



Delft University of Technology  
Faculty of Architecture and the Built  
Environment

Architectural Wood  
MSc3 - MSc4  
2024

Research Plan  
20-10-2024

Student  
Jelle van den Brink  
4853598

Mentors  
Alex de Rijke / AR  
Pieter Stoutjesdijk / RE  
Pierre Jennen / BT

Problem statement

History

Due to the current housing crisis, attempts are being made to build as quickly as possible. Housing on water is also increasingly cited as a solution to reduce the housing shortage. This relationship between living on the water and the housing crisis, however, is nothing new. Since the earliest documentation of houseboats in Amsterdam (an ordinance to prevent illegal houseboats in the city), there has been a reliable surge in the number of tolerated houseboats in the city to temporarily stem the housing shortage<sup>1</sup>. The history of living on the water has thus been written by civilians seeking solutions on their own when the market and government left space to do so.

Even during the last housing crisis in the second half of the last century, living on the water became popular again. The free and autonomous form of living suited the hippie movement in the 1970s and the squatters in the 1980s perfectly. The number of houseboats in the city reached a new peak, and because of strong resistance and organization, some 2,500 houseboats managed to acquire a permanent berth in several rounds of tolerance in the 1990s. The result today: a group of lucky few conserving squatted and priceless berths, and a municipality that is reluctant to further privatize the water during the current housing shortage.

Self-provision

This commodification of water lots and permanence has driven water housing the wrong way. Housing on the water has for the largest part of history allowed people to self-provide their housing in pressing times. The temporary nature and absence of a land price made housing in this shape accessible to those who needed it most.

Self-provided housing describes any process whereby those who will be living in the dwellings take responsibility for procuring their own home (see figure 1). This entails not just those who physically construct the structure themselves, but also those who contract certain tasks out to professionals but retain the central role of carrying the financial risk for the project and having control over design decisions<sup>2</sup>. This way of building remains remarkably absent in the Netherlands compared to other European countries and is thought to have a great potential to aid the current housing crisis by filling in the gaps that fall between commercial and

1 > Kloos, M. (2007). Ligplaats Amsterdam: Leven op het water.  
2 > Parvin, A., Saxby, D., Cerulli, C., Schneider, T., University of Sheffield, & Architecture 00. (2011). A right to build: The next mass-housebuilding industry.

	SELF-BUILD	SELF-PROCURE	SELF-COMMISSION
LAND OWNERSHIP	user	user	user
PROJECT MANAGEMENT	user	user	private sector
CONSTRUCTION	user	private sector	private sector
HOME OWNERSHIP	user	user	user

Figure 1: A selection of a few different types of self-provision, own work

public housing development that remains unused <sup>3 4</sup>. The development of self-provided housing can therefore make the market less sensitive to fluctuations, creating a more diverse and resilient construction sector.

Flexibility

In addition to opportunities for the housing market, living on the water also offers flexibility in another way. The ever faster growing city needs to expand and is running up against its limits in the process, making an increase in urban density a necessity<sup>5</sup>. In the Netherlands, more than half of the land area is susceptible to flooding from the North Sea or the river landscape<sup>6</sup>. Last year, Amsterdam’s inner city also narrowly escaped a large-scale flood, resulting in high water levels and damage along the Noordzeekanaal<sup>7</sup>. Building on the water thus provides the flexibility that leaves room for the whims of our future climate, and at the same time can strengthen the future housing market.

Overall Design Objective

The design aims to enable new forms of self-provided housing on water, to find new solutions to the current housing crisis in the Netherlands. It seeks to translate the autonomous and free character of housing on water into an accessible and urban format. Its overall design question is therefore:

Main design question

*How can self-provided housing in the Nieuwe Houthavens bring forth new typologies that help to resolve the current housing crisis.*

To do so, the design must reconcile the paradox of urban high-density living with the individual sense of freedom that living on the water can offer. The design will therefore have a strong focus on shaping the relationship between individual and collective. The high participation rate associated with self-provided housing provides an opportunity to shape a community on the water that challenges existing urban housing forms.

