SUPERSHINE

D6.3: Library of KERs & Stakeholder Mapping

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Funded by the European Union

UKRI Innovate UK

1. Technical references

Project Acronym	SUPERSHINE
Project Title	S=Smart U=Upgraded asset-values and quality of life P=Public Private Partnership E=Extended Energy Efficiency R=Renewables triggered by the project SH=Social Housing I=Investment N=Net Zero E=European
Project Duration	November 2022– March 2026

Deliverable No.	D6.3
Dissemination level*	PU
Work Package	WP6 - WP Communication, Dissemination and Exploitation
Task	T6.2 - Key Exploitable Results identification and stakeholder mapping
Lead beneficiary	6 (ICONS)
Contributing beneficiary/ies	All
Due date of deliverable	31 May 2024
Actual submission date	30 May 2024

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v	Date	Beneficiaries	Track changes
1.0	23/04/2024	ICONS	Niccolò Belluati – first draft
2.0	08/05/2024	ICONS	Niccolò Belluati, Niccolò Albanese – Second draft
2.1	16/05/2024	ICONS	Niccolò Belluati, Erica Moresco – Update of the second draft
2.2	20/05/2024	ICONS	Claudia Crippa – Update of the second draft

3.0	23/05/2024	ICONS	Niccolò Belluati, Niccolò Albanese, Erica Moresco – Final draft
3.1	30/05/2024	APRE	Final review

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2.3. Table of Acronyms

Table 1 - Table of Acronyms

Acronym	Definition
API	Application Programming Interface
B2B	Business-to-business
B2B2C	Business-to.business-to-consumer
B2G	Business-to-government
CCC	City Climate Contracts
CDE	Communication, Dissemination and Exploiation
DEEP	Data Entry and Exploration Platofrm
EE	Energy Efficiency
EEIG	European Economic Interest Group
ESCO	Energy Service Company
EU	European Union
HW	Hardware
IP	Intellectual Property
KER	Key Exploitable Result
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
LH	Lighthouse
NA	Not applicable
OSS	One-Stop-Shop
ROI	Return on Investment
RTO	Research and Technology Organisation
SH	Social Housing
SLCA	Social Life Cycle Assessment
SME	Small and Medium Enterprise
SPV	Special Purpose Vehicle
SW	Software
TRL	Technology Readiness Level

3. Executive Summary

Deliverable D6.3 of the SUPERSHINE project focuses on the identification and analysis of Key Exploitable Results (KERs) and the mapping and analysis of stakeholders involved in the project's value chains. This deliverable is essential for laying the groundwork for effective dissemination and exploitation strategies that aim to maximize the impact of the project's outcomes during and beyond its execution.

Key Achievements of D6.3

1. Identification and Analysis of Key Exploitable Results (KERs):

The analysis has highlighted 6 main KERs and 11 sub-KERs, which are significant outputs with potential for practical application beyond the project's duration. Each KER has been analysed to understand its potential benefits and applications. The KERs identified include innovative technologies, methodologies, and tools designed to improve energy efficiency in social housing. These results aim to enhance the sustainability and performance of social housing stock, ultimately benefiting residents and contributing to broader environmental and social goals.

A summary of the identified KERs is here provided:

Table 2 - SUPERSHINE KERs

KER	Name
KER1	Blueprint business and financial models and evaluation methodology
Sub-KER1.1	*Financial profitability and cost reduction KPIs*
Sub-KER1.2	*Funding sources KPIs*
Sub-KER1.3	*Energy Poverty KPIs*
Sub-KER1.4	*Innovative Revenue Generation Models*
Sub-KER1.5	*Sustainability Impact Assessment Framework*
Sub-KER1.6	*Real estate crowdfunding strategy*
KER2	Blueprint SLCA, LCA and LCC models
KER3	Blueprint social acceptance and co-design models
Sub-KER3.1	*Guidelines on tenants' engagement*
KER4	Blueprint Technologies
KER5	SUPERSHINE Portal
Sub-KER5.1	*SUPERSHINE Business Model*
Sub-KER5.2	*SUPERSHINE e-room*
Sub-KER5.3	*SUPERSHINE Training toolkit*
Sub-KER5.4	*SUPERSHINE One stop shop*
KER6	Lighthouse, Fellow cities and supporting partners advancements in knowledge

2. Comprehensive Stakeholder Mapping and Analysis:

A stakeholder mapping exercise was conducted to identify and categorize stakeholders based on their potential impact and interest in the project's outcomes. This process involved desk research, brainstorming sessions, and questionnaires from project partners. Stakeholders, including policymakers, housing authorities, technology providers, residents, and academic institutions, have been analysed and profiled according to their specific interests, potential influence, and role in supporting the exploitation of SUPERSHINE KERs. The analysis has highlighted the importance of private and public providers of social housing, housing associations and national and regional federations, EU and national financing institutions as well as technical solutions and service providers (including ESCOs, construction and refurbishment service providers, energy efficiency solutions providers, engineering companies, and HW/SW providers for the housing sector), for maximising the uptake of SUPERSHINE approach and results.

The insights derived from this deliverable are crucial for shaping the project's dissemination and exploitation strategies. By understanding the relationships and dynamics between KERs and stakeholders, the SUPERSHINE project can effectively tailor its approaches to ensure maximum uptake and impact of its results. D6.3 sets the stage for ongoing KER mapping, stakeholder engagement and continuous monitoring of market dynamics and regulatory developments. The analysis provided in this report supports the project in adapting strategies as needed, ensuring the project remains responsive to changes and opportunities as they arise.

4. Introduction

Following the Communication, Dissemination, and Exploitation (CDE) strategy outlined in Deliverable D6.2 at month 6, this report details the activities and results achieved under Task T7.2 "Key Exploitable Results identification and stakeholder mapping". The aim is to map all the project KERs, to define their main features and the partners' preliminary exploitation strategies, as well as to examine the roles of various stakeholders in fostering the uptake of SUPERSHINE's results and tools, and to delineate their interest and potential impact. Such understanding is vital to efficiently plan both the dissemination—to share knowledge and make results accessible to potential users—and the exploitation of project results beyond the lifetime of SUPERSHINE.

The deliverable is structured as follows:

- **Chapter 5 – Process & Methodology:** systematic procedures followed to complete the identification of KERs and stakeholder mapping for the SUPERSHINE project.

- **Chapter 6 – Identified KERs and stakeholder mapping**: outcomes of the KERs identification and the stakeholder mapping analysis. This chapter has a dedicated subchapter for each KER organised as follows:
    - KER analysis: identification and analysis of the main features of the KER and preliminary considerations on the exploitation strategies.
    - Sub-KERs analysis: identification and analysis of the main features of the sub-KER and preliminary considerations on the exploitation strategies
    - Stakeholder mapping: mapping, analysis, prioritisation and role assignment of the identified stakeholders in relation to the KER's dissemination and exploitation.

- **Chapter 7 – Conclusions:** this chapter presents the outcomes of the reports and presents the key takeaways to be leveraged to maximise the post-project impact of SUPERSHINE.

5. Process & methodology

5.1. Process

The process towards the development of the stakeholder analysis started with the preliminary definition of SUPERSHINE KERs and the associated initial exploitation pathways. The identification of stakeholders was performed early in the project, relying on desk research, brainstorming sessions, and validation with the project partners.

The first outcome of this activity was the identification of the stakeholder macro-categories and their subgroups. This set of analysis was presented in D6.1 Plan for Communication, Dissemination and Exploitation.

For the second step of the analysis, a methodology to further identify the project KERs and stakeholder mapping has been developed and shared among consortium partners. Subsequently, at M15, a dedicated questionnaire (Library of KERs & Stakeholder Mapping) was distributed to KER owners to gather inputs for the analysis, one-to-one calls with the partners have been carried out in order to support them in filling the Library and to clear out any arising issue. The overall process is outlined in Figure 1.

The process aimed to ensure that the stakeholder analysis was not only rigorous but also inclusive, leveraging the diverse expertise and perspectives of Consortium partners.

This report presents the outcomes of this process, along with the analysis and conclusions derived from it.

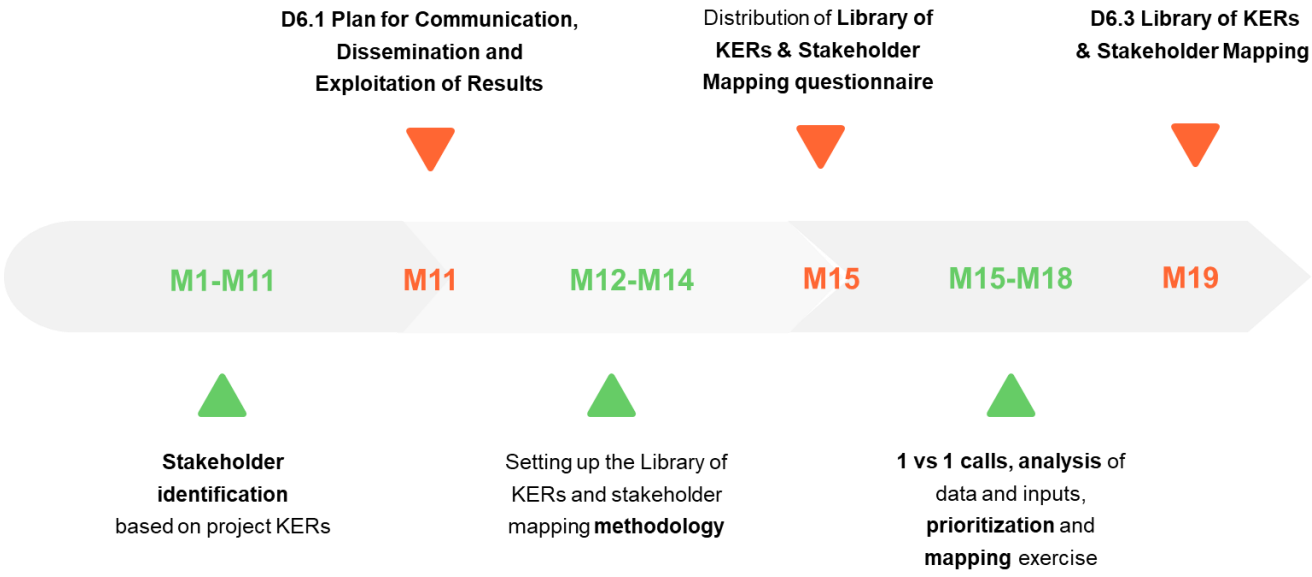

Figure 1 - Library of KERs and Stakeholder Mapping - Process

5.2. Methodology

The methodology for the identification of KERs and stakeholder mapping devised by ICONS consists in 4 steps of analysis to i) identify the project KERs and their main features, including the partners' preliminary exploitation intentions; ii) identify and categorise different stakeholder groups; iii) prioritise them based on their level of impact and interest; iv) define roles and assess their impact on the project's outcomes in terms of dissemination and exploitation.

