

Financing the Energy Transition in Co-owners Associations

A Financing Framework using Public and Private instruments for Deep Energy Renovations

P5

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MSc Management in the Built Environment

21-01-2025







**??? How are we going to
pay for this**

Can we afford this ???



Table of Content

Legend:



Research method:
Desk research



Interviews

(author, date)

Reference

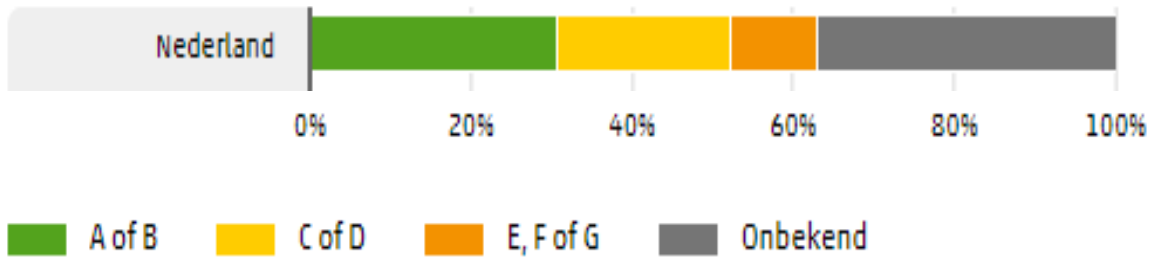
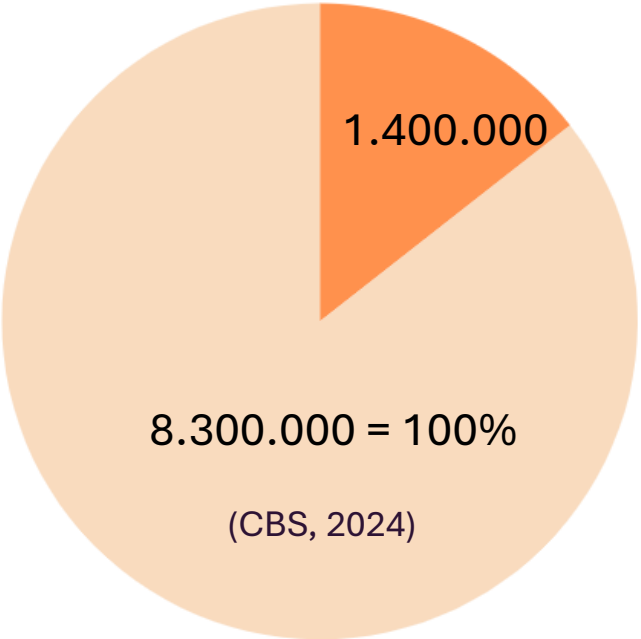
Presentation
timeline

- Background & problem statement
- Research question & methodology
- Sub-questions
- The financing instrument framework
- Policy recommendations
- Conclusion

Background & problem statement | Research question & methodology | Sub-questions | Financing instrument framework | Policy recommendations | Conclusion

Background & problem statement

- Co-owners
- Residential stock in NL

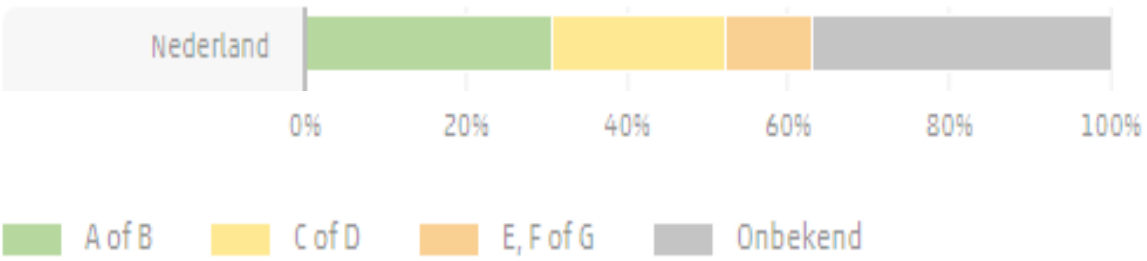
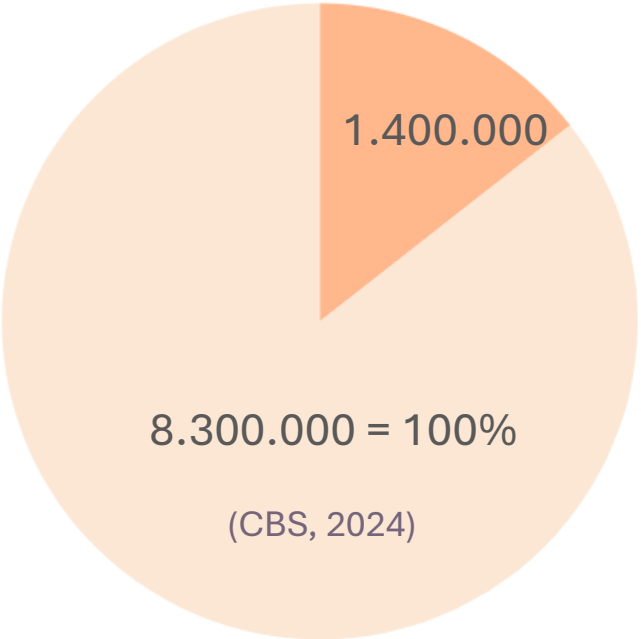


Energy labels co-owners associations (CBS, 2023)

Background & problem statement

● Co-owners

● Residential stock in NL



Energy labels co-owners associations (CBS, 2023)



