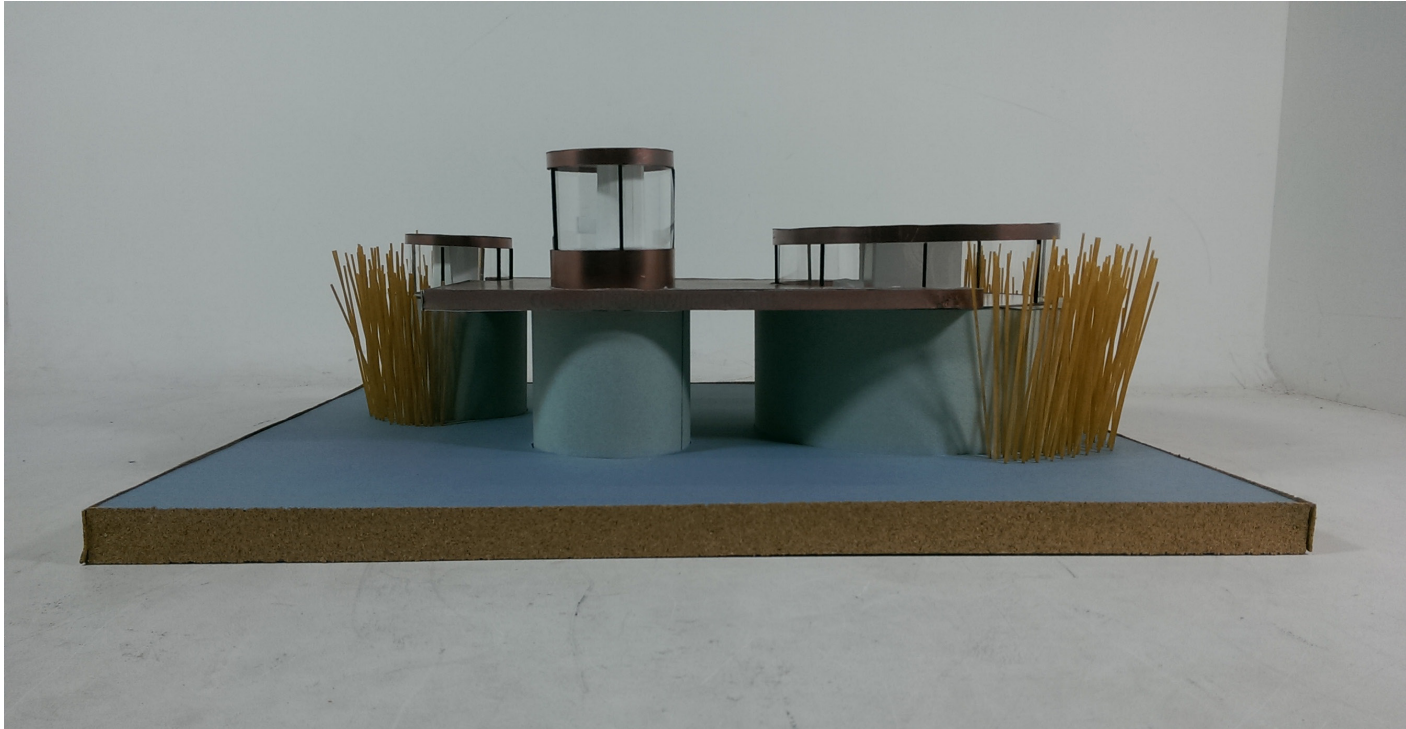


GRADUATION

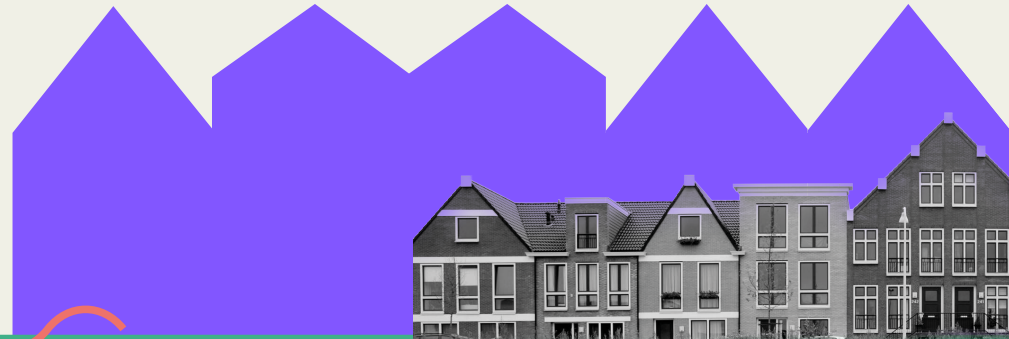
Tessie van der Voort Maarschalk

...beginnings



FLOATING URBANISATION

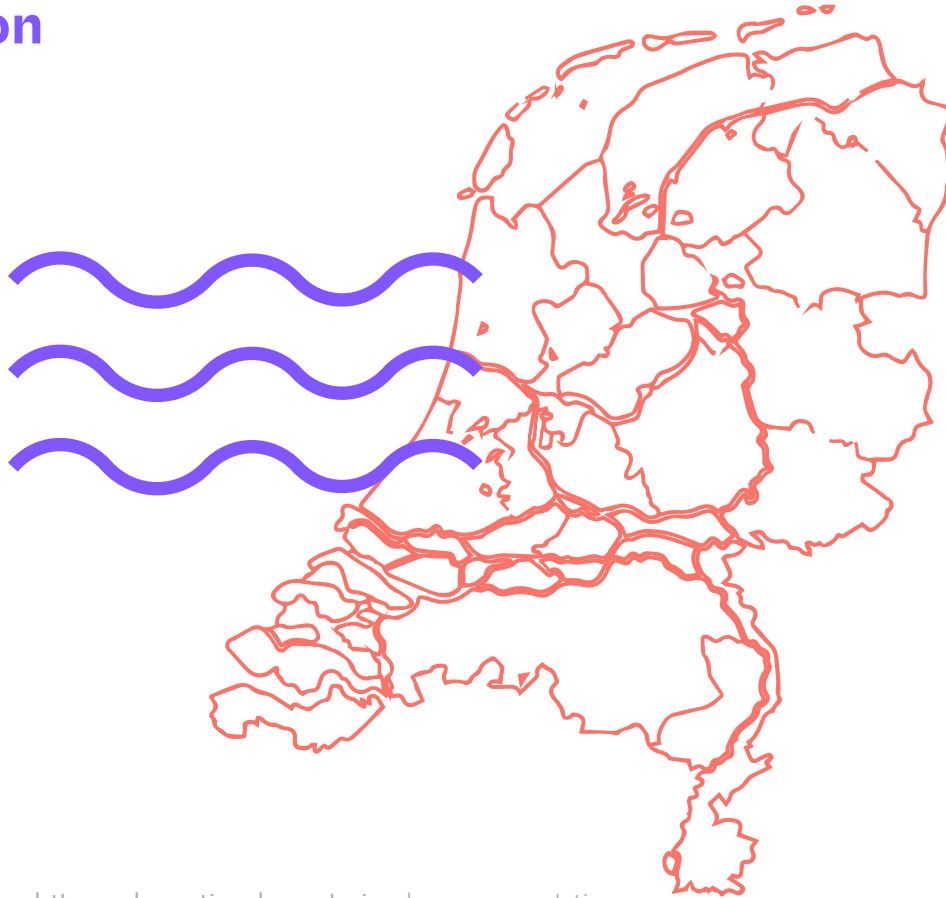
Researching the preconditions for urban development
on surface water in the Netherlands



