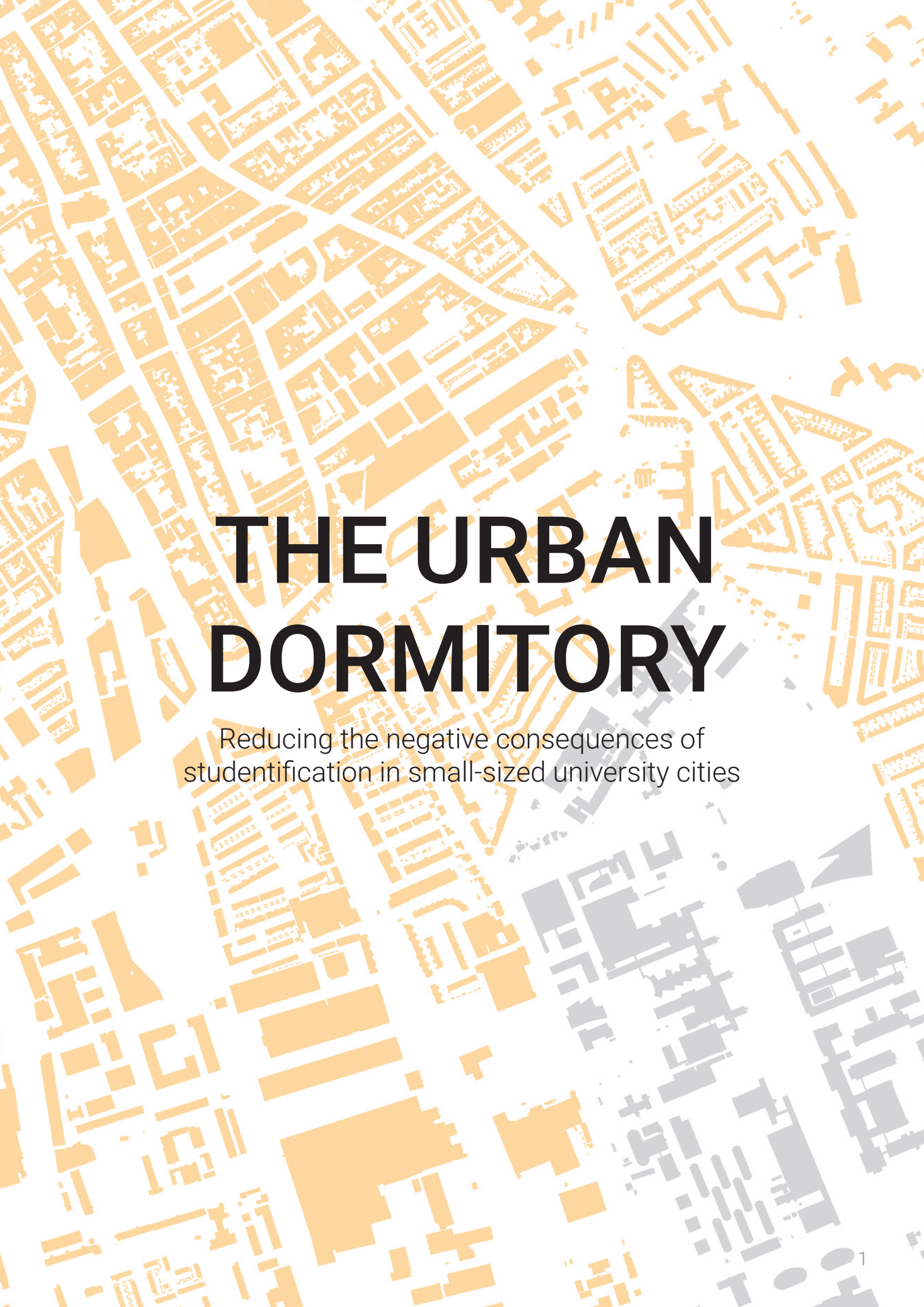




THE URBAN DORMITORY

Reducing the negative consequences of
studentification in small-sized university cities

The Urban Dormitory

Reducing the negative consequences of studentification in small-sized university cities

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Globalized universities located in small cities are expanding at a rate beyond the spatial capacity of its host city. The resulting presence of student housing in these cities known as 'studentification', have cascading social, cultural, economic, and spatial impacts that lead to, in particular, a lack of co-existence and tolerance between the university community and the local community. Existing research have primarily focused on how studentification has materialized in cities through negative consequences. As the influx of students continue to increase in an unprecedented rate in Delft, a need to understand fundamental conditions that contribute to negative consequences arise in order to propose strategic interventions for their mitigation and transformation. This research aimed to thoroughly understand the studentification process in Delft and recommend a long-term strategic plan towards co-existence. The methods used in this research involved delimiting or expanding on practices of other European cities experiencing studentification through the political, spatial, and socio-cultural lens of Delft. Through this research, the urgency and complexity of studentification were clarified and called for a comprehensive approach that transcended conventional practices.

Keywords: Studentification, small-sized university cities, co-existence

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LIST OF ABBREVIATIONS

Abbreviation	Definition	English translation
TU Delft	Technische Universiteit Delft	Delft University of Technology
MRDH	Metropoolregio Rotterdam Den Haag	Rotterdam-The Hague metropolitan area
AFB	AF Bostäder	
HEI	Higher Education Institute	
HMO	House in Multiple Occupation	
PBSA	Purpose Built Student Accommodation	
SPD	Supplementary Planning Document	Introduction period
OWee	Ontvangst Week	
LDE	Leiden-Delft-Erasmus	
4TU	Federation of the four Dutch universities of technology: 1. Delft University of Technology 2. Eindhoven University of Technology 3. University of Twente 4. Wageningen University and Research Centre	Delft association of residents groups
DOBB	Delfts Overleg Bewoners Belangenorganisaties	
CRE & FM	Campus Real estate & Facility Management	

1. INTRODUCTION

Delft is a city of 104,574 inhabitants (Gemeente Delft, 2021a), a growing portion of which belongs to the student population of renowned university TU Delft (TU Delft, 2022). The city is strategically located in the Rotterdam-The Hague Metropolitan Area (MRDH), making it an attractive place to study and live in. The city began as a manufacturing and industrial city on the water leading to its rich history that can still be seen and felt in the urban landscape of Delft today. From the 1980s, a transition was made towards an innovative and internationally oriented city. The growth of TU Delft has changed the relatively homogeneous population of Delft and introduced a new knowledge-based identity to the city (Gemeente Delft, 2021b); therefore, the topic of studentification is ever present in Delft as a small-sized historical city that attracts large numbers of students both locally and globally.

Studentification is broadly defined as “social, cultural, economic, and physical transformations of urban spaces resulting from increases in and concentrations of student populations” (Jolivet et al., 2022). It involves changes in demographics, commercial services, housing market characteristics, and more. The large presence of students, especially in small- or medium-sized cities is linked to a positive increase in diversity due to the range of young students coming from different backgrounds, a broader impact on the economy due to the investments and employments coming from housing construction and spin-off companies, and the revitalization of marginalized areas or neighbourhoods in decline (Macintyre, 2003; Rauws & Meelker, 2019; Rauws et al., 2021). This makes the presence of a local university in small-sized cities vital for its identity and economy. The term ‘studentification’ is therefore not inherently problematic; however, there also exists a theoretical tipping point wherein the influx of students exceeds beyond the spatial capacity of the city and leads to a range of urgent issues and conflicts that impose

burdens on the local community. Due to this, cities that have exceeded this tipping point need to tackle negative consequences considering existing student numbers and need to restrain further student influxes. (Macintyre, 2003).

Unlike universities located in large metropolitan cities with more resources, small-sized cities like Delft struggle to cope with livability and the provision of housing for students that create further challenges for the other inhabitants. The small city whose lifeline and growth engine stems from the local university also experiences a gap in the connection between the student population and the local residents, exacerbated by the conventional perception towards students and the disconnect of competitive universities from the local context (Lazzeroni & Piccaluga, 2015). Due to these issues, the term ‘studentification’ has brought negative connotations to the presence of universities and students in Delft. The tipping point in which disadvantages start to outweigh the advantages of an increased student population in cities, prods the need for this research to identify and tackle the fundamental conditions that contribute to the negative consequences of studentification, in order to stimulate better co-existence.

This research considers the phenomenon of studentification and its resulting issues in the context of Delft wherein the city’s differences with the university are increasingly in the spotlight during political discourses. As TU Delft unveiled plans for further expansion (Executive Board of Delft University of Technology, 2022), both in student numbers and in facilities, the need to investigate and mitigate the detrimental effects of studentification becomes an urgent matter to uncover and tackle as the tipping point has already been exceeded in the city, entailing the impossibility of this university expansion plan to occur without causing further harm to co-existence in Delft.

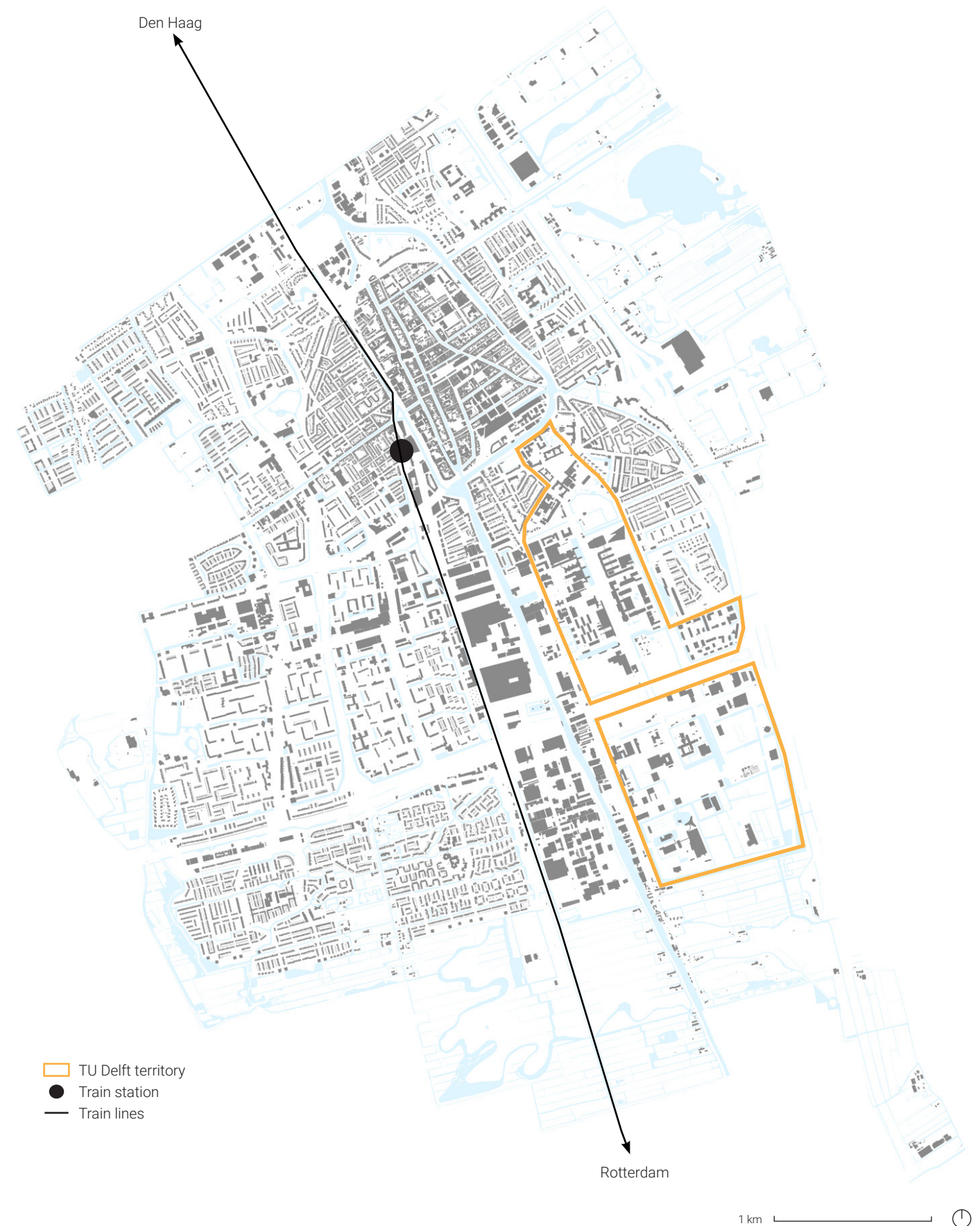


Figure 1. Delft (Own work).

2. THE ROLE OF THE UNIVERSITY

Although strengthening the economic status and expanding diversity in the city, the competitiveness, growth, and outlook towards transnational pursuits of competitive universities, have led the city to struggle in coping with an increased student population.

In this way, studentification can be attributed to the growth of knowledge cities, especially in countries like the Netherlands, whose national government has actively promoted for the expansion and competitiveness of local universities and continuously develops its knowledge-based economy. All knowledge cities in the Netherlands function in a regional ecosystem of companies, knowledge institutions, and government (Netwerk Kennissteden Nederland, n.d.), thereby exemplifying its importance within the framework of the national, regional, and local sectors. The Netherlands is considered a highly developed knowledge-based economy due to the performance of local universities in global rankings and the advent of spin-off companies and research from these universities. In contrast, in countries like the United Kingdom, a decrease in public funding from the government was what prompted universities to attract students globally and compete in university rankings (Macintyre, 2003). Although the growth and competitiveness of universities worldwide had different motivations and initial starting points, the results unanimously have emphasized the significant role of universities in small-sized cities.

In the quest of universities towards economic and technological development at a global level, it has turned these institutions into major players towards the growth and transformation of the city. Economically, direct and indirect spill overs account for a large portion of the employment sector as the attraction of a young and qualified

population who are otherwise more present in large cities, provide more opportunities for new high-tech start-ups that are unlikely to be present in small-sized urban contexts without the presence of academia. Furthermore, universities also play a large role in the urban transformation of small cities as they typically have high visibility and presence in the urban landscape with the expansion of new facilities and by often being the largest owners of buildings and land in the city. The university's role in small cities therefore plays an important role in the urban identity of the city and can contribute to the culture, openness to differences, and stimulation of the local community. The university plays an important role in territorial sustainability and quality of life as an actor in the policy discourse, civic society, and development visions (Lazzeroni & Piccaluga, 2015).

However, due to the global orientation of the university, involvement in the local context has not taken center stage and often fall short in the university's list of priorities, despite its strong influence in local factors and urban development. The local community has often used the expression 'town and gown' to describe the separation between the goals and approaches of the university and the city when it comes to culture and development (Lazzeroni & Piccaluga, 2015). As the university expands, a larger disconnect forms as citizens start to perceive these institutions as large and powerful entities that absorb much of the city's resources and services while providing little in return. Moreover, the tendency of universities to make unilateral decisions without the city increasingly makes the relationship between them more acerbic. The lack of direction for the people climate in the city then breeds the hostility towards the student population representing the university as well (Martin et al., n.d.). Simultaneously, the negative effects of studenti-

fication becomes the standard phenomenon in small-sized university cities. The gap between the university and the city then also translates to their different communities, leading to tension and conflict between the university community of students and the city community of local residents (Lazzeroni & Piccaluga, 2015; Martin et al., n.d.; O'Mara, 2012).

In Delft, knowledge-based production was assumed to lead towards a type of urban development that can benefit all of its citizens; however, as in most small-sized university city settings, institutional players like TU Delft and the Municipality of Delft, have not succeeded in integrating the knowledge sector within the local city life (Yigitcanlar et al, 2008). The lack of focus by the municipality and the university towards integrating the university in the local context, has exacerbated the negative consequences of studentification, wherein the presence of the university, and consequently its students, has lead to increased pressure on the housing stock and other spatial resources and amenities, as well as to a segregation between the town and gown population.

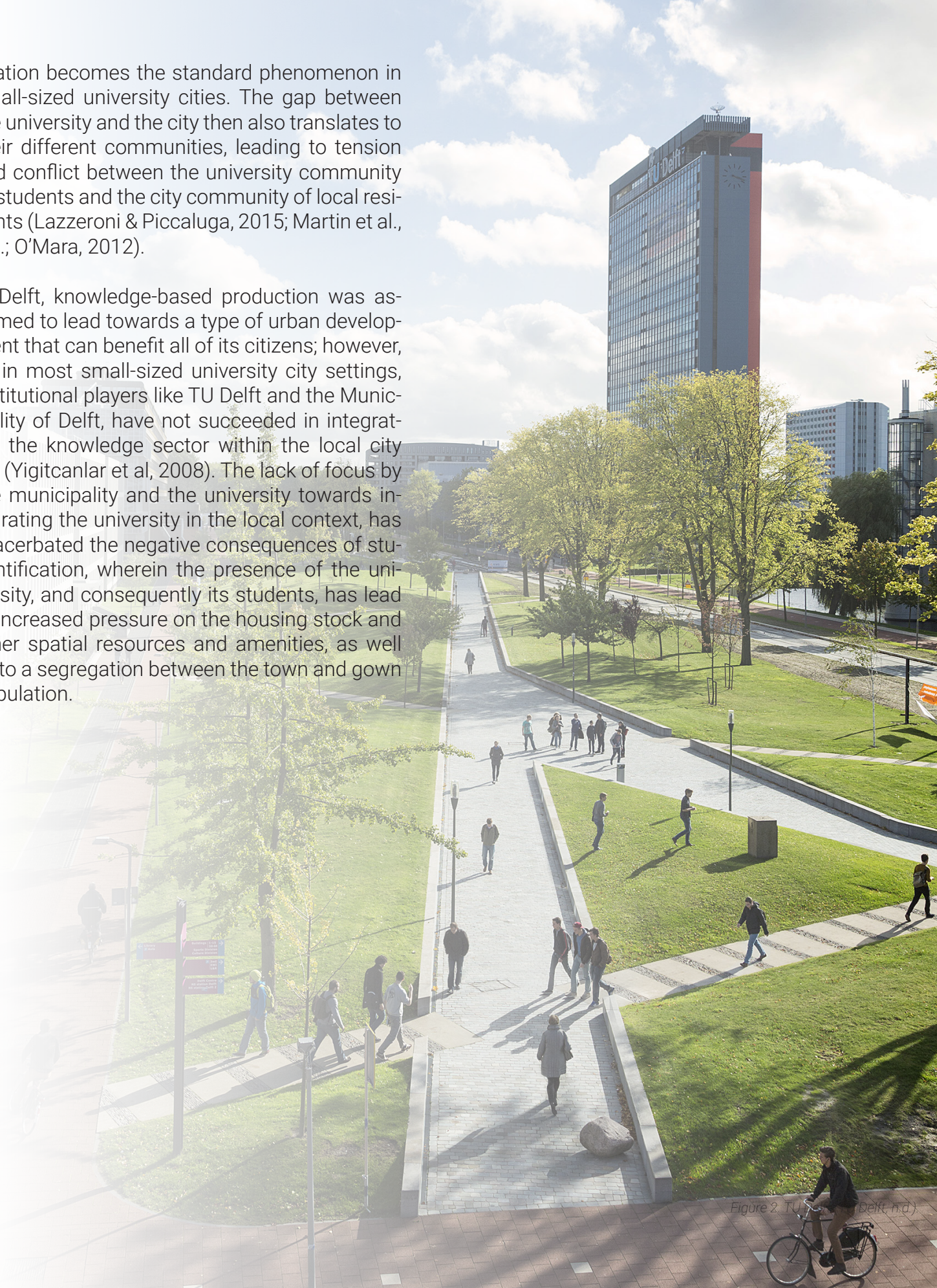


Figure 2. TU Delft (n.d.)

3. PROBLEM FIELD

3.1. Housing shortage

Among the consequences of studentification, pressure on the housing market has been the most visible in the political context of Delft. The student housing crisis in the Netherlands is a sub-set of a nation-wide housing shortage, whereby small-scale cities suffer the most from the high influx of students. In the academic period 2020-2021, the national shortage of student housing was estimated at 26,500 units. In the period 2028-2029, this number is expected to increase between 58,300-66,700 units (Landelijk Platform Studentenhuisvesting, 2022). Locally in Delft, DUWO, the largest student housing association in the city, has estimated an increase of the student housing shortage from 1,200 units in 2021 to 6,700 units in 2029 (DUWO, n.d.). Not only the Dutch student population is expected to grow, but the international student population is also expected to double by 2030 (Gemeente Delft, 2021b). The housing pressure in Delft is therefore characterized by increasing development pressure and long search times, as seen in Figure 3.

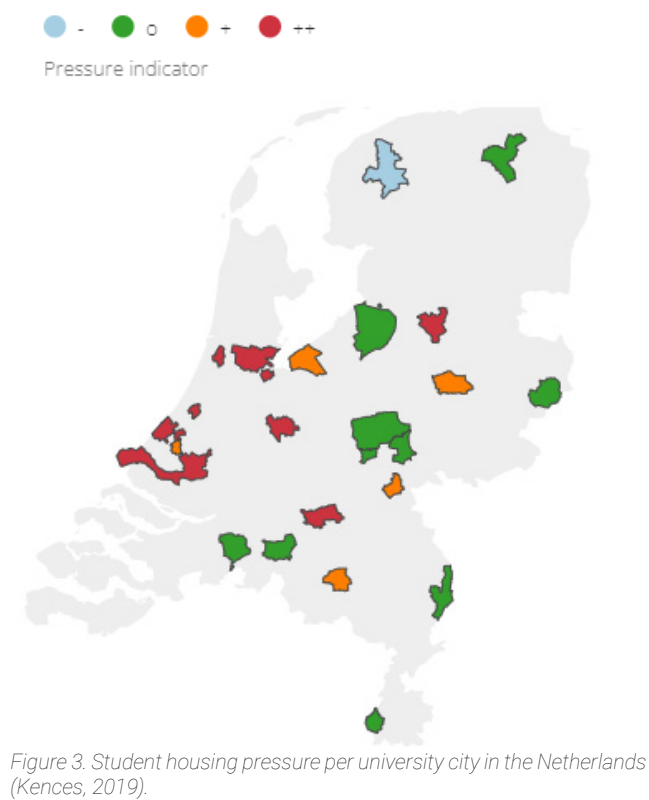


Figure 3. Student housing pressure per university city in the Netherlands (Kences, 2019).

Due to this, continuing student housing shortages drive up rent in multiple student cities in the Netherlands. In Delft, the yearly rent increase is estimated at 15% (Savills, n.d.), making it difficult for lower-income individuals to reside in the city. Both the lack of and high rental prices of housing make it especially difficult for international students to find accommodation. As newcomers to the country, they are faced with more difficulty without knowledge of the housing market and the option of looking for accommodation in other cities due to public transportation costs. Furthermore, the issue of stock and price affects not only students, but also other local residents in Delft who have to cope with the effects of increasing students in the city.

The stress of finding accommodation before the academic year has caused students to defer enrolment under the advice of the university and to endure poor living conditions from exploitative private landlords. Across the Netherlands,

students have had to look for alternative solutions to find accommodation such as setting up tents, signing up as an au-pair, and staying in holiday homes.

The housing shortage in Delft has not grown in relation to demand due to the lack of appropriate building sites inside the city boundaries. A large portion of the city already consists of built areas; therefore, the local government has promoted construction of small-scale housing projects located mainly in the center. Furthermore, the social housing and the owner-occupied housing shortage in Delft also increases market pressure as renters who can afford to buy a house or move out of social housing are unable to find appropriate dwellings and are then trapped in the rental system, thereby hindering other groups, such as students or young families, to move in.

	Shortage in april 2021	Growth amount of students 2021-2029	Potential need for expansion 2029
Amsterdam	6.600	15.100	21.700
Delft	1.200	5.500	6.700
The Hague	1.300	3.200	4.500
Haarlem	300	500	800
Leiden	2.600	3.600	6.200
Wageningen	-600	2.400	1.800

Table 1. Student housing shortage in Dutch university cities. (DUWO, n.d.).



Figure 4. Tents set up by students as accommodation. (Koppes, n.d.).

3. PROBLEM FIELD

3.2. Economic issue

The unprecedented increase of the student population has led to a shortage in the supply of on-campus and university provided accommodations in Delft. Unlike other countries like UK, US, and Canada, universities in the Netherlands do not typically own student housing. Instead, an agreement is made between the university and student housing associations. This common model guarantees a minimum level of occupation for these student housing associations (Macintyre, 2003), as well as ensures an easier method of securing accommodation for students, especially those coming from abroad.

With increasing student numbers however, student housing associations like DUWO, do not have sufficient housing units to meet the demand in Delft. Due to this, more and more students are required to search in the private rental market. In Delft, rental properties account for 62.5% of the housing market. 35% of the total housing market belongs to regular housing associations while only 8.7% belong to student housing associations. 18.8% belong to private rental housing (Gemeente Delft, 2021a), thereby providing an alternative to acquiring accommodation.



Figure 5. Single-family house converted into student housing. (van der Veldt & de Bruijn, 2021a).

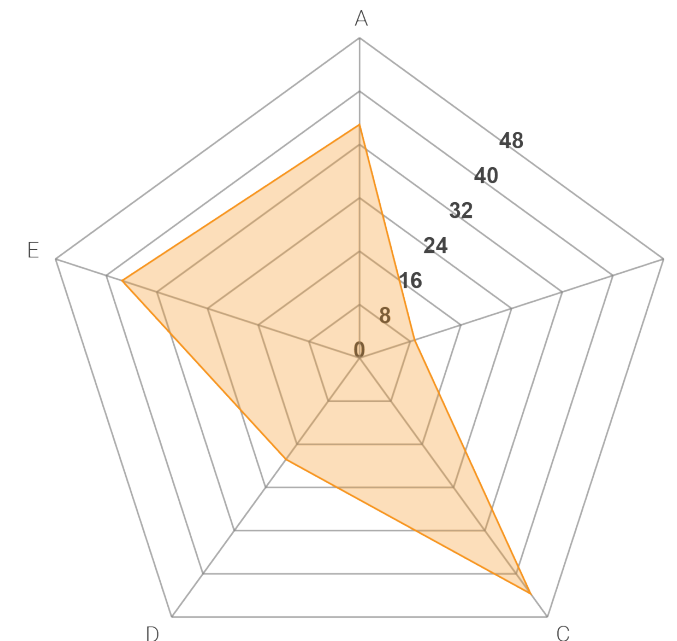


Figure 6. Distribution of residential ownership in Delft. (Own work).

Private landlords take advantage of students by targeting this demographic and consequently lessening opportunities for other social groups. This is the process of housing commodification, whereby monetizing a basic need such as housing replaces its social value. Housing is now an investment opportunity for private landlords to gain profit off of the housing crisis by splitting single-family houses into rooms for students to rent. This then creates concentrations of students in certain areas of Delft where the density of inhabitants cause nuisances for other residents.

Moreover, lesser strict regulations on small-scale private landlords allows them to charge higher rents, especially since the turnover rate of students is higher than other groups. These exploitative landlords also typically do not maintain their rental properties, leading to poor living conditions that students would have to endure

- A Regular social housing 35%
- B Students social rental housing 8.7%
- C Social rental housing (incl. students) 43.7%
- D Private rental properties 18.8%
- E Owner-occupied homes 37.5%

for the sake of having a house during their study term (Sage et al., 2012; Visser & Kisting, 2019; Jolivet et al., 2022; Revington et al., 2020; Macintyre, 2003). Many students, both local and international, often do not know their full rights as a student and end up signing exploitative contracts that can lead to disputes between the landlord and the renter. There are also cases of discrimination against certain ethnic groups in the private rental market. The notion of 'Dutch only' has gained prominence in the Netherlands and actively disadvantages international students and even Dutch students who have certain ethnic backgrounds (Fang & van Liempt, 2021). The presence of these exploitative landlords exacerbates the studentification process in cities like Delft by creating clusters of students in specific areas and neighbourhoods, as well as by increasing rental prices for both local residents and students and decreasing the quality of the housing stock.

3. PROBLEM FIELD

3.3. Cultural issue

The increased presence of students in certain neighbourhoods of Delft lead to cultural tensions and conflicts due to the differences in normative social behaviours and lifestyles between local residents and students. Newspapers in Delft have featured many articles on the anti-social behaviour of students, citing 'vomit on the street' and 'drug parties' as common nuisances that residents of studentified neighbourhoods experience (van Essen, 2021). In a municipal survey conducted in Delft, residents specifically mention students as the main cause of nuisance and inconvenience, mainly due to noise pollution and many bicycles (Gemeente Delft, 2021c).

Residents of districts in Delft where one or more neighbourhoods have students as the dominant population, mention litter on the streets and lack of bicycle facilities as a source of moderate to major nuisance. In receiving statements about students, the municipality also found that around 50% of students and non-students alike agree that students cause nuisance. As a consequence, 62% of non-students would prefer that students live only on campus and away from local residents (Gemeente Delft, 2021d). Despite interchanging neighbours, the continuous influx of students means that local residents will experience the same nuisances as long as adjacent houses are student housing.



Figure 7. Nuisance caused by student parties. (van den Berg, 2016)



Figure 8. Student association party in Delft. (van der Veldt, 2019).

Students are also heavily associated with a drinking culture that often leads to behaviour unbefitting neighbourhoods wherein working people, children, and the elderly reside. Particularly in Delft where participation in student associations are a large part of the student experience, the problems related to partying and drinking creates a strained relationship between students and local residents. This culture is not limited to pubs in the city center or in faculty events within the university, but also extend to the neighbourhoods of Delft wherein house parties are a big issue. Since student associations also own houses scattered around the city, the issue becomes more palpable and affects local residents' quality-of-life. The issue also lies in students not typically realizing the extent of

their affect towards neighbouring residents. Since they belong to close-knit groups, students often perceive their behaviour as normal.

However, the nuisance caused by students is not solely due to their behaviour, the stigma towards students can also be attributed to the quality of student houses with poor ventilation and sound absorption, as well as narrow streets in the neighbourhood that makes noise nuisance worse (Rauws et al., 2021). The quality of the indoor and outdoor environment wherein students are present also contributes a factor towards their behaviour in relation to their neighbours. There are therefore both internal and external factors towards the seemingly anti-social behaviour of students.

3. PROBLEM FIELD

3.4. Social issue

The high concentration of students in certain neighbourhoods lead to higher density levels that can amplify antisocial behaviour. In some areas of Delft, as many as 18 students share facilities per housing unit in student complexes. Due to the sheer density of students per square meter and the certain student housing typologies that enable this, socio-spatial enclaves are formed in the city wherein a clear divide is formed between students and local residents.

In turn, these neighbourhoods experience a lack of community wherein local residents feel disconnected to their neighbourhood, particularly their neighbours who lead an entirely different lifestyle than them. A resident of Wippolder, one of the most studentified neighbourhoods in Delft, has informed news outlet Delta, (van der Veldt & de Bruijn, 2021a) that many residents “feel like outsiders with all those students” surrounding them. This leads to decreased sense of belonging, distrust, and intolerance towards one another that exacerbate the cultural issues associated with studentification, despite the diversity that students can bring to a city.

Due to the stigma on the lifestyle of students, 41.8% of residents in Delft agree that people hardly know each other while only 51.8% agree that Delft is a cozy city with a lot of togetherness. Moreover, only 28.3% think that there are a lot of contact with other residents in the city (Gemeente Delft, 2021a). The lack of positive interactions between students and local residents lead to a lack of co-existence. Some residents no longer want to discuss with student neighbours due to intolerable situations and prefer calling the police instead. These behaviours further intensify the lack of community in the city and create both a social and spatial divide in the distributions of different groups in Delft. Due to this, Delft only scores 5.9% in the social cohesion scale (Gemeente Delft, 2021a).

The lack of positive interactions and tolerance between inhabitants is also exacerbated by the high level of lower-educated people in the city at 21.7%, compared to the higher-educated at 45.8% (Gemeente Delft, 2021a). This creates and encourages a divide and lack of understanding between inhabitants wherein the segregation of the university community from the local community furthers the gap between town and gown.

In 2021, residents of studentified neighbourhoods in Delft compiled a file of 335 pages citing the problems they experience from students. The file weighed 1.9 kilos detailing the fear that residents have of their children growing up in neighbourhoods where antisocial behaviour is tolerated and the lack of solutions that speaking to student neighbours bring (van der Veldt & de Bruijn, 2021a). Local residents have handed over this file to the municipality to bring more attention to the issue and restore social cohesion in their neighbourhoods. It also served as a statement piece towards the neglect that local residents felt from the municipality in light of the situation.

In severe cases, local residents who express suffering from their student neighbours are often pushed to the brink and left with no other option than to move to a lesser studentified neighbourhood. This form of displacement then leads to a higher concentration of students in the neighbourhood, forming a cycle within the city that exacerbates existing issues. Conversely, those unable to move due to high prices or a lack of suitable homes are not only forced to endure conditions that decrease their quality-of-life, but also feel out-of-place in their own neighbourhood.

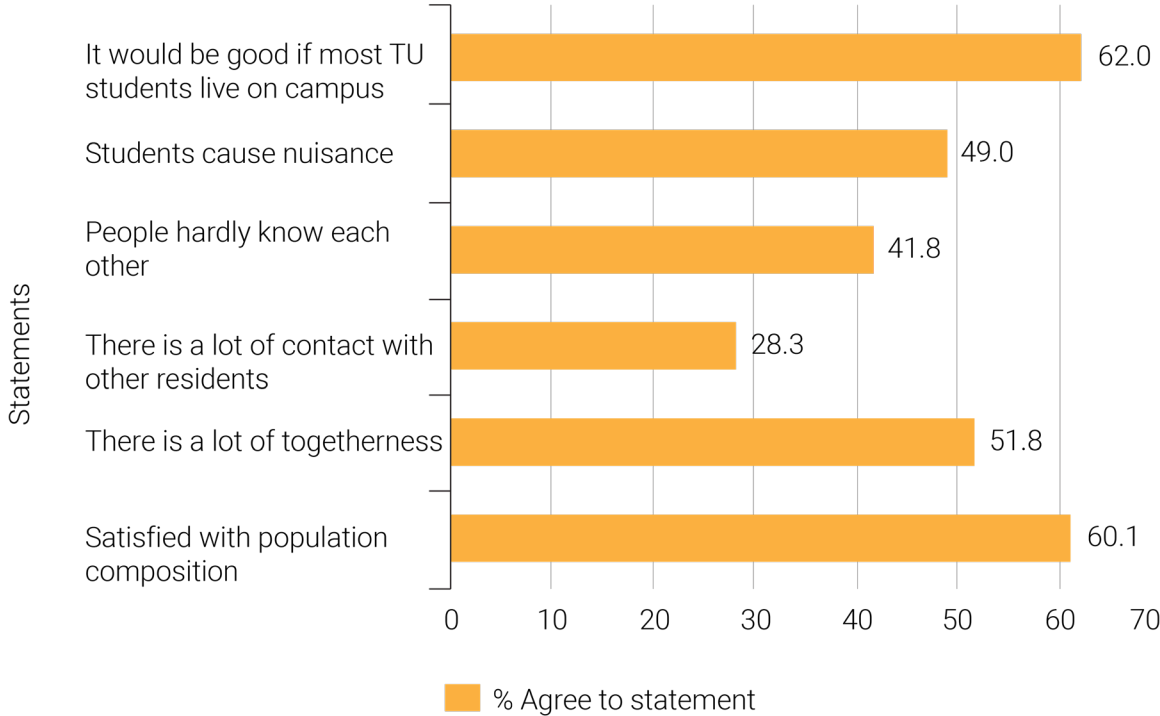


Figure 9. Excerpt of municipality survey results (Own work).



Figure 10. Municipality representatives receive the complaint file (van der Veldt & de Bruijn, 2021a).

3. PROBLEM FIELD

3.5. Spatial issue

The social and cultural consequences of studentification is directly tied to spatial quality. Neighbourhoods with students as the dominant population are typically associated with improperly parked bicycles, visible and unsightly litter on the street, neglected gardens, and high levels of graffiti and vandalism (Rauws & Meelker, 2019; Rauws et al., 2021; Sage et al., 2012; Visser & Kisting, 2019; Revington et al., 2020; Macintyre, 2003). These issues lead to visual nuisance on a daily basis for local residents living in the same neighbourhood, and thereby reinforces the conflict between these social groups. Spatial consequences can also be attributed to the distribution of students in their accommodations. Most students in Delft live in a room where the kitchen, bathroom, and toilet are shared with other students. The density of

these houses lead to more prominent spatial consequences.

In Delft, the most visible spatial consequence of studentification is the number of bikes on the streets (Gemeente Delft, 2021c; van der Veldt & de Bruijn, 2021a). There is a lack of sufficient bicycle storages in student dominated neighbourhoods that require provision of facilities from both the municipality and housing providers. Furthermore, a prevalent issue in the city is the number and size of parties that happen on an almost weekly basis in certain neighbourhoods that not only lead to noise nuisances, but also a lot of waste in the public space which can remain there for weeks due to a lack of maintenance (van der Veldt & de Bruijn, 2021a).



Figure 11. Street in Wippolder, a studentified neighbourhood in Delft (van der Veldt & de Bruijn, 2021b).



Figure 12. Krakeelpolder student complex segregated from the neighbourhood by surrounding water (ZO makelaars, n.d.).

The presence of student complexes also changes the spatial structure of the city away from the historical houses of Delft. Although less nuisance is associated with student complexes, it also further increases the lack of interaction between students and local residents. The increasing presence of student complexes can create urban islands without much diversity and exacerbates the lack of community in the city (Rauws & Meelker, 2019; Rauws et al., 2021).

The relations that students are able to form in student houses, the university, and student associations, ultimately also lessen their need to form relations with others in the city and outside the university community. This is also aided by the spatial structure of some student complexes in Delft whereby boundaries are formed around the building, separating students from interaction spaces with local residents around the neighbourhood.

3. PROBLEM FIELD

3.6. Studentification wheel

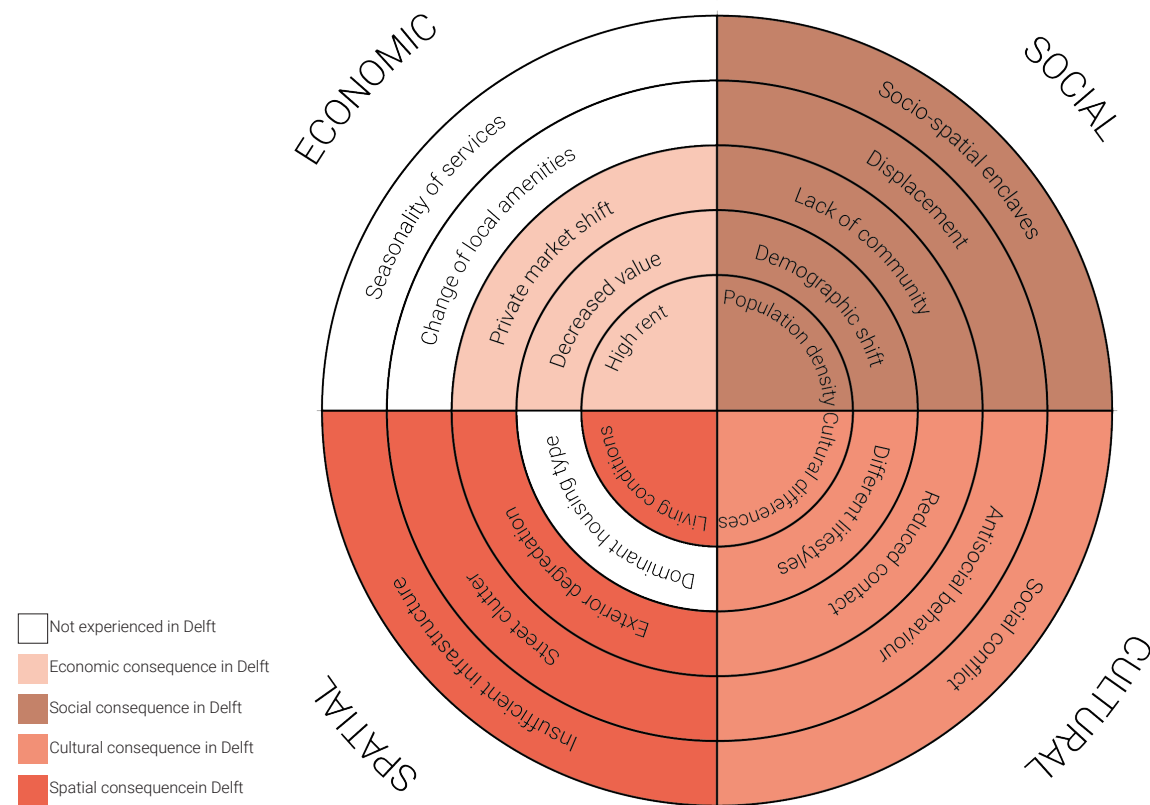


Figure 13. Summary of consequences experienced in Delft compared to other cities (Own work).

The studentification wheel is a summary that illustrates all the consequences of studentification at a global scale, identified from international literature, as negative consequences materialize differently per city. It segregates the negative consequences of studentification as economic, social, cultural, and spatial; however, many consequences also overlap in classification.

With regards to the aforementioned issues experienced in Delft, Figure 13 shows that in comparison to other cities worldwide, Delft already experiences a vast majority of consequences, as elaborated on in chapters 3.1 to 3.5, which highlights the extent of this process in the city, and

exemplifies that the city has gone beyond its tipping point with regards to student numbers. Due to this, studentification is an urgent matter that needs to be tackled now as the city experiences a lack of co-existence and community.

This emphasizes the need to explore and understand fundamental factors that contribute to the studentification process in order to mitigate them, and to prevent further consequences seen in the studentification wheel from materializing. The studentification wheel also shows the context-dependency of these consequences, and how one city may experience different types of consequences from another, thus requiring a tailored approach.

3.7. Problem statement

Studentification has wide-ranging effects on the urban space and the community of small-sized university cities. The tipping point caused by student numbers exceeding the capacity of the city, leads to economic, social, cultural, and spatial consequences that decrease the quality-of-life of inhabitants. The existing institutional approaches towards these issues lack consideration on their depth and scale, as well as on the long-standing practices that contribute to them.

Considering existing future plans for the city of Delft and the expansion of TU Delft, more attention is needed to mitigate the intolerance and hostility between the university community and the local community. A shift in mindset and practices from quick and easy methods towards wider societal involvement is now an urgent matter for the livability of Delft.

4. RESEARCH AIM & QUESTIONS

4.1. Research aim

The aim of this research is to identify the fundamental conditions and factors that contribute to the negative consequences of studentification, and propose methods of transformation in order to mitigate them and stimulate better co-existence in Delft. In a broader sense, it aims for a governance paradigm that aligns the needs and perspectives of different actors and stakeholders in the long-term by implementating the subsidiarity and participation principles towards the planning system in Delft.

