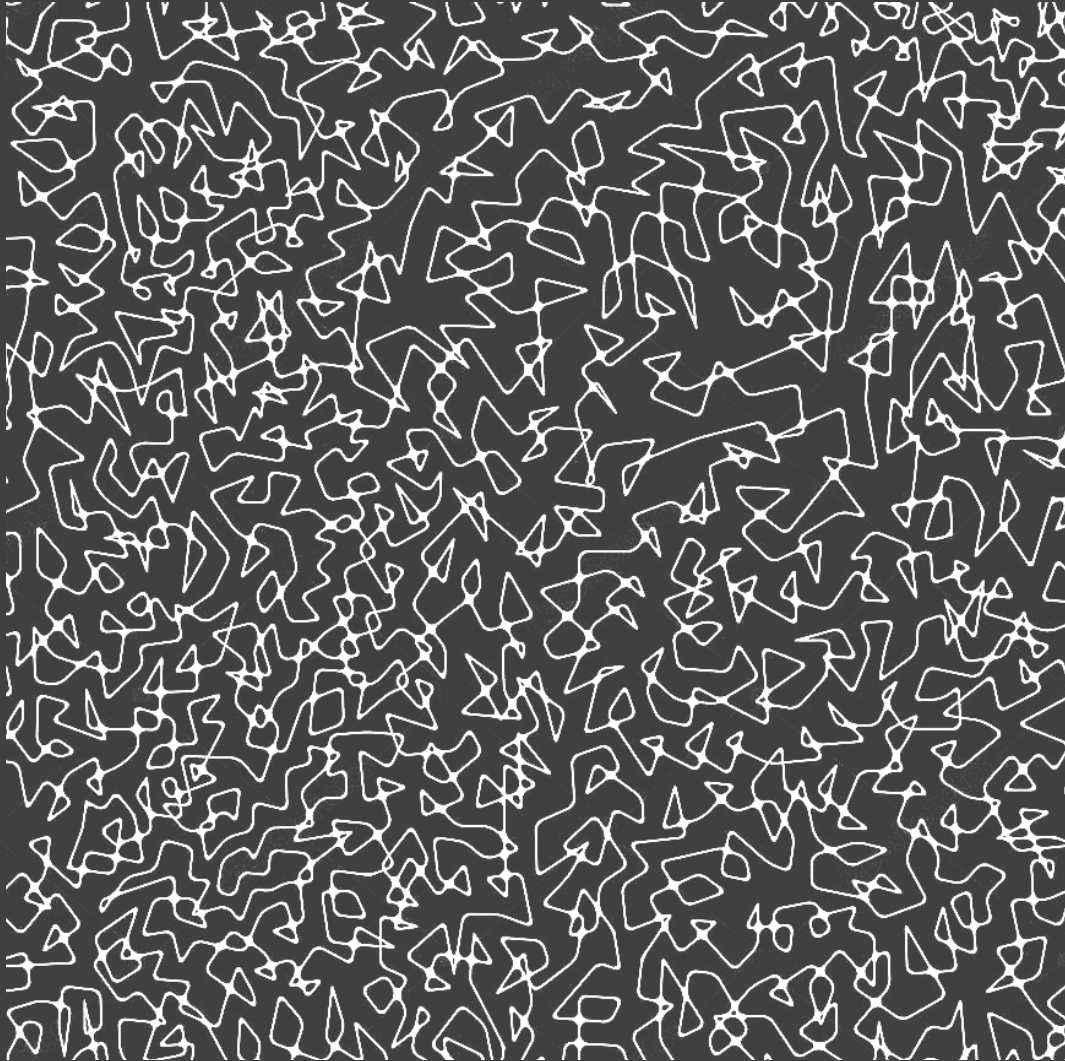


*Reflecting on*  
a Supportive City



*an Explore-Lab graduation project by*

Nick Krouwel

## Reflection

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This document subjects a reflection on my graduation project, a Supportive City. The aim is to describe my project in terms of research and design, and reflect on the working method applied during the graduation period. In order to read this reflection and understand its relation to the project, first the problem statement and design objective will concisely be paraphrased. After, the design process will be reflected according to the requirements listed in the Graduation Manual 2017/2018.