The design should assume a temporary status that fits water

3 > Ruimtelijk Planbureau. (2017). Particulier opdrachtgeverschap in de woningbouw. <https://www.pbl.nl/uploads/default/downloads/Rapport-Particulieropdrachtgeverschapindewoningbouw.pdf>  
4 > Dol, K., Lennartz, C., & De Decker, P. (2012). Self-Provided housing in developed societies. In Elsevier eBooks (pp. 310–315). <https://doi.org/10.1016/b978-0-08-047163-1.00484-7>  
5 > Gemeente Amsterdam. (2021). Omgevingsvisie Amsterdam 2050. <https://assets.amsterdam.nl/publish/pages/1007002/0-136821omgevingsvisie-2050-20211116def.pdf>  
6 > Posad Maxwan. (2023). Drijvende steden. Retrieved November 1, 2024, from <https://pasbv.nl/wp-content/uploads/2023/09/230619PublicatieDrijvende-stadspreadread-only.pdf>  
7 > <https://www.nhnieuws.nl/nieuws/340192/overstroming-in-amsterdam-voorkomen-maar-waterdicht-is-het-niet-geen-garantie-op-droge-voeten>

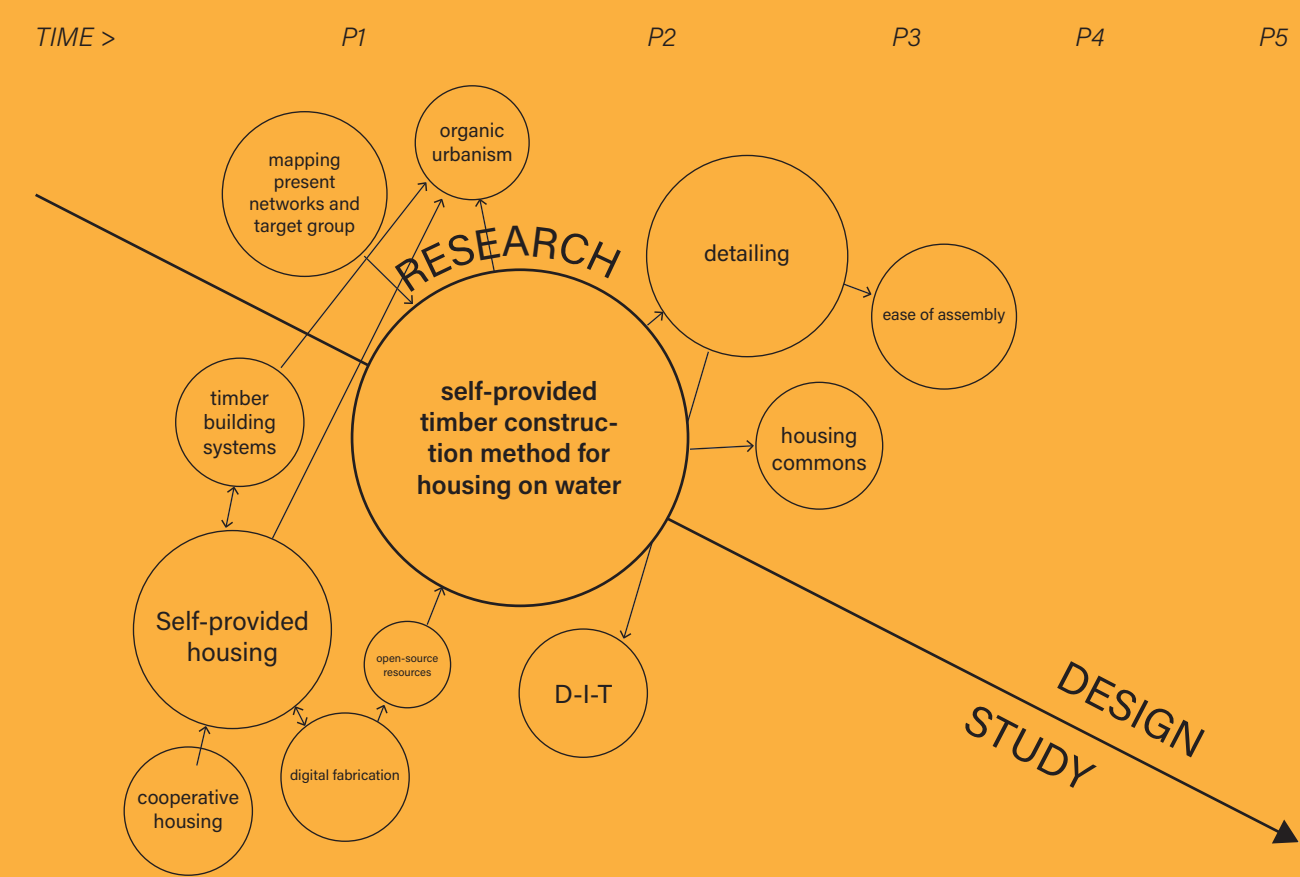
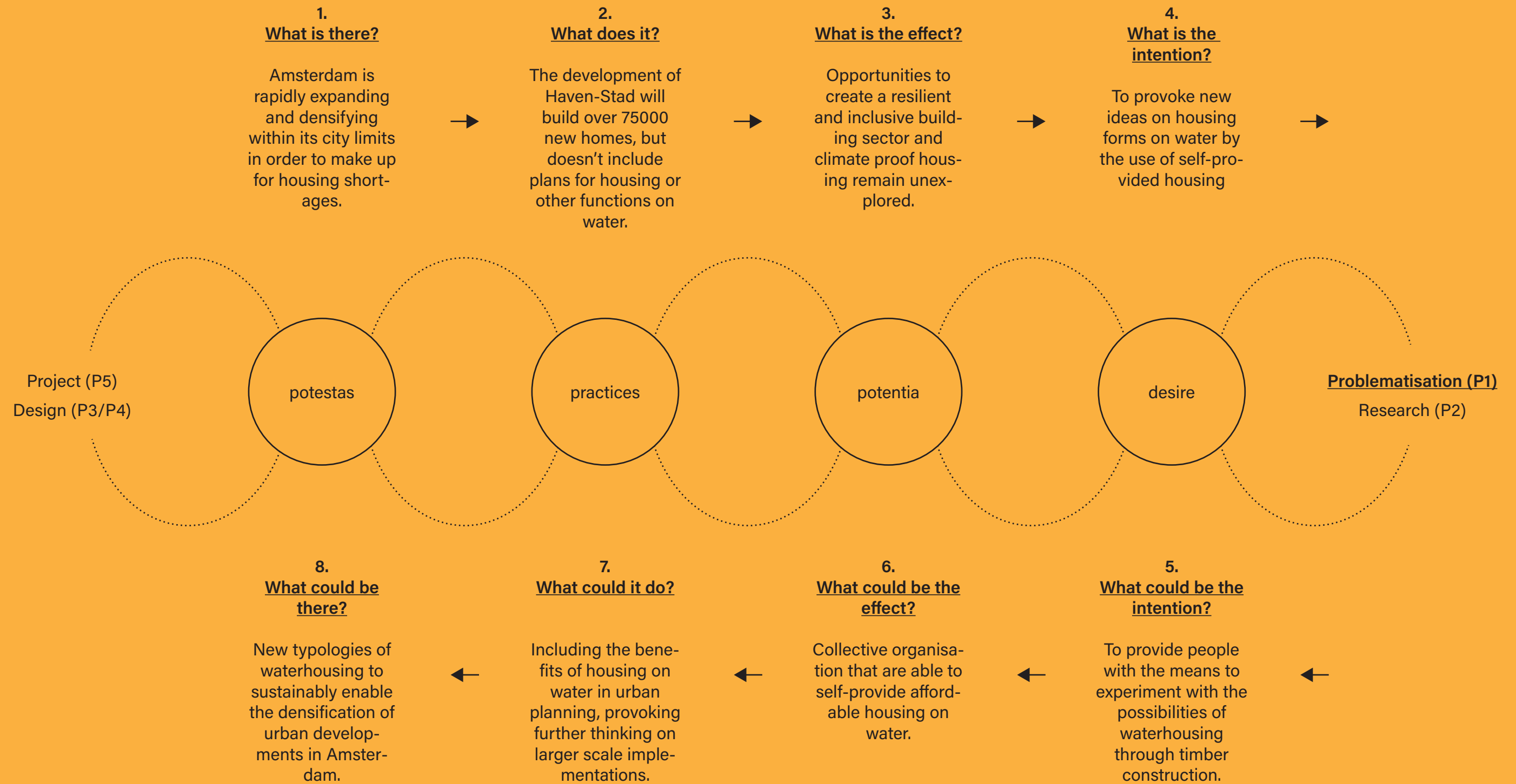


