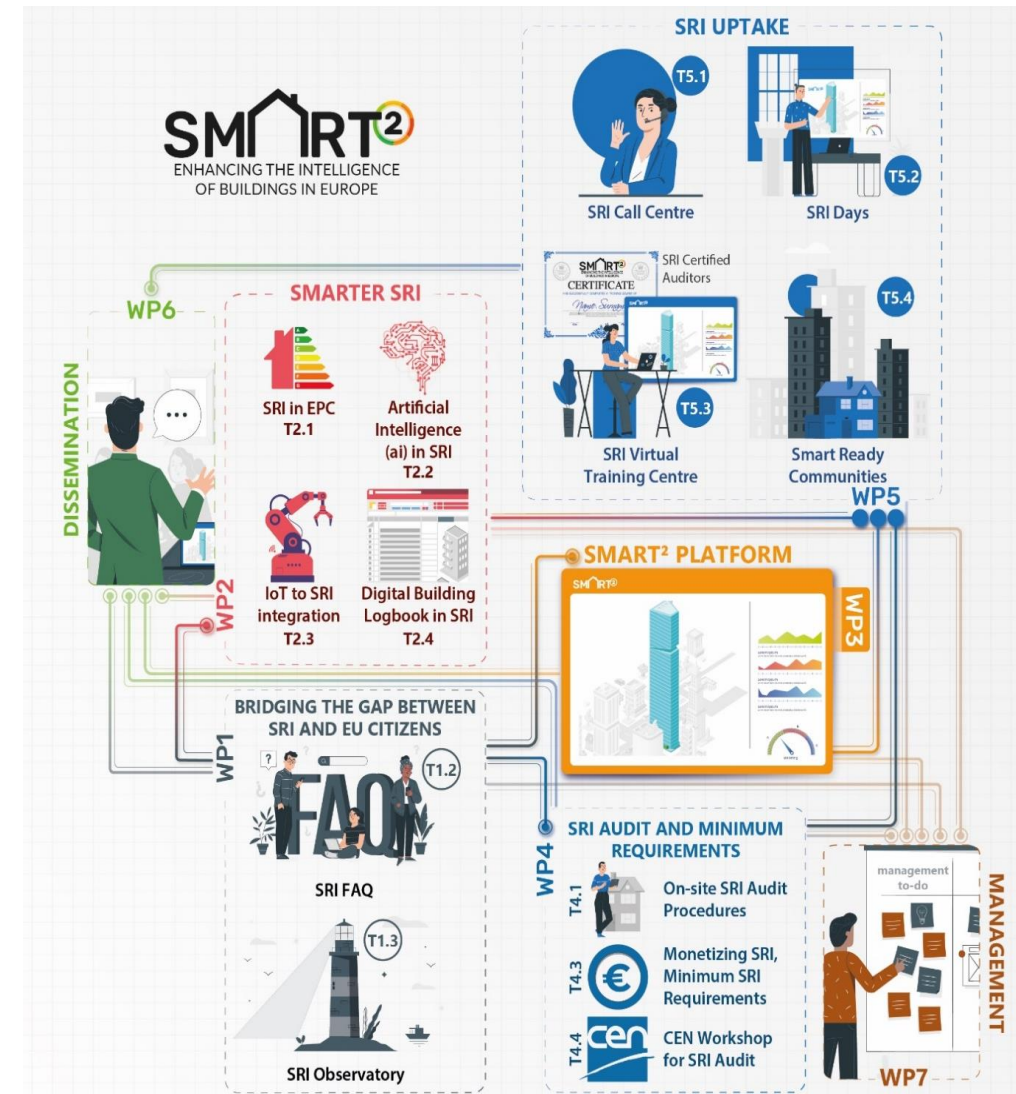
Funded by the
European Union

“Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them”



Smart Square Proposition

- The Smart Square project (<https://www.smartsquare-project.eu/>) provides innovative tools and solutions to promote SRI adoption across EU Member States, enhancing building intelligence.
- An open-access application, Smart-Ready-Go (www.smart-ready-go.eu), facilitates real-time SRI assessments of buildings using Method A, B, and a simplified method.
- The project launches additional activities like the SRI FAQ (<https://sri-faq.eu/>) and SRI Observatory (<https://sriobservatory.eu/>) to support demonstration and increase SRI uptake.
- Smart Square initiated a CEN Workshop aimed at defining best practices for conducting onsite SRI audits, ensuring standardized and effective processes.



Smart Ready Go! An open access tool for simplified SRI assessment

The screenshot shows the homepage of the Smart Ready GO! platform. At the top left is the logo, and at the top right is a navigation bar with a UK flag, a user profile icon, and a 'Logged in' status. Below the navigation bar are menu items: Home, Assessment, Call Centre, Dashboard, and Contact Us. The main content area features a 'Welcome to Smart² platform!' message with a 'Start Tutorial' button. There are four main content blocks: 1. 'Documentation' with a 'Download' button and 'Last updated 3 days ago'. 2. 'Getting started' with a 'Tutorials' button and 'Last updated 3 days ago'. 3. 'What makes a building smart' with a sub-section 'Advantages' and a list of three points. 4. 'History of the SRI' with two entries: 'First SRI technical study for the EC: 2017,2018' and 'Introduction 2018'.

Smart Ready GO!

UK Logged in

Home Assessment Call Centre Dashboard Contact Us

Welcome to Smart² platform! Start Tutorial

Documentation

Click the button below to download the user guide.

Download

Last updated 3 days ago

Getting started

Click the button below for video tutorials.

Tutorials

Last updated 3 days ago

What makes a building smart

Advantages

The 'smartness' of a building refers to its ability to sense, interpret, communicate and actively respond in an efficient manner to changing conditions in relation to:

- The operation of technical building systems
- The external environment (including energy grids),
- Demands from building occupants.

The SRI rates the smart readiness of buildings (or building units) in their capability to perform 3 key functionalities:

- Optimise energy efficiency and overall in-use performance,
- Adapt their operation to the needs of the occupant,
- Adapt to signals from the grid (for example, energy flexibility).

The SRI will raise awareness of the benefits promised by smart building technologies, such as building

History of the SRI

First SRI technical study for the EC: 2017,2018

Definition of the SRI and draft methodology. Intensive stakeholder consultation.

Introduction 2018

Introduction of the SRI in the 2018 revision of the EPBD as an optional scheme.

SRI Observatory! A hub for the SRI developments



The screenshot shows the SRI Observatory website homepage. At the top, there are navigation links for 'About Us', 'Contact us', and 'FAQ'. The main header features the 'SM²IRT SRI Observatory' logo, a 'Subscribe' button, and a search bar. Below the header is a dark navigation bar with dropdown menus for 'Europe', 'Countries', 'EU-funded Projects', 'Scientific research', 'SRI Outlook', and 'Learn more'. The main content area has a green background with the title 'SRI Observatory' and a sub-header 'The site to stay up to date on the latest Smart Readiness Indicator (SRI) policy developments at the EU level, to track and compare national implementation status, and to find out about the most relevant research developments in the field of building smartness.' A central image shows a hand holding a tablet displaying various smart building icons. A white box at the bottom left contains the SM²IRT logo and the text 'The SRI Observatory is a result of the Smart Square project'.