### *Objective*

The project aims to resolve the problematic arising from the phenomenon of urbanisation influencing the housing process. Customised housing is introduced as a potential solution for the densification and the growing cultural diversity in the Western metropolis. Key to the realisation of custom housing is the involvement of the user. The preliminary research investigated potential methods on how users can effectively be involved in the development of urban housing. The outcomes of this research are applied in the design of a generic building system that enables the development of customised housing for the Western Metropolis. To convey its convenience, this building system is eventually applied into a specific context.

#### *1) The relationship between research and design.*

The preliminary research on user-involvement in urban housing serves as a basis for this building system. Various categories (illustrated in figure 1.) of collaborative housing development were studied in relation to the interests of both the enabler; high economic efficiency, and the client; a desire for customisation. Ultimately, a collaborative process is proposed that aims to make the development of (mass-)customised housing in the urban environment more efficient.

This circular process is founded on a strong collaboration between enabler, designer and user (figure 2.). The enabler will act as the main driver of housing development, and is as a professional the best qualified party that can supply customised housing on a large (mass-)scale. The user since, apart from the fact that he or she will be the final person to consume the product, his or her involvement is key to the development of customised housing. The designer will serve as an intermediate between these two actors involved, who aims to generate and manage a method for customised housing, in process, design and production, that em-