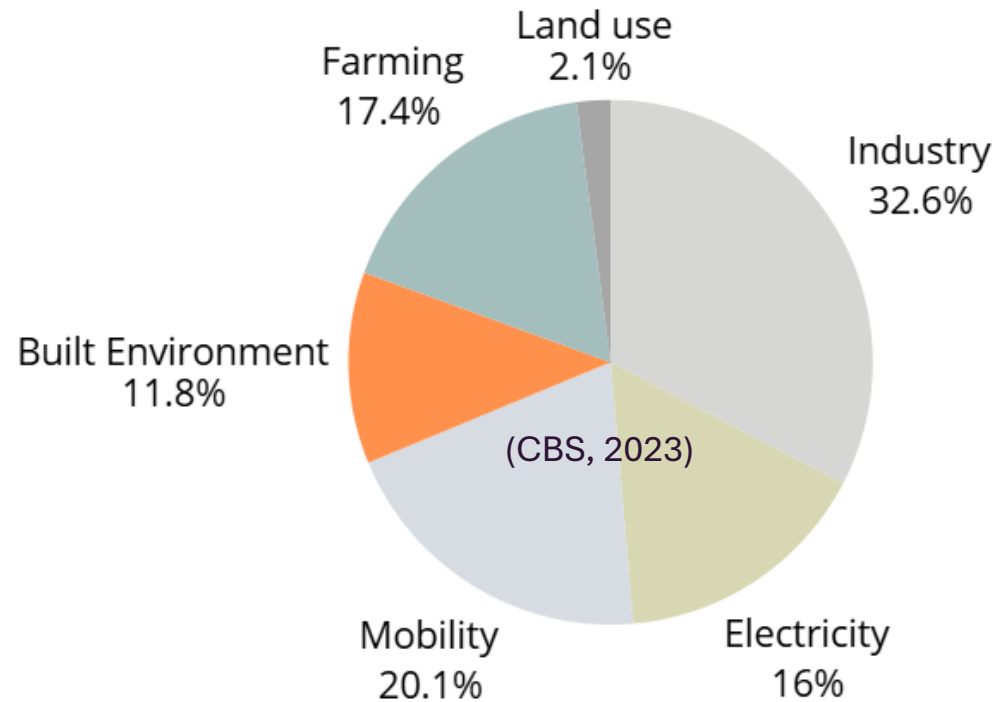
EPBD



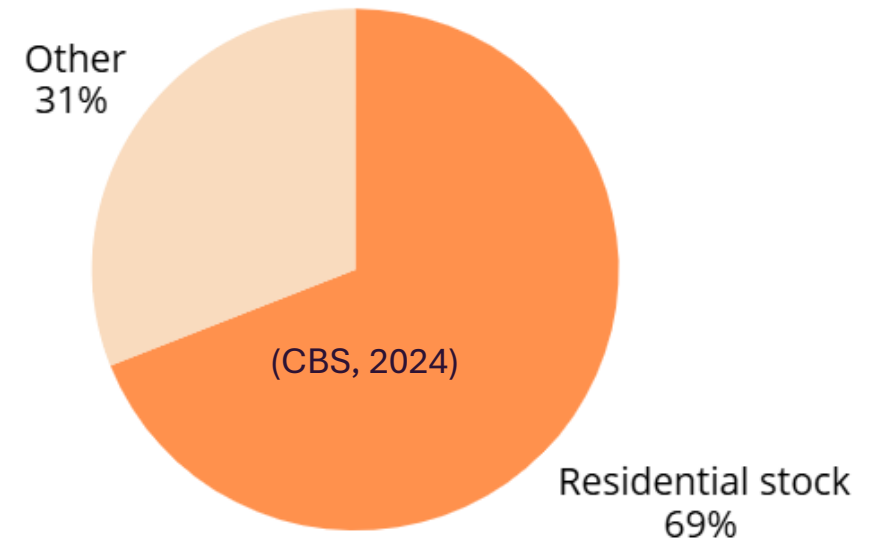
Dutch Climate Act

Background & problem statement

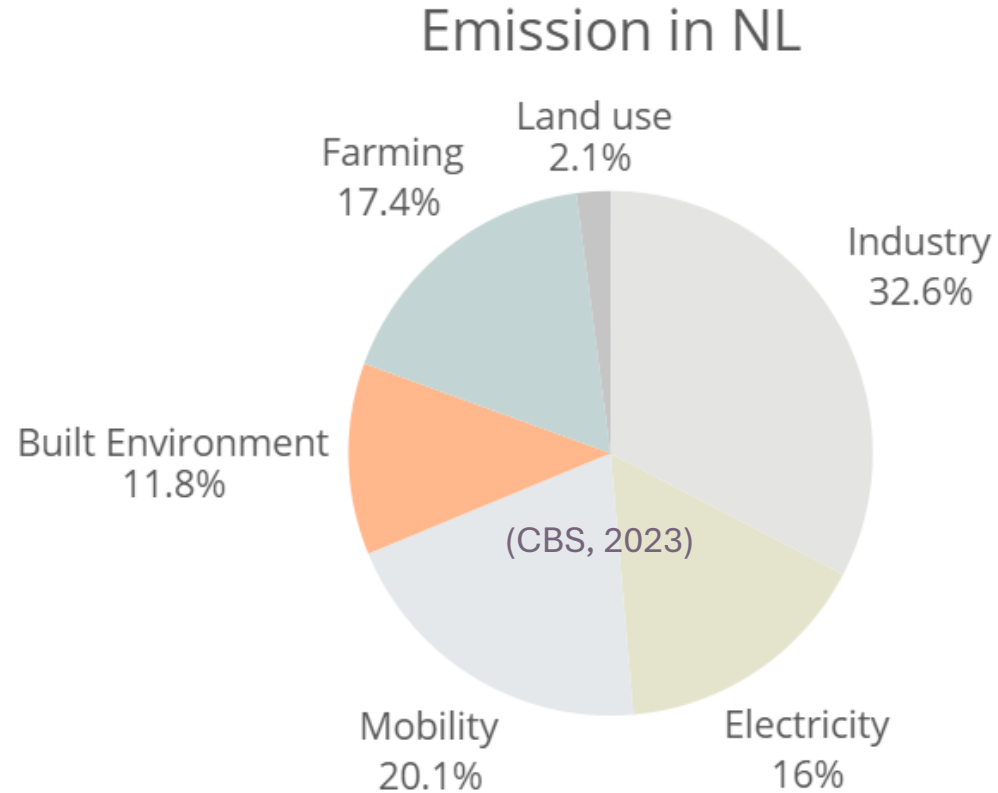
Emission in NL



Built environment



Background & problem statement



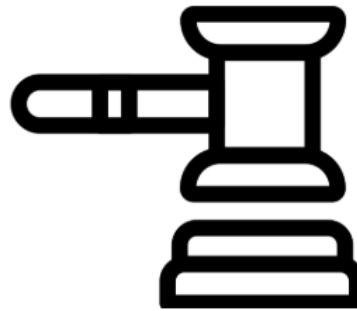
Background & problem statement



Technical



Organisational



Legal

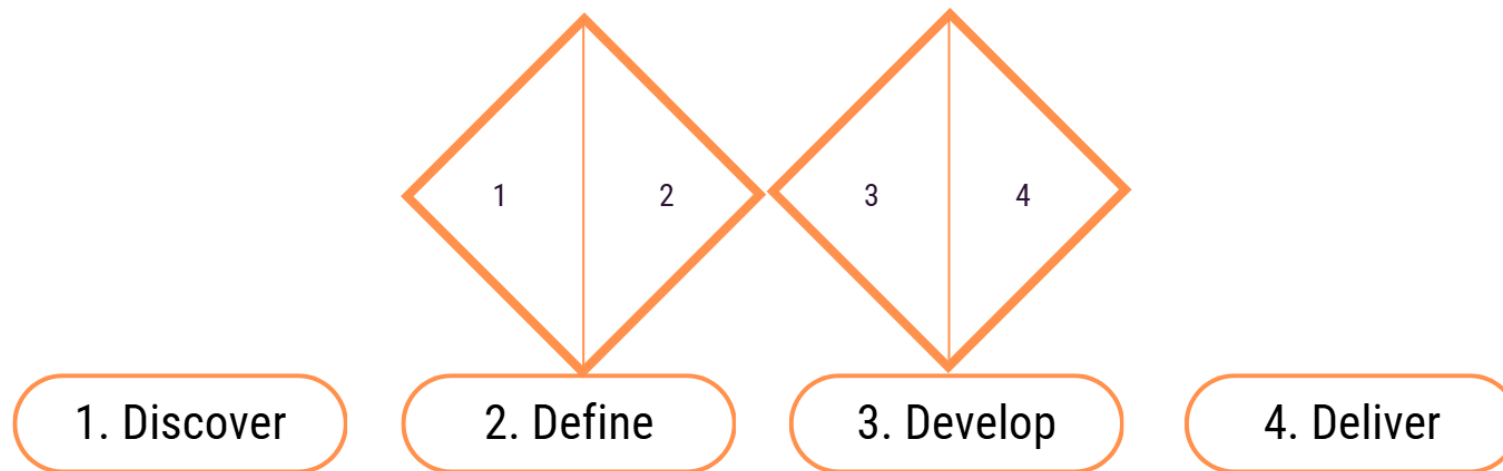


Financial

How can co-owners associations in the Netherlands overcome financial barriers to their energy transition with the support of public–private financial models?

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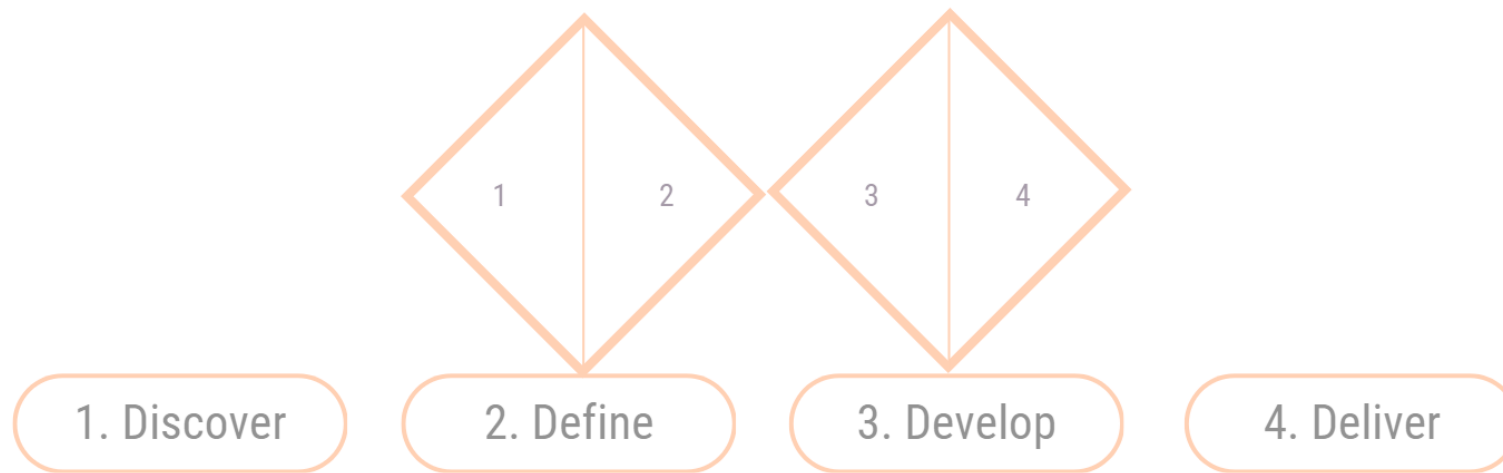


1. What are the financial barriers for Dutch co-owners associations to undertake energetic renovations to their condominiums?

2. What are the financial opportunities available for Dutch co-owners associations to undertake energetic renovations to their condominiums?

3. What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?

4. How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



Financing instrument framework



Policy recommendations

SQ1: What are the financial barriers for Dutch co-owners associations to undertake energetic renovations?

- high upfront costs
- limited reserve funds
- difficult collection of funds
- split incentives