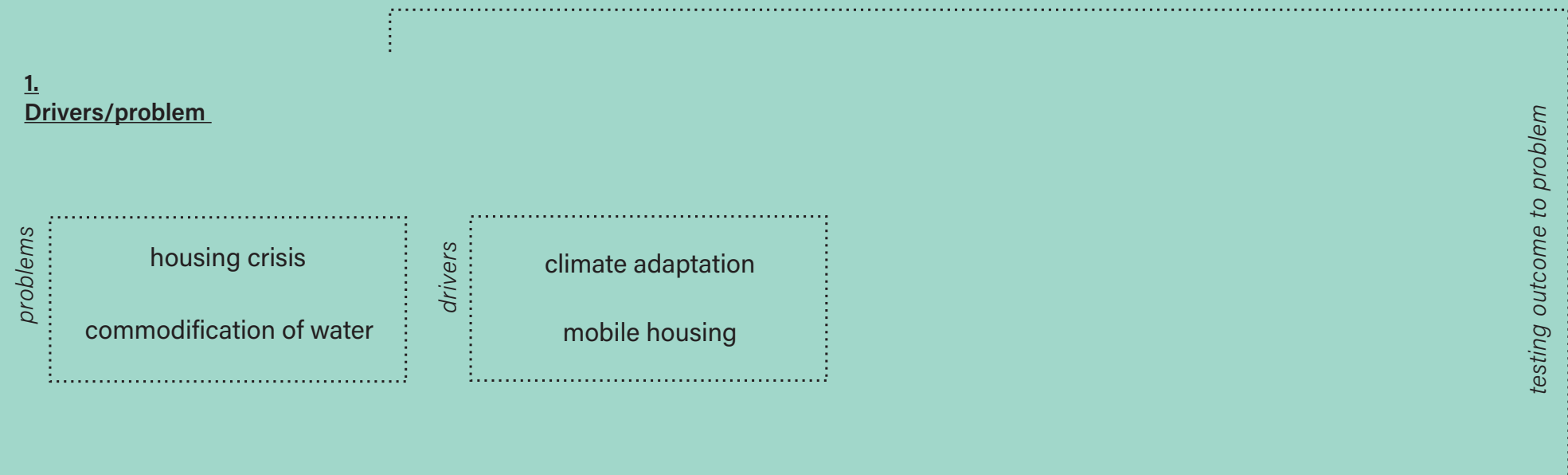
Figure 2: Relation between research and design topics on project timeline

housing as a crisis measure. Consideration will be given to how mobility will affect our lifestyles and forms of living in the future, and how water makes this possible. Repurposing or reconfiguring the design over time is therefore an important theme, circular construction methods to enable this are the norm.