This research will propose a new long-term strategic plan using a theory of change that can be implemented at different scales and followed by a spatial strategy based on an empowerment model in Delft. The goal of this strategic plan is to be positioned within existing national and municipal frameworks in order to direct the transformation of the student housing stock, align actors and stakeholders, and increase co-existence in the city, while considering input not only from actors, but also stakeholders who otherwise do not have much planning power.

4.2. Research questions

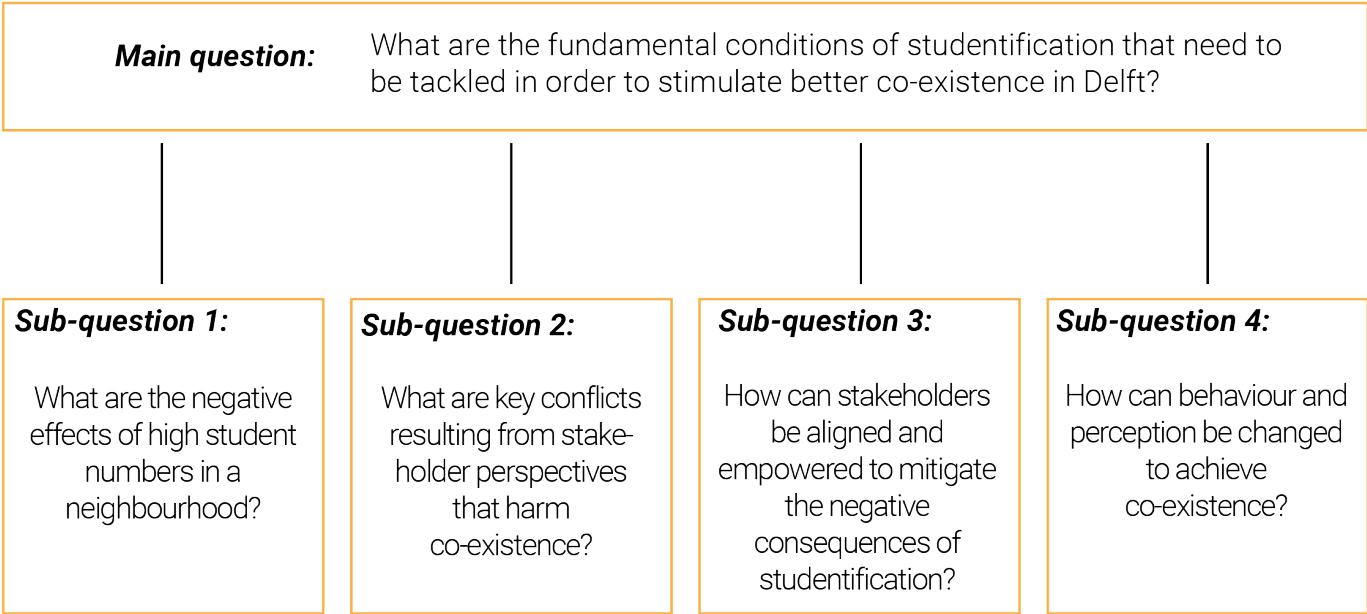


Figure 14. Research questions (Own work).

5. RESEARCH DESIGN

5.1. Conceptual framework

The conceptual framework in Figure 15 depicts the aim of this research with regards to mitigating the negative consequences of studentification and achieving co-existence in Delft. In this research, the provision of student housing is not only viewed in a quantitative manner, but as a method to align actors and stakeholders, and stimulate co-existence between students and local residents.

In this research, co-existence is emulated by: (1) engagement and participation of local inhabitants, (2) creating spaces and opportunities for interaction between different individuals and groups, and (3) behaviour and perception change to increase tolerance. These domains are in line with the Municipality of Delft's livability scale that looks into how well neighbours know each other, how they get along and interact, and their level of trust with one another (Akkermans et al., 2022).

This emulation of co-existence therefore places heavy emphasis on local involvement which is increasingly necessary in light of issues experienced by local inhabitants of Delft. On the other hand, co-existence also requires involvement of institutional and private actors in order to mitigate processes that lead to the negative consequences of studentification. Therefore, regulation and alignment of actors is also required to rethink the provision of student housing and attain co-existence in the city.

This conceptual framework illustrates the main motivation and lens towards the approach seen in this research.

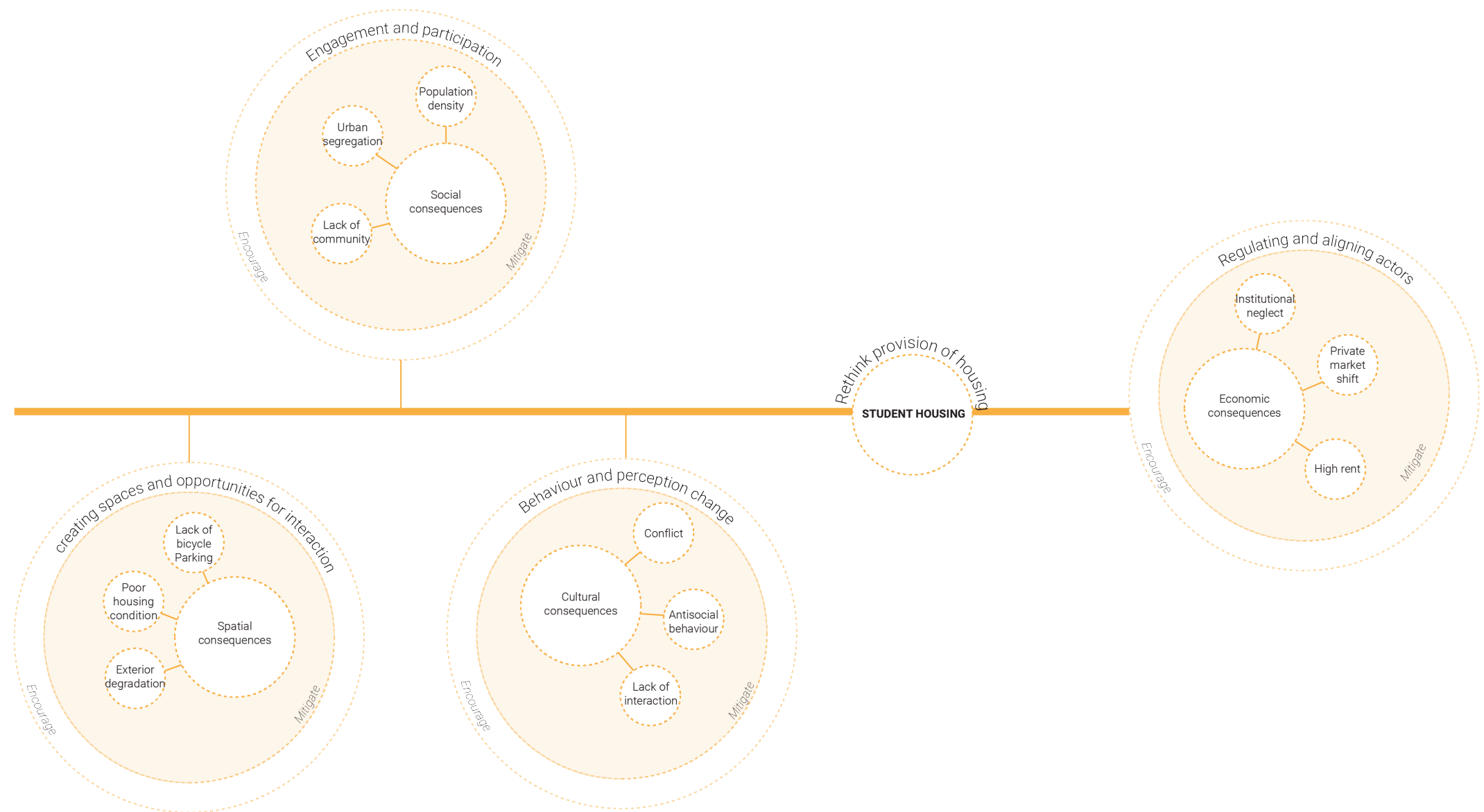


Figure 15. Conceptual framework diagram (Own work).

5. RESEARCH DESIGN

5.2. Research framework

This research is divided into 3 main parts: (1) the analytical study, (2) the empirical study, and (3) the design study. The first clarifies the problems this research aims to address, along with the approach and methodology that determine the trajectory of the following chapters. This analytical study provides the basis for the subsequent empirical and design study.

The second part of this research has 3 components that work in conjunction towards a strategic plan. This consists firstly of the case analyses, wherein comparable cities to Delft within the European context are analyzed to extract best practices and pitfalls. In the same line, analysis on the context of Delft is also done to inform the spatial conditions and existing policies, that lead to or exacerbate studentification in the city, which in turn, provides a map of possibilities. Furthermore, an analysis on the lived experiences, perspectives, capabilities, and interests of different stakeholders is also done to inform the nature of confrontations between individuals and groups that harm co-existence. This research proposes that the confrontations related to studentification acts as the main inhibitor towards the feasibility of best practices in the context of Delft. Therefore, the strategic plan considers conceptually informed best practices that are both limited or expanded, and grounded on the socio-cultural fabric of the city.

The design of this research inspires a novel methodological approach to research on studentification. Through the 3 components in the empirical study, practices that are known to be successful and feasible in other cities along with the spatial and political analysis of the Delft context, are filtered with the perceptions and confrontations between stakeholders in order to create a strategic plan that is informed by possibilities in Delft. Thus, this strategic plan consists of plausible combinations of: (1) best

practices - based on the case analyses, (2) appropriateness - based on the context analyses, and (3) feasibility - based on the confrontations of opposing perspectives from the stakeholder analysis. This is a new and novel approach as existing research such as 'Studentification: a guide to opportunities, challenges and practice' by Universities UK (2013) focus mainly on the context and stakeholder analysis, while studies such as 'EUniverCities' (2021) focus mainly on context and case analyses. As it happens, most research on studentification are able to consider 1 or 2 components presented in this research framework, but rarely do they touch upon all 3. By considering all 3 components in depth in this research, the proposals in the strategic plan are neither superficial nor assuming, but rather comprehensive, thorough, and as much as possible, feasible in the current context of Delft.

With this, the strategic plan materializes in the design study and consists of a theory of change containing recommended policies, regulations, and strategies in order to mitigate the negative consequences of studentification and achieve co-existence in a sequential manner. This provides prerequisite conditions that enable and allow for a spatial strategy in the future once the theory of change has been implemented as local residents would only be accepting and responsive to spatial or community initiatives once policies and regulations are in place. This spatial strategy focuses on empowering local inhabitants to enact and implement spatial projects to reclaim their space and strengthen their sense-of-community. It also highlights the planning process required to empower local inhabitants, along with a guiding design framework that prompts different spatial interventions for the local inhabitants. Lastly, spatial scenarios of how neighbourhoods could look like succeeding the theory of change and the spatial strategy would be visualized.

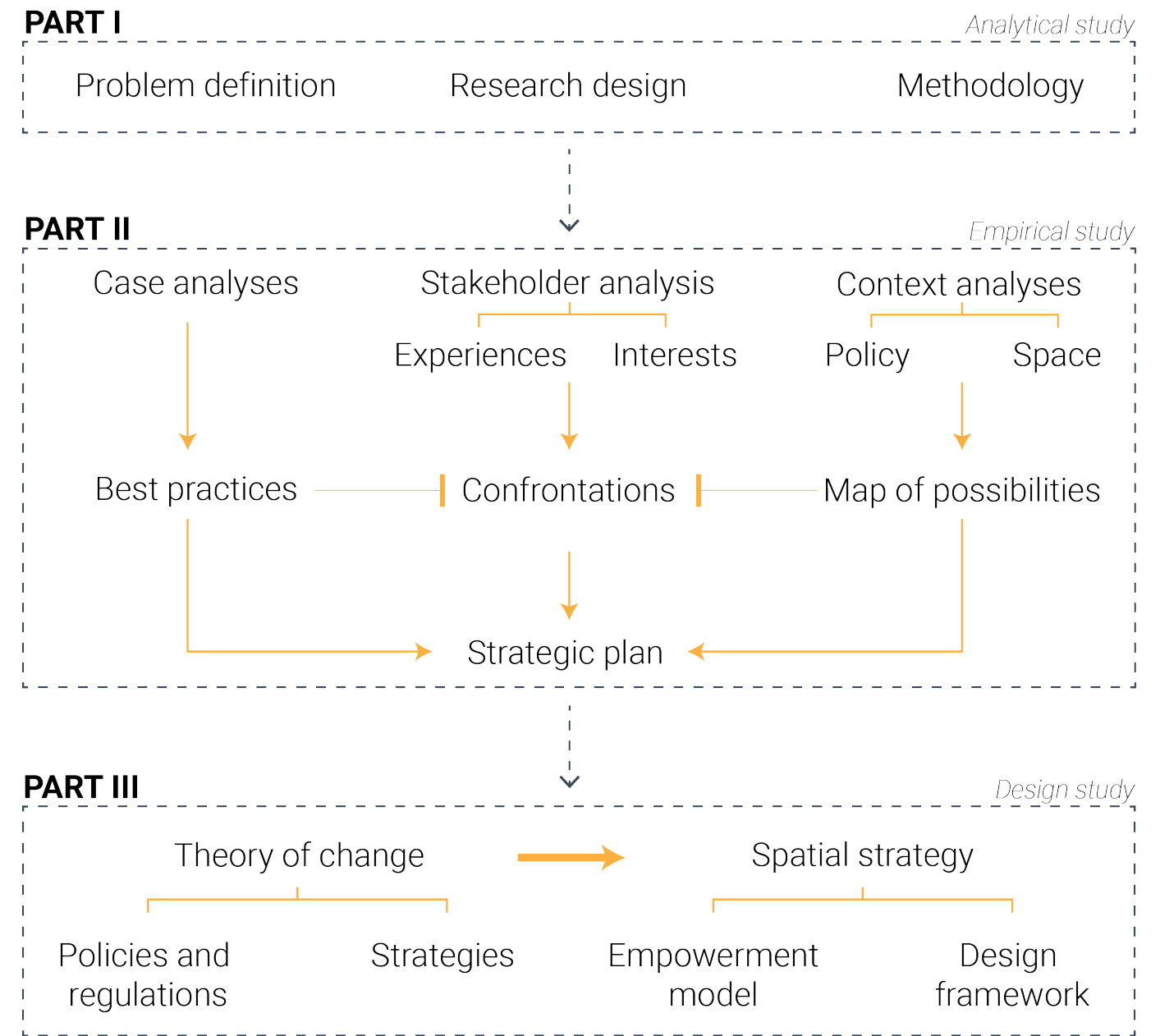


Figure 16. Research framework diagram (Own work).

6. METHODOLOGY

6.1. Research methods



Figure 17. Research methods diagram (Own work).

6. METHODOLOGY

6.2. Research tools

Literature research

The critical review of scientific literature, newspapers, and magazine articles were used to inform the theoretical underpinnings behind studentification and the drivers of its negative consequences globally and locally. They were an integral part of this research to define key terms, reflect on the transferability of global phenomenon onto Delft, and discover the context of studentification in Delft.

Spatial analysis

Data on the distribution of demographics and infrastructure, as well as the spatial claims of different actors and stakeholders are integral to the outcomes of this research, but they are typically not included in scientific literature; therefore, spatial analysis and mapping were necessary to assess the drivers and consequences of studentification that materialize in space. Furthermore, spatial analysis was also needed to inform the current spatial conditions and opportunities for spatial interventions in neighbourhoods of Delft.

Analyzing institutional documents

Policy documents, strategies, and established frameworks of both local and national actors inform the existing and future plans towards student housing and studentification. These were valuable sources of data and contacts for further development of the project and were able to give a guiding direction towards the expected outcomes. Through this tool, the approach and responses of institutions to issues arising from studentification were critically assessed.

Stakeholder analysis

To get an overview of actors and stakeholders involved in the topic of studentification, a stakeholder analysis was required. It was necessary

to understand the different perspectives and priorities of each group to identify existing or need for alignments. Furthermore, the stakeholder analysis clarifies which groups needed to shift power and interests in order to achieve the goals of this research.

Interviews

To gather qualitative data on how actors and stakeholders experience the process of studentification and what their perspectives are, interviews are vital. Due to limited qualitative data on community interaction, personal experiences with studentification, and perception of institutions in Delft, interviews with inhabitants were required. Furthermore, interviews with experts in the municipality, university, and real estate sector were also needed to get a well-rounded overview of different drivers of studentification and strategies towards it. The interviews were conducted using a semi-structured and informal approach with:

- Dutch and international bachelor's students residing in Wippolder
- Dutch bachelor's and master's students residing in Krakeelpolder
- Local residents residing in Krakeelpolder
- Neighbourhood group representatives of Wippolder
- Community liaisons officer of TU Delft
- Partner in public business of the Municipality of Delft
- Management coordinator of DUWO Delft

Case analyses

Case analyses inform the everyday existence of studentification within a European context aside from theoretical understandings of the topic. The selected cities of Lund in Sweden, Loughborough in the UK, and Gottingen in Germany

are used for comparative analysis to discover different ways the consequences of studentification can unfold and which best practices and pitfalls need to be considered for the case of Delft. The selection of case studies was based on a criteria, namely:

- Located in Europe
- Comparative population size to Delft
- Comparative area size to Delft
- Comparative student numbers to Delft
- Presence of local university in the city
- Experiences studentification

Strategy-making

To bring together the components of the analytical and empirical study of this research, strategy-making was used. This is an integral tool towards the end phase of this research in order to realize the intended outcomes. Creating a strategy towards mitigating the negative consequences of studentification and achieving co-existence comes in the form of long-term strategic plans. Strategy-making informs the spatial, institutional, and social strategies required to solve the studentification issue in Delft.

6. METHODOLOGY

6.3. Project phasing

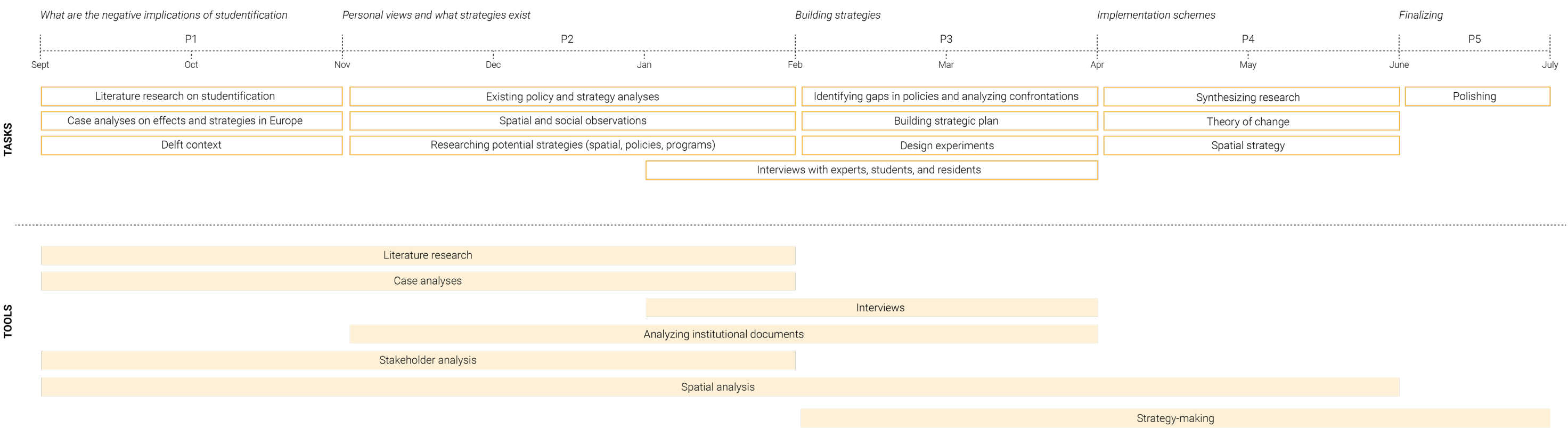


Figure 18. Project phasing diagram (Own work).

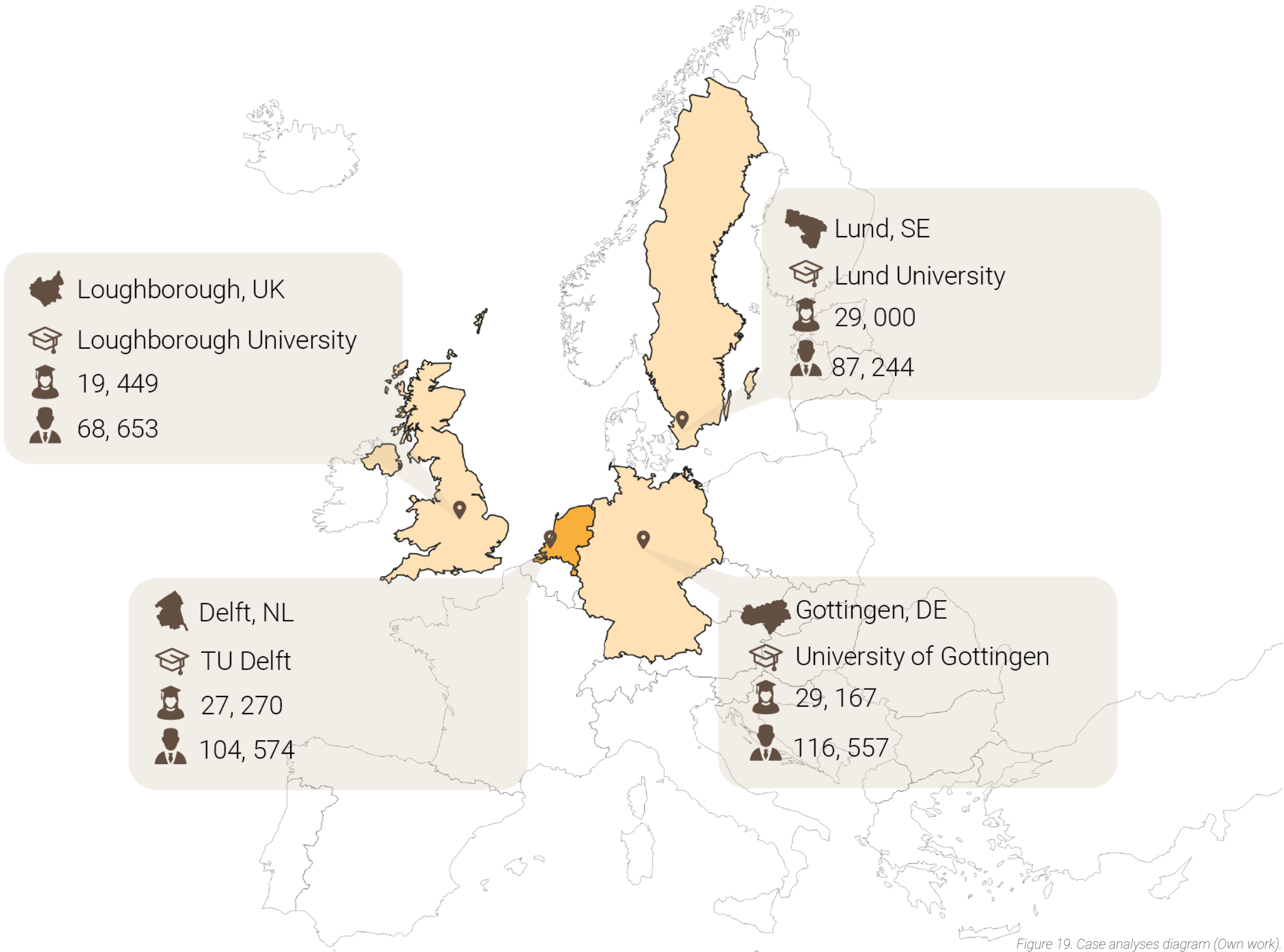


RESEARCH BY CASE ANALYSES

7. RESEARCH BY CASE ANALYSES

Studentification is a phenomenon that occurs in all small-sized university cities, but materializes in different ways. These differences frame the strategies and practices of cities towards its negative consequences. To get an idea of these different materializations and responses, case analyses are done on three other cities within Europe that are comparable to Delft: Lund, Gottingen, and Loughborough. Each of these cities give insight to which conditions facilitate certain consequences, and how these are tackled or approached in tested and successful ways.

Therefore, looking at these case analyses provides inspiration for different best practices for the city of Delft, and what pitfalls could further negatively impact it. Through this, opportunities can be sought within the local context of Delft.



7. RESEARCH BY CASE ANALYSES

7.1. Lund, Sweden

According to research by Nagl (2015), Lund has a reputation for having a difficult student housing market with numerous students unable to find affordable accommodation each year. Studentification in this city has mainly manifested in the student housing shortage. Similar to Delft, Lund University is a globally competitive university with increasing student numbers that have exceeded the capacity of the city. The biggest actor towards student housing in the city is AF Bostader (AFB), a non-profit actor accounting for 75-80% of the student housing stock in Lund. The lack of construction stems from the lack of development capacity and financial capability of AFB. This leads to students hoping to rent from the for-profit private sector that drives up rent and increases housing pressure for other demographics. AFB also struggles with public support towards the construction of student housing due to a period in the 1980s wherein there were a lot of student housing vacancies. This has shaped people’s attitude towards student housing that focuses more on the risk of overbuilding. Furthermore, the change from a conservative housing market to a liberal, market-based approach that introduced the right-to-buy policy in Sweden, lead to a decreased stock of rental apartments in lieu of an owner-occupied stock.

The main issue with student housing in Lund is the lack of Purpose Built Student Accommodations (PBSAs) that are usually more affordable than renting from the private sector (Eureda News, 2022). The rental prices and lack of housing in the city causes students to seek accommodation in the outskirts or nearby villages. Identified causes and drivers of student housing shortage in Lund are based on a lack of collaboration and engagement between several actors that leads to postponements in planning

projects. There is a lack of involvement from the ministry of research and education that inhibits the prediction of student numbers whereas the municipality is criticized for resisting to see Lund as a student city since the students do not pay tax. Furthermore, the university is also criticized for their lack of involvement towards the student housing shortage. Difficult and lengthy planning processes and strict building regulations also make it difficult to build affordable housing for students.

Although the housing shortage and economic processes of studentification is ever-present in the city of Lund, unlike Delft, the city does not experience social and cultural conflict between students and other residents in the city. Noise nuisance is sometimes experienced by local residents; however, not to the extent that students receive a bad image. This can be attributed to the high number of residents that were previously students or affiliates of the university. Due to this, local residents see the value of the university and students in the city. Local residents have also been known to “understand that Lund is nothing without its university and its students”. Another reason for this is that despite comparable demographics to Delft, the number of highly educated people in Lund is much higher, as seen in Table 2. (Gemeente Delft, 2021a; Statistics Sweden, 2021). Since the education gap between city inhabitants is small, the benefits of the university towards the city are very visible to local residents. This makes Lund an example of how social and cultural consequences are not always present in studentified cities.

The student culture in Lund is primarily shaped by different student organizations: student associations that revolve around music, drama,

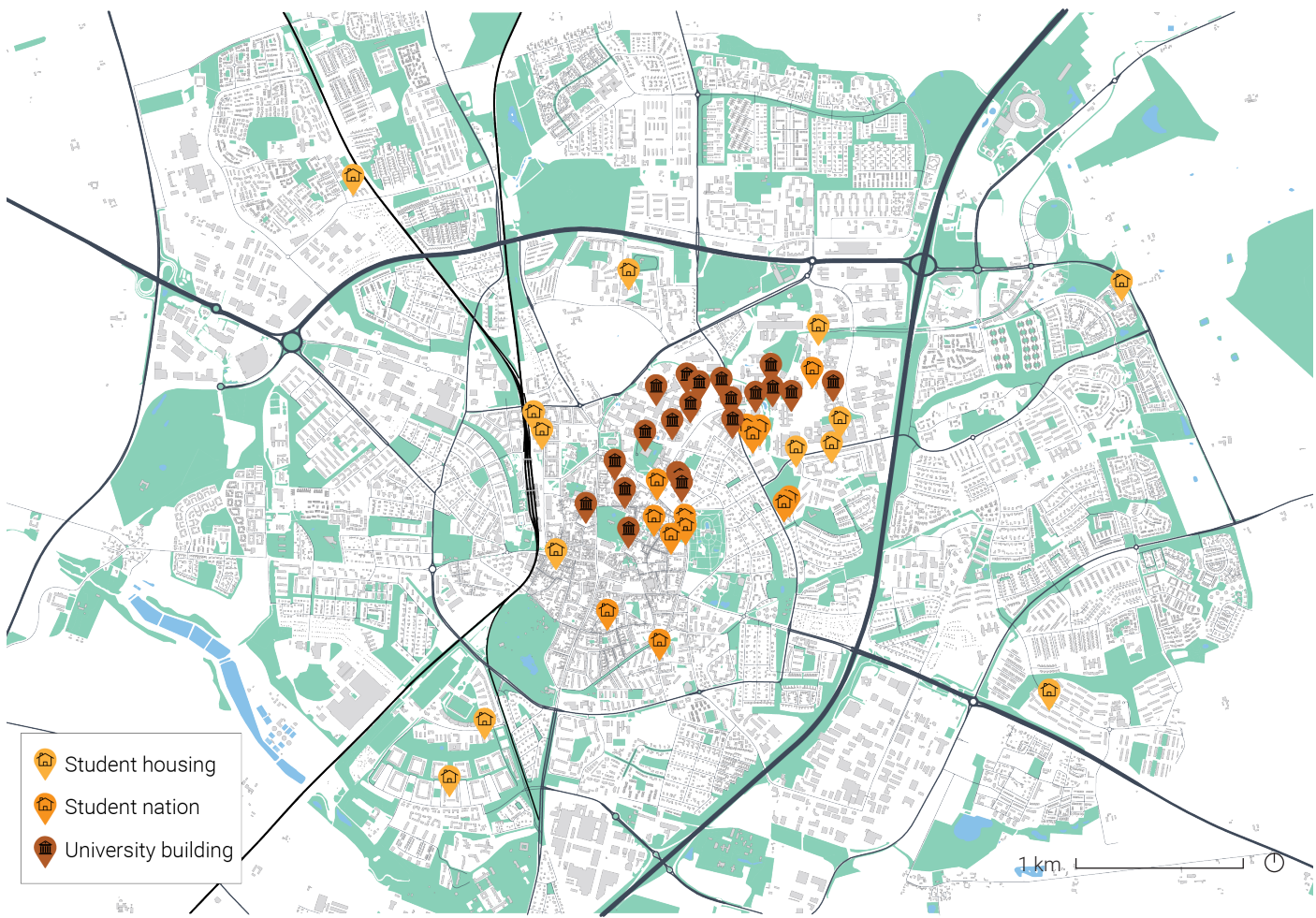


Figure 20. Distribution of student and university buildings (Own work).

	Lower education	Secondary education	Higher education
Lund	5%	22%	70%
Delft	21.7%	32.5%	45.8%

Table 2. Comparison of education levels in Delft and Lund (Own work)..

7. RESEARCH BY CASE ANALYSES

theatre, politics, religion and more; and student nations which are student-only social clubs. There are 13 student nations that provide a range of activities and services which shape the students' extracurricular life in Lund, as well as organizes different housing opportunities for its members. Although student nations operate separately and membership can only be through one nation, students still have access to activities of all other nations. Involvement with the nations is a formidable way to meet new people and make friends as a student. Especially for new international students, participation in student nation activities is an easy way to get to know the Swedish culture. Members of these nations are therefore highly diverse in terms of age and nationality (Lund University, 2003). Activities and services, including housing, of student organizations are mainly located in either the university campus grounds or in the nations' own building which are clumped and scattered around the city. The activities of students are therefore concentrated within these areas.

Furthermore, contrary to Delft, Lund university buildings and student housing are more scattered in the city. There is no hard boundary between campus and city, as seen on Figure 20, making it well-integrated within the urban fabric. Surrounding faculty buildings are amenities used by local residents as well, such as hospitals, libraries, and restaurants. Spatially, there are more opportunities to interact and form a connection with non-student neighbours in the city which could also partially explain the lack of negative cultural and social consequences.

In response to the housing shortage and knowledge-based economy of Lund, the city has developed a 'knowledge axis', a linear urban expansion linking the city center to a new Science Village Scandinavia with several research insti-

tutions. This project involves the city of Lund, Lund University, and Region Skane, built around the two research facilities of ESS and Max IV laboratories as seen in Figure 21. The vision of this project is to create a 17ha cluster of research institutions, accommodation, services, and recreation in Lund. Furthermore, the knowledge axis will also contain new housing, hotels, and parks that makes the university more livable for students and local residents while remaining to be a knowledge hub. A flexible master's plan will be created with detailed planning guidelines to realize this plan (Cardoso, 2015; City Planning Office, 2013).

This plan is also expected to curb the student housing crisis in Lund through large-scale urban development. In the long-term, an upwards of 50,000 new people are planned to live or work along the new tram route that this plan proposes. The principles embodied in this plan include (City Planning Office, 2013):

- Connecting the center of Lund with the new district of Brunnshög
- Creating nodes where development and densification is concentrated
- Densifying with heterogeneous environments rich in contrast and many functions
- Mixing services and housing in currently homogeneous sub-areas
- Refining according to the context of surroundings
- Opening up functions in connection with institutional buildings

This knowledge axis provides a great example on how to join university and research institutions with public authorities in a way that maximizes their assets to create and manage innovative urban growth in a historical city (Cardoso, 2015).



Figure 21. Vision map of Knowledge axis (Lunds Kommun, 2016).

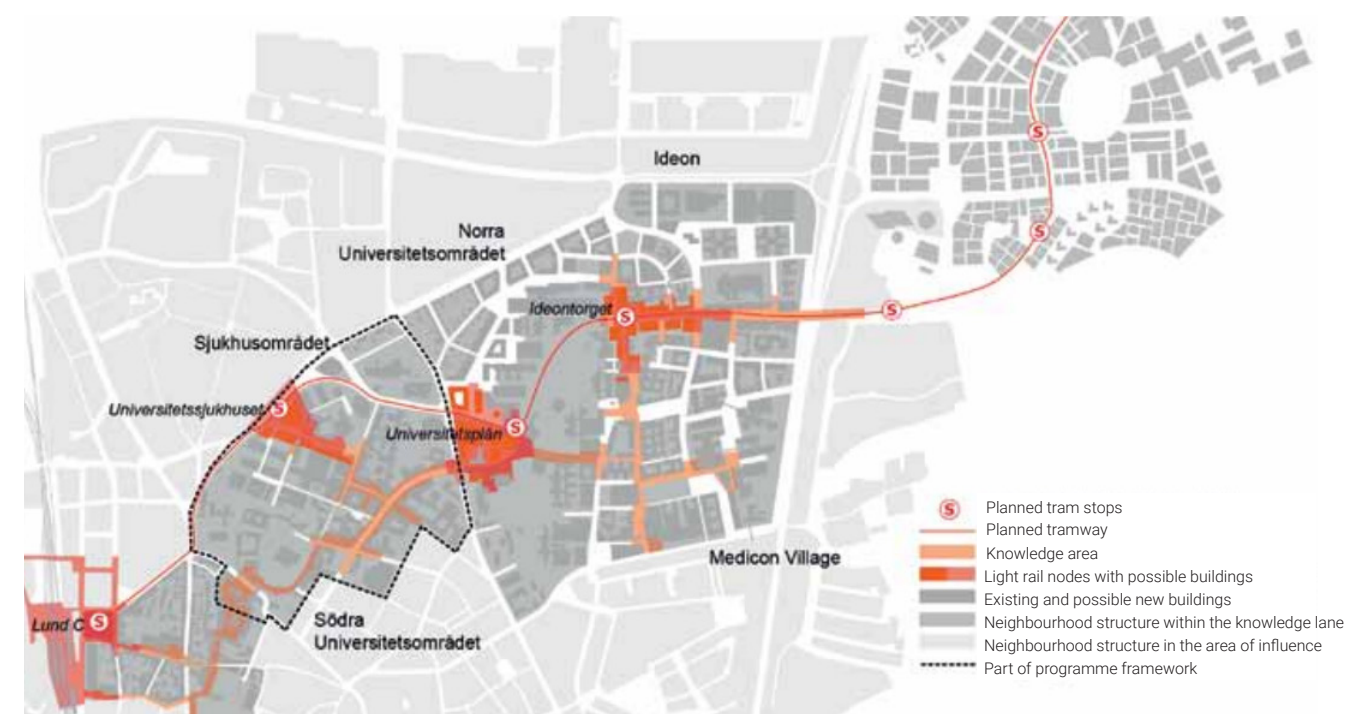


Figure 22. Knowledge axis structure plan (City Planning Office 2013).

7. RESEARCH BY CASE ANALYSES

7.2. Gottingen, Germany

In contrast to Lund, Miessner (2021) found that the rental market in Gottingen is dominated by small-scale property owners who collectively own more than 70% of rental properties in the city. The increase of Georg-August University of Gottingen students lead to an increase in competition between students and non-students for rental apartments. This is due to the low presence of student social housing in the city. The increase of housing commodification in Germany can be attributed to the internationalization and financialization of the German housing market, as well as the decrease of funding towards social housing. Property owners exploit high student housing demand in cities like Gottingen by charging high rent and preferring students who are more willing to reside in low-quality houses. This trend has caused problems leading to wide public discussion and political struggle dealing with a lack of affordable homes for both students and local residents. Furthermore, the student housing market in Gottingen is a 'landlord-market' housing cooperative which allows property owners to choose tenants and dictate the rent.

Meanwhile, new housing constructions are stagnated at the same time as population growth. The resulting high demand forces tenants to rent any available property, despite poor conditions and high rent, due to a lack of alternatives. The amount of students in university cities make investments relatively risk-free since high fluctuation allows for rent adjustments and the turnover rate of students is very high. They are

also guaranteed that the room will always be occupied as many students move into the city each year.

This landlord-market then contributes to the displacement of marginalized social groups and urban segregation in Gottingen. Landlord activities therefore act as drivers for gentrification and urban development in the city. Increasingly, middle-class families are also unable to afford rent prices and are obliged to move to villages outside the city. This also greatly affects benefit recipients and immigrants as they are forced to rent leftover houses that students do not want to move into. Moreover, landlords try to reduce conflict between students and local residents by ensuring homogeneous inhabitants in their buildings, which further intensifies the urban segregation in the city. Landlords and real estate companies have found that co-living between different groups such as students and pensioners often leads to problems.

Although urban policies have been implemented to combat the student housing shortage, these only focus on new residential development areas and construction on vacant plots, but not on studentification and hampering urban segregation. This makes Gottingen a valuable case study to see how urban policies that only consider quantitatively increasing the housing stock without a focus on integrating students within the local community cannot solve the issues related to studentification, whether that be a matter of infrastructure or within the social realm.

Supply Rent and Student Density 2017

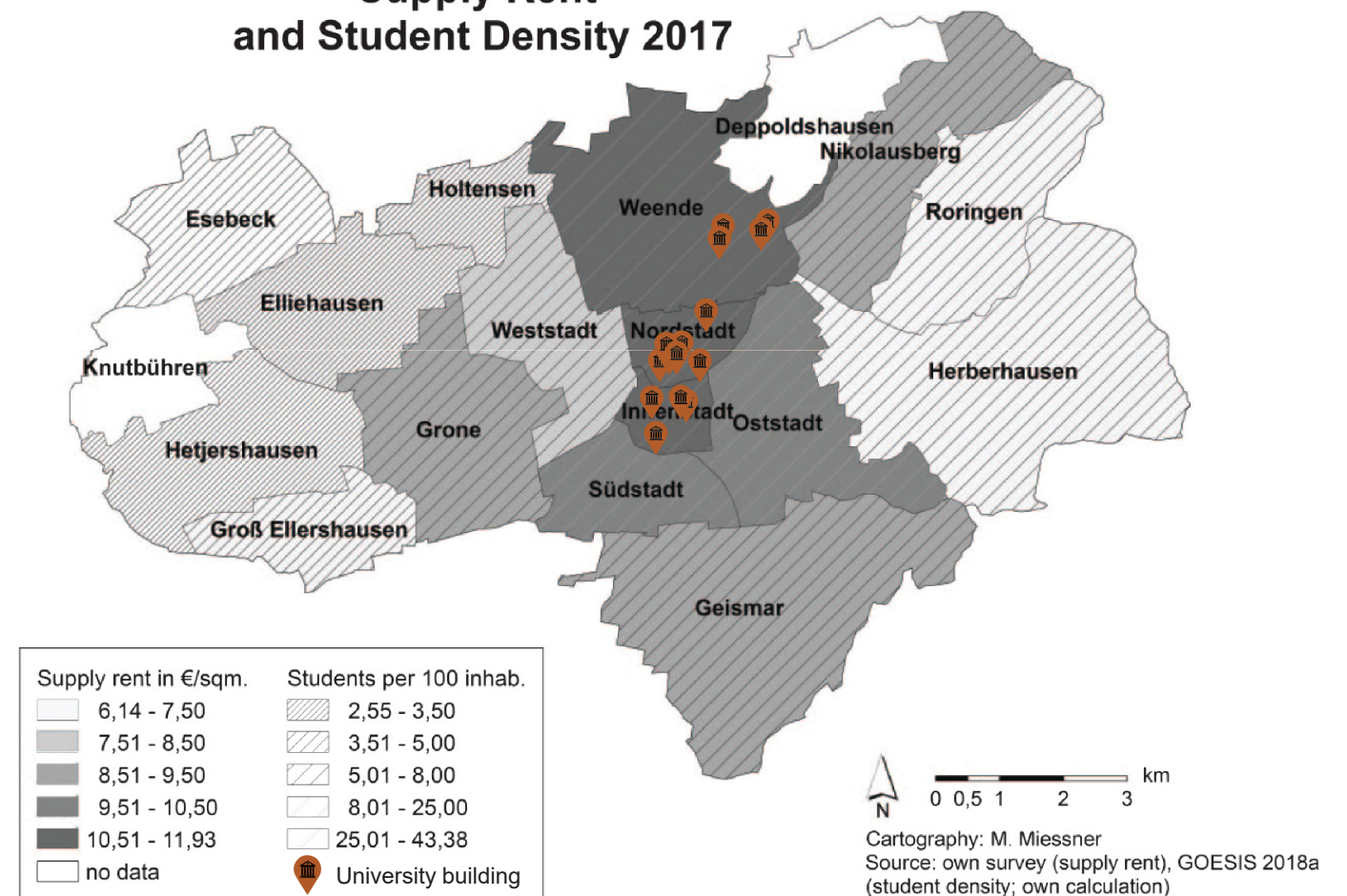


Figure 23. Student population relative to university buildings and rent supply (Miessner, 2021).