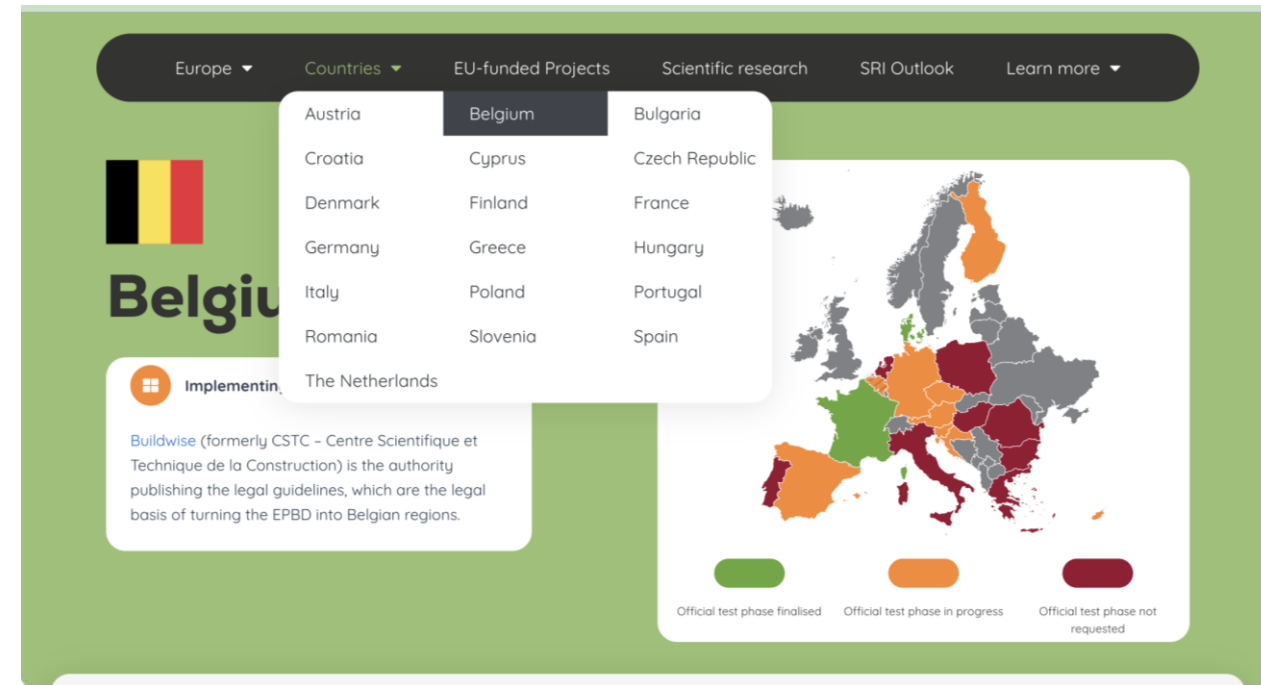
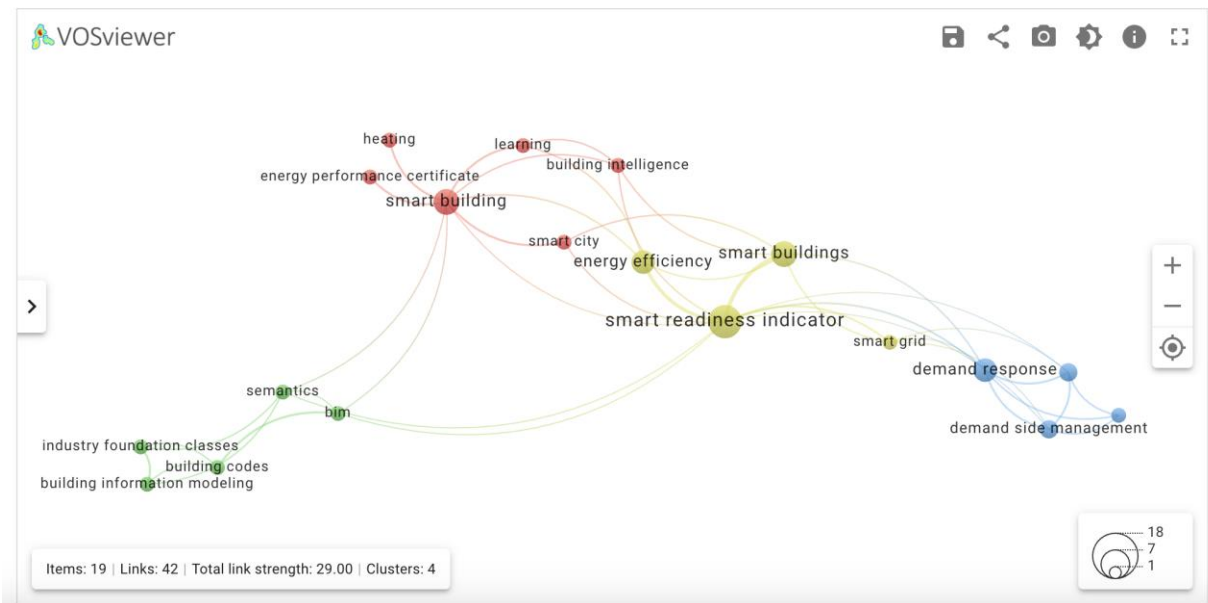
The cover of the 'SRI Outlook 2023' report features a cityscape at sunset. The SM²IRT logo is in the top left corner, with the tagline 'ENHANCING THE INTELLIGENCE OF BUILDINGS IN EUROPE'. The title 'SRI Outlook 2023' is prominently displayed in the center. At the bottom, there is an 'ACKNOWLEDGEMENT' section with small text and two European Union flags.



SRI Observatory! A hub for the SRI developments

Building smartness research tracker

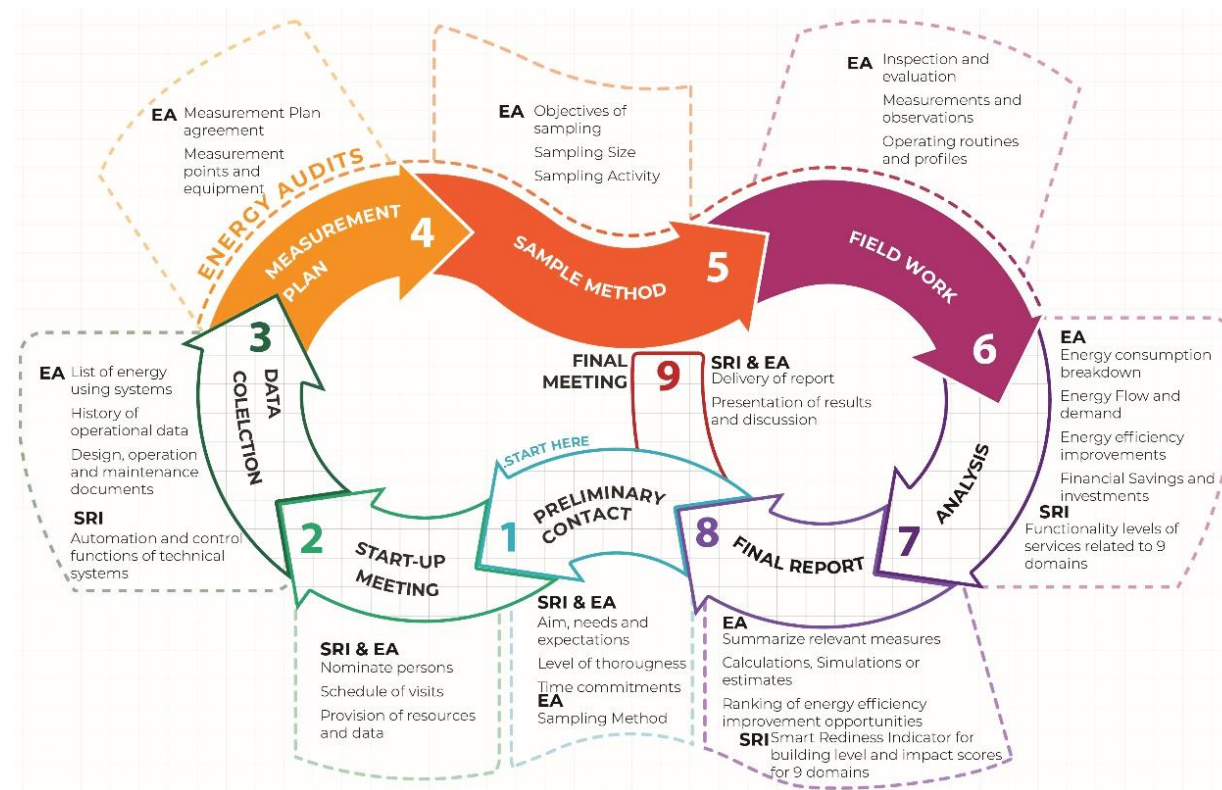
The approaches of scientific research on building smartness are diverse. However, the relevance of the Smart Readiness Indicator (SRI) in relation to smart buildings is remarkable. Other related research terms are depicted in the network graph below.