Introduction



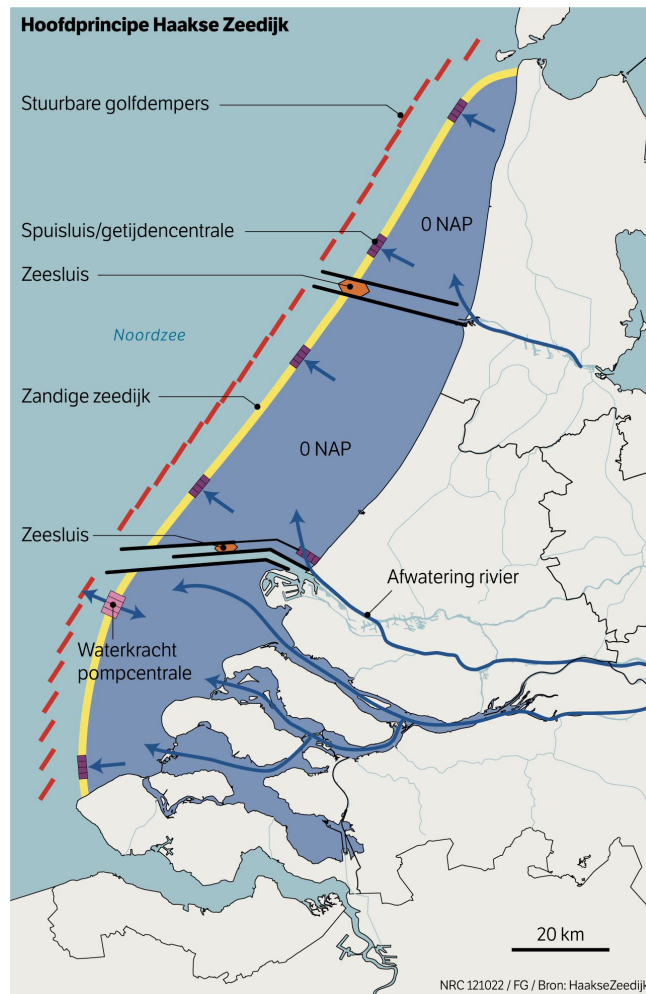
Introduction



Introduction

‘I am worried, although not about the Dutch capacity to manage the rising sea levels’

Ties Rijcken (TU Delft)



