TU Delft BK Bouwkunde
Department of Management in the Built Environment

The Business Models Behind Integrated Home Renovation Services

Towards Accelerating Deep Renovation of Residential Buildings with Multiple Homeowners

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CondoReno

This research is part of the research project "**CondoReno**" funded by the European Union Programme for Environment and Climate Action (LIFE) MGA — Multi & Mono, under grant agreement.

The aim of the project is to **accelerate energy renovations** for **condominium associations** by creating **6 viable business models** for **integrated home renovation service providers** to be replicated in 10 European countries.

2050

Residential sector

27%
Total energy consumption

Homeowners

70%

Homeowners

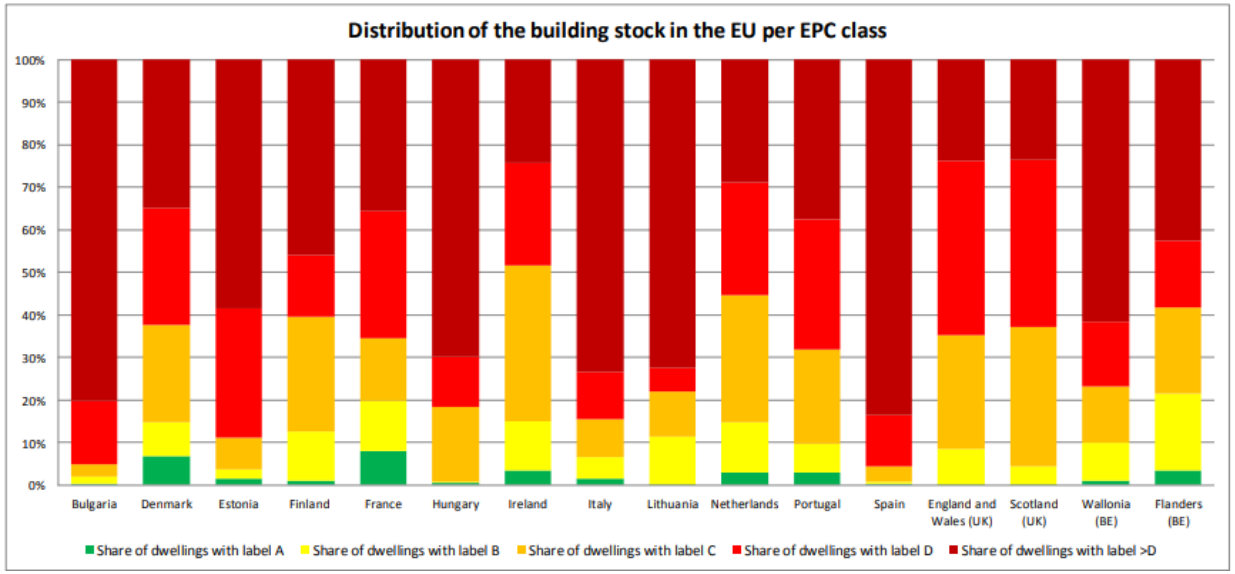
41-65%
Reside in condominiums

- The current renovation rate for buildings in Europe is 1% annually (Tsemekidi Tzeiranaki et al., 2022)
- Homeowner associations struggle to renovate their buildings (D'Oca et al., 2018; Mlecnik et al., 2019; Bagaini et al., 2020).

Source (Eurostat, 2020)