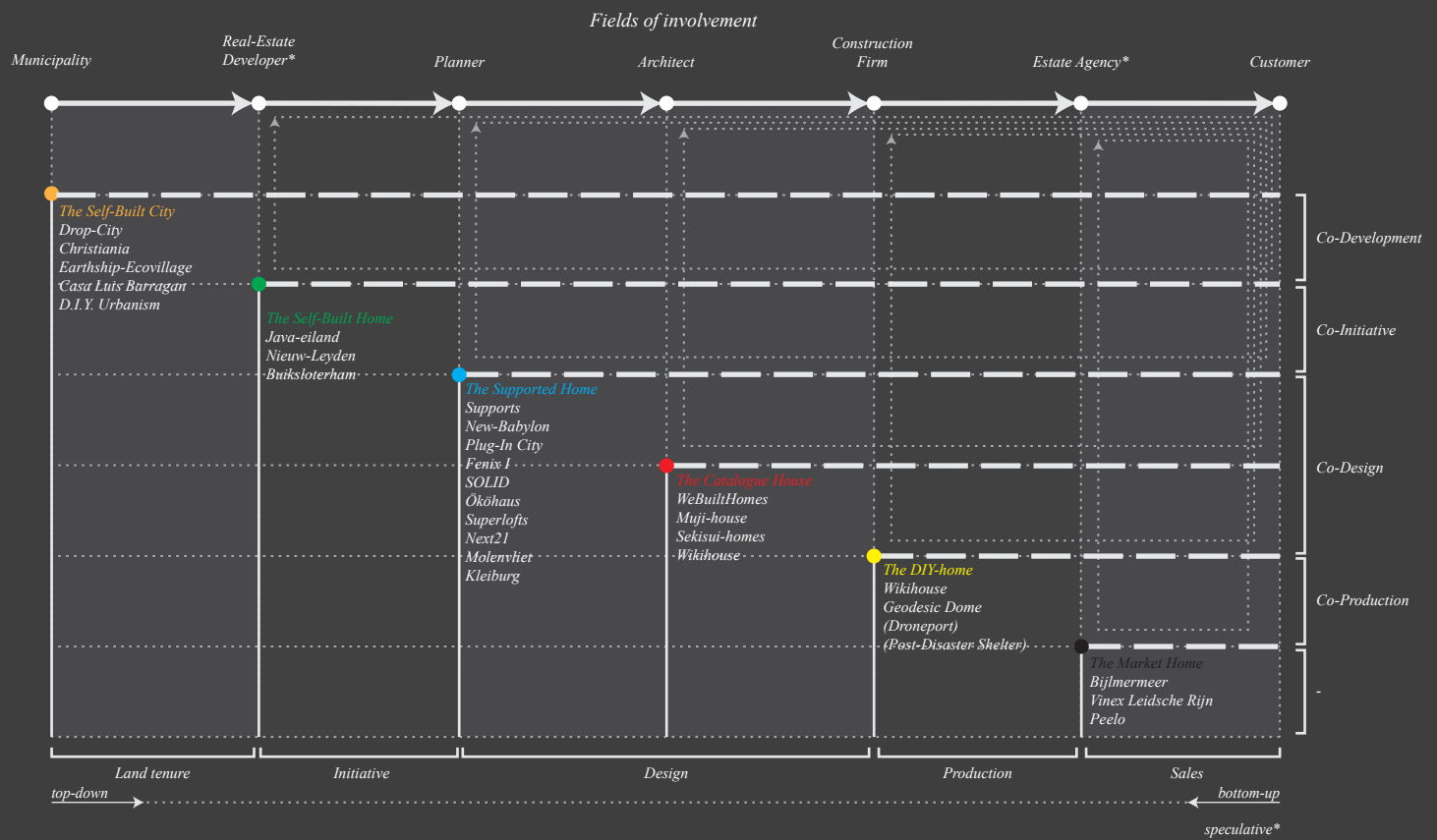
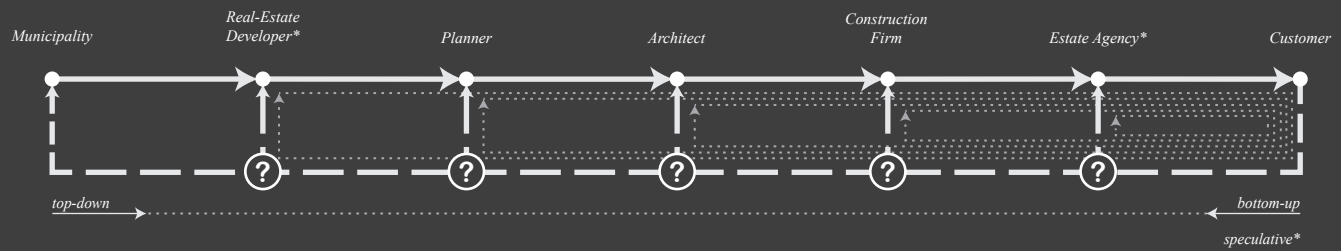
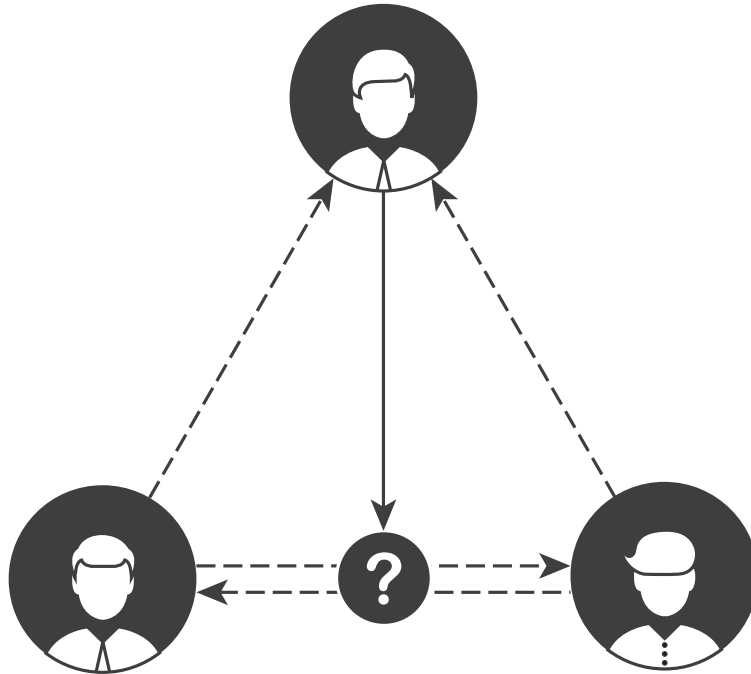


figure 1. Domains of Involvement  
 from 'The Customisation of Urban Housing' by Nick Krouwel



*figure 2.*

*Designer as an intermediate between actors*

braces the interests both the enabler and client in order to achieve a maximum level of effectivity.