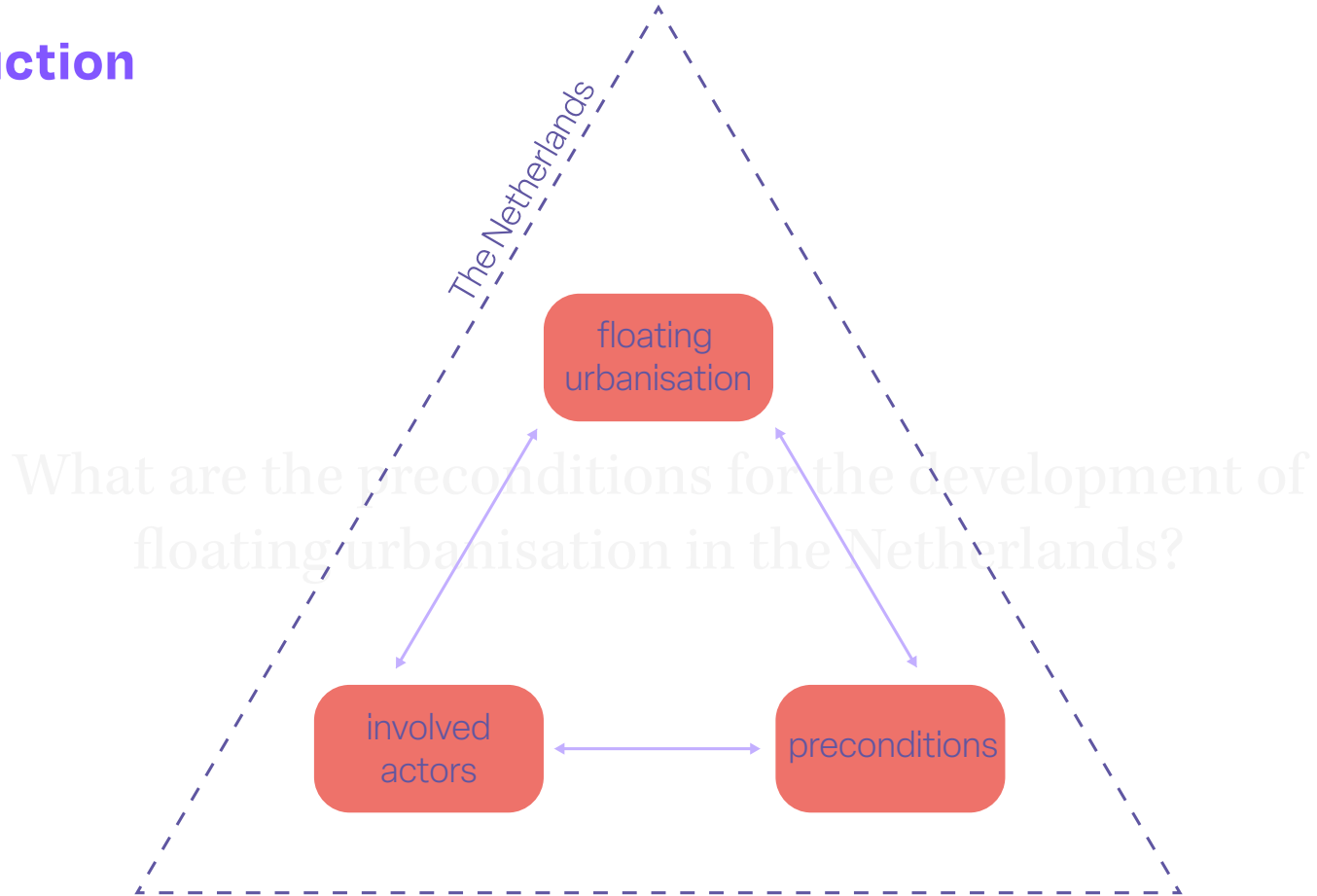
Introduction



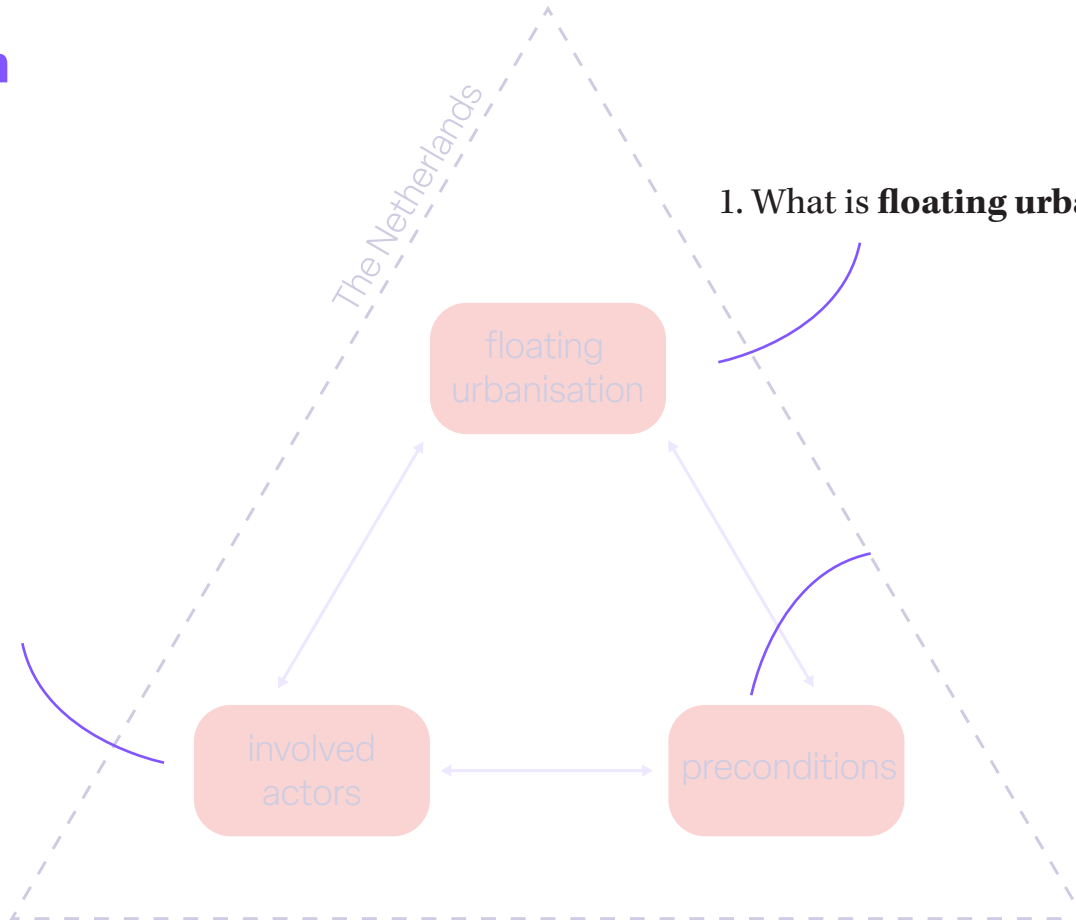
KuiperCompagnons - Omarm de chaos, Jan Rotmans

What are the preconditions for the development of floating urbanisation in the Netherlands?