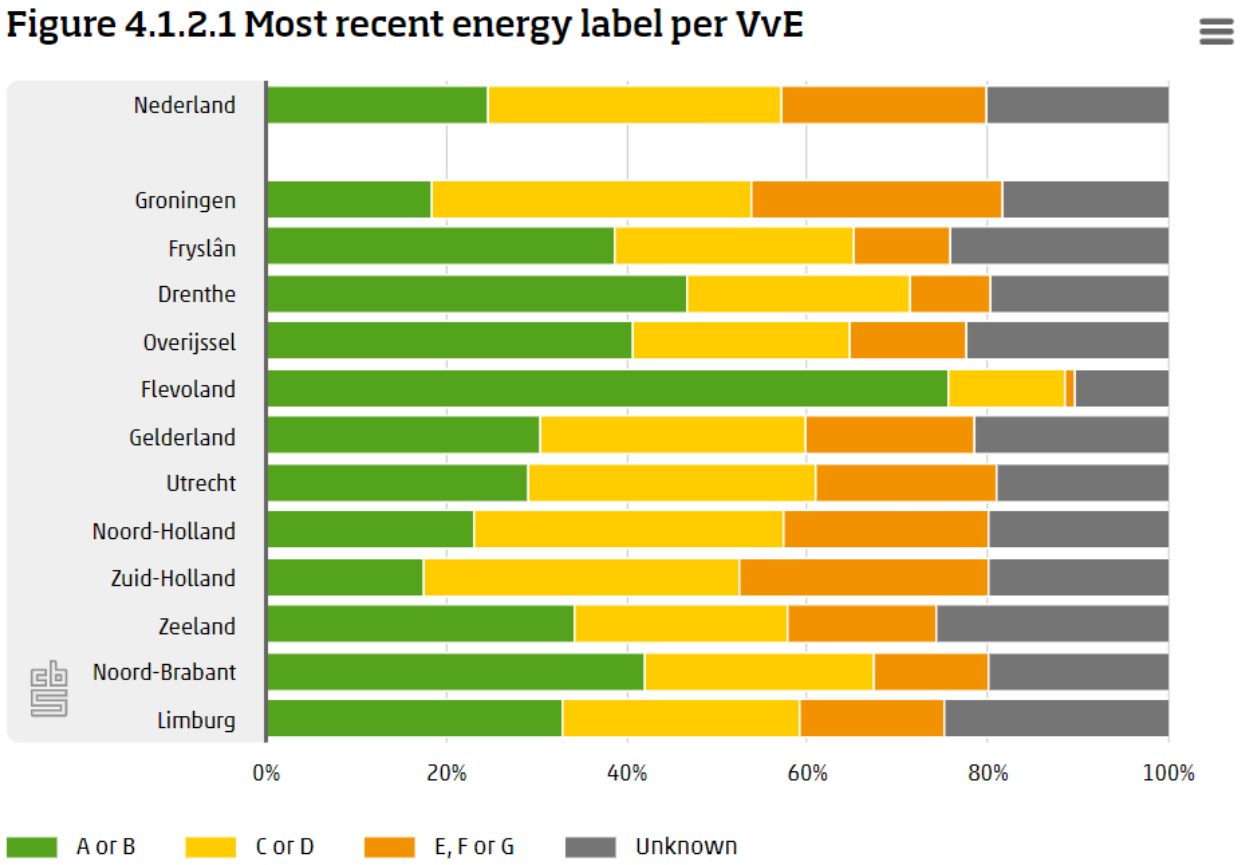
Housing in Europe

- Most Buildings built after the second world war are now more than 60 years old
- Most of those buildings are at the end of their (designed) service life
- Almost 75% of the building stock is currently energy inefficient
- More than 85% of today's buildings are likely to still be in use in 2050



(Sources: Eurostat and EU Buildings Factsheets 2020).

HOAs in the Netherlands



Source: (Centraal Bureau voor statistiek, 2023)

Energy renovations can

Reduce energy consumption & energy bills

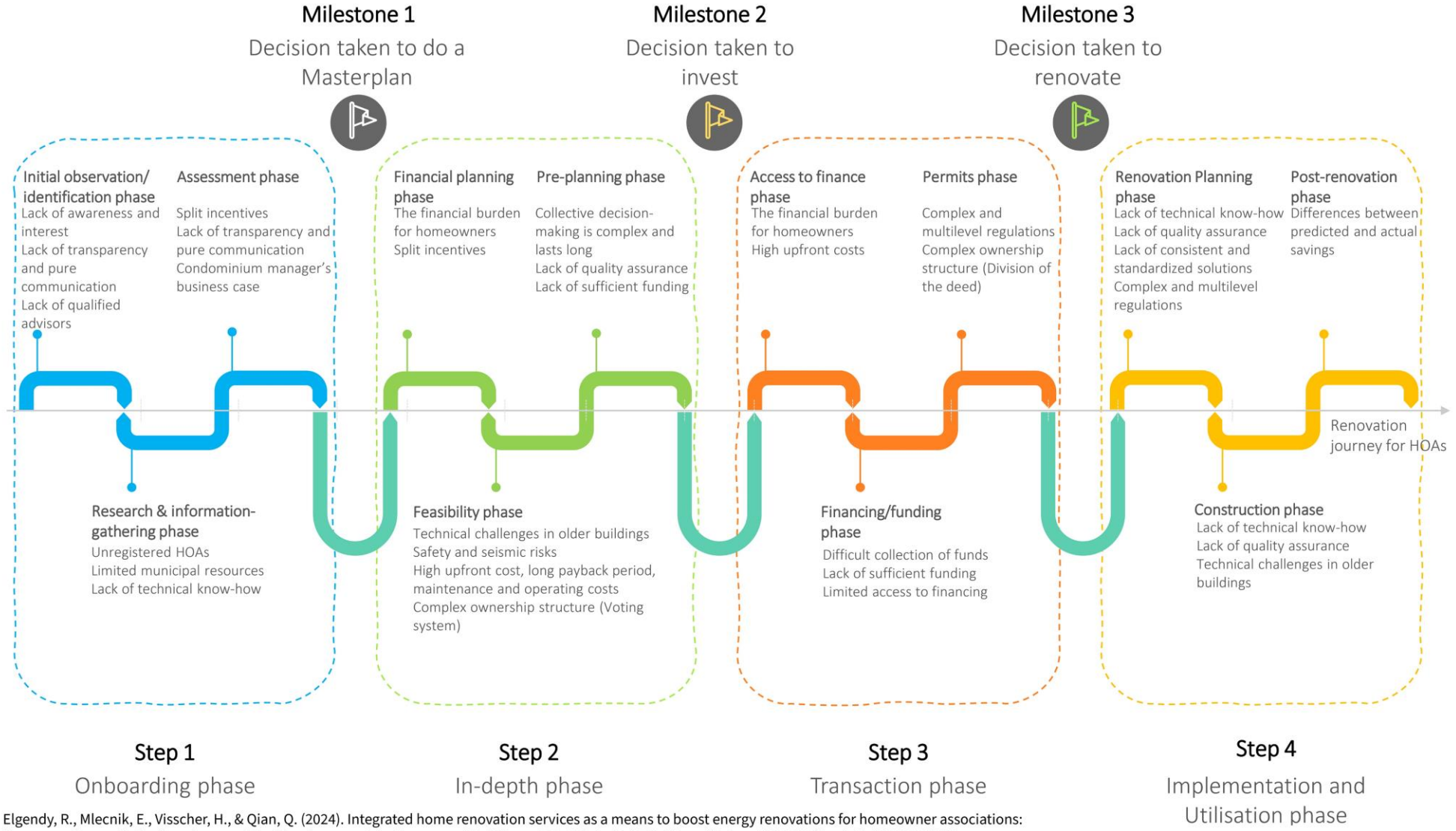
Reduce carbon footprint

Increase user comfort & indoor air quality

Increase building value

Contribute to the SDG goals

Mapping of Barriers within the CA Renovation Journey



Elgendy, R., Mlecnik, E., Visscher, H., & Qian, Q. (2024). Integrated home renovation services as a means to boost energy renovations for homeowner associations: A comparative analysis of service providers' business models. Energy and Buildings, 320, Article 114589. https://doi.org/10.1016/j.enbuild.2024.114589

