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D6.1 Evaluating The Development of Integrated Home Renovation Services for Condominiums

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House Style

	Red RGB	Green RGB	Blue RGB	HEX
Green	42	205	87	#2acd57
Orange	255	132	71	#ff8447
Grey	79	76	76	#4f4c4c
 THE USE OF THE EU EMBLEM IN THE CONTEXT OF EU PROGRAMMES 2021-2027 LINK				
EU corporate blue	0	51	153	#003399
Yellow	255	204	0	#FFCC00

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Abbreviations

Abbreviation	Meaning
ANTW	Antwerpen - The city of Antwerp, Belgium
APC	Agence Parisienne du Climat - Paris Climate Agency
BMC	Business model canvas
BM	Business model
CA	Condominium association
CM	Condominium manager
ESCO	Energy service company
GWRD	Geïntegreerde woningrenovatiediensten (Dutch term) – Integrated Home Renovation Services
HOA	Homeowners' associations
IHRS	Integrated home renovation services
MECH	Mechelen - The city of Mechelen, Belgium
OSS	One-stop-shop
OOST	Oostende - The city of Ostend, Belgium
RME	Raad van Mede-Eigenaren (Flemish term) – Council of Co-owners
TUD	Technical University of Delft
VEKA	Vlaams Energie en Klimaat Agentschap - Flemish energy and climate agency
VvE	Vereniging van Eigenaars (Dutch term) – Condominium Association
VME	Vereniging van Mede-Eigenaars (Flemish term) – Condominium Association
WNR	Stichting WoonlastenNeutraal Renoveren (Dutch term for Foundation Living-cost neutral Renovation, private non-profit organisation)

Terminology list

This document uses the following definitions.

Business model: A "business model" is a conceptual framework that outlines the core aspects of how an organization operates, generates revenue, and sustains its operations. It typically delineates the key components of a company's strategy, including its value proposition, target market, revenue sources, cost structure, and distribution channels. This model serves as a blueprint for how a business intends to create and capture value in the market, guiding its overall approach to conducting activities and achieving long-term sustainability and profitability (Osterwalder et al., 2005; Fielt, 2013; Laffont-Eloire et al., 2019).

Channels: The various ways through which the service providers reach and serve their target group (Osterwalder & Pigneur, 2010).

Condominium: A private residential unit within a multi-unit building where each unit is individually owned, while common areas are owned collectively by all unit owners. This form of ownership combines private ownership of an individual unit with shared ownership of common property (Feather, 1990; Van der Merwe, 2016).

Communication and IT intermediaries: These intermediaries play a role in facilitating the outreach communication and implementation of information technology solutions to enhance energy renovation processes.

Consultants: Intermediary actors who provide expert advice and guidance on energy renovation strategies, often assisting in decision-making and planning.

Co-owner: an individual that owns – or has the right to use spaces and goods through a deed that determines the possession of a share of spaces and goods in a condominium structure.

Cost structure: The overall expenses associated with the business model operations (Osterwalder & Pigneur, 2010).

Condominium associations: The legal entity that brings together all co-owners of a condominium (Van Der Merwe, 2015). The CA is represented by a General Assembly. It is responsible for the daily management, maintenance and renovation of a building owned by co-ownership. Not to be confused with local/regional/national associations of homeowners that can exist through membership fees, and have a different legal status (called homeowner associations) (cfr. CA = vereniging van Mede-eigenaars, terwijl HOA = eigenaarsvereniging)

Condominium Manager / Property Manager / Syndic: A professional appointed to oversee and coordinate the day-to-day operations, maintenance tasks, financial administration, and contractual obligations on behalf of the condominium association. Their responsibilities include executing decisions made by the board or general assembly, managing service providers, ensuring legal compliance, and facilitating communication among co-owners and stakeholders.

Customer relationship: The nature of interactions and engagement between the business model owner and the target group (Osterwalder & Pigneur, 2010).

Customer segments/beneficiaries: Specific groups targeted for delivering the value proposed (Osterwalder & Pigneur, 2010).

Demand side: This term refers to the individuals or entities who trigger, represent, and encourage the demand for energy renovation services.

Finance and management: This encompasses the strategies and actions related to the allocation of financial resources for energy renovations, as well as the managerial aspects of overseeing such projects.

Geïntegreerde woningrenovatiediensten (GWRD): Gecoördineerde woningrenovatiediensten die worden aangeboden door professionals of teams van actoren van op elkaar afgestemde disciplines (Milin & Bullier, 2021). See also: IHRS.

Integral approach for renovation: A comprehensive method that considers multiple aspects of a building's upgrades and renovations that considers individual preferences and societal perspectives, offered by professionals or teams that streamline the renovation process (Žegarac Leskovar & Premrov, 2019).

Integrated Home Renovation Services (IHRS): Coordinated home renovation services offered by professionals or teams of actors from aligned disciplines (Milin & Bullier, 2021).

Intermediaries: Actors, institutes, or organizations positioned between the supply and demand side, between the public and demand actors, and/or between the public sector and the supply side with a specific mission or activities to bridge gaps between these actors.

Key activities: The main activities executed by the service provider to deliver the proposed value (Osterwalder & Pigneur, 2010).

Key resources: The critical assets and capabilities required for delivering the proposed value (Osterwalder & Pigneur, 2010).

Key partners: External collaborations that enhance the effectiveness of energy renovation efforts (Osterwalder & Pigneur, 2010).

One-stop-shop: A service or business model that offers a wide range of services or products in a single location, aiming to provide convenience and efficiency by centralizing multiple related services for the customer (Boza-Kiss et al., 2021).

Public actors: This includes government agencies, public institutes and regulatory bodies that influence and regulate the energy renovation sector at the European, national, regional, and local levels, using distinct types of policy instruments.

Revenue streams/Value streams: The sources of income or benefit generated (Osterwalder & Pigneur, 2010).

Stakeholder: Stakeholders in the context of energy renovations for condominiums refer to individuals or entities that have a vested interest in the process and outcomes of such renovations. This typically includes condominium/flats/building owners, building managers, renovation service providers, energy efficiency experts, local authorities, construction SMEs and any other parties directly or indirectly impacted by the renovation efforts. These stakeholders often play essential roles in decision-making,

funding, planning, and implementation processes related to energy renovations within Homeowners associations (Brown, 2018; Franklin, 2020; Estay et al., 2021; Milin & Bullier, 2021).

Supply side: This refers to actors, entities or businesses that offer products, systems, services, and solutions related to energy renovations, such as contractors, suppliers, and energy providers.

Value Proposition: The unique value or benefit that the business model owner offers to the customer segments (Osterwalder & Pigneur, 2010).

Executive Summary

This report evaluates the performance and development needs of Integrated Home Renovation Services (IHRS) tailored for condominiums in Flanders and the Netherlands. It focuses on two complementary models: a public-led approach piloted in Flanders through the Flemish Climate and Energy Agency (VEKA) and local Energy Houses, and a private-led approach represented by the Dutch service provider WNR.

To support this evaluation, we developed a conceptual framework based on tailored evaluation criteria designed to assess the viability of the business models. These criteria were informed by a review of relevant literature, project deliverables, and practical observations, and are used to assess key aspects such as financial stability, adaptability, customer focus, and operational efficiency.

The analysis combines multiple data sources, including document reviews, observations, co-creation workshops, and in-depth interviews with co-owners, board members, IHRS actors, and public stakeholders involved in energy renovations across eight condominium associations (CAs) in both Flanders and the Netherlands. This qualitative research was further complemented by two questionnaire surveys, one targeted at CA co-owners in Flanders and the Netherlands, and another at a broader group of property owners across the EU. The EU-wide survey revealed consistent patterns in motivations, barriers, and support needs, highlighting the relevance of the findings beyond the immediate case studies.

Both IHRS models aim to simplify the complex renovation journey for CAs by offering advisory, coordination, and technical support. However, each model faces specific challenges:

The public-led model benefits from neutrality and policy alignment, but often lacks long-term engagement beyond the masterplan phase and struggles with resource intensity.

The private-led model shows strengths in flexibility, phased planning, and client-centric service, but must overcome barriers related to trust, financing accessibility, and coordination with public actors such as municipalities and housing corporations.

The report provides detailed business model recommendations for improving service delivery across nine Business Model Canvas components. These are supported by policy recommendations targeting national and local governments.

Limitations of the Study

While this report offers rich insights, it is based on a limited number of in-depth IHRS providers, three in Flanders and one in the Netherlands. The findings are therefore not statistically generalizable but reflect qualitative depth. The co-owner interviews may also reflect the views of more engaged or vocal residents, potentially underrepresenting passive or non-participating co-owners. Finally, the long-term outcomes of renovation processes were not yet fully observable at the time of this analysis.

Despite these limitations, the study provides robust evidence for informing business model optimization and targeted policy support for IHRS models across varying governance contexts. The developed evaluation framework also offers a transferable tool for assessing similar renovation service models in other European contexts.

Samenvatting

Dit rapport evalueert de prestaties en ontwikkelbehoeften van geïntegreerde woningrenovatiediensten (Integrated Home Renovation Services – IHRS) die zijn afgestemd op appartementsgebouwen (VME's) in Vlaanderen en Nederland. De focus ligt op twee complementaire modellen: een publiek-gestuurde aanpak die in Vlaanderen wordt gepiloteerd via het Vlaams Energie- en Klimaatagentschap (VEKA) en de lokale Energiehuizen, en een privaat-gestuurde aanpak die wordt vertegenwoordigd door de Nederlandse dienstverlener WNR.

Om deze evaluatie te ondersteunen, ontwikkelden we een conceptueel kader gebaseerd op specifieke evaluatiecriteria die zijn ontworpen om de levensvatbaarheid van de businessmodellen te beoordelen. Deze criteria zijn geïnformeerd door een analyse van relevante literatuur, projectdeliverables en praktijkobservaties, en richten zich op sleutelaspecten zoals financiële stabiliteit, aanpassingsvermogen, klantgerichtheid en operationele efficiëntie.

De analyse combineert meerdere databronnen, waaronder documentanalyses, observaties, co-creatie workshops en diepgaande interviews met mede-eigenaars, syndici, IHRS-actoren en publieke belanghebbenden die betrokken zijn bij energierenovaties van acht appartementsgebouwen in zowel Vlaanderen als Nederland. Dit kwalitatieve onderzoek werd aangevuld met twee vragenlijstonderzoeken: één gericht op mede-eigenaars binnen VME's in Vlaanderen en Nederland, en een ander breder onderzoek onder vastgoedeigenaars in de hele EU. De EU-brede survey toonde consistente patronen in motivaties, barrières en ondersteuningsbehoeften, wat de relevantie van de bevindingen buiten de onderzochte cases benadrukt.

Beide IHRS-modellen streven ernaar om het complexe renovatieproces voor VME's te vereenvoudigen door advies, coördinatie en technische ondersteuning te bieden. Elk model kent echter specifieke uitdagingen:

Het **publiek-gestuurde model** profiteert van neutraliteit en beleidsafstemming, maar kampt vaak met een gebrek aan langdurige betrokkenheid na de masterplanfase en vereist intensieve middelen.

Het **privaat-gestuurde model** blinkt uit in flexibiliteit, gefaseerde planning en klantgerichte dienstverlening, maar moet drempels overwinnen op het vlak van vertrouwen, toegang tot financiering en samenwerking met publieke actoren zoals gemeenten en sociale huisvestingsmaatschappijen.

Het rapport bevat gedetailleerde aanbevelingen voor het optimaliseren van businessmodellen, gebaseerd op de negen bouwstenen van het Business Model Canvas. Deze worden ondersteund door beleidsaanbevelingen gericht op nationale en lokale overheden.

Beperkingen van de studie

Hoewel dit rapport waardevolle inzichten biedt, is het gebaseerd op een beperkt aantal diepgaande cases van IHRS-aanbieders: drie in Vlaanderen en één in Nederland. De bevindingen zijn daarom niet statistisch generaliseerbaar, maar bieden kwalitatieve diepgang. De interviews met mede-eigenaars weerspiegelen mogelijk vooral de meningen van meer betrokken of uitgesproken bewoners, wat kan leiden tot een ondervertegenwoordiging van passieve of niet-deelnemende mede-eigenaars. Ten slotte waren de langetermijnresultaten van de renovatieprocessen op het moment van analyse nog niet volledig zichtbaar.

Ondanks deze beperkingen levert de studie robuust bewijs voor het verbeteren van businessmodellen en het vormgeven van gerichte beleidsmaatregelen ter ondersteuning van IHRS-modellen in uiteenlopende governancecontexten. Het ontwikkelde evaluatiekader biedt bovendien een overdraagbaar instrument voor de beoordeling van soortgelijke renovatiediensten in andere Europese contexten.

1. Introduction

1.1 Scope, Context, and Objectives

This report - developed within the framework of the LIFE-project CondoReno (https://condoreno.org) - evaluates the development and implementation of four business models (BMs) for Integrated Home Renovation Services (IHRS) targeting condominium associations (CAs) in the Netherlands and Flanders. The evaluation focuses on the progress of these BMs during the CondoReno project, examining how they have evolved to meet the specific needs of condominiums and their stakeholders. By understanding this development, the report aims to identify viable practices and strategies that can inform the adaptation of IHRS BMs across the European Union (EU).

The residential sector in Europe accounts for 27% of total energy consumption (Eurostat, 2020), emphasizing the urgent need for energy-efficient renovations to achieve the EU's climate goals. Condominium renovations present a significant business opportunity for service providers; however, there is uncertainty regarding the design and operation of viable IHRS tailored to the unique legal, financial, and organizational challenges of condominiums (Elgendy et al., 2024a). Addressing these challenges requires an evidence-based evaluation of BMs to ensure the success of IHRS providers and meet the growing demand for renovation services by CAs.

This report follows the activities of CondoReno work packages (WP) 3, 4, and 5, each of which plays a crucial role in informing the evaluation of IHRS BMs:

- WP3 focuses on the development of tools and methodologies to facilitate CAs' financial decision-making. This includes creating financial calculation tools, mitigating risks, Step by Step plan, and developing training programs to activate both the demand and supply sides.
- WP4 centres on piloting and testing IHRS in diverse case studies across the Netherlands and Flanders. It includes feasibility studies, investment planning, and stakeholder engagement to refine IHRS processes and provide real-world insights for broader replication.
- WP5 emphasizes capacity building, co-creation, and digital resource development. It supports the operationalization of IHRS through matchmaking between supply and demand, knowledge transfer, and the creation of a digital resource centre to streamline access to IHRS tools and information.

The report is structured as follows:

Chapter 2 lays the foundation by defining IHRS, discussing its significance in the Netherlands and Flanders, and providing an overview of the research methodology. This chapter also introduces the central research question guiding the evaluation of IHRS BMs.

Chapter 3 focuses on the evaluation itself, analyzing the activities and outcomes of the 4 IHRS business models during CondoReno. This chapter integrates insights from early studies on activating business models for CAs (Elgendy & Mlecnik, 2024), which provides foundational recommendations for IHRS development, to assess the alignment of the business models with key success criteria.

Chapter 4 discusses the prospects of IHRS for condominiums within the Netherlands and Flanders, offering in-depth recommendations for improving public and market-driven IHRS BMs. These recommendations are informed by research findings and an analysis of local contexts.

Chapter 5 synthesizes the insights and findings from the preceding chapters into a cohesive conclusion. It summarizes key takeaways, identifies lessons learned, and provides a forward-looking perspective on IHRS development and adaptation within Europe. The chapter also emphasizes the importance of continuous stakeholder collaboration and innovation to overcome the complex challenges of condominium renovations.

In line with CondoRenos objectives, this report contributes to strengthening the evidence base for IHRS by evaluating their development through participatory observation, qualitative and quantitative surveys, and stakeholder engagement. The findings aim to support policymakers, service providers, and other stakeholders in fostering trust, improving decision-making processes, and ensuring the long-term viability of IHRS for CAs. Ultimately, this work aspires to create a framework of practices and lessons learned for IHRS implementation and replication that aligns with the EU's energy efficiency and climate goals.

1.2 The CondoReno project

This project is funded by the European Union's Programme for Environment and Climate Action (LIFE) MGA under grant agreement No. 101076316. The project aims to support the creation of IHRS for buildings co-owned by multiple private homeowners, focusing on CAs in the Netherlands and Flanders, while paving the way for upscaling IHRS across Europe. CondoReno will lead to the development of six IHRS for CAs interested in the implementation of energy renovations. The services developed in this project will offer support across the whole renovation journey for buildings co-owned by multiple private homeowners which could be referred to as a homeowner association, condominium association (CA) or, as known in the Netherlands as a VvE 'Vereniging van Eigenaars' and in Flanders as VME 'Vereniging van Mede-Eigenaars'.

CondoReno aimed to deploy IHRS across Europe by combining the strengths of market-driven IHRS in the Netherlands and local authority-driven IHRS in Flanders into adapted IHRS BMs. These were tested by intervening directly in meetings of eight CAs.

The IHRS were challenged to stimulate living-cost neutral propositions and financial arrangements for achieving label A renovations while training CAs on good governance and daily management of the building and small and medium enterprises (SMEs) on quality assurance and performance contracting.

Local stakeholder groups were to co-create local IHRS supply in three cities and the project would activate CA demand for local IHRS supply with workshops and matchmaking events. A Flemish digital resource center was initiated that supports actor listing at the local level and matchmaking.

By demonstrating market evidence of the IHRS in this report, the project aims to develop cross-sectoral agreements for the further multiplication of IHRS in multiple cities and regions across Europe. This will further support engaging the local, national and international networks and communication of project partners and stakeholders (Mlecnik & Elgendy, 2023).

1.3 Why a report on evaluating IHRS?

This report critically evaluates and consolidates insights into IHRS for CAs by the integration of participatory observation, empirical data collection, and analytical evaluation to advance innovative practices in IHRS BMs.

This report contributes strategically to the development of data-driven guidance that fosters the replication and scalability of IHRS by other market actors. The approach of the report is anchored in systematic evaluation, ensuring that the insights shared are robust, validated, and actionable. We investigated the recognition of IHRS value by the market, offering evidence-based insights into the viability of these services in addressing the complex needs of condominium renovations.

The evaluation extends its scope to the dynamics of stakeholder collaboration, analyzing how functioning partnerships contribute to successful IHRS delivery. Best practices and co-creation models are argued with empirical evidence for shaping actionable recommendations. This scientific inquiry into partnerships involves assessing roles, responsibilities, and the interplay between public and private actors within IHRS frameworks.

The report results in actionable recommendations for IHRS business model recommendations, policy development and stakeholder engagement. This work underscores the potential of IHRS to transform the residential renovation market, addressing the EU's energy efficiency goals while enhancing the business viability of renovation service providers.

The report also extends to other work that was carried out within the CondoReno project. It informs about partners' tool development by identifying essential methodologies and tools through a review process. It contributes knowledge to the co-creation of IHRS, integrating scientific methods with practical applications. Lastly, it lays the groundwork for the scientific evaluation of IHRS development, drawing on the comprehensive data and insights gathered.

1.4 Who should read this report and why?

This report is intended for a broad audience of stakeholders interested in the development, implementation, and evaluation of IHRS for CAs in the Netherlands, Flanders, and beyond. It provides valuable insights into the creation and optimization of IHRS BMs and their potential for scaling across Europe. Specifically, the following groups may find this report relevant:

Integrated Home Renovation Service Providers: Both established and aspiring IHRS providers can benefit from detailed evaluations of BMs, best practices, and lessons learned. The report offers practical guidance on structuring services to meet the unique needs of CAs and adapting to local contexts.

Stakeholders in the Renovation Value Chain: This includes construction companies, architects, engineers, and urban planners involved in renovation projects. The report highlights opportunities for collaboration, co-creation, and quality assurance in delivering IHRS.

Local Authorities and Municipalities: Municipalities interested in facilitating condominium renovations will find actionable insights into the development of digital resource centers, stakeholder engagement strategies, and tools for streamlining renovation processes.

Policy Makers and Regulators: Decision-makers responsible for shaping policy frameworks, incentives, and regulatory structures can use this report to inform their efforts to promote IHRS adoption. It offers recommendations on addressing barriers and enabling a supportive environment for IHRS.

Financial Institutions and Investors: Banks, institutional investors, and financial intermediaries looking to support or invest in IHRS initiatives will gain insights into risk mitigation strategies, financing models, and the market potential of IHRS for condominiums.

Condominium associations (CAs): Associations considering energy renovations can use this report to better understand the value of IHRS, available services, and how these models can simplify decision-making and improve renovation outcomes.

Condominium Managers and Syndics: Managers supporting CAs with daily operations and renovation projects will find practical tools and methodologies to navigate the complexity of renovations and engage with IHRS providers.

Researchers and Academics: Scholars studying energy renovations, stakeholder collaboration, and business model innovation will find this report valuable for its comprehensive data, evaluation framework, and recommendations for scaling IHRS.

Advocacy Groups and Non-Profit Organizations: Organizations advocating for sustainable housing, energy efficiency, and community development can use this report to better understand how IHRS contributes to achieving environmental and social goals in residential sectors.

Technology and Digital Tool Developers: Developers of digital platforms and tools for energy renovations will find useful insights into how digital resource centers and matchmaking modules can enhance IHRS functionality and stakeholder collaboration.

By addressing the interests of these diverse groups, this report aims to support the development and scalability of IHRS, ultimately contributing to the acceleration of energy-efficient renovations in condominiums and the broader housing sector across Europe.

2. Methodology to evaluate the development of IHRS Business models for condominiums

2.1 What are Integrated Home Renovation Services?

Article 18 of the Energy Performance of Buildings Directive (EPBD, 2024) mandates that Member States establish and manage facilities for providing technical guidance to support building renovations. This includes the development of accessible "one-stop-shops" designed to assist all relevant actors involved in renovation processes. These facilities must be flexible in their structure and services, allowing adaptation to different target groups and renovation needs. Ensuring broad and equitable access to these services is essential, with a strong emphasis on achieving full geographical coverage across national territories. A complementary approach that combines both digital and physical support mechanisms is required to address all renovation phases—from initial exploration and assessment to financing, implementation, quality assurance, monitoring, and follow-up. The development of clear accessibility criteria should be undertaken in collaboration with regional and local authorities. Furthermore, particular attention must be given to supporting vulnerable households and prioritizing the renovation of the worst-performing buildings to ensure an inclusive and effective renovation wave across Europe.

Definition: IHRS refer to bundled renovation services by several stakeholders that aim to support homeowners (in this case, Condominium associations) throughout the renovation process. These services often include technical advice, financial planning, stakeholder coordination, contractor matchmaking, and post-renovation monitoring and quality assurance (BPIE, 2024; European Commission, 2025).

Purpose: IHRS seek to simplify the renovation journey, reduce fragmentation in the supply chain, and offer tailored solutions that address technical, organizational, legal, and financial barriers specific to CAs.

Importance in Condominiums: Unlike single-family homes, condominiums involve collective decision-making, joint ownership structures, and multiple stakeholders, making renovation significantly more complex. IHRS are seen as essential for navigating these complexities.

2.2 Business model viability

In previous research we have explored how BMs of IHRS providers are operating under different organizational structures (Elgendy & Mlecnik, 2024; Elgendy et al., 2024b). Many OSSs BMs are currently operating, and the aim is to learn from the operationalization of those business models to know what is working and what is not working, in view of replicating such models in other European countires. It is important to learn from those previous experiences in a structured manner. So, it is important to define clearly hot the viability of a business model can be studied to determine how we can improve the viability of a BM (Figure 1). Magretta (2002) emphasizes that a viable BM is fundamental to the success and the long-term survival of an enterprise. D'Souza et al. (2015) argue that designing a viable BM presents a significant challenge due to the dynamic and rapidly evolving nature of the business environment. This complexity arises from various factors, including deregulation and shifts in customer preferences. Chesbrough (2007) contends that a BM is considered viable when all participating stakeholders can capture enough value to motivate their continued involvement in it. A viable BM must be capable of surviving in a changing environment by redesigning structures and replanning performance with long-term impacts in mind. This includes being agile, resilient to disruptions, and sustainable over time (Ivanov, 2022). Viability also involves continuous learning and innovation, where businesses constantly adapt and evolve their models to meet new challenges and opportunities. This can involve integrating customer experiences into the BM innovation process to ensure that the offerings remain relevant and valuable to the target audience (Keiningham et al., 2020). Waddle & Perlack (1992) argue that viability can be significantly enhanced through innovative financing models and technology support systems. D'Souza et al. (2015) argue that it is very difficult to design viable BMs due to many external factors that could affect the success of a business. However, following some guidelines and frameworks can help address all the needed aspects to make a business successful.

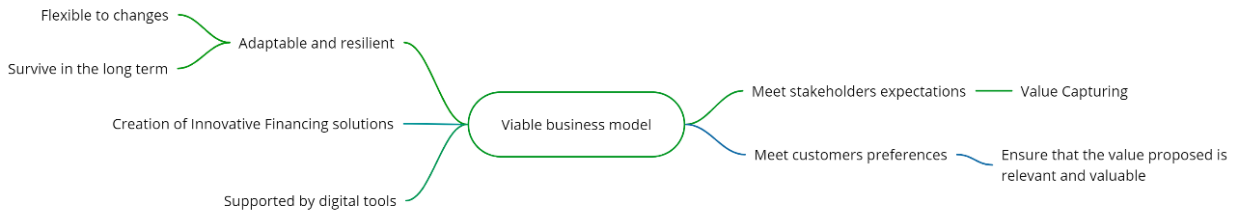


Figure 1: A Viable business model. Source: Author's synthesis based on relevant literature (Waddle & Perlack, 1992; Magretta, 2002; Chesbrough, 2007; D'Souza et al., 2015; Keiningham et al., 2020; Ivanov, 2022)

In the context of this report, assessing BM viability is not only an academic exercise but a critical step in determining whether IHRS can scale and succeed in real-world, complex environments such as experienced when providing services to CAs. These associations operate under unique governance, financial, and decision-making structures that often make renovation efforts slow and fragmented. Therefore, viable BMs must demonstrate the ability to align technical feasibility, stakeholder

collaboration, financial planning, and regulatory compliance into a coherent and operational service offering.

The CondoReno project explores ome (Elgendy & Mlecnik, 2024) (both public and private) that aim to address the needs of CAs through facilitation or all-inclusive service propositions. These models are embedded in evolving ecosystems, where stakeholder buy-in, financial viability, and operational adaptability are continuously tested. By evaluating how these BMs perform across different pilot contexts, this report seeks to uncover what makes a BM viable in the specific domain of condominium renovations.

This evaluation is especially urgent given that IHRS initiatives often rely on significant upfront investment (both financial and institutional) yet face long return periods and uncertain demand. As Chesbrough (2007) highlights, viability depends on mutual value capture: service providers, CAs, municipalities, and financiers must all see continued benefit in remaining engaged. In practice, this means the IHRS must balance cost-effectiveness with quality, foster trust among stakeholders, and remain responsive to unpredictable external factors such as policy changes or homeowner behavior.

For public sector models, viability often hinges on securing long-term funding and institutional legitimacy, whereas private providers must prove market competitiveness and scalability. Across both types, agility and adaptability (as emphasized by Ivanov (2022)) are essential to navigate an environment shaped by dynamic policy landscapes, emerging digital tools, and shifting homeowner expectations.

In light of these challenges, this report uses a set of evaluation criteria (introduced in Section 2.3 and expanded in Chapter 3) to assess the viability of each BM.

By doing so, the report aims to identify which practices and characteristics contribute most to long-term viability and how these insights can inform future IHRS development, both within the Netherlands and Flanders and across the wider EU context.

2.3 Criteria extracted from the literature to assess the viability

To systematically evaluate the viability of the IHRS BMs developed and tested during the CondoReno project, this report draws on a range of criteria grounded in academic literature. These criteria serve as the analytical backbone for assessing how well the BMs perform under varying conditions, how resilient and scalable they are, and whether they meet the expectations of stakeholders involved in condominium renovations.

A viable BM must go beyond short-term performance and demonstrate capacity to withstand external shocks, adapt to changing environments, and deliver consistent value to its customers and partners. Drawing from interdisciplinary sources, including business strategy, economics, innovation management, and energy policy, ten key criteria were identified:

Criteria	Description	Source
Financial stability	Financial stability of businesses is defined as their ability to facilitate and enhance economic processes, manage risks, and absorb shocks	(Schinasi, 2004)
Adaptability and flexibility	Adaptability is about the capacity of a business to adjust its course of action in the face of changing conditions in its environment, whereas flexibility is more about the business's ability to change its processes, products, or services with minimal cost or disruption	(Güss et al., 2017)

Customer focus and value proposition	The alignment of business strategies with customer focus and value propositions. This alignment means that a business effectively meets the needs and preferences of its target customers, creating significant value that differentiates the business from its competitors.	(Anderson et al., 2006; Osterwalder & Pigneur, 2010)
Creation of innovative financing solutions	Facilitation to access to capital for customers to finance the service	(Waddle & Perlack, 1992)
Supported by digital tools	The importance of business models supported by digital tools in the realm of energy renovations is increasingly recognized for their potential to drive efficiency gains, enhance customer engagement, and streamline operations.	(Laffont-Eloire et al., 2019; Calderon-Monge & Ribeiro-Soriano, 2024)
Operational efficiency	Efficiency in a business model is about doing more with less, ensuring that each aspect of the business contributes to its overall success without unnecessary expenditure of time, money, or resources.	(Teece, 2010)
Diversification	A business model can be diverse in several ways, including offering a wide range of products or services, entering different geographical markets, or targeting various customer segments	(Gomes & Livdan, 2004)
Scalability	Scalability in business models refers to the capability of a business to grow and manage increased demand without compromising performance or losing revenue.	(Nielsen & Lund, 2017)
Supply chain resilience	Resilience in the supply chain refers to the ability of a supply chain to anticipate, prepare for, respond to, and recover from unexpected disruptions quickly and effectively, thereby ensuring continuity of operations and minimizing negative impacts	(Jabbarzadeh et al., 2018)
Competitive advantages	Competitive advantage refers to the attributes or capabilities that allow a service provider to outperform other competitors, thereby achieving superior market performance and profitability.	(Bharadwaj et al., 1993)

Table 1: Evaluation criteria extracted from literature

Selection of Evaluation Criteria for This Report

While ten viability criteria were identified from the literature, this report uses a focused subset that is most relevant to the current maturity level of the BMs developed during the CondoReno project. The evaluation therefore uses the following six criteria:

1.Financial stability

- A. Revenue generated from services provided for each project.
- B. Percentage of income from OSS activities vs. subsidies, funding, or tax exemptions.
- C. Financial sustainability plans for revenue diversification

2.Adaptability and flexibility

- A. Number of alternative stakeholders/resources available for critical tasks.
- B. Examples of changes made during the project and how they were managed.
- C. OSS's ability to adjust value propositions for the CA.

- D. Contingency plans for unexpected events or stakeholder withdrawal.

3.Customer focus and value proposition

- A. Evidence of customer-centric engagement (e.g., workshops, consultations).
- B. Perception of value proposition among co-owners (e.g., clear, fitting, and attractive).
- C. Satisfaction metrics from CAs (e.g., clarity of communication, support provided).

4.Creation of innovative financing solutions

- A. Financing models offered (e.g., cost-neutral renovations, group financing, roof expansions).
- B. Percentage of projects financed using these innovative solutions.
- C. Guarantees or mechanisms OSS provided to secure financing for projects.
- D. Feedback from CAs on the accessibility and practicality of these financing options.

5.Support by digital tools

- A. List of digital tools used (e.g., energy simulation, project management platforms, communication tools).
- B. Purpose and role of tools in each project phase (audit, planning, execution).
- C. Usability feedback from OSS staff, CAs, and stakeholders.
- D. Metrics on tool effectiveness (e.g., efficiency gains, user satisfaction).

6.Operational efficiency

- A. Planned vs. actual timelines and budgets for OSS activities.
- B. Resource utilization efficiency (e.g., time, money, labor).
- C. Feedback on OSS coordination and task execution during the project.

These criteria are directly applicable to early-stage BMs that are still in the process of being implemented and tested in practice. The remaining four criteria—**supply chain resilience**, **scalability**, **competitive advantages**, and **diversification** are essential for assessing long-established and mature BMs, but are not suitable for evaluating the early-stage models in CondoReno. Since the evaluated IHRS models have been activated and piloted during the project itself, these long-term performance indicators are beyond the current scope of this analysis.

These criteria form the basis of the evaluation presented in Chapter 3. They were selected not only for their relevance to general BM performance but also for their applicability to the specific characteristics and challenges of IHRS for CAs. In particular, criteria like stakeholder adaptability, customer focus, and innovative financing are critical in the condominium renovation context, where decision-making is collective, financial planning is complex, and engagement levels vary widely (Elgendy et al., 2024a).

By operationalizing these criteria in the evaluation framework, the report ensures a multidimensional and context-sensitive analysis of IHRS business model viability.

2.4 Research needs

Understanding the viability of IHRS BMs demands a multidimensional perspective that captures stakeholder dynamics, technical feasibility, financial structures, and service delivery in practice. This section outlines the research needs driving this evaluation and the methodological approach taken to address them.