Introduction



Introduction

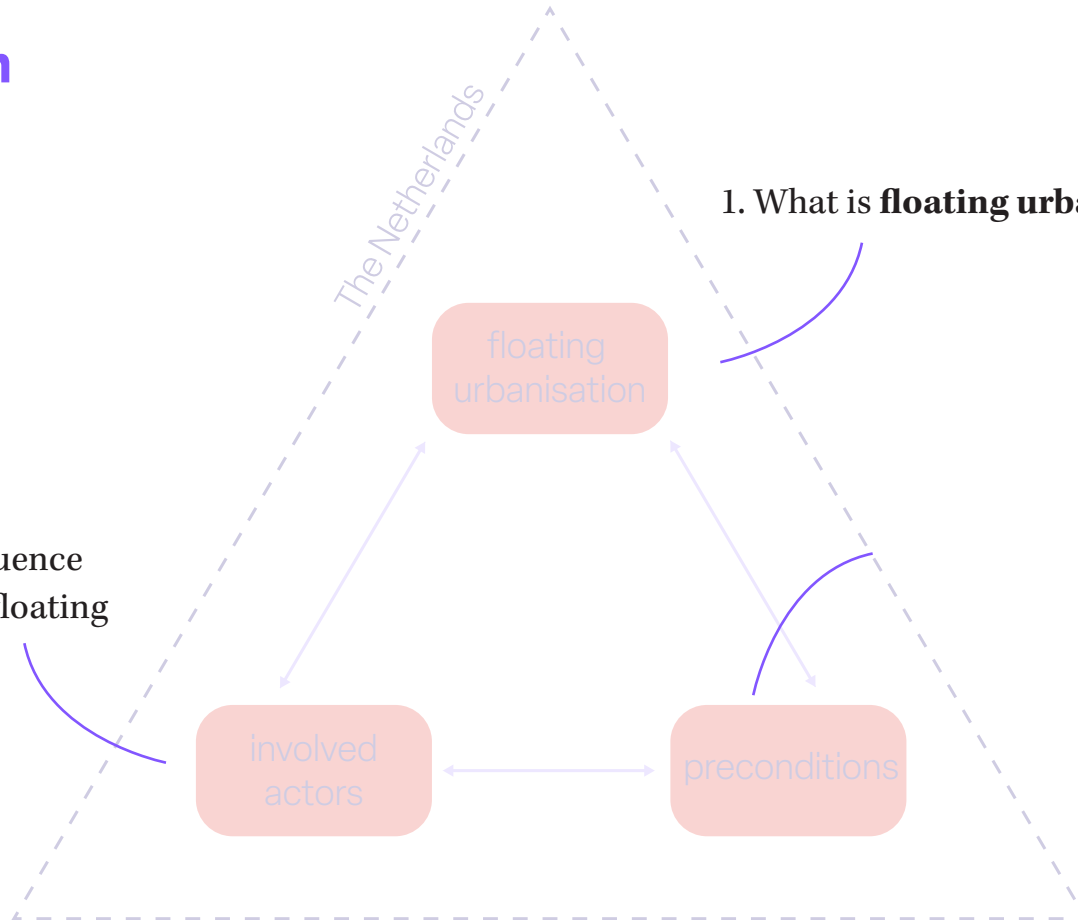


1. What is **floating urbanisation**?

Introduction

2. Which **actors** influence the development of floating urbanisation?

1. What is **floating urbanisation**?



Introduction

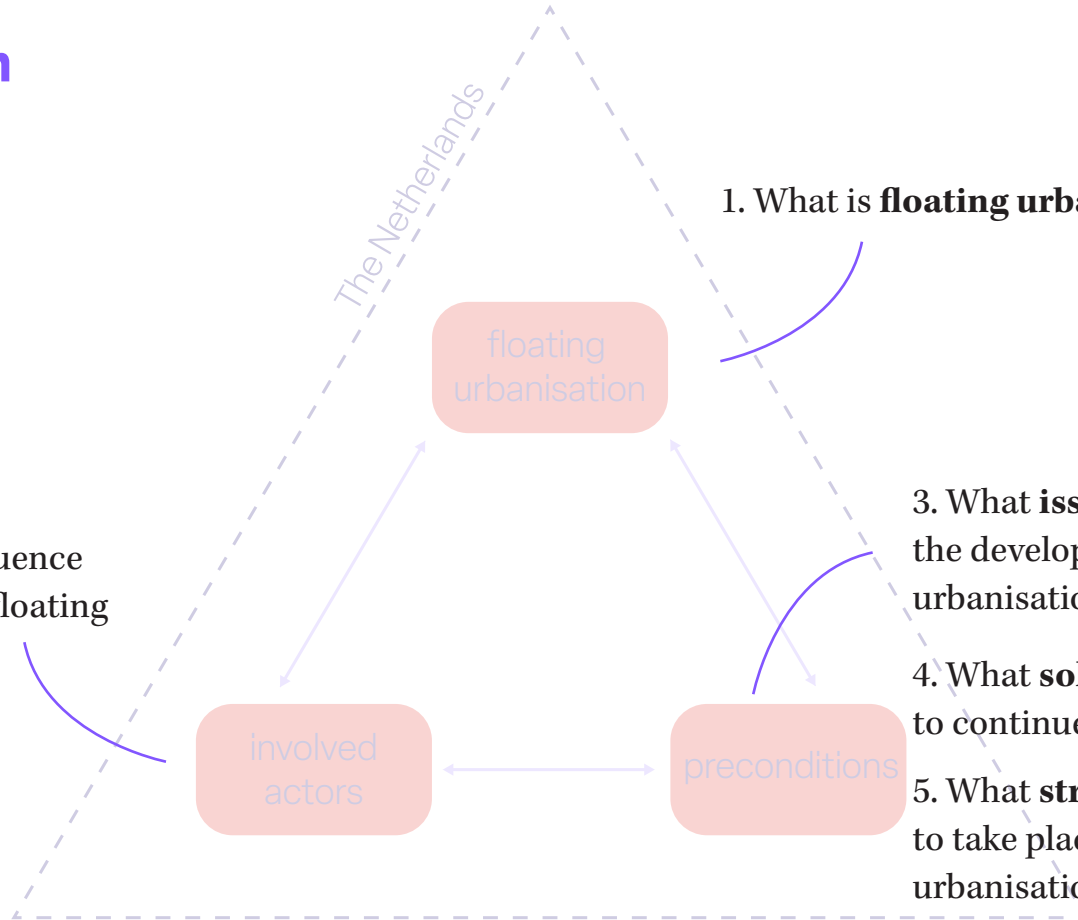
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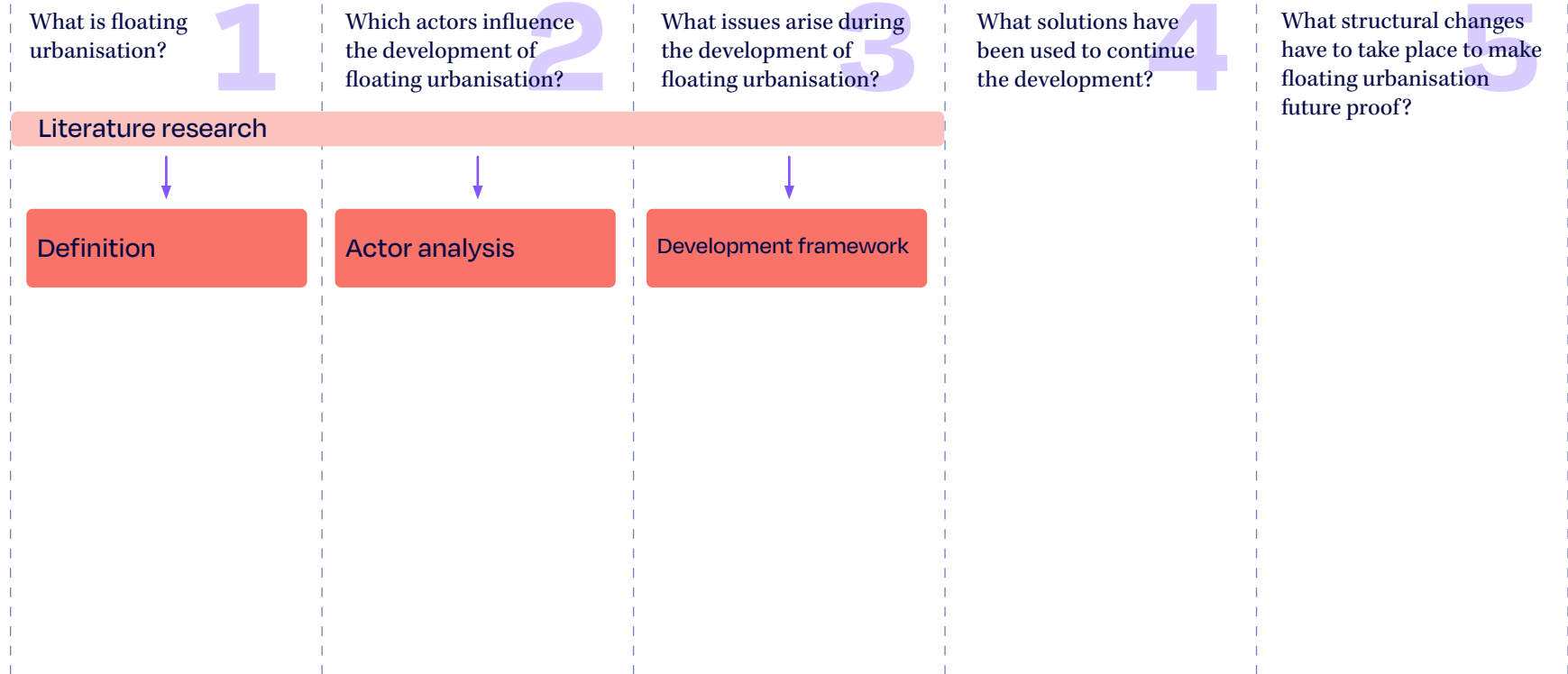
3. What **issues** arise during the development of floating urbanisation?

4. What **solutions** have been used to continue the development?

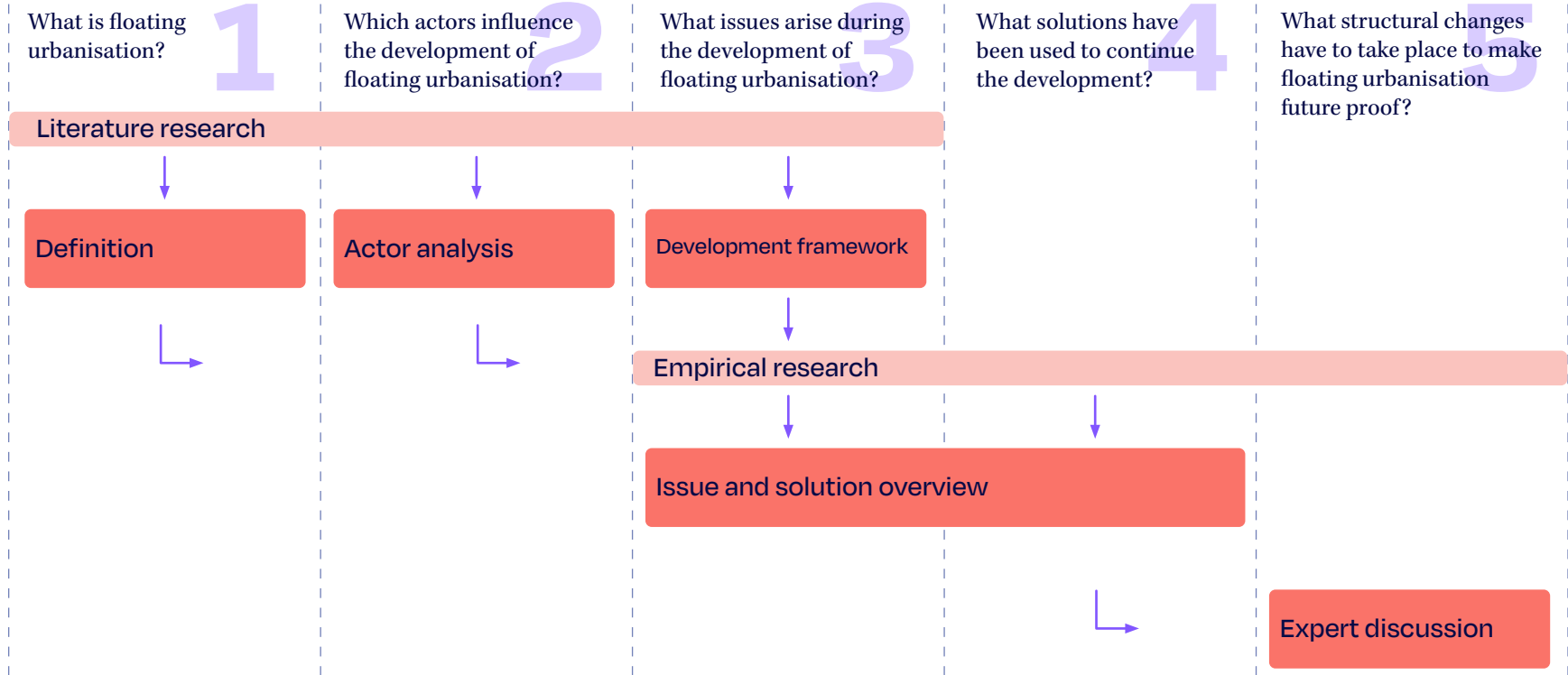
5. What **structural changes** have to take place to make floating urbanisation future proof?