Figure 2 - KERs identification and stakeholder mapping methodology

5.2.1. KERs identification

The results have been identified and mapped through the "Library of KERs", an .xls questionnaire aimed at collecting inputs on the project KERs and their main features (including IP and IPR). The SUPERSHINE project is producing a diverse range of results, spanning from models, methodologies, business models, advancements in knowledge, data, etc., all of which bear significance across scientific, societal, and economic realms. Moreover, the Library of KERs will serve as a repository of the KERs and the strategic intentions evolution during the project and will be constantly updated up until its end. For each identified KER, one or more sub-KER is outlined. Sub-KERs refer to a specific, derivative component or aspect of a broader Key Exploitable Result. Each sub-KER targets

a particular dimension or application of the main KER, offering more focused insights, methodologies, tools, or data that can be leveraged beyond the project borders.

Specifically, the Library is aimed at gathering insights on the following aspects:

1. **KER identification and description:** identifying the key results, emphasizing their distinctive features, categorizing them into various types and exploring their potential applications within and beyond the SUPERSHINE framework.
2. **Partners and IPR:** definition of the roles of partners in the KERs development and related intellectual property, encompassing both background and foreground IP, and preliminary measures to protect these results (IPR).
3. **TRL, Marketability & Replicability:** defining the marketability (commercial, non-commercial, or both) and the technological readiness of the results, as well as their potential for uptake post-project completion.
4. **Exploitation Strategies and Planned Use:** initial assessment of partners' strategic approaches to exploitation of the results is provided through questions seeking to investigate what use partners have planned to make of them once they are achieved.

5.2.2. Stakeholder mapping

After identifying the project KERs, the stakeholders have been identified, mapped and analysed through the following steps:

1. **Stakeholder identification:** SUPERSHINE's activities involve a variety of subjects, exerting an impact on them and/or impacting them at the same time. The crucial first step in this analysis is to identify the stakeholder groups that could be affected or interested in the project results or that could influence their uptake after the project is completed.

2. **Stakeholder prioritization and mapping:** Once identified the stakeholder groups relevant to the project activities, the following step is to proceed to sort these groups according to their expected levels of interest and impact within SUPERSHINE's exploitation strategies. This step is crucial because it allows to understand who might be most influential in shaping the exploitation activities of the project results and who might benefit most from those results. "Impact" is defined as the degree of influence that a stakeholder can exert on post-project exploitation activities, while "interest" means the potential benefits that stakeholders could gain from the exploited results. The analysis, based on the partners' responses to the stakeholder mapping questionnaire (part of the Library of KERs), provides a visual representation of the potential stakeholders' impact and interest levels for the different exploitation strategies. The results of this analysis are then represented in a stakeholder matrix, which divides stakeholders into four distinct quadrants based on their relative levels of impact and interest. Several insights emerge from this breakdown that can strategically guide dissemination and exploitation activities. The insights provide clear guidance on which stakeholders to engage to maximise the impact of the results after the project.

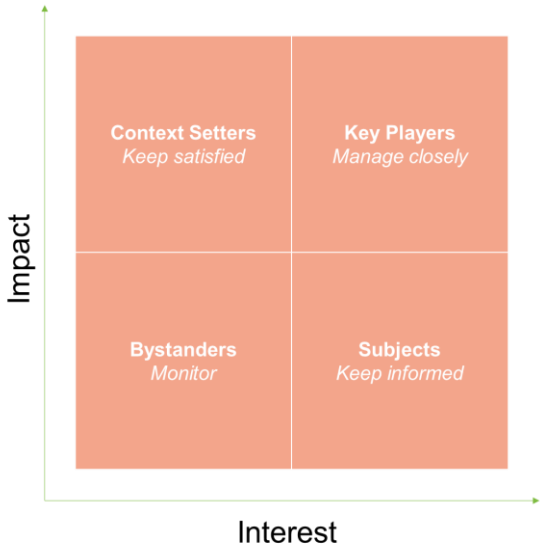

Figure 3 - Stakeholder Mapping: Impact/Interest Matrix

3. **Stakeholder Profiling and Role Assignment:** The third step of the analysis is stakeholder profiling, a process aimed at assigning specific roles to stakeholders, through examining their needs and expectations based on several factors, including market or operational context; geographical area of their operations; type of stakeholder and scope of their operations (e.g., public or private entity, commercial or non-commercial).

The following table contains the various roles SUPERSHINE's stakeholders can play:

Roles	Definition
Supplier	Individuals, companies, or organizations that have the capacity to provide partners with different types of resources or expertise that are essential for exploiting a result.
Partner	Entities eligible for formal collaborations with project participants/Consortium partners, typically through agreements established after the project ends. Such collaborations encompass activities like joint research endeavours aimed at supporting the advancement of SUPERSHINE outcomes.
Enabler	Stakeholder that ensures a favourable regulatory environment (policies, standards, etc.) or provide funding or resources to facilitate the upscaling, replication, and dissemination of SUPERSHINE results, as well as their long-term sustainability post-project.
Supporter	Stakeholders who maximises the project impact through (scientific) dissemination and communication activities (research community, media, journalists, multipliers, etc.).
Beneficiaries	Individuals or organizations who indirectly/directly are affected by project results and may use them for their purposes.
Target	Specific sector or segment of individuals, organizations, or entities to which project results and strategies are directed.

Figure 4 - Stakeholder Roles

6. Introduction to KERs identifications & Stakeholder mapping

The following chapters present the results of the KER identification, and stakeholder mapping and analysis. The following table presents the identified KERs as well as their underlying sub-KERs.

Table 3 - SUPERSHINE KERs

KER	Title
KER1	Blueprint business and financial models and evaluation methodology
Sub-KER1.1	Financial profitability and cost reduction KPIs
Sub-KER1.2	Funding sources KPIs
Sub-KER1.3	Energy Poverty KPIs
Sub-KER1.4	Innovative Revenue Generation Models
Sub-KER1.5	Sustainability Impact Assessment Framework
Sub-KER1.6	Real estate crowdfunding strategy
KER2	Blueprint SLCA, LCA and LCC models
KER3	Blueprint social acceptance and co-design models
Sub-KER3.1	Guidelines on tenants' engagement
KER4	Blueprint Technologies
KER5	SUPERSHINE Portal
Sub-KER5.1	SUPERSHINE Business Model
Sub-KER5.2	SUPERSHINE e-room
Sub-KER5.3	SUPERSHINE Training toolkit
Sub-KER5.4	SUPERSHINE One stop shop
KER6	Lighthouse, Fellow cities and supporting partners advancements in knowledge

The analysis of stakeholders in the following sub-chapters is presented for the main KERs (1-5) which are the building blocks of the SUPERSHINE project. KER6 is not included in this analysis because it involves insights collected by cities and supporting partners from the other KERs.

6.1. KER1 – Blueprint business and financial models and evaluation methodology

Table 4 - KER1 Blueprint business and financial models and evaluation methodology

KER1 - Blueprint business and financial models and evaluation methodology				
Description	This KER focuses on analyzing various PPP financing schemes at EU and national level for energy efficiency renovation projects at building and district level adopting the bottom-up business model and using the social discount rate instead of the financial discount rate. The KER aims to provide a comprehensive evaluation of financing options for energy efficiency renovations, considering both financial and socio-economic factors, at different levels of granularity. It incorporates novel concepts and methodologies, providing insights into revenue generation, cost optimization, risk management, and performance evaluation. This approach empowers stakeholders with the necessary tools and frameworks to navigate complex business landscapes effectively, fostering sustainable growth and competitiveness. The KER includes data, models, methodologies, and result visualizations.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Individual	UoY; APRE; CARTIF; CIRCE; DEMIR; HE; ATER; EGC; FB; REA; INSME; AYMING	Model/Methodology	Commercial and Non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
UoY, WP3 and WP5 Contributing partners	UoY	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation.			
Planned use	The University of York plans to exploit the blueprint business and financial models and evaluation methodology through various strategies. This includes replicating successful project implementations in other cities and districts, upscaling the methodology for broader application, commercializing financial mechanisms and models developed, and contributing to academic and research endeavors in the field.			

6.1.1. KER1 – Stakeholder Analysis

The following map presents a visual representation of stakeholders' expected impact and interest levels in KER1, according to project's partners:

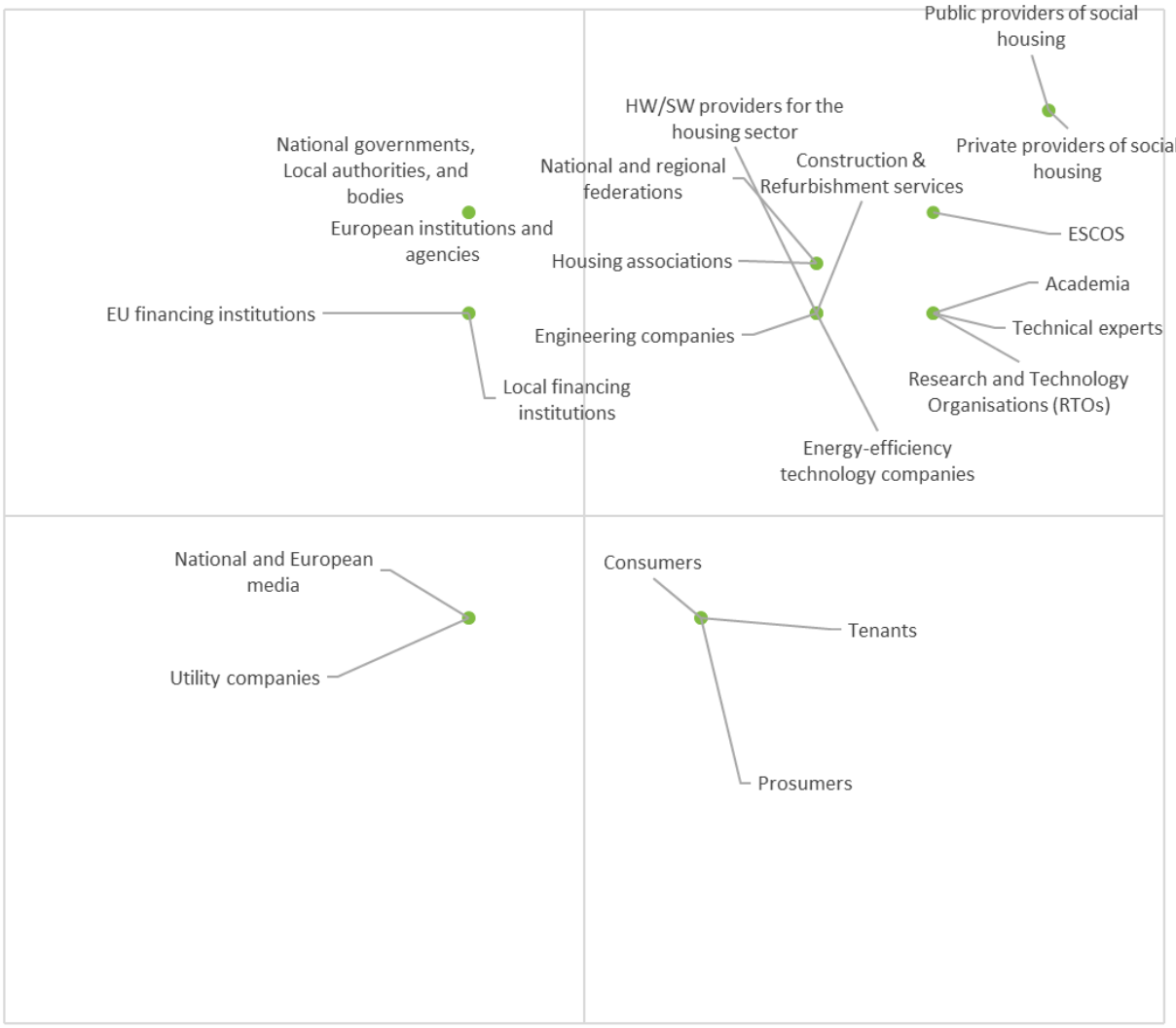

Figure 5 - KER1 - Stakeholder Analysis

The following are the stakeholders that were prioritised:

- Public/Private Providers of Social Housing have a fundamental role supporting the uptake of KER1 since they can effectively implement the financial models devised in SUPERSHINE to raise funds for EE renovation in their social housing facilities. Such providers can leverage the developed methodologies to assess the economic and social impact of the interventions, to optimise investments, improving their capacity to expand and replicate energy efficient renovations. Public and private social housing providers will be engaged through the SUPERSHINE Portal, which is designed to transfer knowledge produced in the SUPERSHINE project, providing not only the business and financial models, but also a record of implemented projects and their performance, and guidance tools.

- EU and local financial institutions can leverage these models to maximize the uptake of energy-efficient renovations by providing tailored, sustainable financial mechanisms. These institutions are instrumental in addressing the primary problem of funding such projects, which often require substantial initial investments that might not be immediately profitable in the short term but are socially and economically beneficial in the long run. By adopting the blueprint business and financial models provided by KER1, financial institutions can offer more attractive and risk-managed financing options that align with both profitability and social impact, making investments in energy efficiency more appealing. Engagement of these institutions is essential because their investment strategies and funding capacities can drive the large-scale adoption of innovative financial mechanisms for EE renovations in social housing across Europe.
- ESCOs have a high impact on the post-project exploitation of the KER thanks to their ability to implement and finance energy efficient renovation projects. They can make use of financial models and evaluation methodology to plan and perform investments in energy efficient renovations, ensuring the profitability and sustainability of projects. ESCOs are also very interested in KER1 because the application of such financial models opens up new market opportunities, providing funding to EE renovations otherwise unfeasible.
- The Research stakeholders have a significant impact as they actively contribute to further develop and improve the models, increasing their applicability and effectiveness. In addition, they demonstrate a strong interest in leveraging this KER after the project to advance knowledge, apply successful implementations in other contexts and accelerate the adoption of EE renovations in social housing.
- Housing associations and national/regional federations, have a significant impact on post-project exploitation of financial models and methodologies, since these stakeholders can support and promote their application through their networks.

The table below presents the roles that each stakeholder might assume in the dissemination and exploitation of KER1:

Table 5 - KER1 - Stakeholders' role

Stakeholder	Role
European institutions and agencies	ENABLERS
National governments, Local authorities, and bodies	ENABLERS
Public providers of social housing	TARGETS
Private providers of social housing	TARGETS
Local financing institutions	SUPPLIERS/TARGETS
EU financing institutions	SUPPLIERS/TARGETS
Construction & Refurbishment services	BENEFICIARIES
Engineering companies	BENEFICIARIES

HW/SW providers for the housing sector	BENEFICIARIES
Energy-efficiency technology companies	BENEFICIARIES
ESCOS	BENEFICIARIES
Utility companies	BENEFICIARIES
Tenants	BENEFICIARIES
Consumers	BENEFICIARIES
Prosumers	BENEFICIARIES
Housing associations	SUPPORTERS/PARTNERS
National and regional federations	SUPPORTERS/PARTNERS
Academia	SUPPORTERS/PARTNERS
Research and Technology Organisations (RTOs)	SUPPORTERS/PARTNERS
Technical experts	SUPPORTERS/PARTNERS
National and European media	SUPPORTERS

6.1.2. KER1 – Sub-KERs

The following tables present the sub-KERs relative to KER1:

Table 6 - Sub-KER1.1

Sub-KER1.1 - Financial profitability and cost reduction KPIs				
Description	These KPI's consists of Return on investment, Net present value, Payback period, and operating costs reduction. By monitoring these KPIs for EE renovations in social housing, the stakeholders can make informed financial decisions on the duration of recouping the initial investment, justify future investments, and assess the overall economic impact of sustainable and energy-efficient initiatives. This KER includes data, models, methodologies, and algorithms.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Individual	UoY	KPIs	Both	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
UoY	UoY	Copyrights	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation			

Planned use	The University of York plans to exploit the financial profitability and cost reduction KPIs through various strategies. This includes replicating successful project implementations in other cities and districts, upscaling the methodology for broader application, commercializing financial mechanisms and models developed, and contributing to academic and research endeavors in the field.

Table 7 - Sub-KER1.2

Sub-KER1.2 - Funding sources KPIs				
Description	The KER consists in different KPIs on i) cumulative investments made by EU stakeholders in EE projects in the social housing sector; ii) Number of available innovative funding sources; iii) Capital investment attraction.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Individual	UoY	KPIs	Copyright	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
UoY	UoY	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation			
Planned use	The result will be used to foster EE renovations and support the EE renovation upscaling in lighthouse cities, foster the replication of the SUPERSHINE approach in fellow cities, and favour its uptake across the EU. More specifically, based on the KER, UoY intends to: 1) Develop financial models for attracting investments in energy-efficient renovation projects in social housing. This will involve creating partnerships with financial institutions, analyzing market trends, and implementing strategies to maximize ROI for investors. 2) Replicate successful funding models in other EU countries, expanding the reach of energy-efficient renovation projects in social housing. This involves collaboration with local authorities, stakeholders, and financial institutions to adapt funding mechanisms and ensure scalability. The result will also be leveraged by UoY to continue the research on the topic, issue scientific publication and enrich the university curricula. Depending on the outcomes of the project and the market demand, UoY will evaluate the provision of consulting services based on the acquired knowledge.			

Table 8 - Sub-KER1.3

Sub-KER1.3 – Energy Poverty KPIs

Description	The KPIs are developed to i) quantify monetary savings from EE renovations, reflecting reduction in energy-related costs, demonstrating financial benefits of sustainability initiatives; ii) measure proportion of total energy consumption cost relative to household income, observing impact of EE renovations on energy poverty; iii) provide quantitative measure of energy use efficiency in renovated social housing units; iv) measure financial impact of EE renovations by assessing extent of arrears on utility bills within social housing buildings/districts; v) evaluate effectiveness of EE renovations by assessing level of energy access for residents, ensuring improved and equitable access to energy sources; vi) assess impact of EE renovations on energy disconnection rates within social housing, aiming to reduce instances of energy disconnections.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Individual	UoY	KPIs	Commercial and non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
UoY	UoY	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation			
Planned use	The result will be used to foster EE renovations and support the EE renovation upscaling in lighthouse cities, foster the replication of the SUPERSHINE approach in fellow cities, and favour its uptake across the EU. More specifically, based on the KER, UoY intends to: 1) Guide stakeholders in making informed financial decisions, justify future investments, and assess economic impact of sustainability initiatives. Activities involve data collection, financial analysis, and dissemination of findings to stakeholders. 2) Observe impact of EE renovations on energy poverty. Activities include data collection, analysis, and dissemination of findings to stakeholders. 3) Evaluate success of energy efficiency initiatives. Activities include data collection, analysis, and dissemination of findings to stakeholders. 4) Assess financial impact of EE renovations. Activities include data collection, analysis, and dissemination of findings to stakeholders. 5) Ensure improved energy access for residents. Activities include data collection, analysis, and dissemination of findings to stakeholders. The result will also be leveraged by UoY to continue the research on the topic, issue scientific publication and enrich the university curricula. Depending on the outcomes of the project and the market demand, UoY will evaluate the provision of consulting services based on the acquired knowledge.			

Table 9 - Sub-KER1.4

Sub-KER1.4 - Innovative Revenue Generation Models

Description	Innovative revenue generation models tailored for social housing renovation projects, incorporating concepts such as performance-based contracting, energy service agreements, and community financing, customized for the SUPERSHINE project's target regions.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	AYMING, DEMIR, UoY, CIRCE, APRE	Model/Methodology	Commercial and non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
AYMING, DEMIR, UoY, CIRCE, APRE	AYMING, DEMIR, UoY, CIRCE, APRE	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation			
Planned use	The result will be disseminated through industry workshops, webinars, and online platforms to facilitate adoption by stakeholders involved in social housing renovation projects across Europe. The Innovative Revenue Generation Models developed within the SUPERSHINE project will be strategically disseminated to maximize their impact across Europe's social housing renovation sector. Partners will actively engage with key stakeholders, including local governments, housing associations, financial institutions, and community organizations, to promote adoption and implementation. By showcasing the effectiveness and viability of these models through case studies and real-world demonstrations, partners aim to drive their integration into existing renovation projects and policies. Furthermore, partners will collaborate with academic institutions and research organizations to conduct studies and evaluations that highlight the economic and social benefits of these models. The insights generated from these collaborations will inform policy decisions and further research efforts, contributing to the advancement of sustainable urban development practices in Europe.			

Table 10 - Sub-KER 1.5

Sub-KER1.5 – Sustainability Impact Assessment Framework				
Description	Framework for evaluating the sustainability impact of social housing renovation projects, considering environmental, social, technical and economic factors, customized for the SUPERSHINE project's target regions.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	AYMING, DEMIR, UoY, CIRCE, APRE	Methodology	Commercial and non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**

AYMING, DEMIR, UoY, CIRCE, APRE	AYMING, DEMIR, UoY, CIRCE, APRE	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Commercial exploitation of financial mechanisms and models. • Academic and research exploitation			
Planned use	The result will be used to guide sustainability assessments in fellow cities and disseminated through policy briefs and conferences to influence decision-making at the European level. The Sustainability Impact Assessment Framework developed within the SUPERSHINE project will be strategically employed to influence policy, guide further research, and enhance educational initiatives related to sustainable urban development. Partners will actively engage with policymakers, urban planners, and environmental organizations to advocate for the integration of the framework into policy frameworks and regulatory mechanisms at both local and European levels. By providing evidence-based assessments of sustainability impacts, partners aim to inform policy decisions and shape future urban development strategies. Additionally, partners will collaborate with academic institutions to develop training programs and educational materials that incorporate the framework's principles and methodologies. These educational initiatives will help build capacity and expertise among stakeholders, ensuring the long-term sustainability of urban development efforts in Europe.			