- financial burden for individual co-owners
- Co-owners association manager business case



(Elgendy et al., 2024)

SQ2: What are the financial opportunities for Dutch co-owners associations to undertake energetic renovations?

Public
instruments

Private
instruments



(Bertoldi et al., 2024)

SQ2: What are the financial opportunities for Dutch co-owners associations to undertake energetic renovations?



(Warmtefonds, 2025)
(RVO, 2025)
(SVn, 2025)

Public
instruments

- Energiebespaarlending (Warmtefonds)
- SVVE (RVO)
- Toekomstbestendig Onderhoudsfonds (SVn)
- Stimuleringslening Kleine VvE's
- VvE Ledenlening

SQ2: What are the financial opportunities for Dutch co-owners associations to undertake energetic renovations?

- Third party financing: EaaS/Leasing
- Crowdfunding
- One-stop-shop
- On-bill financing
- Energy service companies

Private
instruments



(Bertoldi et al., 2021)

SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?



Amsterdam 16



Amsterdam 108



Zoetermeer 28



Zoetermeer 20



SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?



SVn

Advisor/account manager



Project manager



Housing association manager



Process manager



SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?

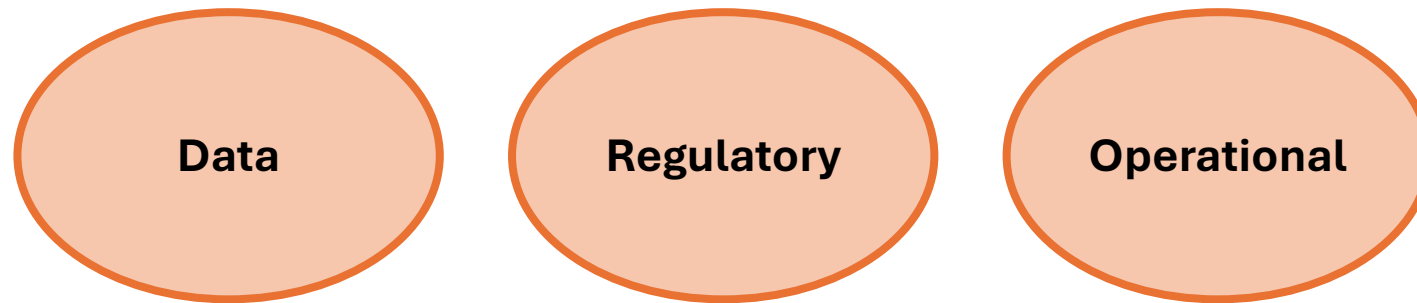


Theory of Plannend Behaviour (TPB)



