

Financing the Energy Transition in Co-owners Associations

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

P5

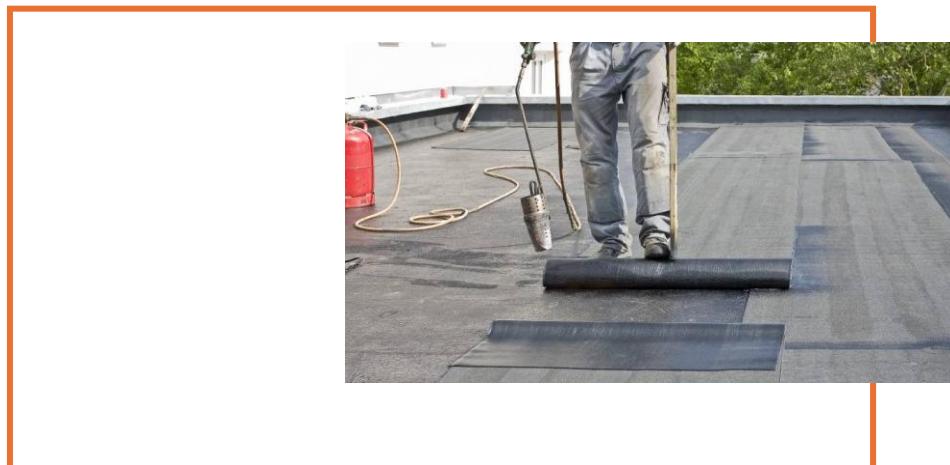
Estelle Gfeller
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- Technical University of Delft -
MSc Management in the Built Environment

21-01-2025







??? How are we going to
pay for this

Can we afford this ???

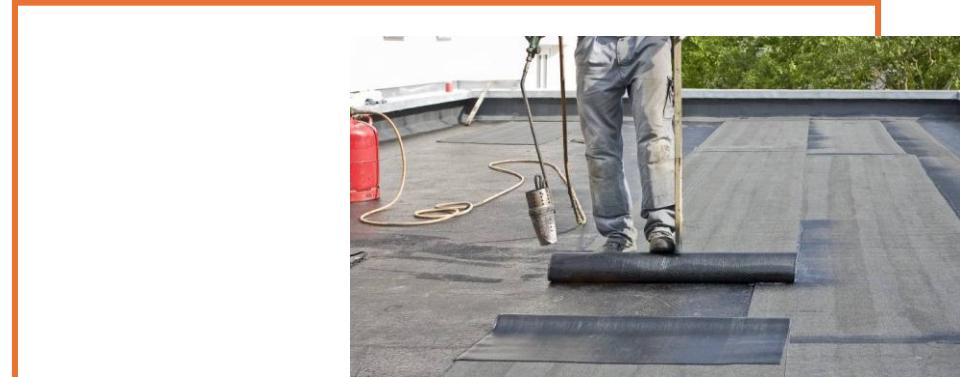


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Research method:
Desk research



Interviews

(author, date) Reference

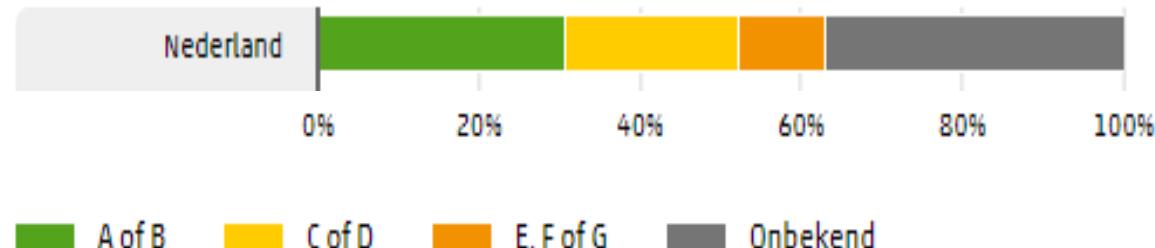
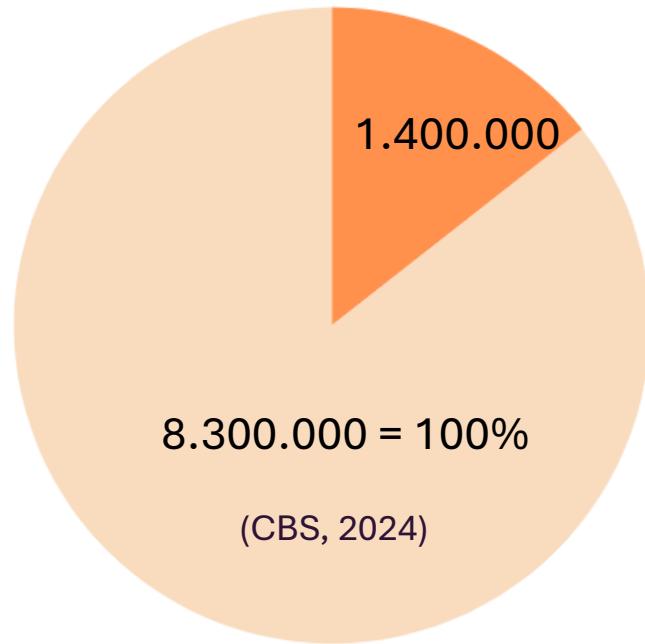
Presentation
timeline