The evaluation of IHRS BMs was guided by the following core research needs:

- **Understanding stakeholder alignment**: How do the roles, interests, and expectations of different stakeholders (e.g., CAs, service providers, municipalities, financial actors) align with the design and delivery of IHRS?
- **Evaluating business performance against viability criteria**: How do the four pilot business models perform in relation to the viability criteria identified in Section 2.3?
- **Capturing context-specific insights**: What local governance, financial, or cultural factors influence the success or limitations of IHRS in the Netherlands and Flanders?
- **Identifying replicable practices**: What features of these models can be transferred to other EU contexts, and under what conditions?

To respond to these needs, a mixed-methods approach was adopted, combining qualitative and quantitative data collection and analysis.

2.5 Research question and methods

2.5.1. Research question

This report is guided by the following research questions:

Main research question:
How have integrated home renovation service business models in the Netherlands and Flanders evolved during the CondoReno project to better serve condominium associations?

Sub-questions:

1. How have existing IHRS models evolved in terms of their structure, stakeholder collaboration, and service offerings?
2. In what ways has the viability of these business models improved, particularly regarding the six viability criteria?
3. What elements of these business models show potential for replication and scaling across other European contexts?

2.5.2. Methodology

To evaluate the viability of IHRS BMs, this report draws on empirical activities conducted as part of Work Packages 3, 4, 5 and 6 of the CondoReno project. These work packages collectively addressed tool development, case study implementation, capacity building and the development of policy recommendations.

The methodology is multi-scalar, involving both strategic-level stakeholders and on-the-ground actors, and includes the following components:

Interviews with Co-owners, Business Model Owners and Relevant Stakeholders

Semi-structured interviews were conducted with key members of the CondoReno consortium who were directly involved in developing and implementing IHRS models. The selection included stakeholders from three public-driven IHRS initiatives in Flanders, each operating in a different urban context: one large city (Antwerp), one medium-sized city (Mechelen), and one small city (Oostende), to reflect the diversity of implementation environments within the Flemish public-led approach. In addition, interviews were held with the developer of a market-driven IHRS model in the Netherlands to capture insights from a privately-led renovation service targeting condominium associations. These cases were selected to represent the range of implementation contexts and governance models within the CondoReno project. These interviews explored their strategic goals, value propositions, stakeholder engagement strategies, perceived challenges, and reflections on viability.

To validate the implementation of these BMs in practice, additional interviews were carried out with stakeholders involved in 8 real-life cases where the BMs were applied. These included:

- Co-owners and board members of Condominium associations (CAs/VME's/VvE's)
- Architects and engineering advisors
- Energy houses and municipal energy offices
- Governmental actors (local and regional authorities)
- Private and public service providers

These interviews provided insights into day-to-day operations, user experiences, coordination mechanisms, and context-specific challenges.

Code	Date	Context	Country	Stakeholder	Data collection method	Method
I-1	3-3-2025	Case study 1	BE	Homeowner and board member	Structured interview	In person
I-2	3-3-2025	Case study 2	BE	Homeowner and board member	Structured interview	In person
I-3	3-3-2025	Case study 2	BE	Homeowner and board member	Structured interview	In person
I-4	18-3-2025	Case study 3	BE	Homeowner and board member	Structured interview	Online
I-5	18-3-2025	Case study 3	BE	Homeowner and board member	Structured interview	Online
I-6	24-3-2025	Case study 4	BE	Homeowner and board member	Structured interview	Online
I-7	25-3-2025	Case study 4	BE	Homeowner and board member	Structured interview	Online
I-8	8-4-2025	Case study 5	BE	Homeowner and board member	Structured interview	Online
I-9	8-4-2025	Case study 5	BE	Homeowner and board member	Structured interview	Online
EI-10	26-3-2025	Case studies 1,2,3,4, and 5	BE	Representative from the Flemish climate agency VEKA	Semi-Structured interview	Online
EI-11	6-2-2025	Case study 3 and 4	BE	Engineering office	Structured interview	Online
EI-12	12-3-2025	Case study 5	BE	Engineering office	Structured interview	Online
EI-13	13-3-2025	Case studies 1 and 2	BE	Engineering office	Structured interview	Online

EI-14	14-3-2025	Case studies 2 and 5	BE	Engineering office	Structured interview	Online
EI-15	18-6-2025	Case study 5	BE	Energy house	Semi-Structured interview	Online
EI-16	18-6-2025	Case study 1 & 2	BE	Energy house	Semi-Structured interview	Online
EI-17	18-6-2025	Case study 3 and 4	BE	Energy house	Semi-Structured interview	Online
I-18	31-3-2025	Case study 7	NL	2 Homeowners and board members	Structured interview	Online
I-19	14-5-2025	Case study 8	NL	Homeowner	Structured interview	Online
I-20	4-6-2025	Case study 8	NL	Homeowner and board member	Structured interview	Online
EI-21	14-7-2025	Case study 7 and 8	NL	IHRS provider	Semi-Structured interview	Online

Table 2: Interviewees profile (I=Interviewee, EI=Expert interviewee, BE=Belgium, NL=Netherlands)

Presentation of Evaluation Model

The evaluation framework (based on the criteria outlined in Section 2.3) was presented to the CondoReno Dutch NAB for consultation and to all four BMs owners in advance of the analysis. This allowed for transparency in the assessment process, validation of the criteria, and alignment with the purpose of the evaluation.

Document and Activity Review

An extensive review of internal supporting data was conducted to trace the development and evolution of each BM. This included:

- Activity reports and planning documents from WPs 2, 3, 4, and 5
- Meeting minutes and workshop outputs
- Observations from consortium meetings and co-creation sessions
- Formal deliverables submitted by each WP

This desk research helped contextualize the interviews and provided documentary evidence of progress, challenges, and adjustments made throughout the project lifecycle.

WP number	Deliverable analyzed
WP2	D2.2 – Activating business models for condominium renovations
WP3	D3.1 – Investment Proposal Method & Financial Tool
	D3.2 – Decision-Making Toolkit for CAs
	D3.3 – Co-Creation & Stakeholder Engagement
	D3.4 – Training Manual for Renovation Services
	D3.5 – Requirements for Guarantees & Quality Control
WP4	D4.1 – Proof of concept based on 8 pilot projects
WP5	D5.1 – Building a digital platform for IHRS: Description and strategy of implementation
	D5.2 – Co-creating integrated home renovation services for co-owned condominiums

Table 3: CondoReno Deliverables analyzed in the report (can be found here: https://condoreno.org/resources/)

Questionnaire Survey Among Condominium Associations

A large-scale questionnaire was distributed to co-owners in condominiums in both the Netherlands and Flanders. The survey aimed to capture end-user perspectives relevant to the customer focus and value proposition of IHRS. It explored the following dimensions:

- Awareness of and attitudes toward energy renovations

- Perceived barriers and personal motivations
- Financial willingness and risk tolerance
- Expectations and preferences regarding IHRS offerings

These results were used to assess how well each BM aligns with the needs and readiness of potential clients, providing an essential customer perspective within the overall evaluation.

The survey was disseminated via municipal newsletters (Antwerp, Mechelen, Ostend, The Hague), LinkedIn, and physical distribution to approximately 300 apartments in Delft. In total, 449 responses were collected, of which 269 were completed and included in the analysis. The survey offers important perspectives on homeowner awareness, motivations, barriers, financial preferences, and expectations regarding IHRS.

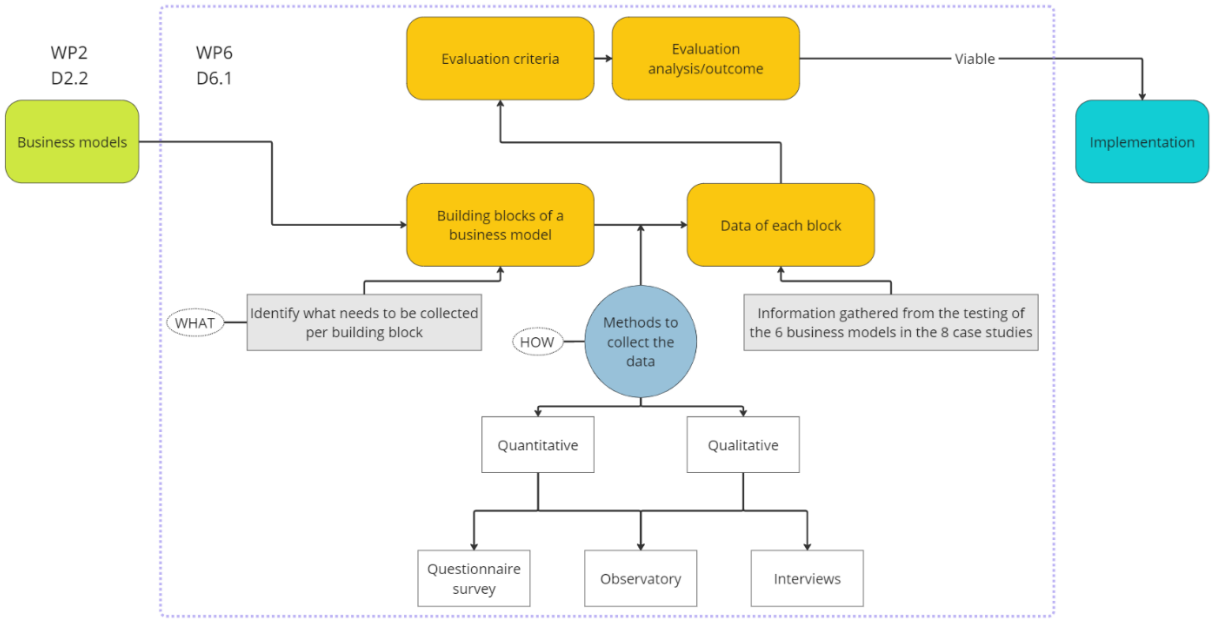


Figure 2 Conceptual model for the Evaluation process and activities done in this report D6.1

2.5.3. Data Integration and Evaluation Framework

The data collected through these methods was synthesized using the viability criteria described in Section 2.3. Each BM was evaluated, with triangulation between data sources to ensure reliability and contextual nuance. The evaluation also draws on insights from WP2 (Elgendy & Mlecnik, 2024; Elgendy et al., 2024b), which offered foundational recommendations for IHRS design and governance.

This comprehensive methodology ensures that the evaluation is not only evidence-based but also sensitive to the socio-technical complexity of condominium renovations. It allows for identifying both model-specific insights and cross-cutting lessons that can inform future IHRS development across Europe.

3. Evaluation of CondoReno business models

This chapter presents the core evaluation of the four BMs developed and implemented within the CondoReno project. The chapter begins with a brief description of the real-life case studies in which the BMs have been piloted. The evaluation includes a systematic reassessment of the nine building blocks of the Business Model Canvas for each case, examining how these components have evolved or been adapted to meet the specific needs of CAs and the implementation environments in Flanders and the Netherlands.

Next, we analyze the activities carried out by the BM owners after the activation of their BMs as described before in WP2 (Elgendy & Mlecnik, 2024), drawing on documentation and deliverables from Work Packages 3, 4, 5, and 6. This analysis sheds light on the development process, stakeholder engagement strategies, and progress made toward operationalizing IHRS offerings.

The third section synthesizes insights from interviews conducted with a wide range of public and private stakeholders, including co-owners, board members, policy makers, architects, municipal actors, energy houses. These interviews help identify key lessons learned, what has worked well, persistent challenges, the role of various stakeholders, and support mechanisms that were either effective or lacking.

Finally, we present selected results from two questionnaire surveys distributed in the Netherlands and Flanders, and EU wide.

Together, these four components form the empirical foundation for assessing the viability of the CondoReno business models against the selected evaluation criteria introduced in Chapter 2.

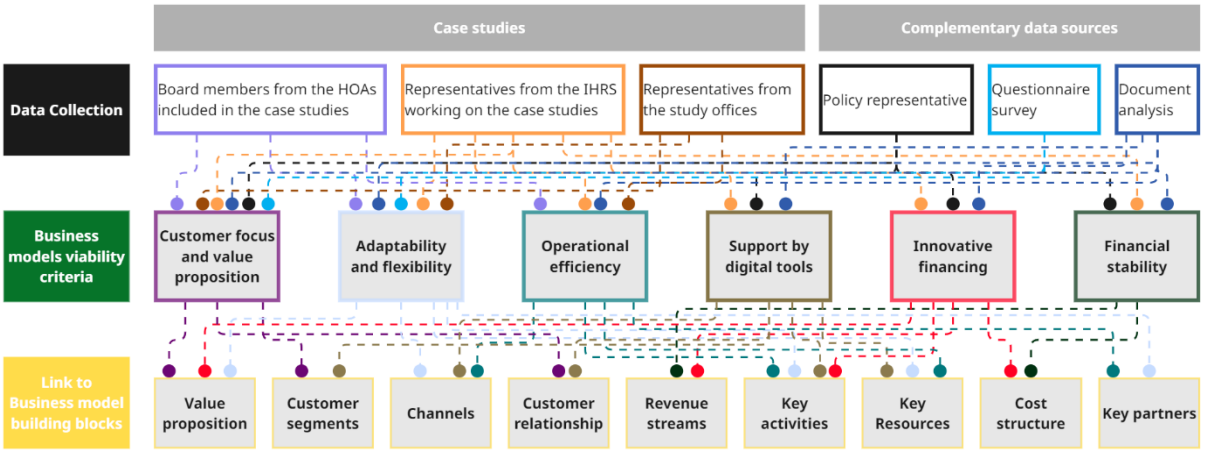
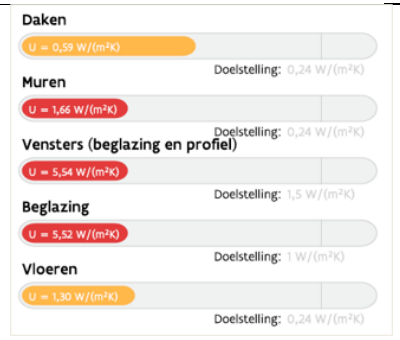


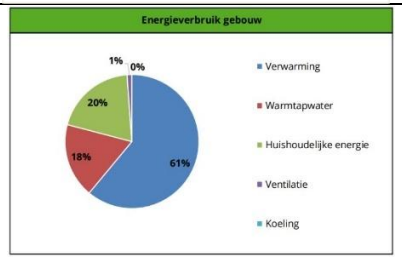
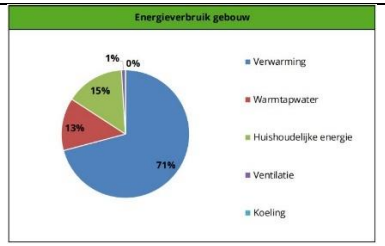
Figure 3: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models

3.1 Case studies description

The following table presents an overview of the 8 case studies analyzed in this report, 6 cases drawn from three Flemish cities: Antwerp, Mechelen, and Ostend, and 2 cases drawn from the Netherlands. In all cases, IHRS provided services and tools. The cases were chosen to cover different types of buildings and levels of final investment decisions made. The table summarizes key characteristics of each case.

Case study name and location	Key characteristics	Energy label common parts of the condominium (before renovation)	Facts	Picture (Current situation)
Case study 1 Mechelen	Number of housing units: 13 Building year: 1955 Basement: Yes Ratio of owners to tenants: 7 - 6 Heating system: Collective central heating with 2 condensing gas boilers (10 years old) Number of Board members: 3 Condominium manager: Yes		Current situation: Masterplan developed, Fire safety and façade renovation expected to start in 2025 The costs for the façade renovation went up considerably (+ € 80.000 compared with the initial estimation). This additional cost is due to the higher material costs for the front façade. The Condominium manager is reluctant to accept the extra work involved in a CA loan.	
Case study 2 Mechelen	Number of housing units: 41 Building year: 2001 Basement: yes Ratio of owners to tenants: 26 - 15 Heating system: Individual heating installations, mostly with condensing gas boiler / 1 heat pump Number of Board members: 5 Condominium manager: Yes The ground floor is commercial		Current situation: Masterplan developed, presented to the general assembly of the CA in June 2025, execution of work is expected to be decided upon by the end of 2025. During the site visit the condition state of the building was worse than expected – specifically the situation of water infiltration in the facades.	

Case study 3 Ostend	Number of housing units: 240 Building year:1966 Basement: Yes Ratio of owners to tenants: 120 -120 Heating system: Individual electrical heating (accumulation or storage heating). Individual electrical heating (boiler and flow heater) Number of Board members: 10 Condominium manager: Yes, professional syndic		Current situation: Masterplan developed. The CA is working towards an investment proposition and towards an investment decision. Investment cost of the works according to RMP lies between €20.000.000 (MYMP) and €45.000.000 (E60/EPC A)	
Case study 4 Ostend	Number of housing units: 30 Building year:1962 Basement:yes Ratio of owners to tenants: 6 - 24 Heating system: Collective heating with non-condensing boiler (CO!) Number of Board members: 4 Condominium manager: Yes, professional syndic		Current situation: Masterplan is developed. Its unclear yet if the CA want to invest or not. The balconies are in a bad condition and the occupants are not allowed to use them anymore.	
Case study 5 Antwerpen	Number of housing units: 31 Building year: 1979 Basement: yes Ratio of owners to tenants: 18 -13 Heating system: Building >Collective central plant with condensing boiler Sanitary> Linked to space heating Number of Board members: 4 Condominium manager: yes		Current situation: Masterplan developed. Its unclear yet if the CA want to invest or not. The project team is highly motivated and keen to advance the RMP soon, but many co-owners are still cautious or critical.	

Case Study 6 Antwerpen	Number of housing units: 152 Building year: 1969 Basement: yes Ratio of owners to tenants: 93 -59 Heating system: Building >Collective central plant with condensing boiler Sanitary> Linked to space heating Number of Board members: 5 Condominium manager: yes		Current situation: Masterplan delivered in may 2024 No contact anymore with the city. The CA is currently in a direct contract with the contractor	
Case study 7 Brunssum	Number of housing units: 176 Building year: 1969 Basement: yes Ratio of owners to tenants: A private housing corporation owns 35 of the 176 homes. Heating system: Building > Collective heating. The heating is provided by 7 gas boilers (rented) and 2 (old) owned by the CA for emergencies. Sanitary>Individual, in principle geyser (gas) or an electric boiler Number of Board members: 2 Condominium manager: There is no CM, but the CA board is supported by an administrator who also acts as a legal advisor.		Current situation: the CA have decided not to continue with the approach from the municipality. They have hired a new study office to take over the works. Its unclear if the CA will take any decisions	
Case study 8 Amsterdam	Number of housing units: 64 Building year: 1942 Basement: yes Ratio of owners to tenants: 31 - 33 Heating system: Building > Individual heating, brand and type of central heating boiler varies. Sanitary > Individual, in principle geyser (gas) Number of Board members: 2-3 Condominium manager: yes		Current situation: investment decision is expected in spring 2026. The progress of the project will continue to require attention and in addition, the social housing association also requires a lot of time to reach internal decision-making.	

3.2 Activities Supporting the Development of Viable IHRS Business Models

This section outlines the activities undertaken by the four BM owners throughout the CondoReno project, drawing on evidence from Work Packages 3, 4, 5, and 6. These activities reflect how each BM has been shaped, implemented, and adapted over time in response to real-world challenges and stakeholder interactions.

The analysis focuses on how these activities contribute to the development of viable IHRS tailored for CAs. Each work package played a distinct yet interconnected role:

- WP3 focused on developing tools and support systems to guide financial decision-making and stakeholder activation.
- WP4 involved pilot testing in diverse case studies (as described in 3.1) to assess feasibility and strengthen the models in practice.
- WP5 supported co-creation, knowledge sharing, and capacity building through stakeholder workshops, digital resources, and matchmaking.
- WP6 contributed through evaluation coordination and analysis of BM performance, complementing findings from earlier WPs.

The following subsections describe how the BM owners engaged with each WP and highlight their contributions to the operationalization of IHRS for CAs. Our aim in analyzing the documents is to extract information that supports the assessment of the six viability criteria outlined in Figure 4.

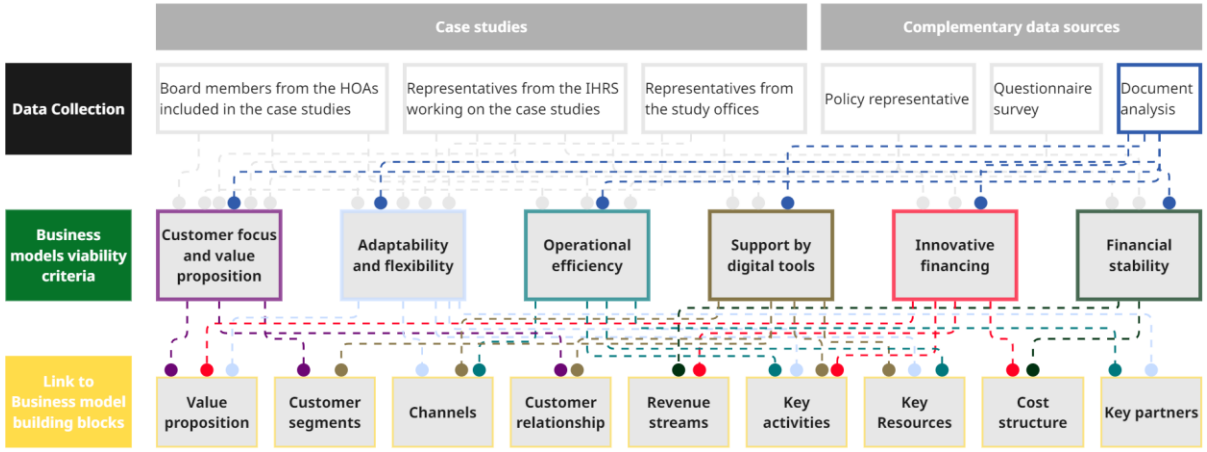


Figure 4: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (document analysis)

3.2.1. Developing a methodology to evidence the value of IHRS for Condominiums

In the previous chapter, we identified a set of criteria to guide our evaluation. We also explored existing evaluation frameworks to inform the structure of our own model (D'Souza et al., 2015; Pardalis et al., 2025). These initial criteria were first discussed with the CondoReno project partners and the Dutch National Advisory Board (NAB), leading to refinements based on their feedback. Subsequently, the revised

model was presented to academic experts and business model researchers for further validation, and then shared with the broader CondoReno consortium.

To enrich the evaluation and capture the perspectives of end-users, TU Delft developed and distributed a questionnaire survey targeting CAs in the Netherlands and Belgium. The survey explored their perceptions of energy renovation, the support they require, the challenges they face, factors influencing their decisions, and their awareness of available services. A total of 449 responses were collected. In parallel, UIPI conducted a complementary survey distributed across EU member states, collecting information on energy renovations that include respondents from co-owners in CAs. A total of 5,540 responses were collected.

To gather deeper qualitative insights, we developed three interview protocols: one for co-owners from the WP4 case studies, another for key stakeholders involved in those renovation processes, and a third for the four IHRS business model owners (the three cities and WNR). The full list of interviewees is provided in Chapter 2.

In addition to surveys and interviews, we organized workshops with project partners and external researchers to map the relationships between IHRS providers and relevant stakeholders. This led to a stakeholder network analysis building on the mapping work from Deliverable D2.1. The analysis is presented in Chapter 4.

3.2.2. Methodology and tools for affordable integral renovation of condominiums (WP3)

This section traces how the four business models were shaped and supported by the activities under WP3. These efforts contributed to strengthening the strategic foundations, tools, and internal processes needed to build viable service offerings for condominium renovation.

We do not evaluate the BMs yet, but rather identify which activities support key viability elements and where public and private actors managed them differently. The viability criteria are used here as a framework to track what was addressed or enabled.

D3.1 – Investment Proposal Method and Financial Decision Tool

Main output: Excel-based simulation tool for calculating total living costs after renovation, including energy savings, loans, and subsidies.

The financial calculation tool developed in D3.1 (Van Steenis et al., 2024) has proven to be a valuable asset in facilitating discussions within CAs. It effectively supports the internal decision-making process by providing clear insights into the financial mechanisms underlying renovation investments, particularly in relation to subsidies. The tool illustrates how variables such as interest rates and loan terms affect monthly contributions, enabling CA members to understand the long-term implications of financing options.

Moreover, the tool helps clarify which specific information is required for accurate financial planning and highlights the need for detailed technical assessments to improve the precision of the calculations.

However, engagement with CAs throughout the project has also revealed that decision-making by individual members and by extension, collective decisions in the General Assembly, is not always rational.

Despite access to financial calculations, expert advice, and supporting materials, many decisions are influenced by emotional or anecdotal factors rather than factual evidence. Individuals often rely on personal feelings or information heard informally (e.g., via social contacts or online forums), echoing patterns observed in consumer behavior research. This finding underscores the importance of coupling technical tools with communication strategies that address emotional drivers and trust dynamics within CAs.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	The tool supports better economic decisions for CAs but does not directly generate revenue or have a defined financial sustainability plan. It also does not diversify revenue sources.
2.Adaptability & Flexibility	+	The tool can be adapted to various financial and technical contexts, but adaptations often require expert guidance and manual customization. Limited contingency planning or automated flexibility.
3. Customer Focus & Value Proposition	+	Highly valued by CAs for improving clarity and understanding of financial scenarios. Supports informed decision-making and builds trust. Positive feedback from workshops and user interactions. But the tool is designed for technical users, it can be modified to be more user friendly
4.Creation of Innovative Financing Solutions	~	The tool helps visualize financing options (loans, subsidies) but does not introduce new financing models or provide mechanisms to secure funding.
5.Supported by Digital Tools	~	Built in Excel, which is accessible but not modern or integrated. No automation or connection to databases. Moderate usability; requires guidance. Low scalability in digital terms.
6.Operational Efficiency	-	Use of the tool requires manual input and expert facilitation. No clear owner or plan for long-term maintenance. Coordination depends on external support.

Table 4: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak,-- Very weak)

When compared with other EU IHRS initiatives (e.g., from projects like RenoBooster, Save the Homes, or EuroPACE), similar tools exist but often face the same limitations. Literature also confirms that **rational financial information alone is insufficient** to shift homeowner behavior, and effective tools must be part of a broader service package including coaching, visualization, and trust-building components.

Public and Private Use:

Public models (BE): The tool informed training and methodology but was not directly used with CAs in Flanders due to differing institutional setups and subsidy mechanisms. However, its logic contributed to internal capacity-building.

Private model (NL): This tool was developed and applied directly by the private IHRS provider (WNR) to guide its market-driven approach.

D3.2 – Tools for the Decision-Making Process by Condominium Associations Regarding Highly Energy-Efficient Renovations

Main output: A toolkit designed to support CAs in organizing their internal decision-making processes for energy renovations. It includes checklists, visual aids, and a structured overview of renovation stages and stakeholder responsibilities (Rose, 2024).

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	The toolkit does not generate revenue directly and relies on public service providers for implementation. However, it may reduce overall project costs by improving governance and avoiding delays. Long-term financial sustainability depends on integration into IHRS offerings.
2.Adaptability & Flexibility	++	The toolkit is modular and easily tailored to various renovation types, governance structures, and ambition levels. Public actors found it particularly useful across varying local conditions.
3. Customer Focus & Value Proposition	++	Strong alignment with user needs. Increases transparency, empowers co-owners, and builds trust in the process. Clear communication of roles and expectations enhances the perceived value of the IHRS offering.
4.Creation of Innovative Financing Solutions	Not applicable	The toolkit does not directly address or enable financing mechanisms. Financing topics may be referenced in the process stages, but no financial instruments or solutions are offered.
5. Supported by Digital Tools	~	Primarily a static/document-based toolkit. Not a digital platform, but it could be digitized. Current format lacks integration with other tools or systems (e.g., decision support platforms, dashboards).
6. Operational Efficiency	+	Enhances internal coordination, especially in public service contexts. Helps avoid delays and governance issues in early renovation stages. Easy to implement but dependent on facilitation by advisors or service providers.

Table 5:Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public models (BE):

Highly relevant and applicable. The public energy houses often work with co-owners who lack renovation experience or organizational structure. These tools can help energy house staff guide CAs.

Private model (NL):

Conceptually aligned, though less emphasized. WNR's model leans more on direct service provision, but it could use this tool to support hesitant or fragmented CAs as part of their onboarding and education efforts.

D3.3 – Co-Creation and Stakeholder Engagement Activities

Main output: A framework and documentation of co-creation activities conducted with stakeholders involved in condominium renovations. These include workshops, stakeholder journey maps, and engagement formats intended to refine IHRS processes and service design in real-world contexts.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	The activities do not generate revenue but contribute to cost-effective project delivery by reducing miscommunication and mismatched expectations. Their continuation depends on integration into standard service workflows or public funding.
2. Adaptability & Flexibility	++	Co-creation formats are inherently adaptable. They allow stakeholder roles, timelines, and priorities to be customized per project and context. Proven effective in both large cities and smaller municipalities.
3. Customer Focus & Value Proposition	++	Central to the activity. Direct engagement with co-owners helped providers better understand needs, pain points, and service expectations. Resulted in revised and more relevant value propositions.
4. Creation of Innovative Financing Solutions	Not applicable	Financing models are not addressed. While improved trust and engagement may facilitate financial discussions, the activity itself does not propose or enable financing mechanisms.
5. Supported by Digital Tools	~	While tools like journey mapping could be digitized, most activities were conducted through in-person workshops or static formats. No specific digital platforms or collaborative online tools were highlighted.

6. Operational Efficiency	+	Although time-intensive upfront, these activities support better coordination, clearer role definition, and smoother implementation later. Efficiency gains are indirect but meaningful, especially in complex stakeholder settings.

Table 6: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public model (BE):

Extensively applied. The co-creation formats were used in Mechelen and Antwerp, for instance, to bring together municipal actors, energy houses, facilitators, and residents. These sessions helped shape service roles and improve alignment among stakeholders with different mandates.

Private model (NL):

Less directly engaged in the formal co-creation activities, but the methodologies (e.g., journey mapping) are relevant and were acknowledged by WNR as potentially useful for internal service design, especially in early customer onboarding phases.

D3.4 – Training material for activating the supply-side

Main output: A training manual for organizations providing IHRS to CAs. The manual supports knowledge transfer, capacity building, and internal service standardization.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	While not revenue-generating, the manual can indirectly support financial sustainability by reducing onboarding/training costs and improving staff efficiency. Long-term viability depends on institutionalization within IHRS providers.
2. Adaptability & Flexibility	+	The modular structure allows tailoring to different contexts (e.g., city size, policy environment, renovation type). However, some parts may still require localization or updates to remain relevant.
3. Customer Focus & Value Proposition	+	Addresses interaction with co-owners and how to communicate value clearly and credibly. However, it's focused more on training providers rather than direct end-user experience, so impact on value proposition is indirect.
4. Creation of Innovative Financing Solutions	--	Financing is not covered. The manual does not propose or facilitate new financial schemes or guidance on financing strategies.
5.Supported by Digital Tools	~	The manual is primarily static (likely PDF or print). Could be improved by integrating into digital learning platforms or with interactive modules, but in its current form has limited digital support.
6.Operational Efficiency	++	A core strength. Streamlines onboarding, harmonizes internal processes, and supports team coordination. Strongly contributes to internal professionalization and process repeatability.

Table 7: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public model (BE):

Can be used for internal teambuilding and role clarification. Public service providers such as energy houses can use this manual to onboard new staff and harmonize collaboration across city departments and partner organizations.

Private model (NL):

Applicable for internal team training. While WNR has its own workflows, the manual's emphasis on service structure and customer interaction aligns with their goals of creating a replicable, process-driven service for CAs.

D3.5 – Requirements for Guarantees and Quality Control

Main output: A framework outlining quality assurance (QA) principles and requirements for providing renovation guarantees as part of IHRS. It covers both technical performance and service process guarantees, tailored to condominiums.

The intention was to already give an impetus to defining the preconditions necessary to set up a calamity fund. Unfortunately, we did not get that far. However, there is shared agreement that some form of guarantee fund is needed. It is also clear that the exact requirements must be determined in advance, both regarding the process and the execution of the actual renovation. This is also necessary to be able to guarantee the expected energy savings. Such a fund would provide certainty not only to the CAs (both its members and board), but also to financiers.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	The proposed guarantee mechanisms could improve trust and reduce financial risk, potentially enabling financing. However, the calamity fund concept remains undeveloped and unfunded. No direct income stream is linked to this framework yet.
2. Adaptability & Flexibility	+	The framework is designed to be modular and adaptable across jurisdictions, though full implementation will depend on local legal and institutional contexts.
3. Customer Focus & Value Proposition	++	Directly addresses key homeowner concerns such as trust, accountability, and assurance of energy performance. This clarity strengthens the IHRS value proposition significantly.
4.Creation of Innovative Financing Solutions	~	Although no new financing solution is introduced, the guarantee concept (including a potential calamity fund) has the potential to enable access to capital by de-risking investments. If developed, it could become a foundational financing enabler.
5.Supported by Digital Tools	-	No digital tools or monitoring platforms are integrated. QA processes and documentation could be enhanced by digital tracking or compliance dashboards in future iterations.
6.Operational Efficiency	+	Provides structure and role clarity for QA processes, potentially reducing rework and disputes. However, full efficiency gains will depend on uptake and standardization among providers.