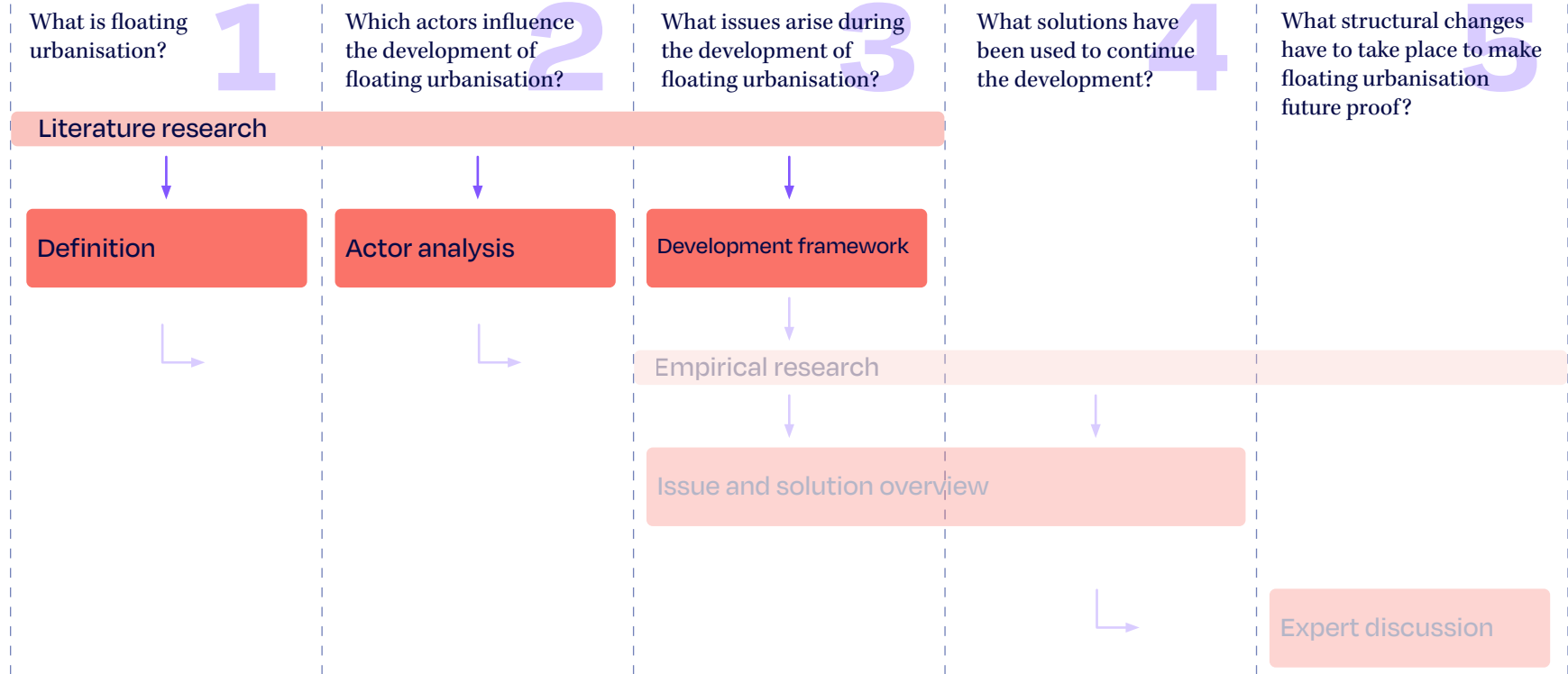
Methodology



Methodology



Theory



Definition

What is floating urbanisation?

1

Which actors influence the development of floating urbanisation?

2

What issues arise during the development of floating urbanisation?

3

What solutions have been used to continue the development?

4

What structural changes have to take place to make floating urbanisation future proof?

5

*A piece of **water or land that can be flooded** has been given an urban purpose and the constructed buildings are **adaptable to changing water levels***

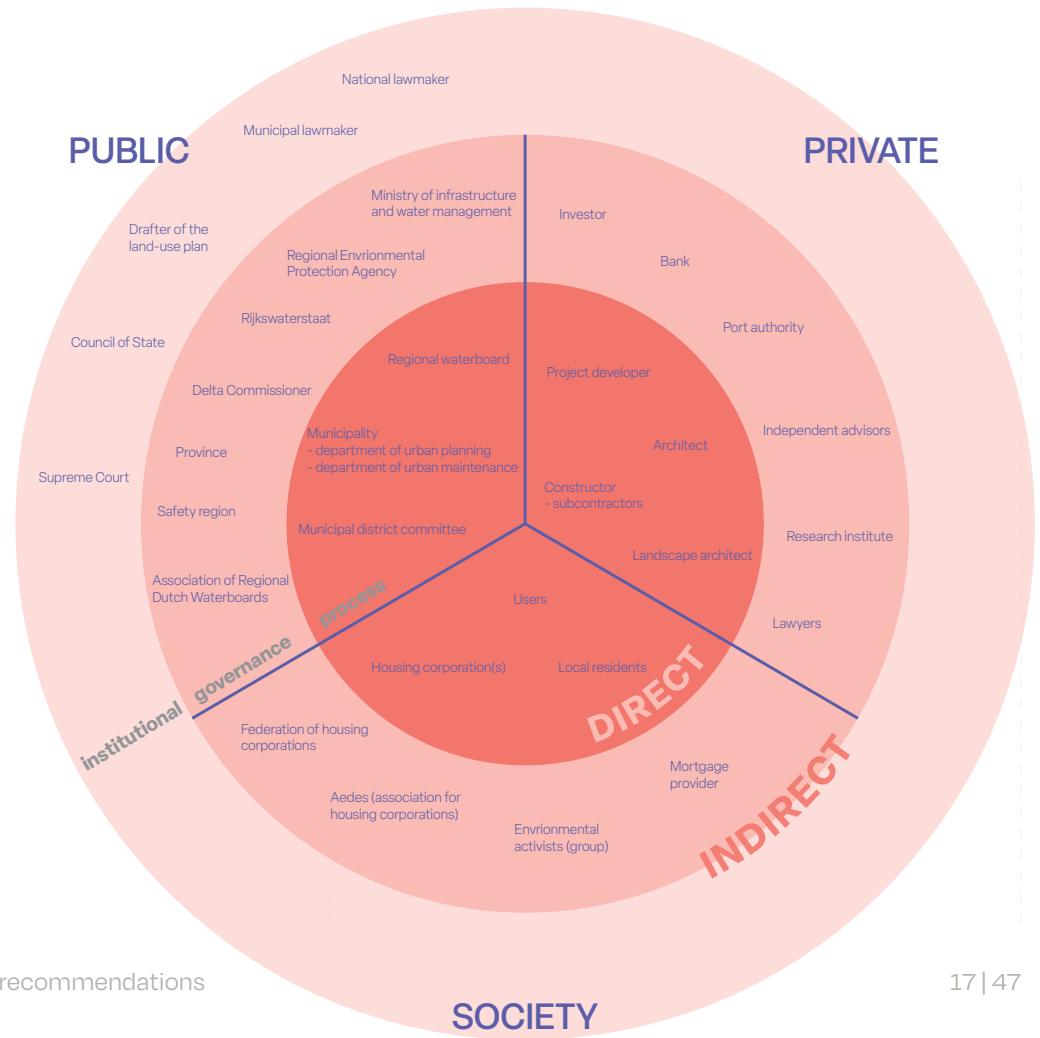
Actor analysis

What is floating urbanisation?