Table 11 - Sub-KER 1.6

Sub-KER1.6 – Real estate crowdfunding strategy				
Description	Development of a real estate crowdfunding strategy that presents several advantages over traditional financing methods. It leverages the collective financial power of multiple investors, making the funding process faster and more flexible than dealing with traditional lenders. This approach has a limited impact on governance, allowing investors greater freedom in decision-making. Additionally, real estate crowdfunding financially capitalizes on efficiencies, enhancing profitability. It also offers more visibility and transparency, as the investment process and financial dealings are clear and open to all participating investors.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	TENDER	Methodology	Commercial and non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
TENDER	TENDER	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouses districts. • Product/service development based on knowledge generated.			
Planned use	TENDER aims at leveraging the result to replicate the project implementation in fellow cities, upscale the interventions in lighthouse districts and launch a real estate funding platform in cooperation with			

	Concrete Investing. In order to leverage the real estate crowdfunding model, for each implementation, the following steps are foreseen: 1) Business plan preparation (estimates of costs, revenues, and timelines). 2) Urban planning process assessment (check whether or not the building permits have already been obtained). 3) Building design status assessment. 4) Due diligences (technical, environmental, fiscal, etc.) 5) SPV's corporate documents assessment (financial statements, chamber of commerce visas, bylaws, etc.)

6.2. KER2 – Blueprint SLCA, LCA, and LCC Models

Table 12 - KER2 - Blueprint SLCA, LCA and LCC models

KER2 - Blueprint SLCA, LCA and LCC models				
Description	A methodology that combines standard SLCA, LCA and LCC with the blueprint methodology to provide a structured and easy approach to measuring and managing the environmental, social and economic impact of lighthouse districts. This solution acts as a guiding framework for understanding and reducing the environmental impacts of a product. It helps identify areas where improvements can be made to make a product more sustainable, socially accepted and economically viable, in order to alleviate the energy poverty of their citizens.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	CIRCE; CARTIF; DEMIR; UNIVERSITY OF YORK	Model/Data	Both	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
CIRCE, DEMIR, UoY	CIRCE, DEMIR	Copyright	7	8
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Product/service development based on knowledge generated.			
Planned use	• CIRCE will offer an analysis service that can encompass a comprehensive assessment of social, economic, and environmental factors, or focus on just one of these aspects. This service will be available to other districts and will be tailored to their specific needs (customized analysis), leveraging the expertise gained from the project. The service will include detailed analyses of the impacts and resources involved in each phase, complemented by a consultancy service to aid in decision-making based on the findings from the analysis.			

	• DEMIR will use the project's results to facilitate upscaling and replication both in the cities identified during the project and in additional cities outside the project's scope. Moreover, the project will support the development of City Climate Contracts (CCC) by harmonizing various blueprint models, which will enable broad replication throughout the EU. As regards commercial exploitation, DEMIR evaluates to offer a consulting service to provide strategic advice to market parties that may lack the necessary skills and require guidance, including on local aspects.

6.2.1. KER2 – Stakeholder Analysis

The following map presents a visual representation of stakeholders' expected impact and interest levels in KER2, according to project's partners:

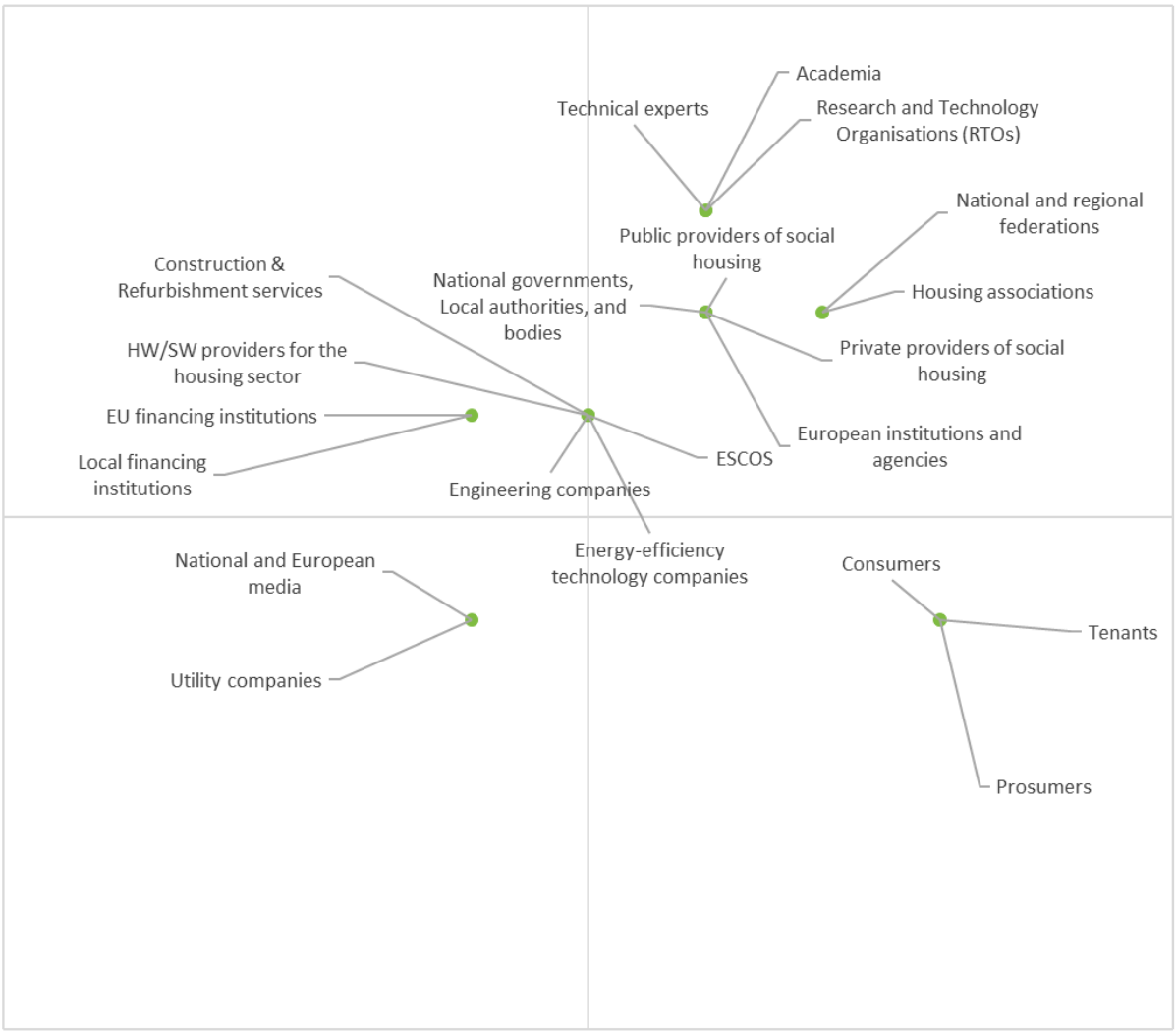

Figure 6 - KER2 - Stakeholder Analysis

The following are the stakeholders that were prioritised:

- Public and private providers of social housing are primary stakeholders who can utilise KER2 to evaluate and improve the sustainability of their EE renovation projects comprehensively. These models enable providers to assess the environmental impact, social ramifications, and total costs over the lifecycle of building materials and construction methods. By adopting these blueprints, housing providers can optimize their construction and renovation processes to enhance sustainability, reduce costs, and improve resident satisfaction. Implementing LCA, LCC, and SLCA models helps tackle significant challenges such as reducing operational costs, minimizing environmental impact, and improving social outcomes for residents. Private and public providers are the primary users of KER2's outputs, making their adoption and advocacy critical for market penetration. Their direct application of these models in actual housing projects validates the utility and benefits of KER2, serving as a demonstrable proof of concept for wider adoption.
- National federations and housing associations can use KER2 to set benchmarks and guidelines for sustainable practices in social housing across broader networks. These entities can facilitate the dissemination of best practices and push for higher sustainability standards within their respective jurisdictions. By integrating these models into their operational standards, federations and associations can address the issues of energy inefficiency and high lifecycle costs. Their endorsement and incorporation of these models into national standards or recommendations can drive uniformity in sustainable practices.
- EU institutions and agencies, national governments, local authorities and bodies are key to creating an enabling environment for the uptake of KER2 through policy and regulation. By integrating lifecycle assessments into compliance and reporting standards, they can mandate the adoption of these practices. Furthermore, their ability to provide funding, subsidies, or tax incentives for projects that demonstrate compliance with KER2 models can significantly motivate the market to adopt these sustainable practices broadly, ensuring that these models become integral to national and EU-wide sustainability strategies.
- Research & Academia, RTOs, and technical experts can leverage these models for new research projects, enhance curriculum development, and foster public-private research partnerships focused on environmental and social impacts of building technologies. The ongoing research and development led by this group ensure that KER2 remains at the cutting edge of sustainability practices. Their work not only enhances the models' robustness and adaptability but also ensures their relevance in an evolving market. Through publications, conferences, and academic courses, these stakeholders disseminate knowledge and raise awareness of the benefits and methodologies of KER2.