Involvement of several stakeholders

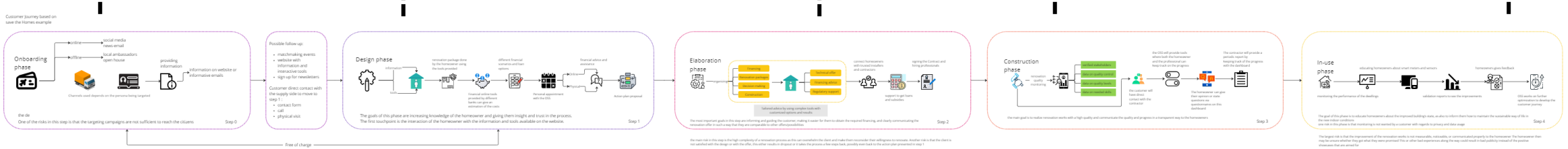
Municipalities

Engineers and architects

Consultants

Craftsmen and installers

Engineers



Condominium managers

Financial institutions

Lawyers

Construction companies

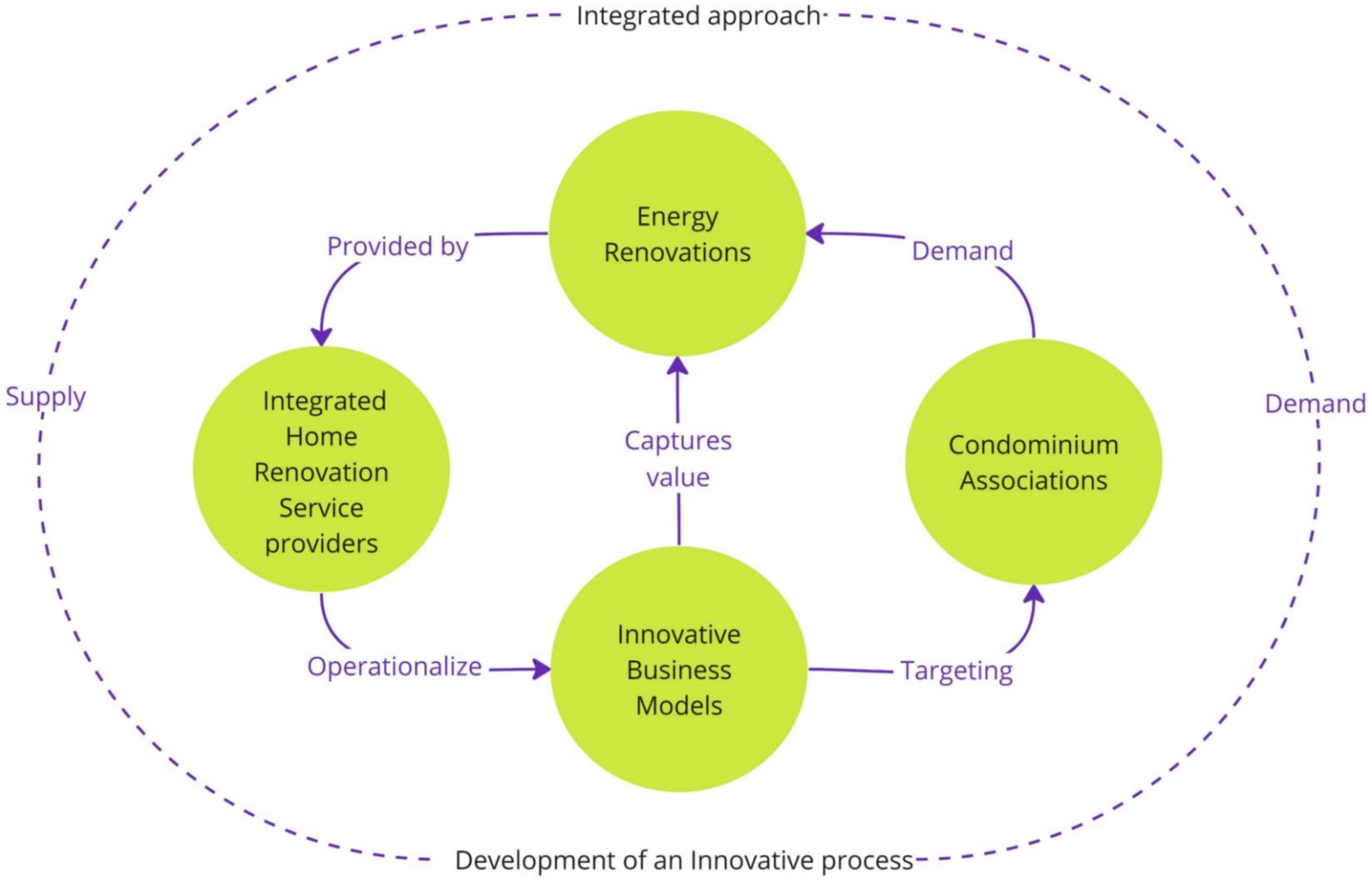
Energy providers

Maintenance companies

Integrated home renovation service providers (IHRS)