The outcome of this research is intrinsically linked to the design proposal. The collaborative process is embodied in a building system that aims to offer housing as a user-centered product; the infill, which is arranged in a larger and repetitive bearing structure; the support. The infill system can be customised to unique and changing demands over-time; creating a construction cycle rather than a single process. The approach of dwelling as a system or product requires me to elaborate the design and process as a whole. Ultimately, the building system and its accessory collaborative process between the designer and user, will make customised housing more accessible for the urban population.

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*2) The relationship between your graduation (project) topic, the studio topic (if applicable), your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS).*

Within the Explore Lab graduation studio, students thoroughly ‘explore’ their own personal fascination by means of research and design. Students take up an extra difficulty in managing their design projects from starting interest to a comprehensive academic research. For this reason, this section will focus more on my personal experience in developing my fascination into a concrete research objective.

I am caught by a vision where our knowledge and technology does not limit us but rather enables us to turn dreams into inhabitable sustainable space, to turn fiction into fact. Over the past 5 years of my architectural education and work, digital fabrication tools and techniques enabled me to turn such dreams into physical designs. While practised on a small scale mainly in the field of industrial design and on a bigger scale merely in complex structures, I am deeply interested in what way conventional and simpler building systems and designs can be improved with the appliance of these techniques. The main characteristic of these digital fabrication tools is that they allow individuals to the design and produce unique designs themselves. Could this be possible on the architectural scale? I therefor started an in-depth research and design focussing on the (mass-)customisation of the most personal form of architecture; the dwelling.

*3) Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.*

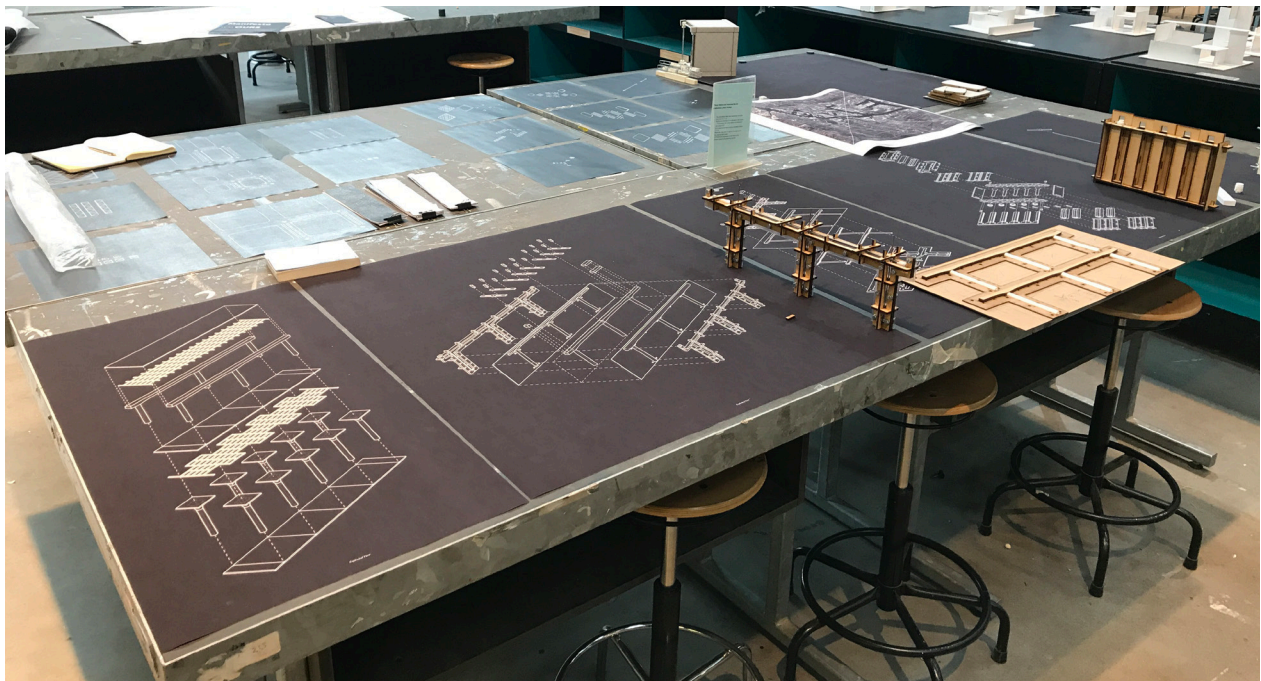
Characteristic for students from the Explore Lab studio, is their complete independence in managing their graduation project. This was the main reason for me to apply for the Explore-Lab studio, since I see this challenge as a mandatory skill for a self-reliant designer or entrepreneur.