7. RESEARCH BY CASE ANALYSES

The city of Gottingen has since established a municipal action plan that lists multiple instruments to be used in order to build more affordable homes. Although this does not specifically target student housing and is primarily focused on increasing the social housing stock, it does provide the essential commitments towards densification. These instruments are (City of Gottingen, 2018):

- All new residential buildings with more than 12 residential units need to meet a 30% minimum quota on the number of units available in the affordable segment
- A subsidy program of 3.5 million for 5 years to create social housing or to purchase occupancy rights, known as a municipal incentive subsidy
- Establishment of a central advice and coordination office for housing projects and a federal research program for housing agency
- Optimizing the availability of space using urban planning instruments, such as the creation of planning rights, strategic land development, social building land management, and more
- Reducing construction costs by changing the car parking statute

New residential areas are now in development in Gottingen; however, this municipal plan does not touch upon urban segregation in the city and has not put in place any policies to ensure that within new housing constructions, local residents will have the same rental opportunities as students do. Therefore, despite an increase of housing in the affordable segment, there is no guarantee that landlords would not exploit the student housing demand and rent solely to students.

Moreover, the action plan does not specifically address student social housing that could draw students out of the private real estate sector. Although an Alliance for Affordable Housing has been established that represents the municipal housing association, two local housing cooperatives, the Gottingen student union, and the most important private investors, the policy of this alliance is mostly limited to regular meetings and a voluntary commitment. The city has no instrument for student housing, such as giving preference to the student union when allocating building land (Marlow & Miessner, 2019). Furthermore, existing policies and action plans do not consider that landlords purposely separate students from other residents in the city due to social conflicts. This approach highlights the tendency of institutions to look at the topic of studentification in a quantitative manner and as a separate issue from what local residents face.

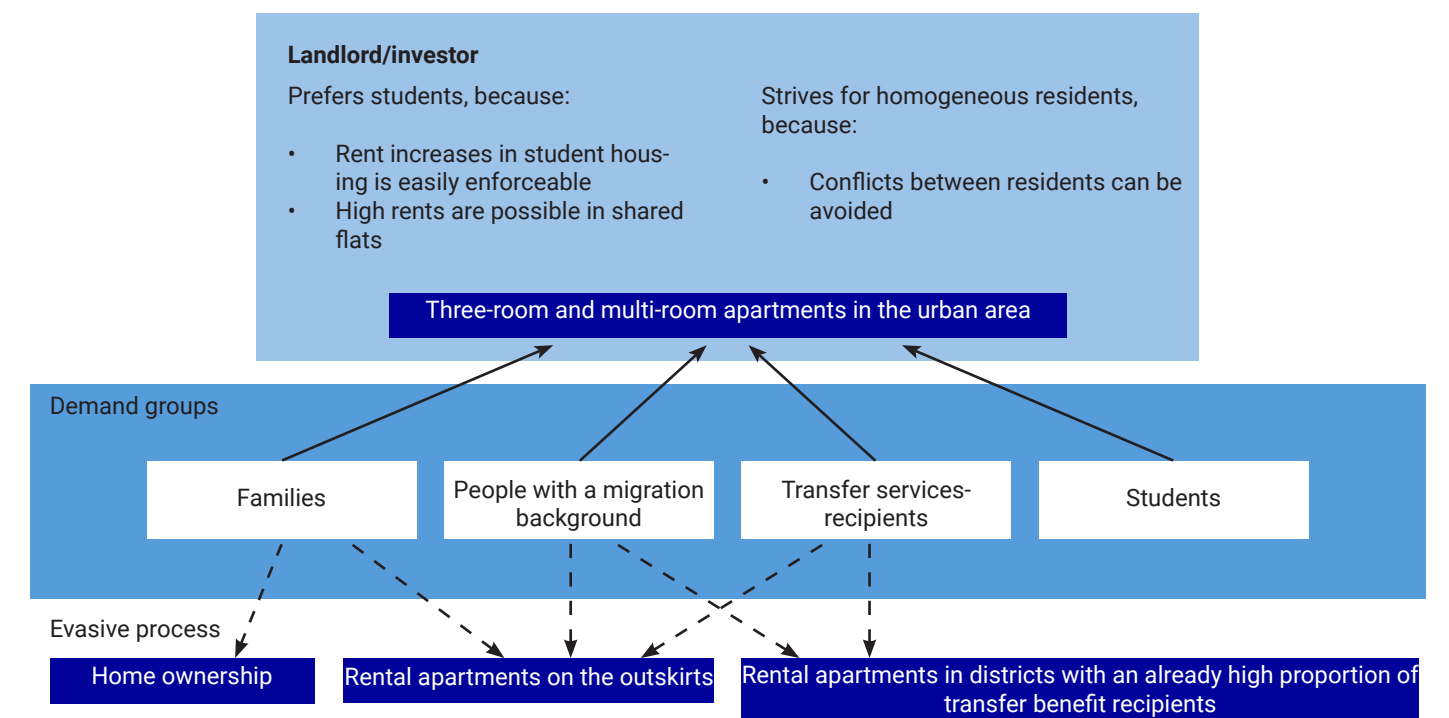


Figure 24. Process of displacement (City of Gottingen, 2018).

7. RESEARCH BY CASE ANALYSES

7.3. Loughborough, UK

Loughborough is a market town in the English East Midlands that serves as a host for Loughborough university. The impact of the university and its students is very apparent in the town where local economy is more reliant on the presence of a higher education institute. Research by Hubbard (2008) and Kinton et al. (n.d.) found that in Loughborough, the process of studentification is not per se due to the influx of students, but rather the rapid recommodification of single-family houses into student housing, termed as House in Multiple Occupation (HMO) that is more evident at a neighbourhood level. This recommodification appears to be a lucrative investment opportunity that fuels a search for properties that are suitable for conversion.

As a result of this, the geographical concentration of students has been opposed by many local residents who focus on the antisocial behaviour of students by marking them as an “other” population whose lifestyles and values do not align with the majority. Students are also regarded as disinterested in local community life. Behaviours of students have been linked to drink-fuelled violence, vandalism, binge drinking, and nightlife. Many local residents also complain about the appearance of properties and traffic and parking issues. The concentration of students has also reduced activities and neighbourliness in certain neighbourhoods as students are away outside of the academic calendar. This further leads to a loss of community and diversity.

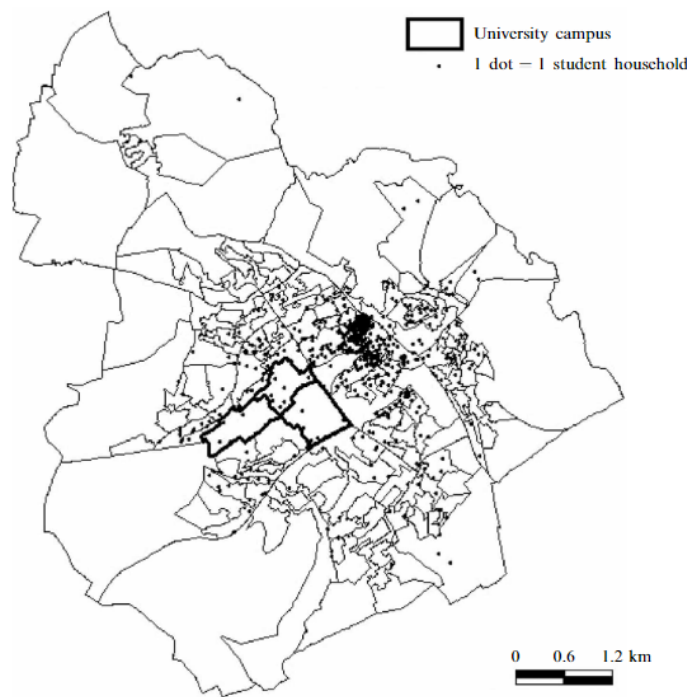


Figure 25. Distribution of student numbers in Loughborough (Hubbard, 2008).

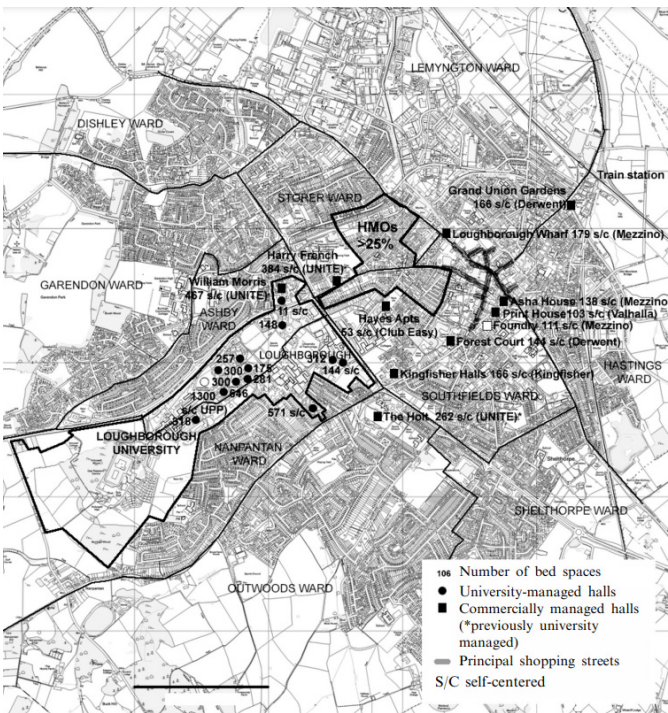


Figure 26. Location of student accommodations in Loughborough (Hubbard, 2009).

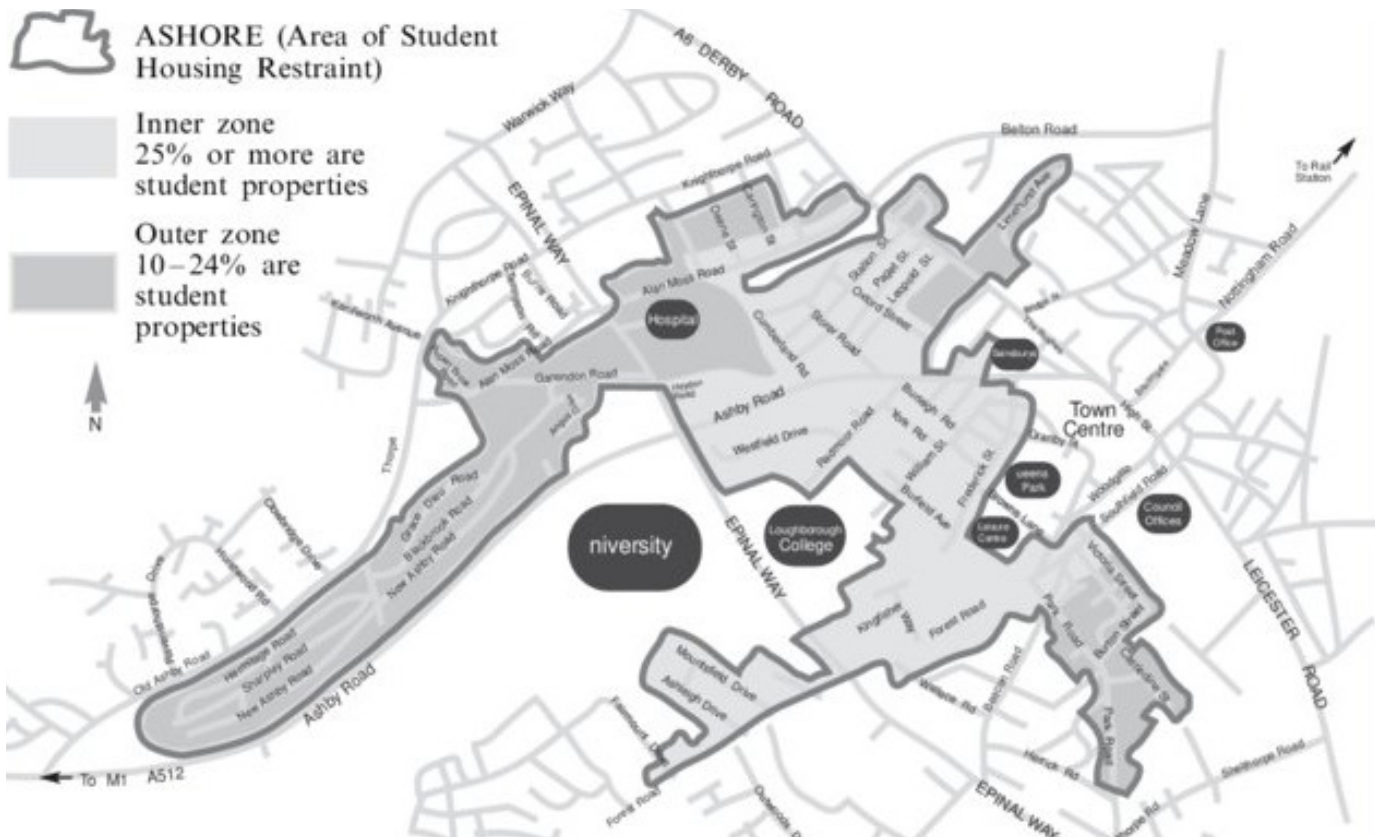


Figure 27. Application of threshold approach (Hubbard, 2008)

Loughborough university is criticized to have never given serious consideration towards the creation of policies that related to local or regional needs, even at a time of social distress. For most local residents, the university is seen with ambivalence wherein the positive effects of local job creation were greatly outweighed by a myriad of issues relating to the behaviour of students.

In response, a group of concerned residents formed a group to draw attention towards the negative consequences of studentification in the town. They suggest that the quantity of HMOs has unbalanced the community. The campaigns of this group lead to the development of a Supplementary Planning Document (SPD) for stu-

dent housing by The Charnwood Borough Council in 2004 that outlines 6 main options for the management of student housing in the borough. Of these options, a threshold approach, as seen on Figure 27, was chosen that involved an assessment of the number of student households in areas and imposing restrictions against the conversion of properties to HMOs once a threshold of 25% or more in inner zones and 10-24% in outer zones has been reached. This threshold model was deemed most suitable as it was responsive to student numbers by being based on percentages. The council advocated for this approach as a flexible local solution to keep up with the pace of change (Hubbard, 2008).

7. RESEARCH BY CASE ANALYSES

This approach has since been criticized as discriminatory as it imposes restrictions on a certain population group. This is because the notion of a tipping point has little empirical basis in this context. The council suggested that 25% is the threshold of which any more HMO conversions would cause a decrease in quality-of-life. However, this percentage is only based on assumptions rather than data and evidence. This criticism calls for a need to conduct further research on the impacts of student numbers in order to impose a correct threshold and to develop explicit policies to integrate students in local communities instead, especially since local residents fail to see the positive contributions of students towards diversity, the knowledge economy, and urban facilities. In Loughborough, viewing students as a threat were more prominent in neighbourhoods with impoverished and elderly residents who arguably could benefit more from the neighbourhood revitalization that students can bring.

A new movement has also been seen in Loughborough with regards to the increase of purpose built developments for student housing. In Hubbard's (2009) research, it was found that students tend to be willing to pay more rent for PBSAs with more modern fixtures and higher-quality facilities that resemble living in campus halls which are short in supply and tend to favour first-year students. This type of development, however, has a tendency to form 'gated communities' as students form exclusive geographies. This puts forth a line of thinking that PBSAs lead to a less cohesive and divided community despite less nuisance attributed to them. It also leads to concern of de-studentification when students leave HMOs for newly built accommodation. Since student houses in studentified neighbourhoods of Loughborough are typically lower quality, it constitutes a fear towards

increasing neighbourhood decline. There is still relatively a lack of longitudinal data on PBSAs in Loughborough; however, attention must also be given towards adverse effects of decreasing the student population of former studentified neighbourhoods and increasing new typologies (Hubbard, 2009).

Loughborough, in combination with the threshold approach, has since established a Community-University Cohesion Working Group that implements a range of measures to improve town-gown relations. The Loughborough council works in close consultation with the university, the student's union, the police, landlords, and local residents to address the issues of studentification. This working group has created a strategy that recognizes the need for engaging with the university and integrating students within the local community (Charnwood Borough Council et al., 2011).

Some measures that have been implemented by the local strategy include off-campus security patrols to monitor the behaviour of students and the state of the physical environment, a Good Neighbour Guide for students, and the promotion of a 'Silent Students Happy Homes' campaign that provides graduated students with key rings to remind them to be good neighbours (Charnwood Borough Council et al., 2011; Hubbard, 2008). A local housing strategy will also be drawn up in consultation with the members of the working group. Furthermore, the university has appointed a Community Liaison Officer with a budget for community activities and as a point of contact for local residents' groups. The strategic plan and its resulting activities has contributed to the quality of neighbourhoods in Loughborough and will continue to assist the different needs of inhabitants through iterative meetings and discussions that will accordingly adjust the strategic plan.

On a national scale, the collective voice of universities in England, Universities UK, has created a guide towards responding to the challenges of studentification. This guide highlights principles of a strategic approach and local initiatives that can be applied to studentified cities in the UK (Universities UK, 2013).

The principles of this strategic approach include:

- HEIs and local authorities need to acknowledge the issues even if there has been no organized community response
- HEIs along with other stakeholders need to acknowledge their responsibility towards residential communities
- Consequences of studentification need to be tackled through partnership working between a range of stakeholders
- A common vision needs to be developed between stakeholders to develop a balanced community
- Including local student housing strategies into local development frameworks of local authorities
- Develop and establish effective communication with local student housing groups
- Use of formal powers and protocols to outline actions that stakeholders can take towards mitigating consequences of studentification
- Planning for change regarding student housing and urban regeneration

Local level initiatives include:

- A student accommodation strategy in consultation with the local authorities and community
- Community liaison officers at a strategic level appointed by the university to relate to local communities
- An accommodation bureaux with designated staff to guide students into the private re-

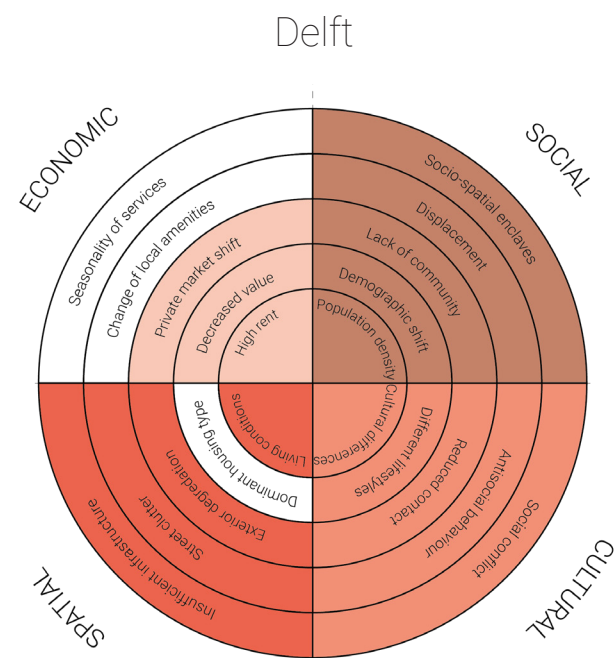
al-estate market

- Student housing handbook guides made by HEIs and students' unions
- Promoting cohesive student households
- Codes of behaviour as a prerequisite for university registration
- Establishing a community strategy that considers the benefits of the university's presence
- Assigning community wardens to respond to daily nuisances as a complaint response strategy
- Establishing neighbourhood helplines
- A community safety strategy to prevent crime
- Accreditation schemes for private landlords
- Licensing for student accommodations within the university campus
- Information directories for students with regards to environmental blight, noise, parking and traffic, and shops and services

This guidebook provides the framework for which different HEIs in the UK can tackle studentification. Depending on the local context, certain principles and initiatives can be adopted or adapted accordingly.

7. RESEARCH BY CASE ANALYSES

7.4. Best practices



A summary of the case analyses, as seen in Table 3, depicts the different ways studentification materializes in different cities and the extent of how each city is affected by this phenomenon, in contrast to Delft. As lesser negative consequences materialize in Lund, the best practices that emerge from this case touches more upon preconditions to evade socio-cultural conflicts rather than active policies or strategies to combat studentification, apart from tackling the student housing shortage wherein new strategies are in place. In contrast, the case analysis of Göttingen focus more on practices that need to be avoided or considered for new strategies such as landlord regulations. It is worth noting that the best practices that emerge from this case are about affordable housing in general rather than student housing specifically. Active strategies and policies towards studentification are more prominent in Loughborough which experience the negative consequences of studentification strongly compared to Lund and Göttingen, and most similar to Delft. The case analysis of this city therefore provides best practices that can be responsive towards the issues that a city faces. This chapter therefore provides best practices in both a preventative and responsive approach, as well as practices to be avoided, that can be adopted or adapted in the local context of Delft.

	Lund, Sweden	Göttingen, Germany	Loughborough, UK
Studentification materialization			
Best Practices	- No hard boundaries between university buildings and the city, more integration with urban fabric - Residents recognize the benefit of the university to the city due to a narrow knowledge gap - Student associations and nations have diverse members and restrain activities within campus grounds or small areas around the city - Majority of student houses are PBSAs and owned by a student housing association - Singular vision for the municipality and the university towards urban development - Commitment to mixed functions for large-scale developments and university expansions	- Municipal incentive subsidy program for social housing - Central platform for advice on housing projects and construction - Strategic land development and management for social housing - Minimum quota for affordable housing in new construction	- Community-University working group in consultation with stakeholders - Strategic framework and action plans for studentification - Off-campus security patrols - Good neighbourhood guide given to students - Campaigns towards good behaviour - Neighbourhood groups - Community liaison officer with a budget for community activities and works as a point of contact with the local community - National university guide that details strategic principles and local initiatives to combat and opportune from studentification
Pitfalls	- Lack of collaboration between several actors - Lack of engagement with national sectors - Lack of university involvement towards local issues - Lengthy and difficult planning processes and building regulations	- Landlord-market housing cooperative - Lack of policy for displacement - Lack of landlord control - Lack of policies to integrate students within the local community - Student unions are not given priority in building land allocations	- Unfounded threshold approach that restricts a specific group from rental opportunities - Rise of PBSAs can cause destudentification and urban decline

Table 3. Summary of case analyses (Own work).



RESEARCH BY CONTEXT

8. RESEARCH BY CONTEXT

8.1. Delft in space

This chapter looks into the local context of Delft, with its spatial conditions and existing policies and strategies, in order to study how studentification is exacerbated or mitigated in the city. It should be noted that due to limited public statistical data on students in the city, inhabitants between the age of 15 - 24 were considered to be students of TU Delft and other universities of applied sciences in the city.

Delft has a dense population of 4,482 per km², of which students, account for over 20% of the population (Gemeente Delft, 2021a). This is due to the presence of TU Delft. As seen in Figure 28, a large portion of the city is occupied and claimed by the TU Delft. The university is spatially separated from the rest of the city by boundaries such as roads or water. Furthermore, as its territory is at the edge of the city, this gives the university distinct spatial characteristics that widely differs from the rest of Delft. The university is characterized by large buildings, where some of the tallest and most high-tech buildings in the city are located, contrary to the historic buildings in the Binnenstad or city center. The separation between town and gown in the city is therefore not only based on differences in social or cultural characteristics, but spatial and economic as well.

Furthermore, the city is divided into 8 districts and 91 neighborhoods. The TU Delft territory encompasses 3 neighborhoods sandwiched between smaller neighborhoods and the borders of the city. Due to this, the spatial expansion of the university territory can only occur southward to avoid taking up residential spaces.

Figure 28 also illustrates the spatial claim of students across the city, whereby neighborhoods in the districts of Wippolder (Wippolder-North,

Wippolder-South, and Zeeheldenbuurt), Binnenstad (Centrum, Centrum-West, and Centrum-Southwest), and Voorhof (Roland Holstbuurt and Mythologiebuurt), along with smaller neighborhoods of Krakeelpolder, Verzetstrijdersbuurt, and Sint Joris, take prominence. The percentage of students in the neighborhoods of Delft depict the rate of studentification in these neighborhoods.

Using data from the Omnibus survey of the Delft Municipality (Gemeente Delft, 2021a), the number of inhabitants experiencing residential nuisance can be extracted per neighborhood. This gives an indication of the correlation between the rate of studentification and proportion of residents experiencing nuisance in the city. Figure 28 shows which neighborhoods have a higher than average number of residents experiencing nuisance at 27%, against the number of students in that neighborhood. Therefore, this suggests that when the proportion of students in a neighborhood exceeds 20%, more inhabitants of those neighborhoods experience nuisance at a rate higher than average in the city. However, it should be noted that not all neighborhoods were considered in the Omnibus survey, leading to missing data on other studentified neighborhoods.

Nevertheless, this analysis provides a lens as to which neighborhoods can be explored with regards to the effects of studentification. Figure 28 will therefore be used to investigate the role of space in the negative consequences of studentification. To do this, two distinct neighborhoods in Delft where the student population exceeds 20% and where the nuisance experienced by inhabitants is above average, will be further analyzed and explored.

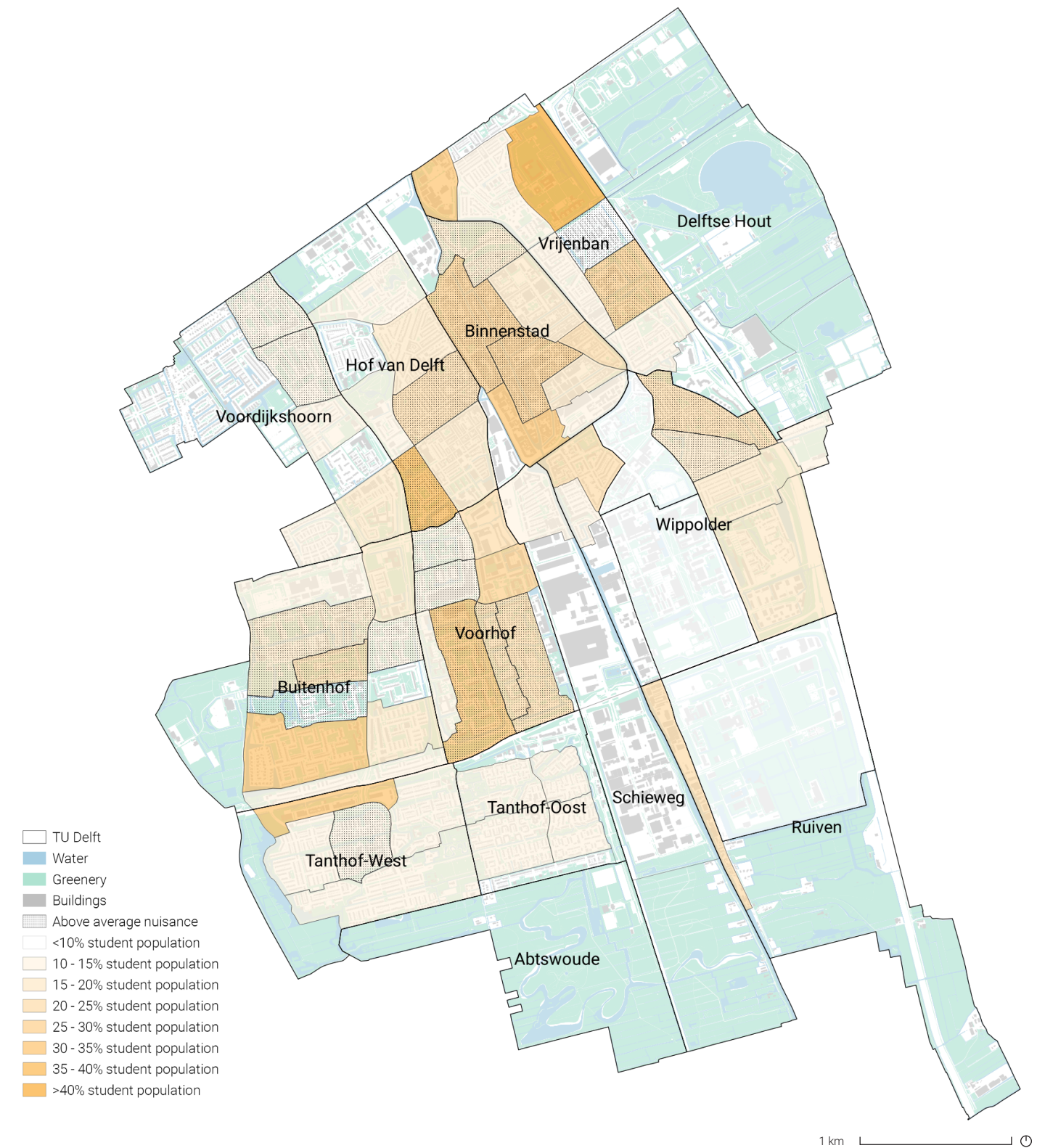


Figure 28. Studentified neighbourhoods in Delft (Own work).

8. RESEARCH BY CONTEXT

As studentification is most present at a neighbourhood scale, where the number of students in relation to local residents is very high, interventions towards studentification is dependent on this context. In Delft, not all neighbourhoods experience the effects of studentification, whereas others suffer more from it and experience it differently. It is therefore important to understand what conditions lead to these experiences and how it can be mitigated.

In order to create a strategic plan and spatial guidelines to mitigate studentification in Delft, two neighbourhoods are chosen as focus points for the spatial analysis and interventions: Krakeelpolder and Wippolder. These two neighbourhoods represent distinct student housing typologies and spatial conditions that lead to the negative consequences of studentification.

Krakeelpolder is a neighbourhood whose student population consists of around 36% (Gemeente Delft, 2021a). This is due to the large De Krakeelhof student complex, owned by DUWO, in Jacoba van Beierenlaan. There are 575 student residents living in this complex alone where students live in shared apartments of 16-18 students per apartment. The high student numbers clustered onto one area has created a lot of tension with adjacent local residents living in the same street due to nuisances.

In contrast, Wippolder is divided into Wippolder-North and Wippolder-South. Similar to the UK, studentification in this area is due to the commodification of single-family homes into student houses. Wippolder-North has a more than 25% student population whereas Wippolder South has around 15% (Gemeente Delft, 2021a). The rising density of students per house

in the streets of this neighbourhood, along with the neighbourhood's close proximity to TU Delft, has led to disputes over spatial claim and noise nuisances.

The neighbourhoods of Krakeelpolder and Wippolder depict two common student typologies in Delft, a purpose built student accommodation (PBSA) and house in multiple occupation (HMO). This provides insight into the differences between these typologies in relation to the negative consequences of studentification.

The spatial conditions of these neighbourhoods also give insight to other studentified neighbourhoods in Delft with different typologies. The spatial analysis will look into how the presence of these student houses and other demographics affect the physical environment and relations that inhabitants form with one another. This then sheds light on opportunities to revitalize the neighbourhood.

This section of the research will first look into the demographics and then the spatial conditions of each neighbourhood along with its effects on its inhabitants. This is then followed by a map of main observations to summarize the spatial conditions of the neighbourhood. Doing so for both neighbourhoods in Delft gives insight into spatial conditions and possible opportunities for interventions.

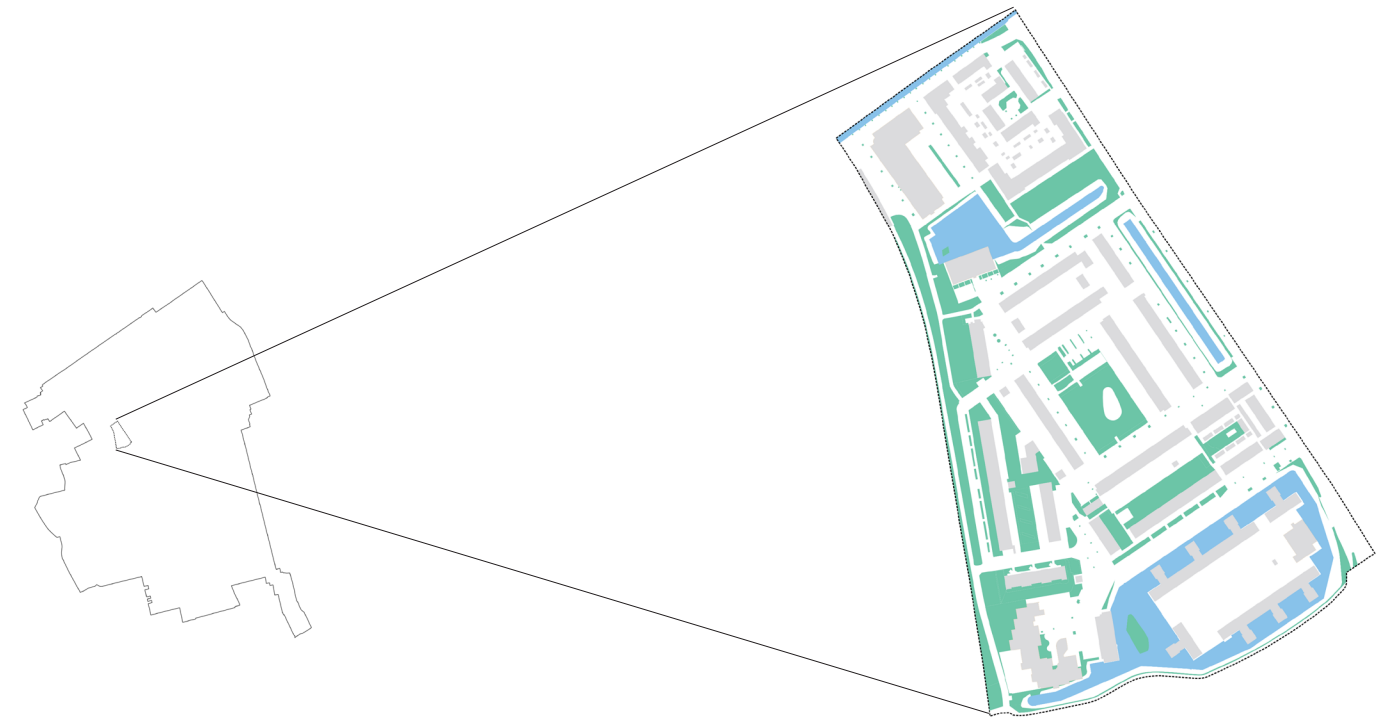


Figure 29. Location of Krakeelpolder in Delft (Own work).



Figure 30. Location of Wippolder in Delft (Own work).

8. RESEARCH BY CONTEXT

8.2. Krakeelpolder

In Krakeelpolder, more than half of the residents are within the age range of 15-34 (Gemeente Delft, 2021a). This exemplifies the dominance of the young student population in the neighbourhood. This also explains the cultural gap in the lifestyles that local residents experience. In Krakeelpolder, local residents directly opposite or adjacent to the student complex often complain about student parties, alcohol use, and noise from their student neighbours. Due to these nuisances, tension and conflict characterize neighbourly relations in close proximity.

Local residents often call the police or DUWO in order to express frustration regarding the situation. These residents now find it futile to speak to students in a friendly manner. Other local residents who don't complain anymore were found to have lost trust in the capability of institutions to solve the issue of nuisance (B. van Toorn, personal communication, 2022).

The high proportion of young residents can also be seen in the household composition wherein 71% are single households. In combination with the majority of residents having a Dutch ethnic background (Gemeente Delft, 2021a), it can be seen that the neighbourhood has a low rate of diversity. It also gives an indication of the lack of housing stock suitable for families, as stated by the municipality (Gemeente Delft, 2021b).

The education level in the neighbourhood is also skewed towards middle-educated individuals. The proportion of middle- and highly-educated residents to the lower-educated residents needs to be considered in new interventions as this may play a role towards the acceptance of students by local residents.

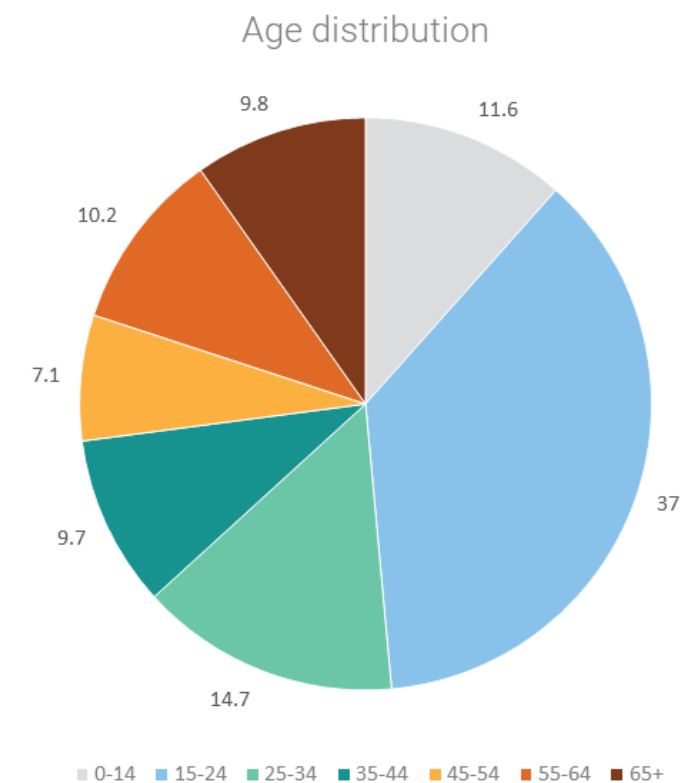


Figure 31. Age distribution in Krakeelpolder (Own work).

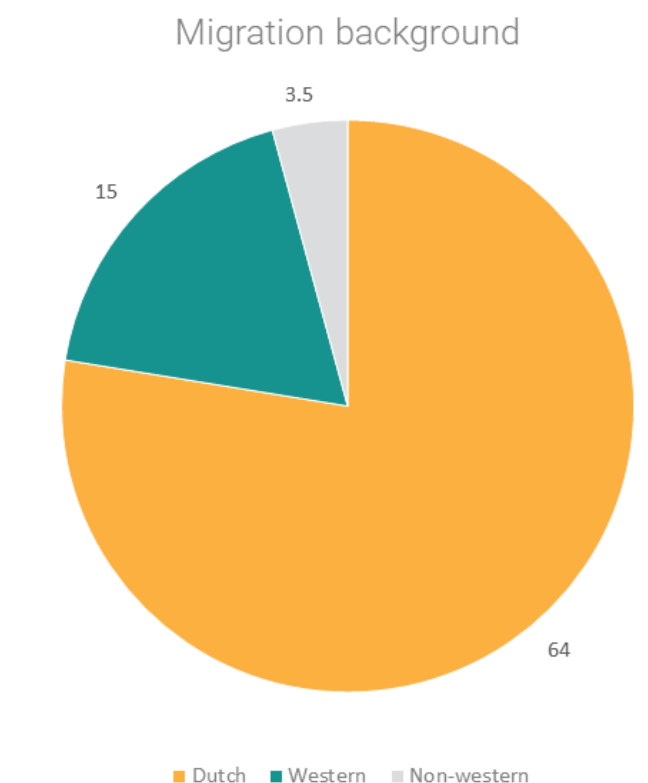


Figure 32. Migration background in Krakeelpolder (Own work).

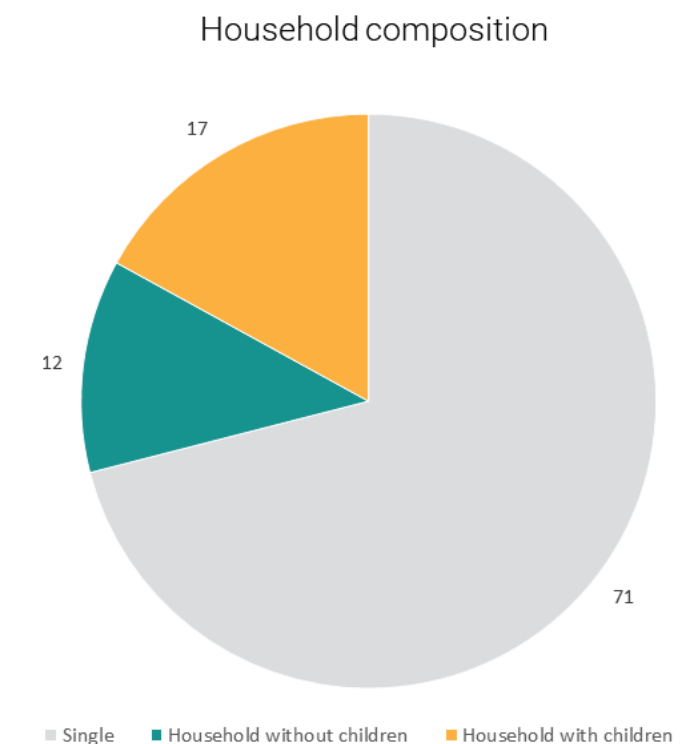


Figure 33. Household compositions in Krakeelpolder (Own work).

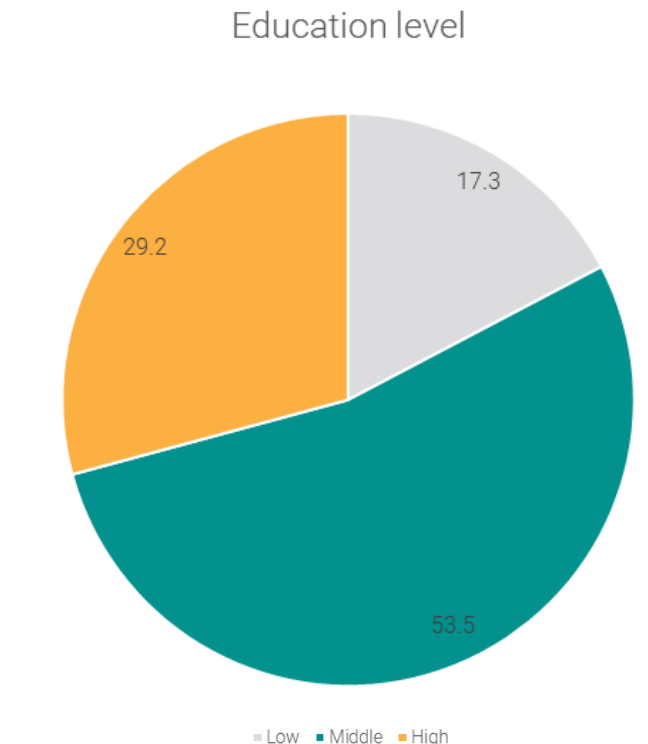


Figure 34. Education levels in Krakeelpolder (Own work).

8. RESEARCH BY CONTEXT

Construction year



Figure 35. Construction year in Krakeelpolder (Own work).