Timber construction provides an excellent opportunity for this design. In addition to its well-established sustainability benefits, wood forms an ideal DIY material. It's affordability and accessibility have made it a favoured subject self-provided housing throughout history. Living on the water and self-built housing require the same emphasis on lightness, because of the limited carrying capacity of water and the individual builder. The design must accommodate this by uniting the quality of wood construction with the principles of design for (dis)assembly.



1. Drivers/problem

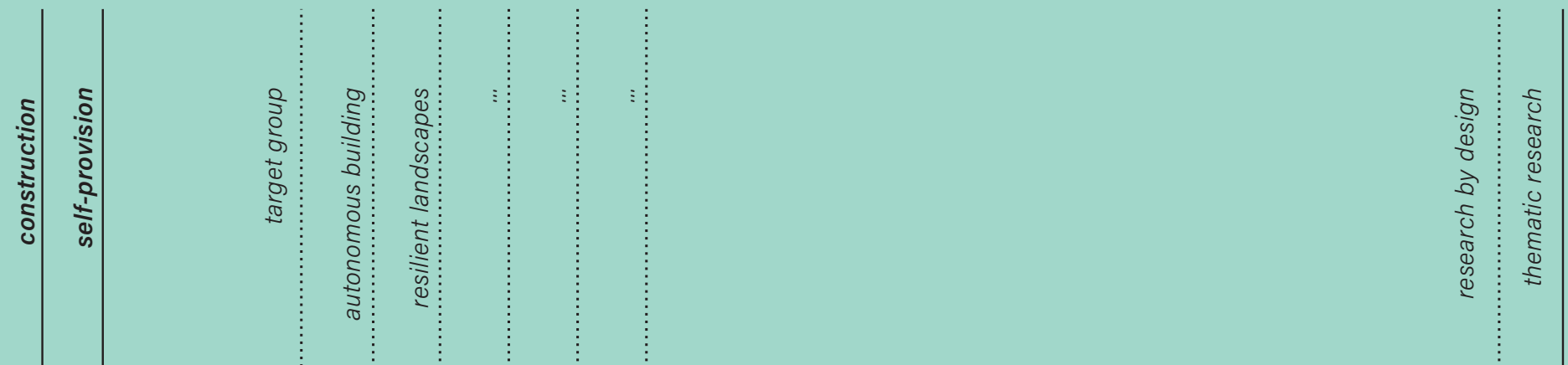


2. Main design question

How can self-provided housing on water in the Nieuwe Houthavens bring forth new typologies that help to resolve the current housing crisis?

5. Design vision

New typologies of waterhousing to sustainably enable the densification of urban developments in Amsterdam.



3. Thematic research

How can **timber construction** enable the **self-provision** of high-density floating architecture during the current housing crisis in the Netherlands?

4. Research results

formats for self-provided housing on water  
timber construction methods to enable

**Thematic Research**

Objective     The research aims to challenge the current ideas on housing on water through the concept of self-provision. It intends to translate organizational concepts into construction forms to create a new and realistic format for housing on water. The research supposes that self-provision is fundamentally linked to construction techniques and therefore should be examined integrally in a study.

Research gap     Despite the large potential that housing on water in the Netherlands can have, literary research on the topic is rather limited. While the socio-historical context of this form of housing has been studied, it often evades the subject of spatial and political organization. Existing literature on self-provided housing is rich, but is barely researched within the context of the Netherlands. The strong influence of national politics and the building sector requires the verification of international findings in the national context.

Hypothesis     The research will attempt to aid in filling these two research gaps. It puts forward the hypothesis that the slow development of this housing form, can be overcome by coupling self-provision types to the required materialization. The foreseen outcome would give both the organizational and material knowledge needed for self-provision on water in the current urban context.