The table below presents the roles that each stakeholder might assume in the dissemination and exploitation of KER2:

Table 13 - KER2 Stakeholders' roles

Stakeholder	Role
European institutions and agencies	ENABLERS
National governments, Local authorities, and bodies	ENABLERS

Public providers of social housing	TARGETS
Private providers of social housing	TARGETS
Local financing institutions	BENEFICIARIES
EU financing institutions	BENEFICIARIES
Construction & Refurbishment services	TARGETS
Engineering companies	TARGETS
HW/SW providers for the housing sector	TARGETS
Energy-efficiency technology companies	TARGETS
ESCOS	TARGETS
Utility companies	TARGETS
Tenants	BENEFICIARIES
Consumers	BENEFICIARIES
Prosumers	BENEFICIARIES
Housing associations	SUPPORTERS
National and regional federations	SUPPORTERS
Academia	SUPPORTERS/PARTNERS
Research and Technology Organisations (RTOs)	SUPPORTERS/PARTNERS
Technical experts	TARGETS
National and European media	SUPPORTERS

6.3. KER3 – Blueprint social acceptance and co-design models

Table 14 - KER3 - Blueprint social acceptance and co-design models

KER3 - Blueprint social acceptance and co-design models				
Description	Development of a detailed blueprint that outlines the methodological process utilized to design the engagement strategy to actively involve and collaborate with stakeholders, aligning project outputs with their needs and enhancing societal acceptance of the proposed solutions. This blueprint captures the stages involved in creating a validated and agreed-upon co-design model, which meets the targeted objectives within each LH specific environment and offers a solid framework for adaptation and replication in other projects or contexts. This model facilitates the transfer of knowledge and best practices, enabling broader applicability and scalability across diverse settings.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	ICONS, APRE	Methodology	Non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**

APRE, ICONS, WP1, WP3, WP5 contributing partners	APRE, ICONS	Copyright	6	8
Exploitation strategy	• Academic & Research • TRL Upscaling • Replication of project implementations towards fellow cities and upscaling in lighthouse districts.			
Planned use	ICONS plans to refine their methodology based on insights gained from ongoing and future EU-funded projects. This refined methodology can then be adapted for use in diverse contexts such as construction, marine platforms, and urban renovation, showcasing its flexibility. Moreover, ICONS aims to directly integrate the results from these models into city-level initiatives for social housing renovation. The strategy involves a cyclic process of applying, learning from, and adapting the co-design and social acceptance models, which not only enhances project outcomes but also increases their value and impact across different sectors and projects. This approach ensures that the models developed by ICONS are robust, widely applicable, and directly beneficial to the communities involved.			

6.3.1. KER3 – Stakeholder Analysis

The following map presents a visual representation of stakeholders' expected impact and interest levels in KER3, according to project's partners:

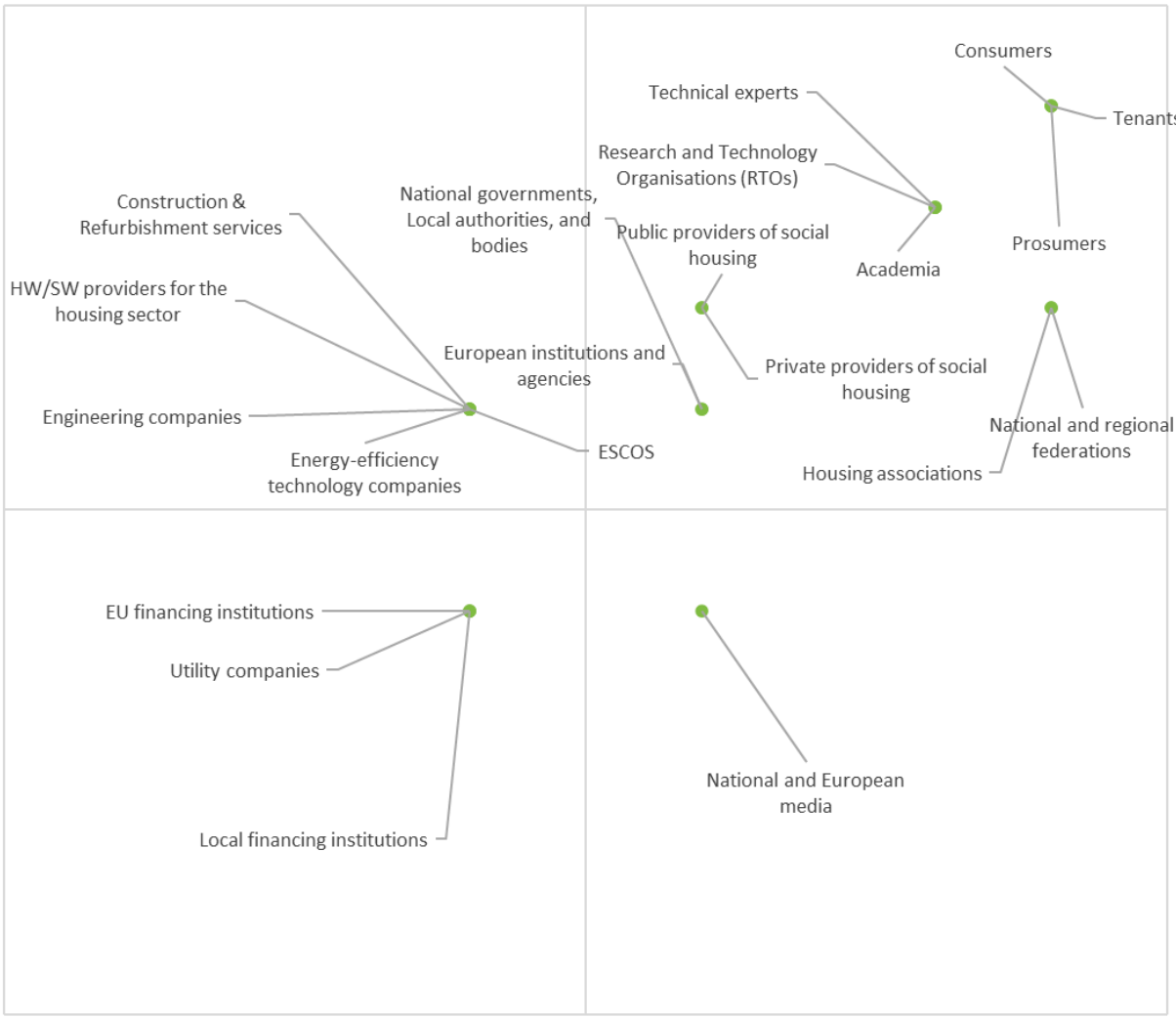

Figure 7 - KER3 - Stakeholder Analysis

The following are the stakeholders that were prioritised:

- Consumers, prosumers, and tenants are directly impacted by the outcomes of KER3 as it aims to enhance their engagement and satisfaction with EE renovation projects in social housing. By implementing models that incorporate tenant feedback and participation, these stakeholders can influence project designs to better meet their needs, ensuring higher satisfaction and improved quality of life. Their firsthand experiences and testimonials serve as powerful endorsements for the adoption of these models. Demonstrating improved resident satisfaction and engagement through KER3 can drive demand among other housing projects, encouraging broader market adoption.
- Public and private providers of social housing are pivotal in implementing KER3 as they directly manage housing projects. By integrating co-design and social acceptance models,

they can ensure projects are more closely aligned with tenant needs and expectations, potentially reducing conflicts and enhancing project acceptability. As primary implementers, their experiences and successes with KER3 can serve as case studies or models for replication, enhancing the credibility and marketability of these practices. Demonstrated success in improving project outcomes and tenant relations can motivate other providers to adopt similar approaches, enhancing the uptake of KER3 models.

- National and regional federations, and housing associations can use KER3 to standardize engagement processes across multiple projects, ensuring that tenant inputs are systematically integrated into project planning and execution. This can lead to better project outcomes and enhanced tenant satisfaction. Due to their influence on industry standards, their adoption of KER3 models can set new benchmarks for tenant engagement in housing projects, influencing widespread market uptake and establishing new norms in stakeholder engagement across the housing sector.
- The technical stakeholders (including ESCOs, construction and refurbishment service providers, energy efficiency solutions providers, engineering companies, and HW/SW providers for the housing sector) play a crucial role in the actual implementation of the principles and plans outlined in KER3. These stakeholders i) integrate direct feedback from tenants into the practical aspects of building and refurbishment projects, and ii) utilize co-design models to ensure that the technical solutions they provide are in alignment with the expectations and needs of the end-users, which helps in creating more sustainable and accepted social housing environments. Success stories from these models application can serve as case studies showcasing the benefits of tenant involvement and co-design. This can lead to broader market adoption as the industry recognizes the added value of socially informed construction and refurbishment, potentially setting new industry standards.

The table below presents the roles that each stakeholder might assume in the dissemination and exploitation of KER3:

Table 15 - KER3 Stakeholders' roles

Stakeholder	Role
European institutions and agencies	ENABLERS
National governments, Local authorities, and bodies	ENABLERS
Public providers of social housing	TARGETS
Private providers of social housing	TARGETS
Local financing institutions	SUPPLIERS
EU financing institutions	SUPPLIERS
Construction & Refurbishment services	BENEFICIARIES
Engineering companies	BENEFICIARIES

HW/SW providers for the housing sector	BENEFICIARIES
Energy-efficiency technology companies	BENEFICIARIES
ESCOS	BENEFICIARIES
Utility companies	BENEFICIARIES
Tenants	BENEFICIARIES
Consumers	BENEFICIARIES
Prosumers	BENEFICIARIES
Housing associations	ENABLERS/SUPPORTERS
National and regional federations	ENABLERS/SUPPORTERS
Academia	SUPPORTERS/PARTNERS
Research and Technology Organisations (RTOs)	SUPPORTERS/PARTNERS
Technical experts	SUPPORTERS/PARTNERS
National and European media	SUPPORTERS

6.3.2. KER3 – Sub-KERs

Table 16 - Sub-KER 3.1

Sub-KER3.1 – Guidelines on tenants' engagement				
Description	A set of guidelines to support practitioners that intend to make renovation processes more inclusive on how to involve tenants, collect their preferences and ideas and assess their satisfaction level before and after the intervention.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Individual	ICONS, APRE, HE	Methodology	Non-commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
APRE, ICONS, WP1, WP3, WP5 contributing partners	HE	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Product/service development based on knowledge generated.			

Planned use	Housing Europe intends to disseminate these guidelines widely among its members, leveraging social media platforms and their website for broad outreach. Furthermore, they aim to identify synergies and integrate these guidelines with blueprints from other projects, enhancing their utility and applicability. The ultimate goal is to replicate successful implementations in other cities and upscale them in 'lighthouse' districts, thereby fostering widespread adoption. Also Housing Europe will evaluate the development of new products or services based on the accumulated knowledge.

6.4. KER4 – Blueprint technologies

Table 17 - KER4 - Blueprint technologies

KER4 – Blueprint technologies				
Description	Inventory of the technologies applied and tested within the SUPERSHINE project.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	DEMIR, APRE, UoY, CARTIF, CIRCE, ENA, EGC, HE, ZV, KM, SP, ATER, FB, REA	Knowledge	Both	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
CIRCE, CARTIF, Technology owners	CIRCE, CARTIF, and contributing partners	Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Product/service development based on knowledge generated.			
Planned use	• CIRCE plans to leverage this inventory to foster the replication of EE renovations in social housing. This will not only facilitate knowledge sharing but also enhance the decision-making process by providing detailed insights into the effectiveness of different technologies. Additionally, CIRCE intends to leverage this inventory for commercial purposes. The inventory will enhance CIRCE's existing services, such as Life Cycle Assessment (LCA), Social Life Cycle Assessment (SLCA), and other energy efficiency analyses. By integrating advice on new technologies into their service offerings, based on the comprehensive data from the inventory, CIRCE can provide clients with tailored recommendations on the most advantageous and beneficial technologies to employ in their specific contexts. • CARTIF, who directly supports the cities in the implementation of the technologies, intends to leverage the acquired knowledge to foster the replication of the implementations in the fellow cities and support the upscaling in lighthouse cities. Furthermore, CARTIF is evaluating to			

	include the outcomes of KER4 to enhance their existing services and, eventually, launch new ones dedicated to the support of EE renovations in social housing. • HE intends to develop a set of guidelines that presents the different technologies that can be deployed for a renovation to achieve diverse goals e.g. improving energy efficiency, reducing waste, decreasing nuisances for tenants, improving biodiversity etc. The options will be presented based on their feasibility depending on the different context considered (therefore, differences such as climate, housing tenures, regulations will be taken into account). The guidelines will be presented and disseminated to the Housing Europe network of social housing providers, in synergy with other demonstrator projects of the Affordable Housing Initiative, which produced similar results but with different focus. The complementarity of the materials will be highlighted to showcase the multi-faceted approach to renovation of the AHI. The vector used for this will mainly be online and in-person events (final conference, workshops, other projects' events), the SUPERSHINE portal and social media.