- 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

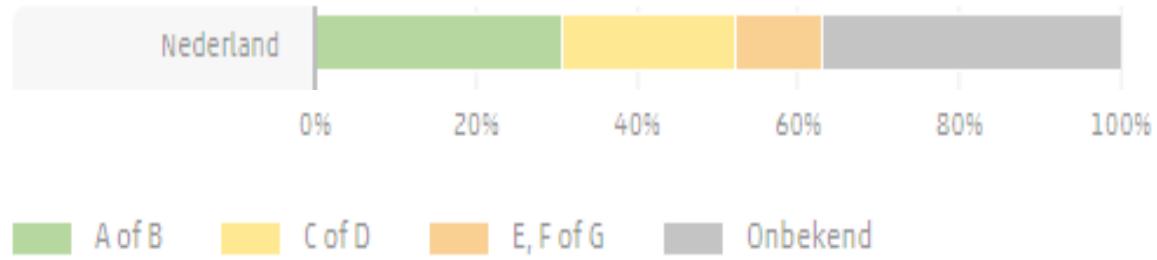
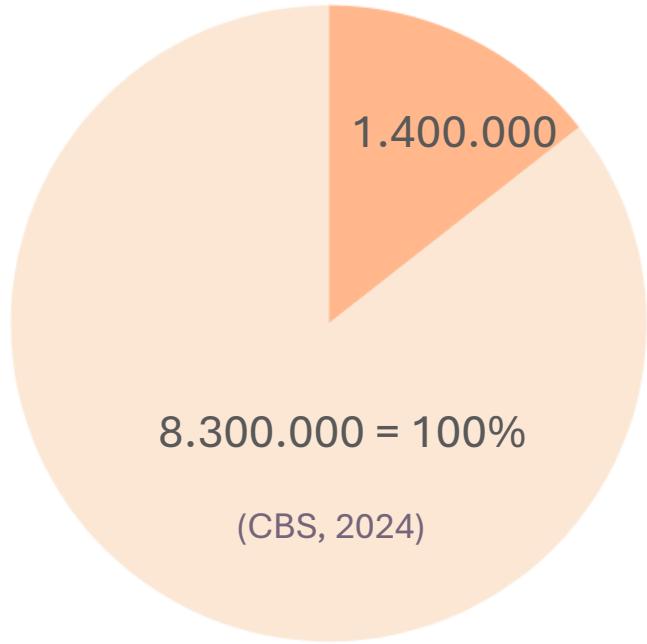


Energy labels co-owners associations (CBS, 2023)

Background & problem statement

● Co-owners

● Residential stock in NL



Energy labels co-owners associations (CBS, 2023)