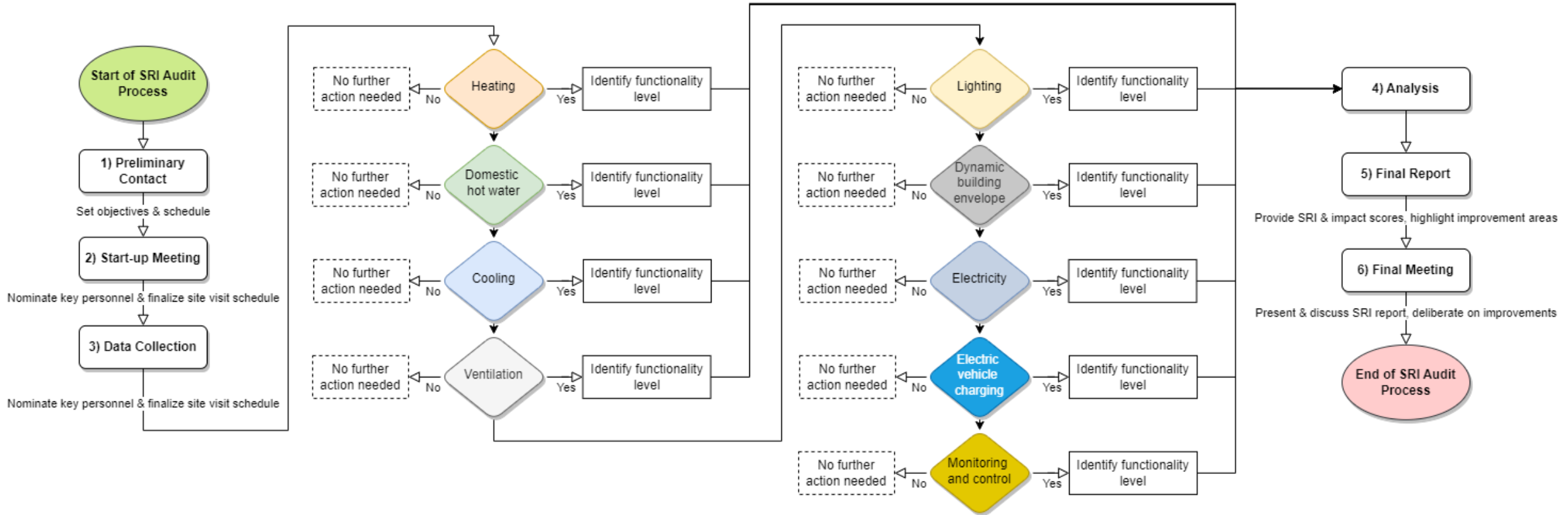
CEN Workshop for SRI On Site Audits

Step-by-Step Audit Procedure:

1. Preliminary Contact: Define audit objectives and scope.
2. Start-up Meeting: Nominate key personnel and finalize site visits.
3. Data Collection: Document automation and control functions.
4. Analysis: Assess functionality levels across nine SRI domains.
5. Final Report: Compile Smart Readiness Indicator and domain impact scores.
6. Final Meeting: Discuss report findings and potential improvements.



CEN Workshop for SRI On Site Audits



CEN Workshop for SRI On Site Audits

	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31
CEN/CENELEC Workshop	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25
Initiation	█															
1. Proposal form submission and TC response	█															
2. Project plan development	█	█														
3. Open commenting period on draft project plan		█														
Operation			█													
4. Kick-off meeting			█													
5. CWA development			█	█	█	█	█	█	█	█	█	█	█			
6. Open commenting phase												█				
7. CWA finalised and approved by Workshop participants													█			
Publication															█	█
8. CWA publication															█	█
Dissemination		█	█									█				█
Milestones		B	K			V	M	V	V	M	V		A			P D



Main project idea/purpose and implementation aspects, achievements/success stories

Dr.-Ing. Paris A. Fokaides, Euphyia Tech Ltd

paris@euphyia-tech.com

CINEA Cross-programme Buildings Clustering Meeting
21-22 May Brussels



Funded by the
European Union

“Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them”





CINEA Cross-programme Buildings Clustering Meeting

SRI2MARKET

Prepared by Dimitrios Athanasiou & Filippos Anagnostopoulos
Institute for European Energy and Climate Policy

**Paving the way for the adoption of the
SRI into national regulation and market**

Brussels, 21-22 May 2024



Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Project objectives

Setting up national campaigns

- › Consulting national stakeholders
- › Adapting the SRI calculation to national specificities
- › Providing recommendations for policy makers and building owners
- › Designing public funding schemes
- › Exploring alternative paths to SRI certification

Developing a SRI assessment tool

- › Enhancing the SRI calculation
- › Running pilot cases to test the tool
- › Training assessors
- › Linking with Energy Performance Certificates



Support the **targeted countries** on introducing the SRI into their national regulation



Propose **public funding schemes** to finance SRI upgrades in buildings



Develop **tools** to guide SRI assessors and streamline building assessments



Provide **training** to EPC assessors on the SRI and the methodology of its calculation

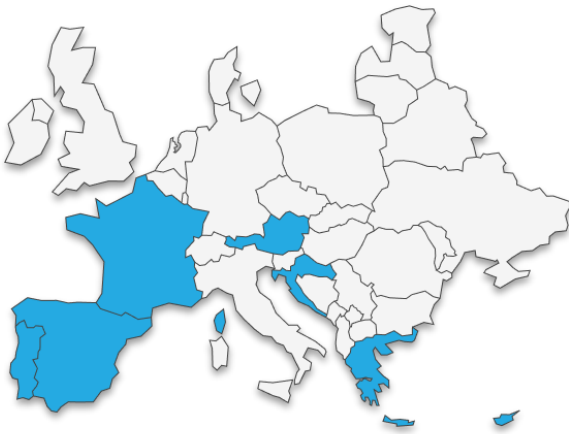


Set up **SRI pilots** at national level identify best practices for SRI assessments



Provide **recommendations** to building owners and facility managers on cost-effective SRI upgrades

Geographical coverage



EU countries	Partners
Austria	AEE INTEC, BOKU
Croatia	EIHP
Cyprus	CEA
France	R2M
Greece	UPRC, HEBES
Portugal	ADENE
Spain	CENER

SRI2MARKET

Countries with ongoing test phases

AUSTRIA AND FRANCE

SRI2MARKET will learn from their tests and provide complementary support to their activities.

Countries with active interest in SRI

PORTUGAL AND SPAIN

SRI2MARKET will support with designing and implementing a testing phase, applying the lessons learnt from the first group.

Countries examining how to proceed

CROATIA, CYPRUS and GREECE

SRI2MARKET will engage national policy and market stakeholders to create interest in the SRI and the opportunities that emerge from it.

Project outcomes

SRI assessment tool

The tool will provide a user-friendly interface for users to save their SRI assessments. The tool will also create dynamic scorecards according to pre-defined filters, and it will automatically compare SRI assessments of buildings situated in different countries.

E-learning platform

E-learning lessons on the SRI and its assessment methodology. The course will be structured in chapters and will rely on training materials such as videos and documents in every partner's national language.