**Research Method**

The research tries to answer the following research question:

Research question     *How can timber construction enable the self-provision of high-density floating architecture during the current housing crisis in the Netherlands?*

Four sub questions have to be researched to give answer to this main question:

Sub questions     *-Which role can self-provided housing fulfill to resolve the Dutch housing crisis?  
-How can self-provided housing enable urban densification on water?  
-Which timber constructions are suitable for self-built housing on water?  
-Which timber constructions are suitable for self-promoted housing on water?*



Methodology

The research of these different sub-questions requires a variety of research methods (see figure 3). In order to answer the first sub-question a literature study will be done. Here the current formats of self-provided housing in the Netherlands and the potential they can have in the future will be assessed.

In the second sub-question these results are narrowed down, so that relevant forms of self-provision for urban density on water can be selected. A study of self-provided typologies will be combined with the possibilities and limitations of construction on water to support this selection.

In the third and fourth sub-questions the selected forms of self-provision are matched to suitable timber construction systems. Here a separation between self-promoted and self-built construction will be made, because of the difference in who constructs. Self-promoted construction types are professionally executed and potentially paired with a 'sweat equity'; future inhabitants fulfill simple tasks to curb the costs. The selection of relevant construction systems will be made here through the analysis of existing case-studies.

Adequate construction methods for self-built construction will be found through a multi-criteria analysis (MCA). An existing MCA for self-built timber construction will be specified with relevant criteria for construction on water, to finally be able to answer the fourth sub-question.

Results and relevance

Design implementation

The outcome of this research should form the base of the design, by answering its foundational questions of organization and construction. The forms of cooperation suitable for self-provided housing establish the basis for finding an appropriate spatial organization, which should break the impasse in the current development of water living. An assessment of appropriate construction methods will enable informed design choices in this area. The research should also constrain the broad interest in self-provision to the context of the design task.

Expected outcome

The results of the research will be presented in the form of a research paper at the end of the P2 presentation. The research paper will combine the various research methods and areas into a coherent and accessible publication, which should spark the imagination of various parties interested in developing waterfront housing.