In the south of Krakeelpolder, De Krakeelhof student complex and the buildings at its west, were one of the later additions to the neighbourhood. These southern buildings from the 1960s formed the closing boundary of the neighbourhood, signifying an end to further expansion south-bound. The newest buildings in the neighbourhood are therefore located in the north. The new residences in the north are single-family homes while older residences in the neighbourhood are dominantly low-rise apartments with the exception of two high-rise apartments. De Krakeelhof was built in 1966 with single-pane windows and radiators on the ceilings that lower the housing quality for students.

Green-Blue elements



Figure 36. Green-Blue elements in Krakeelpolder (Own work).

The water and trees surrounding De Krakeelhof creates an urban island that segregates and conceals the student complex from the rest of the neighbourhood. Natural elements therefore create two boundaries between local residents and students in this area. Around the neighbourhood, green spaces form the backyard of many apartments. These green spaces are mainly desolate plain grass fields with the exception of one pocket park in the middle of the neighbourhood containing a playground and sports court. This park is mainly used by families and older residents since it forms a block from which is only most easily accessible by adjacent residential buildings.

Space typologies



Figure 37. Space typologies in Krakeelpolder (Own work).

The neighbourhood mainly has private residential buildings with some semi-private buildings of different functions. The public spaces are either green spaces or pedestrian paths connecting the different areas of the neighbourhood. The student complex also has a public space in its courtyard containing seating areas, a life-size game board, and a half court; however, due to the enclave that this complex forms, this space is exclusively used by students. The space typologies in the neighbourhood forms conceptually segregated spaces centered around their own open public space; therefore, the neighbourhood can be treated as 3 distinct spaces.

8. RESEARCH BY CONTEXT

Mobility



Figure 38. Mobility in Krakeelpolder (Own work).

Local and regional roads create the neighbourhood boundaries. Westlandhof west of Krakeelpolder has no connection to it due to an elevated regional road. In contrast, Westkwartier on the east connects to Wippolder with pedestrian and bike crossings to bridge the local road acting as a barrier between these two neighbourhoods. Access to the neighbourhood on the South is also limited by wide regional roads, thereby limiting inhabitants from easily accessing meeting spaces, retail, and restaurants. Due to this, the neighbourhood is very accessible by both cars and bikes, but difficult by foot. A significant cause of nuisance is that there is a singular entrance to the student complex, causing a lot of traffic in this space during rush hours. Both bikes and cars use this entrance causing a lot of noise.

Building functions



Figure 39. Building functions in Krakeelpolder (Own work).

Krakeelpolder is mainly a monofunctional neighbourhood. There is a school on the south and some amenities including healthcare, offices, and shops in the north plinth; however, these do not facilitate social interaction nor contribute to the liveliness of the neighbourhood. Active plinths east of the neighbourhood and De Hoven Passage in the south, contain restaurants, shops, and cafes that compensate for this, but it is segregated from the area by a canal and roads without strong connections. There is a community building inside the student complex, but this is mainly used and accessible to students. Meanwhile, the proximity of the police station helps monitor student nuisance and unwanted behaviour. There are frequent talks between the police, students, and local residents of DUWO, and DUWO itself to mitigate conflict. It should be noted that residential nuisance is mainly experienced by local residents residing directly opposite or adjacent to the student complex.

Social housing

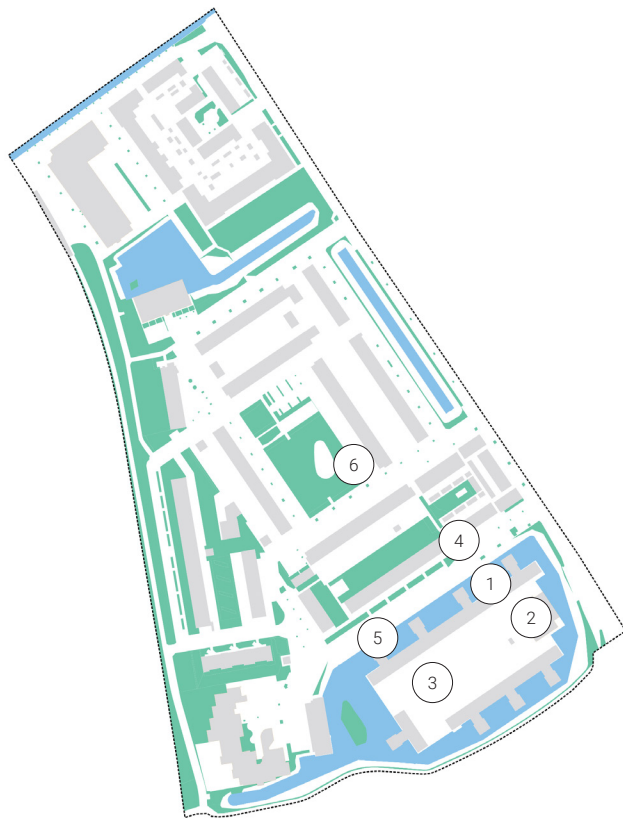


Figure 40. Housing corporations in Krakeelpolder (Own work).

75% of residences in Krakeelpolder are social housing. This depicts the number of lower-income and renting population in the neighbourhood. Due to this, inhabitants may be less interested in improving the spatial conditions of the neighbourhood themselves; however, there is an opportunity to involve housing corporations for this purpose. The skewed demographics in this neighbourhood could pose a problem in resolving conflicts between students and local residents; therefore, there is a need to be inclusive of all inhabitants in new strategies.

8. RESEARCH BY CONTEXT

To strengthen the spatial analysis, spatial observations were recorded from an eye-level perspective. Krakeelpolder has an area of around 120,000m² and is accessible by both slow and fast modes of transportation, making it easy to reach. The most important and catching findings at ground level through the neighbourhood were recorded to inform the spatial analysis.



① The student complex has closed plinths and a singular entrance. The building facade with large windows makes student activity visible from the entrance.



② A community building inside the complex is only accessible from the student complex entrance and only used by students



③ Inside the student complex are parking lots, bike parking spots, and amenities for interacting with each other.



④ Open pedestrian paths through residential buildings are not inviting and conceal the public space behind it.



⑤ Walking through the Jacoba van Beirenlaan, the student complex is blocked from view due to hedges and trees.



⑥ There is a wide pocket park with some amenities for children.

Figure 41. Ground level observations in Krakeelpolder (Own work).

8. RESEARCH BY CONTEXT

Main observations

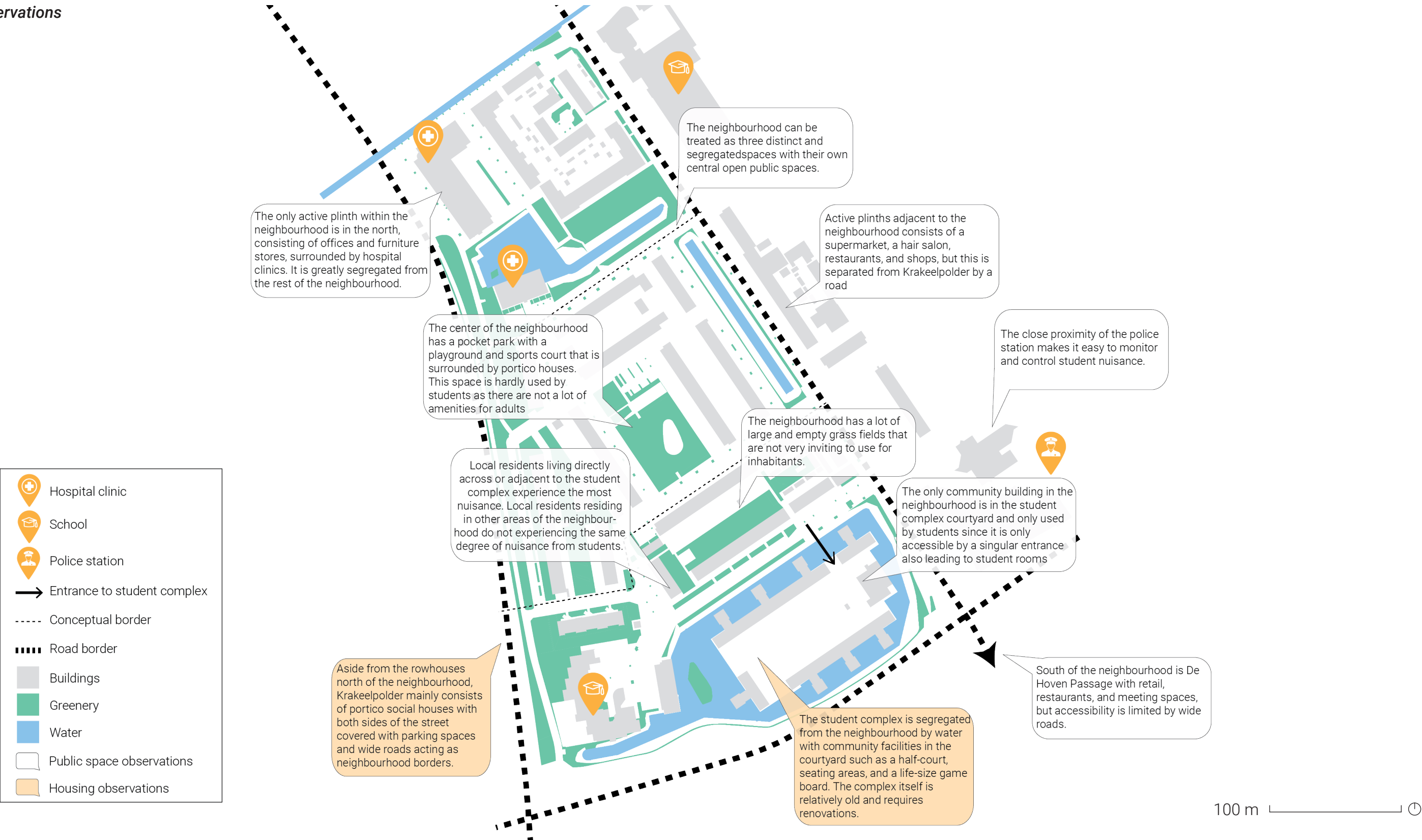


Figure 42. Main spatial observations in Krakeelpolder (Own work).

8. RESEARCH BY CONTEXT

8.3. Wippolder

In comparison to Krakeelpolder, Wippolder has a more even age distribution, although majority of the inhabitants still belong to the younger age category. This relatively even distribution should theoretically lead to lesser issues resulting from studentification; however, Wippolder is still one of the most struggling neighbourhoods in Delft. Therefore, other factors apart from strongly dominating student numbers can play a large role in producing negative consequences which will be further explored in this research. The neighbourhood also has a relatively ageing population with 16.8% of inhabitants aged above 65 (Gemeente Delft, 2021a) which could lead to a higher level of intolerance between young and old residents.

The distribution of educational levels within the neighbourhood is also very varied. Due to proximity to the university, many students choose to live in Wippolder. Many former students and affiliates of TU Delft also still reside in Wippolder (A. Lockhorst, personal communication, 2023). Despite this, there is a higher proportion of lower-educated residents in the area, thereby necessitating plans to ensure that all demographics are represented in participatory processes in planning. The perception of these lower-educated individuals towards students and vice versa also need to be considered as a contributing factor towards intolerance and stigma in the area.

There are also more couples and families living in Wippolder compared to Krakeelpolder, creating a more mixed environment, physically and socially. Moreover, the neighbourhood also has a higher proportion of Western and non-Western ethnic backgrounds, creating a diverse range of cultures and lifestyles. This prompts a need for tailor-made approaches in this context since

some residents may need more guidance with regards to behavioural norms and inhabitants may have conflicting desires for their neighbourhood.

The different mix of demographics residing in this neighbourhood therefore requires innovative strategies towards the improvement of the quality of spaces. It also needs to be considered that a diverse group requires more representation in the public space to ensure that equal opportunities and benefits are distributed to inhabitants.

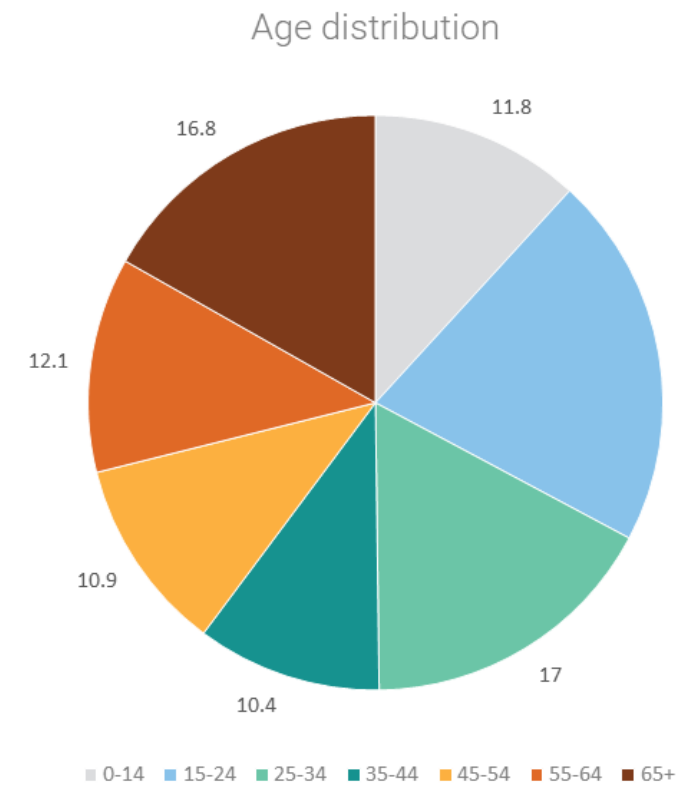


Figure 43. Age distribution in Wippolder (Own work).

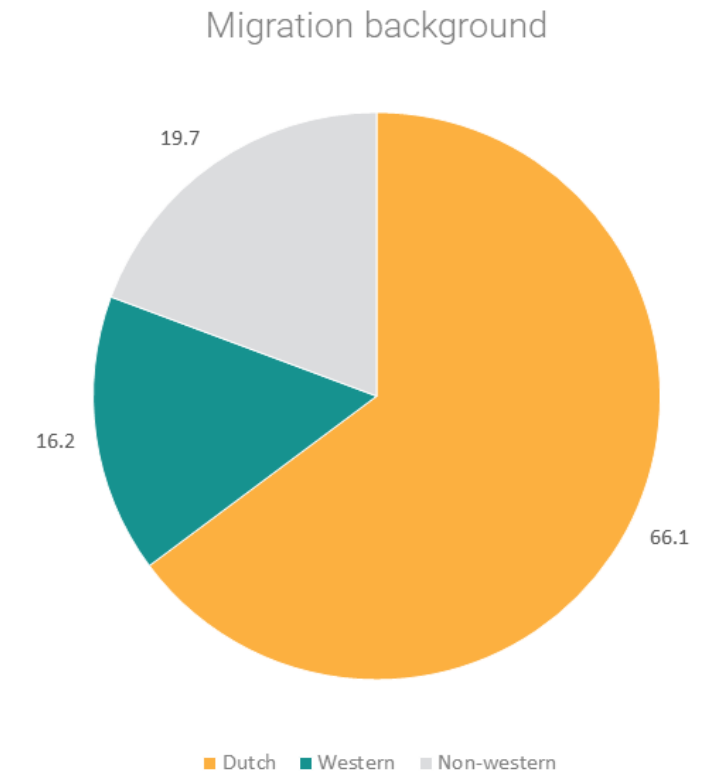


Figure 44. Migration background in Wippolder (Own work).

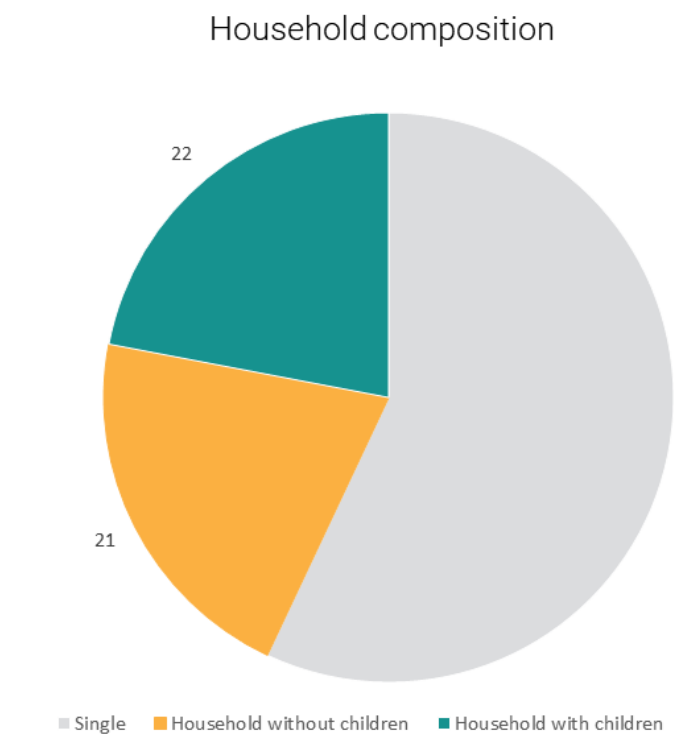


Figure 45. Household compositions in Wippolder (Own work).

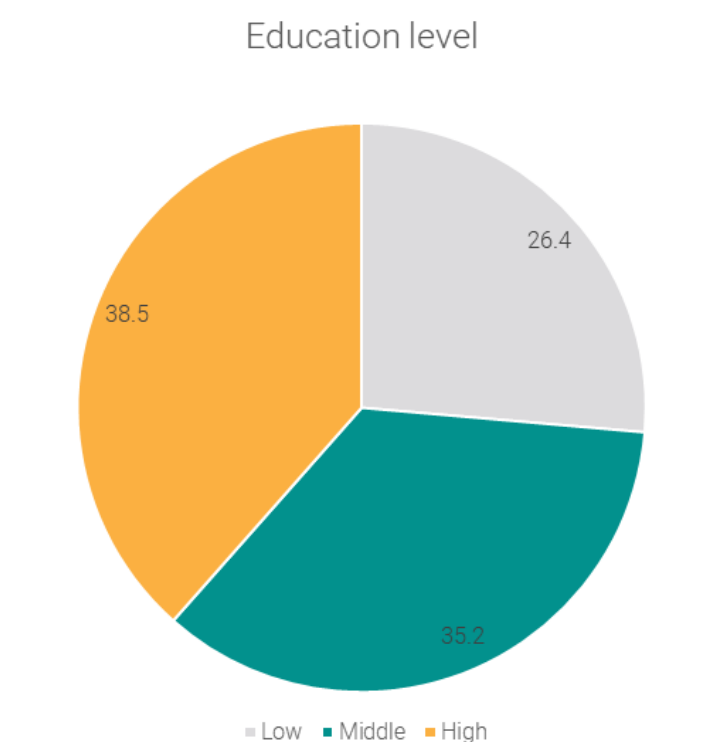


Figure 46. Education levels in Wippolder (Own work).

8. RESEARCH BY CONTEXT

Construction year



Figure 47. Construction year in Wippolder (Own work).

Wippolder mainly consists of pre-war buildings built around 1920. These houses typically have a lower degree of sound and heat insulation that could lead to noise nuisance from neighbours and higher energy bills. Many of these houses have upper or lower floors rented to students while some backyards face those of local residents. This means that noise nuisances are more prevalent in this neighbourhood as opposed to Krakeelpolder where the main student accommodation was a complex. Newer buildings are mainly constructed in Wippolder-South and are typically low-rise apartments in contrast to older buildings in the neighbourhood.

Green-Blue elements

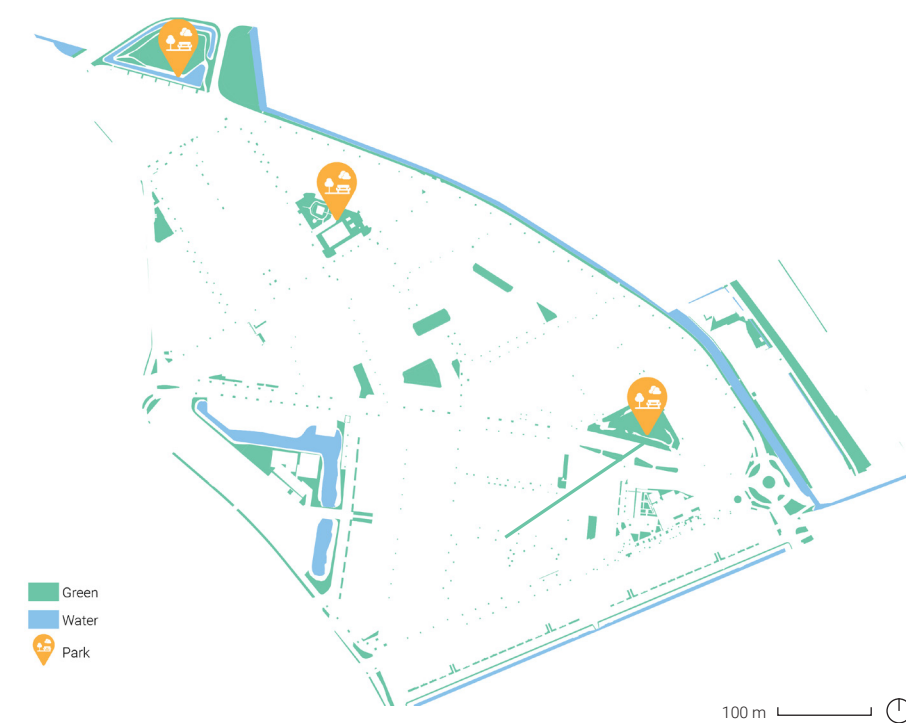


Figure 48. Green-Blue elements in Wippolder (Own work).

The neighbourhood has a low amount of greenery in comparison to Krakeelpolder. There are trees in some residential streets while some houses have vertical greenery initiated by the residents. There are also some patches of greenery around building blocks without any functional use. Two pocket parks in the neighbourhood contain playgrounds, sports courts, and seating areas; however, one of them is fenced off and can be closed at night. Another park is located north-west of the neighbourhood but accessibility is hampered by a regional road. Most greenery is found in Wippolder-North.

Space typologies



Figure 49. Space typologies in Wippolder (Own work).

The neighbourhood largely consists of private spaces with some semi-private spaces located mainly in the border between Wippolder-North and Wippolder-South and on corners of building blocks. Public spaces are residential streets or green spaces where people can interact. Sidewalks in many residential streets are cramped due to bikes or garbage containers, making it difficult to pass through or have meaningful interactions with passersby. The proximity of backyards against one another can also be considered semi-private spaces where inhabitants passively interact.

8. RESEARCH BY CONTEXT

Mobility



Figure 50. Mobility in Wippolder (Own work).

The neighbourhood is very car-dominant with parking spaces lining both sides of narrow local roads. This leads to narrow pedestrian paths and certain houses without front yards. Regional roads form the borders of the neighbourhood from TU Delft and between Wippolder-North and Wippolder-South. Between the university and the neighbourhood, there are no visual or physical connections for easy access to either areas due to tall hedges and wide roads. The prevalence of single-family houses with backyards in building blocks also form pedestrian alleyways in the neighbourhood.

Building functions



Figure 51. Building functions in Wippolder (Own work).

Wippolder is dominated by private residential spaces; however, corners of building blocks, especially in Nassaulaan, have active plinths with residential spaces above. There is one supermarket, shops, hair salons, and restaurants scattered in the neighbourhood. Since these plinths are scattered, walking through the neighbourhood is not very lively or social. Currently, there are no community buildings in the neighbourhood with a former establishment having closed down. Most community activities are now held in schools or churches that mainly attract religious members. Despite this, these spaces do allow for community activities to be held within its establishment.

Social housing



Figure 52. Housing corporations in Wippolder (Own work).

Around 30% of housing units in the neighbourhood are owned by housing corporations. This shows that the area has more owner-occupied houses and private landlords, which could be contributing factors towards the quality of the houses and streets. A higher owner-occupied stock could mean that inhabitants would be more willing to participate in the planning process; however, the unknown proportion of private landlords contributing to the owner-occupied stock could inhibit the implementation of spatial strategies.

8. RESEARCH BY CONTEXT

Wippolder is much bigger than Krakeelpolder with an area of almost 300,000 m². This leads to more elements that can be found on the streets and public spaces while observing the space at ground level. The neighbourhood also has a very different spatial quality to Krakeelpolder due to the difference in housing typologies. Important observations are also recorded for Wippolder to inform the spatial analysis.



① Intersections in the neighbourhood are covered in bikes and some graffiti on the walls.



② Front gardens and pavements in residential streets contain garbage containers or bikes, leaving less space to walk on.



③ Pocket park for residents have playgrounds, seating areas, and a sports court



④ Road dividing Wippolder-North and Wippolder-South have more active plinths containing shops and restaurants.



⑤ The other pocket park in the neighbourhood is fenced off and have rules for visitors on the entrance.



⑥ The road dividing the neighbourhood from the campus gives no direct access between the two spaces. Wippolder is concealed with tall hedges.



Figure 53. Ground level observations in Wippolder (Own work).

8. RESEARCH BY CONTEXT

Main observations



Figure 54. Main spatial observations in Wippolder (Own work).

8. RESEARCH BY CONTEXT

8.4. Spatial summary

To summarize, the results of the spatial analyses show that different spatial conditions lead to negative consequences of studentification, while the materialization of some negative consequences can further lead to spatial deterioration. These conditions relate to: (1) the spatial and demographic density of students and student housing, (2) the quality and conditions of public spaces where interactions are held, and (3) the amount of meeting infrastructure.

Density and the close proximity of housing between different groups of opposing lifestyles is the main contributor to studentification, especially cultural and social conflicts. In Krakeelpolder and Wippolder, the main problem is the sheer amount or size of student houses and the amount of students residing in one house. Due to this, noise nuisance and lower quality of the streets are experienced by local residents from the daily activities of students, even without parties or gatherings. Furthermore, the quality of construction between housing units also causes problems as poor insulation and outdated fixtures contribute to noise nuisance.

Another spatial contributor to studentification is the lack of public spaces where interactions can be held, as a result of population density and dominating residential buildings. The amount of inhabitants per neighbourhood leads to poor-quality public or interaction spaces as large amounts of bikes on sidewalks and cars are parked on both sides of each street. This leads to a lack of usable pedestrian paths despite their wide availability in the neighbourhood, making it especially difficult for inhabitants who need a wheelchair to move around. Therefore,

conditions to interact are lacking as students have a higher spatial claim and form groups with non-normative behaviour that dominate the space such as in Wippolder, and students form closed spaces such as in Krakeelpolder. Furthermore, public spaces in both neighbourhoods of Krakeelpolder and Wippolder mainly have amenities for children such as playgrounds and small sports courts, but none for adults to interact with one another. This contributes to the animosity between both groups as local residents and students are unable to have space not only to resolve conflict, but also to have exchanges that are not related to nuisance. This also further inhibits students from integrating into the local community.

Furthermore, both neighbourhoods are significantly monofunctional with a large amount of private spaces. There are no community meeting spaces for local residents and students to get to know one another or arrange activities together, thereby preventing students from integrating into the local community. Instead, students have their own community spaces as seen in Krakeelpolder, or the university acts as such in the case of Wippolder. The use of meeting infrastructures being limited to students and the university community further leads to a divide that separates them from the local community.

Although there are more spatial contributors to studentification as seen in the previous spatial analysis, the three spatial conditions seen in Figure 55 should be the main aspects to tackle when proposing for a spatial strategy towards the negative consequences of studentification and co-existence in Delft.



Spatial and demographic density

The amount of student housing and the number of students in each house leads to noise nuisance and clutter in the streets. Construction quality of houses also contributes to this.



Quality and conditions of interaction spaces

As a result of density, interaction spaces are lacking and of poor quality. Existing amenities are unable to invite diverse groups of inhabitants and the conditions for interacting are also lacking as groups dominate certain areas and have higher spatial claims, which require the ungrouping of certain users.



Meeting infrastructure

The lack of community buildings and meeting spaces in place of monofunctional private spaces inhibits local residents and students to get to know one another and perform activities together.

Figure 55. Summary of spatial analysis (Own work).

8. RESEARCH BY CONTEXT

8.5. Policies and strategies

In recognition of the challenges that studentified neighbourhoods face and the role that the growth of the university community has in the city, numerous policies and strategies have been planned and enacted upon in order to mitigate the negative consequences of studentification. This section of the research highlights these efforts and their resulting impacts.

In 2016, the TU Delft and the Municipality of Delft signed a **covenant** (Gemeente Delft, 2016a), highlighting their collaboration on the following themes:

- City as campus, campus as city* - The adequate facilitation of campus development in conjunction with that of the city as much as possible from a jointly realized approach.
- Ecosystem knowledge and economy* - The joint attraction of industry that fits within the Delft ecosystem, as well as the anchoring of existing knowledge-intensive companies.
- University community, city and inhabitants* - Strengthening the connection between the uni-

versity community and Delft with its residents by deploying talent, knowledge and social involvement in order to create added value for the wider Delft society.

Joint public affairs agenda - Acting jointly where necessary and useful to represent and propagate the combined interests of the TU Delft and the municipality.

As a result of this covenant and the Covid pandemic that increased the presence of students in residential areas, TU Delft has since taken steps to realize these themes. One of the most notable is the **Wijstad** program (Domingo et al., n.d.), wherein the university connects students and researchers with residents of Delft through research and science. This has mainly materialized through linking issues of the city with the courses of the university. This provides a way for students to gain on-the-ground experience of real issues, for which they can propose solutions for as part of their study. However, implementation of these proposals are still lacking,

and the main beneficiaries remain to be the students instead of local residents who are facing issues.

Furthermore, specific to tackling the nuisance associated with students, projects and campaigns regarding behaviour have also taken place. This includes a **residential nuisance registration point** where residents can report their negative experiences, and an **alcohol prevention program** (Domingo et al., n.d.) initiated by the municipality, TU Delft, student associations, and healthcare institutions, in an attempt to curb one of the main perpetrators of antisocial behaviour in Delft - alcohol. Another initiative is the **etiquette training** session during the OWee (van der Veldt & de Bruijn, 2021b) and the **Hart voor de stad** campaign, aiming to raise awareness on the need for students to become socially responsible members of the community (Domingo et al., n.d.). These initiatives were done and enacted with the provision of support to student associations through **funding and coaching**. For this, a **community liaisons officer** and a student civil servant lead the process. Figure 56 summarizes the types of events that these student associations have done in Delft, which are mainly events held over the academic year (Domingo et al., n.d.). Student associations are also pushing forth the notion of social responsibility through **neighbourhood protocols** where houses owned by these groups reside, although the impact of these protocols, along with other initiatives, are minimal.

There are over 30 student associations with community initiatives and **volunteering** in their agenda. In an interview with Alexander Lockhorst, community liaison officer of TU Delft, the university has shouldered much responsibility for societal tasks around Delft through provi-

sioning these student associations. He believes that the lack of acknowledgement by local residents of the university's involvement with the local community is due to the lack of visibility of the initiatives undertaken by these student associations. However, a critique can be given towards the scope of these events and initiatives as they are sporadic in nature throughout the calendar year and typically occur as one-offs rather than in an iterative manner. Furthermore, these student associations are limited in the diversity of their members which are primarily Dutch bachelor's students. This hinders a potential towards integrating international students and other non-members within the local community of Delft.

Aside from this, a **taskforce** has been created to tackle residential nuisance in the city. This involves the university, the municipality, DUWO, and the police to have two weekly meetings per month regarding student nuisance. They monitor which student houses receive the most complaints and speak to the inhabitants in order to mitigate conflicts (Gemeente Delft, 2020) The community liaison officer of TU Delft also has iterative **meetings with residents groups** to tackle nuisance. According to Agnes van der Linden, partner in public business of the municipality, the municipality has received a special budget towards the livability and social coherence of neighbourhoods in order to supplement this. They have also launched a "Speaking hour" **pilot program in Wippolder** where representatives from the municipality, the police, and the university speak to residents about their experiences in the neighbourhood and what they would like to change. Although this program is in the infancy stage, it has given the municipality and the university insight into the most important issues that studentified neighbourhoods face.



Figure 56. Summary of student community associations initiatives (Domingo et al., n.d.).

8. RESEARCH BY CONTEXT

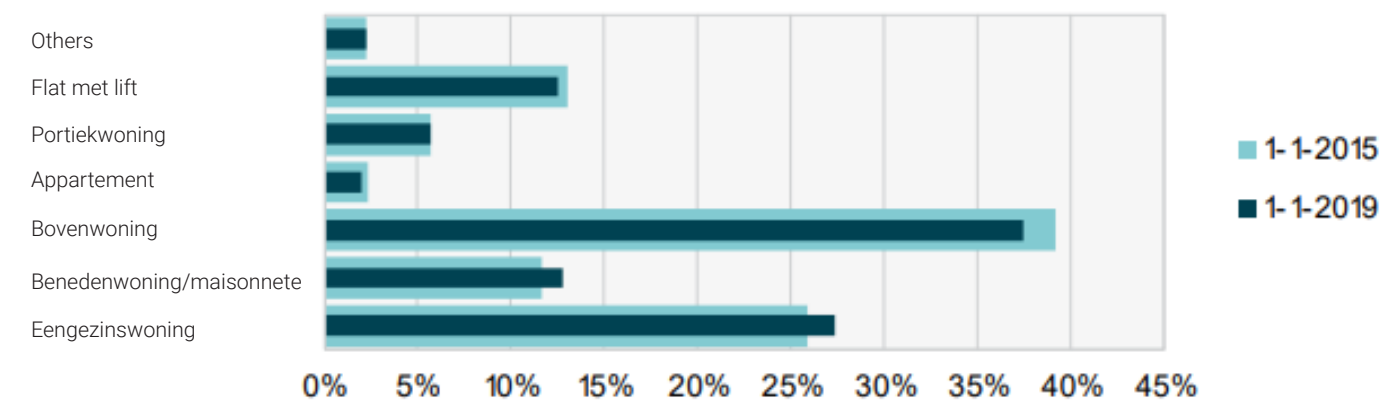


Figure 57. Overview of rooming per housing type (Gemeente Delft, 2020).

	Single family home	Downstairs/maisonnete	Upper floor	Apartment	Porch house	Apartment with elevator	Other	Total
Binnenstad	24%	23%	47%	22%	-	-	-	28%
Vrijenban	11%	33%	50%	14%	12%	27%	-	17%
Hof van Delft	15%	30%	34%	-	24%	-	-	21%
Voordijkshoorn	11%	14%	-	13%	28%	46%	46%	19%
Tanthof-West	11%	0%	-	-	0%	-	10%	9%
Tanthof-Oost	10%	-	-	-	7%	-	-	9%
Voorhof	15%	33%	-	10%	20%	40%	-	29%
Buitenhof	10%	32%	-	-	0%	2%	-	14%
Wippolder	19%	33%	45%	25%	-	-	-	27%
total	14%	27%	42%	19%	18%	35%	31%	21%

Table 4. Buy-to-let housing types per district (Gemeente Delft, 2020).

The number of students concentrated in an area, such as in Wippolder, has prompted the basis for the introduction of a **conversion permit**. The Municipality of Delft has observed that a shortage of homes mainly exists in the housing stock valued at over 265,000 euros which significantly limits the housing opportunities for young families and starters. In order to mitigate this, the Municipality of Delft introduced the requirement of a conversion permit in 2017 for houses valued at over 265,000 euros and larger than 180m2. The only exceptions to this are in new home constructions with only 3 unrelated people residing in it and in transformation projects or buildings already vacated before 2017

(Gemeente Delft 2020). As seen in Figure 57, upper floors and single-family houses are the most attractive housing type for conversion into student housing. These housing conversions are prominent in the districts of Voorhof, Wippolder, Binnenstad, and Hof van Delft, although all districts experience this phenomenon to some extent, as seen in Table 4.

Since implementation of the conversion permit, the municipality, upon evaluation, has found that it has resulted in an inhibiting effect on housing commodification, although illegal HMO conversions are taking place and HMOs remain attractive in the housing market. Figure 57 depicts

this inhibiting effect for the conversion of upper floors, apartments, and flats with lifts, while the conversion of other housing types were not restrained. The evaluation also shows that the number of applications for a conversion permit has been low, perhaps due to the focus of real estate developers on independent apartments and the uncertainty of buyers towards being granted a permit which requires a positive result on a quality-of-life test (Gemeente Delft, 2020). The uncertainty of a permit grant itself also has an effect on illegal conversions, where private landlords convert houses without registering it with the municipality.

In addition to converting homes into non-independent units, homes are also converted into multiple independent units, a process called studioisation which concerns 2 or more independent homes that are built within an existing home. For this, house numbers must be assigned by the municipality and these individual units are then added into the housing stock resulting in the increase of single-person households. The result of this process means that on one hand, homes are added to the housing market, but on the other hand, the housing stock for young families is limited as a result (Gemeente Delft, 2020). DUWO has also stated preference towards building studios due to the profitability of this housing type and the increasing needs for studios since the pandemic, primarily from international students who are not yet well-integrated into the Dutch culture (B. van Toorn, personal communication, 2022).

The municipality is currently looking into amendments for existing measures in response to changes in the housing market and social structure, as seen in Table 5. These mainly include a conversion permit for studioisation and removing the minimum housing size for a conversion permit, adjustments to the housing scheme

wherein lodging is limited to a maximum of 1 other resident when the landlord also resides in the property, and in promoting good landlordship wherein an owner is required to keep their property in good condition and prevent nuisance (Gemeente Delft, 2020). A national legislation is also in development to curb the commodification of houses in the Netherlands with a **self-occupancy obligation** for new developments, and the existing housing stock.

Controlling the housing stock can be done via the zoning plan which determines the construction and use possibilities of structures and land for a specific territory. The zoning plan falls under the Spatial Planning Act which makes it possible to include rules that protect the residential and living environment. This means that if the livability of a neighbourhood is under pressure from the conversion of homes into independent living spaces, this can be regulated in the zoning plan (Gemeente Delft, 2020).

It is, however, worth noting that although regulations are in place to limit the economic and spatial consequences of studentification, its effects and impact are greatly challenged by the municipality's capacity to enforce them. The profit-orientation that institutions like the government, and private entities such as universities and real estate companies have, greatly shape the context of Delft and propagate the negative consequences of studentification.

Another issue is that these regulations are preventive measures for further housing commodification rather than tackling existing issues with converted houses in Delft. It is important to gain balance in approaching the reality in both its current and future circumstances.

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Existing	Amendments	Consequence
Conversion Permit	Let go of the WOZ value as a limit and no longer use a limit in the policy rule .	A conversion permit will still be required for relocation, but given the scarcity of the current housing stock, these will not be granted in the coming period, until the housing market is back in balance.
Housing scheme	Do not include as an exception anymore. Set up an active campaign to encourage housing of max 1 student with singles (elderly).	Lodging still possible for a maximum of 1 student per house. Combining loneliness and strengthening the supply of student housing
Residential nuisance registration point	No	Registrations remain important for testing quality of life
Regular consultation students-and interest groups	No	Direct lines provide direct action
Promote good landlordship rules	Promote the rules more actively	Contact persons for addressing good landlordship
New	Reason	Consequence
Introduction of housing development, a permit must be requested for houses that are split and are larger than 180m2, subject to the condition that the units must be larger than 40m2	prevent the 'splitting' of homes in the segment for families, there is currently insufficient control possible, except for the environmental permit.	Housing stock for families will be maintained, but it is possible that the increase in the supply of 1-person studios in existing housing stock. rises less quickly Larger homes can possibly be split up under certain conditions, while an addition to the housing market can take place. The minimum surface area of the houses to be divided is 40m2 usable surface (gbo).
Self-occupancy obligation (enter where possible)	National legislation in development	Not yet known, self-occupancy obligation is now applied to issuance of plots, but may also be focused on the existing housing stock

Table 5. Evaluation of existing policies in Delft (Gemeente Delft, 2020).

Additional policies towards controlling the housing stock makes it more difficult to increase the student housing numbers in Delft. Private landlords are inhibited from buying homes to rent while DUWO lacks the financial capacity to build in the city. In an interview with Bert van Toorn, the management coordinator of DUWO Delft, the difficulty in acquiring land for student housing in the city was highlighted. He states that the Municipality of Delft are only willing to lease land for a maximum of ten years to DUWO for student housing; however, this greatly limits profit generation for this housing association. Their focus is therefore in in-filling existing buildings by changing the layout of the rooms or by adding in more floors.

The need to build more student houses has gained traction and urgency since 2022 due to the **National Action Plan for Student Housing** that urges cities in the Netherlands to build 60,000 homes by 2040 (Landelijk Platform Studentenhuysvesting, 2022). Although this action plan does not result in an executable plan for different municipalities, it has ignited a spark in directing focus towards student housing.

In order to balance the housing market based on the different needs of residents, the Municipality of Delft focuses on neighbouring municipalities to ensure a suitable housing supply for people looking for peaceful, green, and quiet environments that are limited in stock within the city (Gemeente Delft, 2016b). The municipality also has an **ongoing relationship with the neighbouring municipality of Rijswijk** towards construction of 500 student housing units in order to curb shortage (Delta, n.d.).

With regards to student housing, the goal for 2030 is to integrate the TU Delft campus as a part of the city fabric with urban functions and

a residential climate that matches the wishes of the knowledge worker. The municipality encourages a larger supply of student houses on and around the campus as one-sided areas with large clusters of student residences outside the campus are not desirable from the point of view of quality-of-life. It is expected that large-scale student complexes on campus combined with scattered and small-scale new locations elsewhere in the city should reduce the pressure on student housing. Large-scale complexes outside the campus can only arise if they improve the spatial quality and do not affect the quality-of-life in the area. These homes also have to be used flexibly and adapted for other target groups in the future (Gemeente Delft, 2016b).

Delft also aims for innovative forms of housing through the transformation of vacant offices and bringing together new target groups. One example of this is the **Abtswoude bloeit!** project by student association SSH Delft (Abtswoude bloeit, n.d.) that renovated an elderly care home to a mixed-living space for students, young starters, vulnerable groups and the elderly. Abtswoude was originally a nursing home for the elderly; however, due to unsuitable changing legislation and the evolving complex needs of the elderly, the former residents had to move to a new location. Apart from nursing homes, Abtswoude also had 60 sheltered homes for seniors who could live independently. These homes remained after the building underwent renovation. The departure of former residents of the nursing home therefore opened up opportunities for the student housing shortage and loneliness among the elderly in Delft to be mitigated with a focus on culture and meeting for the residents of the neighbourhood. This project was the starting point for the Abtswoude bloeit! project to host the ‘Woonkamer van de Wijk’ - living room of the district.