1

Which actors influence the development of floating urbanisation?

2



Development framework

What is floating urbanisation?

1

Which actors influence the development of floating urbanisation?

2

What issues arise during the development of floating urbanisation?

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What solutions have been used to continue the development?

4

What structural changes have to take place to make floating urbanisation future proof?

5

I Knowledge & skills

II Regulation & legislation

III Exploitation & economy

IV Infrastructure & planning

V Technology & scale

VI Environment & ecology

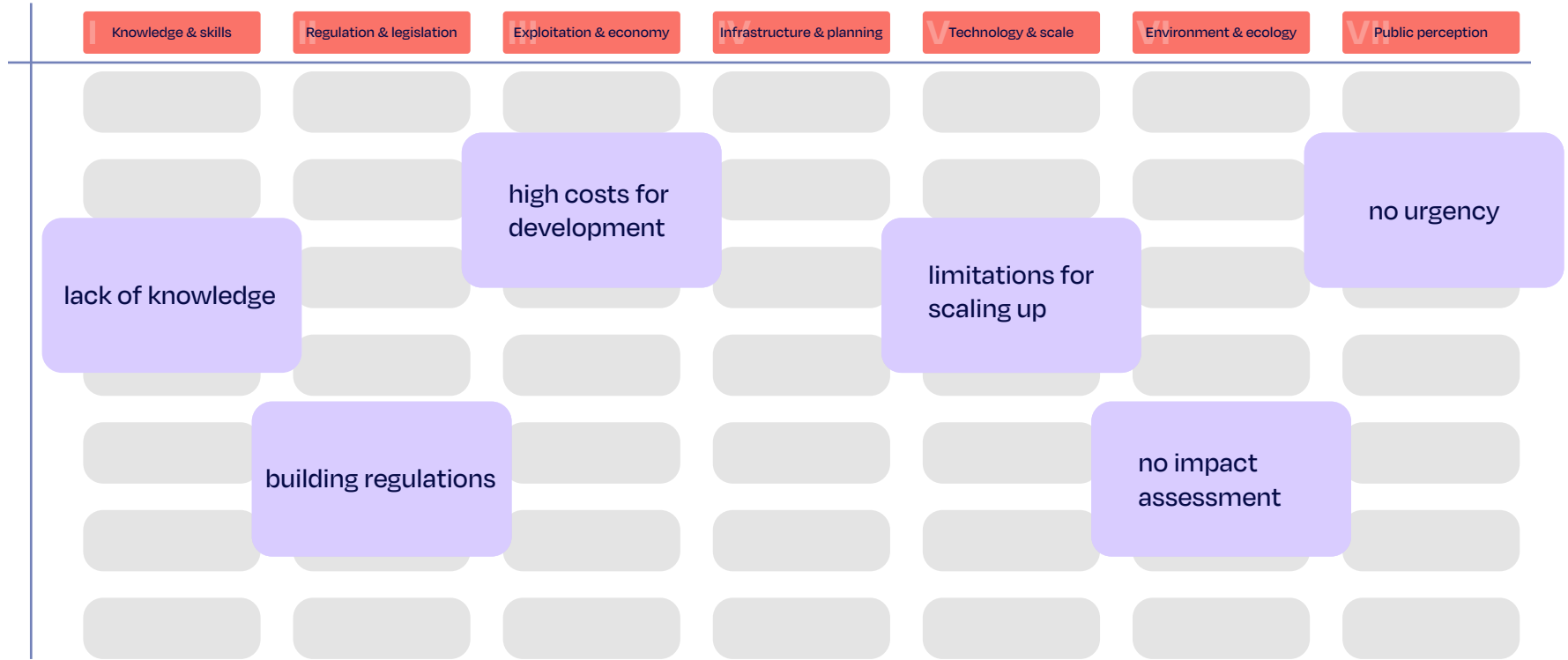
VII Public perception

adopted from Penning-Rowsell, 2020

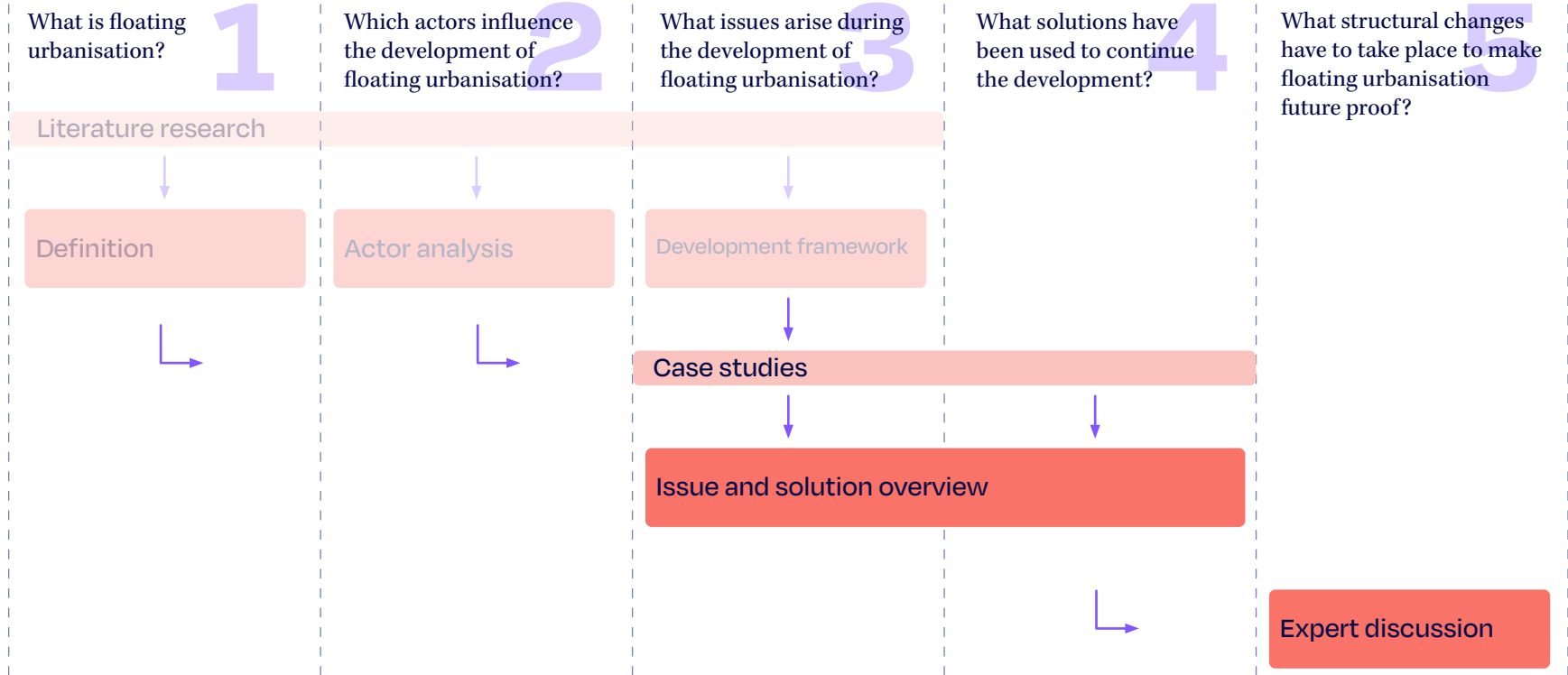
Development framework

I Knowledge & skills	II Regulation & legislation	III Exploitation & economy	IV Infrastructure & planning	V Technology & scale	VI Environment & ecology	VII Public perception