SRI2MARKET

Project outputs and KPIs

SRI assessment tool: 3,000 users

SRI assessments: 1,200 total

Training on SRI methodology: 1,200 beginners, 600 experts

Use cases of cost-effective SRI upgrades: 30 total

Workshop for co-designing and evaluating business models:

20 representatives of ESCO and building EMS providers

Challenges and barriers

National specificities and priorities

- Co-create with national authorities an SRI adoption roadmap fit to each participating country
- Assess in detail the boundary conditions of SRI implementation to prepare concrete roadmaps

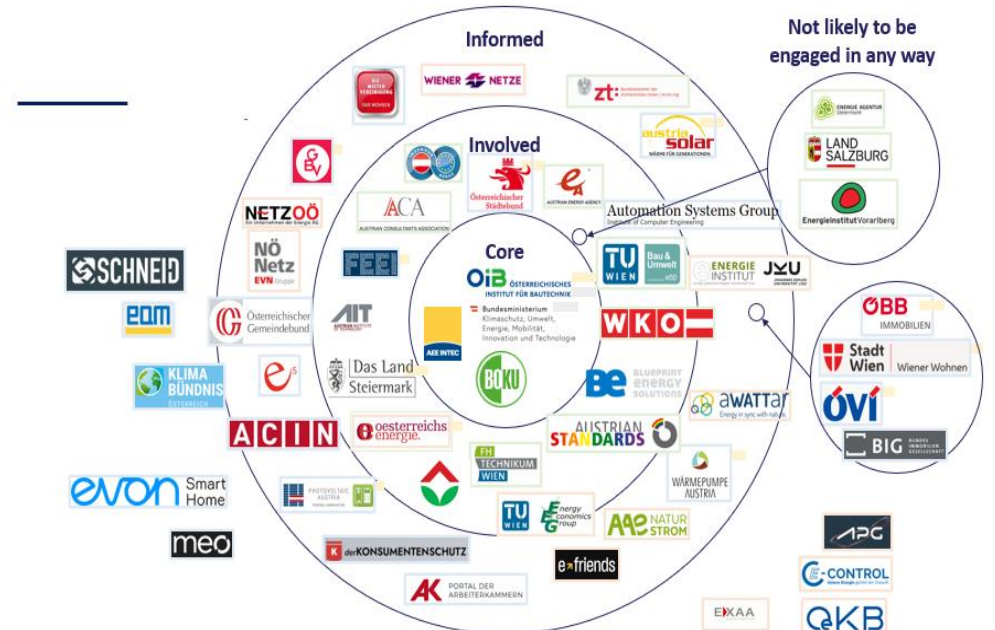
Market & Stakeholder's engagement

- Setup of pilot campaigns at national level
- Map, identify and engage the relevant stakeholders in each national ecosystem (e.g. ->)

SRI2MARKET

Technical support

- Development of an SRI assessment tool
- e-learning material on the SRI
- Training of assessors (3 certification levels)
- Integration of EPC and SRI certification



Success story: test phase in Spain and Croatia

CROATIA

The SRI test phase in Croatia is led by the Ministry of Physical Planning, Construction and State Assets and is supported by the Energy Institute Hrvoje Pozar (EIHP).

The decision for the test phase was influenced by the funding of the SRI2MARKET.

Projects involved: SRI2MARKET, SRI-ENACT

SPAIN

The SRI test phase in Spain is led by the Ministry for the Ecological Transition and the Demographic Challenge.

IDAE (Institute for Diversification and Energy Saving) is the public organization in charge of the EPC schemes, as well as the SRI instrument.

CENER and EFINOTATIC are technical partners of IDEA, and part of the group of developers chaired by IDAE to provide technical perspective and advice regarding the future evolution and development of the EPC in Spain.

Projects involved: SRI2MARKET, easySRI, SRI-ENACT

SRI2MARKET

Future developments and replication: interaction with the LIFE SRI Cluster & the SRI Platform

- [EasySRI](#) - Improving and demonstrating the potential of SRI
- [SRI₂MARKET](#) - Paving the way for the adoption of the SRI into national regulation and market
- [SRI-ENACT](#) - Co-creating Tools and Services for Smart Readiness Indicator Uptake
- [Smart²](#) - Smart Tools for Smart Buildings: Enhancing the intelligence of buildings in Europe



SRI₂MARKET

LIFE CET SRI projects **support Member States** to successfully plan the rollout of the SRI in their national regulation and markets.

The LIFE SRI cluster projects aim to collaboratively develop **complementary tools**, enhancing the effectiveness of SRI.

The projects strive to **support policy makers** by providing valuable insights and data, fostering informed **decision-making** in the realm of smart building assessments.

Our joint effort results in more efficient and effective outcomes, ensuring our results **complement rather than duplicate each other**.



Thank you!