Table 8: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public model (BE):
Particularly important for public IHRSs, which must maintain institutional credibility.

Private model (NL):
Useful for reinforcing competitive positioning. WNR can leverage guarantees as a **market differentiator**, positioning itself as a trusted and risk-mitigating provider in a fragmented renovation market.

Synthesis of WP3 – Supporting the Development of Viable IHRS Business Models

Overall focus:
WP3 aimed to create tools, methods, and internal capacities that enable IHRS providers to better support CAs in initiating and implementing highly energy-efficient renovations. The work focused on

preparing service providers, both public and private, to offer structured, trusted, and replicable support models.

Viability Criteria	D3.1	D3.2	D3.3	D3.4	D3.5	Key Reflections
1. Financial Stability	~	~	~	~	~	Most tools do not generate revenue directly but support long-term financial sustainability through improved decision-making, trust, and efficiency.
2. Adaptability & Flexibility	+	++	++	+	+	Strong across tools. Modular formats, stakeholder-sensitive approaches, and local adjustability were embedded in most deliverables.
3. Customer Focus & Value Proposition	++	++	++	+	++	Central to WP3. Most tools directly respond to end-user needs, enhance transparency, and build trust.
4. Innovative Financing Solutions	~	NA	NA	--	~	Underdeveloped. Only D3.1 and D3.5 touched upon financial mechanisms; no tool provided ready-to-deploy financing solutions.
5. Supported by Digital Tools	~	~	~	~	-	Digital support is minimal. Most tools are document-based and require digitization or integration for scalability.
6. Operational Efficiency	-	+	+	++	+	Clear strengths in D3.4 and D3.2. Some tools reduce delays, miscommunication, or training costs. Others require expert facilitation or support to function well.

Table 9: Main Deliverables and Their Strategic Contribution (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Critical Reflection on WP3 – What Was Missing and How to Improve:

While WP3 made significant strides in developing tools to support viable IHRS BMs, several important gaps remain:

1. Financing Solutions Remain Underdeveloped

Most tools in WP3 support financial understanding (e.g., D3.1), but no actual financing mechanisms were created or piloted. Without accessible, innovative financing options, service uptake remains limited. Future work should involve financial institutions directly to co-design bundled loans, guarantee schemes, or third-party investment models.

2. Tools Are Not Digitally Integrated

Most deliverables are static (PDFs, Excel files, manuals). This limits their usability, update potential, and scalability. These tools should be translated into digital platforms with interactive features, integration across the renovation process, and user-friendly dashboards.

3. No Strategy for Long-Term Tool Ownership

It remains unclear who will maintain, update, and disseminate the tools post-project. Public actors may lack resources, and private actors need clear incentives. Future projects should embed sustainability and ownership models from the start (e.g., service licenses, maintenance partnerships, or open-source stewardship)

4. Emotional and Behavioral Barriers Not Addressed

Tools primarily focus on rational decision-making. However, many CA decisions are driven by fear, misinformation, or social tensions. This dimension is missing. Future toolkits should include materials to build trust, mediate conflict, and engage co-owners emotionally as well as logically.

5. No Focus on Vulnerable co-owners

There is no tailoring of tools for elderly, low-income, or digitally excluded co-owners, those most at risk of being left out. Future efforts should adapt tools with an equity lens, ensuring accessibility and targeted support.

These outputs do not yet "prove" viability but serve as **practical enablers** for it, and lay the foundation for the evaluation and critical analysis. Gaps remain, especially in digital integration, scalability strategies, and innovative financing.

3.2.3. Experiences from demo projects

D4.1 – Proof of concept based on 8 pilot projects

Main output: This deliverable documents the implementation and piloting of IHRS BMs in actual condominium case studies in the Netherlands and Flanders. It includes feasibility studies, stakeholder involvement, process descriptions, awareness raising and reflections from project actors.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	~	Financial simulation and risk communication tools were used, but many pilots faced drop-off after feasibility due to funding uncertainties or lack of co-owner buy-in. Financial structuring remains fragile, especially in public models relying on fragmented funding streams.
2. Adaptability & Flexibility	++	IHRS offerings and tools were successfully adapted across diverse CA types, governance structures, and ambition levels. Pilots demonstrated flexibility in responding to building typology, stakeholder complexity, and local conditions. Financial products and solutions have been made transparent.
3. Customer Focus & Value Proposition	++	Strong engagement with co-owners and condominium managers across all pilots. Tools helped build trust, clarify complex information, and support transparent decision-making. Service value was clearly communicated and appreciated, particularly in public models.
4. Creation of Innovative Financing Solutions	~	Financing discussions took place, but no new instruments were introduced. Focus remained on accessing existing mechanisms (loans, subsidies). Potential for innovation exists (e.g., guarantee schemes), but not yet realized in the pilots.
5. Supported by Digital Tools	~	Some digital tools were tested (e.g., C-Real, renovation masterplan), but overall digital integration of WP3 tools was limited. Most remained facilitator-dependent and offline.
6. Operational Efficiency	+	Some efficiency gains were noted through standardized feasibility templates and improved stakeholder coordination. However, delays due to legal, governance, or motivational issues still occurred. Tools helped clarify roles but didn't eliminate bottlenecks.

Table 10: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public Model (BE):

Emphasis was placed on facilitation and feasibility studies as a public service. Antwerp, Ostend and Mechelen used public credibility and city-linked energy advisors to engage CAs, CMs, building trust and awareness. The process was generally slower but tailored to long-term policy goals. The cities act as a neutral party that offers advice and support throughout the process.

Private Model (NL):

The private model focused on streamlined, bundled service delivery, combining technical, financial, and coordination efforts in one offer. Its feasibility studies were used to refine the end-to-end service proposition, which aligns more directly with a market-driven viability approach.

Synthesis of WP4 – Feasibility Studies and Pilot Implementation of IHRS Business Models

Overall focus:

WP4 operationalized the four IHRS BMs in real condominium contexts. This involved piloting services, conducting feasibility studies, and engaging with real stakeholders, co-owners, board members, facilitators, architects, municipalities, and renovation advisors to test the practical application of the BMs.

The deliverable reflects what happened on the ground, offering critical insights into how each IHRS provider adapted its services, what barriers and enablers they encountered, and how close their interventions came to embodying a viable business model.

Activity/Theme	Contribution to Viability
Awareness raising	The cities in Flanders offer a lot of awareness raising as a main activity, which is a key to communicating the value proposition and the IHRS approach.
Feasibility Studies (NL & Flanders)	These studies clarified the technical and financial options for condominiums, helping CAs understand what was possible and under which conditions. They were key to communicating the **value proposition** of each IHRS.
Tailored co-owner engagement	IHRS providers worked to build trust with skeptical or low-capacity CAs by simplifying communications, offering step-by-step guidance, and using independent advisors — enhancing **customer focus** and **awareness raising.**
Flexible service approaches	Different buildings received customized strategies: some opted for deep renovation plans, others for step-by-step scenarios. This shows how IHRS models were adapted to context — supporting **adaptability and flexibility**.
Role of public trust (Flanders)	Public IHRSs leaned heavily on the **credibility of city governments and energy houses** to open doors to hesitant CAs. This reinforces the value of **institutional trust** in public models.
Lessons from drop-off points	Several pilots failed to move beyond the feasibility stage due to low co-owners engagement, unclear legal mandates, or perceived financial risk. These **gaps reveal barriers to viability**, especially around risk communication and mandate structures.
Cross-case learning	Providers exchanged formats and engagement strategies internally. While not yet a systematized learning loop, this suggests **emerging ecosystem-level adaptability**.

Table 11:Main Activities of WP4 and Their Strategic Contribution

Public and Private Business Model Development

Public IHRSs (Antwerp, Mechelen, Ostend):

Public providers played a facilitator role, helping CAs navigate complexity rather than delivering full-service solutions. Their success depended on building trust, exercising patience, and supporting bottom-up organization. This approach is viable in terms of fulfilling a public mandate and fostering broad engagement. However, it is also time-intensive. Since it operates through subsidized studies, some CAs may enter the process without a strong commitment to follow through, which can lead to delays and increased workloads for energy houses, without necessarily resulting in tangible renovation outcomes. Moreover, the long-term viability of this public-led approach is more dependent on political support and institutional continuity than market-driven models.

Private IHRS (WNR, NL):

The private model tested an **integrated service delivery**, aiming to offer clarity, reduce decision fatigue, and bundle processes. It faced similar engagement barriers but was more advanced in building a **coherent offer by collaborating with contractors for renovation executions**, reinforcing BM viability in **market-driven contexts**. However, the private model in the Netherlands needs to have a long-term collaboration with the public organizations to be able to reach out to more CAs and gain credibility.

WP4 provided the **practical testing ground** for the theoretical and tool-based work of WP3. It revealed:

- Which elements of the BMs were operationalized,
- Where value was perceived or blocked,

- And what processes or support mechanisms are essential for turning a theoretical IHRS into a viable, replicable offer.

We summarize later in section 3.3 the outcomes of the interviews that were conducted with the co-owners and stakeholders who were involved in those pilot projects.

3.2.4. Co-creation of IHRS for CAs and building a digital platform

D5.1 – Building a Digital Platform for IHRS: Description and Strategy of Implementation

Main output:

This deliverable outlines the bottom-up strategy for co-creating a digital resource center to support IHRS delivered by the energy houses in Flanders. It describes the rationale behind the platform, its target users, key technical components, and implementation steps. At the heart of this strategy is a user-friendly website structured around the customer journey of citizens interested in renovating their homes. CAs, CMs, contractors, and facilitators can access essential information on each step of the condominium renovation process, along with links to relevant external tools and matchmaking platforms.

This digital front-office is complemented by a customer relationship management (CRM) system, enabling renovation coaches from the energy houses to efficiently track and follow up on information and advisory requests. Local digital resource centers developed by the energy houses are designed to work in synergy with the supra-local digital resource center managed by VEKA. Additionally, the tools developed during the CondoReno project will be made available via the existing BE REEL! website.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	Not applicable	
2. Adaptability & Flexibility	++	IHRS offerings and tools were successfully adapted across diverse CA types, governance structures, and ambition levels. Pilots demonstrated flexibility in responding to building typology, stakeholder complexity, and local conditions. Financial products and solutions have been made transparent.
3. Customer Focus & Value Proposition	+	The platform includes content aimed at different stakeholder groups, particularly intermediaries and facilitators who support CAs.
4. Creation of Innovative Financing Solutions	--	No new instruments were introduced.
5. Supported by Digital Tools	++	The platform is designed as a digital environment to increase awareness, structure information flow, and reduce fragmentation of resources in the renovation process. It provides access to structured documents, templates, training content, and user guides for actors involved in the condominium renovation value chain.
6. Operational Efficiency	+	By integrating both local and regional information and tools related to condominium renovations, the digital platform of the Energy Houses streamlines the onboarding process for stakeholders. It also minimizes the time and effort needed to locate scattered resources across different organizations or municipalities.

Table 12: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public models (BE):

The platform is particularly aligned with the needs of public service providers, as it strengthens capacity building and provides a transparent, shared digital environment. It helps energy houses and municipalities support facilitators with consistent and accessible materials.

Private model (NL):

While the digital resource center was intended for Flanders region, WNR is a more self-contained in its customer approach, the platform contributes to overall sector development and legitimizes IHRS practice at a broader level. It serves as a complement, not a replacement, to WNR's direct service model. However, developing or integrating such a platform e.g., by linking it to existing initiatives like MilieuCentraal, could benefit SMEs and IHRS providers in the Netherlands who aim to offer integrated services to CAs.

D5.2 – Co-creating Integrated Home Renovation Services for co-owned condominiums

Main output:

This deliverable presents practical experiences, methods, and recommendations for co-creating IHRS within the CondoReno project. It compiles the lessons learned from facilitating stakeholder engagement, aiming to guide municipalities, facilitators, and other actors in replicating or adapting IHRS initiatives. The report details the structure of co-creation workshops, summarizes activities conducted, and highlights success factors and barriers observed during implementation.

Linking Deliverable Outcomes to Business Model Viability criteria:

Viability Criterion	Assessment	Explanation
1. Financial Stability	Not applicable	
2. Adaptability & Flexibility	++	Co-creation is presented as a dynamic process shaped by local context and actor readiness. The methodology encourages local tailoring of roles, steps, and responsibilities based on available capacity, project phase, and regulatory conditions. Differences between public models (municipally supported) and the private model (WNR) were accommodated in design.
3. Customer Focus & Value Proposition	+	The deliverable emphasizes the importance of co-designing IHRS services with multiple actors, particularly co-owners and their representatives, to ensure that renovation services align with actual needs, concerns, and expectations. Key activities include journey mapping and scenario development based on stakeholder feedback.
4. Creation of Innovative Financing Solutions	--	No new instruments were introduced.
5. Supported by Digital Tools	-	The co-creation was only possible in person which limits dissemination to a wider audience
6. Operational Efficiency	+	The process maps and facilitator insights reduce friction by clarifying who does what, when, and why, potentially improving coordination and lowering transaction costs in collective renovation projects.

Table 13: Assessment of the BMs in relation to the viability criteria (++ Very strong, + Moderate strength , ~ Neutral or mixed , - Weak, -- Very weak)

Public and Private Use:

Public model (BE):

The co-creation approach is strongly aligned with the public models. These cities used the process to activate local actors, engage co-owners through trusted intermediaries, and align city goals with stakeholder realities.

Private model (NL):

Co-creation was used to structure early-stage interaction with CAs, especially in mapping journey needs and clarifying service expectations. WNR adapted the method to fit its bundled offer model, though the intensity of facilitation was more limited compared to public pilots.

Synthesis of WP5 – Capacity Building and Knowledge Transfer for IHRS Implementation

Overall focus:

WP5 focused on building the capacity of IHRS providers and stakeholders by developing two key elements:

1. A digital platform and
2. Co-creation to support structured stakeholder engagement in service design, based on experiences from the pilot cities and WNR.

Together, these deliverables aimed to strengthen both the usability and replicability of the IHRS BMs. They addressed the "soft infrastructure" that supports viable models — stakeholder trust, shared learning, clarity of roles, and access to resources.

Key Takeaways from WP5:

- Co-creation and shared knowledge infrastructures do not guarantee viability but are essential enablers of viable service development.
- Public models benefited from the institutional support needed to roll out co-creation processes.
- Private models may selectively adopt co-creation tools to better align offers with CAs expectations.

WP5 strengthened customer centricity, service adaptability, and infrastructural efficiency, but did not address financing innovations or long-term financial model stability.

The coordinated efforts in WP3, WP4, and WP5 demonstrate a growing maturity in the IHRS models under development, especially in relation to stakeholder-centered design, process structuring, and supportive digital infrastructure. While they do not yet meet all criteria of long-term business viability they lay the essential groundwork for trust-building, process standardization, and future upscaling.

3.3 Results from the interviews

3.3.1. Insights from Public-Led Condominium Renovation in Flanders

Our aim in conducting interviews with co-owners and board members in CAs is to understand their motivations and barriers, what they value most, their experience with the services and support received from IHRS providers, and to assess the overall efficiency of the renovation process, as shown in Figure 5.

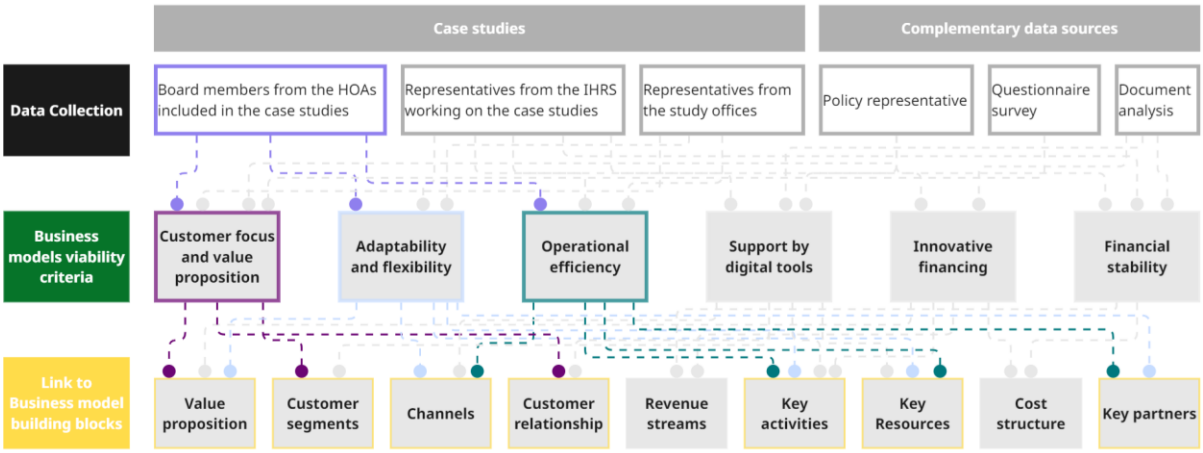


Figure 5: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (interviews with co-owners and board members)

Case study 1:

The building in Mechelen is a 71-year-old structure whose renovation journey was triggered by urgent structural issues. One of the homeowners, who played a central role in the process, explained that their involvement began in 2019 due to the poor performance of the previous syndic. I-1 said "The first motivation for action was issues with concrete degradation… debris started falling into the garden. Since I live on the ground floor, I was particularly affected. My motivation grew from there." This urgent problem quickly mobilized the co-owners, but as the project progressed, energy efficiency also entered the agenda.

Despite the resident's personal awareness as I-1 said "Personally, I find energy efficiency very important… our building does not meet modern standards" it was not a shared priority among all co-owners as I-1 said "Some focused more on immediate maintenance issues, while others recognized the long-term need for energy improvements." Convincing the broader group required "a process of raising awareness" and demonstrating the benefits of integrating energy efficiency into the renovation masterplan.

The initial professional advice they received proved inadequate as I-1 said "The first study we received was too superficial… We realized we needed a more detailed and structured plan." The journey led the co-owners to the City of Mechelen's Energy House, which was identified as a key enabler: "We reached out to The cities Energy house and sought professional advice." I-1 noted. As a result, the association engaged new professionals, including an architectural firm, and held about 14 meetings to shape the masterplan. "The structured approach and coordination among stakeholders… involving experts at the right stages has been a key factor," interviewee I-1 emphasized.

A major concern of the co-owners remained the financial aspect. "Our main concern was the cost… but we didn't face heavy opposition—just the usual questions." I-1 noted. The Energy House played a pivotal role in addressing these concerns by offering clear information on subsidies and financing. "Transparency and involvement of co-owners were crucial," I-1 added.

The level of involvement of the co-owners by the CA board was notably high in this case. “We actively contributed and helped steer the process. We made sure to structure discussions and keep all owners informed.” I-1 said. The relationship with the syndic was also praised by by interviewee I-1 “The syndic played a key role and was actively involved in facilitating discussions and administrative processes.”

At the time of the interview, the project was delayed due to an appeal against the environmental permit. Still, the co-owners remained confident in the collaboration: I-1 said “We expect continued support from The city’s Energy house… The architectural firm must ensure quality execution. The city’s role will be more passive but still important for approvals.” Reflecting on the process, they acknowledged an early misstep: “We regret the initial wasted efforts on an inadequate study… otherwise, the process has been quite structured.” I-1 noted.

Their (I-1) key advice to other associations was clear: “Inform yourselves well. Engage with professionals early on. Transparency and communication are crucial. Make sure to get financial advice to understand funding options.”

Case study 2:

In case study 2, the renovation initiative was rooted in the work of a small sustainability working group, which had formed several years prior to more formal engagement. One of the newer residents described how they joined this group upon moving in during 2020: I-3 said “Right away, I became involved in the sustainability working group… the goal was to assess how we could improve our building’s energy efficiency, accessibility, and general maintenance.”

The building's decentralized heating system I-2 explained “We have individual heating systems… each apartment has its own boiler” complicated collective action on energy measures. While energy efficiency was seen as important by some, it was not universally prioritized. “Some of the older residents were less focused on it, while others realized that increasing regulations meant we had to take action.” I-2 noted.

Both interviewees I-2 & I-3 cited the long-term value of the building and compliance with future regulation as motivating factors. “If we neglect maintenance and energy efficiency, property values will decline over time,” I-2 said. The other added, “Beyond sustainability, improving accessibility was a key driver… for example, installing ramps instead of steps.”

The renovation discussions started informally: I-3 said “It started with a few co-owners talking… this evolved into a working group.” Early brainstorming ranged from solar panels to water recovery systems, but the co-owners quickly realized they needed professional input. “These projects required professional guidance and financial support.” I-2 added.

The Energy House was again seen as instrumental. I-2 said “a representative from the city, played a crucial role in guiding us through the process and helping us navigate subsidy options.” With this support, the CA engaged an engineering firm to develop a renovation masterplan. Yet, significant concerns arose during implementation planning. “We expected the engineering firm to oversee the entire project, but later realized they were mainly providing studies rather than execution support.” I-2 noted. This mismatch in expectations created uncertainty, and the process lacked the continuity co-owners had hoped for.

Mixed-use elements of the building, including residential apartments, shops, and parking, further complicated consensus-building. I-3 said “Balancing the interests of all stakeholders was a challenge.” Additionally, co-owners questioned the legitimacy of some proposed firms: I-2 noted “The city provided us with a list of five options, but we weren’t sure about the criteria… some firms seemed to be jumping into the market opportunistically.”

Despite these issues, the interviewees felt that their working group created a sense of trust among other co-owners. I-2 said “We saw a strong consensus among our working group members, which reassured other co-owners that this was the right step.” However, engagement remained uneven. I-3 added “The core group was highly involved, but many other co-owners were passive… they trusted our recommendations and waited for updates.”

In terms of stakeholder interaction, both co-owners mentioned the helpful role of the Energy House and the syndic, though the latter was still learning about the process. Satisfaction with the masterplan process was moderate. I-3 said “I would give it around a 7… but there are still uncertainties about execution.” I-2 said, “I’d say a 6. The study was useful, but I expected a more hands-on approach from the engineering firm.”

Looking back, the co-owners expressed that greater clarity about responsibilities would have been helpful. I-2 said “We should have pushed for more clarity on the engineering firms’ responsibilities.” They also stressed the importance of project coordination: I-2 said “Make sure you have strong project coordination. Having an intermediary, like The cities Energy house, can make a huge difference.”

Looking forward, both interviewees I-2 & I-3 hoped the Energy House would stay involved: “We hope The cities Energy house will stay involved until the end… the complexity of the renovation options makes it difficult to choose the best approach without expert guidance.”

Case study 3:

The renovation process in this building illustrates the scale and complexity of deep energy renovations in older high-rise condominiums with fragmented ownership, outdated infrastructure, and mixed resident profiles.

Both interviewees I-4 & I-5 described a long-standing lack of maintenance and structural decline. “The building is 60 years old… the steel pipes are damaged, clogged, or broken,” noted Interviewee I-5. Concrete degradation, leaking terraces, and corrosion from sea air were recurring issues. “We have already had to fix problems that were urgent, especially on the terraces where corrosion exposed the reinforcement bars.” I-4 said. Yet, despite visible deterioration, collective renovation efforts faced inertia. I-5 “When I arrived here in 2010, together with a neighbor, we tried to put energy efficiency on the agenda, but we couldn’t make much progress… the building had gone without maintenance for years.”

Initial interactions with the Energy House of Ostend were underwhelming “They didn’t recognize that apartment buildings, especially tall ones like ours, required a completely different approach compared to small apartments or houses,” said Interviewee I-5. Eventually, the board proceeded with a masterplan trajectory involving three studies: structural, drainage, and energy-related. These revealed significant

challenges and resulted in a phased renovation strategy estimated at €20–30 million to be paid over 10–20 years.

The financial burden was a dominant concern. “Some residents said they would have no choice but to sell their apartments because they couldn’t afford the costs,” I-5 stated. The building’s resident composition added complexity: many were elderly, low-income, or second-home owners. “In Ostend, nearly 50% of residents are second-home owners… they might not care much about energy efficiency because they only use their apartments occasionally,” I-5 explained. Others were private investors using the apartments as Airbnb rentals. This mix made collective decision-making fragile and created challenges around willingness to invest.

Despite this, both interviewees (I-4 & I-5) recognized that renovations were inevitable. “We knew that we had to move forward. If not, we’d just be patching up symptoms, not solving problems.”I-5 stated. The planning process was guided by the masterplan and included presentations to the General Assembly, but achieving support remained difficult. “Even within the VME, we’re not always on the same page… people rely heavily on reports but then question every detail… decisions are constantly revisited,” Interviewee I-5 noted. A similar sentiment was expressed by Interviewee I-4: “Everyone wants to be part of it, but no one wants to take on the real work.”

The property manager was seen as part of the problem. “We had a syndic who didn’t act… they didn’t even communicate with co-owners or handle questions.” I-4 stated. Eventually, the council decided not to renew the syndic’s contract, and co-owners themselves took on tasks like securing contractors and ensuring compliance with fire safety measures. “I personally handled the fire safety dossier,” said Interviewee I-5, emphasizing how the council had to fill the coordination vacuum.

Hiring contractors proved nearly impossible. “We contacted seven or eight companies, but only one actually provided a quote… and it was extremely expensive.” I-5 stated. The absence of market competition left the CA with little room to negotiate or assess fair pricing. “We didn’t have any external guidance on whether the prices we were quoted were fair… and the contractors know that.” said I-5.

Governance was further complicated by legal fragmentation across building phases. “We have three legal entities, so we need to align all of them to take collective action,” Interviewee I-4 explained. Even installing solar panels became a challenge due to disagreements about roof ownership and benefit distribution. “Phase 1 owns the roof, so why would they allow others to install something without compensation?” I-5 said.

Past inaction created additional barriers. “Owners weren’t warned enough about making unnecessary investments before a clear plan was in place… now those owners are frustrated because they already invested money and don’t want to redo the work,” Interviewee I-5 explained. These early missteps emphasized the importance of long-term planning and coordination.

Despite the many challenges, both interviewees recognized the value of the masterplan. Interviewee I-5 stated, “In my opinion, this was the only realistic solution for the exterior of the building, otherwise, we’d have to tear it down completely.” He rated the planning phase highly, “8, 8.5, maybe even 9,” but warned,

“a masterplan is useless if you can’t actually implement it.” Interviewee I-4 offered a more modest score of 6, saying, “For now, it’s just theoretical… whether we can realize it is a different story.”

Both emphasized the need for continuous support. “The Energy House’s biggest responsibility now is ensuring that no owner is left behind, especially those who have financial difficulties.” Interviewee I-4 concluded with a realistic concern: “Most of us are over 75… Will we even see the end of this 20-year project?”

Case study 4:

It is currently in the early design and decision-making stages of a phased renovation, supported through the masterplan approach facilitated by the Energy House and study office. The co-owners are deliberating facade renewal and energy performance improvements amid financial constraints, fragmented occupancy, and design disagreements.

The majority of owners are second homeowners or investors. “I have the impression that maybe 3–4 people live there during the year, and all the rest come during the summer or weekends,” explained Interviewee I-7. This has profound implications for the renovation’s financial logic: “When you rent the apartment, it's more difficult to justify such funding.” I-7 added. Nevertheless, awareness of the building's aging condition and energy inefficiency is growing. “During the winter there were problems with the heating… people realized it's quite important to have a sustainable building,” Interviewee I- 7 noted.

The interviewees expressed that financial disparity among co-owners complicated consensus building. “We speak about a lot of money… the financial situation is different from one person to another,” I-7 said. Beyond cost, aesthetics proved divisive. “Some people want to keep the building as it is; others want to give it a modern design.” I-7 said. A long-time board member added, “We’ve had several rounds of presentations with the architect, but getting everyone aligned on the layout and costs is still a challenge.” I-7 added.

Although neither interviewee (I-6 & I-7) was involved from the outset, they acknowledged the masterplan’s value. “The plan had priorities… not just the façade, but a whole roadmap,” said Interviewee I-7. However, both noted that the initial presentation of the masterplan was overwhelming. “It was quite scary the way it was presented… everything seemed urgent,” said Interviewee I-7. They suggested a more staged, reassuring communication approach for future plans: “If you’re part of constructing the plan, you understand it. But if you only see the output, it can be overwhelming.” I-6 added.

The Energy House played a central role in initiating the masterplan and sending surveys to co-owners. While the survey was positively viewed “It’s a good element to capture feedback” I-6 said. interviewees argued that more effort was needed in closing the feedback loop. There was also appreciation for the Energy House’s neutrality. “They are not there to make profit. That gives them credibility and trust,” stated Interviewee I-7.

Expectations for stakeholder roles were sharply defined. The Energy House was seen as a technical and financial guide. “They should help with streamlining communication, technical advice, legal support, and most importantly, with securing subsidies and financial scenarios.” I-6 said. The architect, on the other

hand, was expected to be the primary technical lead: “The architect has to explain the options, sell the solution, and guarantee the quality. They must not be in competition with the Energy House.” I-6 said.

Concerns about overlapping responsibilities emerged. “The architect presented a facade plan, then the study office came with another one. It felt like we had to choose between two competing visions,” recalled Interviewee I-7. The co-owners emphasized the need for one clear narrative: “They are not competitors. They should work together and present one story.” I-6 stated.

The syndic was described as overloaded and reactive. “He manages the daily operations, but not the long-term strategy,” said Interviewee I-7. They advocated for more proactive engagement but also acknowledged the limitations of the syndic’s business model: “They’re not paid for renovation work… that’s why we need another player like the Energy House to manage the long-term vision.” I-7 stated. I-6 highlighted that the syndic was against the extra work and was pushing back “I would dare to say that our syndic has a large share in this” she also said “that actually that syndic takes little time to deal with the essence” she added “But for me, it's not about the quality of the syndic's operation and why If you raise issues and they don't have time, then they are pushed aside”.

I-6 gave an overall score of 5 for the whole process, and gave 3 on the interaction between the condominium manager (syndic) and the CA ”Low, but mainly due to personal frictions (differences in values), not low because of or since the renovation plans themselves..” and gave 8 for the masterplan study.

Looking ahead, co-owners expected the Energy House and architect to assist with vendor selection, grant applications, financial roadmapping, and ongoing coordination. “We need help with the administrative burden,” said Interviewee I-7. A phased, transparent communication process was viewed as essential: “We [on the board] understand the plan, but we need to make sure the rest of the co-owners also follow. Otherwise, we’ll face resistance.” added I-7.

Interviewee I-6 described their interaction with the condominium manager as "rather poor," while their experience with the Energy House Ostend was "very good." They rated the interaction with the study office as "good," and with the architecture firm as "neutral," noting this was "due to delays."

Interviewee I-6 advised that municipalities and public authorities should "continue investing in Energy Houses" and "ensure that condominium managers (syndici) are convinced of the importance of the renovation and willing to cooperate."

Despite the challenges, optimism remains. “We’re still speaking to each other. That’s already something positive,” one interviewee joked, underscoring the difficulty of keeping diverse owners aligned. A common understanding persisted: “If we don’t do the renovation, we’ll lose value. It’s not even about gaining, it’s about protecting what we have.” I-7 said.

Case study 5:

This case concerns an apartment building in central Antwerp, composed of 31 units with a mix of owner-occupied and rented apartments. The co-owners include both elderly residents who have lived in the

building for decades and younger newcomers, creating generational divides in motivation, risk tolerance, and willingness to invest in long-term improvements. One of the younger interviewees highlighted this gap: “I’m 28. I’m one of the younger owners here... we also have people who are 88. So they have different expectations. They are sort of reluctant or hesitant to do these studies.” I-8 said. I-9 explained, “You have the original generation... they’re not really interested in doing a lot of works because they think, ‘OK, we don’t know how much longer we have to live, and all these costs... for us, we don’t need it.’”

The initiative to participate in the renovation masterplan came directly from the city of Antwerp, which reached out to the association. This proactive municipal involvement was seen as a key trust-building factor. “I think we were originally targeted by the city itself. They contacted us with the opportunity to enroll,” I-8 recalled. I-9 emphasized, “We had a meeting with all the owners... the city gave a presentation, which was very well done... until now, it’s 100% good.”

Residents were motivated by poor building performance, including aging insulation, roof issues, outdated central heating, and rising energy bills. Top-floor residents were particularly affected. I-9 said “I live on the top floor, so I have a huge energy bill every year. Because the insulation of the roof, well, it was changed 25 years ago, but there’s nearly no insulation.” I-8 said, “It’s more about the central heating and its insulation, how it’s delivered to each unit... not really insulated well... it causes heat loss.”

The value of the masterplan was widely recognized, especially for offering an independent, technical assessment that could help resolve disputes at general assemblies. I-8 said “The fact that once you have a study, then it’s let’s say black and white... there can’t be any discussion about it during a general meeting.” This independence was essential, given the lack of technical expertise among owners: “You need that objective assessment... we’re not technical people.” I-9 said.