(Ajzen, 1991)

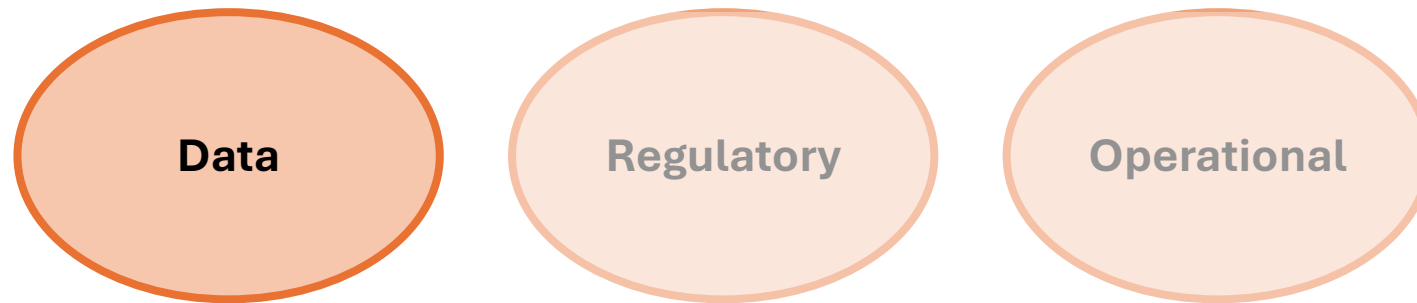
SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?



“In de praktijk gaat het vaak mis op tijdigheid en compleetheid van stukken.”

“In practice, problems often arise with regard to the timeliness and completeness of documents.”

– project manager (BKT-advies)



Finance ready dossier:

- Investment overview
- Costs per dwelling
- Current contribution

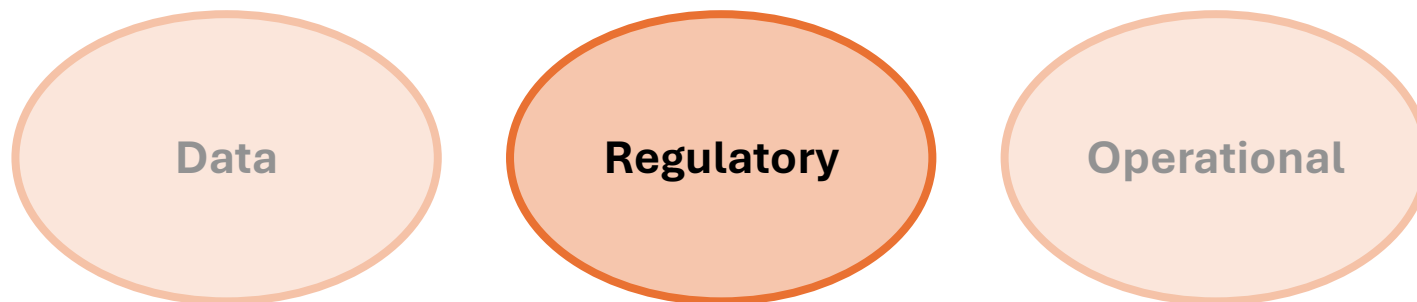
- SMYMP
- Energy information
- Quotations



“Vervang je een cv-ketel, dan moet je ook het rookgaskanaal vervangen (sinds 1-1-2023).”

“If you replace a central heating boiler, you must also replace the flue gas outlet (since 1 January 2023).”

– Amsterdam 16



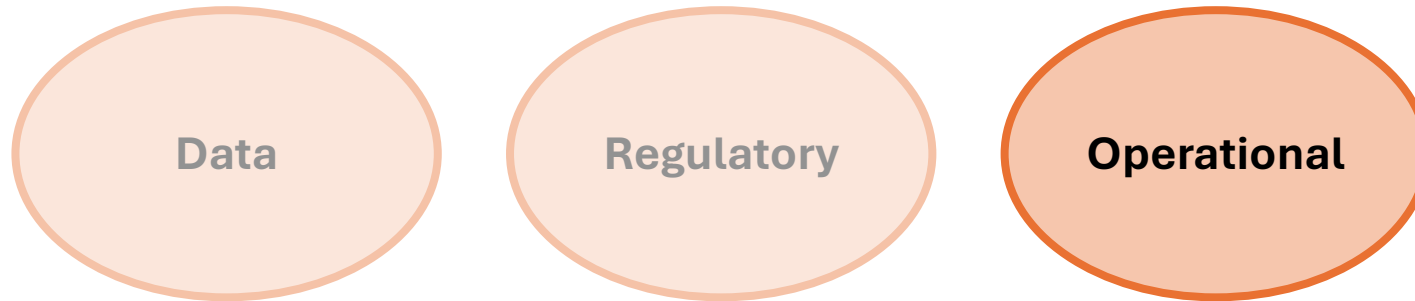
Safety & environmental obligations
Design of financing schemes
Mortgage and housing market regulations



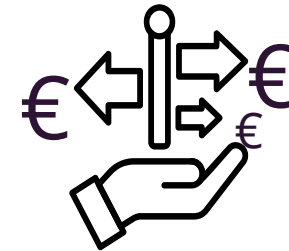
“Het begint met kennis. Als iemand eerst uitlegt wat er allemaal mogelijk is en wat het kost.”

“It starts with knowledge. If someone explains first what is possible and what it costs.”

– Zoetermeer 20



Guidance in the financing process



SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?

1. The project and barrier profile



1. Project and barrier profile		
Project	Barrier	Barrier profile
Project name	Barrier type	Barrier description
Project location	Barrier category	Barrier sub-category
Project start date	Barrier status	Barrier priority
Project end date	Barrier impact	Barrier cost
Project budget	Barrier risk	Barrier benefit
Project owner	Barrier source	Barrier solution
Project manager	Barrier level	Barrier measure
Project contact	Barrier type	Barrier action
Project status	Barrier level	Barrier result
Project notes	Barrier level	Barrier comment

2. Finance-ready dossier checklist



2. Finance-ready dossier checklist		
Checklist	Barrier	Barrier profile
Checklist item	Barrier type	Barrier description
Checklist item	Barrier category	Barrier sub-category
Checklist item	Barrier status	Barrier priority
Checklist item	Barrier impact	Barrier cost
Checklist item	Barrier risk	Barrier benefit
Checklist item	Barrier source	Barrier solution
Checklist item	Barrier level	Barrier measure
Checklist item	Barrier type	Barrier action
Checklist item	Barrier level	Barrier result
Checklist item	Barrier level	Barrier comment