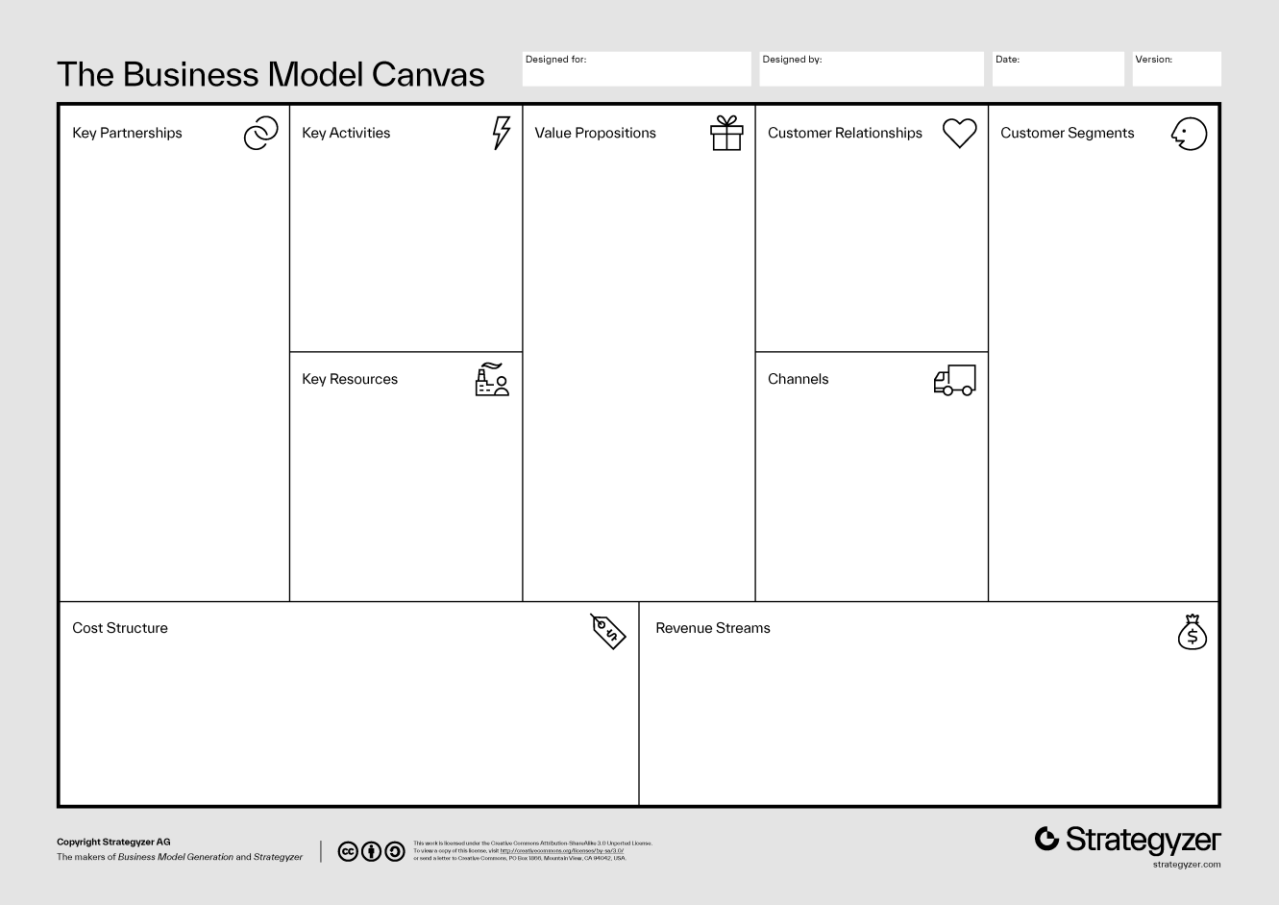
Home renovation projects frequently involve multiple tasks that necessitate coordination among various trades and stakeholders

Development of an innovative process



Business model canvas

The business model canvas is a **strategic management** tool that helps **capture**, **create** and **deliver** market value.



IHRS provides business models typologies

Public model
For example, Municipal services of “energy houses” in Antwerp, Mechelen and Ostend in Belgium

Private model
For example, Living-cost neutral renovation services of non-profit organization WNR in the Netherlands

Agency model
For example, CoachCoPro services Agence Parisienne du Climat in Paris

8

3

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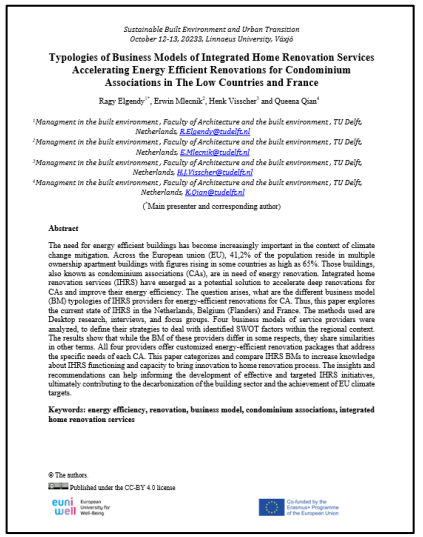
Published in SBEUT
https://research.tudelft.nl/en/publications/typologies-of-business-models-of-integrated-home-renovation-servi



Sustainable Built Environment and Urban Transition
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Typologies of Business Models of Integrated Home Renovation Services Accelerating Energy Efficient Renovations for Condominium Associations in The Low Countries and France

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Abstract

The need for energy efficient buildings has become increasingly important in the context of climate change mitigation. Across the European union (EU), 41,2% of the population reside in multiple ownership apartment buildings with figures rising in some countries as high as 65%. Those buildings, also known as condominium associations (CAs), are in need of energy renovation. Integrated home renovation services (IHRS) have emerged as a potential solution to accelerate deep renovations for CAs and improve their energy efficiency. The question arises, what are the different business model (BM) typologies of IHRS providers for energy-efficient renovations for CA. Thus, this paper explores the current state of IHRS in the Netherlands, Belgium (Flanders) and France. The methods used are Desktop research, interviews, and focus groups. Four business models of service providers were analyzed, to define their strategies to deal with identified SWOT factors within the regional context. The results show that while the BM of these providers differ in some respects, they share similarities in other terms. All four providers offer customized energy-efficient renovation packages that address the specific needs of each CA. This paper categorizes and compare IHRS BMs to increase knowledge about IHRS functioning and capacity to bring innovation to home renovation process. The insights and recommendations can help informing the development of effective and targeted IHRS initiatives, ultimately contributing to the decarbonization of the building sector and the achievement of EU climate targets.