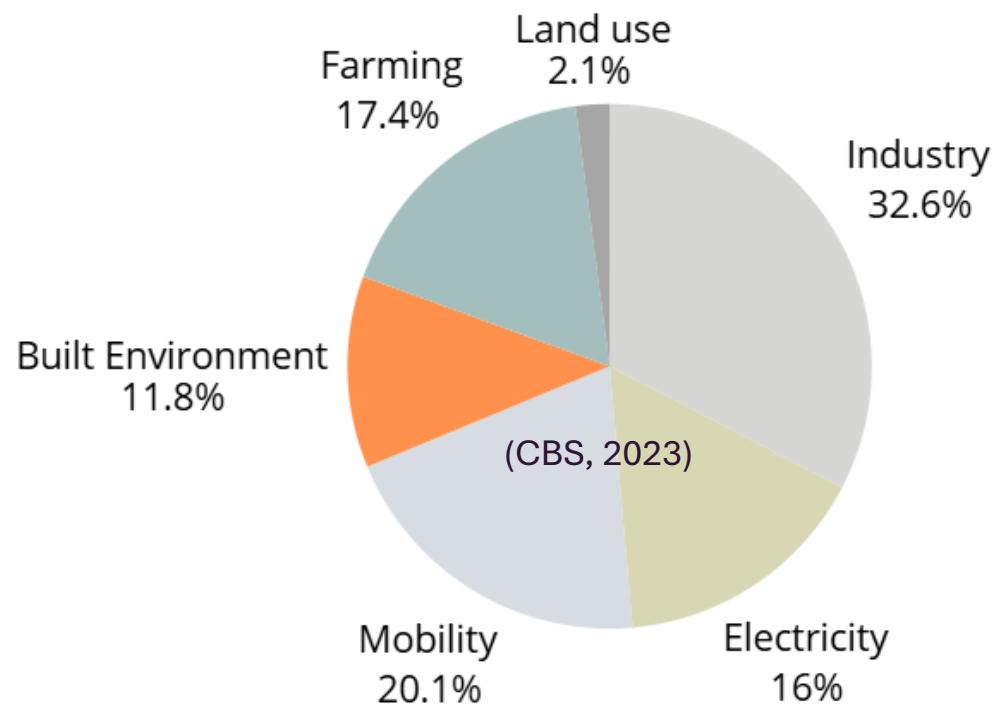
EPBD



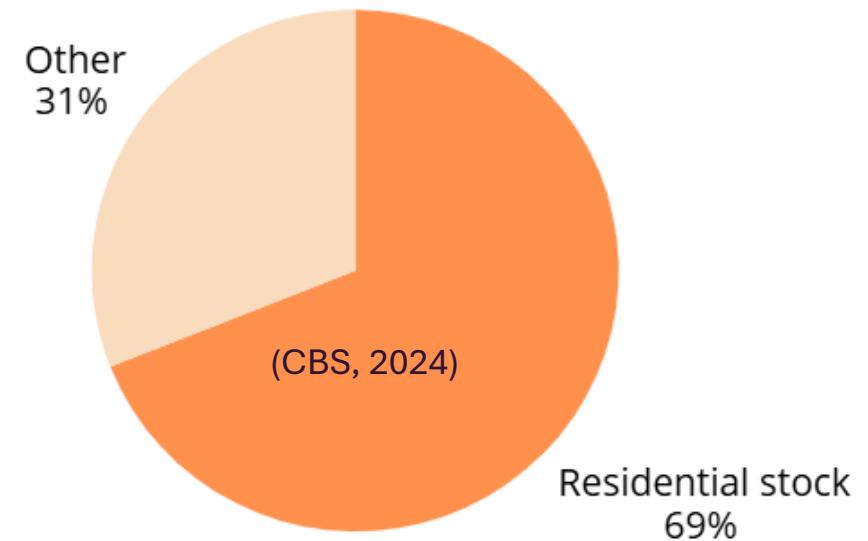
Dutch Climate Act

Background & problem statement

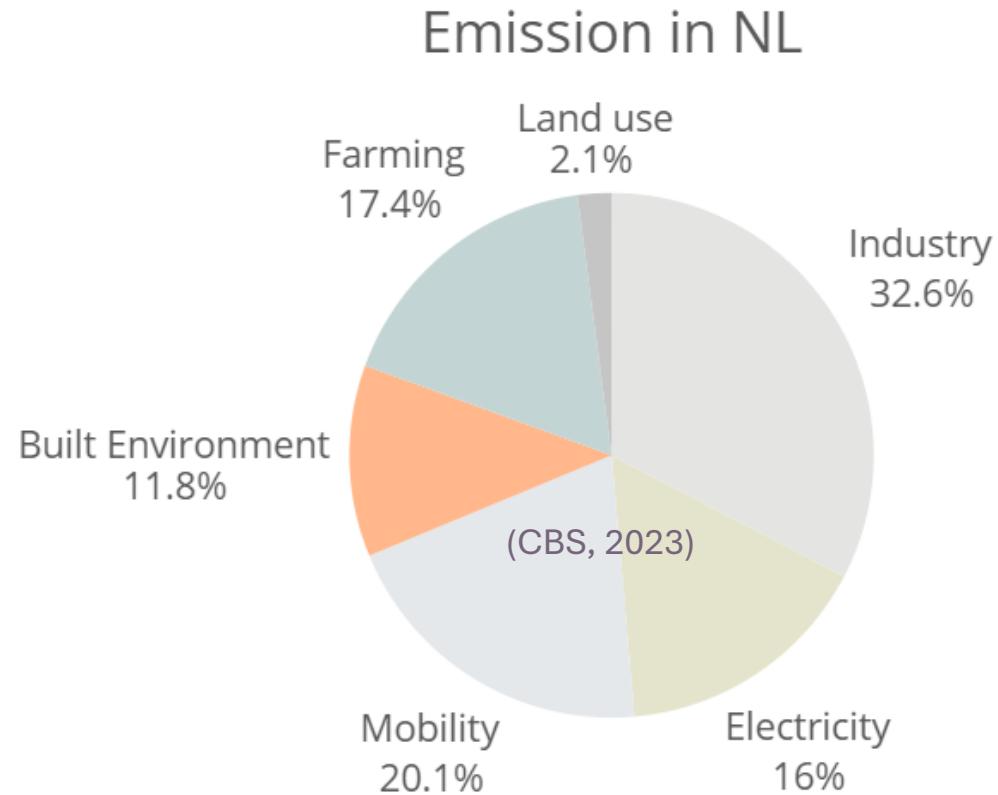
Emission in NL



Built environment



Background & problem statement



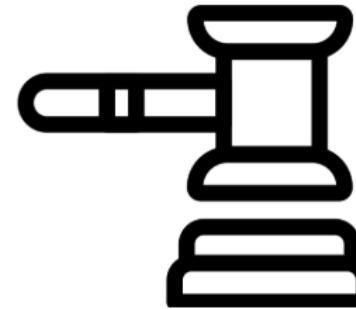
Background & problem statement



Technical



Organisational



Legal

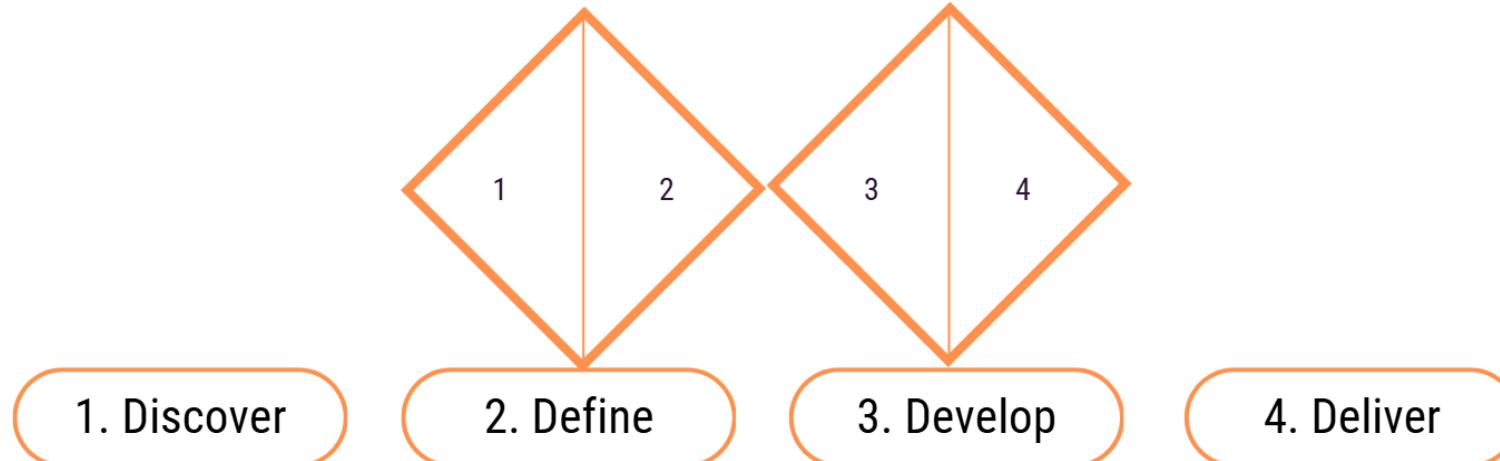


Financial