3. Link between barriers and instruments available



3. Link between barriers and instruments available		
Barrier	Instrument	Barrier profile
Barrier type	Instrument type	Barrier description
Barrier category	Instrument category	Barrier sub-category
Barrier status	Instrument status	Barrier priority
Barrier impact	Instrument impact	Barrier cost
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Barrier source	Instrument source	Barrier solution
Barrier level	Instrument level	Barrier measure
Barrier type	Instrument type	Barrier action
Barrier level	Instrument level	Barrier result
Barrier level	Instrument level	Barrier comment

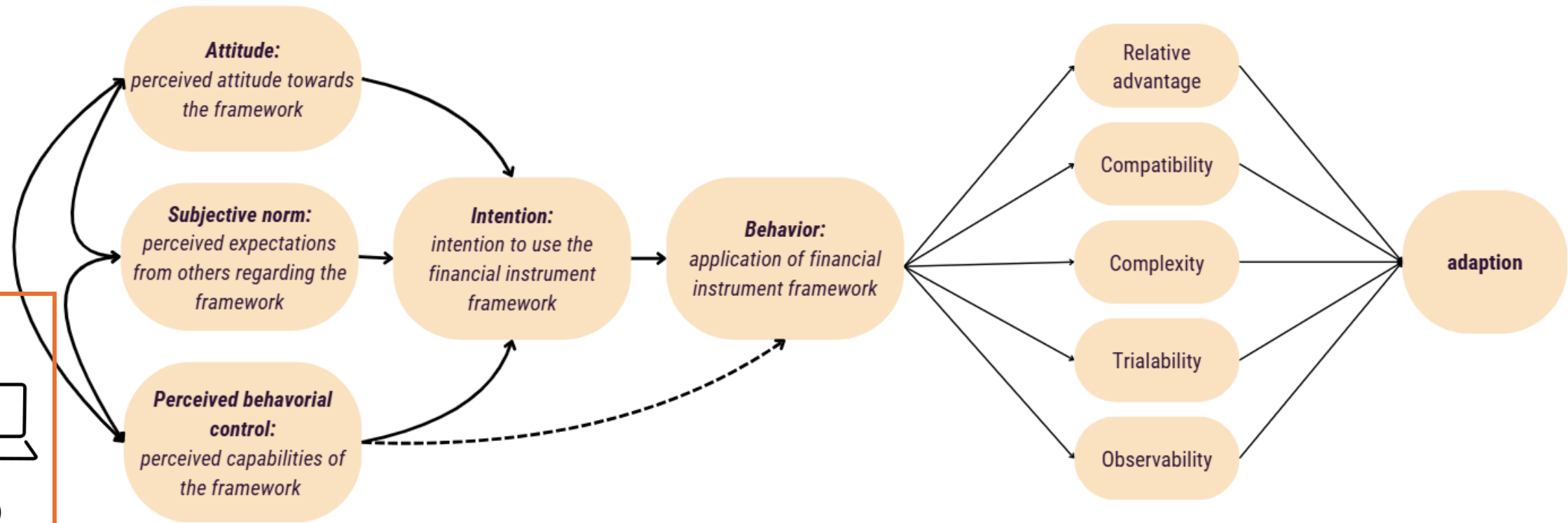
4. Monthly effects per apartment



4. Monthly effects per apartment		
Apartment	Effect	Barrier profile
Apartment name	Effect type	Barrier description
Apartment location	Effect category	Barrier sub-category
Apartment start date	Effect status	Barrier priority
Apartment end date	Effect impact	Barrier cost
Apartment budget	Effect risk	Barrier benefit
Apartment owner	Effect source	Barrier solution
Apartment manager	Effect level	Barrier measure
Apartment contact	Effect type	Barrier action
Apartment status	Effect level	Barrier result
Apartment notes	Effect level	Barrier comment



SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



(Ajzen, 1991)
(Roger, 1962)

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



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STEP 1:
The project and
barrier profile

Item	Description	Completed by HOA
Building	Amount dwellings	
Ownership mix	% individual owners % housing association	
Cause of intention	e.g. high energy bills, defects, regulations, sustainability ambition	
Renovation scope	Brief description of the proposed renovation programme	
Total investment required (including VAT)	In € for common areas in accordance with SMYMP/Customised HOA energy advice	
Expected energy savings	Annual savings for the entire building (€/year)	
Current reserve fund	Stand and annual contribution for all owners together	
Biggest financial barriers (check)	<input type="checkbox"/> High upfront costs <input type="checkbox"/> Difficulty to collect funds <input type="checkbox"/> Insufficient total funding <input type="checkbox"/> Split incentives	

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



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STEP 2: Finance-ready dossier checklist

Category	Required information/document	Why is this necessary for funding?	Status (✓ / X)
Data	Approved SMYMP and Customised HOA advisory report	Basis for scope, costs and financing options for the measures	✓
Data	Detailed cost estimate / quotations from contractor(s)	Confirms investment amount and planning	✓
Financial	Overview of reserve fund + arrears list	Insight into financial strength and payment discipline	✓
Legal	GAM decision list (mandate, budget ceiling, choice of financing for phases 6, 9, 11)	Legal proof that owners agree to loan + measures	✓
Legal	Up-to-date Chamber of Commerce extract (including correct HOA-name, address, and authorised signatories)	Legal registration to apply for loan contracts	✓
Operational	Appointed contact person on behalf of the HOA	1 point of contact for external advisers, financiers, and contractors	✓
Operational	Overall project planning linked to a 13-phase timeline (Appendix 1)	Enables coordination with payments, subsidies and M&V	✓

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



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STEP 3:

Link between
barriers and
instruments
available

Financial barriers	Recommended public instruments (first choice)	Recommended private instruments (if needed)
High upfront costs	<input type="checkbox"/> Energie bespaarlening (Warmtefonds) <input type="checkbox"/> SVVE (subsidies) <input type="checkbox"/> TOF (maintenance + energy renovation) (8≥ apartments) <input type="checkbox"/> SKV (maintenance + energy renovation) (8< apartments)	<input type="checkbox"/> Reserve fund <input type="checkbox"/> Crowdfunding <input type="checkbox"/> Leasing <input type="checkbox"/> EaaS <input type="checkbox"/> ESCO <input type="checkbox"/> OBF <input type="checkbox"/> OSS
Difficult collection of funds	<input type="checkbox"/> Energie bespaarlening (Warmtefonds) <input type="checkbox"/> SVVE (subsidies) <input type="checkbox"/> TOF (maintenance + energy renovation) (8≥ apartments) <input type="checkbox"/> SKV (maintenance + energy renovation) (8< apartments)	<input type="checkbox"/> Crowdfunding (platform collects) <input type="checkbox"/> EaaS (bundels capex + operation) <input type="checkbox"/> ESCO (bundels capex + operation) <input type="checkbox"/> OSS (organises process)
Lack of sufficient funding	<input type="checkbox"/> Energie bespaarlening (Warmtefonds) <input type="checkbox"/> SVVE (subsidies) <input type="checkbox"/> TOF (maintenance + energy renovation) (8≥ apartments) <input type="checkbox"/> SKV (maintenance + energy renovation) (8< apartments)	<input type="checkbox"/> Reserve fund <input type="checkbox"/> Crowdfunding <input type="checkbox"/> Leasing <input type="checkbox"/> EaaS <input type="checkbox"/> ESCO <input type="checkbox"/> OBF <input type="checkbox"/> OSS
Financial burden for individual co-owners	<input type="checkbox"/> Energie bespaarlening (Warmtefonds) <input type="checkbox"/> VvE Ledenlening (Warmtefonds) <input type="checkbox"/> SVVE (subsidies)	<input type="checkbox"/> Leasing (smaller monthly contribution) <input type="checkbox"/> EaaS (smaller monthly contribution) <input type="checkbox"/> ESCO (repay costs from realised energy savings) <input type="checkbox"/> OBF (less costs after measurements)