Filippos Anagnostopoulos
IEECP



SRI2MARKET



Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

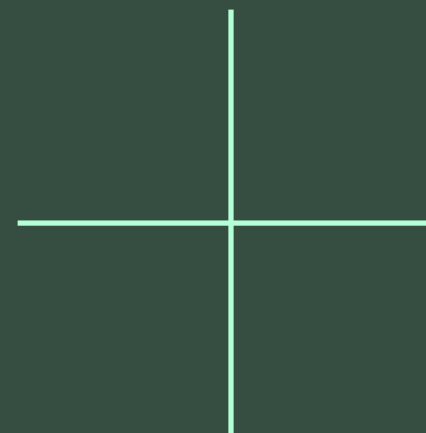
CLIMATE POSITIVE



ARV

CINEA Buildings Clustering Meeting
21-22 May, Brussels

Gloria Oddo
Project Officer, Architects' Council of Europe



CIRCULAR COMMUNITIES

KEY DATA

35
partners

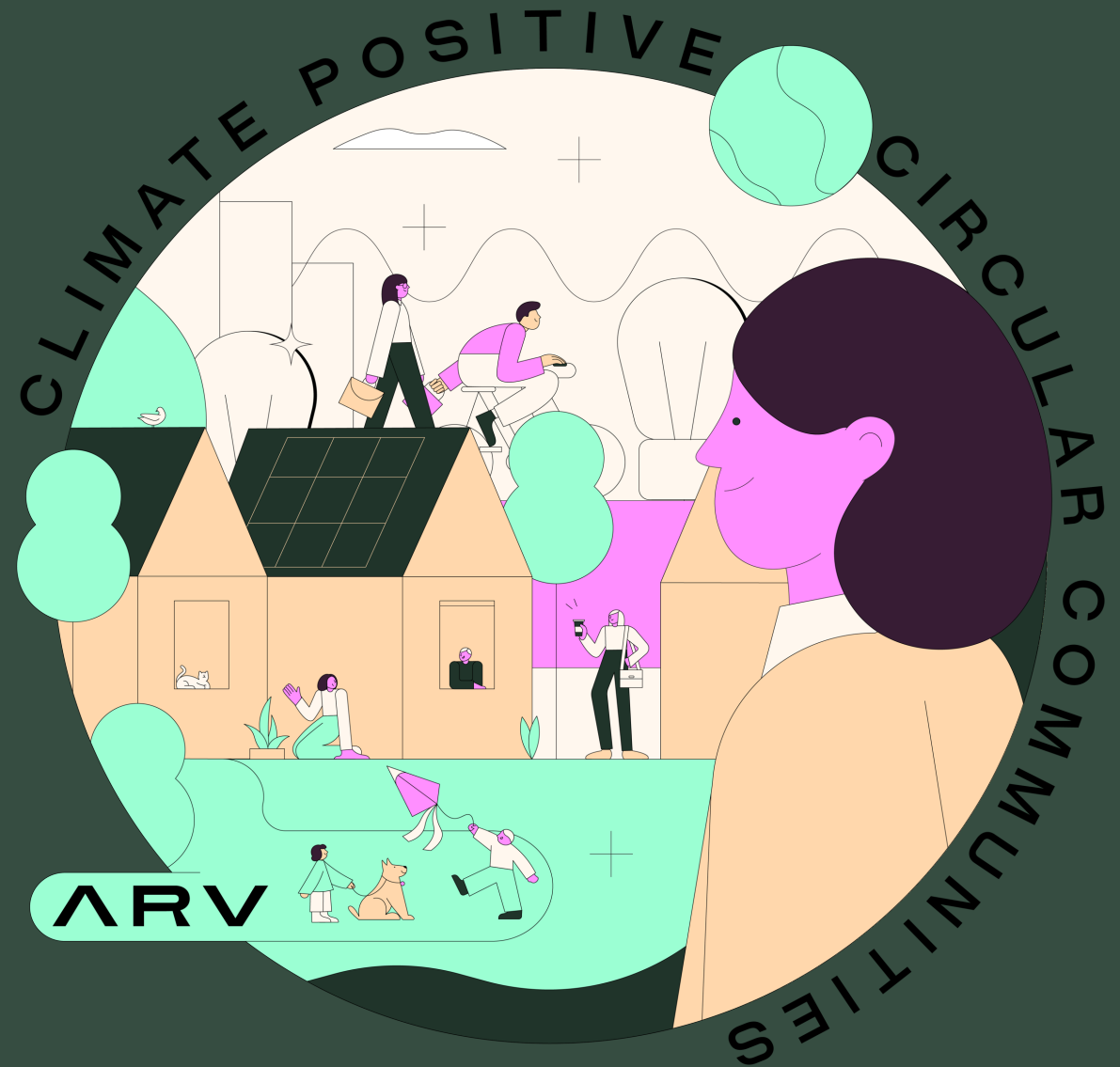
8
countries

2022 -
2025

6 large
scale demo
projects

130 000 m2
renovation

25 000 m2
new
construction



ARV is a Norwegian word meaning LEGACY or HERITAGE

CLIMATE POSITIVE CIRCULAR COMMUNITIES

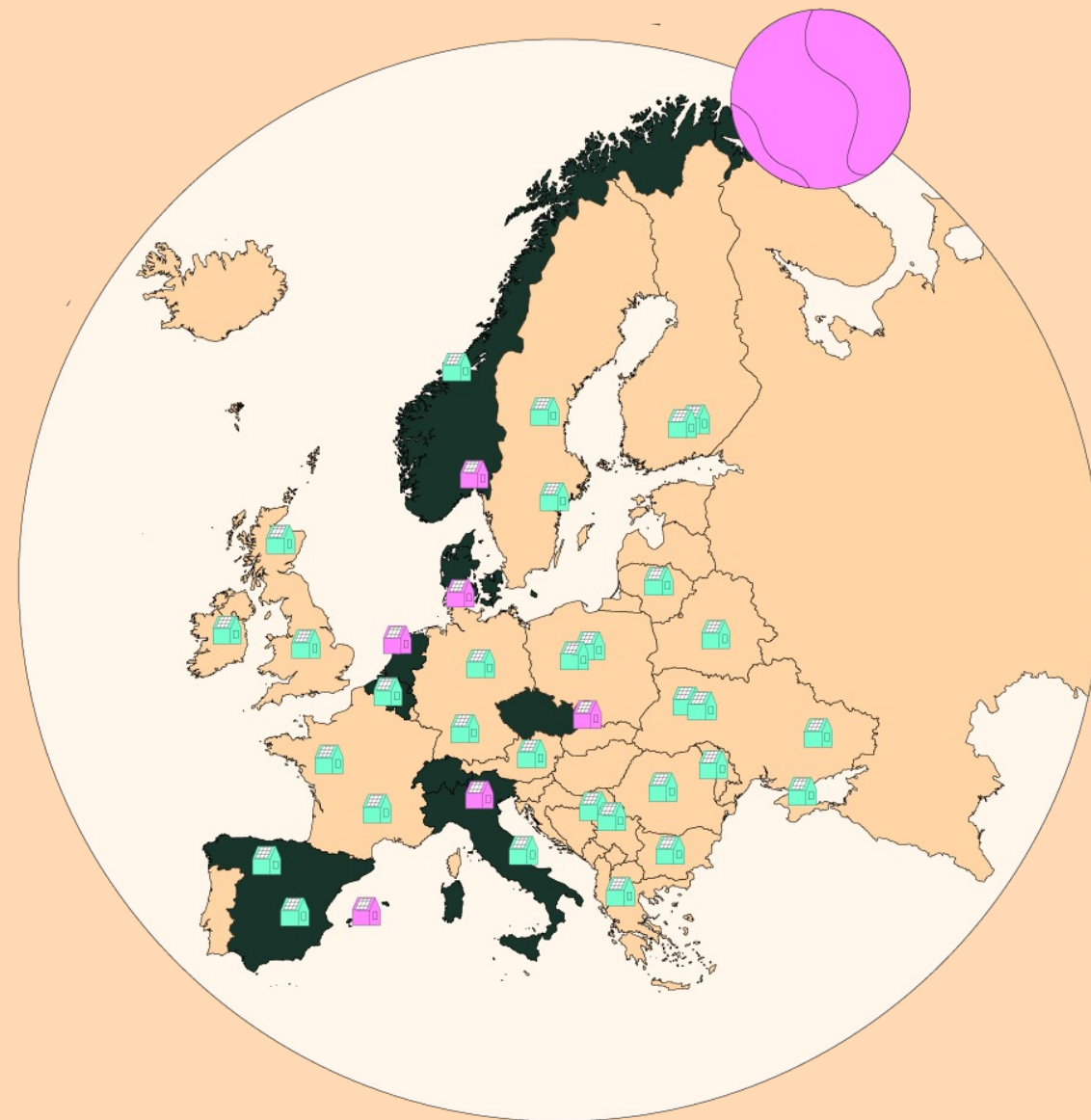
OUR VISION

To contribute to wide-scale implementation of **Climate Positive Circular Communities (CPCC)** where people can thrive and prosper for generations to come.

WHAT ARE CPCCS?

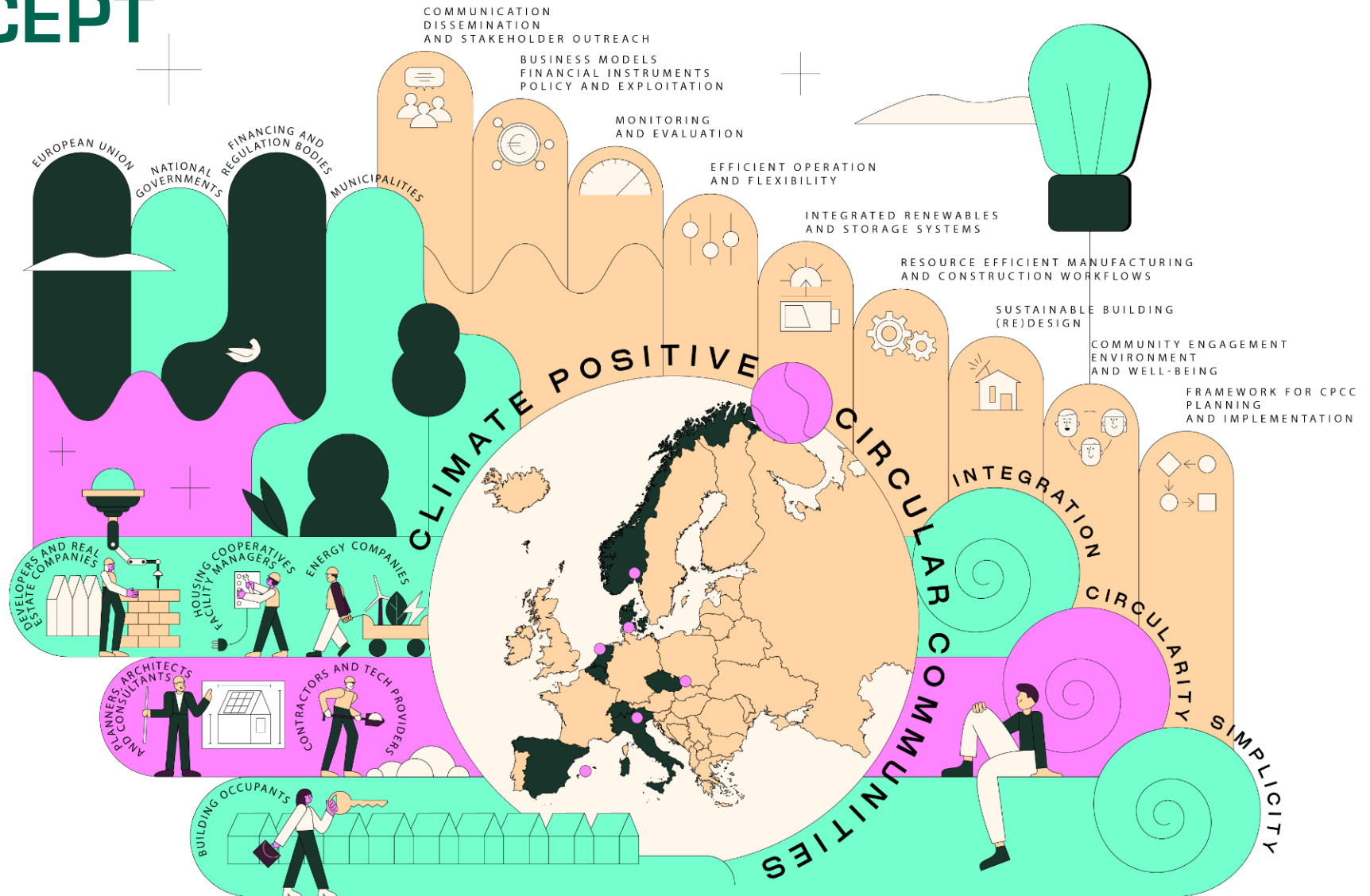
A Climate Positive Circular Community (CPCC) is an urban area which aims to achieve **net zero greenhouse gas emissions**, enables **energy flexibility**, and promotes a **circular economy** and **social sustainability**.