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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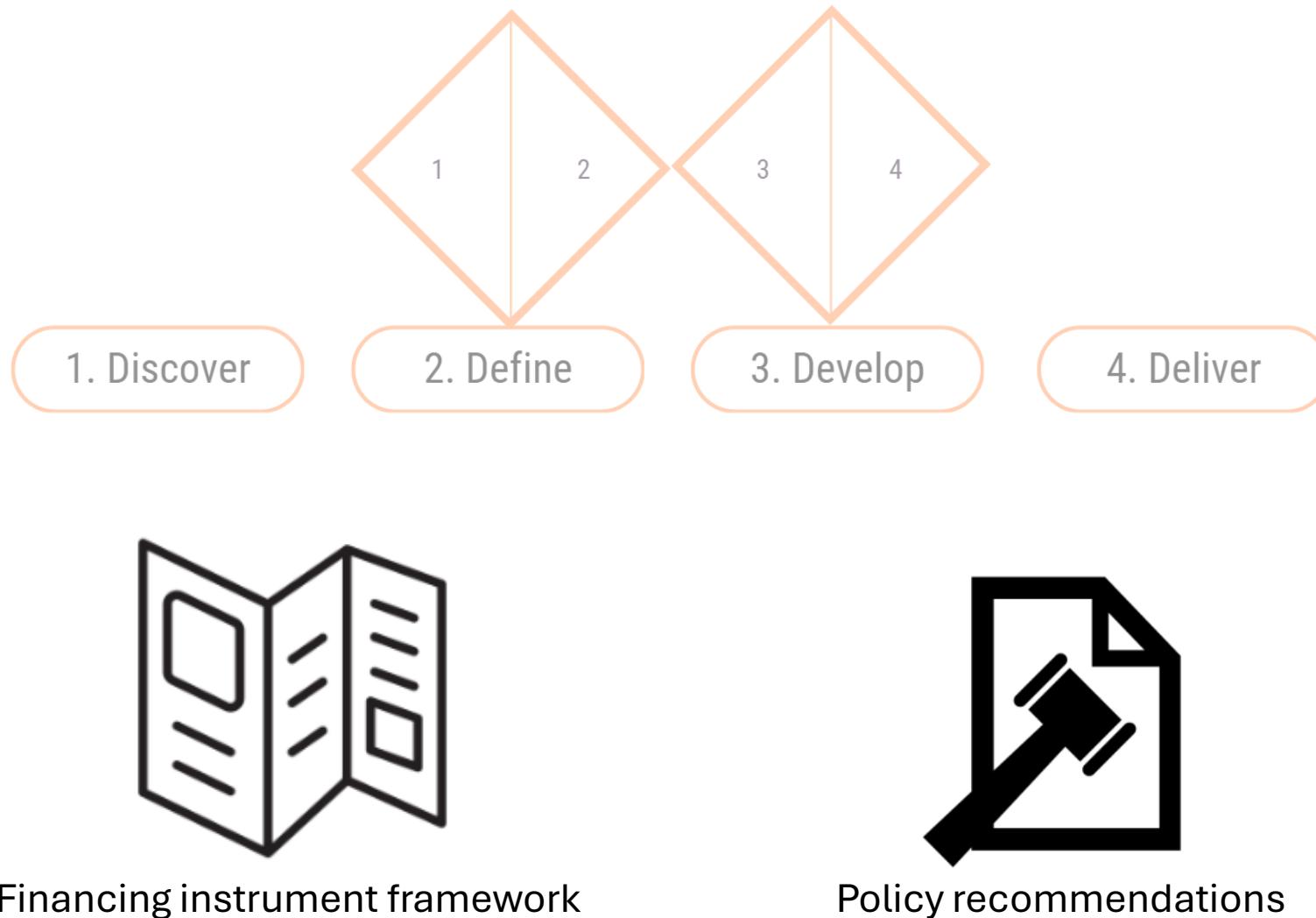


1. What are the financial barriers for Dutch co-owners associations to undertake energetic renovations to their condominiums?

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?



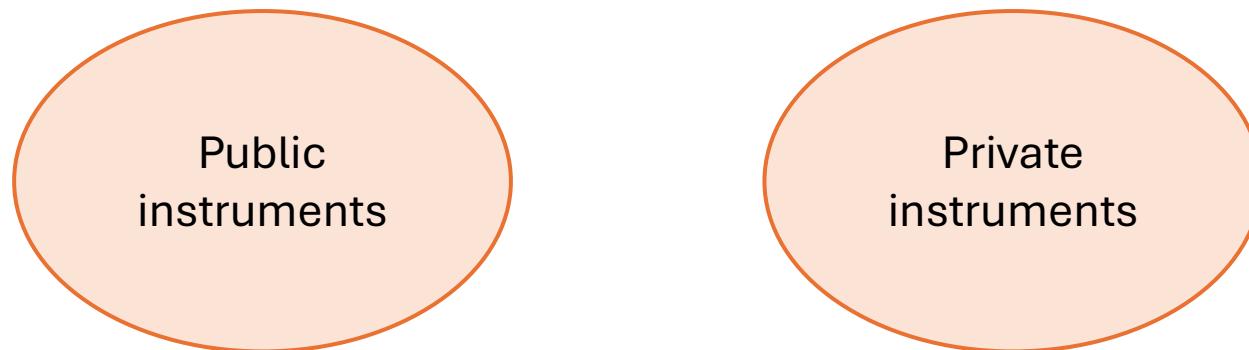
SQ1: What are the financial barriers for Dutch co-owners associations to undertake energetic renovations?