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



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STEP 4:
Monthly effects
per apartment

Input:

- Energiebespaarlening:
- term: 20 years with 4.19% interest
- Energy costs before renovation €2.400/year/apartment
- Estimated energy costs after renovation €1.440/year/apartment
- Monthly contribution association: €2.100/year/apartment

Component	Amount €	Explanation
A. Total investment costs	€3.672.000,-	From SMYMP/quotations
B. Subsidies	€1.101.600,-	Total of all subsidies
C. Use of reserve fund	€ 0,00	Extraction from fund
D. Public loans	€3.672.000,-	Total of all public loans
E. Private loans	€ 0,00	Sum of other financing
Net to be financed through loans (D+E)	€2.570.400,-	= A-B-C

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?



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STEP 4:
Monthly effects
per apartment

Input:

- Energiebespaarlening:
- term: 20 years with 4.19% interest
- Energy costs before renovation €2.400/year/apartment
- Estimated energy costs after renovation €1.440/year/apartment
- Monthly contribution association: €2.100/year/apartment

Post	HOA (€/year)	app. (€/year)	app. (€/month)
1. Annual repayment + interest on all loans	€191.824,-	€ 1.776,-	€ 148,-
2. Additional annual reserve	€ 0,00	€ 0,00	€ 0,00
3. Total additional HOA-costs after renovation (1+2)	€191.824,-	€ 1.776,-	€ 148,-
4. Expected energy costs after renovation	€155.520,-	€1.440,-	€ 120,-
5. Expected energy costs before renovation	€259.200,-	€2.400,-	€ 200,-
6. Total housing costs after renovation (3+4+existing HOA-contributions)	€366.244,-	€ 3.391,-	€ 283,-
7. Total housing costs before renovation (5+existing HOA-contributions)	€277.900,-	€ 2.573,-	€ 214,-
8. Difference in housing costs after/before (6-7)	€ 88.344,-	€ 818,-	€ 68,-

SQ4: How do co-owners associations and financial experts perceive the usability and adoption of the proposed financing framework?