Development framework



Practice



Cases

Waterbuurt West



Cases

Waterbuurt West



55 floating houses

some connected with two or three

accessible via public jetties

developed: 2000-2012

Cases

Waterbuurt West



Nassauhaven lofts



own photos

Cases

Waterbuurt West



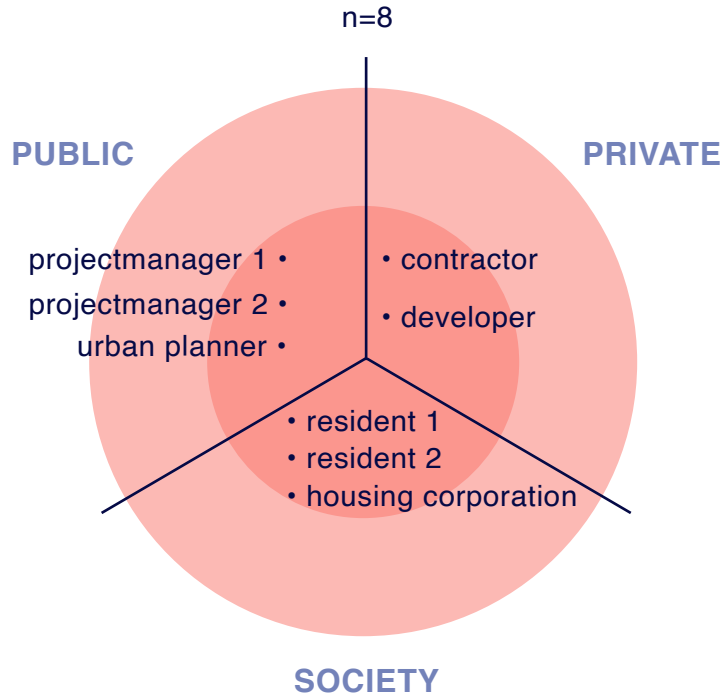
Nassauhaven lofts



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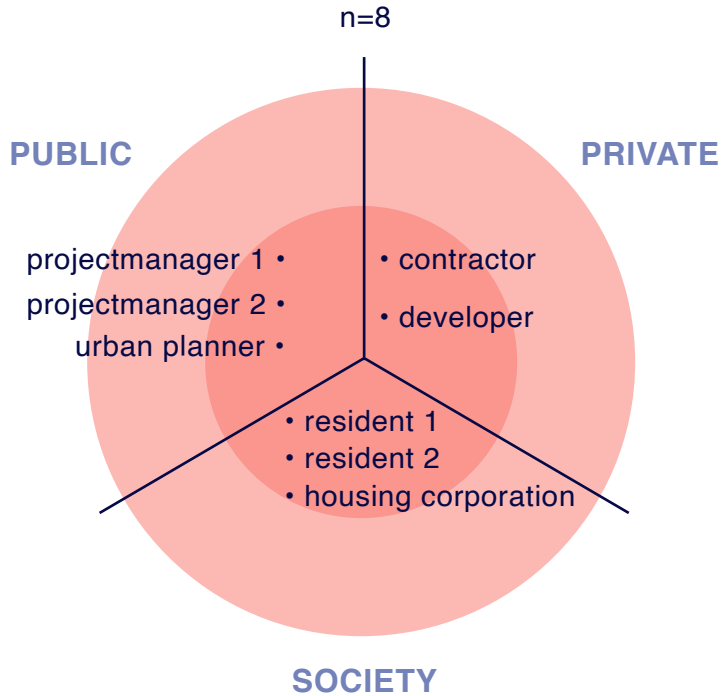
Cases

Waterbuurt West

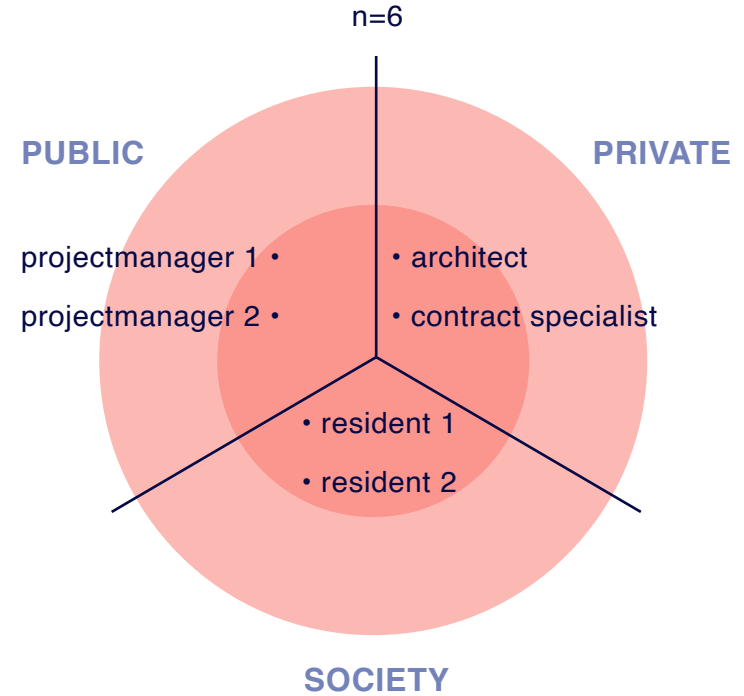


Cases

Waterbuurt West



Nassauhaven lofts



Results

What is floating urbanisation?