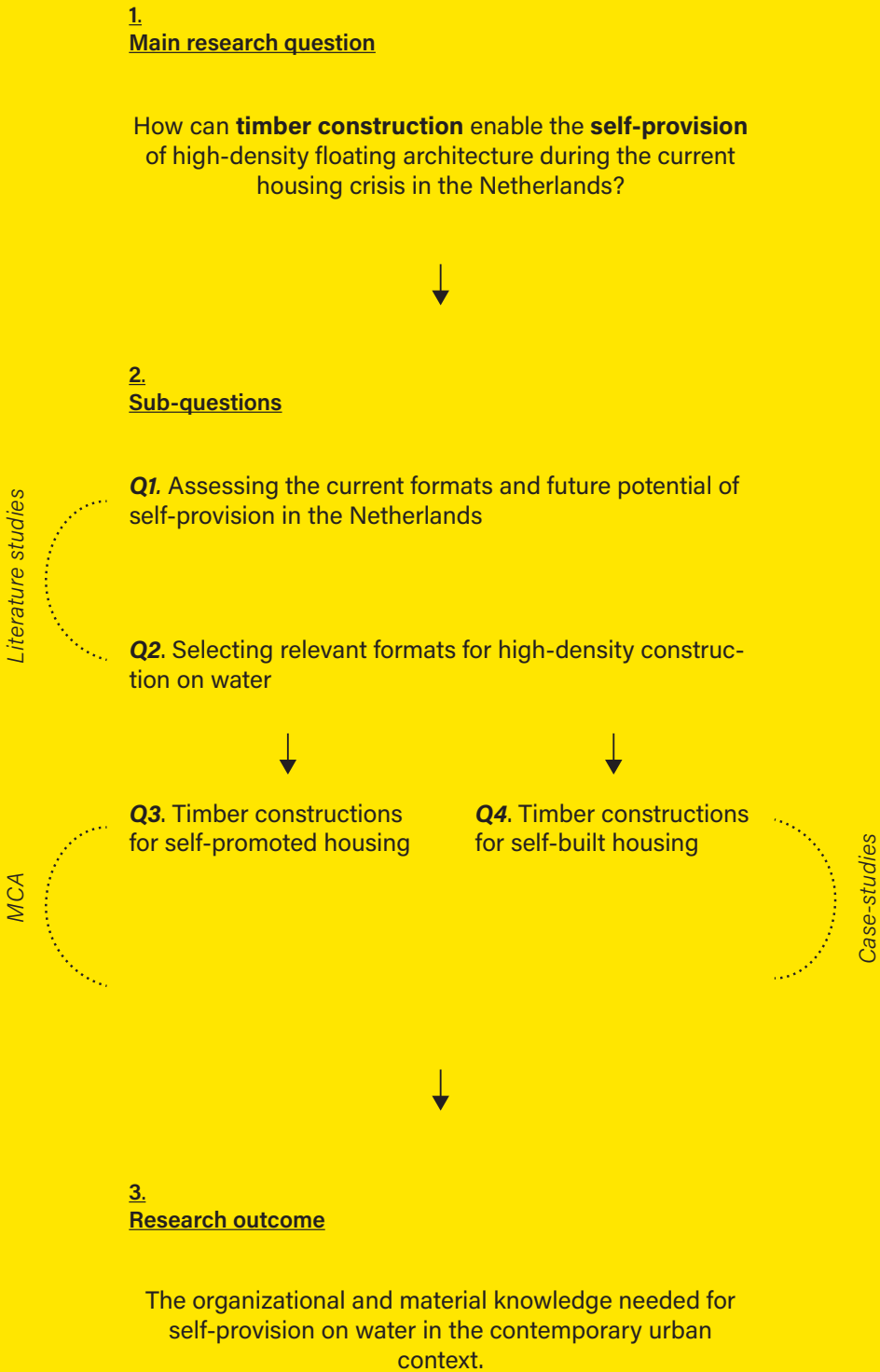


Figure 3: Thematic research subquestions and research methods

## **Literature**

Dol, K., Lennartz, C., & De Decker, P. (2012). Self-Provided housing in developed societies. In Elsevier eBooks (pp. 310–315). <https://doi.org/10.1016/b978-0-08-047163-1.00484-7>

Gemeente Amsterdam. (2021). Omgevingsvisie Amsterdam 2050. <https://assets.amsterdam.nl/publish/pages/1007002/0-136821-omgevingsvisie-2050-20211116-def.pdf>

Griffioen, R. (2017). De frontlinie : bestaansonzekerheid en gentrificatie in de creatieve stad. <https://biblio.ugent.be/publication/8567396>

Kloos, M. (2007). Ligplaats Amsterdam: Leven op het water. Lengkeek, A., & Kuenzli, P. (1979). Operatie wooncoöperatie. Valiz.

Martínez, P. G. (2020). Designing disorder. Experiments and disruptions in the city. *Journal of Urban Design*, 25(5), 665–667. <https://doi.org/10.1080/13574809.2020.1794803>

Parvin, A., Saxby, D., Cerulli, C., Schneider, T., University of Sheffield, & Architecture 00. (2011). A right to build: The next mass-housebuilding industry.

Posad Maxwan. (2023). Drijvende steden. Retrieved November 1, 2024, from <https://pasbv.nl/wp-content/uploads/2023/09/230619-Publicatie-Drijvende-stad-spreads-read-only.pdf>

Ruimtelijk Planbureau. (2017). Particulier opdrachtgeverschap in de woningbouw. <https://www.pbl.nl/uploads/default/downloads/Rapport-Particulier-opdrachtgeverschap-in-de-woningbouw.pdf>

Sennett, R. (1971). The Uses of Disorder: Personal identity and city life. <http://ci.nii.ac.jp/ncid/BA76208807>

Taivainen, A. (2091). Alternative Agency, Observations of changing architecture and Futures Studies [MA thesis]. Aalto University.

Tombesi, P. (2012). Spatial Agency: Other ways of doing architecture. *Construction Management and Economics*, 30(9), 809–811. <https://doi.org/10.1080/01446193.2012.682732>