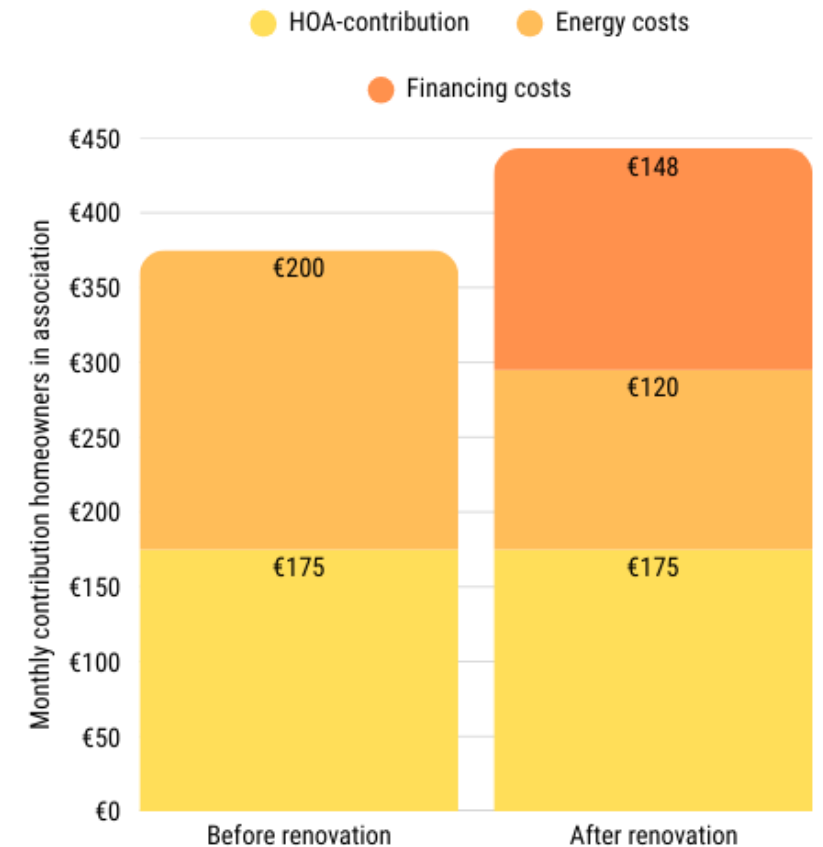


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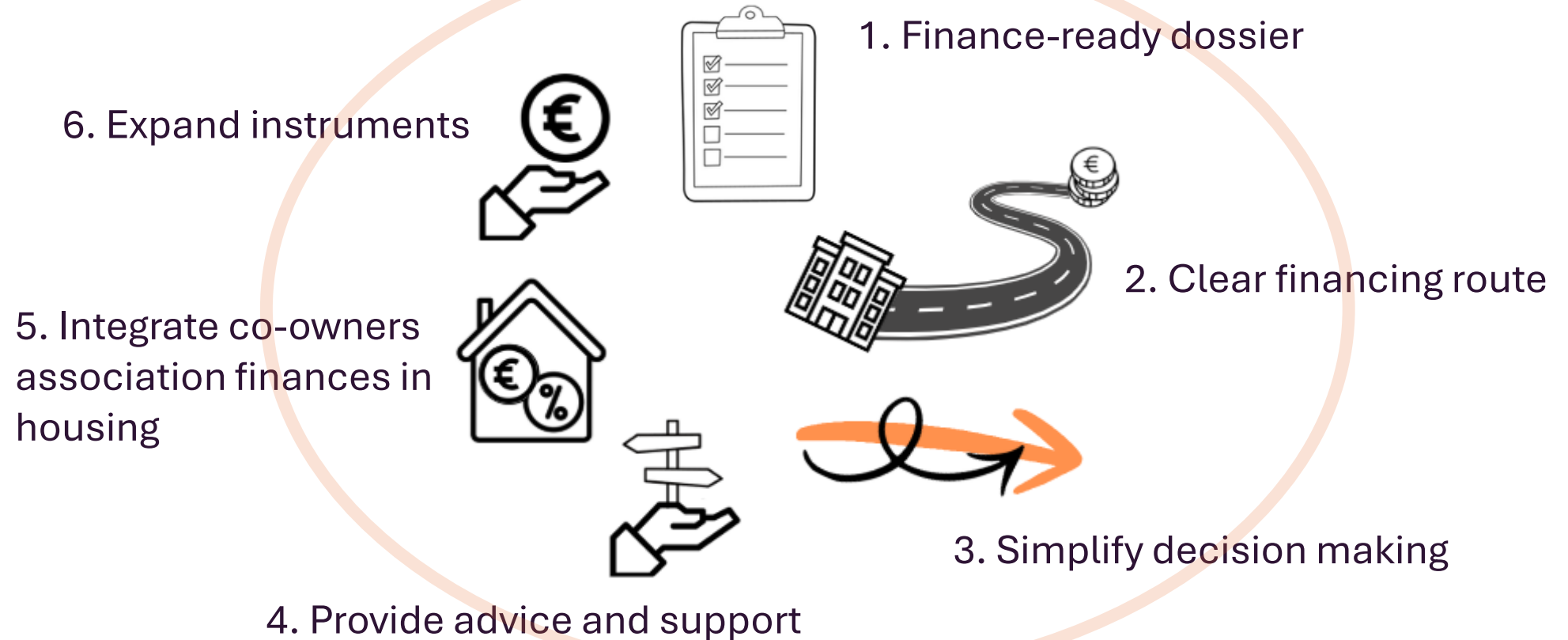
€68 monthly difference
(Per apartment/month)



STEP 4:
Monthly effects
per apartment



Policy recommendations

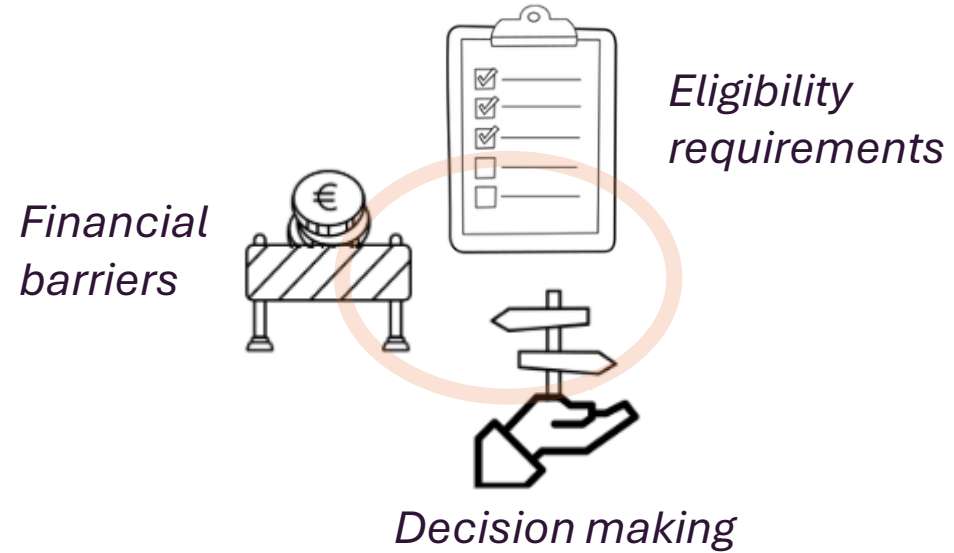


How can co-owners associations in the Netherlands overcome financial barriers to their energy transition with the support of public–private financial models?

1. Clear project and barrier profile
2. Overview of public and private instruments
3. Finance-ready dossier

Relevance & Future research

Scientifically:



Future research:

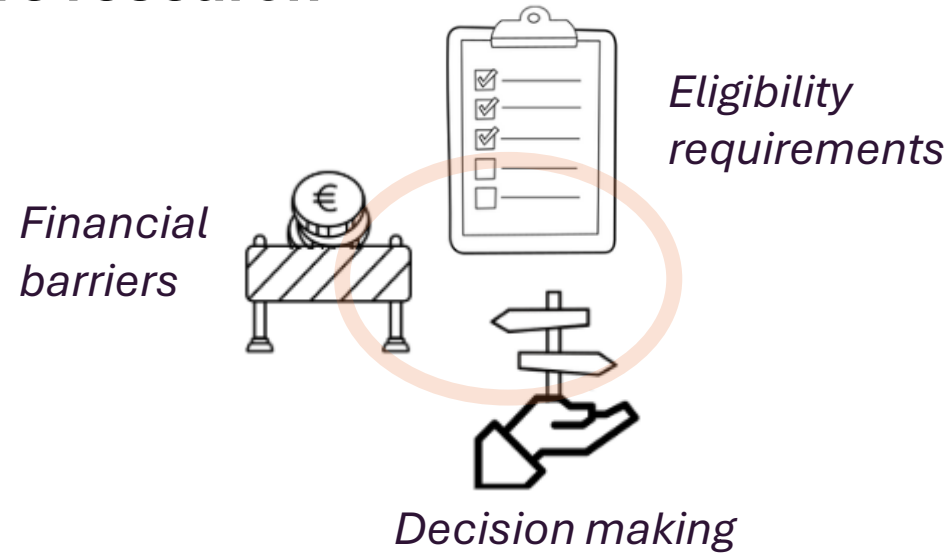


Socially:



Relevance & Future research

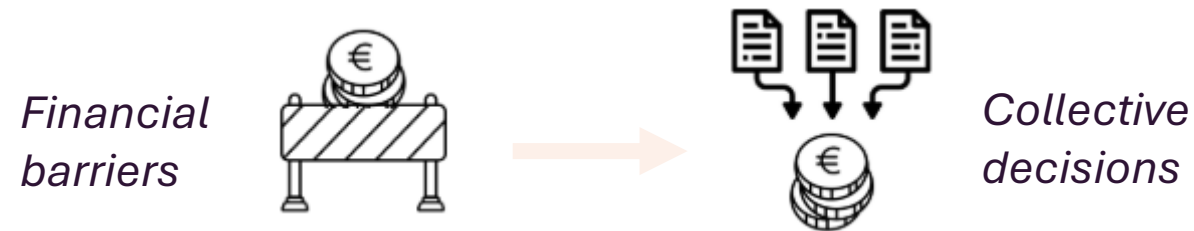
Scientifically:



Future research:

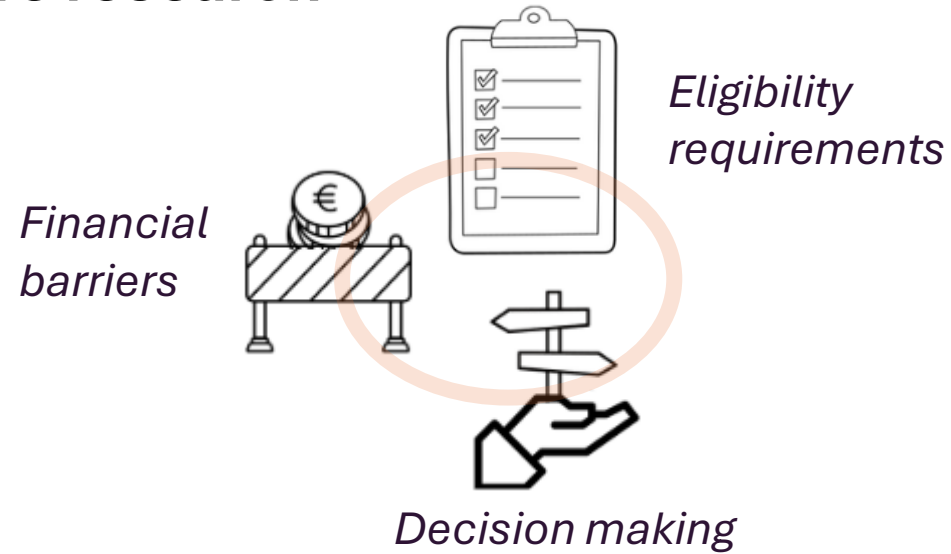


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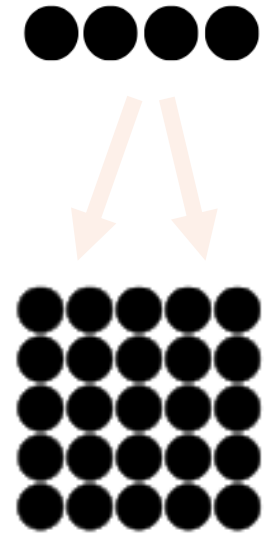


Relevance & Future research

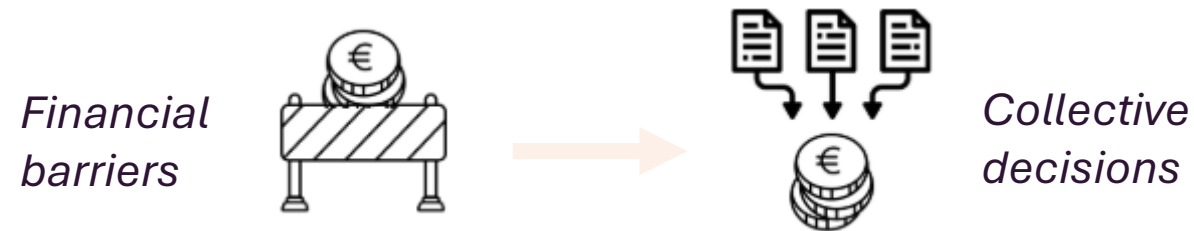
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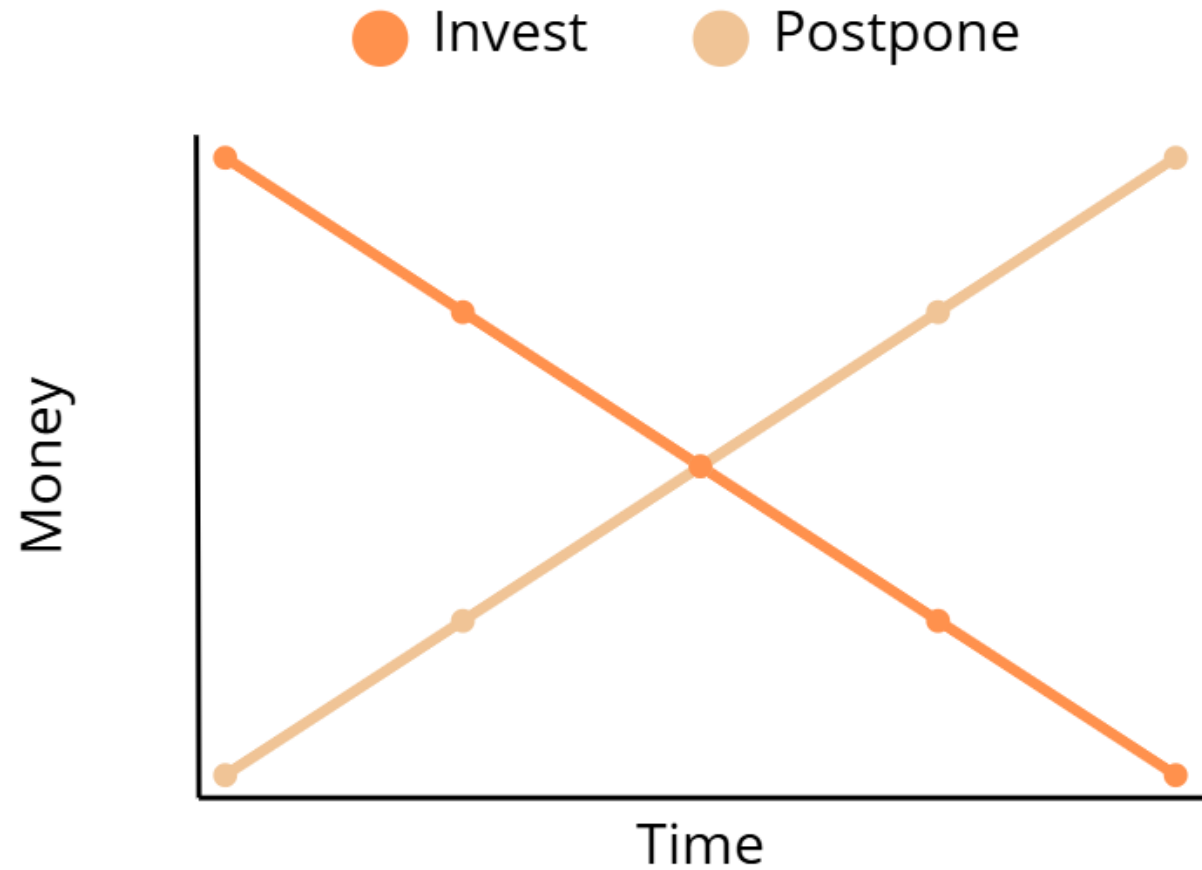
Future research:



Socially:



Relevance & Future research



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Financing the Energy Transition in Co-owners Associations

THANK YOU!

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