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



(Elgendi et al., 2024)

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

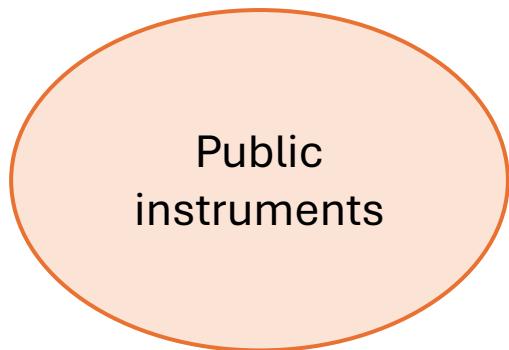


(Bertoldi et al., 2024)

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



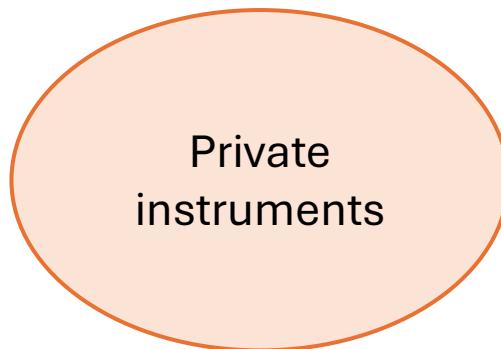
(Warmtefonds, 2025)
(RVO, 2025)
(SVn, 2025)



- Energiebespaarlening (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



(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?



Advisor/account manager

SVn



Project manager



Housing association manager



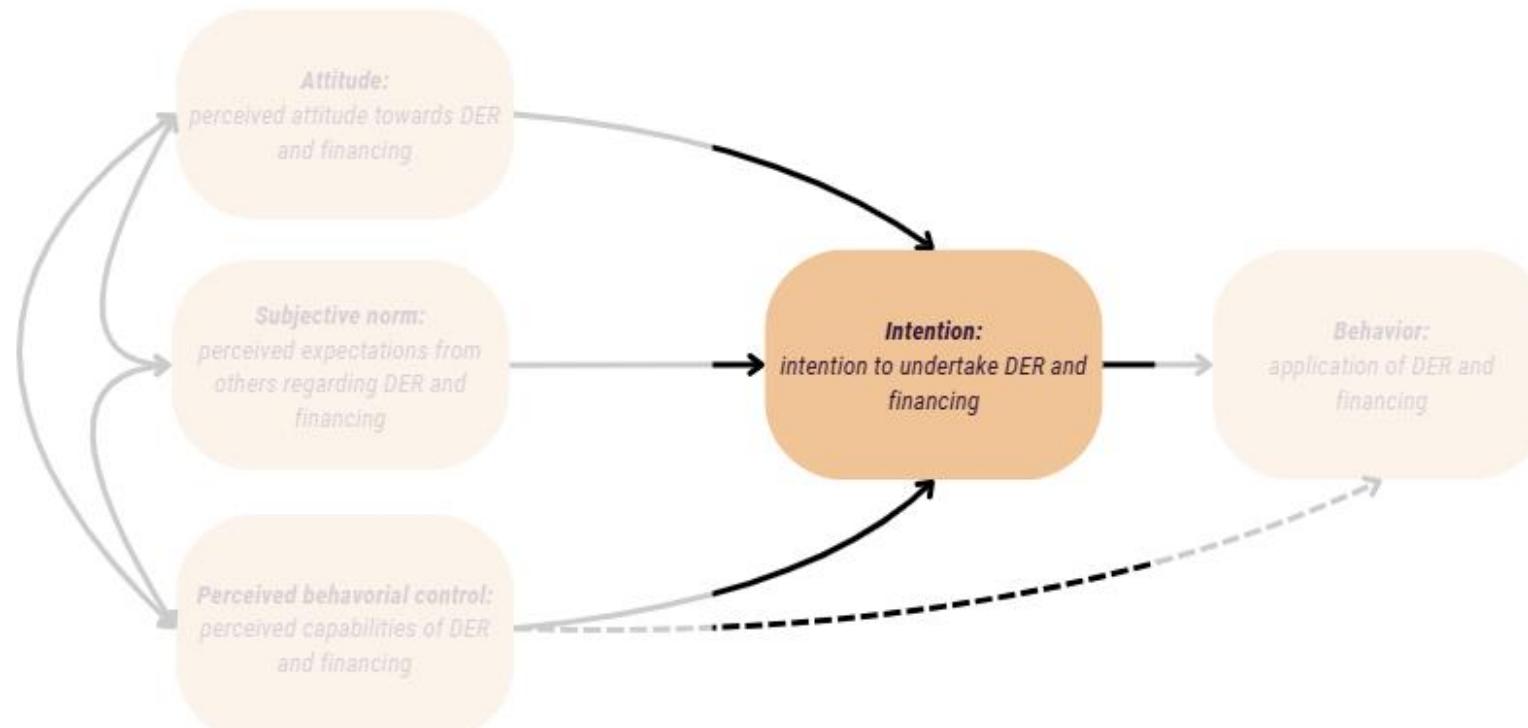
Process manager



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



(Ajzen, 1991)



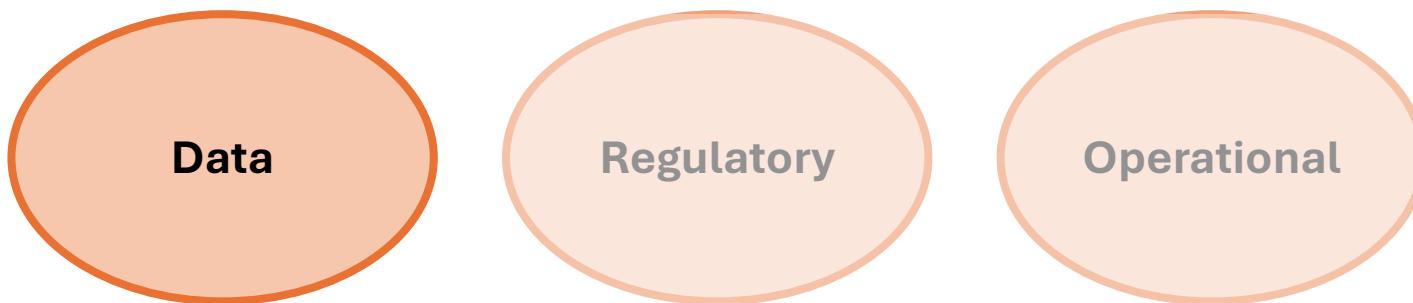
SQ3: What data, regulatory, and operational requirements must Dutch co-owners associations meet to access public and private financing to undertake energetic renovations?