6.4.1. KER4 – Stakeholder Analysis

The following map presents a visual representation of stakeholders' expected impact and interest levels in KER4, according to project's partners:

Figure 8 - KER4 - Stakeholder Analysis

The following stakeholders were prioritised:

- The technical cluster including hardware/software providers for the housing sector, energy-efficiency technology companies, technical experts, engineering firms, and ESCOs significantly impact the post-project exploitation of the KER, as they are instrumental in the actual implementation of the identified technologies, being responsible for their supply, installation and maintenance. Also, they have a strong interest in exploiting these technologies to improve their competitiveness. The selected technologies can serve as best practices, as the data from their implementation in SUPERSHINE can lead to the tailoring and development of products and services.
- The Research stakeholders were selected for their pivotal role in further developing and refining these technologies. They have high impact because they actively

contribute to further developing and refining technologies, enhancing their applicability and effectiveness. Additionally, they are highly interested in leveraging the KER post-project to perform further research, apply successful implementations in other projects, and accelerate the adoption of these technologies.

- Public and Private Providers of Social Housing represent an important stakeholder group due to their central role in implementing housing renovation projects. Their such high impact comes from their ownership of the infrastructure and expertise necessary to deploy validated technologies, which makes them crucial for replication efforts. As for their interest in exploiting the KER post-project, it is driven by the direct benefits of implementing innovative technologies, streamlining renovation processes, and contributing to broader societal goals.
- The policy makers cluster, consisting of European institutions and agencies, national governments, local authorities and bodies, was identified as a priority since these stakeholders have a significant the uptake of the tested technologies through their role in shaping the regulatory, policy, and economic environment. They can facilitate such projects and renovations by offering incentives, creating a supportive regulatory environment, and providing funding opportunities. These stakeholders are motivated to foster the uptake of the blueprint technologies as it aligns with some of their broader objectives such as improving energy security and fostering economic development. Furthermore, local authorities have a direct connection with public owners, enabling them to engage these stakeholders directly and promote the adoption of emerging energy technologies at the community level, crucial for successful implementation and scaling up.

The table below presents the roles that each stakeholder might assume in the dissemination and exploitation of KER4:

Table 18 - KER4 - Stakeholders' roles

Stakeholder	Role
European institutions and agencies	ENABLERS
National governments, Local authorities, and bodies	ENABLERS
Public providers of social housing	TARGETS
Private providers of social housing	TARGETS
Local financing institutions	SUPPLIERS
EU financing institutions	SUPPLIERS
Construction & Refurbishment services	SUPPLIERS/PARTNERS
Engineering companies	SUPPLIERS/PARTNERS

HW/SW providers for the housing sector	SUPPLIERS/PARTNERS
Energy-efficiency technology companies	SUPPLIERS/PARTNERS
ESCOS	SUPPLIERS/PARTNERS
Utility companies	SUPPLIERS/PARTNERS
Tenants	BENEFICIARIES
Consumers	BENEFICIARIES
Prosumers	BENEFICIARIES
Housing associations	SUPPORTERS
National and regional federations	SUPPORTERS
Academia	SUPPORTERS/PARTNERS
Research and Technology Organisations (RTOs)	SUPPORTERS/PARTNERS
Technical experts	PARTNERS
National and European media	SUPPORTERS

6.5. KER5 – SUPERSHINE Portal

Table 19 - KER5 - SUPERSHINE Portal

KER5 – SUPERSHINE Portal				
Description	Innovative online portal that integrates a unique combination of services including data collection (e-room), training materials, and matchmaking, tailored specifically for public authorities, real estate developers, and landlords. This platform aims to drive systemic changes in governance by enhancing systems thinking, analyzing interconnections within systems, and pinpointing strategic interventions to optimize outcomes. As the central communication hub for the project, the SUPERSHINE Portal also serves as the European reference point, showcasing project results and connecting enterprises, stakeholders, and both institutional and private investors. This comprehensive support extends to hosting training materials and tools such as the OSS and supporting crowdfunding campaigns, building on the legacy of the Super-i portal. Overall, the SUPERSHINE Portal not only facilitates the dissemination and accessibility of project information but also positions itself as a pivotal resource for stakeholders across Europe, promoting broader engagement and investment in sustainable initiatives.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	All	Platform	Both	Open (Restricted for the e-room)

IP background	IP foreground	Measure(s) to protect IP	TRL M19	TRL M41
All	All	Software Copyright	5	8

Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Sustainability plan of the SUPERSHINE Portal. • Upscaling of technology TRLs and commercialization.
Planned use	The exploitation strategy for the SUPERSHINE Portal is designed to maximize its reach and impact in transforming urban environments. • Goals: ○ Widespread Adoption: The core objective is to promote the SUPERSHINE Portal across various cities and districts, ensuring its adoption on a broad scale. ○ Replication and Impact Amplification: By replicating successful implementations, the strategy aims to enhance the overall impact of the SUPERSHINE initiative, tackling urban challenges in diverse settings. • Foreseen Activities/Roadmap: ○ Target Identification: Determine potential target cities and districts based on factors such as urban development priorities, readiness for innovation, and existing partnerships. ○ Stakeholder Engagement: Initiate dialogue with local government officials, urban planners, community leaders, and other key stakeholders to gauge interest and secure commitment to the SUPERSHINE initiative. ○ Portal Customization: Collaborate closely with local stakeholders to adapt the SUPERSHINE Portal to suit specific local conditions, including regulatory frameworks and infrastructural considerations. ○ Monitoring and Evaluation: Establish mechanisms to monitor the implementation and evaluate the impact of pilot projects, incorporating feedback from users and stakeholders to refine the approach. ○ Knowledge Sharing: Gather and distribute documentation, case studies, and best practice guides through channels such as conferences, workshops, and publications to share insights and promote learning. ○ Scaling Up: Expand successful implementations to additional cities and districts, utilizing established partnerships and networks to facilitate wider dissemination. ○ Sustainability Planning: Develop comprehensive sustainability plans to secure the long-term success and impact of implementations, focusing on funding, governance, and ongoing stakeholder engagement. This strategy outlines a clear path for the SUPERSHINE Portal to become a pivotal tool in urban transformation.

6.5.1. KER5 Stakeholder Analysis

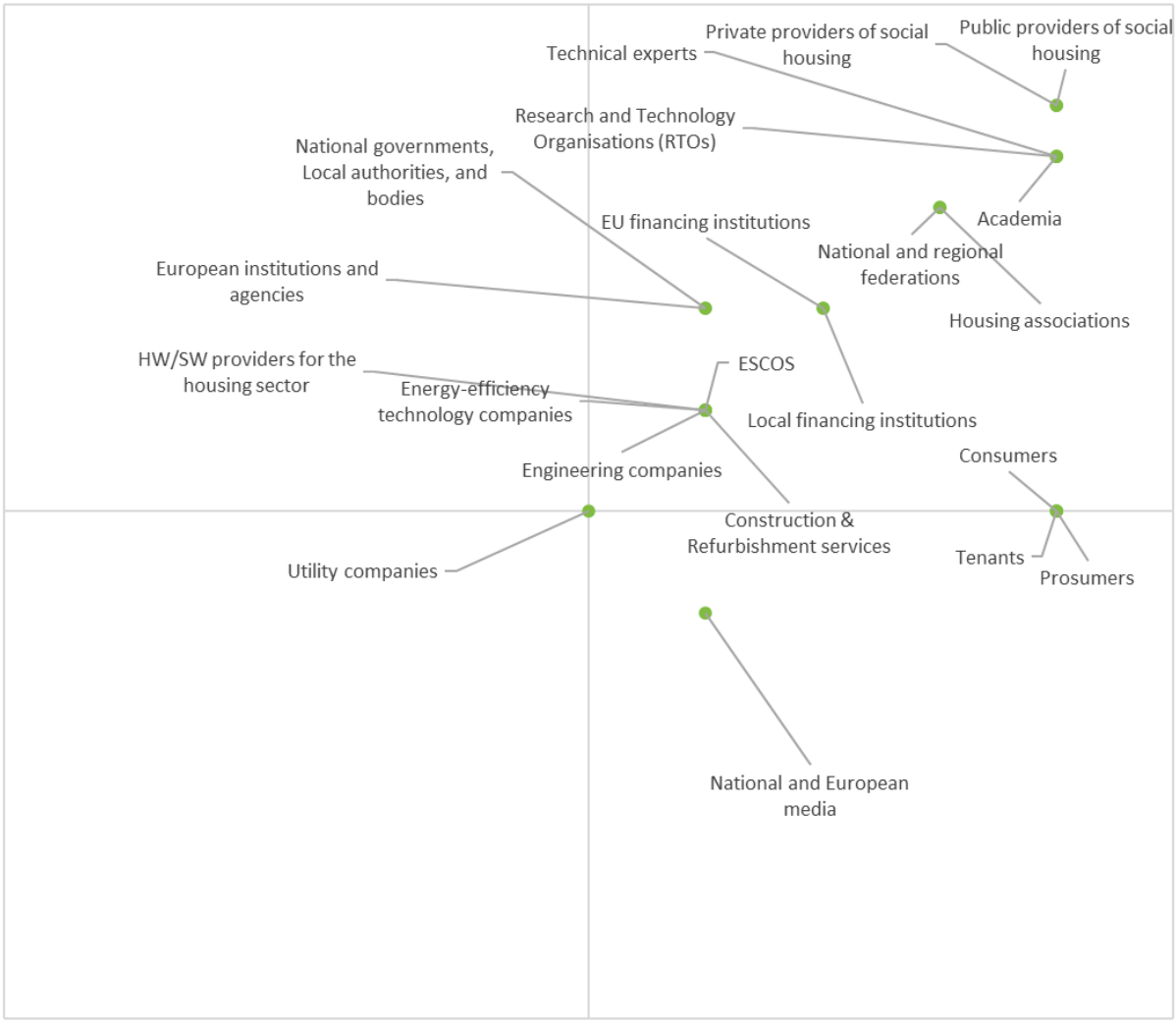

Figure 9 - KER5 - Stakeholder Analysis

The following stakeholders were prioritised:

- Public/Private Providers of Social Housing haves a prominent role in implementing energy renovations within the housing infrastructure, making them the final users of the SUPERSHINE Portal in all its components. Their high interest in leveraging the KER after the project is motivated by the portal capacity to improve the energy efficiency and sustainability of their housing portfolios. In fact, they would be supported in the implementation of innovative solutions to provide communities with affordable and energy-efficient housing. They can leverage the one-stop-shop to initiate new renovation projects,

and they can leverage the capacity building toolkit to enhance their expertise in the field, overall furthering their organizational goals and social impact. Actively engaging public/private providers of social housing through the Portal, is crucial to present them practical incentives for the utilisation of the platform.