Keywords: energy efficiency, renovation, business model, condominium associations, integrated home renovation services

Example 1: Business Model 3 Public organisation

Key partners

- Construction companies
- Energy advice coaches
- Social advice coaches
- Condominium managers
- The City National climate agency

Key activities

- Process guidance
- Managing a quality platform
- Assisting CAs in applying for loans and subsidies

Key resources

- Human resources (1.5 FTE)
- Online platform
- City data
- Digital tools (CRM)
- Office space (OSS)

Value proposition

- Provision of neutral free advisory service
- Provision of tailored consultation services
- Support to obtain subsidies

Customer relationship

- Building trust
- Engagement in the decision-making process
- Transparent communication
- Follow-up

Channels

- Online request forms
- Webinars & Events
- Site visits & phone calls
- In-person consultations in the OSS

Customer segments

- Multifamily apartment buildings
- Homeowners
- Condominium managers
- Vulnerable groups

Cost structure

- Salaries
- Travel expenses
- Online platform

Revenue streams

- Increase of Real estate value,
- Improvement of the living environment of the inhabitants Addressing energy poverty
- Local & national Funds and grants

Example 2: Business Model 7 Private organisation

Key partners

- Local and national governments
- Various experts and companies offering renovation solutions and quotations
- Lawyers
- Notaries
- Advisors
- Architecture firms
- Brokers
- Construction companies

Key activities

- Process guidance A-Z
- Coordination between all stakeholders
- Creation of comparative financial reports
- Responsible for the renovation work

Key resources

- Human resources (10FTE)
- Online platform
- Database
- Digital tools
- Office space

Value proposition

- All-inclusive renovation from A to Z
- High-Quality assurance
- Providing standardized topping-up solutions to finance the renovation
- Legal advice & management

Customer relationship

- Building trust
- Solution-focused co-creation
- Transparent communication
- Quality of work

Channels

- Social media & Website
- Webinars and Events
- Promotional videos
- Bootcamps
- Ads in newspaper

Customer segments

- Multifamily apartment buildings (Post-war buildings.. 50+ apartments BM6)
- Homeowners
- Condominium managers

Cost structure

- Salaries and office rent
- Insurance and Taxes
- Partnerships made with other stakeholders
- Travel expenses
- Online platform and marketing

Revenue streams

- Revenues are generated through investment decisions made at various stages of the renovation process (BM6)
- Percentage of the total cost of the renovation.

Example 3: Business Model 11 Public-Private Partnership

Key partners

- Construction companies
- Architects
- Lawyers
- Engineers
- Municipalities
- Condominium managers
- SMEs
- Banks

Key activities

- Process guidance
- Advise municipalities
- Coordination between all stakeholders
- Help CAs apply for subsidies
- On site job management

Key resources

- Human resources (45FTE)
- Online platform
- City data
- Digital tools
- Office space

Value proposition

- All-inclusive renovation from A to Z
- Technical specifications
- Personalized financing solutions for energy retrofits
- Providing Prefinance subsidies

Customer relationship

- Building trust
- Home visits
- Transparent communication
- Follow-up

Channels

- Social media & Website
- Webinars
- OSS
- Events
- Phone calls

Customer segments

- Multifamily apartment buildings
- Municipalities
- Homeowners and tenants
- Condominium managers

Cost structure

- Salaries
- Partnerships made with other stakeholders
- Travel expenses
- Online platform
- Energy audits

Revenue streams

- Investment decisions made by the customers to undertake a feasibility study, masterplan and full renovation service
- Knowledge sharing and research projects
- Public funds from the regional government.

Data analysis of the 14 BMs on how they tackle the identified barriers and their involvement in the renovation journey of HOAs

Steps	Renovation phases	Barrier	Weight	Business models of integrated home renovation service providers													
				Public								Private			Public-Private		
				BM3	BM4	BM5	BM8	BM9	BM10	BM13	BM14	BM2	BM6	BM7	BM1	BM11	BM12
				Does not address the barrier 1= Partially addresses 2=Fully addresse													
Step 1 Onboarding phase	Initial observation/ identification phase	Lack of awareness and interest (SB2)	5	2	2	2	2	2	2	2	2	1	1	1	2	1	1
		Lack of qualified advisors (TB8)	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		Lack of transparency and pure communication (SB4)	3	2	2	2	2	2	2	2	2	1	0	1	2	2	2
	Research & information-gathering phase	Unregistered HOAs (LB6)	3	0	1	1	0	1	2	0	0	0	0	0	2	0	0
		Limited municipal resources (LB7)	3	2	1	2	1	1	1	2	1	2	0	1	2	2	2
		Lack of technical know-how (TB1)	5	1	1	1	1	1	1	1	1	2	2	2	1	2	2
	Assessment phase	Split incentives (FB4)	4	0	1	0	0	0	0	0	0	0	0	0	1	1	1
		Lack of transparency and pure communication (SB4)	4	2	2	2	2	2	2	2	2	1	0	0	2	2	2
		Condominium managers business case (FB6)	3	1	1	1	0	1	1	0	0	1	0	1	2	1	0
	Total score per phase		**70**	**48**	**52**	**51**	**42**	**48**	**51**	**45**	**42**	**41**	**25**	**34**	**61**	**52**	**49**
	Success rate per business model to pass this phase		**%**	**69**	**74**	**73**	**60**	**69**	**73**	**64**	**60**	**59**	**36**	**49**	**87**	**74**	**70**
Step 2 In-depth phase	Financial planning phase	The financial burden for homeowners (FB5)	4	1	1	1	1	1	1	1	0	2	1	2	2	2	2
		Split incentives (FB4)	4	0	0	0	0	0	0	0	0	0	0	0	1	1	0
	Feasibility phase	Technical challenges in older buildings (TB6)	4	0	0	0	0	0	0	1	1	1	1	1	1	1	1
		Safety and seismic risks (TB3)	1	0	0	0	0	0	0	1	1	2	2	2	0	1	1
		High upfront cost (FB1)	5	1	0	0	1	0	0	1	0	0	1	2	1	1	0
		Higher service costs after renovation (FB7)	5	0	0	0	0	0	0	0	0	2	1	0	0	0	1
		Complex ownership structure (Voting system) (LB1)	4	0	1	0	0	1	0	0	1	0	1	2	0	1	0
	Pre-planning phase	(SB1)	4	1	1	0	1	1	1	1	1	1	1	1	0	1	1
		Lack of quality assurance (TB4)	4	1	0	1	0	0	0	1	0	1	1	0	1	2	2
		Lack of sufficient funding (FB3)	3	1	0	0	2	0	1	0	0	0	0	1	1	1	0
	Total score per phase		**76**	**20**	**12**	**8**	**19**	**12**	**11**	**22**	**13**	**32**	**32**	**39**	**28**	**41**	**30**
	Success rate per business model to pass this phase		**%**	**26**	**16**	**11**	**25**	**16**	**14**	**29**	**17**	**42**	**42**	**51**	**37**	**54**	**39**