The CPCC concept focuses strongly on the interaction and integration between new and regenerated buildings, users, and energy systems, facilitated by ICT to provide attractive, resilient, and affordable solutions for citizens.



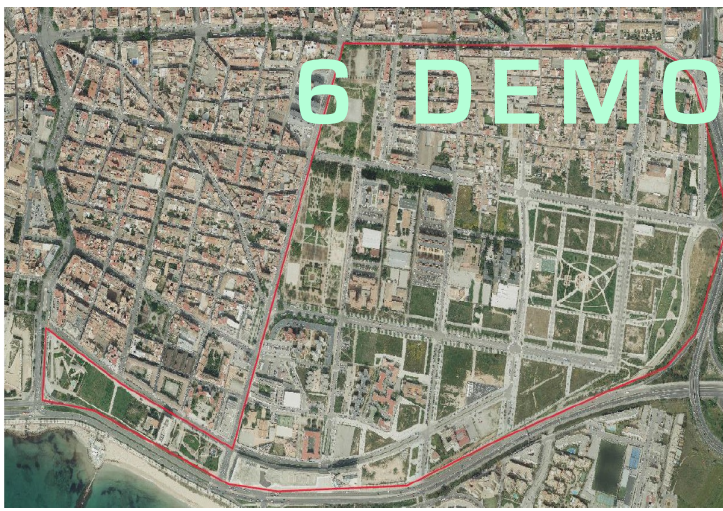
THE ARV CONCEPT

- 3 conceptual pillars
 - integration
 - circularity
 - simplicity
- 6 demo projects
- 9 focus areas



6 DEMO PROJECTS

Palma de Mallorca, Spain:
Urban transformation of large city district into circular energy community



Trento, Italy:
Renovation and new built area with innovative energy infrastructure

Utrecht, the Netherlands:
Social renovation of residential blocks by industrialization




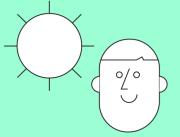
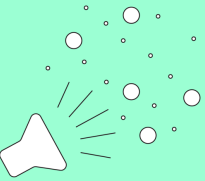


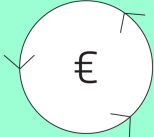
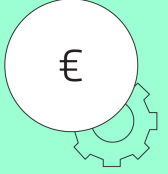
Karvina, Czechia:
Living Lab for transformation from Coal district to PED and CPCC

Sønderborg, Denmark:
Smart and flexible homes embedded in district energy system



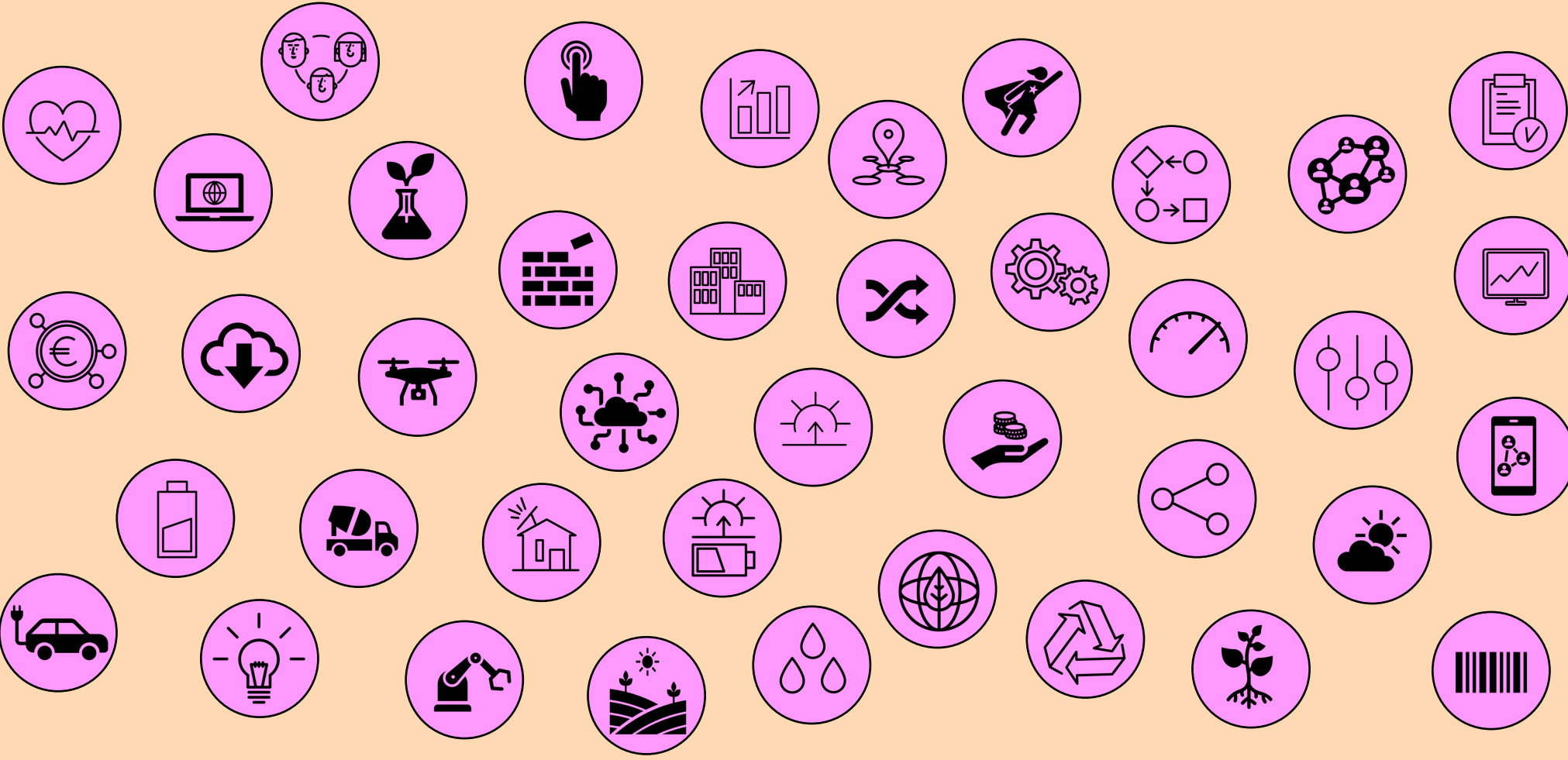
Oslo, Norway:
School and cultural area as a lighthouse for CPCCs