- The research group, which includes academia, technical experts, and research and technology organizations (RTOs), significantly impacts the post-project uptake of the platform. Their involvement has a major impact because they enable the Portal to be constantly updated and upgraded, and used to produce new knowledge, being at the basis of further research and providing a solid source of data, best practices, and projects.
- National/regional federations and housing associations, have also been identified as a high-impact group and this is since they are responsible for shaping housing policies, promoting regulatory changes and fostering collaboration between stakeholders. Due to this key role, their expertise, resources and networks are crucial for the dissemination, adoption, and implementation of innovations of the SUPERSHINE Portal. Then, their strong interest in exploiting this KER after the project is dictated by the objective of improving housing governance practices and streamlining decision-making processes, generally improving housing delivery for communities.
- The group of Financial Institutions, whether EU or local, has a meaningful impact on the Portal because they provide financial resources, mechanisms, and expertise necessary to promote the uptake of KER5. Their involvement ranges from the financing of innovative initiatives to the provision of financial instruments for the replication and extension of the result. These institutions are also crucial since, through the utilisation of the Portal they can include EE renovations in their financial services portfolio, attracting new private investors in the field.

The table below presents the roles that each stakeholder might assume in the dissemination and exploitation of KER5:

Table 20 - KER5 - Stakeholders' roles

Stakeholder	Role
European institutions and agencies	ENABLERS
National governments, Local authorities, and bodies	ENABLERS
Public providers of social housing	TARGETS
Private providers of social housing	TARGETS
Local financing institutions	SUPPLIERS/PARTNERS
EU financing institutions	SUPPLIERS/PARTNERS
Construction & Refurbishment services	BENEFICIARIES/PARTNERS
Engineering companies	BENEFICIARIES/PARTNERS
HW/SW providers for the housing sector	BENEFICIARIES/PARTNERS

Energy-efficiency technology companies	BENEFICIARIES/PARTNERS
ESCOS	BENEFICIARIES/PARTNERS
Utility companies	BENEFICIARIES/PARTNERS
Tenants	BENEFICIARIES
Consumers	BENEFICIARIES
Prosumers	BENEFICIARIES
Housing associations	PARTNERS/SUPPORTERS
National and regional federations	PARTNERS/SUPPORTERS
Academia	BENEFICIARIES/PARTNERS
Research and Technology Organisations (RTOs)	BENEFICIARIES/PARTNERS
Technical experts	BENEFICIARIES/PARTNERS
National and European media	SUPPORTERS

6.5.2. KER5 – Sub-KERs

Table 21 - Sub-KER 5.1

Sub-KER5.1 – SUPERSHINE Business Model				
Description	Business model designed specifically for managing the SUPERSHINE one-stop shop, incorporating unique features to streamline operations and support systemic change in governance.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	CIRCE, UoY, AYMING	Model	Commercial	Open
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
CIRCE/AYMING	All	Non-disclosure agreements	4	8
Exploitation strategy	• Sustainability plan of the SUPERSHINE Portal			
Planned use	• Goals: ○ Scalability: The primary goal is to replicate and adapt the SUPERSHINE business model across various contexts and locations, enhancing its scalability. ○ Market Expansion: Broaden the reach of the SUPERSHINE initiative through strategic partnerships and collaborations with stakeholders in new cities, districts, and regions. ○ Revenue Generation: Establish sustainable revenue streams by commercializing the SUPERSHINE business model, underpinning the long-term viability and expansion of the initiative. • Foreseen Activities/Roadmap:			

	○ Market Research: Identify potential markets and assess their compatibility with the SUPERSHINE business model, focusing on areas most likely to benefit from and contribute to its success. ○ Partnership Development: Forge strategic alliances with local governments, organizations, and businesses to facilitate the replication process and garner support for the SUPERSHINE initiative. ○ Business Model Customization: Tailor the SUPERSHINE business model to meet specific local regulatory, market, and stakeholder requirements, ensuring it resonates with each new environment. ○ Pilot Implementation: Execute pilot projects to validate the adapted business model in real-world scenarios, collect data, and solicit feedback, focusing on critical metrics like user adoption, revenue potential, and stakeholder satisfaction. ○ Scaling Up: Expand successful models to additional markets and regions, utilizing established partnerships and networks to amplify reach and impact. ○ Revenue Strategies: Develop and implement localized revenue strategies, exploring diverse avenues such as licensing, subscription models, or service fees to secure financial stability and growth. This business model is aimed at supporting the maximization of impact of the SUPERSHINE project, ensuring that each step—from initial research to revenue generation—is carefully planned and executed to maximize both impact and sustainability.

Table 22 - Sub-KER 5.2

Sub-KER5.2 – SUPERSHINE e-room				
Description	Database as an "observatory" for completed and new social housing projects demanding funding and financial schemes with modularity approach and dynamic update features. It builds on the Super-I e-room (which includes various data from SUPER-i social housing projects but also external databases such as Eurostat or DEEP).			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	All	Data	Both	Private
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
All	All	Soft IP: Confidential information	7	9
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Academic and research exploitation.			
Planned use				

Table 23 - Sub-KER 5.3

Sub-KER5.3 – SUPERSHINE Training toolkit				
Description	The training toolkit is a full capacity building model aimed at increasing the competences and skills on all relevant levels to achieve the long-lasting and evolving impact of EE renovations in social housing. The report will leverage and systematize the onsite physical workshops, and will take into account different perspectives: organizational and executive, human resources and residents. The toolkit, which will be integrated in the portal by EEIP, is currently in the development phase.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	All	Data	Both	Private
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
All	CARTIF, All	Soft IP: Confidential information	7	9
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Academic and research exploitation.			
Planned use	The training toolkit will be leveraged by the project partners to support the replication of the project implementations in the fellow and other cities and to upscale lighthouse districts. The overall goal of this toolkit is to assess the viability of SUPERSHINE interventions and provide capacity building to support further implementations in vulnerable districts. The Toolkit, which will be part of the SUPERSHINE portal, can be leveraged by external entities that need support in similar implementations. CARTIF intends to leverage the knowledge acquired in the development of the toolkit in order to perform further research on the topic, upgrade and upscale it through further funded projects and as a knowledge basis to provide strategic guidance (e.g., through consulting services) to entities (e.g., municipalities, social housing associations, private/public providers of social housing, etc.) that want to implement EE renovations.			

Table 24 - Sub-KER 5.4

Sub-KER5.4 – SUPERSHINE One stop shop	
Description	The SUPERSHINE One-Stop Shop is a comprehensive platform integrated within the SUPERSHINE portal, designed to streamline and enhance the process of energy-efficient (EE) refurbishment in social housing. It offers a full renovation package with guaranteed energy savings, effectively coordinating the various market actors involved, including suppliers and innovative SMEs. This platform serves as a central hub for social housing managers and residents, ensuring they have access to all necessary services for refurbishing buildings. Key to its functionality, the SUPERSHINE One-Stop Shop operates as a single-entry point that manages and simplifies the information flow between governmental bodies, business partners, and customers.

<table>
<tr><td></td><td colspan="5">It facilitates interactions with local businesses and SMEs to harmonize refurbishment efforts at the district level, ensuring a cohesive approach to EE improvements.

The platform is designed to be highly user-centric, prioritizing the specific needs of its users by centralizing service requests and efficiently assigning tasks to appropriate partners. Its web-based interface, supported by API integration, allows for easy access and interaction by all stakeholders. Dissemination efforts, part of the project's broader communication strategy, promote the platform extensively, encouraging its adoption across the lighthouse districts involved in the project. The one stop shop, which will be integrated in the portal by EEIP, is currently in the development phase.</td></tr>
<tr><td colspan="2">Individual vs joint</td><td>Partners involved</td><td>Type</td><td>Marketability</td><td>Type of access</td></tr>
<tr><td colspan="2">Joint</td><td>All</td><td>Data</td><td>Both</td><td>OPen</td></tr>
<tr><td colspan="2">IP background</td><td>IP foreground</td><td>Measure(s) to protect IP</td><td>TRL M19</td><td>TRL M41</td></tr>
<tr><td colspan="2">All</td><td>CIRCE, All</td><td>Soft IP: Confidential information</td><td>7</td><td>9</td></tr>
<tr><td>Exploitation strategy</td><td colspan="5">• Replication of project implementations towards fellow cities and upscaling in lighthouse districts.
• Academic and research exploitation.</td></tr>
<tr><td>Planned use</td><td colspan="5">The SUPERSHINE One-Stop Shop will be commercially introduced to the market through a well-structured approach focused on supporting European social housing districts transition towards climate neutrality. In the project's final year (M30 to 41), Work Package 7 (WP7) will refine the business plan and establish a SUPERSHINE legal entity, specifically a European Economic Interest Group (EEIG). This structure is chosen because it allows flexibility in financing, not requiring shared capital but permitting alternative financing methods.

This entity will consolidate resources and expertise from consortium members to sustain economic balance over the mid to long term. Initially, the EEIG members will finance capital expenditures with their resources, aiming for self-sustainability. Financial strategies will initially depend on operational expenditures, covering the project-funded life before transitioning to the open market.

For mid-term sustainability, a multi-annual budget will be crucial. The business model anticipates potential market disruptions, like those seen during the COVID-19 pandemic, by planning a risk appraisal and due diligence in the project's last year to ensure bankability and resilience.

The SUPERSHINE One-Stop Shop’s market entry strategy includes a versatile business-to-government (B2G) and business-to-business (B2B) subscription model. This will go beyond traditional Software as a Service (SaaS) models, offering services to a broad spectrum of stakeholders including public local authorities, professional users, and social housing managers, among others. Services will be available through direct subscriptions or via licensing to third parties (B2B2C), ensuring flexibility to cater to various customer sizes and types.
This model aims to tap into the extensive market potential of climate-neutral transition processes, particularly in the social and affordable housing sectors. It promises comprehensive benefits such as simplification, cost reduction, easy management of intellectual property rights, and effective, transparent customer interactions. The business model supports systemic governance changes by</td></tr>
</table>

	promoting innovative, systems thinking approaches to urban development and renovation, ensuring that all interventions lead to optimal outcomes.