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This cultural co-living project has a large living room on the ground floor that is intended to be used for community-based events initiated by residents of the neighbourhood. In this space, culturally and demographically diverse residents of the building, as well as other local residents, can come together to meet, have a cup of coffee, or do activities together. Research by the initiators of this project showed that eating together was one of the most important elements to bring people together; therefore, the living room has three kitchen units added to the design. Other functions are also present such as a coffee bar, library, study areas, and amenities for games such as a billiards and ping pong table. This has been largely successful with bingo evenings, barbecues, and other festivities regularly held in the living room to bring residents together. It provides a unique location for people from all walks of life to feel welcome and get to know one another.

The housing complex has a total of 110 student rooms with shared kitchen and living room between five to fourteen students, 32 apartments for socially vulnerable groups, and 63 sheltered homes for the elderly. Currently, 19 sheltered homes are also serving as housing for Ukrainian refugees. As this manner of living is unfamiliar, potential residents of student rooms had to undergo a selection procedure in the first year of the building's opening. Afterwards, students were free to choose their housemates on their own, provided that they understood the goal of the project – bringing people together.

To prevent further conflict resulting from a dense mix of residents, the project also established many house rules formalized through a contract that tenants were required to sign before being allowed a rental contract. Some of the house rules included:

- Tenants are jointly responsible for keeping rooms and common areas clean and tidy. One house manager is designated by the tenants per house and this house manager has regular contact with the caretaker about the state of affairs.
- Every house manager is a member of the WhatsApp group-Abtswoude bloeit!. Nuisance can be reported in this WhatsApp group. If a tenant has caused deliberate nuisance twice, this may lead to termination of the residence agreement in consultation with the person in charge, the caretaker and CoJo Vastgoed Abtswoude BV
- The tenant undertakes to ensure that the balconies and gardens look neat for the appearance of the building. Visible beer crates, junk and the like are NOT allowed. All this at the discretion of the caretaker.
- Bicycles, mopeds, scooters and all similar vehicles may only be parked in the appropriate racks, so NOT in the rooms, corridors or at the front of the building, et cetera;
- Be a good co-tenant and stay friends with the neighbors. So, after 10 pm no (loud) music or noise. Inform the neighbors about expected incidental nuisance such as a party. Shouting, (loud) music or other noise in the corridors and in the garden is at all times forbidden.

Through these formalized rules and the opportunities offered by the living room common space, peaceful co-existence was ensured, along with strengthening the community in the neighbourhood. The Abtswoude bloeit! project successfully brought together students with local residents in Delft despite inherent conflicts seen in other studentified neighbourhoods. It goes to show that there are innovative solutions to these issues.



Figure 58. Abtswoude bloeit building (Abtswoude bloeit, n.d.).



Figure 59. Living room activities (Abtswoude bloeit, n.d.).

Apart from this project, the Municipality of Delft also has the **Environmental Vision** which details a spatial strategy and includes the housing goals of the city into a long-term vision towards 2040 (Gemeente Delft, 2021b). The document highlights the Delft course in 6 tasks that form the path to 2040. Relevant tasks for student hous-



Figure 60. Living room (Abtswoude bloeit, n.d.).

ing and social cohesion are more prominent in tasks 1 to 4.

Task 1: A better connection and collaboration with TU Delft is paramount in the form of spatial development and social involvement in its environment for a smart, sustainable, and inclusive

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society. Delft is also committed towards a number of powerful and intricate neighbourhood centers that combine both commercial and social facilities that can contribute to the vibrancy of surrounding neighbourhoods.

Task 2: Delft focuses on its cultural identity that brings people into contact with each other and contributes to a connected and inclusive city. They aim to achieve this by investing in cultural facilities, attractions, events, and public space. A cultural framework is drawn up containing 3 ambitions related to participating in culture, urban attractiveness, and culture and innovation.

Task 3: Delft commits itself to a varied housing stock by adding 15,000 homes from 2017-2040 which accounts for a 30% increase. This will largely be met in the inner city district and the southern half of Delft. Higher densities and mul-

tifunctional uses will be focused on the Schievers Noord and the surroundings of the Delft campus station. Delft will also develop a vision on high-rise buildings and explore the conversion of vacant buildings due to limited space. In 2040, the TU Delft campus will also be developed into a real part of the city where new large-scale clusters of student housing are planned. Off campus student housing will be small-scale and mixed with other target groups. Meeting and public spaces is also a focus to strengthen connections between residents.

Task 4: In new spatial developments, social facilities are part of the planning process. Delft strives for a good spread of facilities and clusters where possible. There are also 4 sub-areas for which a specific desired spatial and social structures and urban development strategies are developed.

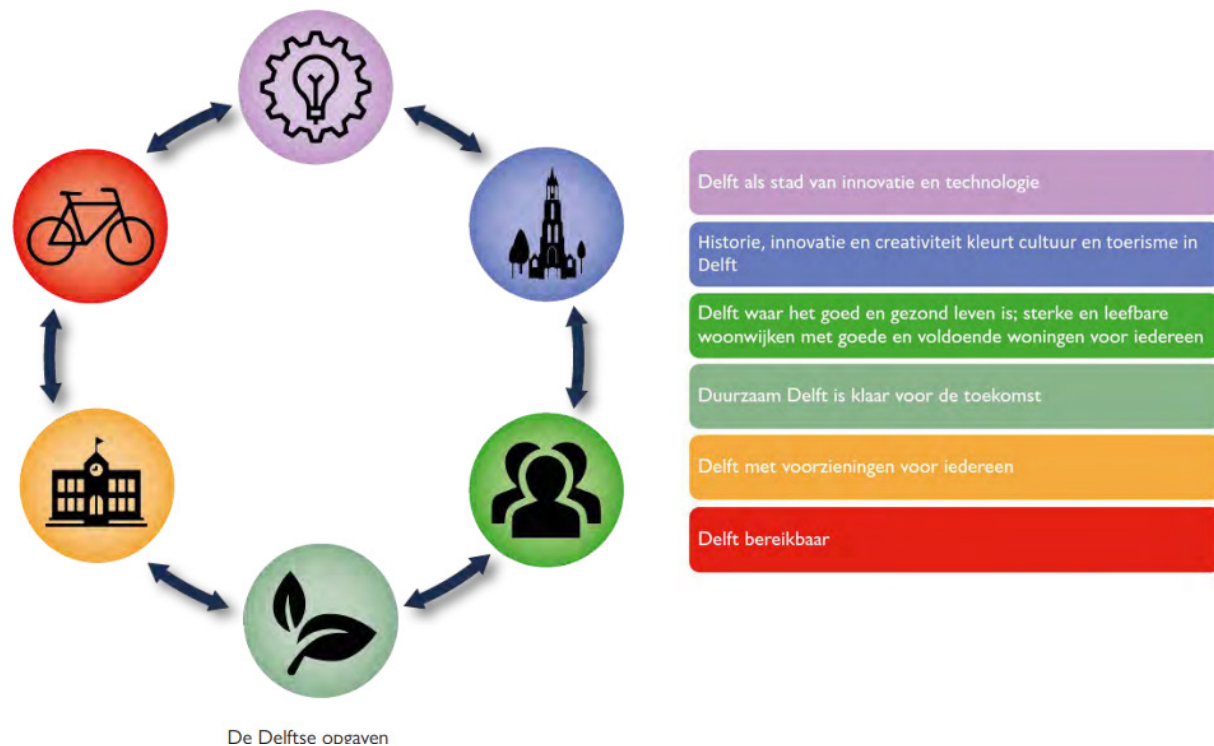


Figure 61. Principles of the Environmental Vision (Gemeente Delft, 2021b).

In response to the Environmental Vision of Delft, a **campus strategy** for 2040 (van Dorst et al., 2022) has been drafted for TU Delft at the initiative of a professor of Environmental Behaviour and Design in TU Delft. The campus strategy sets the framework for real estate and area development to an image of the ideal campus for Delft. This strategy and spatial imagination was done in consultation with a variety of stakeholders including students, companies, and employees of the university.

The vision is built up from overarching themes, translated through five perspectives into a concrete spatial image. The following overarching themes serve as a starting point: campus as city, campus as a meeting place, an inclusive campus, campus of collaboration, and an adaptive campus.

The strategy includes the addition of multiple non-educational functions on the campus such as a housing program for students and staff, catering establishments, shops, and hotels. The

campus will have a collection of diverse communities such as HBO students, employees, business visitors and more. Communal facilities for this will also be attractive to local residents. This establishes diverse forms of collaboration on campus that can lead to flexible functions capable of absorbing change.

The urban principles of this plan includes Mekelpark 2.0, an extension of the existing park on campus to connect the university with the city center. In contrast to the municipality's plan towards densifying in the southern districts of Delft, the campus strategy aims to densify in the middle core of the campus by stacking and adding new buildings with lively plinths. The exact number of housing is yet to be determined as it requires approval from, and collaboration with, the Campus Real Estate and Facility Management of TU Delft. Moreover, this campus strategy is a bottom-up initiative at its concept phase and still requires both approval and funding from the executive board of the university. Throughout the years, the university has re-

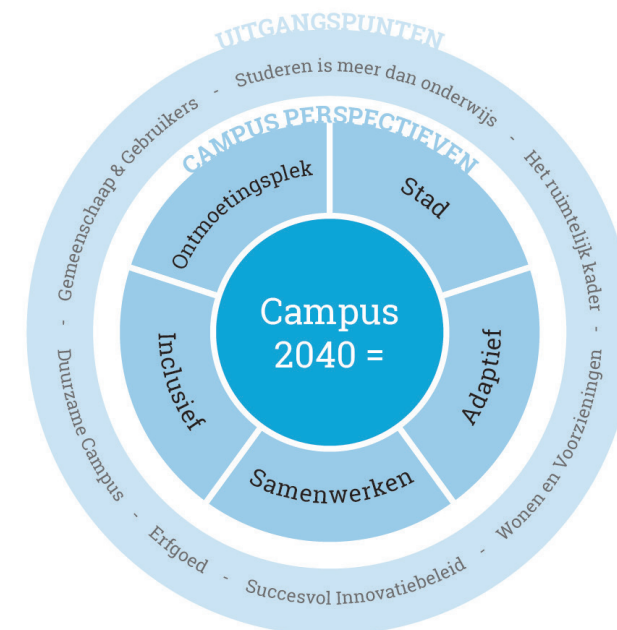


Figure 62. Principles of the Campus Vision (van Dorst et al., 2022).

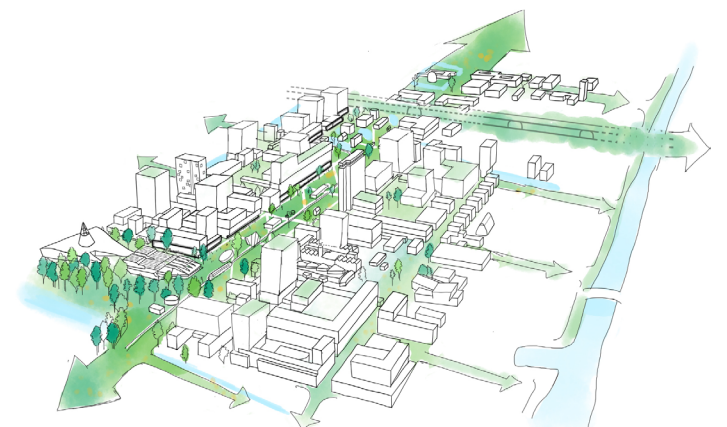


Figure 63. Mekelpark 2.0 (van Dorst et al., 2022).

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Figure 64. Campus vision spatial strategy (van Dorst et al., 2022).

mained notorious for refusing the densification of the campus towards non-educational facilities due to the risk of insufficient land for educational purposes during expansion. However, as the housing market pressure in the city exceeds its spatial capacity, a campus strategy should call for a change in mindset, not only regarding infrastructure types on campus, but also in the materialization of the university's presence in the city and its contributions to the local community.

The intentions of this campus strategy are key steps towards the university's recognition of its social responsibility, and it has the potential for knock-on effects moving forward. However, at its current state, it also has the potential to strengthen the divide between the university community and the local community. Despite the large spatial claim of the campus with the rest of the city, this campus strategy lacks input

from local residents. This is exemplified by its lack of focus on how new or strengthened amenities can promote the campus' usability and enjoyability by stakeholders outside of the university commune. Accessibility and attractiveness for neighbouring residents are also lacking despite the significance of this plan on their environment. Moreover, collaboration and co-creation for this strategy was done in exclusion of local residents. This is an even more pressing matter as the university plans to increase student numbers to 40,000 which can exacerbate the disconnect between town and gown.

Housing densification on campus or elsewhere in the city cannot and should not progress without taking steps towards eradicating the negative perception towards students and the university. Without this, a risk of alienating students from the rest of the local community is imminent.

This chapter elaborated on the existing strategies and policies in Delft that directly or indirectly target studentification, as well as provides criticism on the success of these initiatives towards the core of the problems in Delft regarding co-existence and divide between different communities.

Figure 65 provides an overview of the different policies and strategies discussed in this chapter, rated on their scale of impact on: co-existence, involved stakeholders, space, and its continuity or duration. This depicts the main setbacks and opportunities within the realm of possibility in the city.

One of the main advantages of existing initiatives is the ongoing collaborations and communication between different stakeholders. New strategies to combat the negative consequences of studentification can opportune from these by reframing their results and purpose towards strategies with stronger impacts that are more grounded to the social and cultural fabric of Delft.

On the other hand, Figure 65 also depicts the limitations of existing policies and strategies regarding its continuity conducive to the enthusiasm of stakeholders, and scale of impact on the branches of co-existence and studentification: passive and deliberate interactions, behaviour change, participation in planning, aligning actors, and reforming the student housing stock.

It shows that the involvement of local stakeholders and private landlords are still lacking as representatives of these groups remain primarily absent from planning processes and stakeholder meetings. Moreover, despite the issue of studentification materializing in space, there

are limited policies or strategies that affect it, whether through activities occurring in public space, restructuring, and temporary or permanent change.

The summary of existing policies and strategies in Figure 65 indicate that despite the high amount of existing policies and strategies in Delft, only a few have significant impacts on the negative consequences of studentification. These are policies such as the covenant and the conversion permit, as well as strategies such as the Wippolder pilot program, Abtswoude bloeit!, and the campus strategy. These policies and strategies successfully tackle multiple facets of studentification in order to stimulate co-existence in Delft.

Therefore, this chapter summarizes one side of the coin with regards to the local context of Delft. It shows what conditions contribute to the lack of significant impacts towards co-existence in the city and provides a foundation towards what approach can and should be taken with regards to new policies, regulations, and strategies that are responsive to the depth and scale of the issues experienced by inhabitants. In this way, this chapter also clarifies the need for possible solutions towards issues faced by existing inhabitants aside from preventive measures to de-escalate the problems for new residents.

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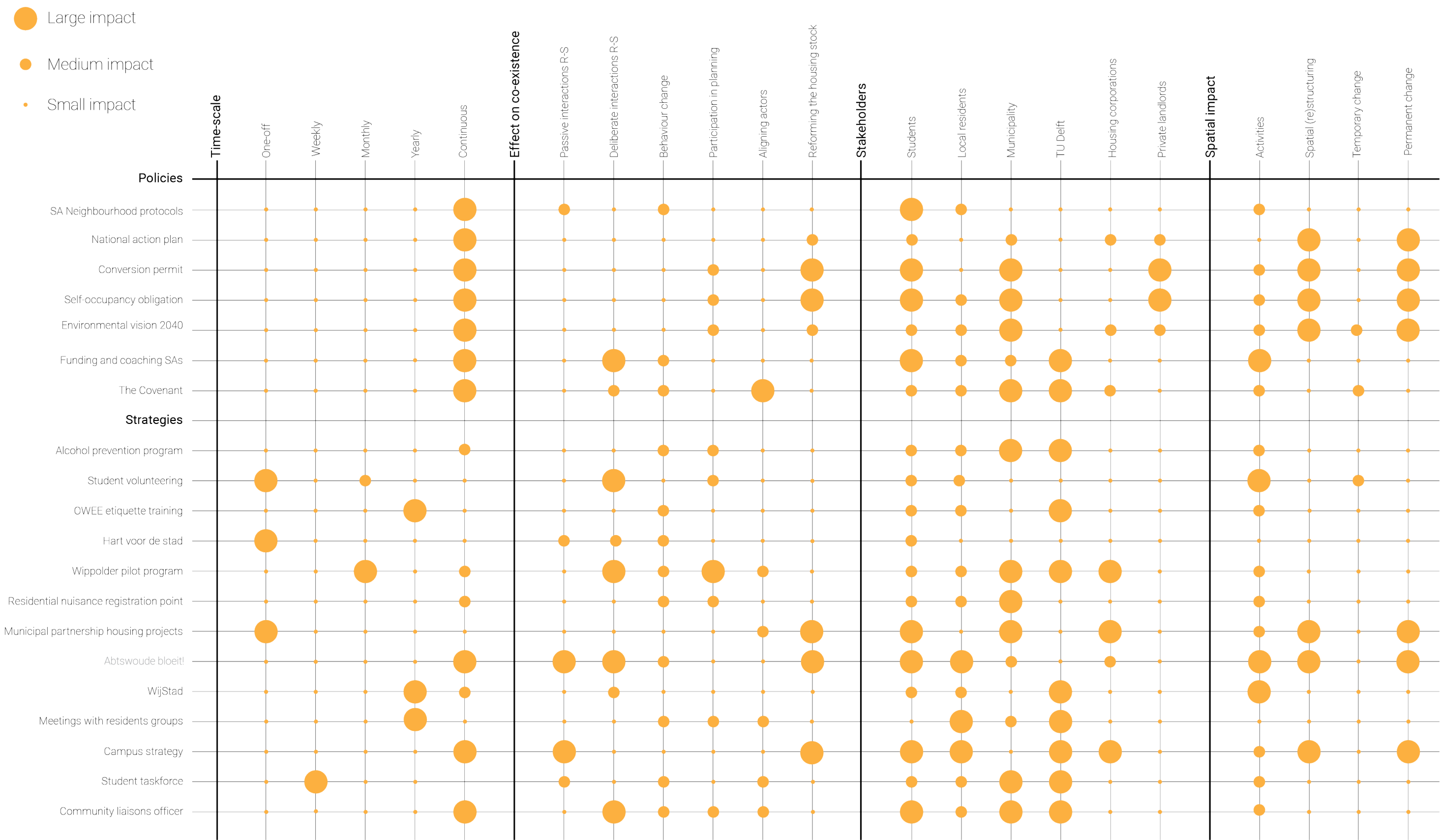


Figure 65. Summary of policies and strategies (Own work).



INTERMEZZO

9. INTERMEZZO

9.1. Co-creation workshop

This chapter details the turning point in this research which resulted in a different approach and methodological framework due to opposition against a co-creation workshop by the local residents. Upon analysis of other cases in Europe and the Delft context, it was initially theorized that redesigning neighbourhoods using input from conflicting inhabitants was a fitting method to propose solutions to studentification; however, this approach failed to fully understand the socio-cultural fabric of Delft that determined which solutions will be accepted by local residents. This turning point serves as criticism towards the practice and degree of success of theories such as the Broken Windows Theory and Defensible Space Theory. In the following text, the initial approach and turning point in this thesis will be detailed.

As seen in Figure 66, the initial research framework aimed to inform a co-creation workshop using best practices from other European cities comparable to Delft, and the context of Delft in policies and space. This would lead to materials in the workshop that were conceptually informed by best practices, and creatively limited or expanded on by the context of the city. A vision was intended to result from this co-creation workshop that focused on the types of spaces and changes that inhabitants of Krakeelpolder and Wippolder desired.

A focus on spaces and residential environments were informed by the Defensible Space Theory and the Broken Windows Theory. The former theorized that minor instances of social and physical disorder in urban spaces can trigger more disorderly behaviour. This theory expanded on the idea of reciprocity wherein individuals are more compelled to behave in a way, despite

it being unlawful or inappropriate, because they observe others doing so (Keizer et al., 2008). The latter is a more positive outlook on this idea wherein it theorizes that a well-maintained area with a positive image can increase inhabitants' desire to maintain their environment and behave in a befitting manner, thereby reducing anti-social behaviour (Newman, 1973; Reynald & Elfers, 2009).

These theories were used to focus on the idea that well-designed urban spaces without physical disorder can stimulate appropriate and desired behaviour, which can then improve people's perceptions on one another and allow for more interaction as a method to mitigate the negative consequences of studentification in Delft and promote for social cohesion. The idea for the workshop was therefore to provide materials such as preliminary spatial analyses and design prompts to participants that resulted from the research, as seen in Figure 67. Using these, participants could be guided towards a spatial approach to the issues they face. In order to ensure inclusivity in the workshop, representatives from the SSH student association were also invited to guide participants, enabling for it to be held in both Dutch and English.

Representatives of TU Delft and the Municipality of Delft were contacted to reach local residents residing in Krakeelpolder and Wippolder, while students were contacted through personal connections. Diverse types of students such as Dutch and international or bachelor's and master's, were enthusiastic in attending and contributing to the co-creation workshop, leading to a relatively large number of student participants early on the planning phase of the event.

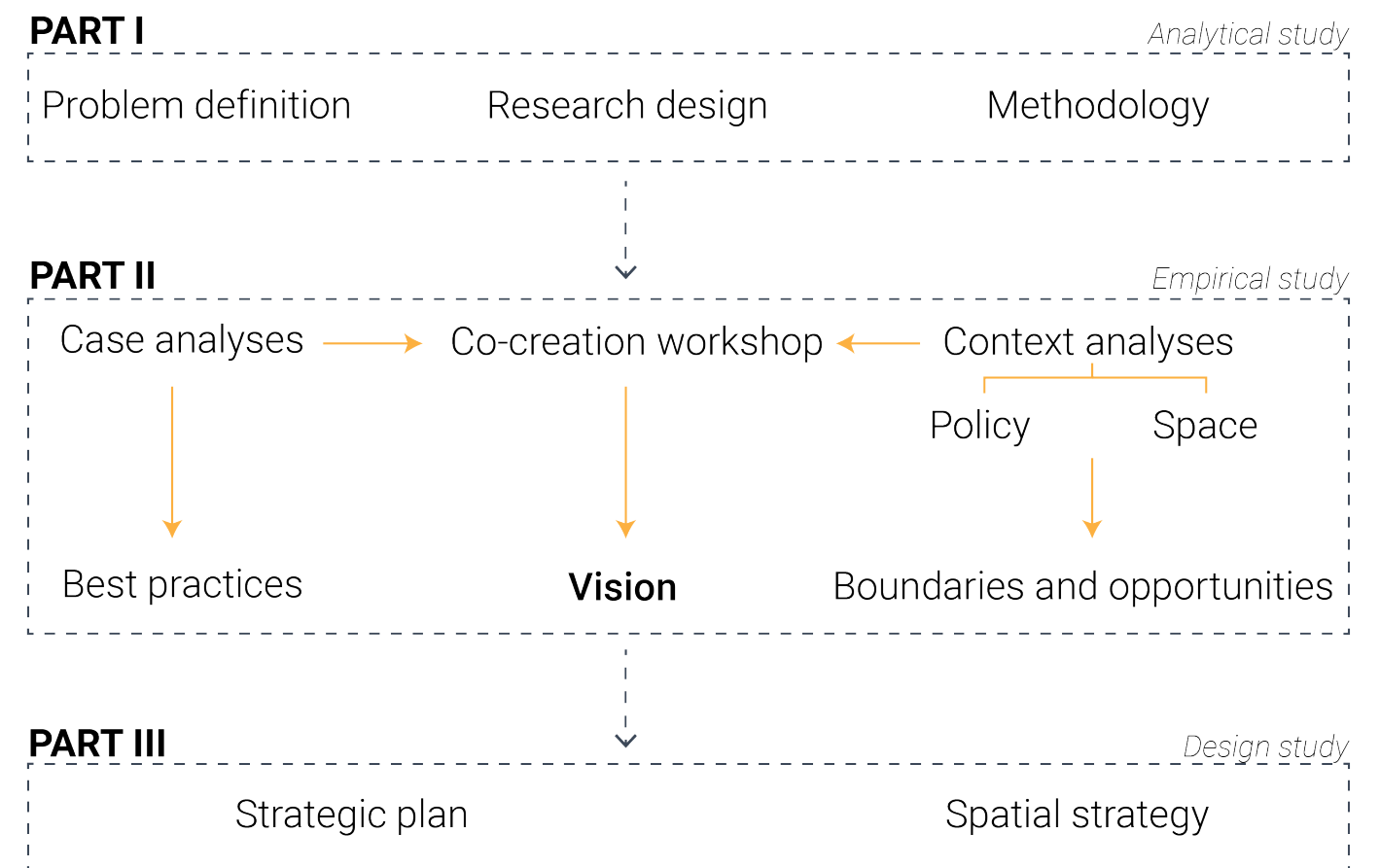


Figure 66. Initial research framework (Own work).

However, as invitations were sent to neighbourhood groups through the community liaisons officer of TU Delft and designer of the campus strategy, local residents were thoroughly opposed to the idea. This opposition was not due to the conflict between the intended participants, but rather their trust in the university as an institution, of which this research belongs to. The first initial response by a local resident stated that they are "not in favour of helping master's students with theses... We are not there to see all kinds of fun initiatives from students... no matter how nice it is meant to be". This response also indicated that local residents view student

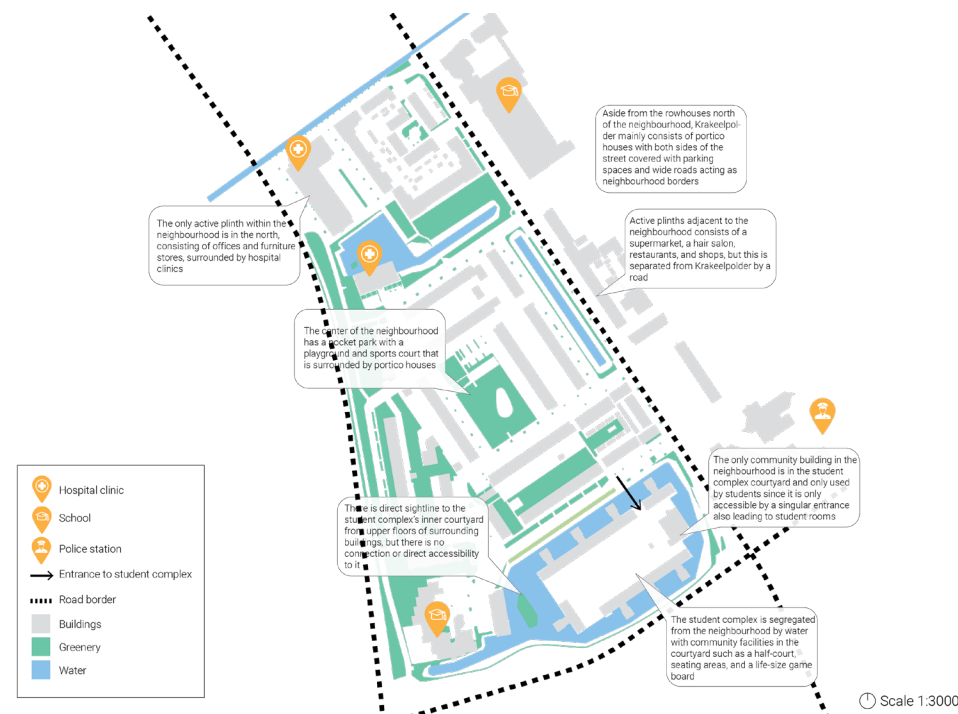
initiatives as a way for the university to avoid real solutions to the problem of studentification, and for the university to boast the amount it spends on communication and connections instead. Following this initial response, other representatives of neighbourhood groups agreed.

To compensate for this first bout of refusal by local residents, the partner in public business of the Municipality of Delft was contacted in order to invite participants of the Wippolder pilot program directly. Despite the initial enthusiasm of this municipal representative in the intention and realization of the co-creation workshop, in-

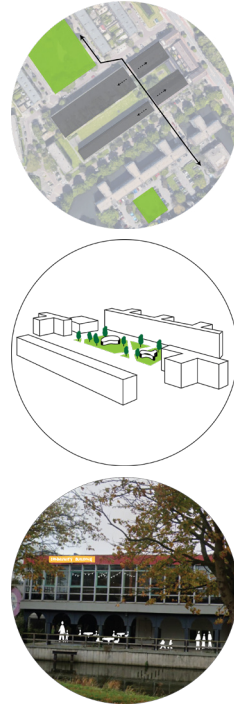
9. INTERMEZZO

KRAKEELPOLDER

Analysis



Design prompts



WIPPOLDER

Analysis



Design prompts



visitation to attend the Wippolder pilot program was revoked a day before the meeting as local residents were wary of participants that are not currently residing in the neighbourhood. This again posed challenges to having local residents participate in the workshop.

As the workshop venue, date, and time were secured, representatives from the residents group 'belangvereniging TU Noord', directly responded and expressed their long-standing persistence towards conveying the severity of the issues they face due to the number of students and student houses in their neighbourhoods and community. For this group, the TU Delft has "proven to be an almost impenetrable organisation when it comes to discuss these - for them not-so-positive topics". They believe that the limited extent to which the TU Delft has recognized the severity of the problems in their neighbourhoods presents itself in initiatives, such as the intended co-creation workshop, as it does not do justice to the extent of their problems, and they doubt whether this severity is "at all recognized by the university".

The strength of this opposition led to the cancellation of the co-creation workshop despite enthusiasm from students as participants. Continuing the workshop with students alone would have diminished the goal of the workshop towards being responsive to the conflicts and similarities between local residents and students. This opposition also provided a stance on the effectiveness of the Broken Windows Theory and Defensible Space Theory when the distrust between stakeholders is to such a large extent. It shows that in severe cases, behaviour cannot be influenced by space alone.

The cancellation of the co-creation workshop and the findings that lead to it changed not only

the approach of this research but also the types of outcomes that it would produce. This meant discarding parts of previous research results and content that took up a significant portion of the project phasing and also meant a great shift in mindset and perspective that initially dominated the research. Because of this, the extent of research up to that point had to be revisited with a more critical outlook in lesser amount of time. However, despite the setback and challenges that this turning point caused, the findings leading up to the cancellation of the workshop were also extremely valuable. It provided a clear and grounded picture on the scope of the problem and gave a different lens to look at previous and incoming findings.

This turning point shows that the severity of the issues faced by local residents firstly require real and impactful long-term changes at an institutional level as negative consequences do not only occur due to high student numbers or clustering of students, but also due to institutional and private market practices that have been overlooked or tolerated despite their powerful capacity to change the spatial and social landscape of Delft. Any community building initiative or spatial intervention before tackling student numbers and behaviour, institutional, and private market practices, would therefore be met with resistance. The learnings from this turning point therefore shaped the final outcomes of this research consistent with the needs and acceptance of inhabitants. These are long-term and strategic policies, regulations, and initiatives that are much more focused on processes rather than designs, which will henceforth be the focus and approach of this research. Only once these are implemented can spatial strategies aimed to integrate students into the local community or to bring students and local residents together, can be accepted.

Figure 67. Co-creation workshop materials (Own work).

9. INTERMEZZO

9.2. *Shift in scope of the project*

A subsequent focus on policies and regulations implores a need to look at the scope of the issues faced by the neighbourhoods of Delft. The materialization of studentification in the city is not bound to its territory alone, nor the region it belongs to. Instead, challenges are long-standing and faced at a national level, leading to a scale of governance that is difficult to tackle or completely solve solely through local policies and regulations.

This challenge stems from the urban land nexus, whereby the city must keep accommodating competing land uses while limiting the negative consequences of this density, and linking these together as the system expands. This nexus encounters a principal-agent problem where conflicts in differing interests and priorities arise when an individual or group takes actions on behalf of another individual or group. This problem has 3 main attributes (Storper, 2014):

1. The priorities and demands of principals, such as the civic society, for rules and public goods, are in light of inherent conflict and differences in their precise content.
2. Political geographies bundle together preferences and desires so as to conflict or overlap with those of others.
3. The invisible ability or capacity of agents, such as governmental bodies and institutions, to satisfy preferences, is inevitably insufficient to satisfy bundling and therefore subjected to compromise and unsatisfied principals.

The dealignments between principals and agents can get aggravated over time as the economy and density of the city increases, with the most difficult problems being the slow, subtle ones with increasing negative consequences

such as strong and hidden social conflicts that lead to segregation and outmigration (Storper, 2014), as seen in the process of studentification. The city of Delft is subject to this urban land nexus whereby the needs of the inhabitants, i.e., students and local residents, are conflicting in the city's limited spatial capacity, and the capacity of institutions such as the university or the municipality, are limited to satisfy only some preferences. This problem grew as Delft became an interesting city for private developers to invest in, and the TU Delft increasingly attracted students globally.

The bundling of preferences in Delft materialize through studentification, where tradeoffs such as neighbourhood nuisance with increased diversity, and more housing with less public space, slowly became the norm.

The complexity of the bundling experienced by principals in Delft against the capacity of agents, as well as the scope of issues such as the housing crisis and historically long-standing behavioural patterns of some residents, therefore leads to the impossibility of fully touching upon all issues and subsequently proposing an overarching solution to the problems that the studentified neighbourhoods of Delft faces.

It should thusly be noted that any attempt to solve the issues arising from the phenomenon and process of studentification is subject to many changes such as the preferences of local inhabitants, cultural paradigms, and institutional economic power.

The following parts of this research therefore considers this notion and focuses instead on strategic recommendations or frameworks of

approaches that are known to be successful in other cities, and greatly consider different perspectives and fundamental conditions that are occurring now, in order to mitigate the negative consequences of studentification and achieve co-existence in Delft, rather than proposing new novel solutions.



RESEARCH BY EXPERIENCE

10. RESEARCH BY EXPERIENCE

10.1. Stakeholders

The lack of co-existence in Delft requires thorough understanding of how different institutions, groups, and individuals experience the issues resulting from studentification, and their perspectives on one another, in order to design strategies fit for the context. This chapter therefore clarifies which stakeholders are directly or indirectly involved, what their perspectives and experiences are on the issue, and what their capacities and interests are, along with the nature of their relations with one another.

In Figure 68, stakeholders are categorized between direct and indirect involvement with studentification in Delft from the micro, meso, and macro scale, as well as by private, civil, and government sectors. Direct stakeholders refers to groups or individuals who interact with the day-to-day process of studentification whereas indirect stakeholders are those otherwise affected by this process. Figure 68 also shows the collaborations or partnerships that connects different types of stakeholders. This model shows that the issue of studentification transcends the borders of Delft as a city and includes regional and national groups as well.

Micro stakeholders such as local residents and students are part of organizations such as residents groups and student associations respectively, that can represent them in decision-making processes. Students are also represented by larger national organizations such as Kences, the National Student Union, and the National Consultation of Student Tenants that also functions in relation to student housing corporations such as DUWO in Delft.

This same phenomenon can be seen in institutions such as the university of TU Delft as part of larger organizations and partnerships such as the LDE (Leiden, Den Haag, Erasmus), and

the 4TU (TU Delft, TU Eindhoven, University of Twente, and Wageningen University), which together are also members of the Network of knowledge cities in the Netherlands. This network also falls under the national government Ministry of Education, Culture, and Science. At the same time, the partnerships that TU Delft have outside of Delft also means that there are ongoing partnerships with their respective municipalities, such as the Municipalities of Leiden, Den Haag, and Rotterdam, with whom TU Delft is working with regarding the future expansions of the campus.

The Municipality of Delft itself also has ongoing partnerships with the Municipality of Rotterdam and Den Haag as part of the Haaglanden region and the MRDH partnership, along with neighbouring municipalities such as the Municipality of Rijswijk, in order to share resources, burdens, and opportunities. These municipalities are then supported by the national government, of which the Ministry of the Interior Kingdom Relations and the Ministry of Justice and Security play a large role in the studentification process with regards to space allocation and regulations. In contrast, private entities relatively function individually, despite their relevance to the studentification issue.

Figure 68 shows that the effects of studentification in a city like Delft, have far-reaching consequences, and that the scale of the issue is beyond what is experienced at a local level. This expresses the severity of its implications, as well as the weight of how proposed strategies should consider different perspectives and issues. A small-sized university city such as Delft cannot bear the responsibility of studentification alone, other stakeholders within and outside of its boundaries also have a large role to play.

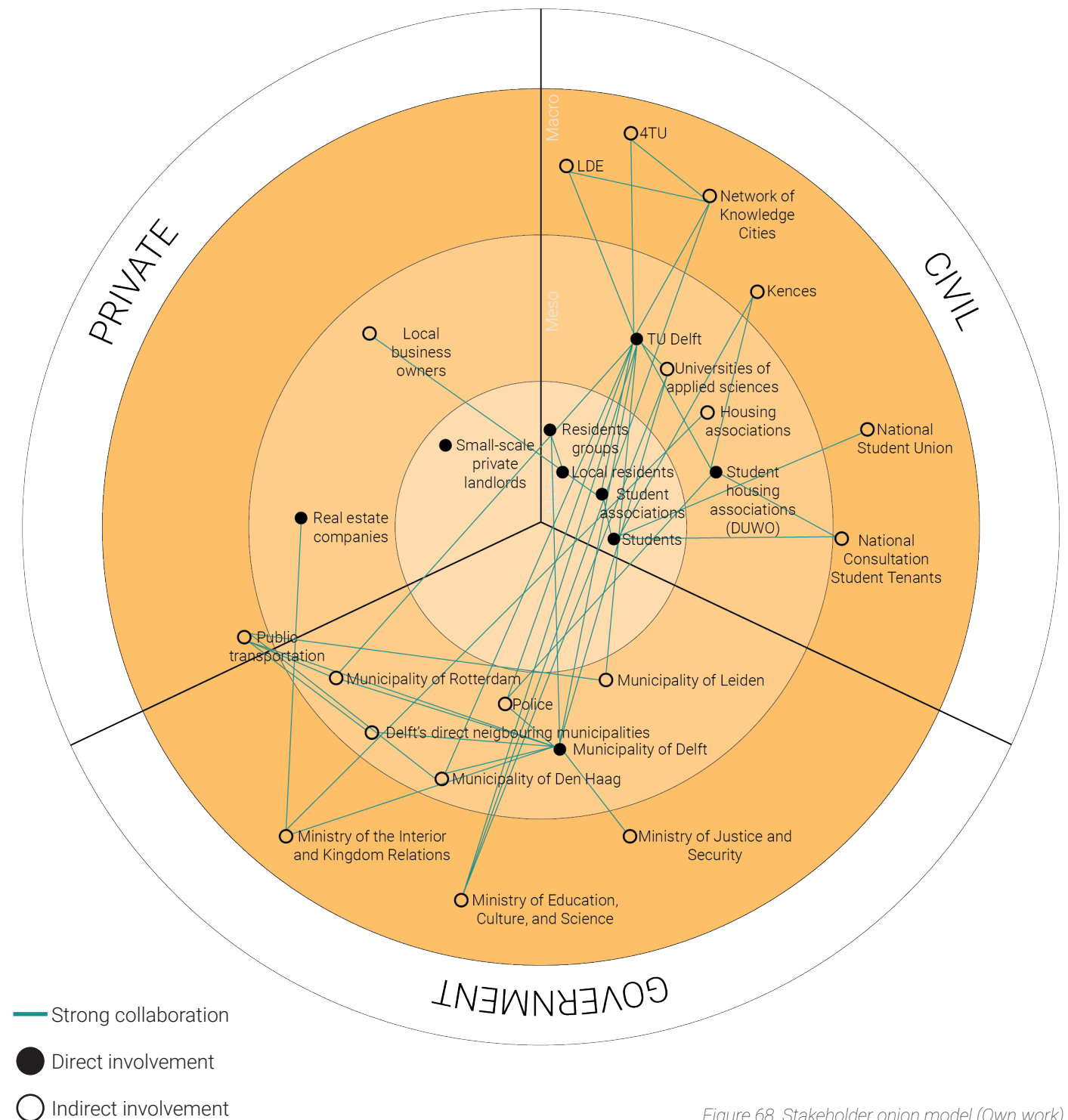


Figure 68. Stakeholder onion model (Own work).

10. RESEARCH BY EXPERIENCE

10.2. Perspectives

Each stakeholder in the studentification process have different perspectives that are shaped by their priorities and experiences with the influx of students in the city. In the following paragraphs, the perspective of each direct stakeholder on the issue will be expanded on based on results of semi-formal and semi-structured interviews. This informs the socio-cultural fabric of Delft and a grounded approach towards a strategic plan.

Local residents and residents groups

This group of stakeholders include non-students and non-affiliates of universities in Delft. Local residents are represented by residents groups who advocate for their desires in decision-making processes and raise their concerns to an institutional level. Residents groups are bottom-up organizations of different districts or neighbourhoods in Delft, of which there are currently 9 active residents groups in the Delfts Overleg Bewonersbelangenorganisaties (DOBB):

- Belangenvereniging Binnenstad Noord
- Belangenvereniging Delftzicht
- Belangenvereniging Heel Tanthof Delft
- Belangenvereniging Olofsbuurt-Westerkwartier Delft
- Belangenvereniging Oude en Nieuwe Delft
- Buurtstichting Rode Feniks
- Belangenvereniging TU Noord
- Belangenvereniging Voorhof II West
- Belangenvereniging Zuidpoort

Local residents are at the receiving end of issues related to studentification such as the pressure on the housing stock, social cohesion, residential nuisance, facilities, and public space. These issues are direct consequences of the influx of students beyond the capacity of the city. The once proud stance that local residents have

on the presence of TU Delft in the city is now replaced by the dominating perspective of seeing students as an antisocial collective that is strongly protected by the institutional power of TU Delft, and who are not subject to the same laws and regulations as other groups in the city.

Figure 69 illustrates the decline of co-existence in the city relative to the dominance of the student population in neighbourhoods of Delft. This graph is a depiction of how residents experienced the growing student numbers in Delft over the years, as interpreted by interview results. It shows that the more student houses were present in a neighbourhood, the more students were more likely to engage in behaviour that causes nuisance to neighbours. Studentified neighbourhoods in Delft are now therefore characterized by rare interactions between students and local residents, as well as common occurrences of nuisance that is no longer resolved by simply speaking to student neighbours.