The ambitious design objective of creating two co-existing building systems, a new process, and the application of these into a specific context, would eventually result into a very complete project. The versatile character of this project triggered myself to approach the design project in a more dynamic, yet structured

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manner. The project is therefor subdivided into six different themes of which their domains are clearly framed their domain. Although these themes are heavily related, by clearly framing their domain these could be elaborated simultaneously. This enabled me to continuously focus on a specific subject matter while remaining a bird's eye focus on the coherence of all relating aspects. This method it enabled me to constantly adjust the design on various themes on multiple scales which, to my opinion, resulted in a refined project which would have been harder to pursue in a linear-design process.

In addition, I took advantage of the freedom that the studio offers, to experiment and develop a personal way of working. With a lot of trial and error 'behind the scenes', I have created a way of working in which I find myself perfectly comfortable in generating ideas and developing my designs efficiently. Part of this was the intensive production of scale-models. Every week I made a model to express my ideas with tangible material which allowed me and spectators to continuously elaborate and evaluate the design (depicted by photo 1.) .



*photo 1.*

*Design by Making*

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*4) Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.*

The world's population is becoming increasingly urban. Scientists and experts are speaking of an 'urban age': the era of the metropolis, in which social and economical events will grow to focus on these large urban agglomerations. Due to the progressive development of cities, solutions to solve the accompanying effects are needed.

The growth of the urban population stimulates the urban areas to expand and densify. However, due to the speculative nature of house building, affordable and qualitative house building is inaccessible for the majority of the urban population. There is the necessity for innovative solutions to counteract speculative house building in order to provide qualitative housing for all users. Besides the densification of urban city-centers, it is the growing diversity in contemporary daily-life that challenges the building sector to keep providing qualitative housing that suits the needs of the modern household. The dweller cannot be deducted into a single formula anymore. It is of importance that both our existing stock and future housing are able to respond to this diversity.

My graduation project, a Supportive City, acts as a generic solution for a repetitious problem. The problematic arising from urbanisation is a global phenomenon. Obviously a single project will not solve this. To create a maximum impact, this project is elaborated as a generic method that should be applied in various situations in the Western Metropolis. The eventual design proposal should not be seen as singular design solution; the essence of this method could be applied in many forms. To enhance the credibility of the generic nature of this building system, its applicability will be tested in many forms. Within the design proposal, the method is explored in a combination of a newly build and existing structure. This strategy should prove that the formula is successful to deliver custom housing not only as a newly build, but it also works as a way to transform existing stock. For this reason, 'a Supportive City' should be interpreted as a test-case of the method aiming to convince and ultimately stimulate professionals from the building sector to develop housing in a more user-centred and sustainable manner.

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In addition to this reflection, I would like to express my gratefulness to the Explore-Lab team. The support they provide the support to enable students to graduate on their individual interests or fascinations, is an absolute privilege. I am strongly convinced that my peers think like-wise, when I hope that this privilege is kept and will continue to the growth of future architectural master-minds, here at the TU Delft, Faculty of Architecture.