Data analysis of the 14 BMs on how they tackle the identified barriers and their involvement in the renovation journey of HOAs

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				Public								Private			Public-Private		
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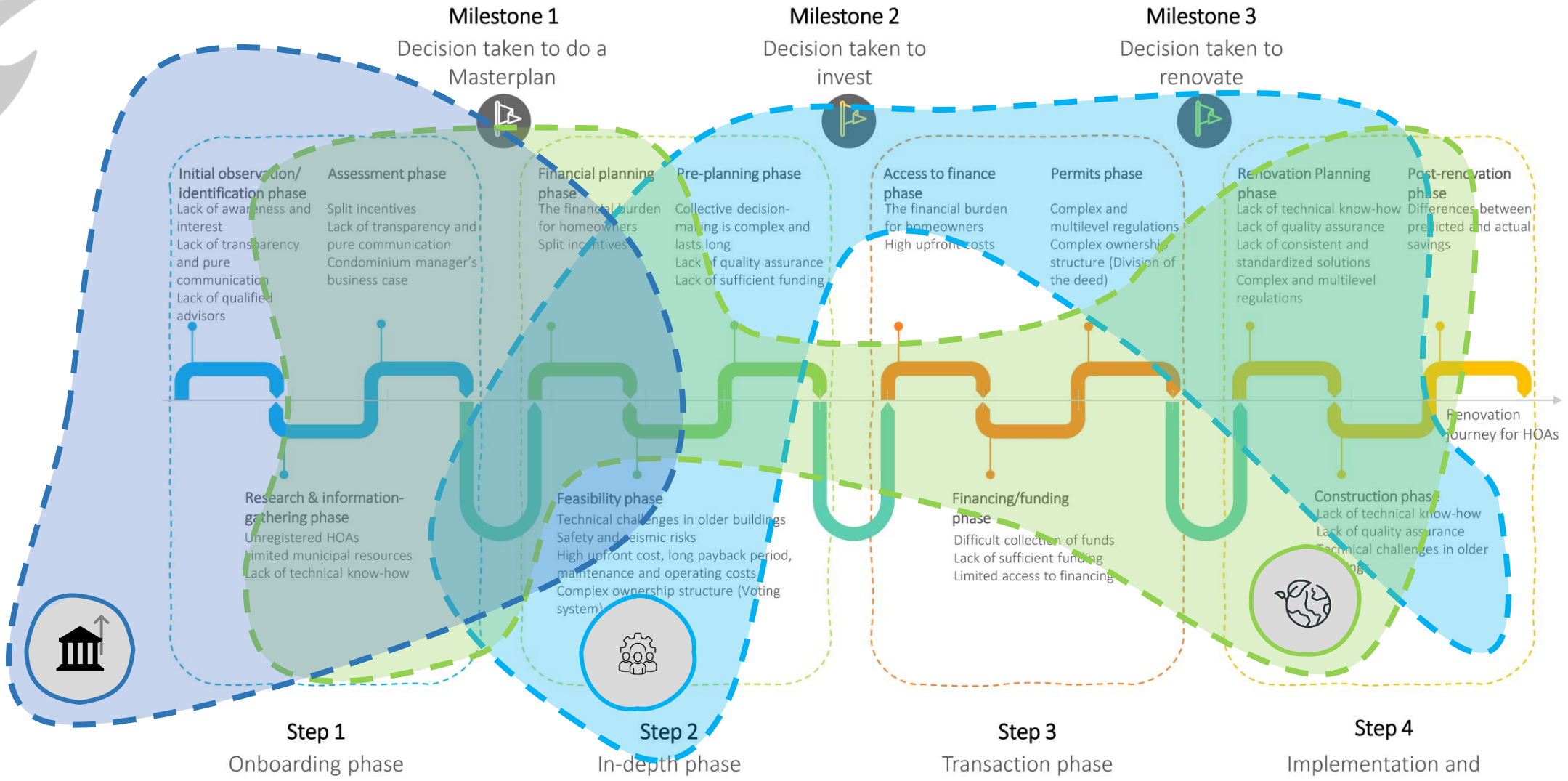
				: Does not address the barrier 1= Partially addresses 2=Fully addresse													
Step 3 Transaction Phase	Access to finance phase	The financial burden for homeowners (FB5)	4	1	1	1	1	1	1	1	0	2	1	2	2	2	1
		High upfront cost (FB1)	5	0	0	0	1	0	0	1	0	0	1	2	1	1	0
	Financing/funding phase	Difficult collection of funds (FB2)	3	1	1	0	1	1	1	1	0	1	1	1	2	2	2
		Lack of sufficient funding (FB3)	3	1	0	0	2	0	0	0	0	0	1	1	1	1	0
		Limited access to financing (LB2)	3	1	1	0	0	1	0	0	0	0	1	1	1	1	2
	Permits phase	Complex and multilevel regulations (LB4)	3	0	1	0	0	1	0	1	1	0	0	1	1	0	1
		(LB1)	4	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	Total score per phase		**50**	**13**	**13**	**4**	**18**	**13**	**7**	**15**	**3**	**11**	**18**	**38**	**28**	**25**	**19**
	Success rate per business model to pass this phase		**%**	**26**	**26**	**8**	**36**	**26**	**14**	**30**	**6**	**22**	**36**	**76**	**56**	**50**	**38**
Step 4 Implementation and Utilisation	Renovation Planning phase	Lack of technical know-how (TB1)	5	1	1	1	1	1	1	1	1	2	2	2	1	2	2
		Lack of quality assurance (TB4)	4	1	0	0	0	0	0	0	0	1	1	0	1	2	2
		Lack of consistent and standardized solutions (TB2)	4	1	0	0	0	0	0	0	0	2	1	2	0	1	1
		Complex and multilevel regulations (LB4)	3	0	1	0	0	1	0	1	1	0	0	1	1	0	1
	Construction phase	Lack of technical know-how (TB1)	5	1	1	1	1	1	1	1	1	2	2	2	1	2	2
		Lack of quality assurance (TB4)	4	1	0	1	0	0	0	0	0	1	1	0	1	2	2
		Technical challenges in older buildings (TB6)	4	0	0	0	0	0	0	1	1	2	2	2	1	1	1
	Post-renovation phase	Differences between predicted & actual savings (TB5)	5	1	0	0	0	0	0	0	0	2	0	0	0	1	2
	Total score per phase		**68**	**27**	**13**	**14**	**10**	**13**	**10**	**17**	**17**	**54**	**40**	**39**	**25**	**49**	**57**
	Success rate per business model to pass this phase		**%**	**40**	**19**	**21**	**15**	**19**	**15**	**25**	**25**	**79**	**59**	**57**	**37**	**72**	**84**