KEY PERFORMANCE GOALS

	ENERGY	IEQ	NOISE & DUST	EMBODIED EMISSIONS	TIME	LIFE CYCLE COSTS	CONSTRUCTION COSTS
NEW BUILDINGS	 <p>At least 50% reduction in energy needs compared to current country building code. Positive energy level based on primary energy</p>	 <p>High levels of indoor environment quality according to EU norms</p>	 <p>According to the EU health, safety and environment standards</p>	 <p>At least 50% reduction compared to local practice</p>	 <p>At least 30% reduction compared to local practice</p>	 <p>At least 20% reduction compared to local practice</p>	 <p>At least 30% reduction compared to local practice</p>
RENOVATION	<p>At least 50% reduction in energy needs compared to pre-renovation levels. At least nZEB standard</p>	<p>At least 30% improvement compared to pre-retrofitting levels according to EN 16798-1:2019</p>	<p>At least 30% reduction in occupant disruption during retrofitting compared to current practice</p>	<p>At least 50% reduction compared to local practice</p>	<p>At least 30% reduction compared to local practice</p>	<p>At least 20% reduction compared to local practice</p>	<p>At least 30% reduction compared to local practice</p>

MORE THAN 50 INNOVATIONS (SOON AVAILABLE ON OUR E-MARKETPLACE)

social - economic - environmental



ARV

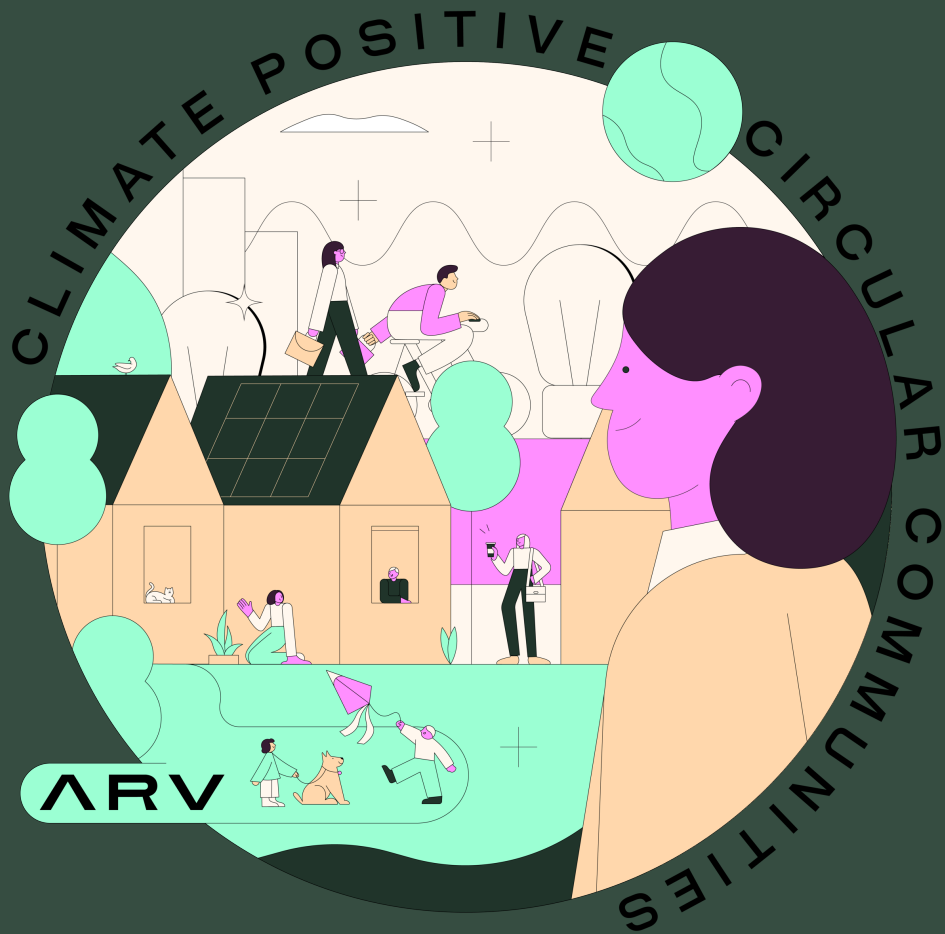
technical solutions

-

processes

-

methods and tools



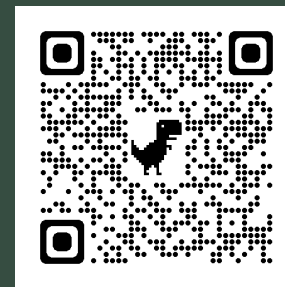
Thank you!

gloria.oddo@ace-cae.eu

<https://greendeal-arv.eu/>

<https://twitter.com/GreenDealARV>

<https://www.linkedin.com/company/arv-h2020/>



Subscribe to our newsletter!



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036723

CLIMATE POSITIVE CIRCULAR COMMUNITIES



IES R&D
IRELAND

iBECOME

Intelligent Building Energy Assets Control for Comfort, Energy
and Flexibility Optimization

Presenter: Sara Momi, R2M Solution, on behalf of Dimitrios Ntimos, IES R&D, iBECOME coordinator

iBECOME Key Facts

Funded under:

H2020-EU.3.3.1. - Reducing energy consumption and carbon footprint by smart and sustainable use

Total budget € 4.9M (requested EU funding of € 3.7M)

10 Partners – 4 Countries

48 months (June 2020 – May 2024)

Project demonstration in 4 sites





iBECOME intended to demonstrate a combination of novel technologies for

Reducing energy bills in a building or facility through energy savings and demand response **by**

leveraging IoT, data analytics and the efficient control of a building, **to**

1 improve occupant wellbeing and optimising comfort while

2 enabling additional services (e.g. EV charging optimisation, etc.)

The iBECOME virtual Building Management System (Software-as-a-Service)