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Knowledge & skills

Regulation & legislation

Exploitation & economy

Infrastructure & planning

Technology & scale

Environment & ecology

Public perception



little knowledge and experience



pilot project, learning by doing

Results

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Infrastructure & planning

Technology & scale

Environment & ecology

Public perception

movable / immovable property



adopt the legal structures for buildings on land



Results

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Exploitation & economy

Infrastructure & planning

Technology & scale

Environment & ecology

Public perception



movable / immovable property



adopt the legal structures for buildings on land

unclear how the building regulations should be applied



consultation with experts

Results

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Regulation & legislation

Exploitation & economy

Infrastructure & planning

Technology & scale

Environment & ecology

Public perception



few banks willing to provide mortgage loans



involve the banks early in the process

Results

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Exploitation & economy

Infrastructure & planning

Technology & scale

Environment & ecology

Public perception



impact on the local environment unknown



very limited regulation

Results

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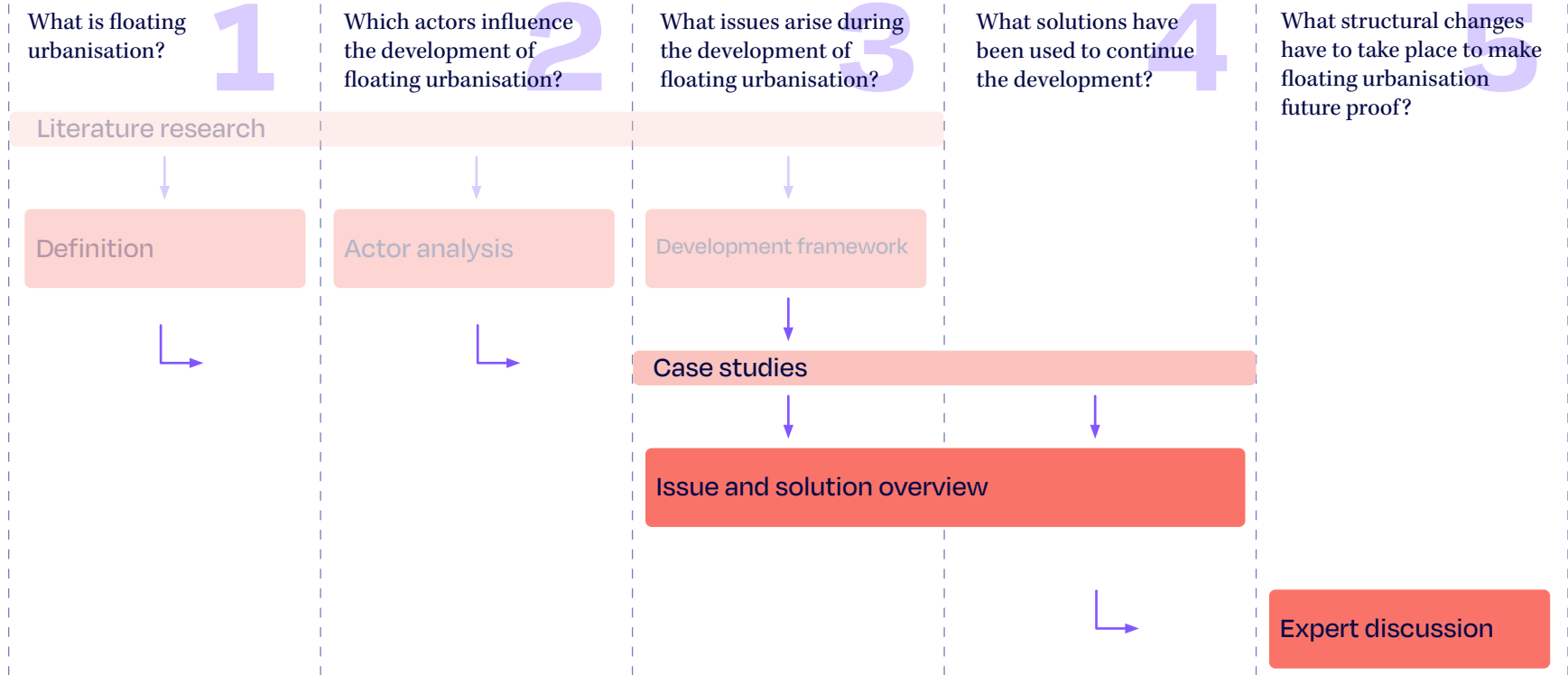


the demand for floating buildings is unknown



not a problem for these small scale projects

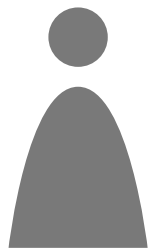
Practice



Expert panel

What is floating urbanisation?

1

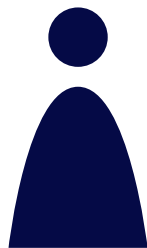


legal

Property law

Which actors influence the development of floating urbanisation?

2



legal

Building regulations

What issues arise during the development of floating urbanisation?

3

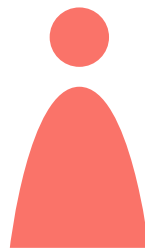


economic

Rabobank

What solutions have been used to continue the development?

4

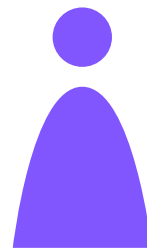


institutional

Ministry I&W

What structural changes have to take place to make floating urbanisation future proof?

5



market

BPD

Expert panel

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Technology & scale

Environment & ecology

Public perception

1 adjust property law and building regulations



Expert panel

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Environment & ecology

Public perception

1 adjust property law and building regulations

2 adapted mortgage loan policy



Expert panel

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1 adjust property law and building regulations

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3 no floating affordable housing

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1 adjust property law and building regulations

2 adapted mortgage loan policy

3 no floating affordable housing

no 'must-have' changes

various views on the future of floating urbanisation

Conclusion

What are the preconditions for the development of floating urbanisation in the Netherlands?

Conclusion

What are the preconditions for the development of floating urbanisation in the Netherlands?

- 1 conditions as they are now make floating urbanisation possible
- 2 gaining knowledge and experience
- 3 improving the conditions will probably enhance the amount of projects
- 4 appropriate location (short term, long term)

Recommendations

Science

1 most impact on costs, time and quality

2 market demand

3 comparison with other water solutions

Recommendations

Science

- 1 most impact on costs, time and quality
- 2 market demand
- 3 comparison with other water solutions

Society

- 1 understand the need
- 2 explore design possibilities
- 3 learn from practice








Guide

Floating urbanisation guide for municipalities



suggestions for action to get the most out of floating urbanisation projects

Master thesis: TU Delft, Management in the Built environment




Tessie van der Voort Maarschalk

	process level observations	governance level suggestions action	means	partners	institutional level suggestions
 Public perception	is floating urbanisation the solution to combine the built environment with rising water levels?	compare floating urbanisation with other water adaptive solutions within the context of the location and the water management system	research initiate or contribute to (scientific) research, applied to a specific location	research institute	
 Regulation and legislation	limited legal instruments available (because it is movable property)	learn from the legal solutions in realised floating urbanisation projects	advise consult a legal advisor that understands how the current legal instruments can be utilised in this project	legal advisor national lawmaker	two possible adjustments to the law: make the legal instruments available for movable property or regard floating buildings immovable property in some situations*
	building regulations are not sufficient	watch out! the applicability of the building regulations is limited (tidal water and waterways are excluded) and they merely focus on strength and stability	tender use the tender requirements to fill the gaps of the building regulations	national lawmaker	adaptation of the building regulations with rules that are better tuned in to the practice of floating urbanisation and do not exempt most of the Dutch water
 Exploitation and economy	preparing the water and realising floating buildings is more expensive than a similar project on land	be aware that a sound business case for affordable housing on the water is hard due to the high costs	policy increase the number of units to create economies of scale	project developer architect	
 Infrastructure and planning	utilities are not fit for installation on floating objects	be aware that extra attention is needed to install utilities for floating buildings	tender include self-sufficiency in the tender requirements or involve utility companies in an early stage	utility companies national lawmaker	adjust the building regulations to make self-sufficient buildings easier (with regards to drinking water, electricity, sewage)
	what are the possible locations?	research into available and appropriate locations, analysis of the building typology that suits the location	policy use the policy instruments to allocate functions to the water. Floating urbanisation just one of the functions	-	
 Technology and scale	little innovative designs (houses that could have been built on land)	use the strenghts of the water to enhance the design (unusual shape, temporality, diversity)	tender stimulate design innovation in the tender requirements, use the experience of developers to prepare the tender	developers of floating urbanisation	
	what scale of floating urbanisation is wanted?	take into account that water serves a public purpose, large scale projects should also add to public space (not only take it away)	policy consider the aim of the new project and regulate the scale of the project through policy	-	
 Environment and ecology	long term influence on environment and ecology is unknown, water quality could be diminished	(scientific) research into possibilities to stimulate the environment and ecology and the the long term negative impact due to floating urbanisation	tender / subsidy tender the research or subsidise ecologists that do the research	scientists	regulate the maximum impact and/or minimum ecological addition that these projects should have
 Knowledge and skills	lack of knowledge about the development process	learn from existing projects	evaluation experiment with projects and evaluate gather knowledge other projects	- other municipalities	
	gained knowledge is barely shared, loss of information when people are succeeded	document the lessons learned and make these available to other interested parties	share knowledge publish the evaluation and share within the organisation	-	

Guide

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FLOATING URBANISATION