However, co-owners expressed growing concern about what would happen after the plan is delivered. I-8 said “We hope to still, let’s see if necessary, tweak the results that will be shown to the owners... provide a sort of top five to the owners.” But they doubted whether the study office would remain engaged in the implementation phase. “I’m afraid we’ll have to do the follow-up ourselves,” I-8 said. The city’s own capacity to support execution was questioned: “The people from the city... don’t have the technical abilities to follow such a technical project.” I-9 explained.

Financing was identified as one of the most pressing obstacles. Both interviewees (I-8 & I-9) criticized the current reliance on individual income-based subsidies. “Everything that has to do with subsidies is individual and depends on the income of each individual. But that’s not possible... that’s not feasible.” I-9 said. Instead, they advocated for collective, building-level financial mechanisms: “The ideal situation would be that we can apply to the system of subsidies, but not having to take into account the individual situations.” I-9 added. This also shows a misconception from the co-owners, the subsidies for common parts are officially granted at the building level in Flanders.

Internal communication within the building also presented challenges. Older residents were reportedly skeptical or disengaged. I-8 explained “Some people are still reluctant... they don’t really see the need for any works.” At the same time, interviewees felt the syndic (property manager) was unhelpful in moving the process forward. “We have a very bad syndic at the moment... it’s terrible.” I-8 added, “They’re not

exactly waiting to take on additional work," and "With every syndics... you need to push a bit to get things going."

While the study offices were seen as professional, there was concern about their commercial motivations. "They're also there to make money — they have a commercial interest." I-8 said. This created a sense of dependency: "We're fully reliant on those study bureaus... that's sort of the worry." I-8 added.

The use of questionnaires to capture resident input was acknowledged, but with limited impact. "The city provided some questionnaires... so people could bring in their input." I-9 said. Still, participation was low: "Only I think 1/3 of the people did answer the questions... it's very individual." I-9 added.

In sum, the Antwerp case shows a relatively smooth and well-received start initiated and supported by the city but also reveals serious concerns about the long-term feasibility of implementation. Challenges include generational divides, limited follow-up capacity, weak syndic engagement, fragmented subsidy structures, and doubts about who will carry the project through the next phase.

Case study 6: No interviews with co-owners were conducted.

Insights from Case Studies 7 and 8 are presented in subsection 3.2.5.

3.3.2. Insights from Study Offices on the Public-Led Renovation Approach

The aim of the interviews with the study offices is to understand how they operate, who they collaborate with, their perspective on the masterplan approach, what motivates them to continue working with it, how efficient they find the approach, and how flexible they are in tailoring their service offerings.

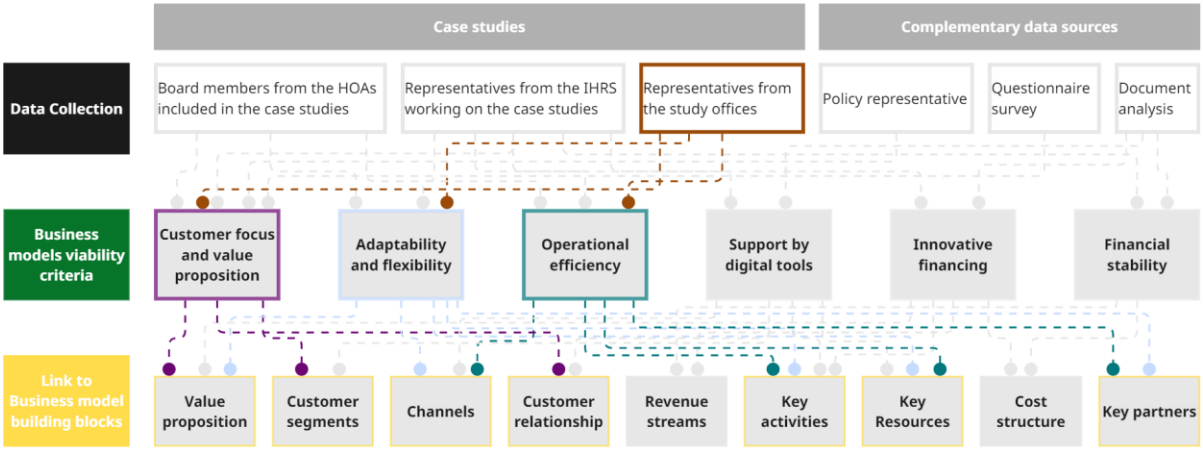


Figure 6: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (interview representatives from study offices)

Case Diversity and Evolution of the Masterplan Model

The study offices participating in the Flemish renovation masterplan initiative bring diverse experiences across building types and urban contexts. One architect from Antwerp shared how their involvement

began with the city's pioneering efforts: "We started working on renovation master plans in 2017, together with the city of Antwerp… The first renovation master plans were pioneering. There was no set format." EI-12 said.

This experimentation phase shaped the current regional framework: "Later on, VEKA, they copied the structure the key elements of what should be in a renovation master plan from the first participations in Antwerp. So now, it has spread across the whole of Flanders." EI-12 said. The evolution from isolated pilots to a standardized regional model required adaptation from engineering and architectural offices alike.

Role Differentiation and Collaboration

Study offices often serve as both technical advisors and project managers through various phases. As EI-12 interviewee explained: "We make the renovation master plan… then the design process… we follow up the work… we present the master plan to VMEs… it's a slow process to move forward into real renovation works." However, roles vary across projects and clients. In some buildings, study offices continue through execution; in others, local architects are engaged. "In certain buildings, we do that… but some cases, they definitely already decided to work with local architects." EI-11 said.

Challenges in Stakeholder Dynamics

A recurring issue was the **inconsistency in communication and collaboration**, especially with condominium managers: "One of the people responsible with the building manager… was clearly not motivated into collaborating. We really had difficulty obtaining the correct information." EI-11 said. This was echoed by another study office: EI-12 said "Every time they changed condominium managers, quite a lot of information gets lost… It would be more useful if all the information was available within the building in a safe or something."

Another structural barrier is the **discontinuity in board or co-owner engagement**, often leading to delays: "It's not always easy to have a final outcome or a tangible, visible result from the study." EI-12

Importance of Internal Champions

Across interviews, all study offices emphasized the pivotal role of committed co-owners: "There's always one or two or three people who are really putting their shoulders under this kind of project… Without this support, it is impossible to do a successful project." EI-11 said.

Such 'internal champions' serve as catalysts in transforming interest into action, facilitating communication, organizing information, and building trust with external actors.

Integrated vs. Partial Renovation Decisions

Despite the integrated vision promoted in masterplans, fragmentation of implementation remains common: "A case study had the choice between the building facade… or the shafts. They chose the façade, it creates an added estate value. The shaft renovation is necessary, but it doesn't create the same value."

EI-12 said. “We see that all buildings need to go for a stepped approach. There’s no building that has the financial means to do everything at once.” EI-11 said. This underscores the tension between **technical rationality** (integrated upgrades) and **financial pragmatism** (visible ROI and affordability).

Financial Mechanisms and Their Constraints

Study offices highlighted that financial instruments (though crucial) often fall short of enabling deep renovations: “The loan part is more interesting… but it doesn’t cover all of the costs… It's a bit of a shame you can’t lend more money for more different solutions.” EI-12 said.

They also noted that some buildings pursue a masterplan primarily for the subsidy: “They chose to do the renovation master plan more because there was subsidy rather than for the purpose of doing a long-term plan.” EI-11 said.

3.3.3. Interview with VEKA policymaker

The aim in the interview with the policymaker in Flanders is to reflect on the insights shared by interviewees from the case studies regarding the renovation masterplan trajectory, and to understand the original objectives of this approach, how it is currently being evaluated, and how it can be continued, given that it is supported by policy and subsidized funding, as shown in Figure 7.

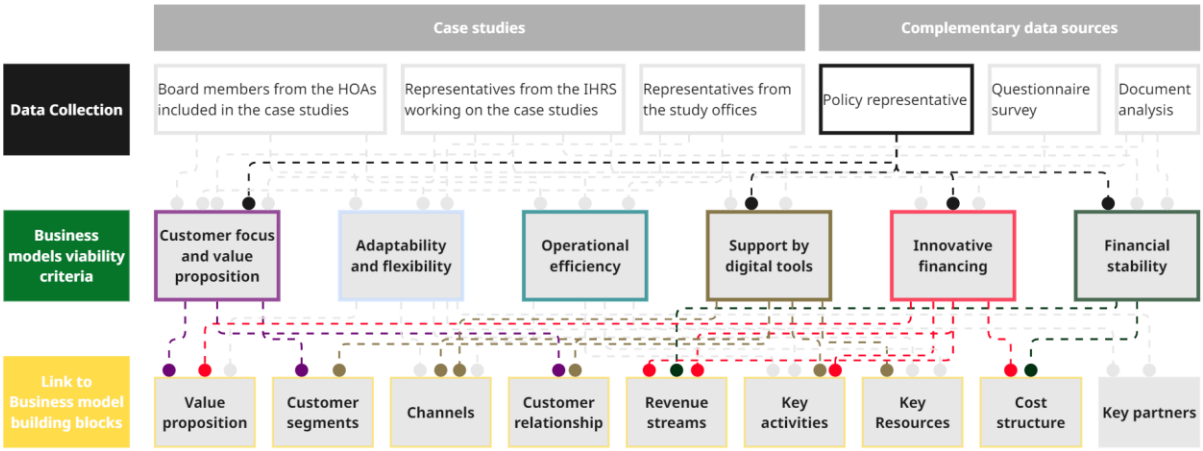


Figure 7: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (interview with policy representative)

The VEKA policymaker interview reveals both the **intentions** and the **structural constraints** behind Flanders' public-led approach to supporting energy renovations in condominiums. VEKA sees its role as **enabling municipalities and local actors** to develop tailored support services through **pilot experimentation**. It deliberately avoids taking a centralized role in project coordination to allow flexibility and innovation at the local level. EI-10 emphasized “We never wanted to develop a centrally managed model... Our ambition is to strengthen the capacity of local stakeholders.”

At the same time, VEKA acknowledges that many **co-owners feel overwhelmed** after receiving the masterplan. The agency expects municipalities and Energy Houses to build lasting relationships with CAs but also recognizes that **resources for long-term engagement are insufficient**. EI-10 said "The masterplan is a great entry point, but it's not enough. Without follow-up, many buildings don't move forward."

VEKA also pointed to the **fragmentation of renovation incentives and instruments**, emphasizing that aligning subsidies, financing tools, and local services remains a challenge. "We are aware that there are gaps between individual subsidies, financing tools like EPC loans, and collective renovation services." EI-10 stated.

Regarding the value proposition of IHRS providers and renovating all in one step EI-10 mentioned "So I think it's not feasible anymore to do it in one step, and indeed we have to think about it step by step approach"

VEKA have also pointed that there is a need for an evaluation and assessment method to be developed to be able to assess the works being done. EI-10 said "but we are now in a phase of evaluating and looking how what we will change and how we could make it better.

When asked about the quality assurance EI-10 mentioned that "it's a big challenge" which necessitates a framework and guidelines to assure quality.

The VEKA policymaker explained that they are currently developing a **global EPC (Energy Performance Certificate)** to better support CAs and promote upscaling. He noted, *"We've got now the EPC for the collective parts and the EPC for the private unit in a building. It's too complicated for a building owner to have an idea what these two different things mean."*

To simplify this and create a shared incentive, VEKA is introducing a global EPC for the entire building. *"We are developing a so-called global EPC level for the entire building, with three elements in it: the skin of the building, the collective technical installations, and renewable energy."* He explained that *"on these three topics, they have to reach a certain level within a certain period."*

This requirement is meant to drive collective action within the CAs: *"Then you've got global motivation from the VME (CA) that they have to do something with their building, so that could be a way to motivate them to start with certain works in phases."*

However, he also acknowledged the challenges, particularly for complex apartment renovations: *"There is a mindset that, due to the fact that the renovation of the facades can be very complex, they might not be that strict about it."* Still, *"a fossil-free heating system will be the main focus with that kind of global label."*

When asked about best practices that could serve as models for other energy houses or municipalities (particularly smaller ones) the policymaker highlighted two distinct approaches in Flanders: *"I think the two approaches of Antwerp and Ghent are very interesting."*

He explained that the context of the buildings in both cities differs: *"In Antwerp, the buildings are higher; in Ghent, they are smaller."* Antwerp initially pursued a more comprehensive strategy: *"They went for a renovation all at once."* In contrast, Ghent adopted a more gradual, facilitative approach: *"They are more working on the facilitation of the group and taking the view that it's better to have a small yes than a big no—so going step by step."*

He noted that *"the two models seem to work,"* although the pace varies: *"In Antwerp, it's going a bit slower these days due to the board."* However, he also pointed to a major development in the city: *"We've got the large project on the left side of the river in Antwerp with collective heating systems in the apartments, so these are all large buildings."*

In summary, he concluded: *"I think the way of working in Ghent is very interesting."*

The policymaker noted a clear gap in the current renovation market: *"I think there is a demand for it, but there's also a lack of good contractors and architects delivering services to apartment buildings. They often say it's too complex a market."* He emphasized the importance of the preparation phase: *"Especially the kind of pre-sales that is done with the renovation masterplan. But in detail, we need a proper handover."*

He acknowledged the current limitations: *"The market is not ready at this moment… there are not enough suppliers."* However, he expressed optimism: *"That will come."*

Reflecting on the role of public authorities, he asked: *"Maybe it's a good idea, how could we, as a public authority, help facilitate this? What could be our role to ensure that companies and architects enter that market?"* He concluded with interest in existing solutions: *"If you've got good practices on that, I'm interested."*

Finally, VEKA emphasized the need to create **legally and socially acceptable forms of guidance**, where co-owners maintain autonomy but are supported through neutral, competent, and structured processes.

3.3.4. 3.3.4 Insights from Energy Houses on the Public-Led IHRS Model

The aim of the interviews with the three energy houses was to reflect on the perspectives shared by co-owners, study offices, and the policymaker, and to understand how the energy houses perceive the masterplan approach. The interviews also explored how their BMs have evolved since the start of CondoReno, what challenges they currently face, what improvements they envision, their plans for further business model development, and the key lessons they have learned.

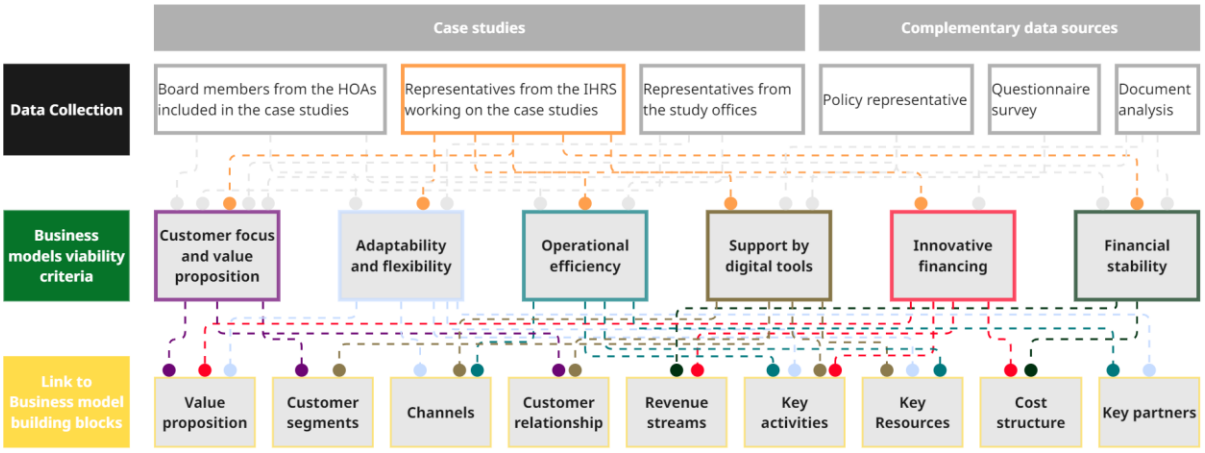


Figure 8: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (interview with public IHRS representative)

1.Neutral Public Role and Credibility

All three energy houses highlighted their **non-commercial position** as a key strength: "We try to maintain a balanced triangle, keeping equal distance and neutrality" as EI-16 said. EI-17 added "the strength of the renovation master plan really lies in raising awareness among co-owners about the maintenance of their building—and how maintenance is also connected to renovation works."

Trust is foundational:

EI-16 stated "It's about building communication and trust." EI-17 added "That's where the Energy House can help by clarifying the roles and responsibilities, not only of the condominium manager but also of the board of co-ownership.."

2. Mismatch Between Expectations and Mandate

One of the key challenges observed in the implementation of the public-led IHRS is the mismatch between what co-owners expect from Energy Houses and what these organizations are formally mandated or resourced to deliver. Many CAs anticipate long-term, personalized support from Energy Houses throughout the entire renovation process, from initial planning to final execution. However, in practice, the Energy Houses' mandate typically ends after the renovation master plan is delivered. As EI-15 explained: "Right now, in our current way of working, our guidance ends when the renovation master plan is delivered. So after the co-owners make an investment decision... our involvement generally stops. That's an agreement that was made a few years ago. But things are changing now."

In Mechelen, similar tensions were noted, with staff recognizing the growing need to stay engaged beyond the planning phase: "In Mechelen, we also feel the need to extend our guidance... When they start, they'll want guidance, because it really helps them move forward." EI-17 said.

Despite this recognition, Energy Houses often face significant capacity limitations, which prevent them from proactively supporting additional buildings. This limited capacity stands in contrast to the growing demand from CAs. As EI-17 noted: "I've reached the limit of what I can manage. I'm no longer reaching out to new condominiums... If the city invests in hiring an extra colleague, then we can proactively reach out again."

Another common source of confusion and unmet expectations concerns the role of the condominium manager (syndicus). Co-owners often misunderstand or overestimate what syndici are responsible for in the renovation process, assuming that coordination with engineers or preparation of specific documents falls under their tasks by default. This frequently results in frustration or project delays. As highlighted in Antwerp: "Actually, their mandate is really clear. But I've noticed that many homeowners don't know what a condominium manager can or cannot do." EI-15

This misalignment is also reflected in the expectations regarding deliverables from engineering offices. Study offices are often contracted to provide standardized reports under public procurement rules. However, Energy House staff report that co-owners expect tailor-made guidance, not generic or overly technical documentation. As described by EI-17: "The engineering office told us, 'We have to make two scenarios, and maybe there's a third... but that's not included in the price.' That's where I step in and say, 'No, it was always intended to be tailor-made—you still have to deliver it.'"

Furthermore, the technical nature of the reports often fails to meet the communication needs of the average co-owner. While the reports may fulfil regulatory requirements, they are difficult for laypeople to interpret and act upon, leading to disengagement or rejection during voting. "That's often why people vote against it—they're not well informed about what's proposed or why. The full report is technical—not accessible to everyone." EI-15 stated.

Energy Houses thus find themselves in a bridging role—interpreting technical studies, managing communication, and trying to align diverse stakeholder expectations. However, the lack of structural funding, realistic compensation models, and staffing to match this expanded role creates tension between their intended function and the actual demands placed on them by the field.

3. Coordination with Study Offices and Municipalities

A recurring theme in the interviews was the importance of strong coordination between Energy Houses, study offices, and municipal departments to ensure high-quality, actionable renovation master plans. Interviewees emphasized that the quality of collaboration with study offices directly affects outcomes. As EI-17 noted: "Some just say, 'Here's my report,' while others are willing to collaborate, to act as a sparring partner... If we have that co-creative relationship with the study office, we can achieve more impact."

In Antwerp, the Energy House actively reviews the technical content of reports and supplements it with local knowledge: EI-15 said "I read the whole report every time. I check what's missing... Please ask me if you have a building you want to connect to the heating grid—I'll give you the most recent info."

In Ostend, the integrated approach has also helped foster new collaborations with other municipal services: EI-16 said "It connects us with other municipal services, like the fire department and the urban development department. In the beginning... we didn't have such connections. But now it's happening."

These examples show that effective coordination goes beyond information exchange—it involves co-creation, local tailoring, and interdepartmental collaboration to support successful renovation trajectories.

4. Resource and Staffing Challenges

Despite their central role in supporting condominium renovations, Energy Houses face significant resource and staffing limitations that restrict their capacity to scale or provide prolonged support. In Mechelen, limited staff availability has halted proactive outreach: "I've reached the limit of what I can manage. I'm no longer reaching out to new condominiums... If the city invests in hiring an extra colleague, then we can proactively reach out again." EI-17 stated.

This situation is not unique. In Ostend, the same tension exists between building demand and internal capacity: "It's always a bit of a 'chicken or the egg' situation... how many apartment buildings are we expecting to come to us, and how many outreach activities can we run?" EI-16 added.

Internal training gaps further complicate efforts. Staff unfamiliar with condominium dynamics struggle to provide adequate responses: EI-17mentioned "Right now, I have one colleague I've trained, but the other colleagues... still struggle with the complexity of condominium renovations."

In contrast, Antwerp's team structure shows how dedicated resources can make a difference:

"We have four colleagues who work exclusively with apartment buildings, and three more who are multidisciplinary... That's why we're not facing the same issues as Ostend or Mechelen." EI-15 said.

These testimonies underscore the need for sustained investments in human capacity and specialized training to meet growing demand and ensure continuity in service delivery.

5. Dependency on Internal Champions

The success and continuity of renovation support services often depend heavily on motivated individuals within the Energy Houses who take initiative beyond their formal responsibilities. These "internal champions" play a key role in tailoring services, maintaining momentum, and pushing for quality. In Mechelen, EI-17 reflected: "Sometimes I push harder than they do, because they think it's normal—the way the study office handles things." Such individuals frequently compensate for systemic limitations in processes or staffing, taking personal initiative to keep projects moving: EI-17 added "I follow up myself... I call the syndicus and ask, 'Did you do this? Because it's important for the process.'"

These champions also shape the Energy House's role dynamically, switching between coach, mediator, and project driver depending on the case: EI-mentioned "Sometimes, you need to stay close, supporting

the condominium manager and helping push the process forward... Other times, I can step back and say, 'Okay, call me when you need me.'"

While effective, this reliance on a few highly engaged individuals exposes the model to risk particularly in terms of scalability and long-term continuity.

6. Financing Challenges and Vulnerable Co-Owners

A major barrier in the renovation process is the financial vulnerability of some co-owners, who often feel excluded or overwhelmed by the costs involved. Energy House staff acknowledge that current financial instruments are not yet sufficient to support these groups. As EI-15 noted: "Unfortunately, that loan [Mijn VerbouwLening] isn't yet available for apartment buildings—at least not for shared/common parts... And we know that when 50% or 60% of a building wants to renovate, some people are forced into it."

Vulnerable residents are not always visible or forthcoming, making targeted support difficult: EI-15 said "Sometimes they don't come to those individual moments—maybe they're too embarrassed... There are also often language or cultural barriers, which makes things more difficult."

The social consequences are already tangible in some cases: EI-15 said "Shortly after renovation decisions are made, apartments go up for sale on ImmoWeb."

From Ostend, the situation is described even more starkly: "With the governance tools we have... it's almost impossible to include everyone in the energy transition... Many people will have to move. We'll see enormous gentrification. It will be chaos. That's not—and should never be—the definition of a just transition."EI-16 said.

These insights underscore the urgency of developing more inclusive financing solutions to prevent the displacement of vulnerable co-owners and ensure that the energy transition is equitable.

7. Proposed Improvements

Throughout the interviews, Energy House staff identified several concrete improvements to enhance the effectiveness, scalability, and inclusivity of the renovation support system. One commonly mentioned need was to improve the accessibility of reports for co-owners. As stated by EI-17: "The study office reports feel more like a master thesis... I advise them on how to make their reports more client-centered—less technical."

Another recurring proposal was to extend the support period beyond the master plan, recognizing that most buildings need guidance during execution: "We continue supporting the association until there's an architect or engineering office ready to take the lead... And even then, we remain available." EI-17 said.

In terms of internal capacity, both Ostend and Mechelen called for investment in staffing and training: "Internal training for Energy House staff is extremely important... They're not yet familiar with the nuances... When you're dealing with condominium renovations, you really need to consider a lot of factors." EI-17 stated.

Suggestions were also made for system-level improvements, such as standardizing tools and roles to speed up processes while maintaining quality: "For example, the initial questionnaire... could be done by engineering offices and standardized by VEKA over time." EI-16 stated. EI- 17 added "VEKA could be more explicit about what renovation master plans should include, with templates and requirements."

Lastly, they emphasized the need for better financial support models, both for operations and vulnerable residents: "Right now, operational funding is based on a fee-per-service model... That's not sustainable." EI-16 said. "We'll work during summer and autumn on how to adapt Mijn VerbouwLening for condominium associations and make it interest-free for low-income groups." EI-17 stated.

These insights collectively highlight a strong commitment among Energy House staff to improve service delivery—if supported by the right policy and funding mechanisms.

Stakeholders network analysis : How Integrated Home Renovation Service Providers Engage Stakeholders in Energy Renovations for Homeowner Associations

In one of our ongoing studies, we examined how public and private IHRS models interact with other stakeholders within their respective networks. The analysis helped distinguish between primary, secondary, and external stakeholders, while also illustrating how the public IHRS models (Flanders) and the private model (Netherlands) interact with these actors. The resulting stakeholder map is presented in Figure 4. These efforts culminated in a conference paper presented at the SBE Conference in Zurich in June 2025, offering a mid-project opportunity to gather feedback on the evaluation approach (Elgendy et al., 2025)

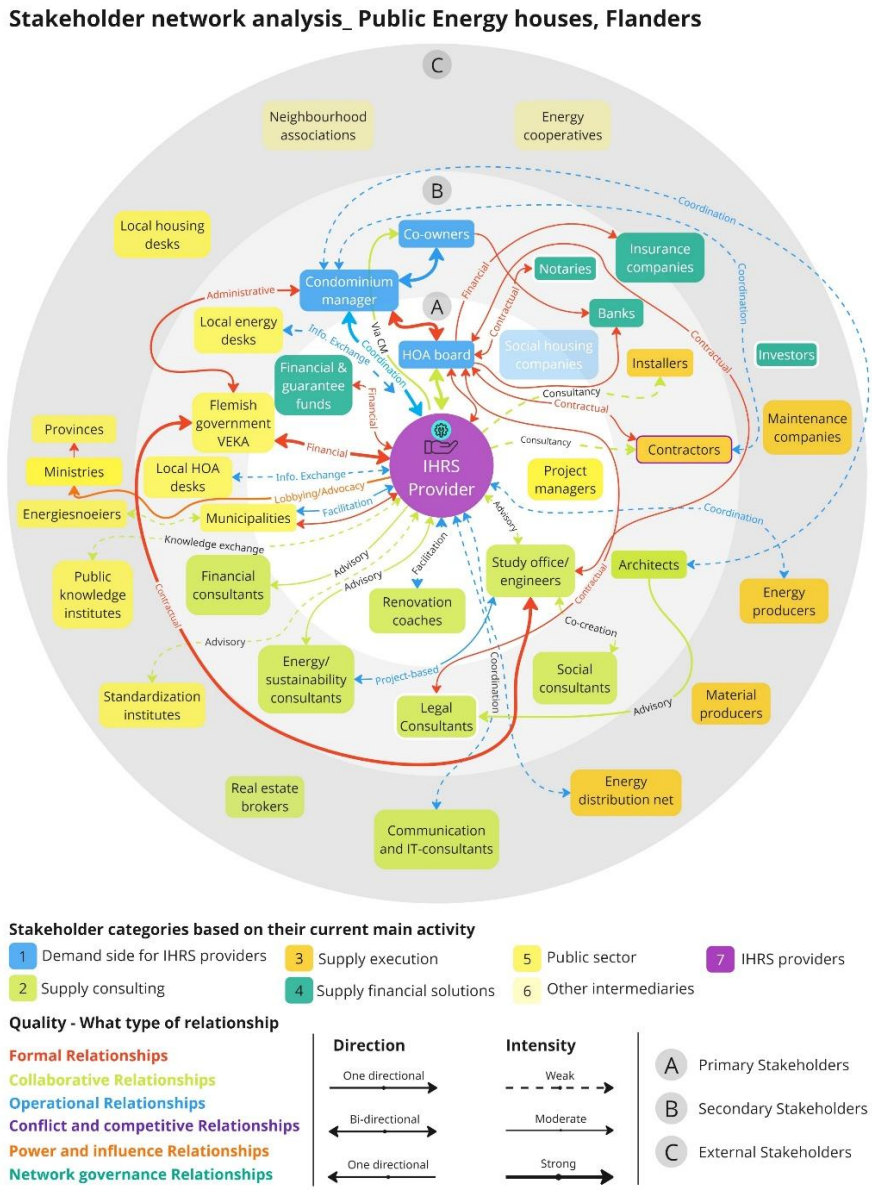


Figure 9: Stakeholder network analysis for Public IHRS Models in Flanders

Figure 9 presents the relationship between public IHRS providers and key stakeholders involved in condominium renovations, drawing on the Energy House case study in Flanders and validated by other public energy houses in the region. Public models tend to engage less with private actors in order to preserve neutrality and maintain public trust. These differences reflect each model's underlying governance structure and strategic orientation. The financial security and legitimacy provided by government actors are key strengths of the public model.

3.3.5. Insights from Private-Led Condominium Renovation in the Netherlands

The aim in conducting interviews with co-owners and board members in CAs is to understand their motivations and barriers, what they value most, their experience with the services and support received from IHRS providers, and to assess the overall efficiency of the renovation process, as shown previously in Figure 5.

Case study 7:

The CA represents a large and complex multi-owner structure. It is a **mixed CA**, with a major owner holding 34 apartments and several individual landlords renting out their units. The board is comprised of three active members and is supported by a "sounding board group with five people who support the board with the sustainability process. These are people with more technical knowledge." This support was crucial as "we're not technical experts ourselves," I-18 stated, yet had to drive the process while also managing routine CA duties.

There is strong awareness among residents of the **urgency of energy renovations** due to poor building conditions: "The window frames are in really bad shape… The energy labels vary between C and G." I-18 said. Yet, financial constraints weigh heavily: "Reaching that level will probably be too expensive… People need to vote on that, and many just can't afford it. We really want to avoid a situation where people are forced to sell because it becomes unaffordable." I-18 stated.

The CA engaged early with a municipal program aimed at gas-free housing. However, they later found the approach too rigid: "It became clear that they only wanted to go fully gas-free… Some residents were really against it."I-18 said. After four years of stalled progress and top-down pressure, the board shifted to a more **collaborative and tailored approach**: "Now, with [contractor name], it's much more collaborative. We feel like we have a say in the process. And that's how it should be." I-18 said.

Community engagement has been challenging despite significant outreach: "We're organizing information evenings… We had about 50 to 60 attendees, which is still not enough" I-18 said. The board acknowledges that "unless something directly affects people's wallets, participation stays low." This low engagement, paired with unclear past communication, has led to a strategy of presenting one clear scenario: "If you present too many options, everyone wants something different… That's why we decided to keep it simple." I-18 added.

The CA has been proactive in **visiting other CAs and housing corporations** to learn from past experiences, but feels that such networks are lacking in the region: I-18 said "There's hardly anything like this happening in our region." They've also experienced **capacity gaps in institutional support**, noting that "WoonWijzerWinkel… mainly focuses on individual homeowners." There's a clear call for localized support structures: "A local info point — should exist in every municipality." I-18 stated.

Technically, the renovation is planned to be executed in one go: I-18 mentioned "Everything will be done in one go, with the entire building scaffolded." The scope includes façade insulation, window replacement, ventilation systems, solar panels, and asbestos removal. However, the board is acutely aware of **regulatory and legal hurdles**, such as the required ecological assessments: "It took nearly two years to finish that process… There were bats and swallows identified." Moreover, the **approval process involving**

tenants of the large owner adds complexity: “They need to collect consent letters from them… Only after that process can the actual renovation begin.”

The interview also reveals **financial system constraints**: “We’re trying to secure as much subsidy as possible… But it's not enough.” I-18 mentioned. The CA does not qualify for the more favourable 30-year loan due to not going fully gas-free, and this “makes monthly costs higher.” This is a critical issue: “For people on a pension or low income, that’s a big hit.” I-18 stated.

Governance issues have shaped the CA’s cautious, self-managed approach. After discovering financial mismanagement from a previous property manager, the board now manages finances themselves: I-18 said “We do the bookkeeping ourselves. Since then, we’ve taken control… Only the treasurer and I can access the CA bank account.”

Finally, the interviewees provided **clear lessons for policy and practice**: “Start early… even if you’re not sure you’ll renovate.” They advocate for more **comparative examples**, flexible policy targets (not just gas-free), and communication tailored to laypeople: “You need a ‘Jip and Janneke’ version, otherwise people just tune out.”