Data



Monitoring



On-site ICT
automated control

ICT



Intelligence

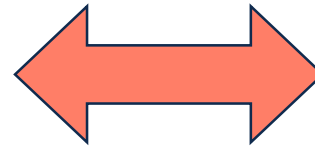


Forecasting Toolbox



Analytics, Insights &
Advisory Control

ICT



Basic Services



Retrofit Design &
Implementation

Optimization of visual &
thermal comfort, paired
with predictive control



Fault Detection, Diagnosis
and Maintenance

Measurement & Verification
(M&V) of the energy
performance

Scenarios of energy
efficiency measures

Advanced Services



Optimization

Monitoring of health
conditions of patients



Welfare & Commuting
Management

DR for energy flexibility
services

e.g., EV charging; app for
car-pooling

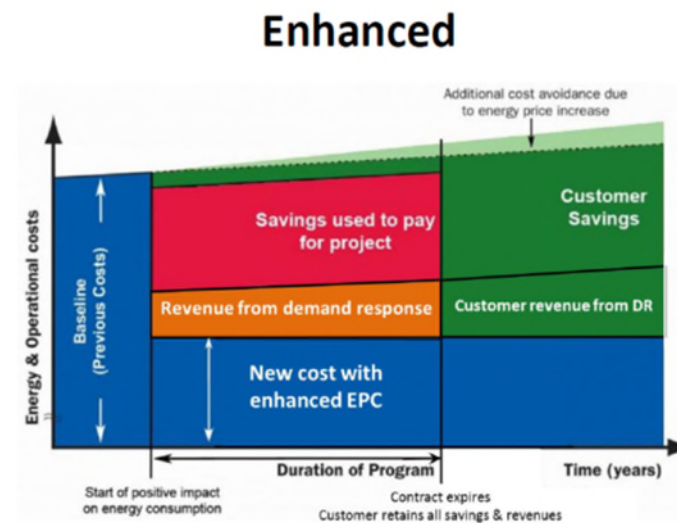
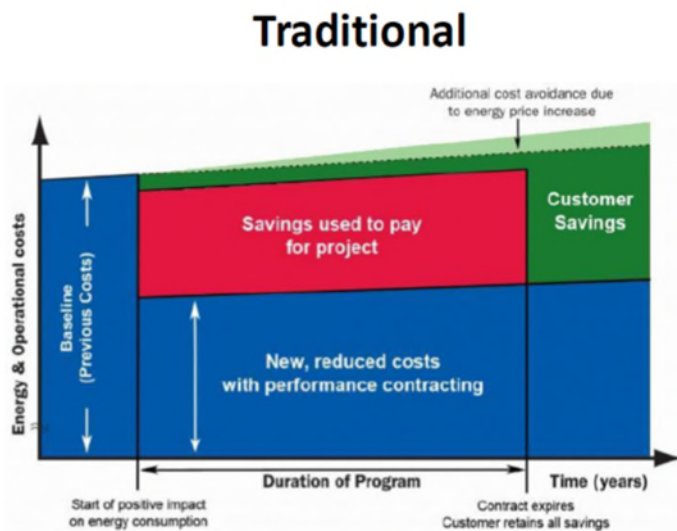
Business Models: 2 types of Energy Performance Contracts

Agile EPC

Direct agreement between stakeholders
Deploy as SaaS
Revenue from operational energy savings

Enhanced EPC

Define the optimal retrofit
Commission the retrofit
+
Agile EPC = revenues from DR



Demonstration in 4 Pilots



Just vBMS installed, No BMS

**Country Crest,
Ireland**

Food Processing Facility



**Helix Building,
Glasgow (UK)**

Office



vBMS combined with retrofits and BMS

ASP Venzone (I)

Care Home



**World Trade Center,
Grenoble (FR)**

Business Center

Success Story: The Helix Building, Glasgow, UK



Audit/Survey – Issues



- No BMS, just IoT sensors/meters
- Heating is on a weekly schedule
- No local heating control
- Pre-heating not enough (very cold winter days)
- Meeting rooms either cold or overheated
- Air quality issues in meeting rooms



Facility/Energy Manager Workload

- Navigate daily-weekly to 4-5 apps
- Just energy bills to check energy use
- Receive complaints and adjust heating manually
- Use spreadsheets to track and report
- Maintenance needs & issues not noticed on time

Solution: minimum hardware required



Off-the-shelf hardware from the market

- Portable WiFi space thermostat
- Smart TRV valves
- Window sensors
- Cloud access to Sensors & Heat/Electricity meters
- LED indicators

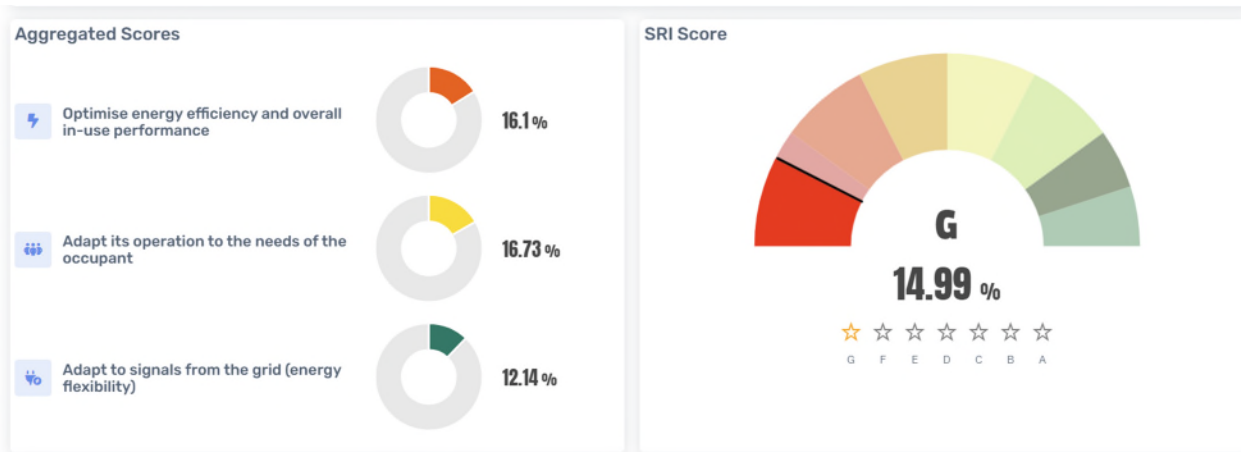
Solution: with iBECOME vBMS



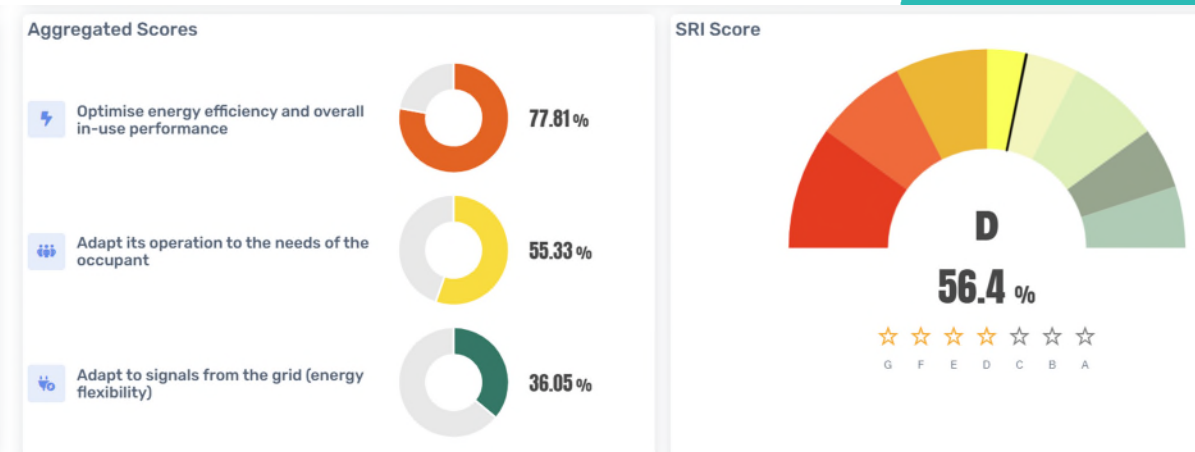
- All the live/historical sensor/meter data from all the hardware in one place
- Dashboard for the Energy/Facility manager
- Alerts for data gaps/anomalies
- CO₂ alert in meeting rooms
- Calibrated energy model to calculate what-if scenarios and M&V
- ML Comfort predictions
- ML Heating Valves fault detection
- Battery degradation predictive maintenance
- Threefold Automatic control of heating
 - Occupancy based in meeting rooms
 - "Smart" pre-heating based on next day weather forecast
- Energy savings calculations using M&V
- What-if scenarios for decarbonisation

Helix Building: Smart Readiness Indicator before and after

Before iBECOME



After full iBECOME solution



Calculated using  <https://www.smart-ready-go.com/>

Challenges and barriers

- COVID-19 caused big challenges: use of offices & air quality; delays in purchasing equipment; increase in prices of energy vectors
- Mechanical failures during installation of equipment = delays and increased costs
- Software deployment and interconnectivity between various components = delays
- Not so easy to fully assess energy & non-energy benefits of the iBECOME solution

Needs for future development

- Deploy all solutions for full winter/summer seasons, 2-3 full years and check outcomes
- Automated remote control (using Machine Learning) + energy modelling still very challenging, and costly for smaller buildings
- Need to replicate in > buildings & climates (focus on extreme weather phenomena)
- Need to find a way to keep energy models calibrated for a long period of time

Thank you!



ibecome-project.eu



info@ibecome-project.eu



@IBECOME_EU



@ibecome-project

iBECOME

This project has received funding from the European Union's Horizon 2020 Programme under Grant Agreement no 894617