“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:

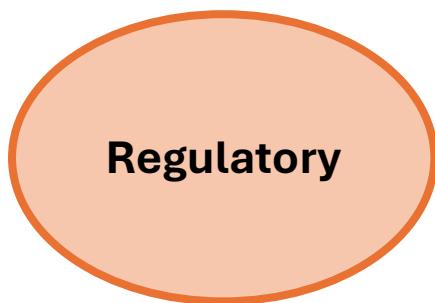
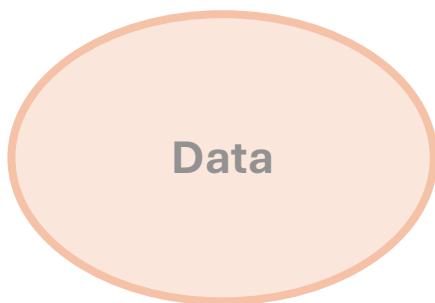
- Investment overview
- Costs per dwelling
- Current contribution
- SMYMP
- Energy information
- Quotations



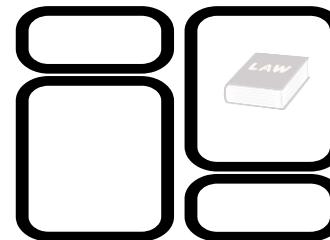
“Vervang je een cv-ketel, dan moet je ook het rookgaskanaal vervangen (sinds 1-1-2023).”

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

– Amsterdam 16



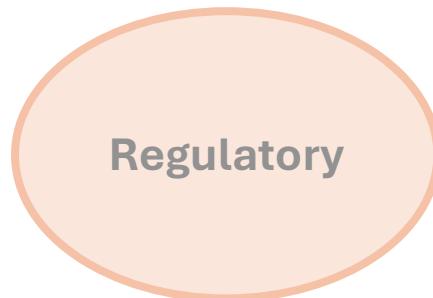
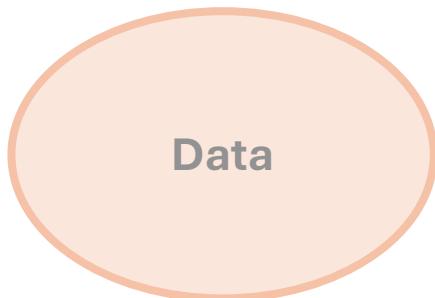
Safety & environmental obligations
Design of financing schemes
Mortgage and housing market regulations



“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



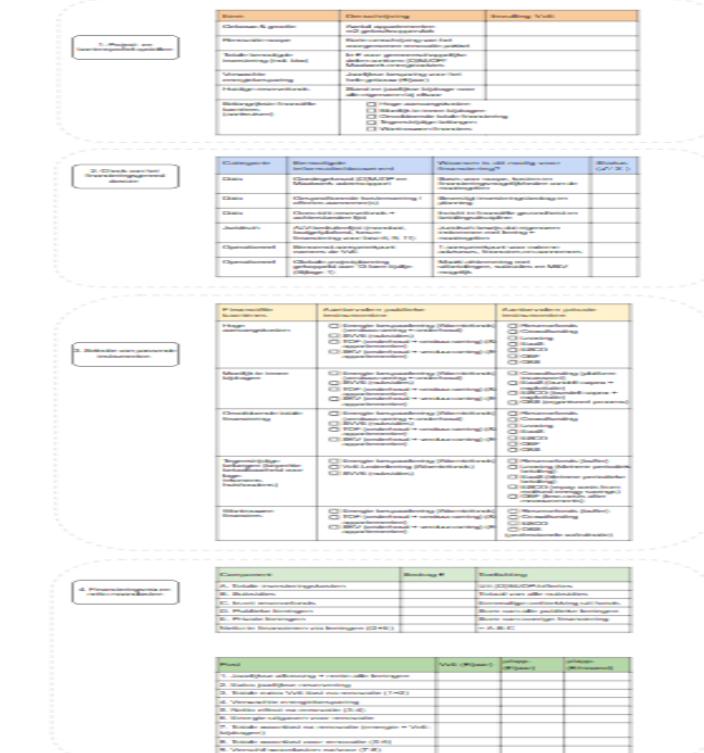
2. Finance-ready dossier checklist



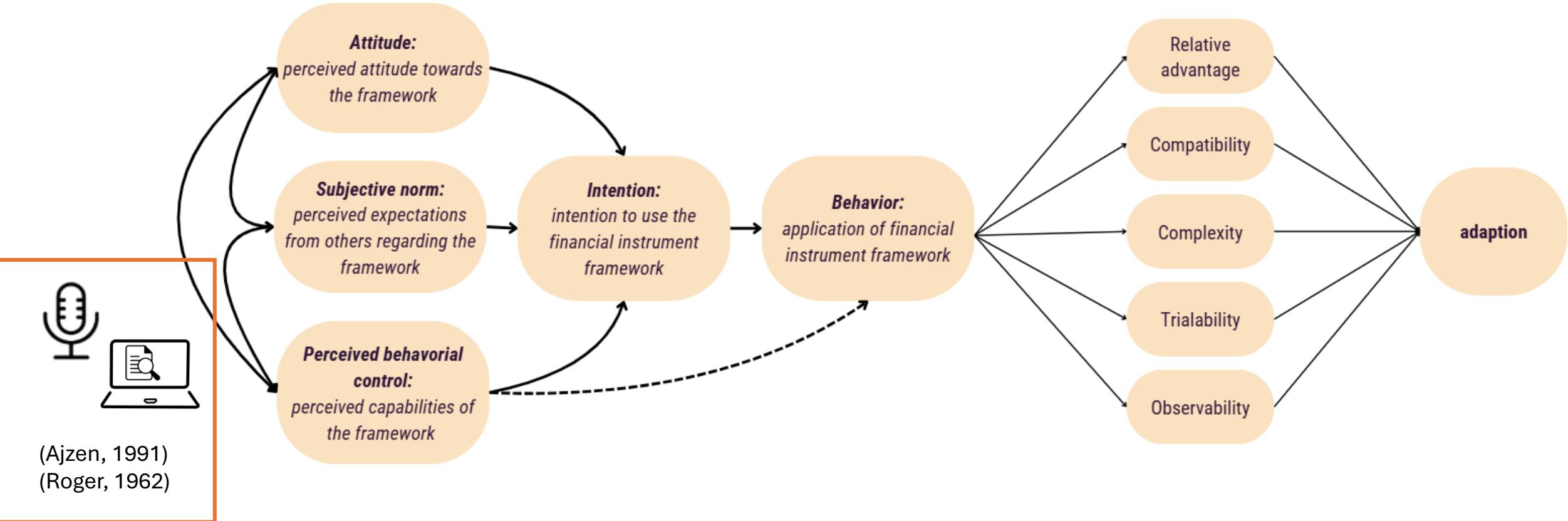
3. Link between barriers and instruments available