The main involvement of the three models in the renovation journey



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The Green Model

Comparison of the capability rate per business model to pass each phase

Steps	Renovation phases	Public								Private			Public-Private		
		BM3	BM4	BM5	BM8	BM9	BM10	BM13	BM14	BM2	BM6	BM7	BM1	BM11	BM12
Step 1 Onboarding phase	Initial observation/ identification phase														
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	Feasibility phase														
	Pre-planning phase														
Step 3 Transaction Phase	Access to finance phase														
	Financing/funding phase														
	Permits phase														
Step 4 Implementation and Utilisation	Renovation Planning phase														
	Construction phase														
	Post-renovation phase														

(Green ≥ 67 %, Yellow when <67 % and ≥33 %, and finally Red < 33 %)

Viable Replicable Model

The main strengths of the three organizational structures

BM Type	Strengths	Challenges
Public Organizations	• Exceptional in addressing **broad societal challenges** • Offers extensive **tailored advice**, leveraging a deep understanding of **diverse customer needs**.	• Complexity in **resource allocation**, balancing broad **societal goals** with service provision, • **vulnerable to political/economic shifts**.
Private Organizations	• Providing **high-quality** renovation standards and specialized services. • Notable for developing **robust financial planning tools** and **innovative solutions** that cater to specific customer profiles.	• **Limited societal impact** scope, balancing profit motives with environmental goals, • **Needs to expand impact beyond the initial customer base**.
Public-Private Partnerships	• **Merges the best of both** by tying the knot between the societal reach of public models with the operational excellence of private entities. • Particularly effective in creating sustainable, comprehensive outcomes in energy renovations through a **balanced focus** on both **scalability** and **community-centric initiatives**.	• **Aligning diverse interests** and **operational dynamics**, **governance** and **accountability challenges**.

Recommendations

Emphasize Stakeholder Collaboration

Focus on Early-Stage Success

Enhance Communic and Decision Supp

Address Technical Challenges

Recommendations to enhance the business models of IHRS providers targeting HOAs

Overcome Financial Barriers

Legal and Regulatory Facilitation

Create a Scalab and Flexible Mo

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New Report:

Activating Business Models for Condominium Renovations

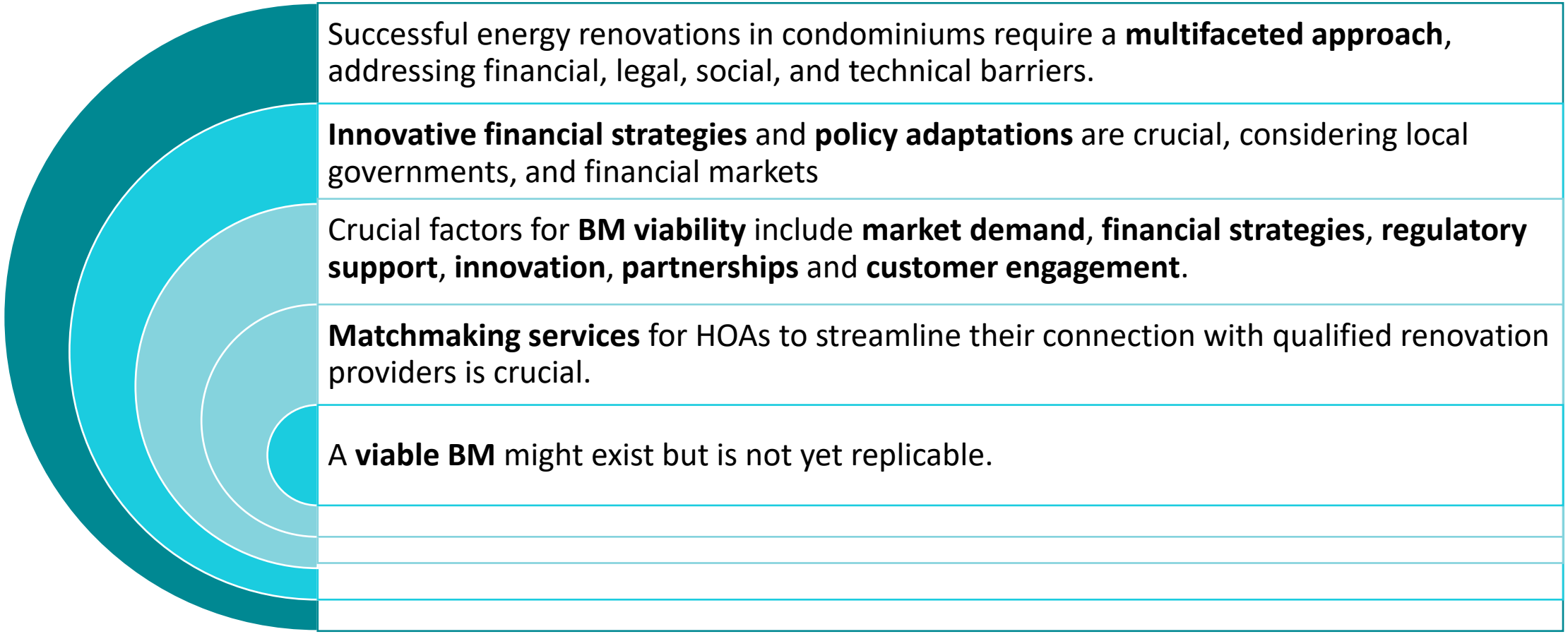
Identification of viable business models for Integrated Home Renovation Services for condominiums in the Netherlands and Flanders