Case study 8:

The CA involved in Case Study 8 presents a typical yet highly complex mix of ownership: 64 units, with 31 privately owned apartments and 33 belonging to a social housing corporation. Governance is handled by an active but overstretched board of just two members. I-20 who is a board member explains , “There aren’t always many people willing to join, since it’s a voluntary role with a lot of responsibility.” Despite this limitation, the board has shown strong initiative, recognizing that the dynamics of shared ownership can lead to inertia unless actively steered.

Motivations for energy renovation originated from a mix of building degradation, financial concern, and future-oriented thinking. I-20 emphasized: “We felt like this could be the way forward, for both homeowners and the housing corporation, to bring the building into the 21st century.” They also expressed frustration with the prior reactive management style: I-20 “The chairperson at that time was practical… but he didn’t really have a vision for the future.”

Social dynamics and power imbalances play a critical role in this case. I-20 described how “the social housing corporation, owning the majority, had a lot of power.” This imbalance led to frustration about differing priorities: I-20 said “The priorities of the housing corporation are very different from those of owners who actually live here.” Despite this, the board has tried to foster trust and inclusion: “When we explained that we were from the VvE and actually lived in the building as neighbors, the tone changed completely.” I-20 stated.

Initial resistance from co-owners to large-scale renovation was rooted in concerns about affordability. “They weren’t used to the idea of depending on subsidies and loans over a 30-year period.”I-20 said. Some residents also felt excluded from early meetings, which undermined trust. Even among participants, skepticism remained: “Could it really be this good?” said by I-20. One quote by I-20 exemplifies the critical

nuance of energy poverty: “They never turn on the heat, use LEDs, wear sweaters indoors—they wouldn’t benefit much from lower energy bills, but would still be hit by higher service costs.”

Yet over time, a stronger sense of momentum emerged, thanks largely to the work of the private IHRS provider. I-20 and I-19 praised their full-service model: “They provide not only guidance but also support in securing subsidies, arranging loans, and offering technical expertise.” Trust in the provider was anchored in persistence and idealism: “They weren’t even being paid anymore… but they kept pushing the process forward.” I-20 stated.

Still, progress was uneven due to institutional friction, particularly with the social housing corporation. Despite formal approval votes and repeated information sessions, delays persisted. I-20 sid “That was a really frustrating moment… retelling and reselling the same plan over and over, to new representatives from the same organization.” Ultimately, persistence and coordination helped unlock decisions. “We said, ‘Just pay them—we want them to get started.’ [Consultant] wasn’t even sure they’d be paid, but they began working anyway.” I-20 said.

The municipality’s role has also evolved. Though not initially central to the process, they later offered structured support through board training. I-20 recalled: “The city has become more proactive… Earlier this spring, every resident in our building received a letter from the municipality inviting them to sign up for a free course.” This external support helped CA members feel more confident: “What we learned most was how lucky we are to have WNR.”

Communication remains a significant area for improvement. Even proactive board members acknowledge delays in sharing updates: I-20 said “We felt they didn’t need to know the hassle behind the scenes, just that it was resolved.” Yet, this approach backfired: “Even that kind of delay should be communicated. It helps build trust and transparency.” I-20 stated. Plans are now in place to issue regular newsletters and continue inclusive events.

Structurally, the building has few heritage constraints, making it an ideal candidate for renovation. Nevertheless, ecological requirements had to be addressed: “The nature report has just been published… we’ll probably work with the same firm to handle that.” I-20 stated.

The social dimension (especially regarding vulnerable groups) is a consistent thread in both interviews. The board was particularly struck by feedback from renters and owners living in or near poverty. A renter “raised concerns about energy poverty… people’s budgets were being impacted without acknowledging their financial realities.”I-20 stated. Board members have since made it a priority to increase clarity and visibility: “Even when there’s no news, it’s important to communicate that.” I-20 stated.

Despite the hurdles, the CA is now approaching major decision points. “The upcoming info evening is also the starting point for major decisions… WNR is really helping us prepare.” The board believes its strength lies in persistent leadership and a trustworthy, integrated renovation partner: “The amount we’ve paid them so far feels like a small price for the money, time, and frustration they’ve saved us.” I-20 stated.

3.3.6. Insights from the Private IHRS in the Netherlands

The aim of the interviews with the private IHRS was to reflect on the perspectives shared by co-owners, and to understand how the IHRS perceive the renovation process. The interview also explored how the BM have evolved since the start of CondoReno, what challenges they currently face, what improvements they envision, their plans for further business model development, and the key lessons they have learned.

1. Value Proposition and Service Orientation

WNR positions itself as a solution to accelerate condominium renovations by offering integrated, end-to-end services. Unlike public providers that focus on early-phase support (e.g., information and activation), WNR aims to stay engaged throughout the entire renovation process: EI-21 "Public services are always involved in the first steps of the renovation process… but they don't stay close to the condominium association until the end—until the renovation itself."

WNR follows a structured, step-by-step plan and applies it regardless of the building size. Their emphasis is on delivering a holistic renovation, rather than fragmented, phased interventions: EI-21 emphasis "It's quite easy to convince people that it's better to take a holistic approach and consider everything….When we do it in one big bang, it's much easier to say: 'You have to invest a lot, but you're going to save a lot too.'"

This also contributes to cost clarity and efficiency: EI-21 said "It's easier to prove it's living cost neutral with a one-time approach than when you spread it over the years."

2. Customer Segmentation and Challenges with Smaller Associations

WNR's private model faces limitations in serving small CAs, particularly those with fewer than 8–20 units: EI-21 stated "Between 8 and 20 is a group that is very hard to help out with renovation just because they can't afford our process guidance." This signals a market gap where public support might be needed to complement private services: EI-21 added "We have to find a way for the municipality to cover more of the process guidance."

This insight reflects a critical tension between economic viability and inclusivity in service delivery.

3. Importance of Board Engagement and Community Trust

The success of a project largely depends on the engagement of the condominium board and the trust dynamics within the community: EI-21 stated "If there's not much activity in the board, or if some of the most active members leave… then it becomes quite hard for the association."

WNR invests in relationship-building and community activation, illustrated by informal events: EI-21 said "We're having a barbecue in September… that's where we'll present some ideas about what the building might look like." This shows that social engagement strategies are part of WNR's approach to overcome inertia and build consensus.

4. Financial Model and Operational Flexibility

WNR has adapted its financial strategy over time, offering both fixed price and hourly models: EI-21 said "We have two models… We ask 40% in advance and 60% afterward… Normally, they just pay for the hours

we've used that month." However, their non-profit status creates limitations, especially in terms of access to capital and insurance: EI-21 said "It's hard to get this financing part in place….Even companies specialized in startups or scale-ups won't fund a non-profit."

This led WNR to consider a dual structure: EI-21 said "It's just that we'd have it under another entity… so it's easier to create a marketing or communication plan and ask for funding." This indicates a need for hybrid organizational models that balance mission-driven work with financial sustainability.

5. Partnership with the Public Sector

WNR expresses frustration with the lack of public sector collaboration and compensation for the educational and facilitation work they do: EI-21 stated "We've done a lot of work in the past five years—work that should have been done by public services… But they don't pay for it."

They strongly support replicating models like VEKA's in Flanders, where public coordination and funding for process guidance are centralized: "I think they do a splendid job with VEKA and the energy houses in Flanders." "We could do the same in the Netherlands." EI-21 stated.

They recommend linking subsidies to actual renovation outcomes: EI-21 proposed "It's better if you help with the process guidance and give a reward at the end…..If they complete the process, you pay for the guidance. If not, they pay back part of it."

This points to a performance-based subsidy design as a more effective public-private collaboration model.

6. Monitoring, Evaluation, and Learning

WNR hasn't completed full renovation projects yet, so monitoring practices remain theoretical: EI-21 mentioned "This part we haven't done yet. We don't have information. We can't prove anything here."

Nonetheless, they plan to measure success by energy savings, cost neutrality, and resident satisfaction: EI-21 said "It's about energy savings, living cost neutral and of course if they are satisfied."

Their customer-centered evaluation approach includes comfort and usability as indicators of success: "You can have a living cost neutral renovated house… and still not be happy with all the buttons you have to push every day." EI-21 stated.

7. Critique of Current Procurement Practices

WNR criticizes the lowest-bid tendering system, which rewards price over quality or outcomes: EI-21 mentioned "We priced the feasibility study properly… but the regulation required choosing the cheapest offer….It's important to demand more guarantees in these feasibility studies."

This calls for procurement reform, shifting toward quality-based selection and result-linked contracting.

Stakeholders network analysis: How Integrated Home Renovation Service Providers Engage Stakeholders in Energy Renovations for Condominium Associations

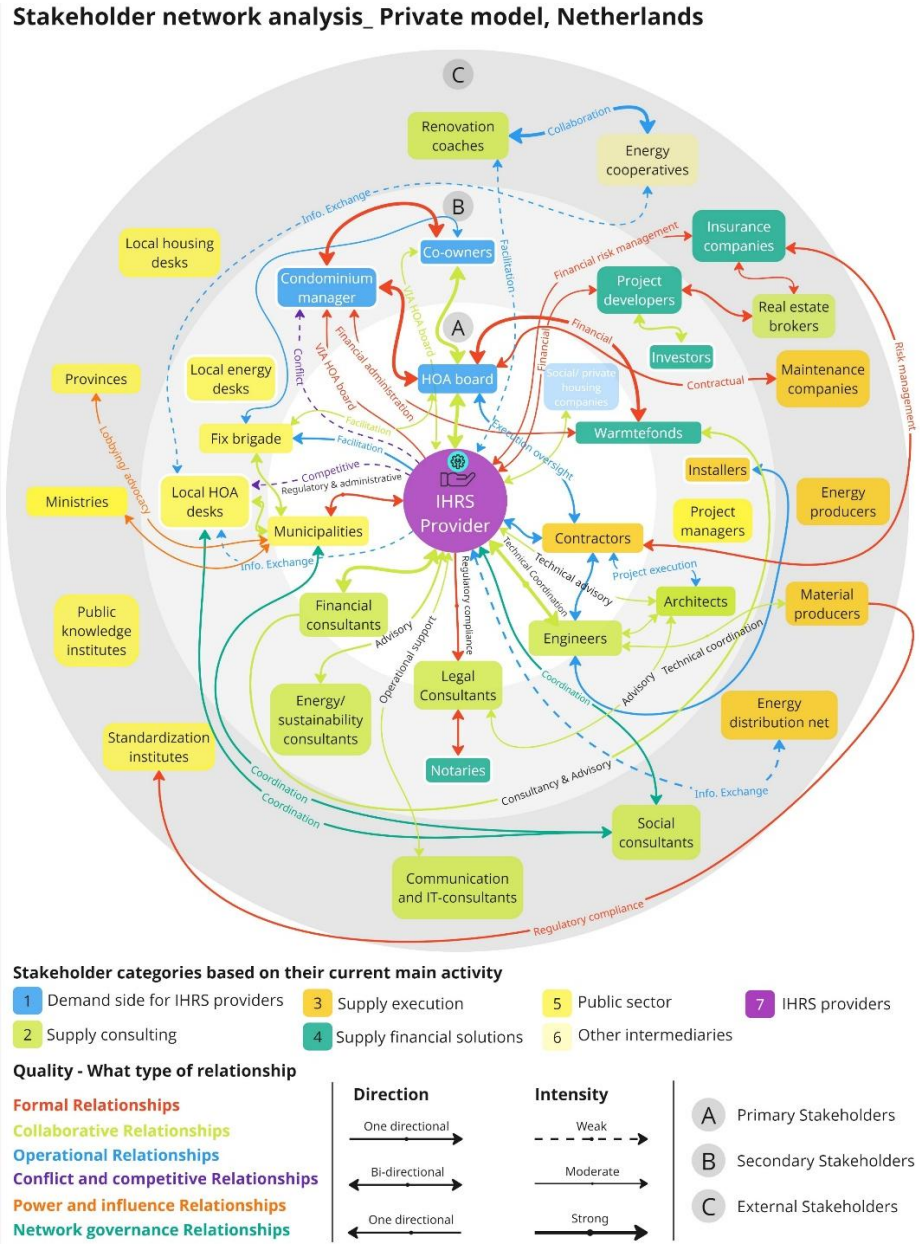


Figure 10: Stakeholder network analysis for Private IHRS Models in Flanders

Figure 10 presents the relationship between private IHRS providers and key stakeholders involved in condominium renovations. Private models tend to have limited engagement with public authorities and condominium managers, focusing instead on direct relationships with CAs and market-based actors. These differences reflect the private model's market-driven governance structure and strategic focus on efficiency and scalability. The key strengths of the private model lie in its operational flexibility, capacity for innovation, and ability to offer bundled renovation services tailored to homeowner needs.

3.4 Results from the questionnaire survey

The aim of the two surveys is to collect quantitative data on the barriers, motivations, levels of awareness, and support and information needs of co-owners in the Netherlands, Flanders, and across the EU. The findings will serve as a basis for developing policy recommendations to support the replication and upscaling of energy renovations in condominiums. Additionally, the results can help IHRS providers refine their value propositions, making them more responsive, adaptable, and flexible to diverse cases and market contexts

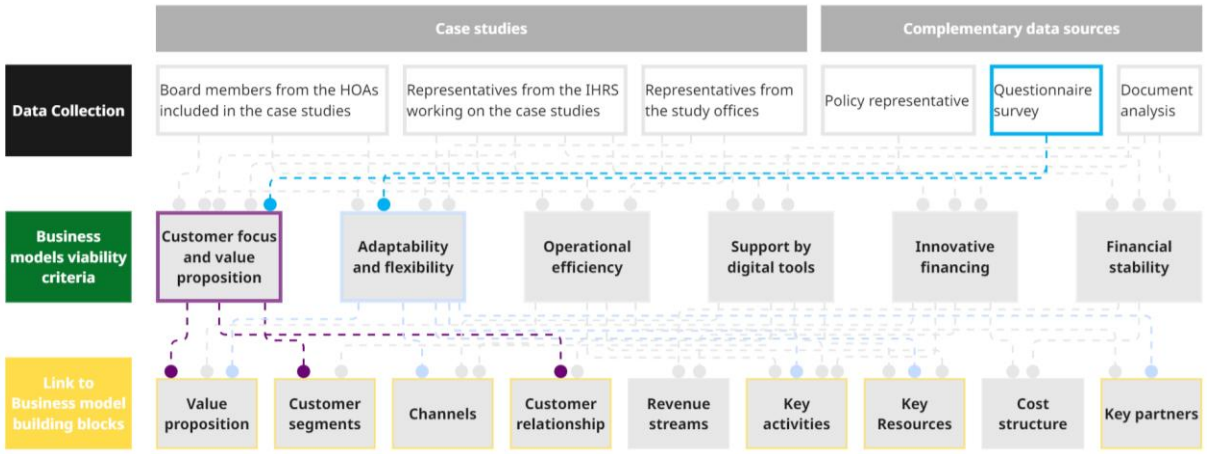


Figure 11: Conceptual framework of the research structure and how the research links the viability criteria to the business model canvas building blocks to support the development of the business models (Questionnaire survey)

3.4.1. Regional Survey on Condominium Renovations: Netherlands and Flanders

Objective

This survey, conducted among homeowners in CAs in the Netherlands and Flanders (449 responses), aimed to understand the key motivations and barriers influencing decisions around deep energy renovations. Grounded in the Theory of Planned Behavior, the survey explored behavioral drivers, financial concerns, and levels of engagement with renovation processes. It also examined homeowner personas, renovation history, knowledge of CA structures, and awareness of support services. The insights gathered are intended to inform and optimize the value propositions and BMs of both public and private IHRS.

Methodology

This regional survey was developed to collect first-hand insights from co-owners in CAs in the Netherlands and Flanders about their needs, motivations, and barriers related to deep energy renovation. The questionnaire was based on the Theory of Planned Behavior and included closed-ended questions (multiple choice and Likert-scale), along with a few open-ended items. Topics covered renovation history, financial capacity, engagement in CA decision-making, trust in stakeholders, and awareness of support services. The survey was conducted online via the Qualtrics platform and promoted through national project partners and local homeowner networks. To ensure inclusivity and accessibility, the survey was translated into seven languages. Data was collected between October 2024 and February 2025, resulting

in 449 responses that offer a detailed understanding of homeowner profiles and renovation attitudes within the regional context.

Results

Out of the 449 total responses, 124 respondents indicated that they own a flat in Belgium and 215 in the Netherlands, totaling 339 respondents from the target regions. The remaining 110 responses came from homeowners in other EU countries. For the purposes of this analysis, we focus only on the 339 responses from Belgium and the Netherlands, as the survey was specifically designed to assess the motivations, barriers, and support needs of condominium owners within these two national contexts. This targeted approach ensures the findings are directly relevant to informing regional policy and improving integrated home renovation services in both Flanders and the Netherlands.

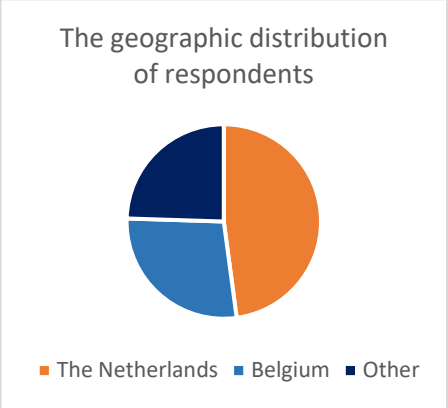


Figure 12: Geographic distribution of respondents

Energy Label Distribution by Building Age

The analysis of energy labels by building age reveals a clear correlation between older building stock and poorer energy performance. Most apartments in buildings constructed **before 1945** or **between 1945 and 1970** are associated with lower energy labels (C to G) or have **unknown labels**, indicating either low efficiency or lack of awareness. In fact, buildings from these two periods account for the **highest number of "I don't know" responses** (22 and 25 respectively) suggesting significant knowledge gaps among residents. In contrast, buildings constructed **after 2001** show a concentration in higher energy labels (A and "Higher than A"), reflecting improved energy performance standards. However, even in newer buildings, 5 respondents were unsure of their energy label. These findings highlight the importance of targeting older buildings for deep energy renovation while also addressing informational barriers across all age categories.

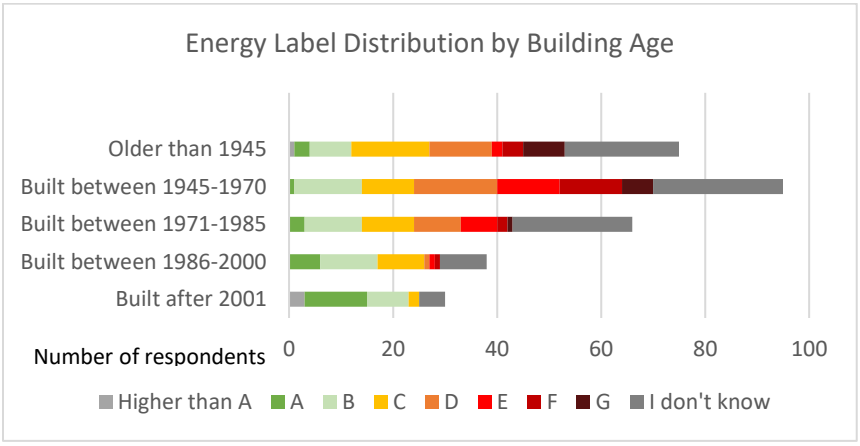


Figure 13: Respondents property Energy Label by Building age

Discussion of Energy Renovation with Neighbours

In the Netherlands, co-owners living in buildings with energy labels C and D report the highest levels of occasional discussions about energy renovations with their neighbours. Label C respondents also show the highest incidence of "very frequent" discussions. Meanwhile, residents with energy labels E, F, and G are more mixed in their responses, with a relatively balanced spread between "occasionally," "rarely," and "very frequently." Respondents who do not know their energy label are most likely to discuss renovations occasionally, though they also account for a notable number of "never" and "very frequently" responses. Higher energy-rated buildings (label A or "Higher than A") show lower engagement.

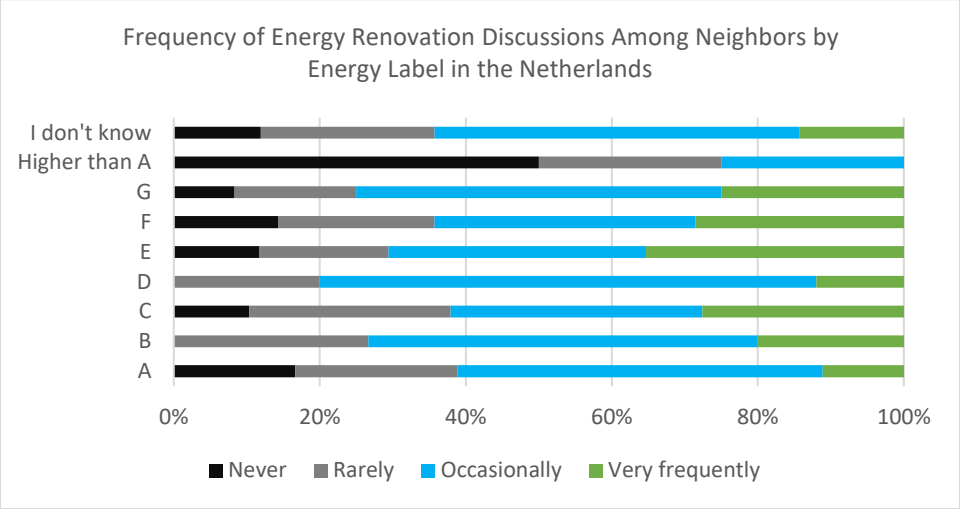


Figure 14: Frequency of Renovation Discussions among Neighbors in the Netherlands

In Belgium, the pattern is similar: most respondents report **occasional** or **rare** discussions about energy renovations, particularly among those in buildings with energy labels B and C. Very frequent discussions are most common among these two labels as well. Interestingly, a large proportion of Belgian respondents indicate that they **don't know** their building's energy label—and these individuals still report a considerable number of occasional and rare conversations. Labels D and E show lower overall engagement, and higher-rated buildings (label A) tend to have fewer frequent discussions.

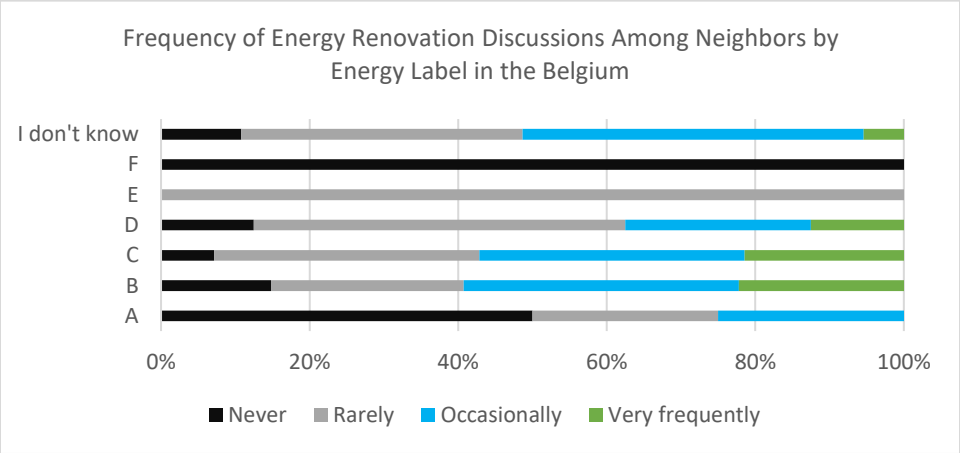


Figure 15: Frequency of renovation discussions among neighbors in Belgium

Perceptions of Energy-Efficient Renovations Among Dutch Respondents

Dutch co-owners expressed a broadly positive attitude toward energy-efficient renovations. A significant majority (75.1%) agreed that these renovations are worth the investment, with 39.2% strongly agreeing.

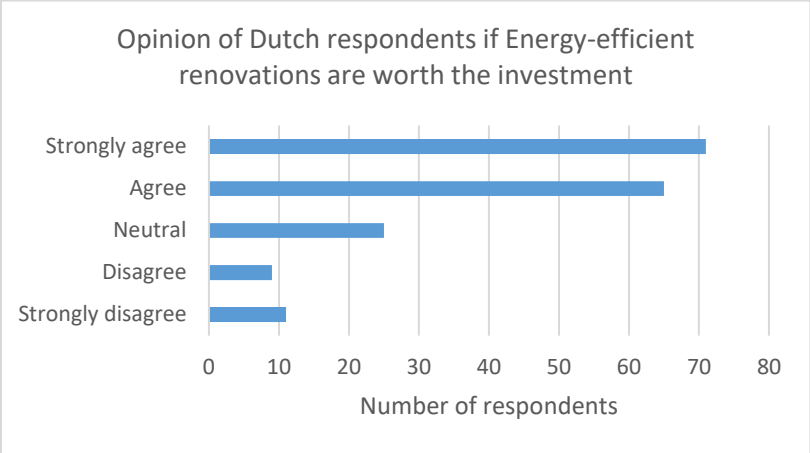


Figure 16: Energy-efficient renovations are worth investment (Dutch Respondents)

Similarly, 60.8% of respondents believed that such renovations improve living conditions like indoor air quality, though responses were slightly more distributed across the scale.

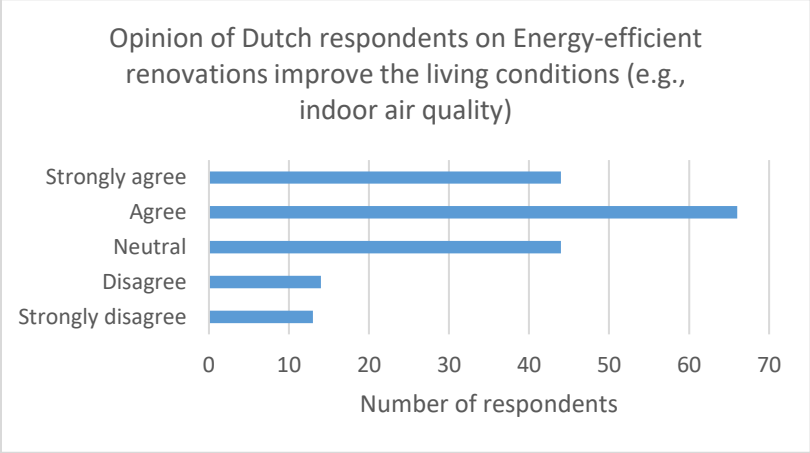


Figure 17: Energy-efficient renovations improve the living conditions (Dutch Respondents)

Confidence was also high regarding the impact on energy savings, with 67.9% agreeing (scores 4 or 5) that energy-efficient renovations lead to significant reductions in energy consumption. While strong agreement was common, a notable portion of respondents still selected neutral responses, suggesting that additional communication or practical examples could further reinforce the benefits of energy renovation.

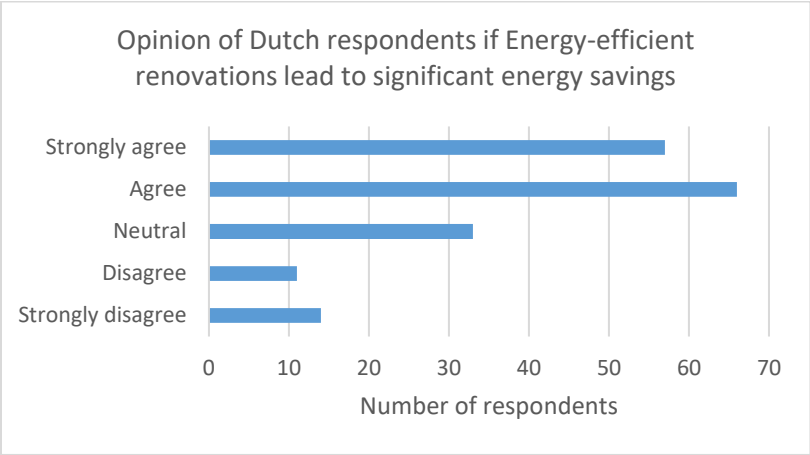


Figure 18: Energy-efficient renovations lead to significant energy savings (Dutch Respondents)

Perceptions of Energy-Efficient Renovations Among Belgian Respondents

The majority of Belgian co-owners expressed positive perceptions regarding the value and benefits of energy-efficient renovations. Over 85% agreed to some extent (responses 3–5) that such renovations are worth the investment, with 39% strongly agreeing.

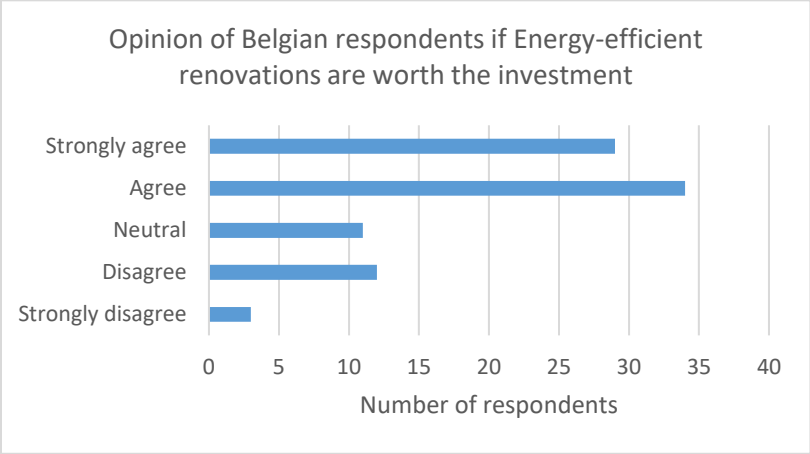


Figure 19: Energy-efficient renovations are worth investment (Belgian Respondents)

When asked about the impact on living conditions (such as improved indoor air quality) most respondents again showed moderate to strong agreement, although slightly fewer selected the highest scores.

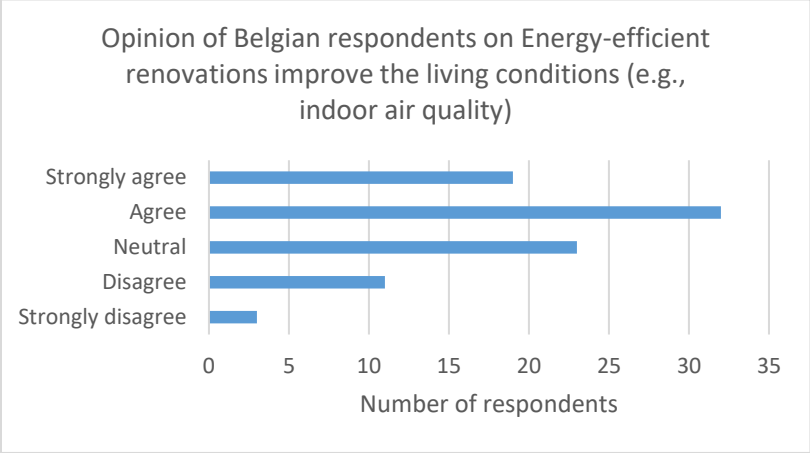


Figure 20:Energy-efficient renovations improve the living conditions (Belgian Respondents)

Similarly, when evaluating whether energy-efficient renovations lead to significant energy savings, 85% provided a neutral to strong agreement score (3–5), with 44% selecting 4 or 5. These results indicate broad but not unanimous recognition of the financial and environmental value of energy improvements, while some uncertainty or scepticism remains among a smaller group.

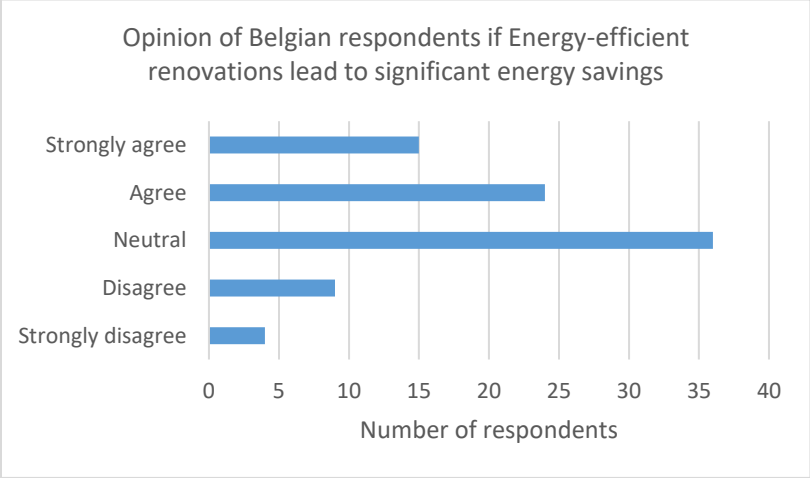


Figure 21: Energy-efficient renovations lead to significant energy savings (Belgian Respondents)

Willingness to Invest in Specific Energy Renovation Measures

In both the Netherlands and Belgium, a clear majority of respondents expressed a willingness to invest in energy renovations for their condominium buildings. In the Netherlands, 82% of respondents (162 out of 197) were willing to invest, while in Belgium, 81% (93 out of 115) indicated willingness. Only 18% in the Netherlands and 19% in Belgium were not willing. These high percentages demonstrate a strong overall interest in energy upgrades across both countries, underscoring the importance of facilitating this willingness through appropriate support measures and financing options.