Representatives of the Belangvereniging TU Noord and local residents of Krakeelpolder highlighted the degree of impact of the studentification issues in studentified neighbourhoods of Delft, as illustrated in Figure 70. These include:

- Nuisance related to sleep deprivation from parties and outdoor meetings in and around student houses that especially affect the elderly and working population
- Abuse of alcohol and drugs that children also witness day-in and day-out
- Abusive language being used in gardens and on balconies, as a result of which children cannot play in the garden
- People, especially parents with children, are forced to leave their neighbourhood and are forced to sell their houses at serious finan-

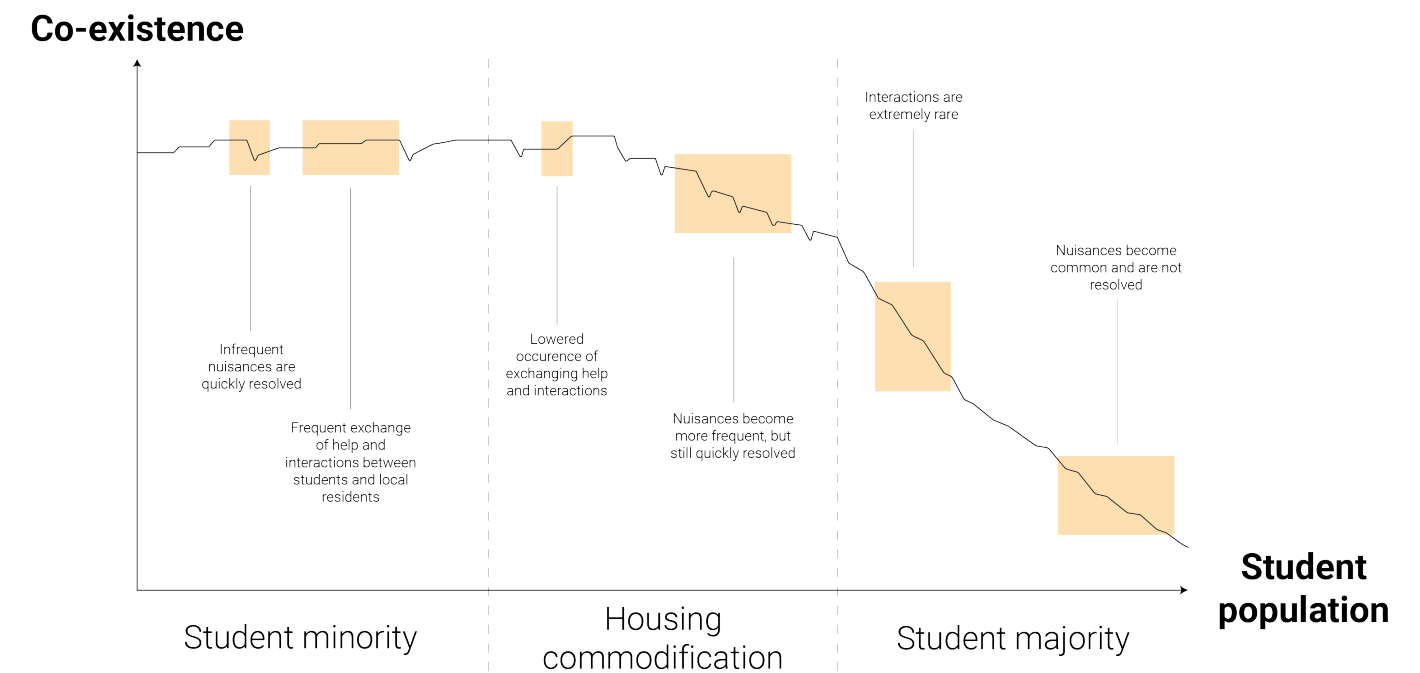


Figure 69. Decline of co-existence due to studentification (Own work).

- cial losses
- Individuals protesting against nuisance are feeling increasingly unsafe in their homes because they are threatened by slumlords, students or sometimes even parents of students.
- Public space is taken over by bicycles that inhibits people, especially those with physical disabilities, to pass through

These issues are especially difficult to tackle since the sheer density of student houses or units in the neighbourhood make it almost impossible to point out which one is causing nuisance, especially at night when these problems are more pronounced. Because of this, despite the willingness of local residents to confront their neighbours or get the police involved, it is difficult to take active measures.

Interviews with local residents of Wippolder and Krakeelpolder show that they acknowledge that not all students display antisocial behaviour and most are friendly neighbours during the day. In fact, one of the main challenges in mitigating the studentification issue has to do with who these students are and what factors enable their disregard for neighbours at night. From experience, local residents believe that student houses inhabited by student association members cause more nuisance than others.

There is a growing perspective that student association culture propagates a type of behaviour that is not conducive to a neighbourly community. Despite student associations not owning majority of the houses their members are inhabiting, the process of 'vote-in' that specifically limits opportunities for non-student association members to receive accommodation, contrib-

10. RESEARCH BY EXPERIENCE

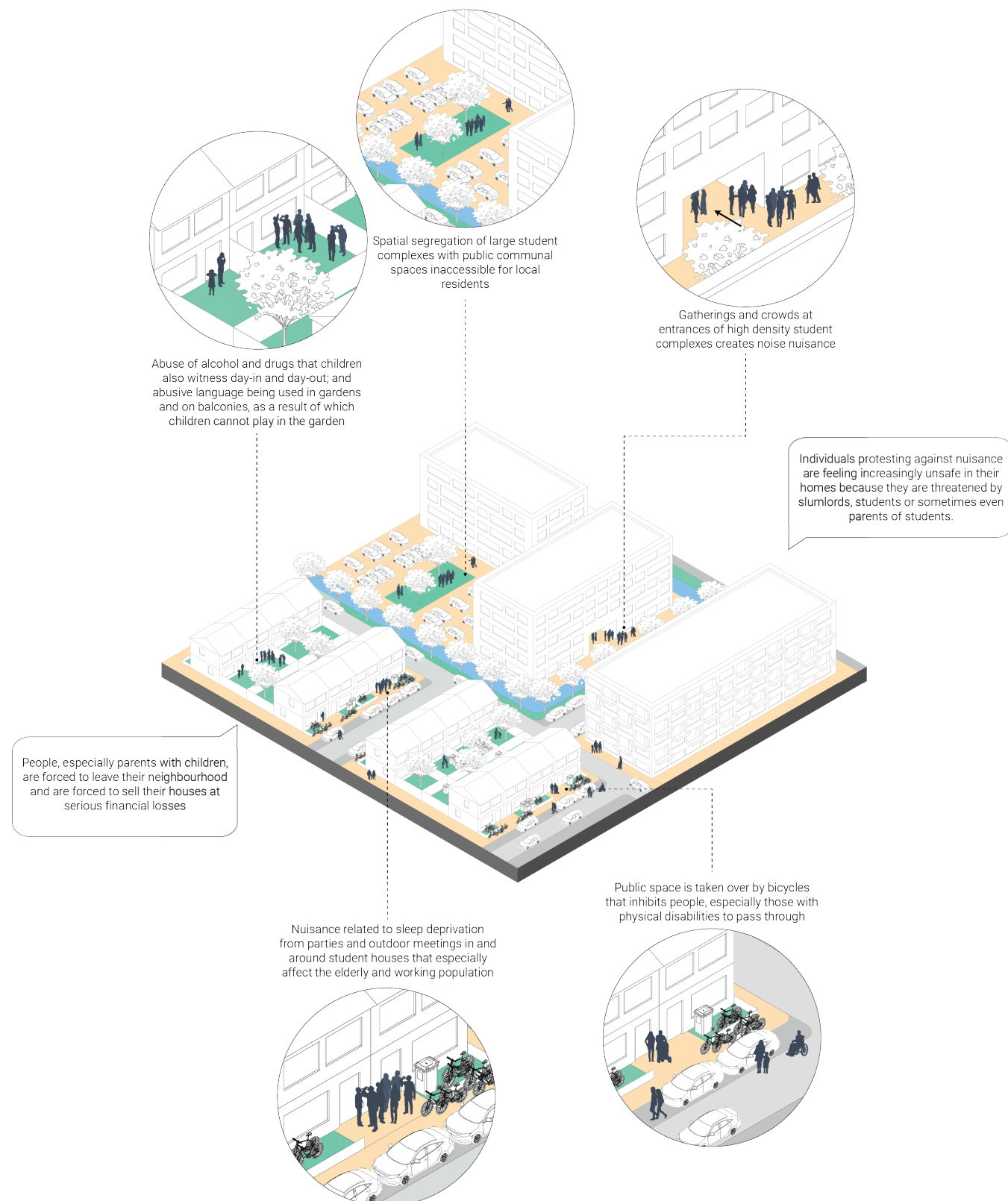


Figure 70. Studentification from the perspective of local residents (Own work).

utes to the spread of student association members in neighbourhoods. As a culture of drinking and partying is common with student associations, this process creates a sense of normalcy for students about the negative behaviour that other students are performing.

Although many student associations have community initiatives, local residents tend to perceive them as obligations that members feel compelled to follow rather than willing acts. Furthermore, these initiatives occur randomly and do not target the conflict and nuisance that arise at night, thereby producing little impact on how students are perceived.

This mismatch between the experience of local residents and the response of institutions and organizations also extend to the municipality and TU Delft. The issue of studentification and growing student numbers is increasingly becoming a political debate wherein the interests of local residents are sequestered in place of student interests. This greatly limits enactment of proposals that local residents or residents groups propose, and also limit support from political parties due to pressure from other political parties that favour students.

Residents groups also largely criticize the response and involvement of the university in these local issues. Despite iterative meetings and discussions, the initiatives that the universi-

ty have put in place to mitigate the issues favour student associations more than the residents who experience these issues on a daily basis.

The manifestation of these confrontations have cultivated an environment of distrust and scepticism about the intentions of the university and municipality. Local residents are frustrated and tired of being part of a conversation that does not actually amount to anything, which shapes their lack of motivation towards participating in research conducted by the university. They call for more involvement in the planning and implementation process, especially at the advent of a new campus strategy and expansion plans.

Furthermore, local residents call for more responsibility from the university and student associations in order to alleviate the pressure on the neighbourhoods of Delft. This includes control and consequences for students performing negative behaviour, reducing the market pressure on the city, and for the residents groups to become fully fledged stakeholders whose opinions and suggestions are greatly taken in consideration for future plans.

To summarize the perspective of local residents, confrontations that they have against other stakeholders in the studentification process can be seen in Figure 71.

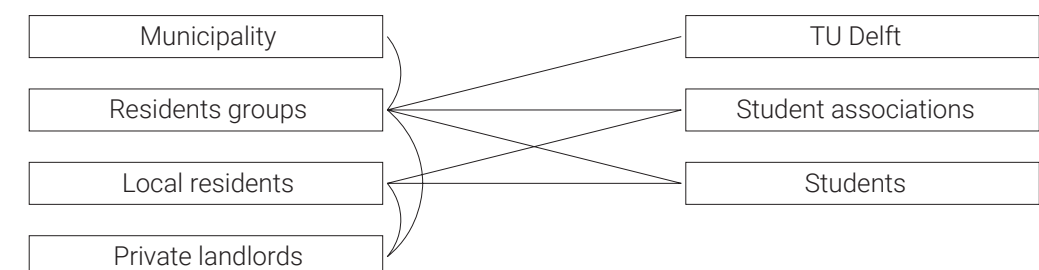


Figure 71. Confrontations of local residents (Own work).

10. RESEARCH BY EXPERIENCE

Students and student associations

The negative perception on students is widely publicized in media; therefore, students also acknowledges and are aware of the issues associated with them. However, results of the interviews revealed that there are nuances to this perception that involve intentionality and external factors such as housing quality and aversion of local residents towards students, that contribute to negative perceptions and supposed antisocial behaviour.

For example, old and unmaintained houses play a major role in the noise nuisance experienced in neighbourhoods, especially in cases where residents differ between upper-floor and ground-floor apartments. Interviews with a mix of Dutch and international bachelor's students residing in Wippolder revealed that in situations where ground-floor apartments are occupied by families or the elderly, and upper-floors are converted to student housing, students are criticized even for noises they make while walking. Often times, these occurrences cannot be avoided and are difficult to term as 'nuisance' despite it causing issues to local residents. The quality and construction of the house is therefore the primary issue in this debate. Due to residential complaints, many students have to forego daily activities that are also essential for their quality-of-life such as having friends over for celebrations, or even mundane tasks such as using the washing machine at night. Despite this, many students remain in their student accommodation due to lack of sufficient student houses in the city. Students are also likely to take up their first opportunity they get for accommodation despite knowing the existing issues with its quality.

The nature of this discourse frames the perception of local residents towards students, and therefore shape their relationship in the long-

term. Although student residents of Wippolder that were interviewed have tried to rectify this animosity by speaking to their neighbour, the unwillingness of their landlord to tackle the root cause of the issue deters any long-lasting changes. This shows that students cannot be solely blamed for the issues that neighbourhoods face.

In many cases, students are also not aware to what extent they cause problems for other residents. In an interview with a bachelor's student residing in De Krakeelhof and member of a student association, the density of 18 students sharing facilities and speaking to one another in one house can sound like a party. In this regard, other bachelor's students residing in Krakeelpolder expressed dismay over nuisances being reported to the police before students are spoken to about them as they feel that these matters can be easily resolved if only they were informed about them. All interviewed students agreed that, more often than not, nuisances associated with students are not intentional and there is willingness from students to compromise on matters regarding their behaviour.

This combined with the majority of students preferring shared rooms over studios or independent accommodation for their personal development, leads many to believe that shared rooms should be located on campus and away from local residents. An interview with a bachelor's student in Krakeelpolder believes that living with roommates is essential for university students, especially those moving away from their family home for the first time. At the advent of the Covid pandemic, the rise of independent units in Delft limited opportunities for students who have recently moved to the city in meeting new people and making friends. Because of this, many felt lonely during this period.

All interviewed students also expressed the family-like setting in their student housing. Housemates enjoy activities together and are typically also acquainted with their student neighbours, thereby creating an environment of understanding when they experience noise nuisance from other students. As a student, an excess of social interaction is not uncommon. Students typically have a social circle in their university faculty, their homes, and in their extra-curricular activities such as sports or social clubs. Due to this, results of the interviews show that students tend to believe that there is no strong need to interact or form neighbourly relations with their non-student neighbours. Moreover, the negative perception that local residents have of students lead students to believe that participating in, or even initiating, community events would become a hostile environment when different groups or communities are involved.

Despite the criticism of local residents towards student associations, many members believe that they promote good behaviour, rather than the opposite. Although students agree that these associations are primarily social clubs where drinking and partying are the main activities, they have accommodated the requests of the local community by implementing strict rules and limitations regarding noise and parties. A bachelor's student residing in De Krakeelhof and member of a student association believes that it is precisely the perception that local residents

have on student associations that stigmatize every action of these groups and its members. Instead of how student associations operate, the issue rather lies on the student houses themselves.

In contrast, other master's students and former members of student associations in Krakeelpolder believe that the culture of students in Delft is facilitated by student associations and is something to grow out of once they start to mature. Living with large groups of people can be distracting and messy, which creates an atmosphere that limits possibilities for studying and concentrating. Due to this, many older students in Delft also move out of the city in search for independent units or lesser housemates with less noise.

The perception and behaviour of students therefore depends on which stage students are in their study and their own lifestyles. Interviews show that international or master's students are less likely to be members of student associations and are generally less likely to participate in large or frequent events that are associated with nuisance. Because of this, it is also international or master's students that would like more interaction with local residents, while Dutch or bachelor's students are more focused on living in harmony instead.

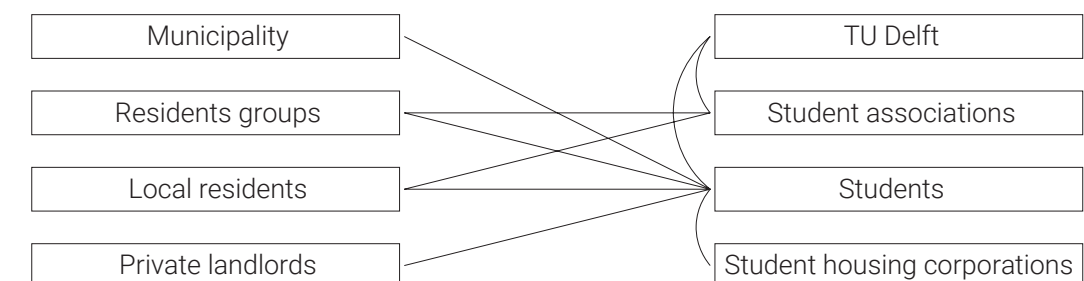


Figure 72. Confrontations of students (Own work).

10. RESEARCH BY EXPERIENCE

TU Delft

University governance in the Netherlands pushes universities towards strategies that support university competitive advantage (den Heijer & Curvelo Magdaniel, 2018; Rymarzak et al., 2019). The priority of TU Delft is therefore unlike other universities in the Netherlands, which is focused on education and research. This is the conviction that has shaped TU Delft's growth and lack of social involvement with the city. A focus on education and research is the starting point as to why the university believes that they are not responsible for social issues. However, with growing pressure from the municipality and local residents groups, the university had to take action in these issues, primarily by appointing a community liaison officer.

TU Delft's community liaison officer have the primary roles of connecting the university with the local community and supporting community initiatives. The way this connection has materialized is in the form of meetings and discussions with stakeholders, as well as support through funding and coaching for student associations. In an interview with Alexander Lockhorst, the community liaison officer of TU Delft, the university does not directly act on social issues, but rather through student associations, the pro-

cess of which can be seen in Figure 73 where the community liaison officer acts as a bridge or barrier between the local residents and the wider university community. He believes that in doing so, the university has invested a lot on different issues in the city and contributed to the mitigation of issues related to studentification.

According to Alexander Lockhorst, the steps that TU Delft have taken towards social responsibility and fulfilling the terms of the covenant (Gemeente Delft, 2016a) have had an inhibiting effect on the residential nuisance of different neighbourhoods, contrary to the experience of interviewed local residents who view the impacts of these initiatives as very minimal. This is the mismatch between the perspectives of local residents and the university.

This mismatch can be explained by the way TU Delft approaches studentification with a focus on social ties, compared to how this phenomenon actually materializes in the city. Due to this, issues related to housing, culture, and the role of the university and campus in the city, are overlooked. Without the university's comprehensive approach towards the plurality of the studentification issue, local residents will continue to view

the university as an indifferent institution entirely separate from the local community.

In this regard, the campus strategy is an attempted response to this plurality by proposing spatial solutions to student housing and a residential climate on campus. However, the materiality of this strategy will not be visible or tangible to local residents for a relatively long period of time. This while the university makes public plans for expanding student numbers as a response to the global need for more engineers. A quick and strong response to this global issue strengthens local residents' criticism of the university's consideration of local issues.

Furthermore, this campus strategy is a bottom-up initiative by a professor in TU Delft who is limited in capacity to involve local residents in the planning process by the Campus Real Estate & Facility Management (CRE & FM). CRE & FM is reluctant and hesitant to involve local residents in the planning process due to possible opposition and deliberate detachment from matters that do not meet the university's goals for education and research. Apart from maintaining the main goals of the university, the TU Delft campus also has ageing buildings that require renovation and investment that with reduced government funding, as in all Dutch campus-

es, forces TU Delft to find alternative financing models and to prioritize projects with a higher return on investment (den Heijer et al., 2016).

Moreover, accommodating the desires of local residents could also risk the amount of space on campus towards educational facilities that would be required in future expansions. This along with a focus on finance models limits opportunities for student housing corporations to build on campus, as short-term leases also inhibits their profitability,

This puts to question the collaboration between the community liaison group of TU Delft with other departments of the university. The organizational chart of TU Delft, as seen in Figure 75, shows the importance of education and research in the overall scheme of the university; however, community or local involvement are not considered.

Nevertheless, the steps that TU Delft have taken should not go unnoticed, but rather as stepping stones towards making meaningful change in the studentification context. The university plays a big role in the activities of students and student associations that could greatly affect the level of residential nuisance in the city and their integration to the local community, which is vital to co-existence.

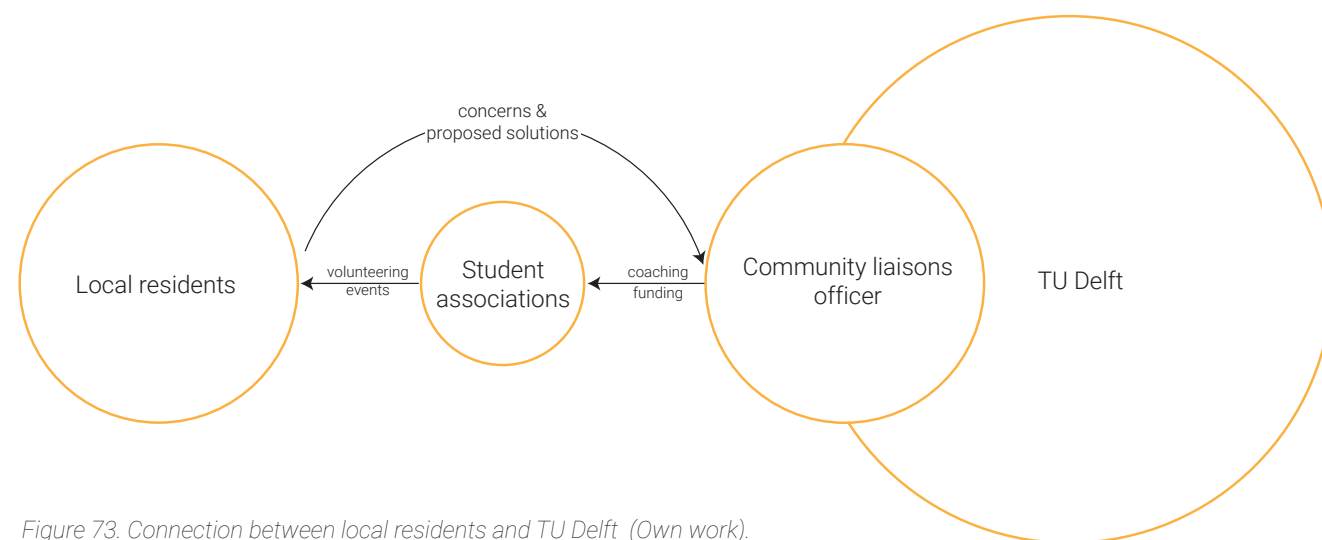


Figure 73. Connection between local residents and TU Delft (Own work).

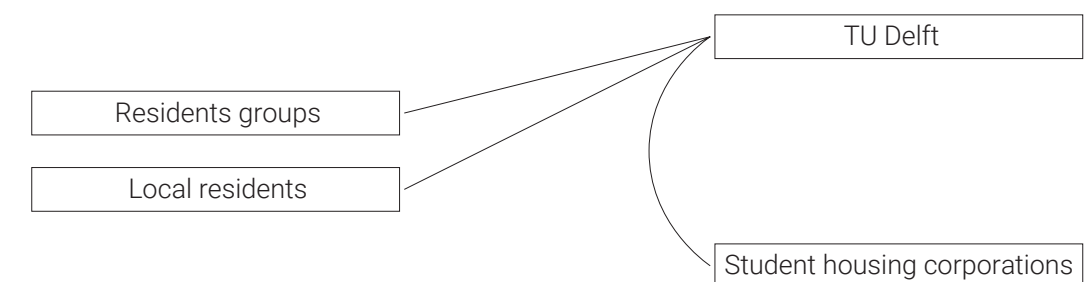


Figure 74. Confrontations of TU Delft (Own work).

10. RESEARCH BY EXPERIENCE

Organogram TU Delft

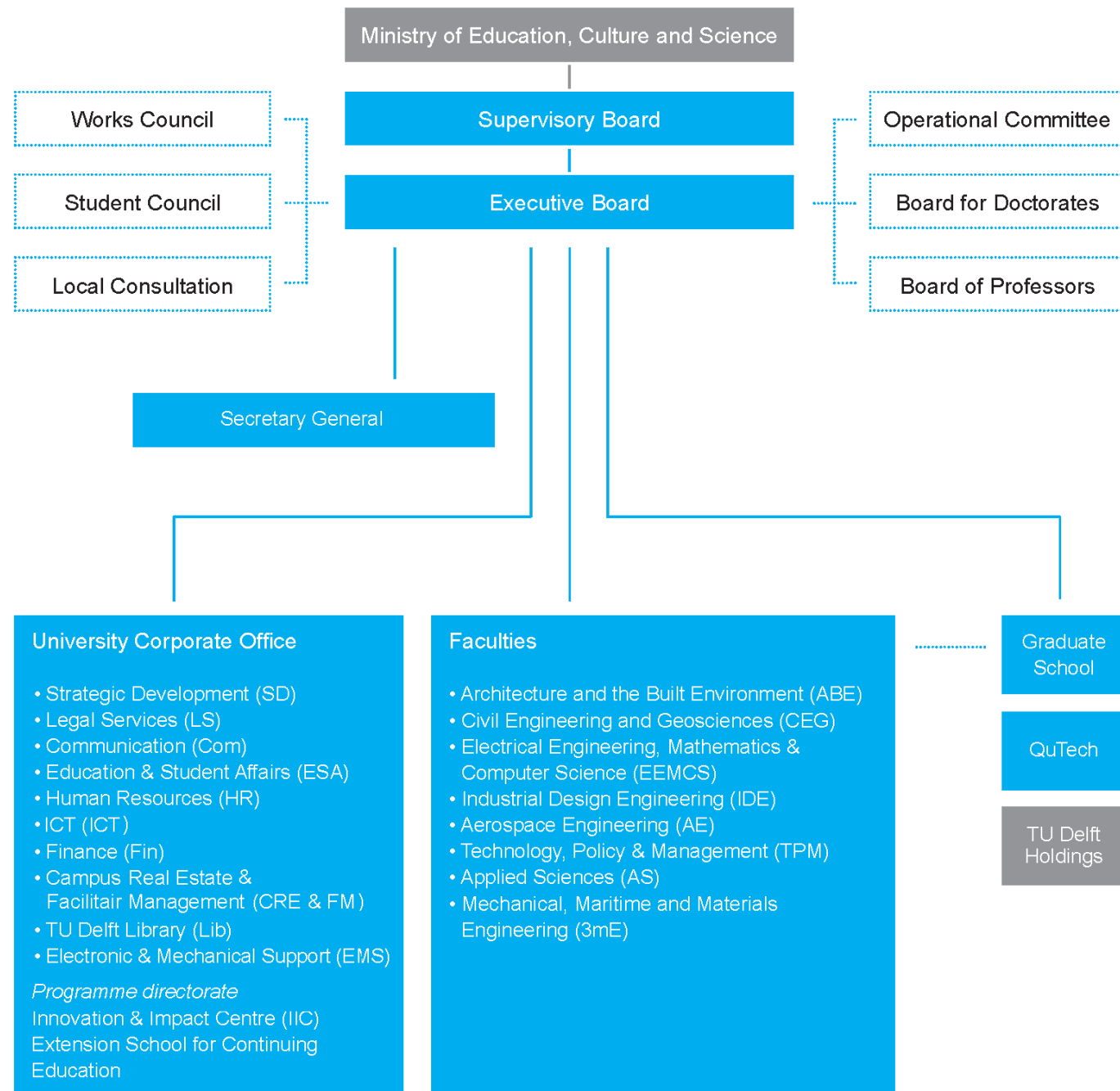


Figure 75. Organizational chart of TU Delft (TU Delft, n.d.).

Municipality

The perspective of the municipality can be characterized by keen interest on increasing social cohesion in the neighbourhoods of Delft, as highlighted in the Environmental Vision 2040 (Gemeente Delft, 2021b). They have acknowledged the different pressures and issues arising from studentification, and believe to have put sufficient strategies and regulations in place to combat them, as seen in chapter 8.4. Therefore, the confrontations that arise between the municipality and other stakeholders are not so much about their perspective on the phenomenon of studentification, but rather their lack of capacity towards enforcing change. The municipality is limited in both manpower and funding in order to ensure that implemented policies and regulations such as the conversion permit are being followed, thereby minimizing the impact of such strategies. This is supplemented by a lack of quantitative and qualitative data about studentification in Delft.

As the terms of the covenant (Gemeente Delft, 2016a) materializes in the city, most active strategies by the municipality are done in conjunction with the university. Agnes van der Linden, partner in public business of the municipality, believes that the university has now adequately performed their social role in the city; however, there could be more steps taken towards providing a residential climate for students on campus. This is also highlighted by the Environmental

Vision 2040 (Gemeente Delft, 2021b) whereby large-scale student houses are expected to be constructed only on campus while small-scale student houses can be spread throughout the city under the condition that it does not hamper the surrounding living environment.

The municipality has also stated their desire to retain young talent in the municipality by providing amenities, facilities, and services that can fit a younger population more. This while balancing the needs of local residents and ensuring that there is equality in the allocation of space and resources for the different types of inhabitants in Delft (Gemeente Delft, 2021b).

This balancing act is known to be a difficult task with such limited spatial capacity in the city; therefore, the approach of the municipality with regards to spatial issues, is largely focused on sharing the burden with municipal partnerships, making use of the MRDH partnership with Rotterdam and Den Haag, as well as direct nearby municipalities such as Rijswijk, Pijnacker-Nootdorp, and Midden Delfland.

Overall, the confrontations that the municipality faces are due to its lack of capacities and where its priorities lie with regards to the allocation of resources in the city.

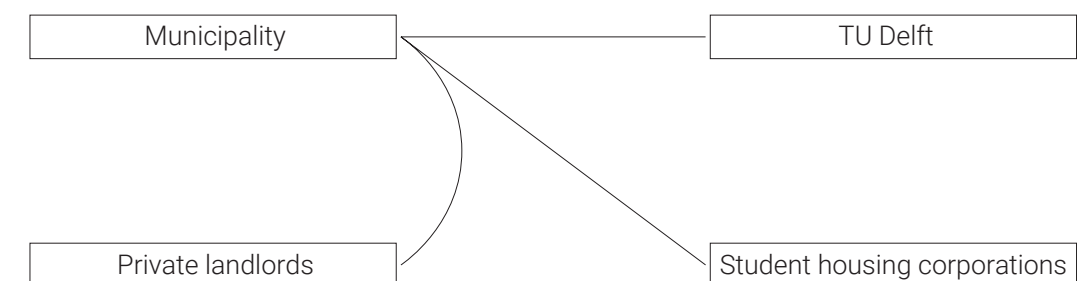


Figure 76. Confrontations of municipality (Own work).

10. RESEARCH BY EXPERIENCE

Landlords

Landlords in Delft are separated between large real estate companies, small-scale private landlords, housing corporations, and housing associations. These landlords have different types and scales of impact on studentification. While student housing associations are more likely to offer maintained accommodation with reasonable rent, this expectation cannot be met by real estate companies and small-scale private landlords who are typically anonymous and absent to both their renters and the municipality.

Both large real estate companies and private landlords, are typically associated with lower-quality accommodations and higher rents. This is because they are hardly regulated by the municipality and often large real estate companies own too many properties to maintain. The lucrative student housing market in Delft has attracted many real estate investors over the years (Savills, 2022) that has lead to multiple consequences in the Delft housing market, as seen in Figure 78. Although these consequences are more often associated with private landlords, old and large student complexes owned by student housing corporations are nowadays also associated with lower maintenance.

The quality of student housing that dominate certain neighbourhoods in Delft causes the property value of neighbouring houses to also

decrease. This combined with the nuisance and antisocial behaviour associated with students, forces local residents to become displaced and forced to either sell at a loss or illegally convert their homes into student houses as well. This feeds back into a vicious cycle and positive feedback loop of housing commodification in Delft that is known to be difficult to intervene with due to the aforementioned lack of capacity by the municipality in terms of funding, manpower, and enforcement, as seen in Figure 78.

Furthermore, an interview with Bert van Toorn, the management coordinator of DUWO Delft, depicted the orientation of both private landlords and housing corporations towards profitability and return on investment. Part of the reason that construction of new student houses or student complexes have stagnated in Delft is due to land lease agreements and land prices that do not enable real estate developers to maximize their investment. For this reason, landlords tend to focus on increasing the amount of student rooms per student housing, which in turn increases density again and leads to similar problems related to studentification in the city. There is therefore a confrontation with regards to the profit-orientation of housing providers against wider societal costs.

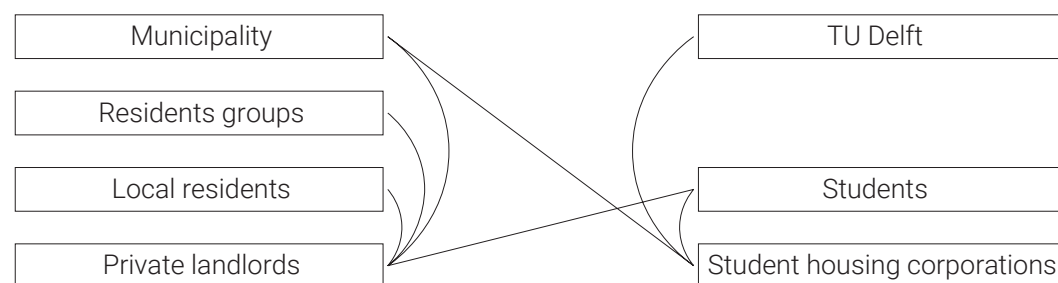


Figure 77. Confrontations of landlords (Own work).

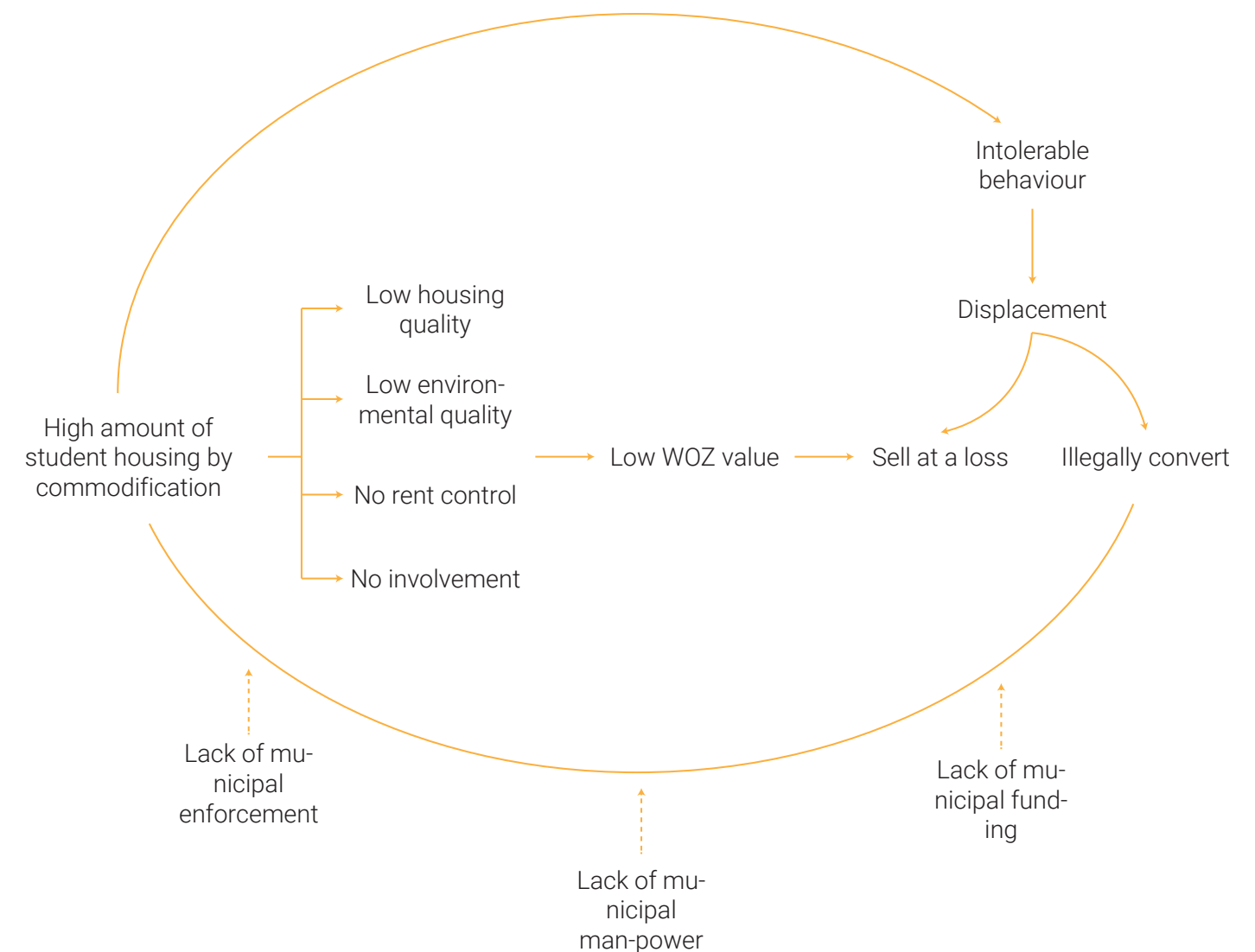


Figure 78. Housing commodification process (Own work).

10. RESEARCH BY EXPERIENCE

10.3. Confrontations

Looking at the perspectives of different stakeholders, the tensions and confrontations between different groups that inhibit co-existence are emphasized. Directly opposing views and priorities regarding the issues of studentification are determined by people's perceived realities that more often than not, are closed off to those of others. This can be seen in the perspectives of local residents against students and vice versa. It can also be seen in how the TU Delft responds to the issues that the local residents face. There is therefore a large misalignment between different perspectives revolving around studentification in the city.

Studying these perspectives and the confrontations that result from their differences, typologies can be created. These are confrontations regarding: (1) University social responsibility, (2) Municipal power, (3) Good landlordship, and (4) Behaviour and interaction. Figure 79 illustrates the connections of stakeholders regarding these confrontations along with research on the problem field and Delft context therefore clarify the fundamental conditions that lead to the negative consequences of studentification: housing density wherein the large concentrations of student housing in neighbourhoods lead to residential nuisances and low housing values; the level of

involvement and types of actions that the university is willing to consider with regards to their negative impact on the city; and the way people behave when they are with other people like them. The approach towards possible strategies to mitigate the negative consequences of studentification and achieve co-existence therefore needs to consider not only the typologies of confrontations, but also the fundamental conditions that contribute to them.

Furthermore, the study on perspectives also gives insight into the difference between law and practice in the city. Institutions appear to have a higher degree of tolerance or tendency to turn a blind eye when it comes to the effects of studentification which are increasingly occurring at the expense of local residents. The issue is no longer a simple matter of a misbehaving group causing minor nuisances. With the ability of the issue to disrupt daily life and lead to large personal financial costs, there is a need to review the role of each authoritative figure towards ensuring that those responsible for causing or exacerbating different issues are held accountable, as well as to ensure that measures to mitigate issues are realized. Despite new policies targeting causes of negative consequences, the practice of these policies are still lacking, if not misaligned. There is therefore a need to break the long-standing

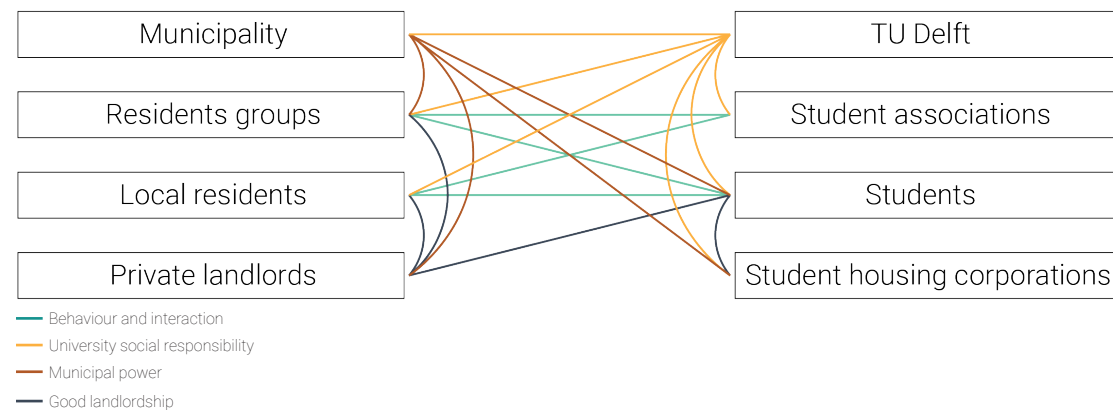


Figure 79. Nature of confrontations (Own work).

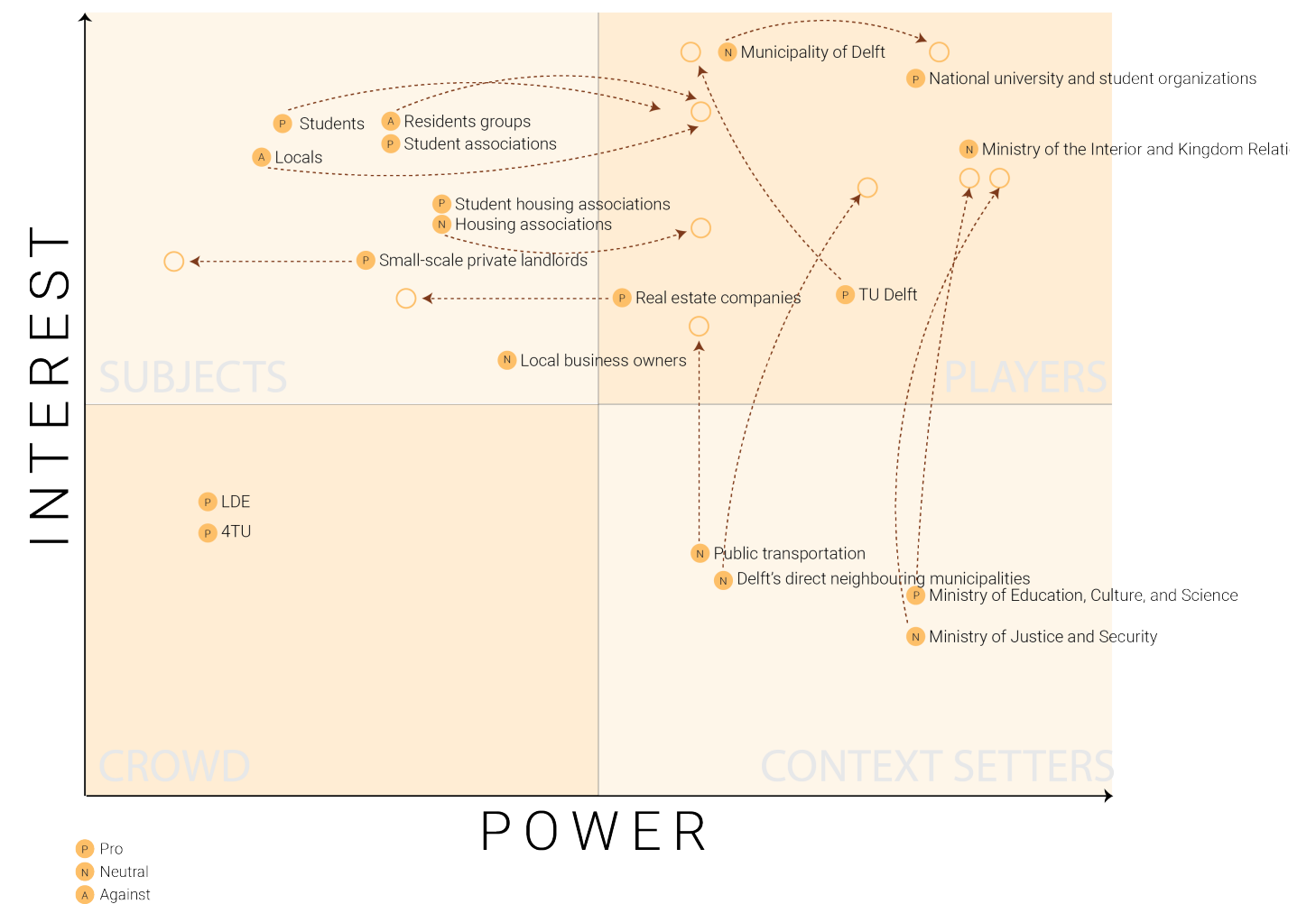


Figure 80. Power-interest matrix (Own work).

cycle of misalignment in the city by focusing on the interchange between authoritative or guiding institutions and the wider society, along with the nature of confrontations between them.