Policy recommendations

Policy recommendations for supporting Integrated Home Renovation Services tailored for HOAs:

- Promote PPP to leverage both public funding and private expertise, ensuring HOAs have the necessary resources.
- Municipal support for local OSS to directly manage and facilitate HOA renovations, along with local grants or tax relief to reduce financial burdens.
- Streamline legal and bureaucratic processes to reduce delays and lower the costs associated with initiating and implementing energy renovation projects.
- Develop a national program for HOA social and energy coaches to guide HOAs in strategic planning and financial management for sustainable and economically feasible renovations.

Takeaways



Successful energy renovations in condominiums require a **multifaceted approach**, addressing financial, legal, social, and technical barriers.

Innovative financial strategies and **policy adaptations** are crucial, considering local governments, and financial markets

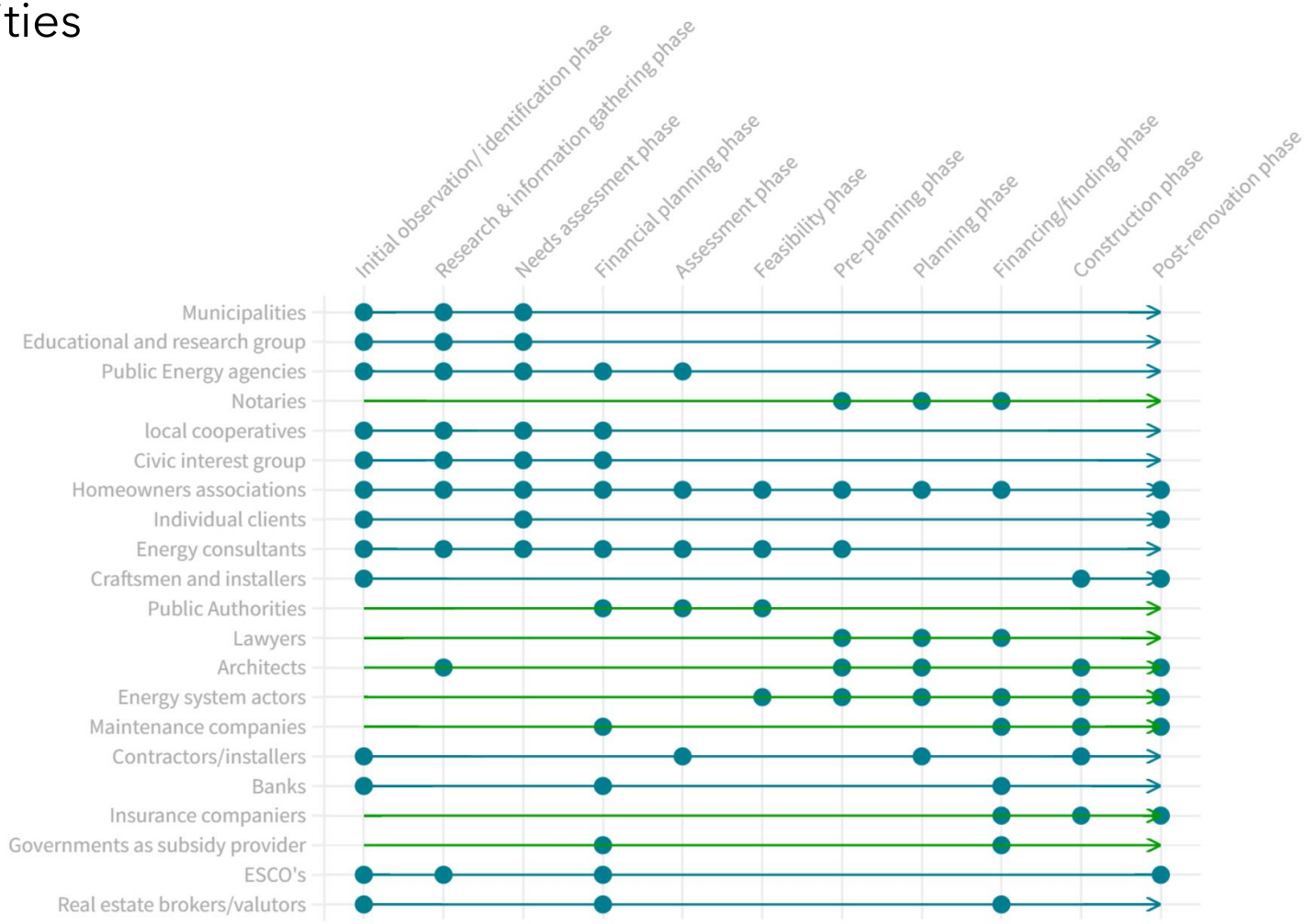
Crucial factors for **BM viability** include **market demand**, **financial strategies**, **regulatory support**, **innovation**, **partnerships** and **customer engagement**.

Matchmaking services for HOAs to streamline their connection with qualified renovation providers is crucial.

A **viable BM** might exist but is not yet replicable.

Future research

Stakeholder's roles and responsibilities



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Questions?

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Methodology