6.6. KER6 – Lighthouse, Fellow cities and supporting partners advancements in knowledge

Table 25 - KER6 – Lighthouse, Fellow cities and supporting partners advancements in knowledge

KER6 – Lighthouse, Fellow cities and supporting partners advancements in knowledge				
Description	Comprehensive knowledge exploitation framework capturing lessons learned and best practices from lighthouse and fellow cities involved in the SUPERSHINE project, aimed at enhancing sustainable urban energy solutions across Europe. This KER derives from the previous ones and consists in the advancements in knowledge acquired by lighthouse cities, fellow cities and supporting partners, in the fields of energy efficiency innovations, stakeholder engagement models, business models and financial mechanisms, technology and infrastructure improvements, and environmental impact.			
Individual vs joint	**Partners involved**	**Type**	**Marketability**	**Type of access**
Joint	All	Advancement in knowledge	Both	Open (private for INSME knowledge on engagement and fundraising)
IP background	**IP foreground**	**Measure(s) to protect IP**	**TRL M19**	**TRL M41**
All	BL, FB, REA, ATER, ZV, ENA, KM, EGC, INSME	Soft IP: Know-how; Copyright	NA	NA
Exploitation strategy	• Replication of project implementations towards fellow cities and upscaling in lighthouse districts. • Upscaling of technology TRLs and commercialization.			
Planned use	• **FB** will make use of the knowledge generated during the SUPERSHINE project in order to foster the replication and upscaling of the implemented solutions and the overall SUPERSHINE approach. Overall Faellesbo intends to leverage all KERs in order to replicate the project implementation towards other Faellesbo housing departments. More specifically: ○ Blueprint business and financial models can be used in expanding the energy, environmental and building renovation measures that FB can finance and implement - as a supplement to the standard building renovation measures financed through Landsbyggefonden. The extend this can take place depends of the feasibility of using the blueprint in a DK context. ○ Blueprint SLCA, LCA and LCC models can be used in expanding the energy, environmental building renovation measures that FB will implement - as a supplement to the standard building renovation measures financed through			

Landsbyggefonden. The extend this can take place depends of the feasibility of using the blueprint in a DK context.
    - Blueprint social acceptance and co-design models will be used as a tool for carrying out building renovation minimizing negative social impacts.
- **BL** will leverage the knowledge acquired in the project to foster the replication of SUPERSHINE solutions in the Danish context. BL has up to 20% of the total social housing in Denmark and will rely on such extensive network to disseminate SUPERSHINE concept as well as to favour its replication.
- **REA,** as a lighthouse city in the project, will leverage the knowledge acquired in SUPERSHINE in order to upscale and replicate the EE renovation interventions in social housing in other districts of the city. As the city of Riga has already identified the technologies to be implemented to renovate the buildings (mainly relative to insulation and heating), the most interesting KER for Riga are the financial and business models to fund such interventions. Riga has a very high replication potential of such knowledge to foster renovations in other neighbourhoods also due to the conditions of social housing, mainly located in "standard" sovietic buildings (around 4000) which present very similar characteristics to the ones object of the renovation interventions of SUPERSHINE.
- **ATER,** will leverage the knowledge acquired in the SUPERSHINE project in order to continue upscaling the renovations performed as a lighthouse city, as well as to support replication in other areas and favouring the uptake of the SUPERSHINE solutions. IN order to achieve this goal, ATER has already planned to organize a dedicated event to present the overall SUPERSHINE approach to FEDERCASA, another Italian social housing agency.
- **ZV,** as the municipal company responsible for public housing in Zaragoza, will leverage the knowledge obtained in the SUPERSHINE project in order to replicate the envisioned solutions, adopting the SUPERSHINE approach, in order to implement EE efficient renovations in the social houses under its management. Furthermore, it will be a key partner to foster the uptake of the SUPERSHINE approach in the broader region.
- **ENA,** intends to leverage the knowledge acquired within the SUPERSHINE project in order to adapt and replicate the SUPERSHINE solutions towards EE social housing renovation. In order to achieve this goal ENA plans to:
    - Raise awareness and engage target groups to create the conditions for the implementation of the business and financial models. This will require the coordination with municipalities and social stakeholders, citizens representatives, and ethical banking entities.
    - Optimize the results for the ENA territory.
    - Implement the SLCA, LCA, LCC, and co-design models in ENA territory by disseminating the models to and engaging with municipalities, social stakeholders, social housing entities, and citizens representatives.
    - Support the technology implementations by analysing the best technologies to be applied from the blueprint in ENA's territory through meetings with municipalities and social housing entities and defining priorities with financial entities.
    - Actively contribute to the sustainability of the SUPERSHINE portal dissemination and updating, and integrate its utilisation in ENA's activities.
- **KM,** will make use of the knowledge acquired within the SUPERSHINE project in order to foster the replication of EE renovations in social housing not only in Kadikoy and Istanbul districts, but also across Turkey (also leveraging the Union of Municipalities which groups all 81 city governments of Turkey). As regards the knowledge relative to the specific KERs, KM will:
    - With the support of DEM, select and adapt the most fitting financial and business models to the Turkish regulatory framework (e.g., ESCO models in Turkey are not suitable to foster energy efficient renovations).

- Foster the adoption and adaptation of SLCA, LCA, and LCC models by providing guidance on their application.
- Develop consultancy services, capacity-building workshops, provision of tailored guidance and support, engagement with local businesses and organizations for knowledge transfer and implementation support. Collaboration with stakeholders to integrate blueprint models into CCC frameworks, advocacy for policy support, dissemination of best practices.
- Work together with lighthouse districts for upscaling, knowledge sharing, and mutual support. Offering consultancy services leveraging expertise gained from the blueprint implementation.
- Collaborate with academic institutions to validate project effectiveness and develop new solutions.

- **SP**: will leverage the knowledge acquired in the SUPERSHINE project to foster the replication of social housing EE renovation in the Serbian context.
- **EGC,** given its role to bridge the gap between EU funding and local partners, will leverage the knowledge acquired within the SUPERSHINE project in order to provide support to such local entities by engaging in new collaborations with Social Housing Operator or through the participation in further EU funded projects.
- **INSME** will leverage the knowledge acquired within the SUPERSHINE project in order to perform further research on the topic, issue scientific publications and producing guidelines for environmental and social research. More specifically:
  - Deepening the understanding of policies and regulatory frameworks, and innovative practices for the creation of smart neighbourhoods: A policy paper will be drafted with the results obtained to be promoted as guidelines for supporting businesses and companies engaged in innovation processes and technology transfer in the fields of environmental sustainability and social housing.
  - Development of models for simplifying complex data into numerical terms through qualitative and quantitative research methods: The techniques used, and the results of the research will be included in a report that would serve as a collection of best practices and suggestions for quantitative and qualitative methods of environmental and social research. The report will then be published in journals of the sector, including the International Journal of Environmental Research and Public Health and the Open Environmental Research Journal, which INSME is currently evaluating.
  - Development of techniques for engaging specific and diversified audiences, and for creating fundraising campaigns: The objective is to develop a consultancy service to increase audience involvement in European projects and fundraising operations. The service is aimed at stakeholders, companies, associations, research institutes and government bodies that deal with planning specifically linked to sustainability and technological innovation to support them in the planning and formulation of the engagement strategy with the audience and in the creation of campaigns to the financing of project activities. The service will be organised through policy papers, training workshops and seminars to stimulate the establishment of engagement skills in the stakeholders involved.

7. Conclusions

This deliverable presents the mapping of SUPERSHINE's KERs and a stakeholder analysis, instrumental for the strategic dissemination and exploitation of the identified results. By delineating the roles, impact, and interest levels of various stakeholders, this report sets a path for the maximization of the project's outputs beyond its lifecycle.

Key Insights from the KERs Identification and Stakeholder Mapping

- KERs Identification:
  The systematic identification of KERs has underscored their diverse potential for exploitation. Each KER, from innovative financial models to advanced technological solutions, holds significant implications for energy efficiency, social housing, and sustainable urban development. The document has detailed the features of each KER, aligning them with specific stakeholder needs and market opportunities.

- Comprehensive Stakeholder Analysis:
  The stakeholder mapping has revealed insights into how various entities can influence or benefit from the project. The analysis provided an understanding of stakeholder dynamics, categorizing them based on their potential impact and influence on dissemination and exploitation activities.

- Alignment with Exploitation Strategies:
  By identifying how different stakeholders interact with specific KERs, the project can leverage these relationships to enhance the adoption and impact of its results. This approach ensures that the project's outputs are not only relevant but also accessible to those who can maximize their utility.

Key Takeaways

- Enhanced Stakeholder Engagement:
  Continuous engagement with identified key stakeholders is essential. As the project progresses, maintaining open lines of communication and adjusting strategies in response to feedback and evolving market conditions will be crucial for the sustained relevance of project outcomes.

- Adaptation to Market and Regulatory Changes:
  The dynamic nature of the market and regulatory environments, especially in the fields of energy and urban development, requires ongoing monitoring. The project should remain

flexible in its approach, ready to adapt KERs and exploitation strategies to align with new challenges and opportunities.

- Focus on Scalability and Replicability:
  Emphasizing the scalability and replicability of KERs across different contexts and regions will be vital. The project should explore partnerships and collaborative frameworks that can facilitate the broader adoption of its innovations, enhancing the overall impact on European and global scales.

- Long-term Sustainability Planning:
  Developing a long-term sustainability plan for each KER will ensure that the project's benefits continue to accrue well beyond its formal conclusion. This includes establishing support mechanisms, such as training and technical support, to ensure that stakeholders can effectively utilize and benefit from the project's results.

The current analysis provides a snapshot of the existing conditions; however, it's crucial to understand that continuous project progress, external factors, and the partners' proactive engagement with the identified stakeholders may significantly alter and influence the evolution of the KERs and the stakeholder positioning.

This analysis serves as the initial phase in crafting and implementing dissemination and exploitation strategies aimed at maximising the impact of the SUPERSHINE project, ensuring that its innovative results lead to tangible improvements in energy efficiency, social housing, and sustainable urban development. After the delivery, the Library of Key Exploitable Results will be uploaded in .xls format in the SUPERSHINE repository, to be constantly updated according to the project's developments and arising opportunities. The Library of Key Exploitable Results will lay the basis of the project's exploitation activities and planning. The updated CDE plan, including an updated version of the library, will flow into in *D6.2 Plan for Communication, Dissemination and Exploitation of Results - Part 2 (M29).* The exploitation activities including 1 to 1 calls, input requests, and workshops will continue throughout the project to draft the final exploitation strategies, which will be included in *D6.5 Final Exploitation Plan (M41).*