Figure 80 depicts the degree of power and interest of different stakeholders. It also depicts whether stakeholders are in support of, against, or neutral, on the influx of students in the city beyond its spatial capacity. It can be seen that despite the high interest of local inhabitants and their representative organizations, these groups are still only subjects to the issue and have a low amount of power to enact change. Meanwhile, stakeholders with a low level of interest have the most power instead.

There is a need to shift the distribution of power between stakeholders in Delft, whereby local inhabitants experiencing the issues first-hand are at the forefront of potential changes. This while the university also shifts their interests towards social issues as well instead of education and research goals alone. The municipality also requires more capacity and power towards mitigating the issues in Delft, which in turn requires the interest and support of national sectors. In doing so, regulation of landlords and other real estate entities can also occur.



SYNTHESIS

11. SYNTHESIS

11.1. Transferability

The previous chapters depicted the main components of this research: (1) conceptually informed best practices in other cities comparable to Delft, (2) the Delft context in space and policies, and (3) the confrontations between stakeholders that form the social and cultural fabric of the city. With these insights, this chapter stands as the intersection between *what should happen* and *what can happen* in the local context of Delft, looking into possibilities or translations for transferability.

This synthesis requires an understanding of what factors or conditions inhibit best practices or strategies from being transferred into the map of Delft. For this, the differences between Delft and other cities in Europe will be expanded on.

One of the most glaring comparisons and limiting factors for transferability is the lack of a working relationship and engagement between the university and other stakeholders in Delft. As practiced in Loughborough, a Community-University working group as a consultative body laid the foundation for strategies to mitigate the negative consequences of studentification in a manner that was rooted in the local context and responsive to the voice of citizens experiencing issues. At the same time, the singular vision between the municipality and university in Lund was also a starting point towards urban development aimed at responding to social issues without moving focus from education and research.

The formation of this Community-University working group is inhibited by the TU Delft's singular focus towards attaining university goals and detachment from tackling social issues in a hands-on manner in fear of time-consuming

procedures and a perspective that the university should be focused on its own direct commune to preserve identity. As previously mentioned, the university's approach to mitigating studentification in the city does not go past using communication and student association initiatives. Although these are also necessary, a structured approach to studentification that achieves long-term goals are still lacking. This requires representatives of all important stakeholder groups to be present in structured and iterative meetings where knowledge sharing and areas of agreement take center stage.

Another strong comparison is regarding the spatial structure of campus-city relations. Case analysis on Lund shows that the organic and unbounded growth of the university campus in the city can form tolerance between the university and local community. Unlike universities in Delft, Loughborough, and Gottingen, Lund University is scattered throughout the city with no hard boundary between university buildings and non-academic buildings. Sharing space with the city therefore mixes functions on campus that allows students and local residents to meet and interact. Due to this, the sense of 'otherness' associated with town and gown relations is not as palpable.

The different typologies of physical campus-city relations can be seen in Table 6. This classification positions Delft, Loughborough, and Gottingen as cities in between containing and touching the campus while Lund overlaps it, as illustrated in Figure 81 where borders of the campus against the city can be seen. The results of the case analyses therefore theorizes that an overlapping spatial relationship may have significant benefits to town and gown relations.

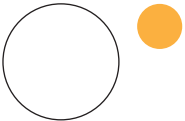
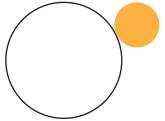
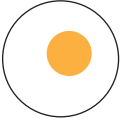
Relationship	Description	City
 Equals	<i>City is the same as the campus.</i> It includes those areas that are newly built as towns or cities. They were built and planned from scratch to accommodate clusters of technology. They are located only in Asia.	
 Disjoints	<i>City shares nothing with the campus.</i> It includes those areas located outside the city limits but not distinguished as independent cities.	
 Touches	<i>City touches the campus.</i> It includes those areas bordering on the city. In most cases they and the city are tangent. Touches the city are usually tangent, but in some cases they are separated by a river, highway, or some other feature.	Delft Loughborough Gottingen
 Contains	<i>City contains the campus.</i> It includes those areas that are inside the urban fabric, but they are perceived of as a distinct campus with borders (e.g., roads, fences, waterfronts, or natural features).	Gottingen
 Overlaps	<i>City and campuses have multiple points in common.</i> It includes those areas integrated into the urban fabric, and in many cases the boundaries between the sites and the rest of the city are not clearly defined or perceived.	Lund

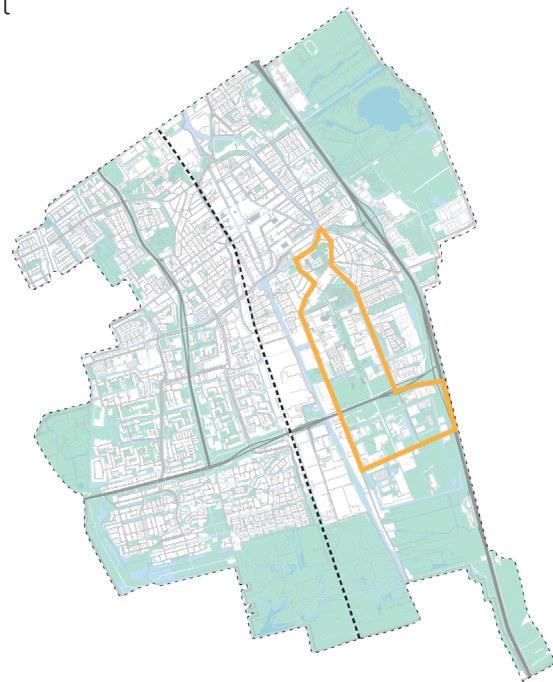
Table 6. Typologies of campus-city relations (Own work, based on Alexandra den Heijer (2016)).

Alexandra den Heijer (2016) has also clarified the importance of campus-city relations with regards to attaining shared goals such as innovation and sustainability. A campus integrated into the city, such as in Lund, takes advantage of opportunities to collaborate with the municipality and other stakeholders. Despite the possibility of diffusing the university's identity due to these collaborations, it comes with large benefits such as the reduction of high prices due to exclusive ownership and use of properties on campus.

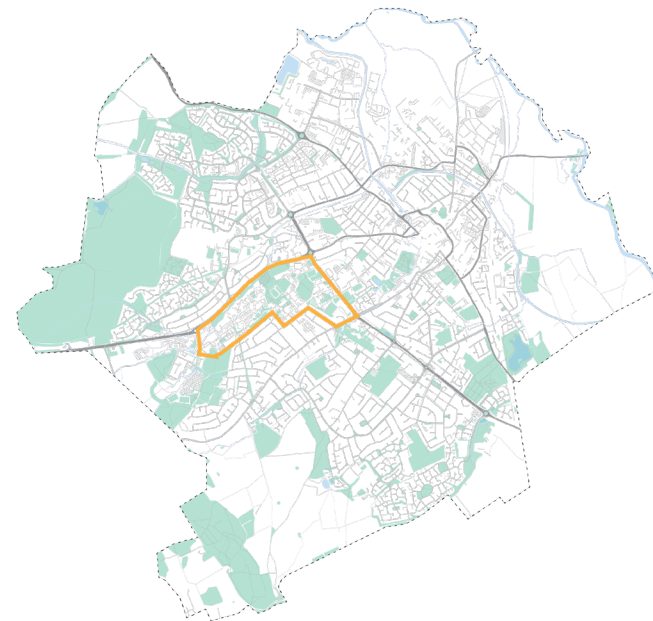
Furthermore, largely investing in a residential climate on campus may rarely lead to large financial returns, but it does also lead to non-monetary benefits such as better cooperation and knowledge exchange with third parties. On the contrary, not investing on the environment of the university could cost more money and deter from the university's goals, by reducing productivity of researchers and students, and by missing funding opportunities. This illustrates the importance of campus-city relations.

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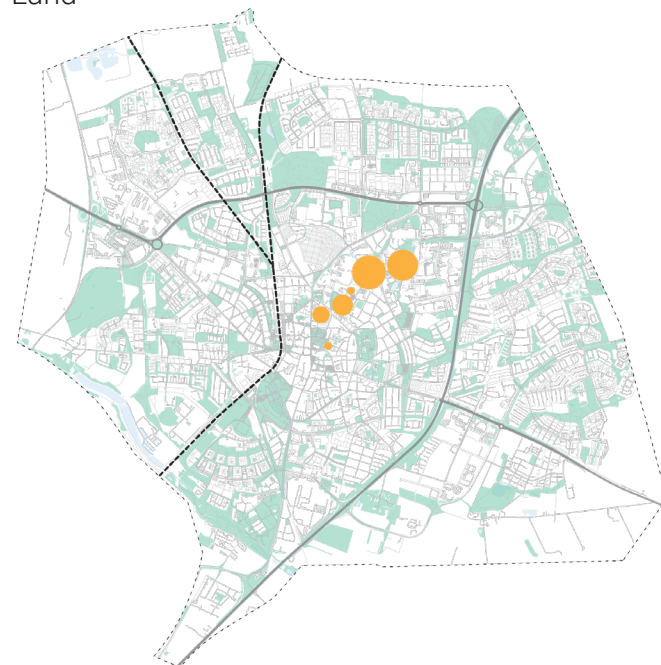
Delft



Loughborough



Lund



Gottingen

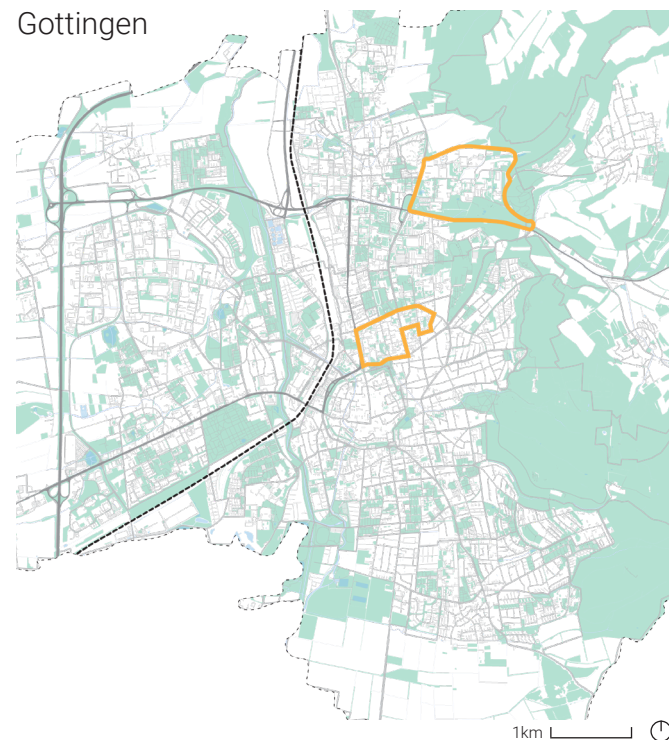


Figure 81. Campus-city relations (Own work).

These comparisons portray the importance of the university's involvement with the city and the issue of studentification specifically. For this, first and foremost, the university needs to take accountability and responsibility for its claim and influence over the city. With this as a starting point, other best practices such as active strategies from the case analyses can be transferable. This would also narrow the social gap that hinders local residents from viewing the university and students as a positive force in the city that is vital for its economy and dynamism.

Furthermore, the culture of students is also a limiting factor towards the transferability of best practices. Whereas student associations are social clubs dominated by Dutch batchelors students in Delft, student associations and student nations in Lund are very diverse in interests, purpose, activities, and members. The occurrence of student nation activities and services solely on campus or in student nation houses decreases the risk that it would cause nuisance to local residents in Lund. In contrast, student activities in Delft, Loughborough, and Gottingen occur primarily in student houses which are often adjacent to the houses of local residents, therefore leading to nuisance.

In this regard, there is a comparison in how student behaviour arises in other small-sized university cities due to organized student groups. Due to the large role that student associations play in the context of Delft, an inhibiting factor towards the transferability of best practices to the city also call for a change in responsibility and accountability of student associations regarding their recruitment processes and the types of activities they promote. Here, the responsibility of the university is once again called upon as student associations are affiliated with the standards and regulations that the university imposes.

Transferability of best practices is also limited by the way collaborations already taking place in Delft are practiced. Indeed, there are discussions and meetings between institutions and local stakeholders in the city; however, the main difference with cities like Loughborough is that the proposals of local stakeholders are not realized. This breeds a lack of distrust and motivation for local residents to continue lines of communication or to accept initiatives from these institutions.

In this regard, the case analyses did not only clarify best practices, but also practices that could exacerbate the negative consequences of studentification in Delft. The pitfalls identified in the case analyses portray similarities to confrontations and conditions in Delft which need to be considered and thwarted in order to achieve co-existence.

These include the lack of engagement with the national government sectors as seen in Lund, Gottingen, and Delft that not only hinders the predictability of student numbers, but also the ability of local municipalities to enforce long-lasting changes. Due to this, issues with landlord control is also lacking. This calls for a need to regulate the private sector in a manner that directly aims to mitigate the negative consequences of studentification, which includes policies for displacement, and equal opportunities for housing regardless of demographics.

Lastly, considering the threshold approach in Loughborough that was met with criticism for not being evidence-based, setting a proportional limit to the amount of student housing per neighbourhood in Delft, would require further research as to what the tipping point is wherein the disadvantages of students residing in a neighbourhood start to outweigh the advantages.

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11.2. Translation

Considering limiting factors, it is clear that a paradigm shift is needed to tackle studentification in Delft. Organized and institutional stakeholders need to shift their perspectives and approach towards the negative consequences of a large student influx in the city, to ones that take into account the experiences of both students and local residents. This is an especially difficult task due to the plurality of issues resulting from studentification and the opposing views of both groups; therefore, aligning actors and stakeholders towards the same goal is essential.

To achieve this, formalized commitments are needed from the institutional level towards the wider society of Delft. This needs to materialize not in a cursory manner as existing strategies and policies do, but in a detailed and thorough way through the dedication of resources, effort, and time towards the issue. This necessitates the need for a strategic plan that is focused on the long-term. This further takes into account the lack of enthusiasm that local residents have towards strategies focused on quick solutions such as community initiatives performed by student associations.

Strategic planning is the process of defining future goals and the strategies that are required to meet them. In this way, a strategic plan can act as a strong tool to shape the future and create momentum for the issue of studentification, as opposed to simply reacting to the current state of affairs (Conscious Governance, n.d.). This strategic plan should not only consider a change in policies and regulations, but also propose new strategies that tackle the fundamental conditions that contribute to studentification such as housing density, university involvement, and people's behaviour.

This strategic plan needs to also consider the limiting factors identified in the previous chapter as essential preconditions that need to be met before any other strategy is implemented. In order to correctly sequence the implementation steps in this way, a theory of change will be used. This is defined as a "method that explains how a given intervention or set of interventions, are expected to lead to a specific development change, drawing on a causal analysis based on available evidence" (UNDG, n.d.). The theory of change focuses on how strategies lead to desired goals by identifying conditions that must be in place or relate to each other causally, in order for these goals to be met. These are mapped out in a backwards way starting from the intended long-term goal, thereby creating a pathway with a particular outcome in mind. Using this method, a working model can be used in Delft that considers the results of research by case analyses, context, and experience in order to achieve co-existence in a manner that will be accepted by all stakeholders involved.

Furthermore, the strategic plan also requires a community building initiative through spatial projects to respond to the challenges experienced at a neighbourhood level with regards to spatial quality and interactions that have been harmed by studentification. This follows the example of the Abtswoude bloeit! project in Delft that successfully integrated students with other groups through appropriating space. In order to be responsive to the comparison between Loughborough and Delft regarding the materialization of meetings between inhabitants and the municipality, this spatial strategy would need to be rooted in empowerment in order for inhabitants to enact change for themselves and rebuild trust with institutions. Considering the

opposition met by the co-creation workshop initially proposed as an outcome for this research, this spatial strategy needs to be implemented after the recommendations in the theory of change pathways have been followed. This is because local residents would only be responsive and accepting of community-building or spatial strategies with policies tackling the fundamental conditions of studentification in place first. In this way, it acts as a supporting strategy to the theory of change pathways that is responsive to the needs of local residents.

The strategic plan therefore consists of a theory of change and an empowerment-oriented spatial strategy with the following goals: (1) mitigate the negative consequences of studentification by tackling fundamental conditions that contribute to it, (2) mitigate confrontations between stakeholders, and (3) achieve co-existence between town and gown. The following chapters will be focused on these strategic planning components and goals in order to translate and expand on best practices identified in the case analyses, to the map of Delft.



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12.1. Recommendations

The plurality of different but related problems resulting from studentification calls for a comprehensive yet coordinated and flexible approach that addresses the multiple confrontations between stakeholders as well as the fundamental conditions that lead to the negative consequences of studentification: housing density, university involvement, and people's behaviour. Therefore, to mitigate these issues, this chapter proposes several recommendations for policies, regulations, and strategies that will be approached using a theory of change. These will be used to structure and provide a pathway towards co-existence that is conceptually informed by best practices and grounded on the perspectives of stakeholders in Delft. This aims to transform the context of Delft in policy and space to better suit the current depth and scale of issues as well as be responsive to conflicts and conditions that lead to them.

The following text will expand and provide details on the different recommendations, beginning with policies in response to essential pre-conditions identified in the previous chapter. Each recommendation will also be turned into a working model using a diagram that illustrates the role of each stakeholder in implementing the recommendation.

Policies

The following policies aim to structure capacities and collaboration between stakeholders for the purpose of studentification. Policies are defined as "a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions" (Merriam-Webster,

n.d.a) They explicate the urgency for collective commitment, interest, and investment towards mitigating issues in the city with consideration for different perspectives and capacities. These policies form the translation of essential pre-conditions identified in chapter 11.1 towards the map of Delft.

1. Expand the municipality enforcement team

The primary hindrance to mitigating the negative consequences of studentification is the lack of enforcement for existing policies and regulations such as the conversion permit, which leads to illegal student housing conversions and a lack of data on privately owned student houses for the municipality as seen in Krakeelpolder and Wippolder respectively. This lack of enforcement is a result of the insufficient manpower and funding for issues related to studentification, in the municipality of Delft. This requires a shift in allocation of resources from a city-scale in order to enforce existing and incoming regulations and strategies. Therefore, this policy aims to strengthen the commitment of the municipality towards studentification by expanding the municipality enforcement team. It may also require the municipality to escalate the issues of studentification towards a national scale in order to secure more funding if capacity is lacking. The most pressing issues regarding studentification that requires enforcement are:

- Illegal conversion of houses into shared rooms
- Rent and quality control of the student housing stock
- Quantitative data on student houses and landlords
- Illegal bike parking

2. Establish a university community relations team

Best practices identified in the case analyses illustrate the importance of the university's involvement in social issues. Despite the covenant signed between the municipality and the university, TU Delft has been criticized for being unresponsive to the depth of issues faced by local residents due to studentification. This despite their powerful role in instigating change. To negate this, this policy is aimed to formalize the involvement of the university with local issues, particularly pertaining to behaviour, student housing, participation, and community involvement or interactions. It also aims to create or expand the team behind the existing community liaison officer of TU Delft, as well as explicates this department's position within the formal organizational chart or hierarchy of the university. Through the community relations team, local residents can feel heard and considered by the university's daily operations, while students are able to have guidance on being part of the wider Delft community. Considering how studentification materializes in the city, the community relations team consists of members tackling the following topics:

- Residential neighbourhoods & student behaviour
- Housing & Landlords
- Campus as city
- Student initiatives
- OWee

3. Encourage local inhabitants to participate in stakeholder meetings

In order for institutions to be responsive to local needs, inhabitants would need to voice their concerns and push for changes they would like

to see in their neighbourhoods. This strategy is intended to invite local inhabitants to participate in knowledge exchange, and to inform them about the intentions behind new plans. It also aims to serve as a research tool to emulate the needs of inhabitants in certain neighbourhood conditions. Relevant stakeholders include student associations and students, residents groups, and local residents. To encourage participation, a mix and variety of participatory tools can be used, such as:

- Co-creation workshops
- Policy discussions
- Surveys and questionnaires
- Informal events
- Iterative engagement

Different types of incentives can also be used and experimented with such as: (1) Purpose-driven incentives derived from fulfilling purposes such as making a change to the community; (2) Social incentives derived from camaraderie such as picnics and potluck dinners; (3) Status incentives derived from recognition such as recognition ceremonies; (4) Material incentives derived from monetary values such as wages (Tang, 2005).

4. Establish a community-university working group

Working towards co-existence and mitigating the negative consequences of studentification requires discussions on perspectives, issues and capacities to make feasible changes and be responsive to unpredictable circumstances. Therefore, this policy aims to bring together different stakeholders in an atmosphere of mutual trust, cooperation, and support towards studentification. In this group, stakeholders monitor and

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share information about local developments, issues, and actions pertaining to town-gown relations and studentification, on a monthly basis. It acts as a consultative and evaluative body towards implemented transformations and as a brainstorming opportunity for other challenges that may arise in the future. This group consists of the following stakeholders working together:

- Representatives of the university from the level of the Executive Board
- Representatives of HBO universities from the level of the Executive Board
- Representatives of the largest student associations in Delft
- Representatives of the municipality
- Representatives of residents groups
- Representatives of recognized private and social landlords

Regulations

In contrast to policies, regulations are defined as “a rule or order issued by an executive authority or regulatory agency of a government and having the force of law.” (Merriam-Webster, n.d.b). This enables consequences to be inflicted on organizations or individuals that refuse to follow the regulation, such as monetary fines or withdrawal of licenses. For this reason, the following recommended regulations are in response to phenomena that significantly contribute to the negative consequences of studentification in the city.

1. Threshold approach to student housing

As discussed in chapter 8.4, one of the main contributors to experiencing the negative consequences of studentification in a neighbourhood, is the spatial density of student housing units, whereby it was found that when the student population of a neighbourhood exceeds 20%, local residents tend to experience more

residential nuisance. This is strengthened by the spatial analysis and perspectives of local residents from 2 neighbourhoods in Delft - Krakeelpolder and Wippolder as discussed in chapters 8.2, 8.3, and 10.2, that have student populations exceeding 20%. Municipality data considers student housing units as each room occupied by students regardless of whether it is independent or not; therefore, each student should be registered in one student housing unit. On the other hand, a general housing unit can contain different household compositions from singles to families with children. With this, the city-scale proportion of student housing units outside of the campus, relative to the total amount of housing units in Delft is around 35%. The amount of student housing units per neighbourhood excluding the campus can be seen in Figure 82 and in detail in the appendix.

To regulate the density of student housing units in the city, the threshold approach aims to proportionally limit the amount of student houses in neighbourhoods to mitigate concentrations. Different scenarios have been tested using municipal statistical data on housing units and student numbers, as seen in Figure 82. These scenarios look at the shift in student housing units with a threshold maximum of 15%, 20%, 25%, and 30%. Applying a threshold approach in Delft leads to a large displacement of student housing units that would lessen as the threshold is increased. Furthermore, as the threshold increases, student housing units could also be increased in some neighbourhoods, thereby evenly distributing students in the city instead of concentrated student numbers in certain neighbourhoods. For more details on the calculations used, see appendix.

As chapter 8.1 suggests that 20% is the margin for which residential nuisance is experienced at an above average rate, this is the current

recommended threshold regulation; however, this is subject to change as per discussions of the community-university working group. This would mean that more than 8000 student housing units would need to be relocated and reorganized in Delft. This is almost twice the number of student housing units currently located on campus that amount to 4,250. This shows the urgency of studentification in Delft as the city no longer has the capacity to accommodate the influx of students alone, even as the campus increases the housing stock. As other university cities in the Netherlands experience the same issues regarding conflicts and housing market pressure due to the influx of students, the surplus of students currently residing in Delft cannot be relocated to other big cities like Rotterdam and Leiden alone, but also to other smaller municipalities. This makes studentification a regional or even a national issue that requires strong collaboration and partnerships between municipalities. It also clarifies that studentification cannot be solved through the distribution of students alone, but also through other methods such as changing behaviour and integrating students into the local community which will be further discussed later on.

As this regulation requires a shift in residential units of students, as well as properties of both housing corporations and privately owned student houses, a grace period should be applied wherein changes and shifts can be enacted. Meeting the threshold in this regulation is a long-term process; therefore, it should also prioritize the shift of student housing units in neighbourhoods that experience a high amount of negative consequences that affect the daily lives of local residents first. These include neighbourhoods in the Binnenstad, Wippolder, and Voorhof districts, as well as the smaller neighbourhood of Krakeelpolder, all of which are known to experience a high degree of residential nuisance.

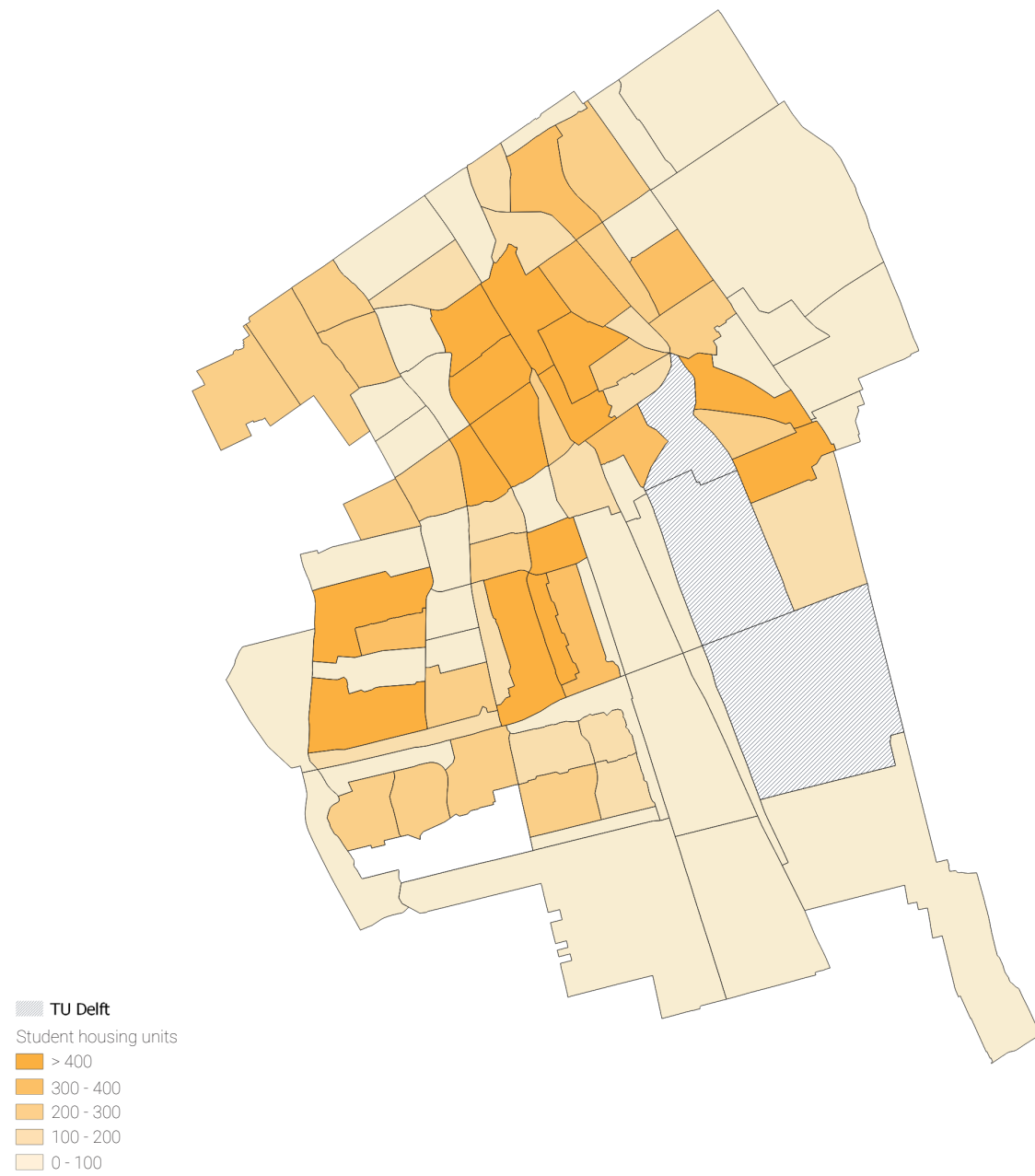
The number of students that need to be relocated resulting from this regulation also provides a foundation for the number of student housing units that needs to be newly constructed in other neighbourhoods, on campus, or in other municipalities. Therefore, it necessitates the involvement and commitment of the municipality, university and other neighbouring municipalities towards student housing. It also requires strengthening the capacity of student housing associations to build more in order to reduce the claim and influence of neglectful private landlords.

By implementing a proportional limit instead of imposing a static amount of student housing units per neighbourhood, this regulation can also be responsive to different spatial, economic, or other changes in the city. In this way, excessive student densities in neighbourhoods can be prevented along with the residential nuisances and other negative consequences associated with this.

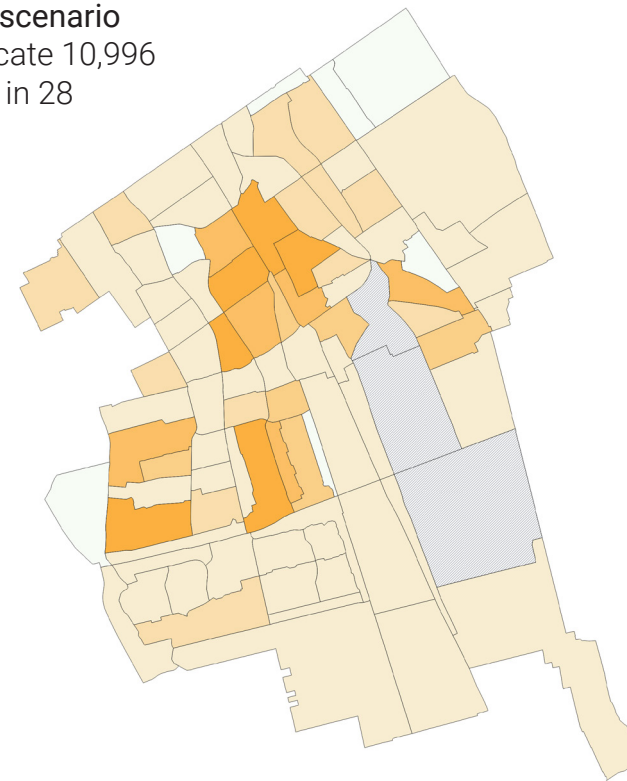
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Threshold approach

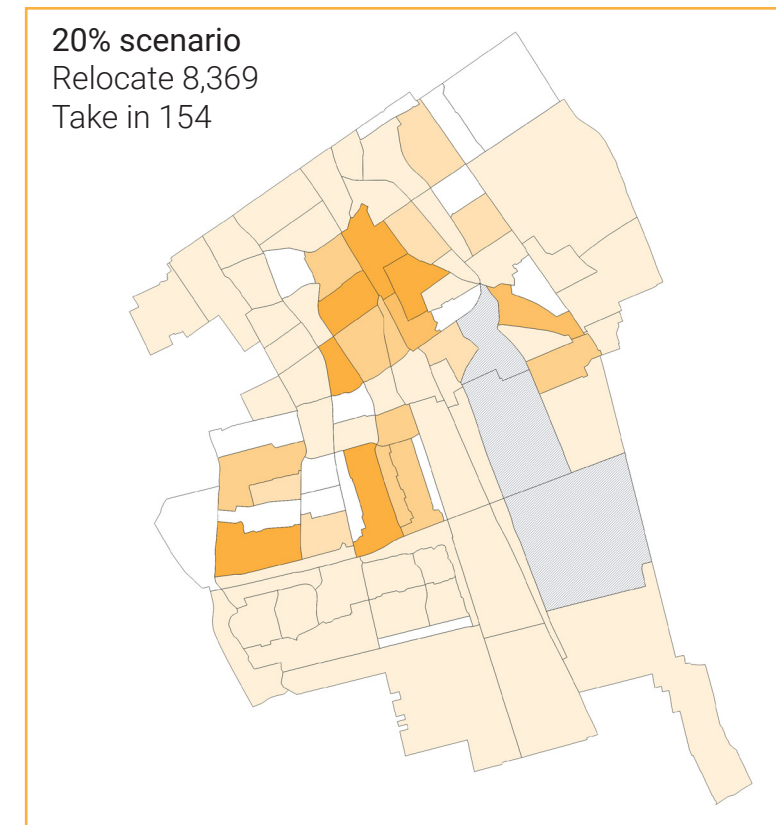
Current situation excluding campus
 Total student housing units: 19,228
 Total housing units: 55,066
 Proportion of student housing units: 35%



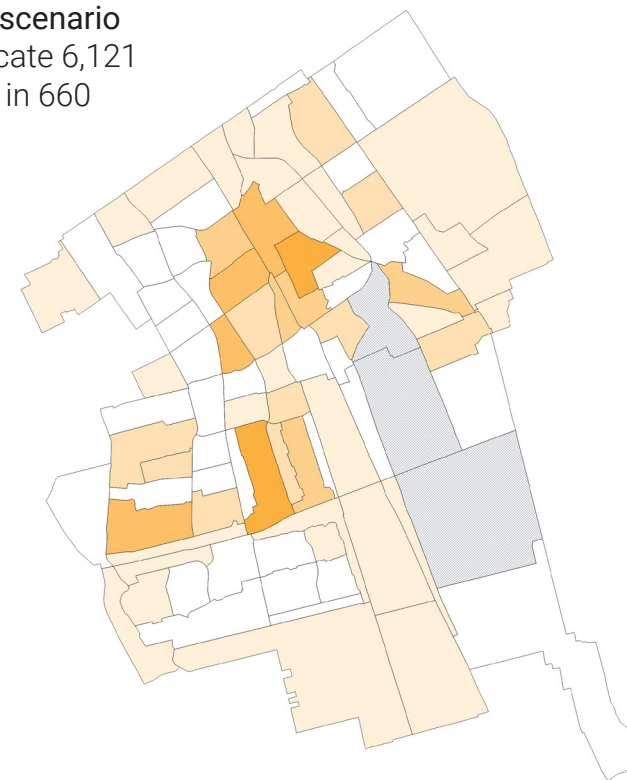
15% scenario
 Relocate 10,996
 Take in 28



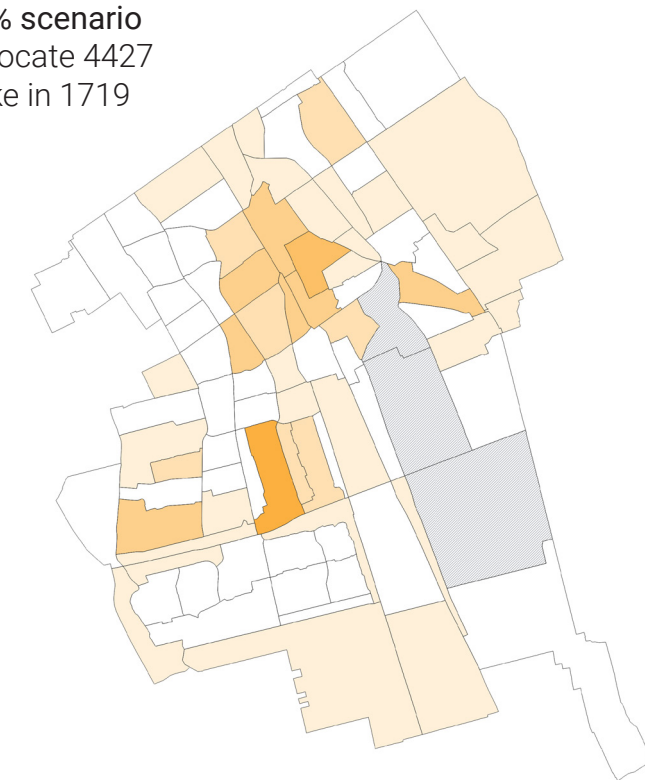
20% scenario
 Relocate 8,369
 Take in 154



25% scenario
 Relocate 6,121
 Take in 660



30% scenario
 Relocate 4,427
 Take in 1,719



Shift in student housing units

- Relocate > 400
- Relocate 300 - 400
- Relocate 200 - 300
- Relocate 100 - 200
- Relocate 1 - 100
- Intake > 1
- Recommendation

Figure 82. Threshold approach scenarios (Own work).

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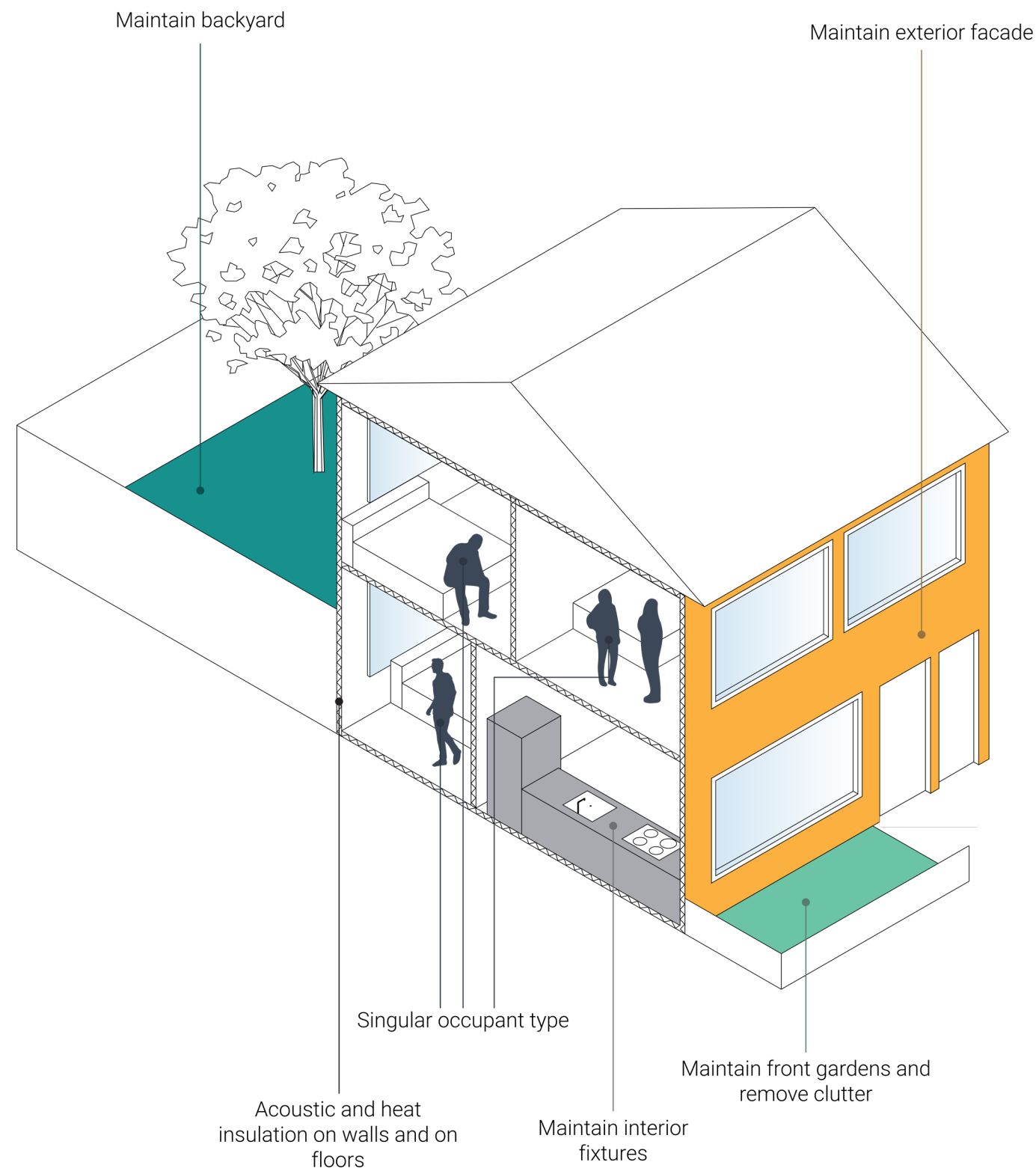


Figure 83. Building regulations of shared houses (Own work).

2. Regulate building standards of shared houses

The construction quality of student houses greatly contributes to the degree of nuisance that students can cause to local residents, as seen in Wippolder and Krakeelpolder. As density is high in each student house, poor insulation and outdated fixtures exacerbate noise from daily activities, which causes conflicts with neighbouring local residents. In response, this regulation is intended to improve the overall quality of streets from building facades to the interior, along with the living quality of inhabitants. Due to evolving needs and demographic distributions in neighbourhoods, landlords are required to adapt and renovate their properties in a manner that limits potential nuisances to other occupants in the neighbourhood, as well as in response to issues identified by tenants as obstructing or reducing their living quality. Enforcement of this regulation needs to be carried out by the municipality wherein the landlord could be subjected to a fine if they do not comply with the regulation. On the other hand, reporting non-compliance is the responsibility of inhabitants or neighbours. These building standards, as seen in Figure 83 focus on sustainable construction and include:

- Maintenance of the exterior façade including repainting and fixing broken fixtures
- Updating or replacement of broken interior fixtures, furniture, and appliances
- Ensuring adequate insulation of houses for heat and acoustics
- Maintenance of gardens or backyards and immediate surroundings to be done or enforced by the landlords
- Singular occupant type per house instead of students and local residents residing above or below each other

3. Regulate the activities of student associations

The non-normative or antisocial behaviour of students is one of the main catalysts of conflict

and tension in neighbourhoods. In light of the considerable influence that student associations have on the behaviour of students in Delft, transformation of their activities and processes are recommended to integrate students within the local community. These student associations could therefore match those of student associations in Lund. To do this, student associations need to commit themselves to diversifying their members through the OWee recruitment period, social media engagement, and by creating active partnerships or networks with other student associations that have international members or members with diverse interests. This regulation aims to primarily increase the engagement of master's or international students with the existing majority of Dutch bachelor's students of large student associations in order for these groups to learn from one another and be exposed to students with different priorities and behaviour.