Among the 162 respondents in the Netherlands and 93 in Belgium who indicated willingness to invest in energy renovations, there is a clear preference for basic energy-saving measures such as replacing light fixtures and upgrading water boilers. In the Netherlands, the top three more advanced measures include

installing energy-efficient windows, roof insulation, and façade insulation, followed by solar panels, ventilation systems, ground floor insulation, and heat pumps.

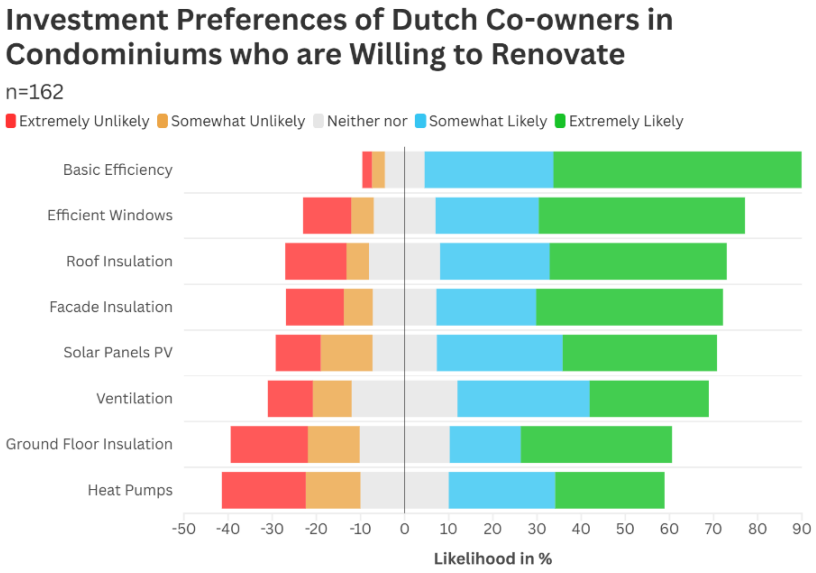


Figure 22: Investment preferences of Dutch co-owners who are willing to renovate

In Belgium, co-owners prioritize roof insulation, energy-efficient windows, and solar panels, followed by façade insulation, ground floor insulation, heat pumps, and lastly, ventilation. These findings highlight both common priorities and country-specific preferences that can help guide tailored renovation support programs.

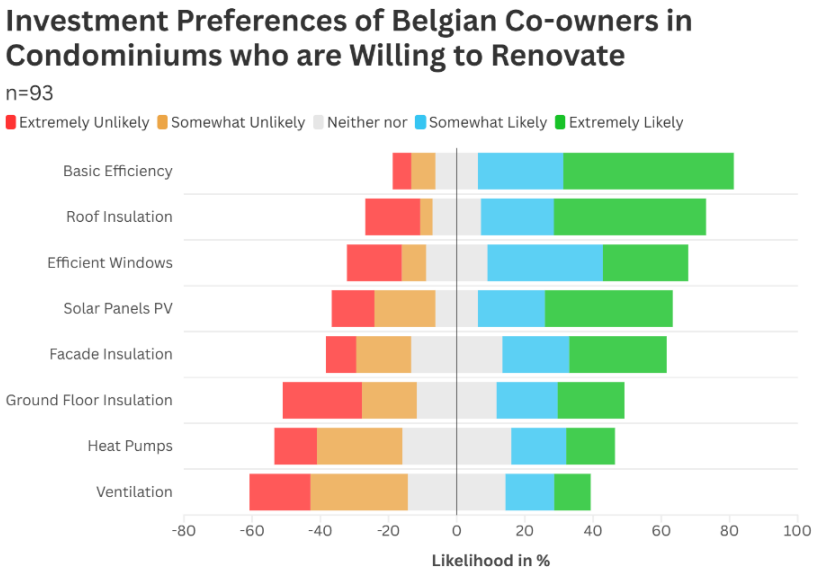


Figure 23: Investment preferences of Belgian co-owners who are willing to renovate

Information Needs by country

Among Dutch respondents, the most frequently requested information concerns **cost and financing options** (23.2%), followed by **available types of renovations** (18.4%) and details on the **renovation process and timeline** (16.2%). Information on **potential energy savings** (16.0%) and **how to organize the CA** (14.1%) were also identified as important. Fewer respondents sought information on **environmental benefits** (10.3%) or mentioned other topics (1.8%). These results highlight that Dutch co-owners primarily need clear, practical, and financial guidance to proceed confidently with renovation plans.

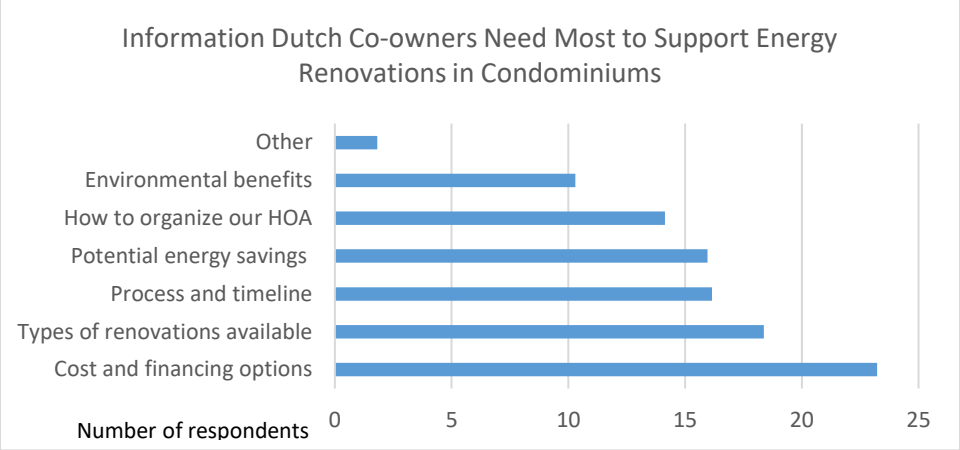


Figure 24: Information needed by Dutch Co-owners

Belgian respondents frequently indicated a need for information about **cost and financing options** (20.7%), followed closely by **types of renovations available** (19.7%) and **potential energy savings** (17.2%). Respondents also highlighted the importance of understanding the **renovation process and timeline** (15.8%) and **how to organize their CA** (15.8%). Interest in **environmental benefits** was somewhat lower (9.4%), and only 1.5% cited other types of information needs. These results reflect a similar pattern to the Netherlands, with Belgian co-owners prioritizing clear financial and technical information, along with organizational guidance.

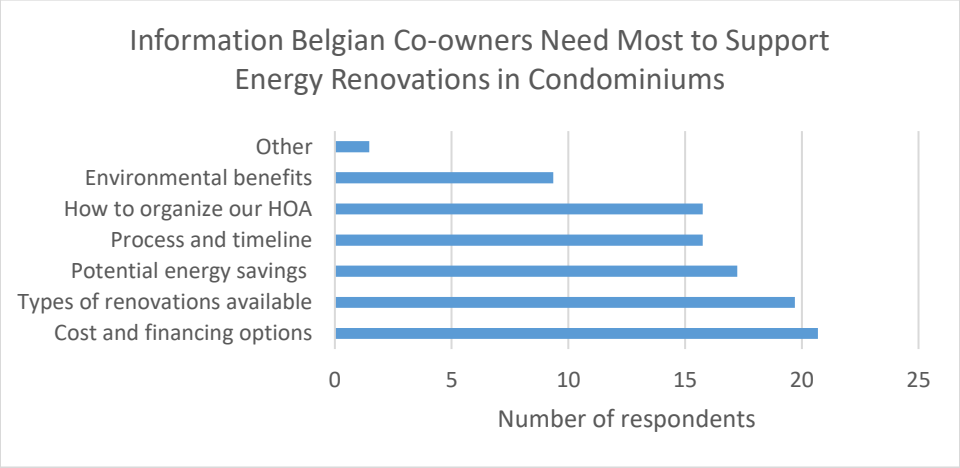


Figure 25: Information needed by Belgian co-owners

Support Needs by Country

Respondents from both the Netherlands and Belgium indicated a clear demand for multiple forms of support to enable energy renovations in their apartment buildings. In the Netherlands, the most frequently selected support needs were financial support (71%), a step-by-step plan (49%), and technical advice (47%). Similarly, Belgian respondents prioritized financial support (70%), technical advice (59%), and legal advice (39%). Notably, Belgian participants expressed a relatively higher demand for legal assistance and support with collective decision-making compared to Dutch respondents. These findings highlight the need for tailored support services, with financial incentives and accessible technical guidance being key across both countries, while Belgian homeowners also require greater help navigating legal and governance-related barriers.

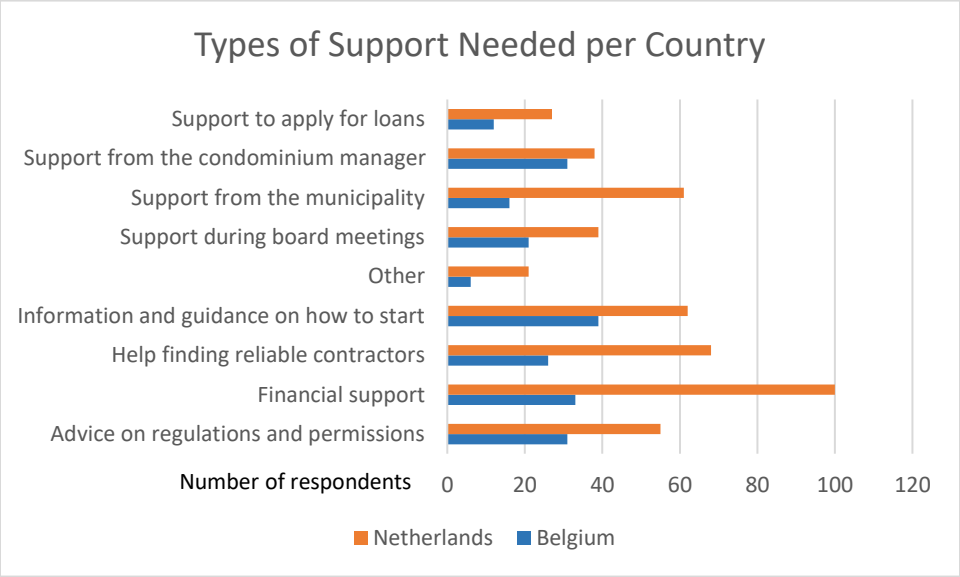


Figure 26: Support needed per country

3.4.2. EU-wide Survey on Energy Renovation

Objective

Understanding the reality faced by private property owners is essential to shape policies and solutions that truly respond to their needs. To help achieve this, the International Union of Property Owners (UIPI), launched a European-wide survey to directly explore what motivates, hinders or drives property owners to renovate their buildings.

This section compiles the responses of 5,540 private property owners across Europe, who shared their experiences, challenges and aspirations related to improving the energy efficiency and sustainability of their homes. Their input offers a clear and direct picture of the residential private sector and its role in Europe's energy transition.

The findings of this survey will directly contribute to the development of replication roadmaps, policy recommendations and project deliverables within multiple EU-funded projects, namely BuildUpSpeed, CrAFt, CondoReno and One Click Reno.

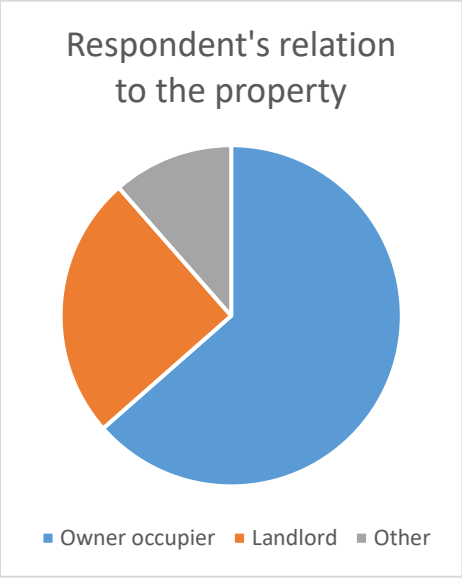
Methodology

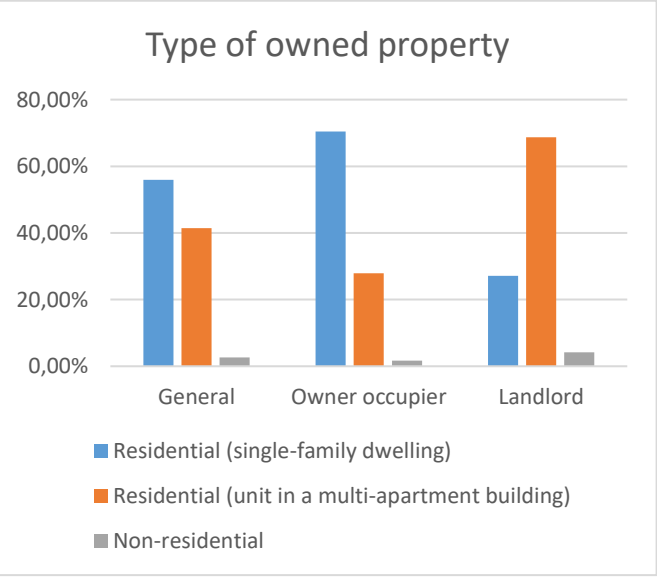
This survey was developed to gather first-hand information from European private property owners about their needs, motivations and barriers when considering or undertaking building renovations. Data was collected over a six-month period from July to December 2024, resulting in 5,540 complete responses from 32 European countries. This broad geographical spread ensures a diverse and representative overview of the European residential landscape beyond the countries directly targeted by CondoReno. The questionnaire included closed-ended questions, primarily in multiple-choice format. Some allowed open-ended descriptions, and others featured a 1-to-5 satisfaction rating scale.

The survey was conducted online through the SurveyMonkey platform and translated into 16 languages to facilitate gathering answers from property owners all around Europe regardless of their knowledge of English. Results were collected mainly thanks to the promotion of the involved projects, UIPI and its national member associations and other EU-level associations and stakeholders.

Results

Most respondents were owner-occupiers (67%) or landlords (26 %), while the remaining 12% identified as representatives of housing associations, building managers, or housing companies. Overall, 56% of respondents reported owning single-family units, with this figure rising to 70% among owner-occupiers, reflecting a preference for individual homes. In contrast, only 27% of landlords own single-family properties, while a significant 69% of them hold units in multi-apartment buildings.





Results reveal owners of multi-apartment buildings largely recognise the value of enhancing their properties' energy efficiency and sustainability (72%) though this figure is slightly lower than the overall survey result (78%). This positive inclination is often followed by action, as almost half (49%) of co-owners have either completed renovations in the last decade or are currently undertaking them, and a further 30% intend to renovate within the next ten years. A clear majority of co-owners, regardless of whether they have renovated, are doing so, or plan to, prefer to execute these works in several steps (66%) rather than one big intervention.

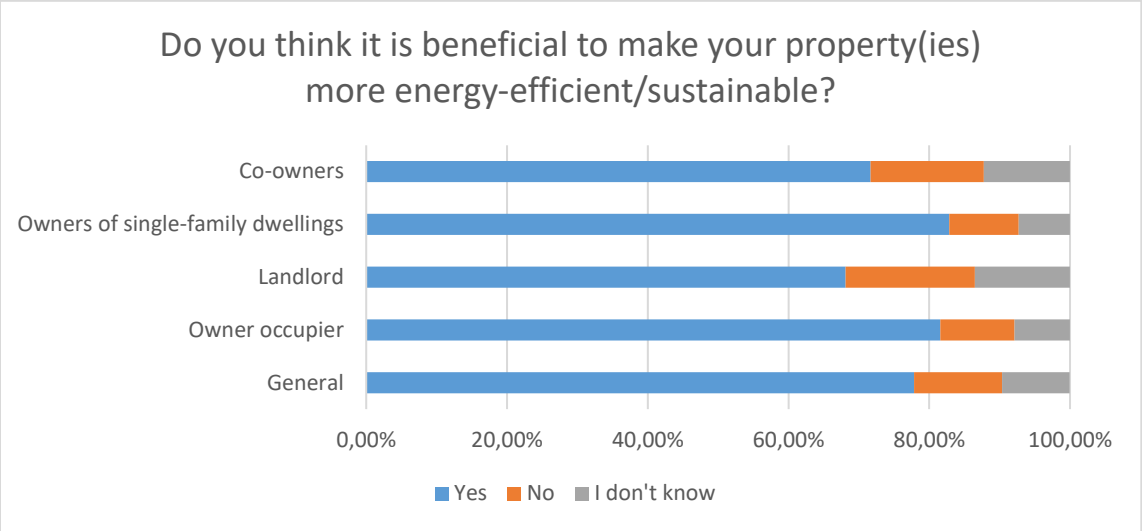


Figure 27: Respondents opinion if energy efficient is beneficial

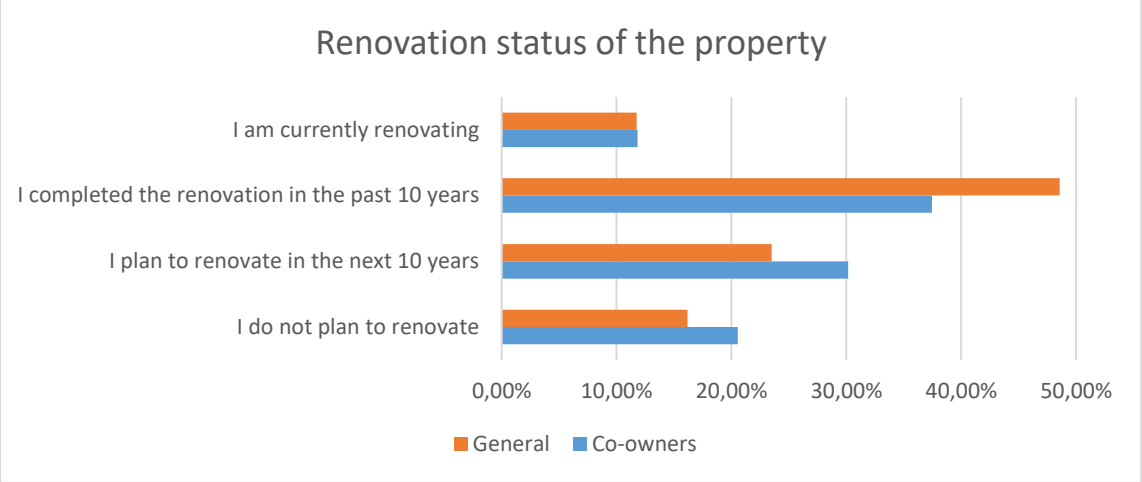


Figure 28: Renovation status of the property

The primary drivers for co-owners to embark on renovations are the maintenance or preservation of their property (55%) and the desire to improve comfort (48%). Interestingly, unlike the general respondents for whom reducing monthly expenses is a stronger motivator, co-owners place a higher emphasis on increasing the property or rental value (43% versus 29% for all respondents), which could be related to a bigger share of co-owners being landlords.

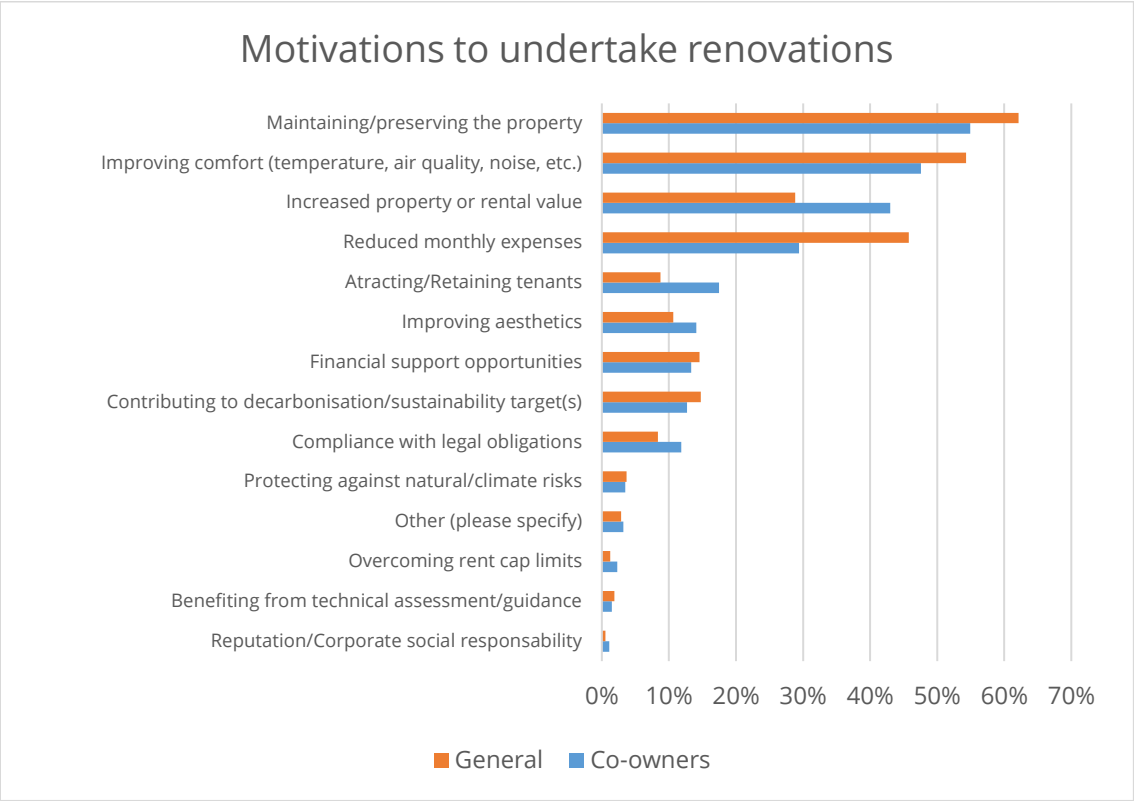


Figure 29: Motivations to undertake renovations

For multi-unit properties, co-owners reported several key positive impacts following renovations. The most frequently mentioned were better comfort (44%), lower monthly bills (43%), and higher property value (43%), all broadly in line with general responses. However, co-owners placed more emphasis on tenant attraction and retention (33% vs 17%) and higher rental income (24% vs 11%), suggesting that renovation is particularly valued in multi-apartment settings for its potential to boost occupancy.

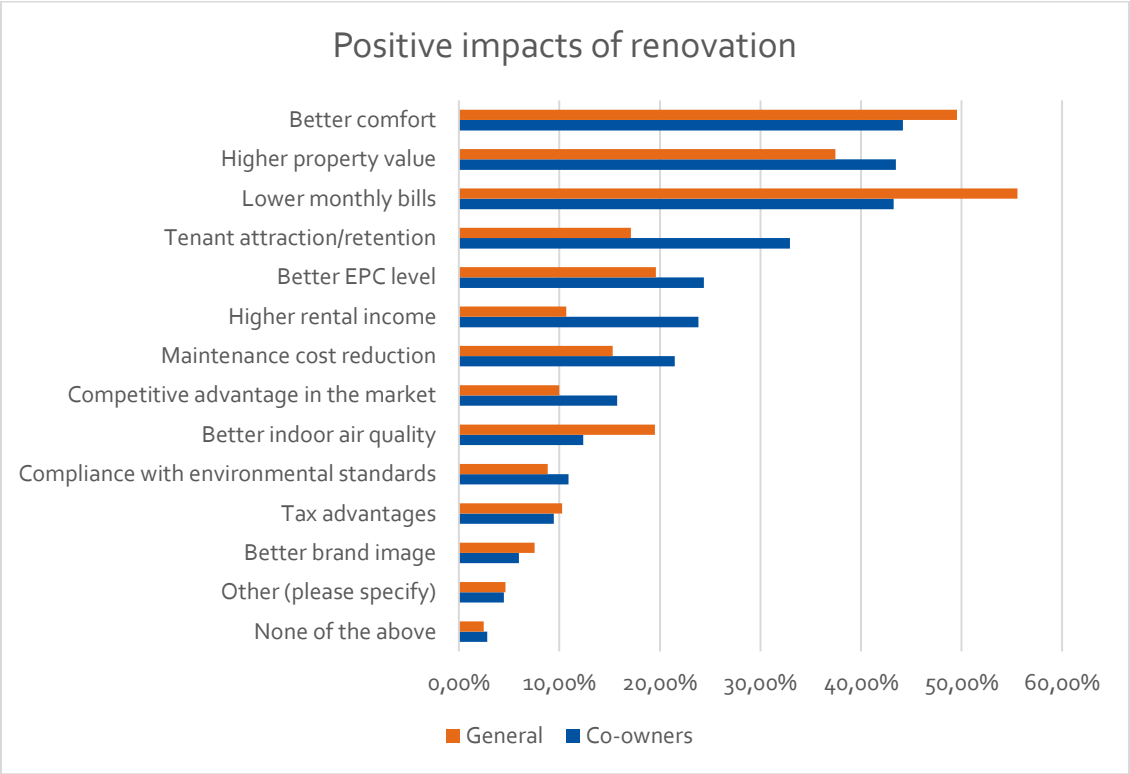


Figure 30: Perception of energy renovation

It is also to be noted that most respondents would be willing to pursue further renovation works after concluding the current ones, either by choice (**29.43%**) or out of necessity (**17.62%**), with similar results for general respondents and co-owners specifically.

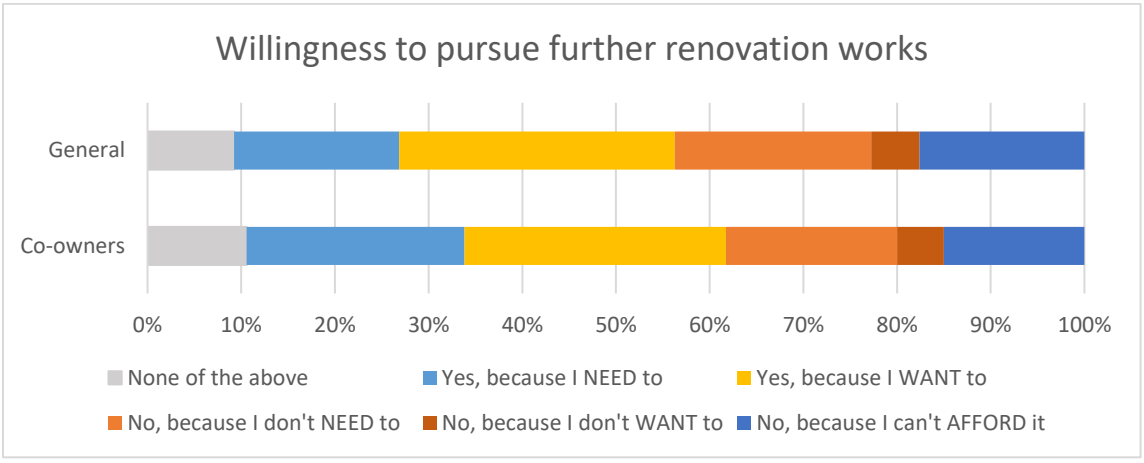


Figure 31: Willingness to purue further renovations

Despite this willingness and the perceived positive aspects of renovation, significant hurdles impede renovation efforts, with financial concerns being paramount. For those planning to renovate, insufficient financial support (35%), a direct lack of financial means (34%), and the perception that renovations are not cost-effective (25%) are major deterrents. These same financial barriers are also prevalent among co-

owners who have no renovation plans, with a considerable 49% believing it is not worth the investment in terms of increased rent, value, or energy savings. Moreover, legal limitations are a more frequently cited barrier for co-owners (21%) than for the general survey respondents (13%). Policy interventions must therefore also address and simplify the specific legal complexities that often encumber condominium renovations.

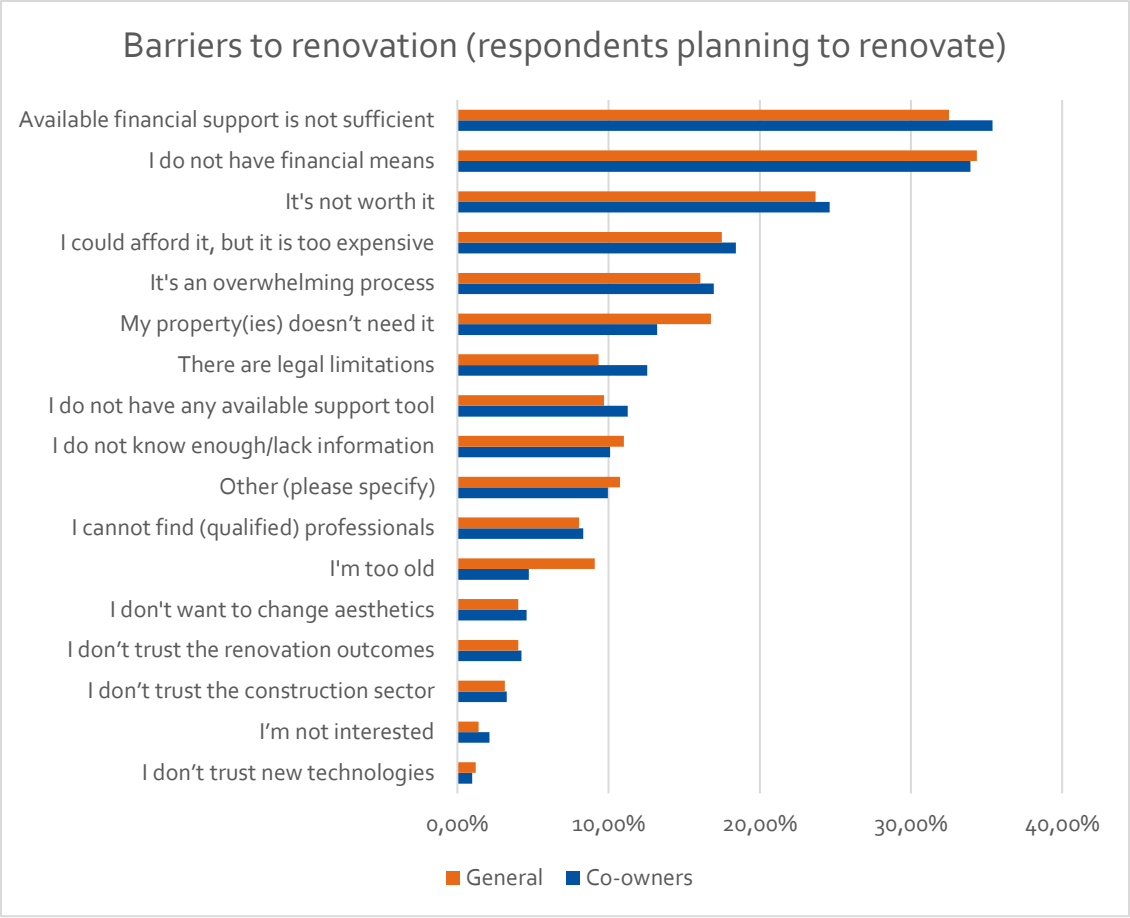


Figure 32: Barriers to renovation (Respondents planning to renovate)

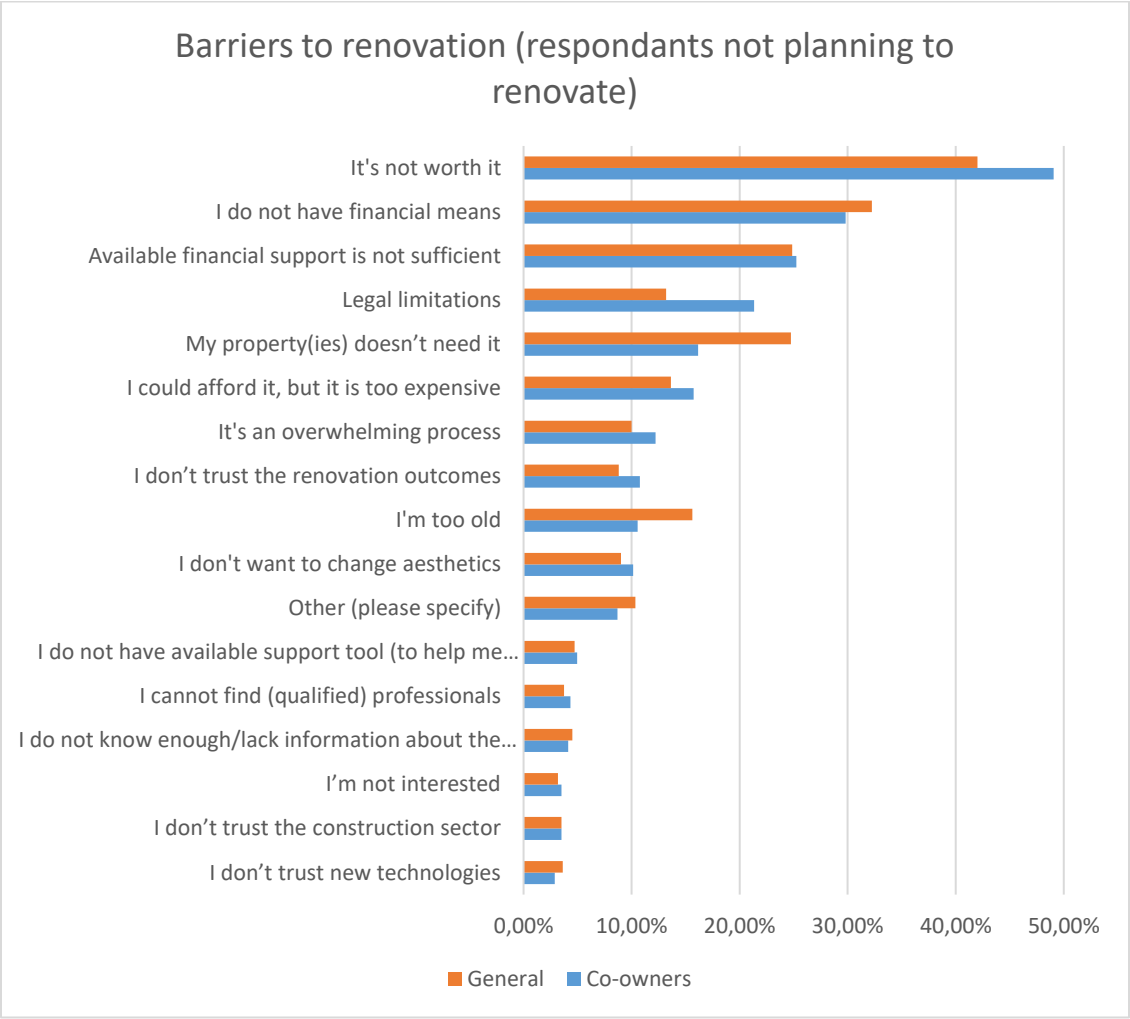


Figure 33: Barriers to renovation (respondents not planning to renovate)

Consequently, the establishment of accessible and adequate financial support mechanisms, including grants and tailored loan schemes specifically designed for multi-apartment buildings, is needed. In this regard, the survey reveals property owners prefer direct subsidies or grants (72%) and tax deduction (51%) over other funding schemes. Loans, regardless of format, remain low in the preference list for both general respondents and co-owners specifically.