4. Monthly effects per apartment



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 (bundles capex + operation) <input type="checkbox"/> ESCO (bundles 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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STEP 4:
Monthly effects
per apartment

€68 monthly difference
(Per apartment/month)



Policy recommendations

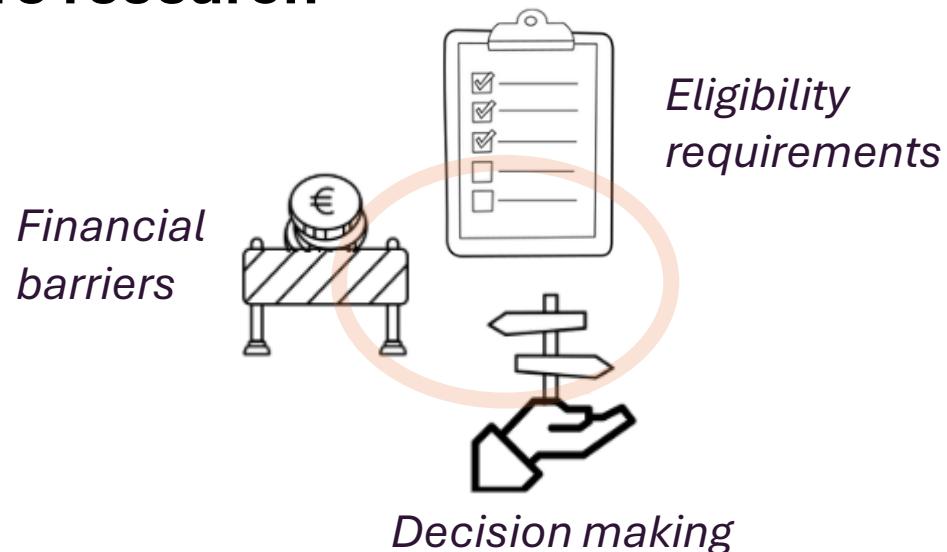


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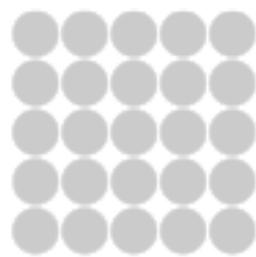
1. Clear project and barrier profile
2. Overview of public and private instruments
3. Finance-ready dossier

Relevance & Future research

Scientifically:



Future research:

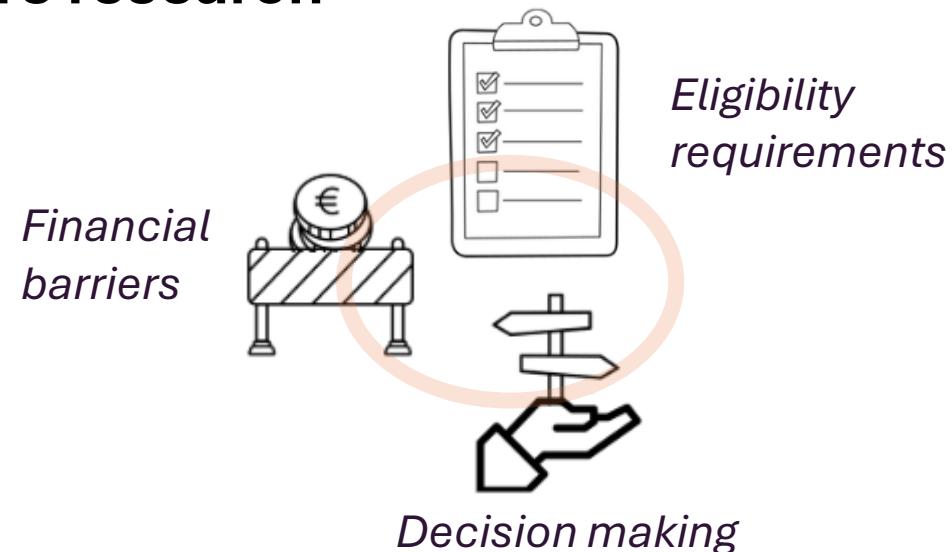


Socially:

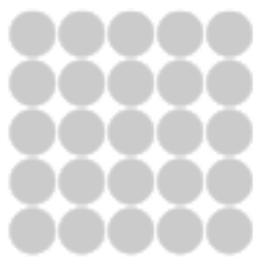


Relevance & Future research

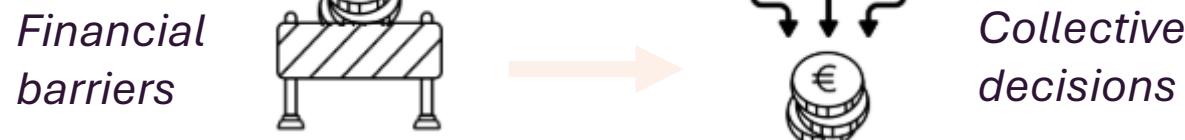
Scientifically:



Future research:

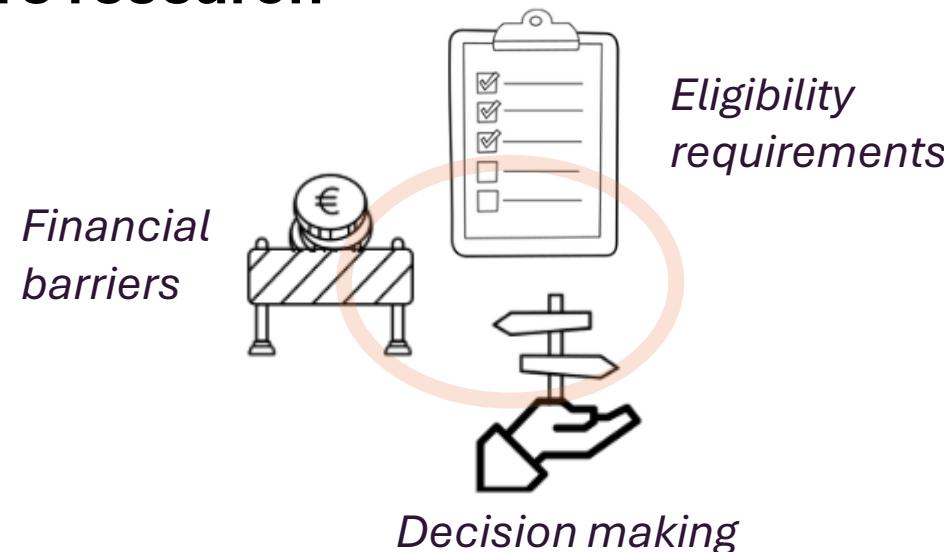


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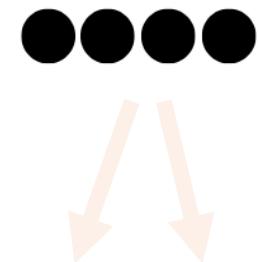


Relevance & Future research

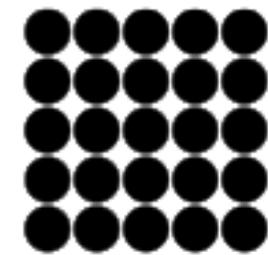
Scientifically:



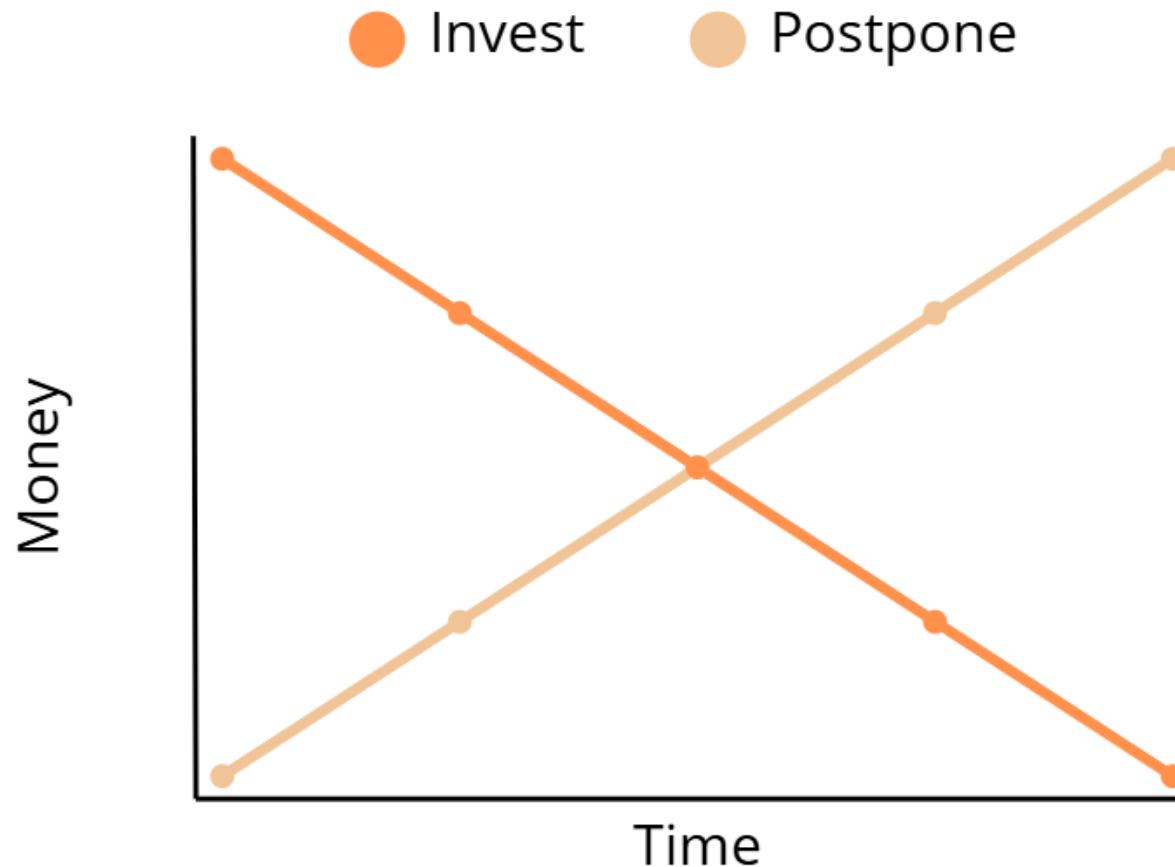
Future research:



Socially:



Relevance & Future research



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Financing the Energy Transition in Co-owners Associations

THANK YOU!

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