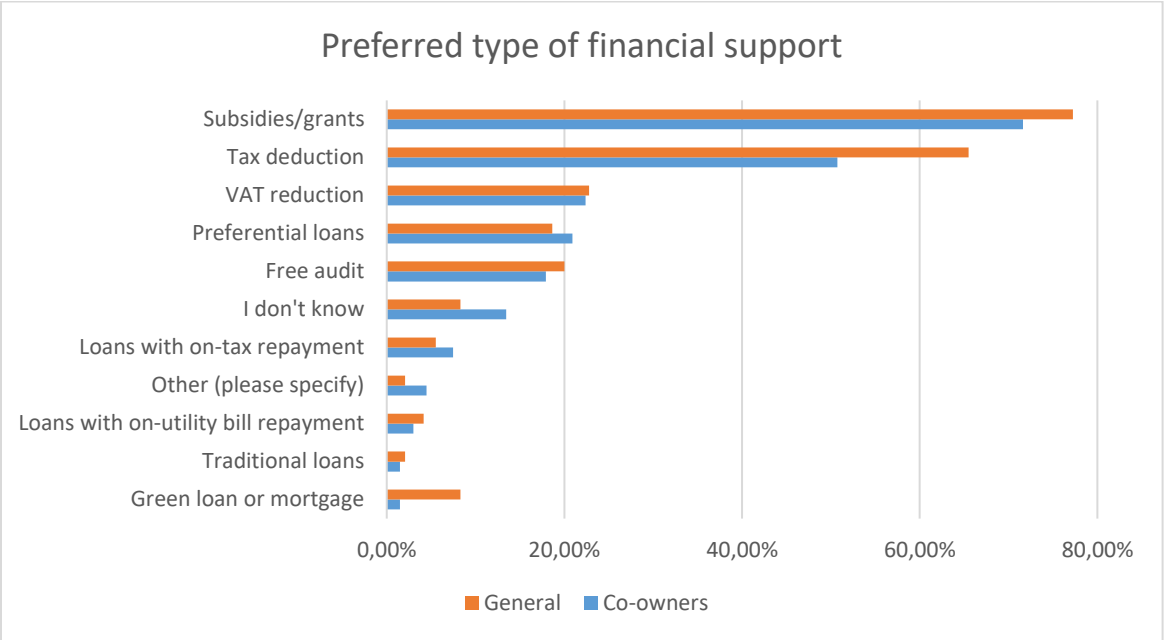


Figure 34: Respondents preferred type of financial support

In terms of guidance and support, there is a considerable gap. Nearly half (48%) of co-owners did not receive any technical or professional guidance for their renovation works. While those who did mostly sought advice before making the decision to renovate (42%), primarily from craftspeople or construction companies (46%), engineers or architects (45%), co-owners were more inclined to consult energy advisors (31%) than the general public.

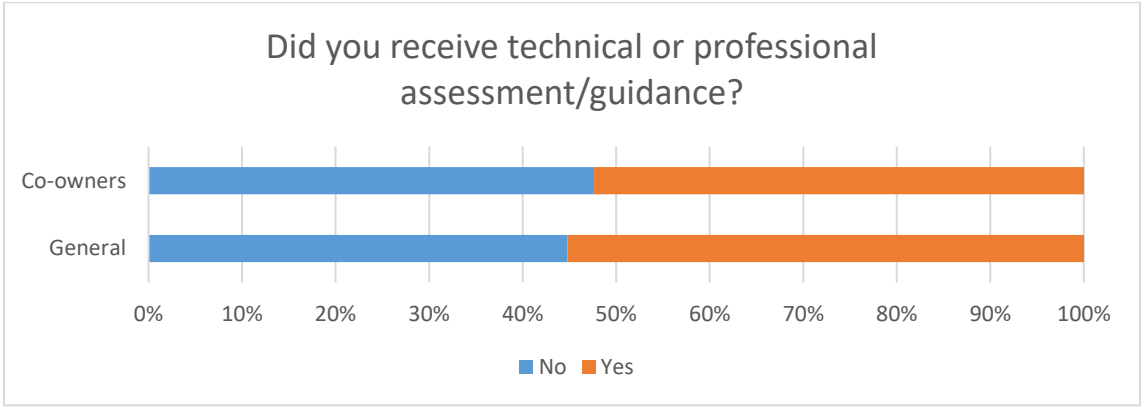


Figure 35: Respondents received technical or professional guidance



Figure 36: Respondents received technical or professional guidance from different stakeholders

Finally, there are unique organisational challenges inherent to condominiums. A substantial majority (81%) of co-owners report that their condominium lacks sufficient funds for renovation. Additionally, 63% felt unsupported by their condominium manager in energy renovation initiatives. Despite these managerial and financial deficits, a large majority (78%) of co-owners believe they receive all essential information about energy-efficient renovation during their co-owner meetings. In the same topic, around 70% of respondents, regardless of grouping, would also be interested in receiving information about renovation from their national, regional or local homeowners' association.

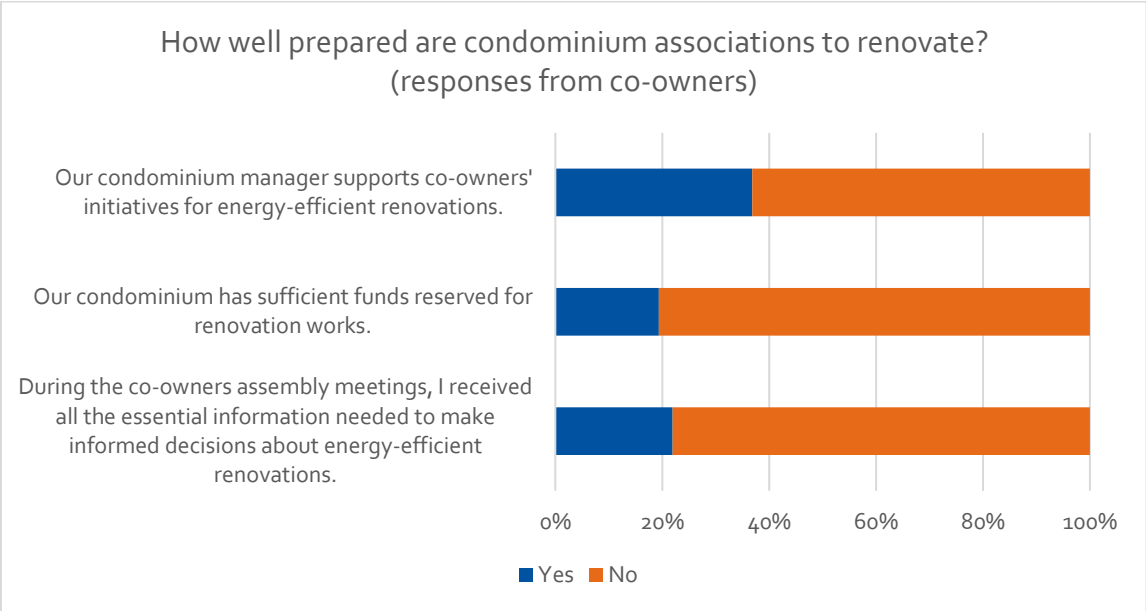


Figure 37: How well prepared is the CA to renovate

On another level, discussions about energy renovations with neighbours remain relatively infrequent. Among co-owners, only 11 % say the topic comes up frequently, slightly more than the general group (8%). Most respondents report discussing it rarely or never (62% in both cases), suggesting that while awareness may exist, energy renovation is not yet a common topic in everyday conversations within residential communities.

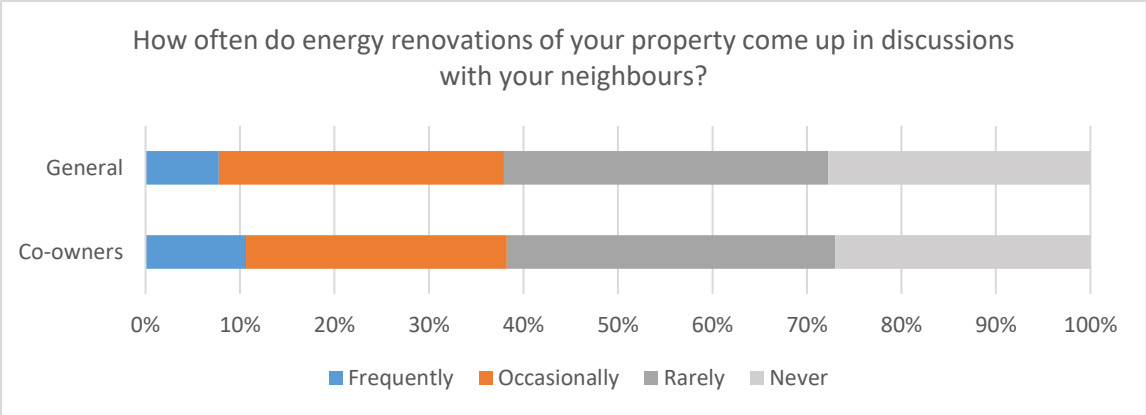


Figure 38: Energy renovation discussions within neighbours

Last, the survey also explored more social aspects by asking respondents whether they see it as their responsibility to contribute to the sustainability, social, and aesthetic quality of their neighbourhood. In this regard, majority of both co-owners and general respondents answered positively (76 of co-owners, slightly above the general 74%), though some are not directly involved in any action.

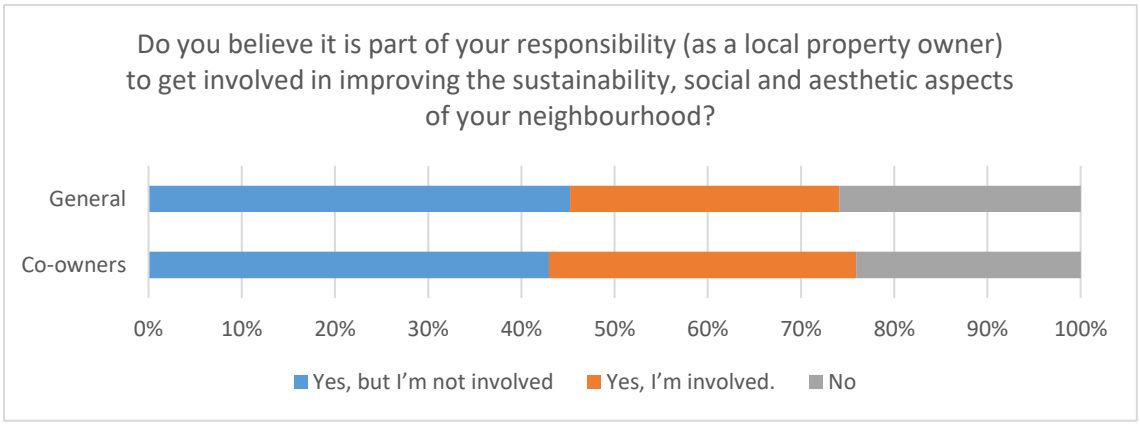


Figure 39: Responsibility perception

All in all, this survey unveils that policies must directly address the structural funding shortfalls prevalent within condominiums to facilitate widespread renovation. There is also a clear and pressing need for initiatives to specifically support and empower condominium managers, perhaps through targeted training programmes or dedicated resources, to enable them to proactively facilitate energy renovation projects. While co-owner meetings are perceived as a vital source of information, this information needs to translate into tangible action, suggesting a gap that policies could bridge by helping overcome the pervasive financial and managerial barriers identified.

3.5 Evaluation of the Business Models of Energy Houses in Flanders

Based on the interview insights and document analysis, we find that the BMs of the energy houses across the three Flemish cities share several core elements, but their implementation varies significantly. These differences are largely shaped by the characteristics of the cases they are involved in, the capacity of their teams, and local contextual factors.

A notable strength across all three cities is the high level of trust they have established with the CAs they support. This indicates the successful development of strong customer relationships, an essential component of a viable service model. The value proposition offered by the energy houses, particularly the tailored support provided through the masterplan, was widely recognized and appreciated by almost all interviewees. However, the high costs associated with comprehensive renovation plans have led some CAs to adopt a phased or step-by-step investment approach. While this makes the process more feasible for co-owners, it also places additional coordination demands on the energy houses.

The communication channels used by the energy houses have proven effective in reaching the more active co-owners within the associations. This is a positive step towards broader engagement, but several interviewees acknowledged persistent difficulties in reaching less involved or disengaged co-owners. There remains a need for strategies that can engage these harder-to-reach groups, particularly in buildings with a high share of absentee landlords or second homeowners.

The revenue streams of the energy houses are currently limited and precarious. They are primarily dependent on tasks assigned by VEKA or on temporary project-based funding (e.g., from CondoReno). This reliance makes them vulnerable to shifts in policy and funding priorities. To ensure long-term viability, alternative or supplementary funding mechanisms should be explored, ideally ones that can support not only the current pilot projects but also expand assistance to new CAs beyond the scope of the masterplan.

Key resources differ significantly between cities. Larger cities benefit from greater capacity (both in terms of personnel and institutional support) which enables them to deliver a broader and more intensive range of services. In contrast, smaller cities often struggle due to limited human and financial resources. Pooling or sharing resources across municipalities could help smaller energy houses overcome these constraints and provide more consistent support across regions.

The key activities of the energy houses are case-dependent but include high-impact efforts such as stakeholder coordination, follow-up phone calls, participation in general assembly meetings, awareness raising and the development of visual and digital tools to enhance co-owners understanding. However, there is a risk of overburdening teams with unstructured, ad hoc tasks. Streamlining these activities and prioritizing those with the highest added value will be crucial to maintaining effectiveness, particularly in municipalities with limited capacity.

Key partnerships, especially with the six VEKA-designated study offices, are essential to the functioning of the energy houses. Nevertheless, expanding the network of trusted service providers could improve flexibility and quality. A matchmaking platform could be developed to connect CAs with vetted contractors, study offices, and other service providers. Such a tool would empower CAs to make informed

decisions based on previous experiences and reviews, while also reducing the dependency of energy houses on a single partner.

Finally, the cost structure of the energy houses remains opaque. Many hours are invested by energy coaches and staff to ensure successful outcomes, but this level of intensive engagement is not sustainable in the long term without structural funding or compensation models. Clarifying the cost structure and developing scalable approaches will be essential to ensure continuity and prevent burnout.

In conclusion, the business models of the energy houses in Flanders, as applied within the masterplan approach, show great promise. With targeted adjustments and further development, they offer a replicable framework that could be scaled across Flanders, Belgium, the Netherlands, and other EU member states.

Evaluation of the Public-Led IHRS Model in Flanders Against Viability Criteria

1. Financial Stability

The financial viability of the public-led IHRS model remains a core concern. Nearly all activities are funded through VEKA or municipal subsidies, with no evidence of revenue generated directly from services provided to CA. Most of the financial input into these services originates from public sources, raising questions about long-term sustainability and resilience to policy shifts. Furthermore, no concrete strategies for revenue diversification were observed across the energy houses. While the model achieves considerable public value, its full dependency on structural subsidies exposes it to fiscal risk and limits its scalability.

2. Adaptability and Flexibility

The model's ability to respond to changing circumstances is limited. There are very few alternative stakeholders or resources available when critical roles (such as coordination or communication facilitation) are not fulfilled. The success of many renovation trajectories hinges on the presence of motivated individuals within the CA, rather than system-level redundancy or flexibility. Although some adaptations were observed (e.g., adjustments to renovation phasing), they were generally reactive and unstructured. There is no formal contingency framework to deal with stakeholder withdrawal, internal conflict, or stalled processes. This lack of institutional flexibility is a major barrier to replication and durability.

3. Customer Focus and Value Proposition

Customer-centricity varies widely across cases. Some energy houses engage co-owners effectively through general assemblies and informal consultations, while others lack consistent touchpoints. Many co-owners misunderstood the value proposition of the IHRS model, expecting execution support or full project management beyond the masterplan phase. The value is perceived most clearly by board members or those with prior technical experience; less engaged or more vulnerable residents often remain confused or skeptical. Satisfaction with communication and support is highly variable. In the most

successful cases, residents emphasized the presence of a clear, trusted intermediary, but such quality of interaction is not systematized across the model.

4. Creation of Innovative Financing Solutions

There is little evidence of embedded financial innovation within the Flemish public-led IHRS model. Collective or cost-neutral financing models were rarely observed in the analyzed case studies, and no consistent mechanisms were found to assist CAs in navigating group financing, leveraging building-wide loans, or securing guarantees. While some co-owners explored third-party financing (e.g., roof expansions or staged investment), these efforts were isolated and not integrated into the IHRS structure. Financial instruments currently remain fragmented and poorly suited to the collective nature of CAs, especially when considering internal income disparities among residents.

5. Support by Digital Tools

Digital tools are used inconsistently across the Flemish IHRS ecosystem. Some study offices use EPC+ reports and scenario visualizations to present renovation pathways, but there is no shared or standardized toolkit across cities. Many advisors report that tool use is hampered by limited training, time, or technical compatibility. Usability feedback from staff and co-owners remains undocumented, and there is no centralized system to evaluate tool performance or support cross-case learning. The lack of a unified digital platform undermines both internal efficiency and external transparency, particularly during scenario presentation and decision-making phases.

6. Operational Efficiency

Operationally, the model is constrained by limited staff capacity and underdeveloped support structures. Planned timelines are often not met, due to slow decision-making within CAs or legal complexity around voting thresholds. Buildings with large and diverse resident bases (particularly those with elderly, absentee, or second-home owners) overwhelm the available human resources in energy houses . Feedback from both professionals and residents indicates that coordination is burdensome, with unclear task allocation and little redundancy. Without more robust staffing, clearer workflows, and permanent project coordination roles, operational efficiency will remain a bottleneck in delivering on the IHRS value proposition.

3.6 Evaluation of the Business Model of the Private IHRS in the Netherlands

The interview with WNR reveals the complexities and barriers in delivering private, integrated renovation services for CAs. It highlights:

- The need for hybrid business models to scale operations while accessing funding.
- The importance of process guidance subsidies to support small-to-mid-sized CAs.
- A preference for holistic, one-time renovations over phased approaches for clarity and efficiency.
- The potential of community-building activities and trust as a foundation for engagement.
- Support for policy models like VEKA's, which combine public coordination with private implementation.

Based on the interviews and supporting document analysis, the BM of WNR demonstrates a valuable and forward-looking proposition for CAs in the Netherlands. Central to WNR's value proposition is the concept of "living cost-neutral" renovations combined with high quality assurance. This compelling offer has been positively received by many stakeholders.

WNR distinguishes itself from competitors by prioritizing quality and integrated support throughout the renovation journey. However, this emphasis on quality often can result in higher costs than other market actors offering lower-cost, lower-quality services. This trade-off poses a challenge in a market where many CAs are price-sensitive and not always fully aware of the long-term value of quality assurance.

Similar to public IHRS providers in Flanders, WNR primarily engages with the motivated co-owners or board members within CAs, the early adopters. While this is a logical entry point, it remains difficult to engage broader groups within the association, including disengaged co-owners and social housing corporations. This is particularly critical in the Dutch context, where approximately 50% of CAs include social housing providers as significant stakeholders. As observed in Case Study 8, the presence of a social housing company can significantly influence decision-making processes and renovation outcomes.

WNR has built strategic collaborations with municipalities, using public events to reach CAs. However, stronger partnerships with public sector actors (such as housing corporations, policy bodies, or funding agencies) are still limited. Case Study 7 highlighted the risks of misalignment with public partners: a municipality-driven ambition to make a CA gas-free, backed by a specific budget, led to tensions and ultimately eroded trust in the process. This situation consumed significant time and resources on WNR's part without yielding results, underscoring the importance of managing external expectations and ensuring co-ownership of the renovation path by the CA.

Despite these challenges, WNR has demonstrated strong and consistent customer relationship practices. In Case Study 8, WNR continued to provide tailored advice and support even before securing financial compensation—reflecting a deep commitment to customer care but also exposing vulnerabilities in its revenue model. To address this, WNR is exploring new service offers and pricing strategies, as noted by interviewee EI-21, aiming to create a more sustainable balance between free advisory services and paid renovation phases.

In terms of key resources, WNR has faced constraints—particularly limited access to data (e.g., local building stock or ownership information) that could help identify early adopter CAs more efficiently. Nonetheless, WNR has made significant investments in tools, including tailored financial calculators, guidebooks, and visual communication materials. These tools play a crucial role in conveying complex renovation strategies in a clear and accessible way and represent the type of upfront investment typical of young businesses aiming to scale in a challenging market.

WNR's activities span beyond project delivery. They actively participate in public symposiums, industry events, and educational workshops to showcase their approach and remain aligned with policy developments and market trends. However, the early project phases (such as raising awareness, conducting needs assessments, and building trust) are resource-intensive and revenue-light. As also observed in Case Study 7, WNR's presentations did not evolve significantly over time, which some co-owners interpreted as a lack of responsiveness. In reality, this reflects the constraints of operating as a

mission-driven, non-profit organization that cannot always afford to tailor support without a clear pathway to funded implementation.

WNR partners with a wide network of technical and implementation actors, including architects, contractors, and energy experts. However, partnerships with public actors such as housing corporations or regional support agencies are still underdeveloped. Building more robust cross-sectoral collaborations could enhance their capacity to deliver value while aligning more closely with national and local policy goals.

Finally, WNR's non-profit status adds both opportunities and limitations. While it enhances credibility and mission alignment, it also makes the organization reliant on project-based funding or volume-driven revenue. Without sufficient market growth or policy incentives that reward quality assurance and holistic renovation support, WNR's financial sustainability remains fragile.

In conclusion, WNR's BM offers a highly promising and replicable approach, particularly in its emphasis on quality, integrated support, and customer trust. However, for such models to thrive and scale, they require enabling conditions: predictable funding streams, supportive policies, stronger public-private partnerships, and better data infrastructure. With these in place, private IHRS providers like WNR can play a central role in accelerating deep energy renovations in the Dutch condominium sector.

Evaluation of the Private-Led IHRS Model in the Netherlands Against Viability Criteria

1. Financial Stability

WNR's own view: WNR currently operates as a non-profit and expresses concerns about long-term financial sustainability: EI-21 mentioned "It's hard to get this financing part in place." "We did the x case without any costs, we financed it partly through CondoReno." E-21 stated that they are still waiting for some revenues from previous projects "We are still waiting… from TUD. We did the work in 2020–2021. It's now 2025."

Their funding is fragmented and delayed, affecting operational stability. This is especially risky in small organizations: "That's very hard for a small organization like ours."

Case study 8 evidence: WNR continued providing services even before homeowners paid for them. The process dragged on for years before the CA started paying monthly: EI-21 mentioned, "Since March this year, they have to pay every month."

This signals a financially generous but vulnerable model, where recovery of costs depends heavily on homeowner trust and case-by-case negotiations.

2. Adaptability and Flexibility

WNR's model: WNR offers two payment models (fixed price or monthly billing) and adjusts to client preferences: EI-21 stated "Some clients don't want that model… They prefer a fixed-price setup."

They are also considering a hybrid structure with both nonprofit and for-profit arms: "We'd just have it under another entity… so it's easier to create a marketing or communication plan and ask for funding." Stated by EI-21

Case study 7 evidence: WNR adapted by providing near-free services due to what they saw as an "ideal" case and a municipal agreement that later fell through: EI-21 said, "That's why we did it for free—or almost free." EI-21 added "They got scared—it was going too fast."

Their flexibility is commendable but comes at the cost of financial predictability, especially when CAs back out unexpectedly.

3. Customer Focus and Value Proposition

WNR's approach:

WNR's value proposition lies in offering an integrated, end-to-end renovation model, not just feasibility, but support through execution: EI-said, "We stay close to the condominium association until the end." EI-21 added, "It's quite easy to convince people that it's better to take a holistic approach and consider everything."

They also focus on community trust-building, for example: EI-21 mentioned that "We're having a barbecue in September… that's where we'll present some ideas."

Case study 8 feedback: The board appreciated WNR's close involvement and the time they invested in informing both co-owners and tenants, including social housing residents.

But it also became clear that some co-owners were overwhelmed and wanted to move at a slower pace, suggesting a gap in alignment with customer pacing in certain contexts.

4. Creation of Innovative Financing Solutions

WNR's innovation efforts:

They are working toward living-cost-neutral renovations and exploring phased payment models: EI-emphasised "If it was cost-neutral, they would get subsidies."

They also advocate for performance-based public subsidies: EI-21 mentioned, "It's better if you help with the process guidance and give a reward at the end."

Case study 7 evidence: Although cost-neutrality was achieved technically, WNR couldn't secure co-owners commitment due to decision-making risks: "It was still living cost neutral. That should have been a reason they couldn't back out." EI-21 stated. "They got scared it was going too fast."

5. Support by Digital Tools

WNR acknowledges that they do not yet have digital tools to support KPIs or monitoring:

"We haven't finished any projects… We can't prove anything here."

WNR uses some tools that they have developed to do tailored calculations for CAs but it is still excel based and can be further developed to a tool that can also be used by co-owners, since it can only be used now by users with technical background.

6. Operational Efficiency

WNR follows a standardized step-by-step plan for every project, enabling them to reuse processes and lower transaction costs: "We developed this step-by-step plan, and that's where we always start." EI-stated.

However, their current project delivery is very time-intensive and highly dependent on interpersonal trust and board engagement: “It takes a lot of time to convince people, to get them involved in the process.”

Case study 7 and 8 both confirm this: Processes lasted multiple years.

Board turnover or low attendance slowed down decision-making.

No projects were completed after 5 years, which limits learning loops and scaling.

4. Discussion – Business Model and Policy Recommendations

To improve the effectiveness and long-term viability of public-led integrated home renovation services (IHRS) for condominiums, this section synthesizes key business model development recommendations. These are grounded in a comprehensive analysis that combines empirical insights from five case studies across Mechelen, Ostend, and Antwerp — drawing on interviews with homeowners and stakeholders — with the findings of Work Packages 3, 4, and 5. The document analysis helped trace the implementation pathways, tools developed, and operational choices made by the business model owners, while the interviews captured end-user experiences and perceived gaps in delivery. Together, they highlight the systemic and case-specific challenges faced by public IHRS providers and inform opportunities for strategic improvement. The recommendations are organized according to the Business Model Canvas, addressing value proposition, customer segments and relationships, channels, key activities, resources, partnerships, revenue streams, and cost structure.

4.1 Business Model Development Recommendations for Public-Led IHRS

1. Value proposition

- **Extend service scope beyond the masterplan.**
  Across nearly all cases, co-owners expressed how satisfied they were with the masterplan. However, they have also expressed uncertainty after the plan delivery, on what will happen next. Public-led IHRS should be reframed not just as a planning advisor but as a **long-term renovation partner**, guiding CAs from diagnosis to implementation. This can be done by collaborating with the necessary partners and the use of digital tools and matchmaking platforms like CoachCoPro and Qualitätsplattform Sanierung platforms where they link all actors of energy renovations.

“We expected the engineering firm to oversee the entire project, but later realized they were mainly providing studies rather than execution support.”

- **Reinforce the neutrality and credibility of the public actor.**
  The Energy House’s **non-commercial positioning** is a strong trust signal. This should be emphasized in all communications and engagement strategies.

“They are not there to make profit. That gives them credibility and trust.”

- Emphasize that the value proposition should **clearly communicate what is and isn’t included** at each stage, as confusion around roles emerged both in documents and interviews.

- Extend the value proposition to **include phased renovation roadmaps**, risk assessments, and decision-making support tools.

2. Customer Segments

- **Segment service delivery by Building and co-owners.**
  Adapt services based on:
  - Building size and legal complexity
  - Owner occupancy vs. investors/second-home owners
  - Level of technical, organizational, financial, and social capacity within the CA
  - Socioeconomic and generational composition of owners
- **Tailor to financially vulnerable co-owners at risk of displacement.**
  In several buildings, residents voiced concerns that rising renovation and maintenance costs would force vulnerable co-owners to sell or leave. These include elderly co-owners on fixed incomes, low-income families, and individuals who already face energy poverty. IHRS should:
  - Identify these groups early through financial diagnostics
  - Design inclusive financing mechanisms that prevent forced sales
  - Communicate clearly and empathetically about cost phasing and support options

"Some residents said they would have no choice but to sell their apartments because they couldn't afford the costs."
"We have some older people who just don't want to go into more costs… they might end up having to leave."

- **Address generational and income-based differences.**
  Younger owners tend to be more future-oriented and willing to invest, while older owners are cautious or hesitant. Messaging and engagement strategies should acknowledge these different starting points.

"They think, 'We don't know how much longer we have to live… for us, we don't need it.'"

3. Customer Relationships

- **Shift from top-down information to participatory co-design.**
  In several cases, co-owners felt overwhelmed or disconnected from decisions. A co-creation approach, where owners are gradually involved in shaping the options, builds stronger commitment.

"If you're part of constructing the plan, you understand it. But if you only see the output, it can be overwhelming."

- **Offer decision-support and change management tools.**
  Provide emotional support, simplified visuals, peer stories, and cost/benefit framing, particularly helpful in mixed or elderly groups.

"Some people are still reluctant... they don't really see the need for any works."

- Institutionalize the role of a **renovation coach or coordinator** to stay with the CA across multiple phases.
- Offer long-term advisory packages with **check-ins after the masterplan**.
- Recognize and formalize the role of **motivated co-owners** or "internal champions."

4. Channels

- **Use general assemblies as structured engagement moments.**
  Ensure Energy House/study offices co-present during key meetings, and provide simplified material to accompany technical reports.

"The city gave a presentation, which was very well done… until now, it's 100% good."

- **Develop a multi-channel engagement flow.**
  Use a mix of:
  - On-site meetings
  - Clear follow-up emails with visuals
  - Short videos explaining the renovation plan
  - Phone/online Q&A sessions for hesitant or absent owners
- **Create an online project dashboard for each CA.**
  A secure digital environment could include progress updates, FAQs, feedback loops, and contact persons, helping reduce confusion and keep absentee owners informed.

Support communication through **local intermediaries** (neighborhood advisors, social housing partners).

WP5 recommends the creation of **project dashboards** (some were piloted but underused), supporting the call for clearer, ongoing digital communication.

5. Key Partnerships

- **Clarify roles between the architect/study office and Energy House.**
  When responsibilities were blurred, trust eroded. Create a **joint presentation protocol**, so all experts present a united vision.

"It felt like we had to choose between two competing visions."

- **Address the syndic gap.** Most syndics (CM) are underqualified and uninterested in coordinating renovations. IHRS could:
  - Offer certified renovation coordinators (external or in-house)
  - Provide syndic training focused on renovation governance
- Include syndic in the partnership structure and explore **training or incentive models**.
- Create regional learning networks for peer-to-peer exchange among CAs, architects, and coordinators.

6. Key Activities

- **Support procurement and implementation.**
  CAs struggle with technical specifications, contractor selection, and pricing. IHRS should:
  - Create pre-vetted contractor pools
  - Offer tender templates
  - Provide reference pricing for common works

"Only one contractor gave a quote… and it was extremely expensive."

- **Facilitate scenario planning and decision roadmaps.**
  Owners requested phased options, practical priorities, and more actionable content in masterplans.
- Add **process facilitation**, co-owner engagement support, and syndic alignment to core activities.
- Standardize tools for presentation of scenarios, financing options, and legal implications.
- Establish a structured **handover process to the execution phase** (e.g., to architects or banks).
- Include **monitoring and evaluation mechanisms** as a formal IHRS activity

7. Key Resources

- **Professionalize the role of 'trusted advisor'.**
  In all cities, success hinged on the presence of a motivated intermediary. Secure budget to hire or train full-time coordinators with social, financial, and technical literacy.
- **Centralize tools and templates.**
  Equip CAs with:
  - Communication templates (flyers, slides, summaries)
  - Visual phasing plans
  - Financial scenario calculators
  - Legal FAQs
- Expand capacity through **trained renovation facilitators** and legal-financial experts.
- Fund full-time project coordinators at energy houses or municipalities.
- Provide digital infrastructure for communication and tracking across multiple stakeholders.

8. Revenue Streams

- **Secure public funding to provide full project support.**
  Co-owners expect the Energy House and IHRS to guide them not only through planning, but into implementation. Extend subsidies or create service fees to fund this extended scope.
- **Introduce optional service tiers.**
  Consider a base (free) advisory service + a paid project coordination service, with fees shared by the CA and covered partly through renovation subsidies or grants.
- Consider linking service quality to staged disbursement of public funds

9. Cost Structure

- **Allocate budget for post-study project coordination.**
  Study offices and municipalities both flagged this as a missing but critical component. Without coordination funding, projects stall after the masterplan.
- **Budget for engagement, not just engineering.**
  Effective renovation requires strategic communication, conflict mediation, and educational outreach. These costs need to be explicitly included in service design.
- Use project-based funding to hire external coordinators where internal capacity is lacking.

Summary of the business model development recommendations

Building block	Recommendations
1. Value Proposition	Extend the service scope beyond the masterplan; support CAs from diagnosis to implementation.

	Emphasize the neutral, non-commercial nature of public actors as a trust asset. Clearly communicate what is and isn't included at each stage of support. Include phased renovation roadmaps, risk assessments, and step-by-step decision support. Offer tailored, low-threshold services for vulnerable or low-income CAs.
2. Customer Segments	Recognize differences between small, inactive CAs and larger, motivated ones. Segment CAs based on building typology, ownership mix (private vs. public), and financial vulnerability. Provide specific support to board members, as they often act as process leaders. Address the needs of passive owners through simple and repeated messaging. Acknowledge the dual role of social housing companies as co-owners and influencers.
3.Customer Relationships	Build long-term engagement, not just technical advice relationships. Ensure consistency by assigning a dedicated point of contact for each CA. Actively support the preparation of General Assemblies (timelines, votes, visuals). Set clear expectations for follow-up after masterplan delivery. Reinforce trust by remaining transparent about support limits and roles.
4. Channels	Use Energy Houses and municipalities as trusted local intermediaries. Offer in-person workshops, home visits, and collective info evenings to improve engagement. Deliver visuals, simplified plans, and multilingual communication to reach diverse co-owner groups. Coordinate communication between study offices, CAs, and local governments. Ensure regular and predictable touchpoints before and after GA meetings.
5. Key Partnerships	Maintain close collaboration between VEKA, municipalities, Energy Houses, and study offices. Involve CA boards early and co-develop decisions with them. Coordinate with building managers to align technical advice with legal/administrative steps. Establish links with financial actors (banks, regional subsidy channels) to ease financing. Collaborate with educational institutions to share knowledge and tools.
6. Key Activities	Deliver technical and financial feasibility studies (masterplans). Support planning and execution with step-by-step coaching. Facilitate decision-making through GA preparation, coaching, and presentation support. Organize collective info events or workshops tailored to local housing types. Offer monitoring tools post-renovation to evaluate impact and satisfaction.
7. Key Resources	Skilled advisors who combine technical, financial, and social skills. Local Energy Houses acting as trusted, accessible hubs. Standardized masterplan templates, visual materials, and phased planning tools. Data and case study library to inform future CAs and improve replication. Public funding to ensure affordability of early-phase services.
8. Revenue Streams	Public funding covers most or all advisory services (non-commercial model). Consider small co-financing by CAs to strengthen commitment, with sliding scale for income level. Explore regional or national funding to expand scale of service delivery. Investigate EU co-funding or intermunicipal partnerships for replication. Keep service free or low-cost to avoid excluding vulnerable CAs.
9. Cost Structure	High labor cost for deep, personalized support over long timeframes. Administrative burden of coordinating across many small, inactive CAs. Cost of coordination among multiple public actors (VEKA, study offices, municipalities). Investment in materials, templates, and training for consistency and scale. Potential inefficiencies if CAs drop out or do not follow through after masterplan phase.

Table 14: Summary of Public IHRS Business Model Recommendations (by Business Model Canvas Block)

Table 15 summarizes what currently works well in the public approach and what is still missing to enhance its viability.

Summary of the Public-led business model Viability analysis

Viability Criteria	What works well	What needs attention
1. Financial Stability	Services are largely funded by public actors (VEKA, municipalities), reducing barriers for CAs.	Lack of structural, long-term funding to ensure continuity after the masterplan phase and to scale support across more CAs.
2. Adaptability & Flexibility	Masterplans allow for technical phasing and prioritization of works.	Services are not yet modular or adaptive to different CA speeds, governance capacity, or urgency levels.
3. Customer Focus & Value Proposition	Public actors are perceived as neutral and trustworthy, which builds credibility.	Value proposition is unclear to many CAs; limited support after plan delivery leads to confusion and disengagement.
4. Innovative Financing Solutions	Energy houses and study offices help identify subsidies.	No integrated financial advisory; limited pre-financing or bridging solutions for vulnerable CAs.

5. Support by Digital Tools	Use of templates and structured reports for masterplans.	Lack of interactive digital tools to track progress, communicate with residents, or manage renovation phases.
6. Operational Efficiency	Partnerships between VEKA, study offices, and municipalities allow for knowledge exchange.	Variation in tools, formats, and advisor capacity between regions; no standardized or streamlined delivery process.

Table 15: Viability Assessment – Public IHRS (Flanders)

4.2 Policy Recommendations to Strengthen Condominium Renovation in Flanders

Grounded in the VEKA interview, the six case studies, and Work Packages 3–5, the following policy recommendations are structured under six core themes:

1. Governance and Stakeholder Coordination

Problem: Roles between study offices, energy houses, municipalities, and CM are often undefined or inconsistent.
Recommendations:

- Define a **Flemish-wide protocol** for IHRS delivery: who does what, when, and how.
- Institutionalize the role of a **"renovation coach"** or building coordinator to ensure continuity from planning through execution.
- Encourage municipalities to provide **centralized contact points** for multi-stakeholder projects.

2. Financial Instruments and Equity

Problem: Existing financial instruments are fragmented and insufficiently tailored to collective ownership contexts.

Recommendations:

- **Develop building-level financing instruments** (e.g., collective loans or pooled subsidies) to complement or replace individual, income-based grants.
  → Interviewees consistently reported that current financial tools are mismatched for condominiums.
- **Pilot capped-cost and means-tested contribution models** where vulnerable owners can be protected from forced sales due to high renovation costs.
  → Some co-owners explicitly feared displacement.
- **Align EPC+ loan instruments** with the IHRS so that financing and technical planning can occur in parallel, not sequentially.
- Design **means-tested grants and affordable loans** to protect vulnerable co-owners from displacement.
- **Ensure Equal Access to Financial Instruments for Apartment Owners**
  To avoid structural discrimination between housing typologies, financial instruments for energy renovations should offer co-owners, particularly those in condominiums, the same advantages currently available to owners of single-family homes.

3. Process Facilitation and Support

- **Fund a network of certified renovation coordinators** who are trained to handle multi-stakeholder projects in collective housing.
  →Case studies revealed that motivated CAs had engaged intermediaries, often informal or unpaid.
- **Mandate post-masterplan engagement tools** (e.g., simplified phased roadmaps, legal checklists, visual summaries) for all publicly supported IHRS models.
  → co-owners were often left with overly technical documents that did not translate into decisions.
- **Introduce 'light legal scaffolding'** for co-decision-making tools within CAs, allowing the integration of expert recommendations without overriding autonomy.
- Introduce **check-in milestones** and staged deliverables across the full renovation trajectory.
- Ensure that study offices, syndic, and energy houses have clearly defined **handover protocols**.

4. Quality Assurance and Replication

Problem: There is no systematic way to track what happens after the masterplan is delivered.

- **Create a central quality assurance protocol** for study offices and renovation coordinators working with IHRS.
- **Standardize diagnostic and reporting templates**, including financial scenarios and cost-benefit visuals.
  → Co-owners want clearer, comparable output to base decisions on.
- **Enable learning cycles across cities** by hosting annual IHRS learning forums supported by VEKA.
- Fund the creation of a **monitoring system** to track uptake, works, and outcomes of masterplans across Flanders.
- Develop **feedback loops** from executed projects to refine templates, cost estimates, and service design.

5. Syndic Engagement and Reform

- **Reform the regulatory framework for syndic** to require basic renovation coordination training and increase transparency obligations during major works.
  → Most syndics are unmotivated or under-skilled for renovation processes.
- **Introduce renovation-specific syndic support subsidies** for buildings undertaking complex energy upgrades.
- **Support alternative governance structures** (e.g., renovation subcommittees or externally facilitated GA meetings) where syndic lack capacity.

6. Market Development and Professional Capacity

- **Invest in training and certification programs** for study offices, architects, and facilitators specifically targeting collective renovations.
  → Multiple cases revealed inconsistent communication and low social engagement skills.
- **Develop a regional digital platform** where CAs can compare renovation scenarios, find accredited contractors, and apply for subsidies in one place.
- **Support cross-sector collaboration** between municipalities, energy agencies, social housing companies, and financial institutions to build integrated offers.

7. Extend the Mandate of Energy Houses Beyond the Master Plan

- **Problem:** Energy Houses are currently mandated to stop their support once the renovation master plan is delivered, leaving CAs without guidance during critical decision and implementation phases.
  →Expand the formal role and funding of Energy Houses to include support during the decision-making and execution phases of renovations. Define a structured "aftercare" phase with clear deliverables and staffing resources.

4.3 Business Model Development Recommendations for Private-Led IHRS

1. Value proposition

• Clarify what is included in the service at each phase

Co-owners across both case studies expressed **uncertainty about what WNR would or wouldn't deliver**, particularly after the initial intake and feasibility study. The value proposition should **clearly distinguish between advice, design, coordination, and execution responsibilities**, and explain how these unfold over time.

"WNR didn't communicate clearly whether they would manage the renovation itself or just provide guidance. Many of us assumed it was a full-service offer from day one."

• Emphasize long-term partnership and phased approach

Co-owners appreciated WNR's **step-by-step renovation planning** and flexibility. However, some still expected immediate action or misunderstood the pacing. WNR's value proposition should **clearly position the IHRS as a long-term guide**, helping the CA prepare financially and organizationally over multiple years.

"They advised to split the renovation in parts, which made it manageable. But that also made some of the residents impatient."

• Reframe guarantees and quality assurance as part of the value promise

Several residents raised concerns about **unclear guarantees** regarding costs, contractor quality, or savings. WNR's value proposition should emphasize **how quality is assured** (e.g., vetted suppliers, staged tendering, performance monitoring) and where **limits to guarantees** apply.

"They said the planning is realistic, but if we don't know the contractor or final costs yet, how can we trust the outcome?"

• Highlight independence from contractors as a trust-building asset

Unlike fully in-house models, WNR operates **as an intermediary**, not the contractor. This should be positioned as an advantage: they **negotiate on the client's behalf** and prioritize the CA's needs. But this only builds trust if clearly communicated.

"They don't do the works themselves which is good, if they can manage others well. But you need to explain that role clearly."

• **Adapt the proposition to match different homeowner segments**

WNR serves mixed CAs, including social renters, low-income owners, and highly motivated residents. The value proposition should **flex to different expectations**: financial vulnerability, trust levels, language needs, or renovation urgency.

"Some people just want lower bills. Others care about insulation. We're all different, but we got the same presentation."

2. Customer Segments

• **Tailor service delivery to CA diversity (owners, renters, investors, and mixed-income)**

WNR often works with **heterogeneous CAs**, including private owners, social housing renters, absentee landlords, and elderly residents. These segments have different risk tolerances, motivations, and support needs. A one-size-fits-all approach is insufficient. WNR should **segment communication and services based on owner profiles** and tailor its approach accordingly.

"Some owners are elderly and just want peace of mind. Others live abroad and don't care about energy savings, only cost. Then you have young owners who want sustainability."

• **Identify and support key decision-makers within the CA**

Board members, informal leaders, or vocal owners often **steer the renovation process**. These individuals influence the pace and outcome more than passive residents. WNR should identify them early and provide **extra coaching and materials**, especially for General Assemblies or consensus-building.

"There were two or three people who really made the project move forward. Without them, nothing would have happened."

• **Recognize the gap in understanding and engagement among passive co-owners**

In both cases, many residents were **unengaged or poorly informed**, especially about costs, timelines, and decision-making processes. WNR should treat **passive co-owners as a distinct customer segment**, offering simplified communication, visuals, and decision tools tailored to low-engagement users.

"Some residents had no idea what we were voting on. They didn't even read the reports."

• **Consider financial vulnerability in service design**

In mixed-income CAs, WNR encounters **owners who are financially vulnerable**, including seniors or low-income residents who struggle with upfront costs. These segments need **more clarity on subsidies, financing pathways, and phased investments**. WNR should build customer personas for these groups to better tailor solutions.

"I couldn't commit to the big plan without knowing how I'd finance it. The whole thing felt uncertain."

• **Serve institutional clients (e.g., social housing corporations) as parallel segments**

In hybrid CAs, actors like **Stadgenoot** play dual roles: co-owner, co-investor, and process influencer. WNR should recognize these institutional actors as distinct "customers" with different goals (portfolio

sustainability, cost efficiency, public responsibility) and **develop B2B-style engagement paths** alongside the B2C homeowner journey.

"Stadgenoot had more power but didn't explain their position well. We didn't know if they would pay their share or not."

3. Customer Relationships

• ***Assign a consistent contact person per project to build trust and accountability***

*A dedicated advisor (not just a generic WNR contact) helps foster a **personal relationship** with the CA. This person should stay involved from intake to implementation. Changing contact points midstream created confusion and frustration among residents.*

"We had one advisor in the beginning, and later someone else came to the meeting. That made it feel like starting over."

• ***Formalize post-study follow-up to prevent the "information vacuum"***

*After the feasibility study, many residents expected WNR to **take initiative** for the next steps (contractor sourcing, subsidy support, timelines). But the process often stalled due to unclear follow-up roles. WNR should offer a **post-study "relationship roadmap"** outlining who follows up, when, and on what topics.*

"We thought they would propose the next steps after the study, but instead, everything was quiet. It felt like the ball was in our court, but we didn't know that."

• ***Leverage social capital within CAs to foster peer trust***

*In both case studies, trust in WNR often came **indirectly** — via board members or a few vocal residents. WNR should cultivate these **"ambassadors" within the CA** who can reinforce the relationship with less-engaged owners, answer questions, and help manage resistance.*

"I trusted WNR mostly because one of the board members really supported them. That made the rest of us feel more secure."

4. Channels

• **Strengthen the onboarding and orientation process through tailored, multi-format communication**

Initial engagement typically starts with info sessions or feasibility studies, but many co-owners **struggled to grasp the overall process**, especially timelines and responsibilities. WNR should invest in a **standardized onboarding package** that combines digital handouts, in-person walkthroughs, and visual timelines, tailored per building type and customer profile.

"They gave a lot of information, but it was overwhelming and hard to follow. I didn't know what to expect after the first study."

• **Increase direct communication touchpoints between WNR and individual co-owners**

Currently, much of the communication happens through **CA board members or intermediaries** (e.g., condo managers). While efficient, this sometimes **filters or distorts information**, leading to confusion or

mistrust. WNR should **increase direct contact with individual co-owners**, especially during key phases (vote preparation, financing discussions, works planning).

"I didn't hear anything directly from WNR. Everything went through the board, and not everyone interpreted it the same way."

• Use digital tools (CRM, dashboards) not just for internal tracking but for customer-facing updates

Providing **a simplified, visual dashboard** or regular progress emails could help homeowners feel involved and reduce uncertainty over "what comes next."

"After the feasibility study, we didn't know where things stood. A little update now and then would help keep people engaged."

• Diversify outreach beyond General Assemblies

The General Assembly is a critical formal step, but not always effective for building understanding or trust. WNR can **use additional informal moments** (info evenings, Q&A sessions, short videos) to reinforce messaging and support decision-making, particularly among disengaged co-owners.

"Most people only heard about the renovation during the Assembly, but by then, it felt too late to ask questions."

• Strengthen coordination with external channels (e.g., housing corporations, condominium managers)

These actors serve as communication channels and can either support or block the flow of information. WNR should formalize expectations and **create co-branded communication protocols** with these partners.

"Our building manager didn't explain things clearly, and that caused delays. WNR and the manager weren't always aligned."

5. Key Partnerships

• Strengthen collaboration with social housing corporations in hybrid CAs

In mixed-ownership buildings like case study 8, WNR's work depends heavily on social housing corporations. However, unclear roles and communication gaps between WNR and these entities caused delays. WNR should formalize these relationships with clear partnership agreements, outlining responsibilities, decision-making procedures, and co-financing expectations.

• Align earlier with condominium managers to streamline decision-making and communication

CMs are often the gatekeepers to the General Assembly, legal compliance, and procedural steps. In both cases, unclear alignment between WNR and the manager created process bottlenecks. WNR should initiate structured coordination from day one with condominium managers, ideally including them in the service contract or onboarding protocol.

"Our building manager didn't explain WNR's role well, and that caused a lot of confusion during the vote."

• Expand and formalize partnerships with municipalities for subsidy alignment and legitimacy

While WNR is a private actor, partnerships with local governments can enhance credibility, provide access to subsidy schemes, and help reach vulnerable owner segments. Municipalities can also refer CAs to WNR. These relationships should be actively cultivated and formalized, with shared outreach, co-branded info sessions, or data sharing agreements.

“It helped that the municipality mentioned WNR, but there wasn’t an official connection. It would be more convincing if they worked together openly.”

• Maintain a vetted network of contractors to ensure quality and trust

Co-owners frequently asked about how contractors are selected, their reliability, and who is accountable if things go wrong. WNR needs strong partnerships with pre-vetted contractors, transparent selection criteria, and clear escalation pathways in case of disputes. These partnerships are not just operational, they are core to WNR’s perceived value.

“We wanted to know who would actually do the work and whether WNR guaranteed the quality. That part felt vague.”

• Build relationships with financial advisors or lenders to offer integrated financing options

Financial uncertainty was a recurring theme. WNR could strengthen its offer by partnering with banks, energy loan providers, or subsidy consultants to offer bundled financial advice, simulate repayment scenarios, or help coordinate loan applications.

“We weren’t sure how to finance our part. It would have helped if someone could guide us through the options.”

6. Key Activities

• Provide decision-making support before and during General Assembly votes

General Assembly meetings are critical bottlenecks. WNR’s activities should include pre-GA coaching, creation of voting scenarios, visuals, and tailored slide decks. This helps boards explain complex options to co-owners and manage opposition.

“The vote was stressful. We didn’t feel prepared to explain all the technical and financial things to everyone.”

• Coordinate phasing strategies and align with building constraints

In both case studies, renovation was approached in multiple phases due to budget limits and owner hesitancy. WNR should make phasing design and strategy development a core activity, helping CAs sequence works and budget allocations without losing momentum.

“They told us it’s better to start small and build up. That helped us convince people, but we needed more guidance on how to do that.”

• Translate technical content into accessible formats

Many co-owners struggled with technical documents. WNR should make simplified communication a standard activity, including summary booklets, infographics, FAQs, and short videos that explain the feasibility plan, energy savings, and cost implications in layperson terms.

"I didn't understand most of the report — too many engineering terms. We needed a version that was easier to follow."

• Monitor and follow up post-renovation (when applicable)

Post-renovation satisfaction, performance tracking, and lessons learned should be part of the activity loop. This builds reputation, enables continuous improvement, and supports trust for future projects.

"I'd like to know if the insulation works in the long run. They should follow up after the renovation too."

7. Key Resources

• Maintain a skilled, stable advisory team with renovation, legal, and facilitation expertise

WNR's advisors are central to their value delivery, they mediate between technical, financial, and social dynamics in CAs. Residents emphasized how much they **relied on the individual advisor's clarity, empathy, and consistency**. WNR's success hinges on retaining **multidisciplinary, communicative advisors** and avoiding staff turnover mid-project.

"Our first advisor explained things really well, but later someone else came, and it wasn't the same. That disrupted trust."

• Create a library of tailored communication materials

To support advisors, WNR should develop a **centralized repository of templates, visuals, vote presentation formats, and simplified guides**. This helps ensure consistency across projects and reduces the burden on individual advisors to reinvent materials.

"The slides were useful, but they felt like they were made from scratch. Maybe there should be a standard way to explain things."

• Strengthen supplier network and execution partners

Though WNR doesn't directly execute works, its **access to vetted contractors, engineers, and subsidy consultants** is key. These partnerships should be tracked and managed as critical resources, with attention to quality, availability, and pricing reliability.

"It's hard to trust contractors. If WNR works with certain ones regularly, they should make that part of their offer."

• Invest in a knowledge base of case studies and lessons learned

As WNR gains experience across buildings and cities, it should maintain a **knowledge base of common challenges, solutions, and FAQs**, accessible to advisors and used to train new staff. This helps scale the model while maintaining quality.

"They must've seen this problem before in other buildings. It would help if they could share what others did."

8. Revenue Streams

• Clarify pricing structure across all project phases

Co-owners in both cases were **uncertain about what they were paying for**, especially after the feasibility study. WNR should publish a **clear pricing model**, broken down by phase (intake, study, execution coordination, follow-up), and explain what is fixed, variable, or dependent on CA decision-making.

• Offer modular pricing to align with phased renovation trajectories

Since many buildings **cannot commit to a full renovation at once**, WNR's revenue model should reflect a **modular, pay-as-you-go structure**. This aligns with how decisions are made in CAs and helps residents feel less overwhelmed by upfront investment.

"Doing the whole thing at once wasn't realistic. We needed to see what we could afford each year."

• Explore success-based or milestone-linked compensation

To reduce perceived risk, WNR could pilot **success-based fees** (e.g., partial payment upon reaching GA approval or subsidy acceptance). This ties revenue to client progress and demonstrates shared commitment — especially useful in financially cautious CAs.

• Build recurring revenue through post-renovation services

Rather than a one-off engagement, WNR could introduce **post-renovation service contracts** — e.g., maintenance monitoring, energy performance tracking, or future-proofing plans — to generate ongoing income while strengthening customer retention.

"We might need help again in a few years. If they offered a light check-in service, I'd sign up."

9. Cost Structure

• Account for the long and unpredictable decision-making timelines in CAs

One of WNR's biggest hidden costs is **time** — especially waiting for General Assembly votes, board decisions, or subsidy windows. These delays stretch advisor involvement and administrative work across months or even years. The cost structure must **factor in these long cycles**, possibly through milestone billing or limited-scope contracts per phase.

"It took us more than a year to get the vote. I imagine WNR had to keep checking in and adjusting the plan during that time."

• Allocate resources for intensive pre-renovation communication and facilitation

Much of WNR's workload happens **before any renovation begins** — through site visits, document reviews, meeting preparation, and informal communication. These activities are time- and labor-intensive and must be **reflected in the advisory pricing or operational budget**.

• Invest in tool and template development to reduce long-term project costs

Standardized materials (dashboards, voting guides, FAQs, visual plans) can reduce the repetitive workload per project. Initial investment in these tools may increase short-term costs but can **improve efficiency and scale** over time.

• Include a risk buffer for stalled or canceled projects

Given the collective decision-making dynamic of CAs, some projects will **not proceed** despite early investments. WNR's cost model should **include a buffer or risk absorption mechanism**, especially for feasibility studies or onboarding efforts that don't convert into execution contracts.

"There was no guarantee we would move forward. If we didn't, all their work would be unpaid."

Summary of the business model development recommendations

Building block	Recommendations
1. Value Proposition	Clarify what is included at each phase of the service. Emphasize WNR's role as a long-term renovation partner, not just a study provider. Clearly communicate quality assurance and limits of guarantees. Highlight neutrality from contractors as a trust-building element. Adapt the value proposition to different homeowner types and motivations.
2. Customer Segments	Segment co-owners: elderly, investors, low-income, passive, engaged. Identify and support key influencers like board members. Create specific engagement paths for passive or disengaged owners. Address financial vulnerability through tailored support. Treat institutional actors (e.g., social housing corporations) as parallel clients.
3.Customer Relationships	Maintain continuity with a single advisor per project. Build ongoing support touchpoints beyond project milestones. Offer clear follow-up plans after each phase. Set expectations early via service charters or onboarding documents. Leverage trusted residents or board members to build wider trust.
4. Channels	Provide structured onboarding with tailored materials (slides, guides, timelines). Ensure direct communication between WNR and all co-owners. Use CRM to keep customers updated on progress, not just for internal tracking. Supplement General Assemblies with informal engagement (info evenings, videos). Coordinate messaging with external partners like condominium managers and social housing providers.
5. Key Partnerships	Formalize roles with social housing corporations (e.g., shared cost agreements). Coordinate early and consistently with condominium managers. Establish formal collaborations with municipalities for subsidy access and trust. Maintain and expand vetted contractor network. Partner with financial service providers for integrated subsidy/loan support.
6. Key Activities	Guide the full renovation trajectory from plan to implementation. Support General Assembly votes with tailored presentation materials and coaching. Help CAs design phased renovation strategies. Translate technical documents into clear, visual summaries. Offer post-renovation performance tracking or support.
7. Key Resources	Retain experienced, multidisciplinary advisors (technical + communication). Maintain and upgrade CRM to support follow-up and engagement timelines. Build a shared library of communication templates, visuals, and FAQs. Invest in contractor partnerships and coordination tools. Create an internal knowledge base of case experiences and lessons learned.
8. Revenue Streams	Define transparent pricing per project phase. Offer modular or phased payment options aligned with CA decision-making. Explore milestone-based or success-contingent pricing. Pursue municipal or regional subsidies to lower barriers. Introduce optional post-renovation service contracts for recurring revenue.
9. Cost Structure	Account for long decision timelines and associated advisor time. Allocate resources for intensive early-phase facilitation. Invest in and retain highly skilled personnel. Develop scalable templates and tools to reduce project-by-project workload. Include a financial buffer for projects that stall or cancel before execution.

Table 16: Summary of WNR Private IHRS Business Model Recommendations (by Business Model Canvas Block)

Table 17 summarizes what currently works well in the public approach and what is still missing to enhance its viability.

Summary of the Public-led business model Viability analysis

Viability Criteria	What works well	What needs attention
1. Financial Stability	WNR uses phased contracts and staged services to limit financial risk on both sides.	No structural public support or milestone-based compensation; feasibility studies for low-income CAs are often unaffordable.
2. Adaptability & Flexibility	Service is modular and allows for phased renovation strategies adapted to each building's capacity.	Flexibility can lead to unclear expectations; clients sometimes don't know what will happen next or how to commit.
3. Customer Focus & Value Proposition	Step-by-step planning and phased renovation advice reduce overwhelm and improve decision-making.	Limited clarity on what is included at each phase; lack of consistent advisor presence reduces trust.
4. Innovative Financing Solutions	WNR helps HOAs navigate subsidies and split costs over time.	No direct partnerships with banks or municipalities to offer integrated financing packages or loans.
5. Support by Digital Tools	Internal CRM system tracks project status.	No customer-facing dashboards or digital communication tools for co-owners; engagement drops between phases.
6. Operational Efficiency	Reuse of templates and phased approach makes service scalable.	Lack of standardized, open-source tools increases workload and reduces consistency across projects.

Table 17: Viability Assessment – Private IHRS (The Netherlands)

4.4 Policy Recommendations to Strengthen Condominium Renovation in the Netherlands

1. Support phased and modular renovation planning through subsidy design

Problem: Many CAs cannot commit to full deep renovations due to cost and complexity.

Recommendation: National and municipal subsidy schemes should explicitly support phased renovation plans and allow partial subsidies over multiple years. This de-risks early action and matches how private IHRS providers like WNR structure their services.

2. Introduce a national guarantee or quality assurance framework for private IHRS

Problem: Co-owners expressed distrust due to uncertainty over renovation outcomes, costs, and contractor quality.

Recommendation: Develop a certification or guarantee scheme for private IHRS providers to signal trustworthiness. This could cover performance-based outcomes, vetted contractor networks, and clear consumer protection guidelines.

3. Provide public funding for pre-renovation advisory services in low-income or vulnerable CAs

Problem: Vulnerable or mixed-income CAs cannot always afford feasibility studies or WNR's advisory fees. There is a municipal subsidy for such service but not enough.

Recommendation: Establish municipal or regional subsidies/vouchers that co-finance early-phase services delivered by private IHRS providers. This ensures accessibility while allowing private models to scale.

4. Formalize public-private coordination mechanisms at local level

Problem: WNR's impact is constrained when key actors (e.g., social housing corporations, municipalities) are not aligned.

Recommendation: Municipalities should establish local renovation coalitions or platforms where private IHRS providers, condominium managers, housing corporations, and subsidy administrators meet to align timelines, goals, and communication strategies.

5. Require condominium managers to follow best practices in energy renovation coordination

Problem: Condominium managers often serve as bottlenecks or miscommunicate critical information.

Recommendation: Introduce training or licensing requirements for condominium managers to build capacity in renovation planning, legal procedures, and collaboration with IHRS providers. Best practices could be standardized nationally.

6. Encourage development of standardized tools and templates for decision-making in CAs

Problem: Decision-making during General Assemblies is often chaotic, poorly prepared, and leads to delays.

Recommendation: Fund the development of decision support toolkits (e.g., GA presentation templates, voting guides, renovation timelines) that private actors can adapt to support CAs. These tools should be made open-source and promoted by local governments.

7. Stimulate innovation in digital CRM and homeowner engagement tools

Problem: Long renovation timelines make it hard to keep residents engaged and informed.

Recommendation: Provide innovation grants or R&D incentives for the development of digital follow-up tools (dashboards, resident portals, update tracking) that private IHRS actors can integrate into their customer journey.

8. Allow for performance-based procurement in public-private collaboration

Problem: Private actors need predictable revenue streams to remain viable, but CAs often move slowly or stall.

Recommendation: Introduce performance-based public procurement contracts where private IHRS actors are partially compensated based on milestones (e.g., GA approval, plan delivery, start of works), not just final outcomes.

5. Conclusion

This report has assessed the viability, strengths, and limitations of Integrated Home Renovation Services (IHRS) for multi-family buildings, with a particular focus on condominiums in Flanders (public-led approach) and the Netherlands (private-led approach). By combining in-depth interviews with homeowners, service providers, and institutional actors, alongside analysis of project deliverables from

the CondoReno initiative, this report offers a comprehensive evaluation of existing business models and their potential to accelerate collective energy renovations in a fragmented housing stock.

Our findings reveal that both public and private IHRS models provide essential added value by simplifying the renovation journey for CAs, yet they each face systemic barriers that must be addressed to scale their impact. In Flanders, the public-led approach—driven by VEKA, municipalities, energy houses, and study offices—benefits from institutional trust and neutrality, but often lacks continuity beyond the masterplan phase and faces resource constraints. Meanwhile, in the Netherlands, private IHRS providers like WNR demonstrate operational flexibility and phased renovation planning, but face challenges in homeowner trust, financial accessibility, and alignment with public actors such as housing corporations and municipalities.

Across both contexts, common barriers include fragmented decision-making processes within CAs, unclear role distribution among actors, lack of long-term engagement strategies, and the absence of tailored tools for guiding vulnerable or disengaged co-owners. The document analysis of CondoReno deliverables and the qualitative data from interviews reveal that a one-size-fits-all approach does not work: renovation trajectories must be phased, communicative, and adapted to the social and financial composition of each CA.

The business model recommendations developed for both public and private IHRS actors highlight the importance of:

- Extending the scope of services beyond feasibility studies
- Strengthening partnerships with financial and legal actors
- Investing in skilled, communicative advisors
- Formalizing follow-up and performance tracking
- Leveraging digital tools to maintain continuity in long renovation processes

Complementing these, the policy recommendations emphasize the need for public support structures that enable both IHRS models to succeed. This includes phasing-friendly subsidy schemes, public-private coordination mechanisms, CA decision-support tools, and certification frameworks that build trust in service quality.

In conclusion, IHRS models are crucial intermediaries in unlocking the potential of CA-driven renovations, but their success depends on well-aligned business models, supportive public policies, and tailored service delivery that reflects the lived realities of homeowners. Strengthening these elements will be key to accelerating the just and scalable energy transition in the collective residential sector.

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