Furthermore, this regulation aims to limit the number, duration, and size of events conducted by the associations in close range with local residents. This includes limiting the promotion and occurrence of social activities such as partying and drinking that causes nuisances to neighbours, as well as a restriction on the vote-in system of student houses inhabited by association members that actively limits housing opportunities for non-members, particularly international students.

Student associations will need to shift their current method of operations and responsibilities to consider these regulations, and actively engage with members to ensure that they are following the same. Ensuring and incentivizing compliance to this regulation can also be done through formal ordinances by the municipality or the university who funds most associations.

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Implementation of the recommended policies and regulations primarily require the municipality and TU Delft to act as executors, managers, and funders as they have the most power and capacity in the context of Delft. This also exemplifies the need for commitments from a higher institutional level in order to make impactful changes. For this, stakeholders like

students and local residents with their respective representative groups act as facilitators to make the implementation process easier. Only in establishing a community-university working group are all direct stakeholders in the studentification process required to execute the policy together as it calls for strong collaborations considering different perspectives on

the matter. On the other hand, student associations and landlords are executors along with institutions in the recommended regulations as they carry out or perform the stipulations of the regulations with the institutions as authoritative bodies. By using the working model in Figure 84, the partnerships between stakeholders in the implementation process is clarified.

	Municipality	University	Residents groups	Local residents	Student associations	Students	Housing corporations	Private landlords
Expand the municipality enforcement team	Executor Manager Funder	Facilitator	Facilitator		Facilitator			
Establish a TU Delft community relations team	Facilitator	Executor Manager Funder	Facilitator		Facilitator	Facilitator		
Encourage participation of local inhabitants in stakeholder meetings	Executor Manager Funder	Executor Manager	Facilitator	Facilitator	Facilitator	Facilitator		
Establish a community-university working group	Executor Manager Funder	Executor Manager Funder	Executor	Facilitator	Executor	Facilitator	Executor	Executor
Threshold approach to student housing	Executor Manager Funder	Facilitator	Facilitator	Facilitator	Facilitator	Facilitator	Executor	Executor
Regulate standards of shared student houses	Executor Manager Funder	Facilitator	Facilitator	Facilitator	Facilitator	Facilitator	Executor	Executor
Regulate student association activities	Executor Manager	Executor Manager			Executor	Facilitator		

Figure 84. Working model of recommended policies and regulations (Own work).

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Strategies

Following policies or essential preconditions give rise to the feasibility of active strategies that will be discussed in the following paragraphs. These strategies incorporate takeaways from best practices along with the perspectives and interests of different stakeholders that target co-existence and the mitigation of fundamental conditions that contribute to the negative consequences of studentification.

1. Actively trace and log the distribution of student houses

One of the limiting factors towards monitoring studentification in Delft is the lack of statistical data on the number of students and student housing units in the city due to illegal conversions in Wippolder and the unwillingness or inability of students in Krakeelpolder to register in the municipality. Because of this, current research on these matters have to make large assumptions on the context of Delft. To eradicate this problem, this strategy aims to keep track and store data on student housing ownership, typology, and tenants in the city. It requires active tracing of which housing units are self-occupied, rented, or shared. In all cases, information on inhabitants and property owners are required to be logged onto a municipal database. This is intended to enrich statistical data for the city and to discourage illegal renting, sharing, or occupancy as it eases the process of enforcing regulations. In order to implement this strategy, extensive 'Door knocking' exercises and cross-checking with the university database is needed. It would also require incentives such as free registration at the municipality in order to encourage students to register themselves.

2. Establish municipal partnerships to construct new student houses

In response to the proposed shift of student housing units by the threshold approach, as well as the nation-wide student housing crisis, this

strategy aims to connect Delft with neighbouring municipalities in order to construct new student housing units. Therefore, this strategy is able to relieve the housing market pressure in the city. It also strengthens municipal partnerships in the Haaglanden region and efficiently distributes available resources between municipalities. Opportunities for municipal partnerships are most feasible and efficient with direct neighbours of Delft such as the municipality of Rijswijk, Pijnacker-Nootdorp, and Midden Delfland. Housing corporations may also be incentivized to construct student houses in these neighbouring municipalities with different land prices, lease agreements, and regulations.

3. Designate indoor spaces on campus for student (association) parties and gatherings

The main source of noise nuisance in Krakeelpolder and Wippolder are student parties, primarily by student association groups. In order to allow these students and student associations to continue their night-life activities without disturbing local residents, this strategy encourages the use of indoor university facilities for gatherings or parties, provided that students bear responsibility for the cleanliness and overall quality of the space afterwards, as well as ensures that they move to and from campus without causing disruptions, noise or otherwise, to other inhabitants in residential neighbourhoods. This is done parallel to a neighbourhood patrol group that ensures enforcement of these terms.

4. Increase student housing on campus

Apart from the commodification of housing by private landlords in the city, the density of students in certain neighbourhoods of Delft is also a result of lacking student houses on campus. The large spatial claim of TU Delft in the city offers opportunities to relieve the student housing market pressure in the city. As a way for the university's social involvement to materialize, this

strategy entails a campus strategy aimed to increase student housing on campus considering the number of student housing units that need to be relocated from the 20% threshold approach, and as a response to the theme of 'campus as city, city as campus' in the covenant (Gemeente Delft 2016a) between the municipality and the university. This campus strategy is required to be designed in consultation with students, university staff, relevant business owners on campus, and local residents to ensure that different perspectives and interests are considered. In order to mitigate the housing market pressure on the city, the strategy needs to include:

- A sufficient amount of student housing responding to the threshold approach and desires of students
- Improved transportation connectivity with the city by all modes of transportation
- Sufficient space for expansion of educational buildings by use of mixed buildings

5. Increase recreational and non-academic functions on campus

Residents of Wippolder view the TU Delft campus as a segregated area that offers amenities inaccessible to local residents. Due to this, the animosity of local residents towards the university is exacerbated. Therefore, in conjunction with increasing student housing and student event spaces on campus, other recreational and non-academic spaces that accommodate various demographics, such as playgrounds, supermarkets, cafes, and restaurants should also be present in order to blur the boundaries between campus and city. Furthermore, existing non-academic functions on campus, as seen in Figure 85, should be made more accessible and inviting to the local community of Delft. This strategy incentivizes local residents to venture into the campus, and also enables a residential environment that compliments an increase in student residents.

6. Disseminate knowledge and services to local residents

The divide between students and local residents is exacerbated as the benefits of the university's presence in the city are not visible to local residents. To bridge this gap, this strategy entails the university's participation in the local community by providing advice and services to local residents, on campus facilities or neighbourhood community buildings. It can be integrated into the curriculum of the different faculties, thereby incentivizing students to participate in social issues with the guidance of their professors. This strategy is a long-term approach to integrating students and the university within the local community, as well as a method to structure various activities that occur in collaboration between different stakeholders. It also strengthens the ongoing work behind Wijstad by ensuring that local residents can benefit from university research and projects.

7. Establish a neighbourhood watch

As recommendations in this research require regulation of activities and behaviour in residential neighbourhoods like Krakeelpolder and Wippolder where nuisance is especially high at night, this strategy aims to ensure the safety and welfare of students, and to minimize noise disturbance as they move to and from campus late at night. In order for local inhabitants to be well informed by the activities of the neighbourhood watch, patrol routes and times are decided in collaboration with local residents and makes use of the existing 'residential nuisance registration point'. This strategy will primarily be carried out in partnership with the police, students, and the university. For this, students will be trained in order to execute the following tasks:

- Provide visual reassurance to students and local residents regarding their safety
- Report and escalate unwanted activities to the university, police, or the municipality
- Confront anti-social behaviour such as excessive drinking or noise nuisance

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Figure 85. Potential shared spaces in TU Delft (Own work).

8. Establish an iterative good neighbourhood campaign

The tension and conflict between students and local residents in Krakeelpolder and Wippolder are primarily due to the non-normative behaviour of students as opposed to their non-student neighbours, along with students' lack of information regarding the extent of issues suffered by local residents due to their dominating presence in the city. This prevents them from integrating within the local community. Therefore, this campaign aims to reduce negative and anti-social behaviour in residential streets through the dissemination of information pertaining to residential nuisances, community participation, and good neighbourly behaviour. The campaign is primarily carried out by the university and practiced by student associations through a variety of means in order to reach students. This will be done in an iterative process every month in order to emphasize the urgency and severity of the residential nuisance in the city. The information in the campaign includes:

- Encouragement to participate in neighbourhood community events, with information on which platforms to visit for an overview of upcoming events
- Anecdotes of how residents experience the influx of students in their neighbourhoods, with statistical information on residential nuisance in the city
- Desired neighbourly behaviour:
 - Introduce yourself to your neighbours
 - Ensure that bikes are not parked in a way that obstructs the pathway for passersby
 - Keep quiet past 10pm from Sunday to Friday
 - Consider the needs of your neighbours when organizing gatherings or other activities
 - Communicate with your neighbours

9. Establish and empower neighbourhood groups

The formation of neighbourhood groups aim to engage students with local residents in a structured manner, and to encourage resolving neighbourly conflicts without escalation to authorities. It also aims to empower neighbourhood residents to work together and initiate events or activities in space to bring residents of the neighbourhood together and build a community. This strategy does not mandate participants of all local inhabitants in a neighbourhood, but rather encourages the formation of a representative group advocating for the needs of others. This involves the municipality and the university acting as mediators towards the provision of meeting locations, initial funding, and training to members in order to foster local governance. With enough interest from local inhabitants, this can also be done entirely bottom-up. These neighbourhood groups have a primary task of community building and the betterment of their own neighbourhoods. Details on the process of this strategy is expanded on in chapter 13.

Contrary to recommended policies and regulations, the recommended strategies require more execution, management, and funding from the university. This is because many strategies involve the transformation of the existing campus strategy and practices in order to better fit the perspectives of other stakeholders and be more aimed at achieving co-existence in Delft. Moreover, recommended strategies also call for stronger partnerships between institutions and local stakeholders to execute transformations. In contrast to recommended policies and regulations, strategies require more active involvement and engagement from local stakeholders instead of only facilitating the process, as seen in Figure 86.

12. TRANSFORMATION PATHS

	Municipality	University	Residents groups	Local residents	Student associations	Students	Housing corporations	Private landlords
Active tracing and logging of student data	Executor Manager Funder	Facilitator			Facilitator	Facilitator	Executor	Executor
Establish municipal partnerships for student housing	Executor Manager Funder				Facilitator	Facilitator	Facilitator	Facilitator
Designate indoor spaces on campus for student (association) events or gatherings		Executor Funder			Executor Manager	Facilitator		
Increase student housing stock on campus		Executor Manager Funder	Facilitator		Facilitator	Facilitator	Executor	Executor
Create a residential environment on campus with recreational and non-academic functions		Executor Manager Funder	Facilitator		Facilitator	Facilitator		Facilitator
Disseminate knowledge and services to local residents	Facilitator	Executor Manager Funder			Executor	Executor		
Establish a neighbourhood watch	Funder Facilitator	Funder				Executor		
Establish an iterative good neighbourhood campaign	Facilitator	Executor Manager Funder	Facilitator	Facilitator	Executor Manager	Facilitator		
Establish and empower neighbourhood groups to take control of their space	Funder Facilitator	Funder Facilitator	Executor Manager	Executor Manager		Executor Manager	Executor	Executor

Figure 86. Working model of recommended strategies (Own work).

12. TRANSFORMATION PATHS

As the recommended policies, regulations, and strategies in this chapter are based on housing, the role of the university or campus, and the behaviour of inhabitants, there are some recommendations that are informed by processes in the city in general while others are informed and responsive to the situations in Krakeelpolder and Wippolder specifically. Due to this, some recommendations have differing sets of actions in order to operationalize them in these neighbourhoods. These differing sets of actions arise because Krakeelpolder and Wippolder have largely different housing typologies, proximity to the campus, and demographics. This operationalization can be seen in Table 7.

The recommendation itself remains the same for each neighbourhood; however, their implementation differs in accordance with their spatial, social, and cultural context. In doing so, the actions supporting the recommendation are able to tackle the conditions facilitating the negative consequences of studentification in these neighbourhoods more thoroughly. In contrast, recommendations not included in Table 7 are responsive to conditions experienced by the city in general.

To summarize, each of the aforementioned recommendations aim to mitigate fundamental conditions that lead to negative consequences of studentification and confrontations, as well as to achieve co-existence in Delft. In order to determine whether these recommendations do not cause more harm to different stakeholders, a risk assessment is also done. The risk assessment on chapter 12.2. considers potential oppositions and drawbacks to the recommended transformation paths, and proposes measures to mitigate potential risks.

Recommendation	Operationalization - detailed actions per site	
	Krakeelpolder	Wippolder
Encourage local inhabitants to participate in stakeholder meetings	- Active invitation of inhabitants through participatory tools and (social and material) incentives by the municipality	- Invitation of existing neighbourhood group representatives through participatory tools and (purpose-driven and status) incentives by the municipality
Actively trace and log the distribution of student houses	- Policy to prevent private landlords from imposing a fee on students registering their student room in the municipality - Raise awareness on the importance of registering student rooms in the TU Delft website	- Extensive door-knocking exercises done by the municipality to identify illegal conversions - Encourage local residents to report suspected illegal student housing conversions through the residential nuisance registration point - Cross-checking student addresses with TU Delft data
Threshold approach to student housing	- Focus on reducing number of student housing units in De Krakeelhof complex - Renovation of complex to accommodate other target groups like starters and young families	- Focus on eliminating illegally converted student housing units - Aim for equally distributing student housing units in the neighbourhood as much as possible through new zoning plans
Regulate building standards of shared houses	- Minimize De Krakeelhof student rooms to a maximum of 5 per apartment unit - Renovate De Krakeelhof complex for acoustic and heat insulation, and double-glaze windows	- Update and maintain interior and exterior fixtures - Install acoustic and heat insulation on the floors and walls - Maintain quality of front and backyards - Single occupant type per house
Increase recreational and non-academic functions on campus	- Open halls and conference centers for large-scale cultural events	- Make campus space available for appropriation by Wippolder residents through small-scale spatial projects - Make existing amenities open and accessible for local residents - Create clusters of different amenities
Disseminate knowledge and services to local residents	- Student and campus services to assist in healthy living and financial management	- Use Wippolder as a living lab for sustainability, urban planning, and housing projects
Establish a neighbourhood watch	- Focus patrol routes on Jacoba van Beierenlaan street and De Krakeelhof student complex	- Focus patrol routes on connections between the campus and neighbourhood - Focus patrol routes on Simonsstraat and connecting streets Prins Mauritsstraat, and Frederik Hendriklaan

Table 7. Operationalization of recommendations per site (Own work).

12. TRANSFORMATION PATHS

12.2. Risk assessment

Problem type	Recommendation	What are the risks?	Who might be harmed and how?	Potential measures to control risks	Actions by who?
Essential preconditions	Expand the municipality enforcement team	Funding may be lacking and finding experienced workers is a lengthy procedure	Local inhabitants continue to experience issues in the city.	Hiring from existing stakeholders Raising the issue nationally to secure funding	Municipality National government
	Establish a university community relations team	Funding may be lacking and finding experienced workers is a lengthy procedure	Students do not receive adequate guidance and the relationship of local residents with the university is impeded.	Hiring from existing stakeholders Raising the issue nationally to secure funding	TU Delft Ministry of Education, Culture and Science
	Encourage local inhabitants to participate in stakeholder meetings				
	Establish a community-university working group				
Density	Actively trace and log the distribution of student houses				
	Threshold approach to student housing	Large displacement of students with insufficient homes to move into	Students are unable to find accommodation.	Focus on alternative forms of living that aims to mix target groups and renovate abandoned or obsolete buildings	Municipality Landlords
	Regulate building standards of shared houses	Insufficient capital to comply Building renovation cause further nuisance	Landlords are unable to renovate their properties and may receive fines, while renovations that do take place increases nuisance for inhabitants.	Landlords are required to participate in stakeholder meetings to find alternative solutions and ideal phasing, and are held accountable for ongoing nuisance and their tenants Ecouraging small-scale changes to improve buildings	Municipality Landlords Students & Local residents
	Municipal partnerships to construct new student houses	Negative consequences of studentification spread to other municipalities	Larger scope of inhabitants experience nuisance	Implementation succeed behavioural and housing policies in phasing	Municipality Landlords
University	Designate indoor spaces on campus for student (association) parties and gatherings				
	Increase student housing on campus	Insufficient funding and space for educational purposes in the future	Students and local residents are deprived of good-quality housing and amenities, while the TU Delft faces future uncertainties for growth.	Raising the issue nationally to secure funding Campus strategy to focus on mixed-use buildings and spaces	TU Delft Ministry of Interior & Kingdom relations
	Increase recreational and non-academic functions on campus				
	Disseminate knowledge and services to local residents				
People	Regulate the activities of student associations	Opposition and non-compliance Economic decline of cultural businesses	Student association members can feel that their freedom is being impeded, while local businesses can lose customers and receive less or no profit.	Consequences for non-compliance by TU Delft and municipality Events moved to elsewhere so businesses can continue through phasing	Municipality TU Delft Student associations
	Establish a neighbourhood watch				
	Establish an iterative good neighbourhood campaign	Insufficient scale of impact towards behaviour	Students may ignore and lack the incentive to follow the message of the campaign, leading to local residents experiencing the same nuisances.	Formal ordinance by the university against anti-social behaviour wherein consequences are imposed on students	Municipality TU Delft Students (associations)
	Establish and empower neighbourhood groups	Conflict and differences determine relationship Insufficient funding and investment	Local inhabitants are unable and unwilling to work together due to existing negative relationships, while institutions are unwilling to invest in proposals of the neighbourhood group.	Implementation succeed behavioural and housing policies to regain trust of local residents Student association community initiatives are done in collaboration with local residents to make efficient use of existing funding	Municipality & TU Delft Students (associations) Local residents (groups)

Table 8. Risk assessment analysis (Own work).

12. TRANSFORMATION PATHS

As seen in Table 8, one of the main risks to the implementation of recommendations, is the insufficient funding or capital to implement the aforementioned recommendations, especially at the institutional level. This exemplifies the need for national recognition towards the issue of studentification, in the same way national interest towards the student housing crisis is as prolific. Raising the issue nationally, as is done in the case of Loughborough in the UK, could increase the possibility of mitigating a process not only experienced in the city of Delft alone, but in many university cities in the Netherlands. Furthermore, as the problems arising from studentification affects the daily activities and operation of both individuals and institutions, there is a need to shift mindset when it comes to the allocation of budget and time that can target studentification directly.

Nevertheless, there are also recommendations that are subject to opposition or impracticality that would require alternative paths in case of unfeasibility or failure to meet goals due to unknown and unprecedented circumstances. These will be discussed in the following paragraphs.

In the case of the threshold approach to student housing wherein a large amount of students would need to be displaced from their homes, there needs to be an alternative option for neighbourhoods that are unable to meet the threshold without unjustifiably displacing students. A potential measure to this is to **focus on alternative forms of living** instead. This is because the housing shortage affects all inhabitants of Delft. In this way, large student populations could be mixed with the growing elderly population who experience loneliness and difficulty in mobility, or with refugees who struggle to integrate into the Dutch culture. By focusing on co-living with

transformation or renovation projects, multiple target groups can benefit from one another and diversify homogeneously occupied spaces in the city. This requires active participation and willingness from students who can be incentivized by lower rental prices and an active mixed community. Furthermore, this strategy is not unfamiliar to Delft, as the SHS Abtswoude Bloeit project has become a successful cultural project to accommodate different target groups in the city, see pages 88-89.

Another spatial recommendation subject to potential unfeasibility is the regulation of shared houses whereby landlords bear the responsibility of compliance. Since private landlords own a significant proportion of student houses in Delft, they may not have sufficient capital to renovate their properties. In these inevitable cases, the alternative would be to **mandate landlord participation and accountability** instead. In conjunction with the existing conversion permit and self-occupancy obligation in the city, social and private landlords would then be required to attend neighbourhood or stakeholder meetings to discuss any relevant nuisances and feasible solutions. In cases of ongoing nuisance, landlords are also the point of contact for local residents. In this way, nuisances or conflicts can be resolved through the landlord as a mediator, and could also increase the understanding between tenants and landlords as transparency increases.

As these alternative recommendations tackle housing, there are separate actions in order to operationalize them for Krakeelpolder and Wippolder. This can be seen in Table 9. These differences occur due to the differences in typologies and housing ownership in these neighbourhoods.

Apart from spatial regulations, recommendations aimed to target behaviour could also be unsuccessful, such as with the strategy of a good neighbourhood campaign. In this case, a **formal university ordinance on student behaviour**, as seen in the Loughborough case, would be required. This regulation is intended to shape student behaviour in and out of campus by enforcing consequences carried out by the university, such as facing the disciplinary committee. This ordinance defines misconduct as behaviour, in its broadest sense, that cause distress or harm to others. Examples of disciplinary misconduct related to studentification include, but are not restricted to:

- Creating excessive noise or other disturbance in a residential area outside of campus
- Damage to property of the university or other members of the residential community
- Violent, offensive, or disorderly behaviour in a residential area outside of campus

Moreover, when it comes to establishing and empowering neighbourhood groups, there is a risk of unfeasibility and failure to succeed due to the existing conflict between inhabitants, as well as a lack of investment to push forward their ini-

tiatives. In this case, an alternative recommendation would be to **mandate student community initiatives to be done in consultation and collaboration with local residents** instead. This aims to engage local residents with students in order to increase tolerance between the two groups, as well as to make efficient use of the existing funding and coaching that TU Delft provides student associations for community initiatives. This could also work in tandem with organized residents groups who are enthusiastic and willing to contribute towards the betterment of their neighbourhood or city. Through this, the impact of student initiatives could also have a larger and more grounded scope.

Another prominent risk arising from the recommendations is also the potential to exacerbate negative consequences of studentification rather than mitigating them, or that it may have a knock-on effect towards other issues, such as more areas experiencing nuisances or economic decline of local businesses. This calls for greater understanding towards the implementation order of policies, regulations, and strategies, in order to efficiently mitigate issues and achieve co-existence. This is further elaborated on in chapter 12.3.

Recommendation	Operationalization - detailed actions per site	
	Krakeelpolder	Wippolder
Promote alternative forms of living	- Transformation of De Krakeelhof into a socially-mixed residential building - Co-living between students and vulnerable groups	- Separation of lower and upper floor tenants between students and other target groups - Co-living between students and the elderly or young families
Mandate landlord participation and accountability	- DUWO representatives as the main point of contact regarding nuisance - DUWO takes responsibility to mitigate antisocial behaviour of tenants	- Private landlords as the main point of contact regarding nuisance - Private landlords takes responsibility to mitigate antisocial behaviour and connect tenants with other neighbours

Table 9.Operationalization of alternative recommendations per site (Own work).

12. TRANSFORMATION PATHS

A working model is also designed for alternative recommendations, as seen in Figure 87. This shows the extent of collaborations and partnerships for the execution, management, and funding of promoting alternative forms of living in order to ensure that new housing construction is able to be responsive to existing tensions between local residents and students, and how to mitigate these. In contrast, other alternative recommendations rely more on institutions such as the municipality and university to act as executors and managers as their implementation require regulation of other stakeholders. In this

way, different partnerships and levels of stakeholder involvement are expected than those of the counterparts of these alternative recommendations.

Bringing together the different recommended policies, regulations, and strategies along with the results of the risk assessment allows for the design of a pathway that considers the order of which they should be implemented. This simplifies and clarifies a method to achieve co-existence in Delft despite the complexity and plurality of issues arising from studentification.

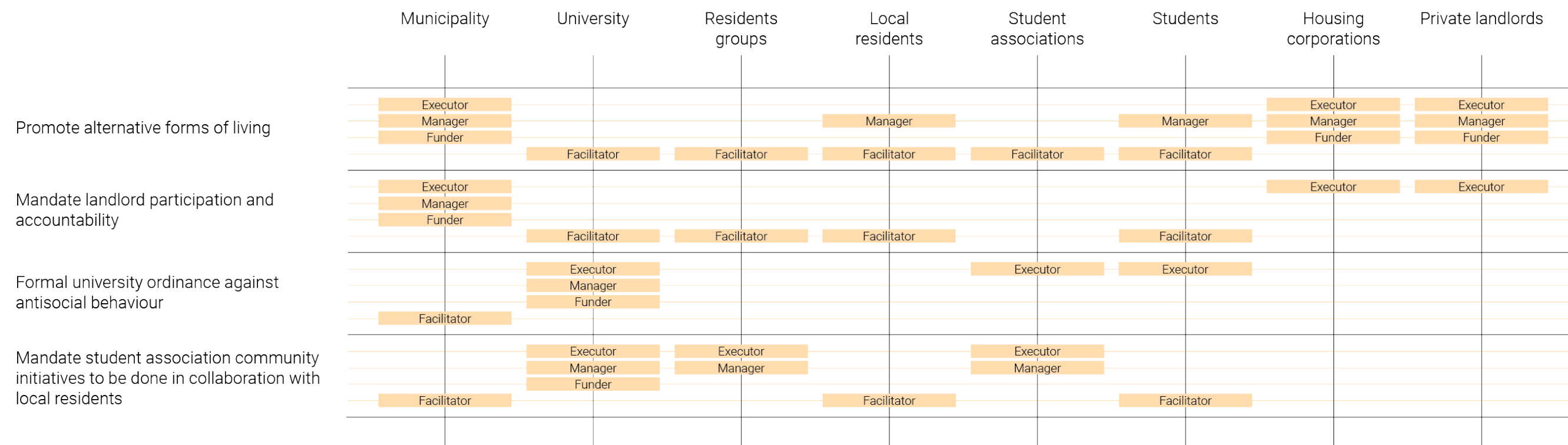


Figure 87. Working model of alternative recommendations (Own work).

12. TRANSFORMATION PATHS

12.3. Theory of change pathways

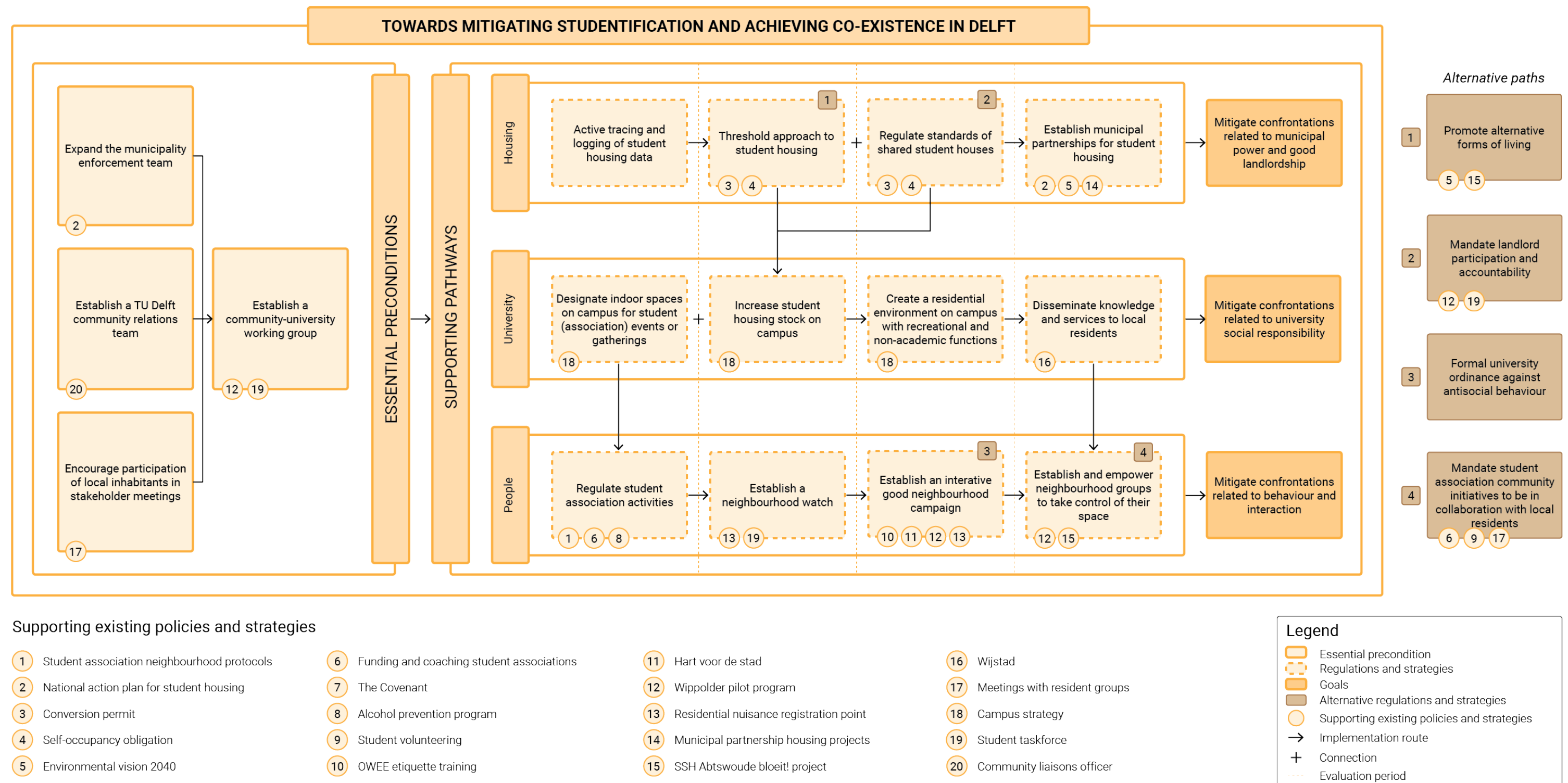


Figure 88. Theory of change pathway (Own work).

12. TRANSFORMATION PATHS

The theory of change pathways seen in Figure 88 illustrates the ideal pathway for the implementation of recommended policies, regulations, and strategies. It clarifies the need for the essential preconditions to take place through the structured establishment of commitment and participation of different stakeholders in the issue of studentification. This entails a greater municipal enforcement team, as well as a formal university department for local issues. Through the strong commitment of institutions, local residents can feel heard and incentivized to participate in the conversation as well. This along with active methods to invite local residents to the table provide the foundation for a community-university working group that is the first step towards enacting real change grounded to the fabric of the city.

By fulfilling the essential preconditions, the succeeding pathways are guaranteed to respond to the different needs and capabilities of stakeholders involved in the long-term. However, as some regulations and strategies take a long time to bear fruitful results, needs and capabilities are likely to change. Therefore, rigidity in the theory of change is avoided by putting emphasis on the function of the community-university working group as a consultative and evaluative body for flexibility in times of unexpected changes.

This means that the theory of change as seen in Figure 88 is only responsive to the materialization of studentification in Delft at the time that this research was conducted. It is therefore important to consider unknown knowns and unknown unknowns that may arise as the pathway is followed, by altering paths or the regulations and strategies themselves in agreement with members of the community-university working group. Nevertheless, this theory of change considers known knowns and known unknowns, identified through previously conducted re-

search, by providing alternative paths and periods of evaluation.

As previously mentioned, there are 3 fundamental conditions that lead to the negative consequences of studentification: housing density, university involvement, and people's behaviour. The theory of change is therefore responsive to these different conditions by carving a responsive pathway for each them. In doing so, different confrontations between stakeholders are also mitigated. Although these supporting pathways can function on their own and are able to mitigate the negative consequences of studentification to a certain extent, they need to work in relation and in parallel with one another as highlighted by the pathway, as some regulations or strategies could require precedence of an action that belongs to a different pathway and because studentification itself is a multifaceted process. In this way, implementation of recommendations would be able to respond not only to different fundamental conditions simultaneously, but also different confrontations that would lead to mitigating the negative consequences of studentification, as well as achieving co-existence in the city.

The housing pathway begins with the active tracing and logging of student housing data in order to impose the following regulations correctly and efficiently. In doing so, the municipality would have a clear record of which houses are occupied by students and who their landlords are. This allows for monitoring of the threshold approach and shared housing regulations. Enactment of these regulations would significantly decrease the amount of student houses in certain neighbourhoods, thereby incentivizing and providing opportunities for new construction elsewhere, such as in other municipalities through municipal partnerships, or in the TU Delft campus. The theory of change also con-

siders the results of the risk assessment whereby the housing regulations could require alternative paths. This is seen in Figure 88, whereby alternative forms of living and mandating participation and accountability of landlords take place instead, thereby determining the types of new constructions of student housing in other municipalities and on campus. In this way, this pathway intends to mitigate confrontations related to municipal enforcement and good landlordship.

Meanwhile, the university pathway is focused on increasing social functions on campus by firstly designating indoor spaces for student gatherings in order to rapidly decrease existing noise and spatial nuisances in the neighbourhoods of Delft. This is done in conjunction with the increase of shared student houses on campus that would lead to a need for recreational and non-academic spaces to create a residential environment. This strategy breaks down the barriers between the university and community not only spatially, but also socially as more local residents would feel invited to the campus. It also serves as a way for the university to be responsive to the depth of issues faced by local residents. In doing so, trust could slowly be rebuilt between town and gown. With this, the university can offer campus spaces for the dissemination of knowledge and services to local residents, thereby strengthening their connection to the community and ensuring that local residents can benefit from their presence in the city. Through this, confrontations related to university social responsibility can be eradicated.

The social involvement of the university also materializes in the people pathway wherein regulating the activities of student associations would firstly require the designation of indoor spaces on campus for students to continue night-time activities without causing nuisance to neigh-

bours. This behavioural regulation would then require a neighbourhood watch to enforce it, along with safety and well-being in different neighbourhoods. Along with this, a good neighbourhood campaign would also actively promote for behavioural changes at the individual level, which can lead to lesser tension and conflict between students and local residents. With this, students can be integrated into the local community through the establishment of neighbourhoods that are empowered to enact further spatial and social changes in the neighbourhood. This can be aided by the dissemination of knowledge and services by the university towards inhabitants in issues of local governance. Considering the risk assessment, formal university ordinances regarding student behaviour may also be required, as well as a shift towards student community initiatives being done in collaboration with local residents. This pathway could then mitigate confrontations related to behaviour and interactions.

Furthermore, it is important to emphasize the need for periods of evaluation as each path is followed, as responses both at the institutional and individual level may not always be in accordance with intended results. Recalibration may therefore be necessary as the pathways are followed, but never decided upon without the agreement between the members of the community-university group that represents all important stakeholders in the city.

Moreover, Figure 88 shows that some recommendations could be implemented in support of existing policies and strategies that were discussed in chapter 8.5. This could ease the implementation process as funding and other resources are already present for related policies and strategies. These assumptions will be further explained in the following sub-chapter.

12. TRANSFORMATION PATHS

12.4. Assumptions

The pathway to the theory of change makes severable assumptions to its feasibility and success. One of the main assumptions applicable to most recommendations is the commitment and agreement of institutions and private organizations. In this regard, the pathway assumes that these groups will provide the necessary resources to implement changes against their business-as-usual activities. Furthermore, it also assumes that there is political will to support studentification in Delft. Without these, the pathway cannot be followed, hence approaching them through policies and regulations in the recommendations.

Furthermore, almost all recommendations in the pathway also have existing policies and strategies to support their realization. Along with this, they are also founded on best practices resulting from the case analyses and research on perspectives of different stakeholders. These will be explored and elaborated on in this sub-chapter, following the pathway in Figure 88 including alternative recommendations.

1. Expand the municipality enforcement team

② National action plan for student housing

This policy could benefit from the national action plan for student housing as funding may be available at a national level for issues related to student housing, to be used at the municipal level.

2. Establish a TU Delft community relations team

②① Community liaisons officer

This policy is the translation of a best practice in Loughborough wherein the community liaison officer is part of a team that focuses on the

university's social involvement. As an officer is already present in TU Delft, this policy could be easily implemented.

3. Encourage the participation of local stakeholders in stakeholder meetings

①⑦ Meetings with residents groups

Existing discussions and meetings held with residents groups ease the identification of other local stakeholders. Furthermore, residents groups have the capacity to invite other residents to participate in stakeholder meetings. This eases the implementation of this policy which takes after a best practice in Loughborough.

4. Establish community-university working group

①② Wippolder pilot program

①⑨ Student taskforce

This policy takes after best practices in Lund and Loughborough. In Delft, the Wippolder pilot program and student taskforce are strategies that bring together different stakeholders towards issues related to studentification. In this regard, the methods, networks, and funding used in these existing strategies may ease the implementation of this policy.

5. Threshold approach to student housing

③ Conversion permit

④ Self-occupancy obligation

This regulation is translated from a best practice in Loughborough. Existing enforcement teams and budgets used for the conversion permit and self-occupancy obligation can be transferred to implement this regulation.

6. Regulate standards of shared student houses

③ Conversion permit

④ Self-occupancy obligation

This regulation is the result of research on context and perspectives in Delft as well as identified pitfalls in Gottingen. Similar to the threshold approach, enforcement teams and budgets used by existing regulations can be transferred to this regulation.

7. Establish municipal partnerships for student housing

② National action plan for student housing

⑤ Environmental vision 2040

①④ Municipal partnerships housing projects

This strategy is necessitated by the student housing market pressure in the city and pitfalls to be avoided in Gottingen. As the Environmental vision 2040 focuses on municipal partnerships for housing, and new student housing is constructed in partnership between Delft and Rijswijk, more opportunities could arise from existing networks and ongoing plans. The national action plan for student housing can also aid municipal partnerships towards similar goals related to student housing as more municipalities are aware of the crisis.

8. Designate indoor spaces on campus for student (association) events or gatherings

①⑧ Campus strategy

This strategy is a result of research on stakeholder perspectives and interests in Delft. The ongoing campus strategy could easily incorporate this recommendation into its plan as existing spatial transformations on campus are already in place.

9. Increase student housing stock on campus

①⑧ Campus strategy

The existing campus strategy already plans to increase student housing on campus; therefore, this recommended strategy aims to use the campus strategy to be responsive to the number of student housing units needed to relieve the city from housing market pressure.

10. Create a residential environment on campus with recreational and non-academic functions

①⑧ Campus strategy

The investment and team behind the existing campus strategy can support this recommended strategy to invite more local residents on campus. This strategy is founded on best practices implemented in Lund and Loughborough.

11. Disseminate knowledge and services to local residents

①⑥ Wijstad

The curriculum, funding, and team behind Wijstad can be used to support this recommended strategy by focusing on how education and research can benefit students and local residents.

12. Regulate student association activities

① Student association neighbourhood protocols

⑥ Funding and coaching student associations

⑧ Alcohol prevention program

Networks, partnerships, and funding in existing policies and strategies above can be used to enhance the regulation of student association activities regarding diversity, behaviour, and vote-in systems for housing.

12. TRANSFORMATION PATHS

13. Establish a neighbourhood watch

- 13 Residential nuisance registration point
- 19 Student taskforce

The data and partnerships used for the residential nuisance registration point and student taskforce can be used to determine the team behind this recommended strategy, and which areas need to be patrolled. This strategy was found successful in Loughborough.

14. Establish an iterative good neighbourhood campaign

- 10 OWee etiquette training
- 11 Hart voor de stad
- 12 Wippolder pilot program
- 13 Residential nuisance registration point

Implementation of this recommended strategy could use the activities behind the OWee etiquette training, Hart voor de stad, and Wippolder pilot program to reach out to more students outside of an academic setting. The residential nuisance registration point can also be used to inform students regarding the extent of nuisance experienced in neighbourhoods due to student behaviour. This strategy is founded on best practices from Loughborough.

15. Establish and empower neighbourhood groups to take control of their space

- 12 Wippolder pilot program
- 15 SHS Abtswoude bloeit! project

The idea of the Wippolder pilot program and SHS Abtswoude bloeit! project is also to bring different groups of residents together to work in unison for challenges they face. The approach and funding used for these existing strategies could therefore be used to kick-start and strengthen this recommended strategy. The success of these existing projects can provide examples of how this recommended strategy can take place.

16. Promote alternative forms of living

- 5 Environmental vision 2040
- 15 SHS Abtswoude bloeit! project

The Environmental vision 2040 supports alternative forms of living; therefore, funding from this municipal vision can support this alternative recommended strategy. The success of the SHS Abtswoude bloeit! project also prompts this recommendation and provides a good example of how to implement it.

17. Mandate landlord participation and accountability

- 12 Wippolder pilot program
- 19 Student taskforce

The approach and networks in the Wippolder pilot program and Student taskforce can be used to implement this alternative recommendation as they also actively engage landlords and demand accountability from them. This recommendation is founded on research by context and perspectives in Delft.

18. Mandate student association community initiatives to be in collaboration with local residents

- 6 Funding and coaching student associations
- 9 Student volunteering
- 17 Meeting with resident groups

This alternative recommendation is founded on the university's evaluation of student community initiatives. Therefore, the existing commitments for students to volunteer and for the university to fund and coach student associations can be used to implement this recommendation. Furthermore, existing meetings between the university and residents groups could bring together student associations and local residents more easily.

In conclusion, recommended policies, regulations, and strategies do not have to be implemented from the ground up as existing policies and strategies can be used as a basis to make them feasible. The exceptions to these are the active tracing and logging of student housing data along with the alternative recommendation of a formal university ordinance against anti-social behaviour. The success of these strategies are assumed from research on the Dutch context, while the latter is a transferability of a best practice in Loughborough. Only these 2 recommended transformations require a new approach, network and funding for implementation. However, as the pathway is followed, these requirements should also easily be met and applied.

The assumptions in this chapter therefore clarify the probable success of the theory of change pathways as they are founded on best practices of other studentified cities in Europe, as well as the local context of Delft. In this way, the best approach to tackling the fundamental conditions of studentification - housing, university involvement, and behaviour - that lead to the negative consequences of studentification is clarified, and co-existence can be stimulated in the city.

With co-existence between students and local residents stimulated, their relationship can further be strengthened using community building strategies. This can integrate students into the local community and further mitigate conflict between these groups as they focus on shared values. Therefore, this will be the focus of the following chapter.



EMPOWERMENT

13. Empowerment

13.1. The process of taking control

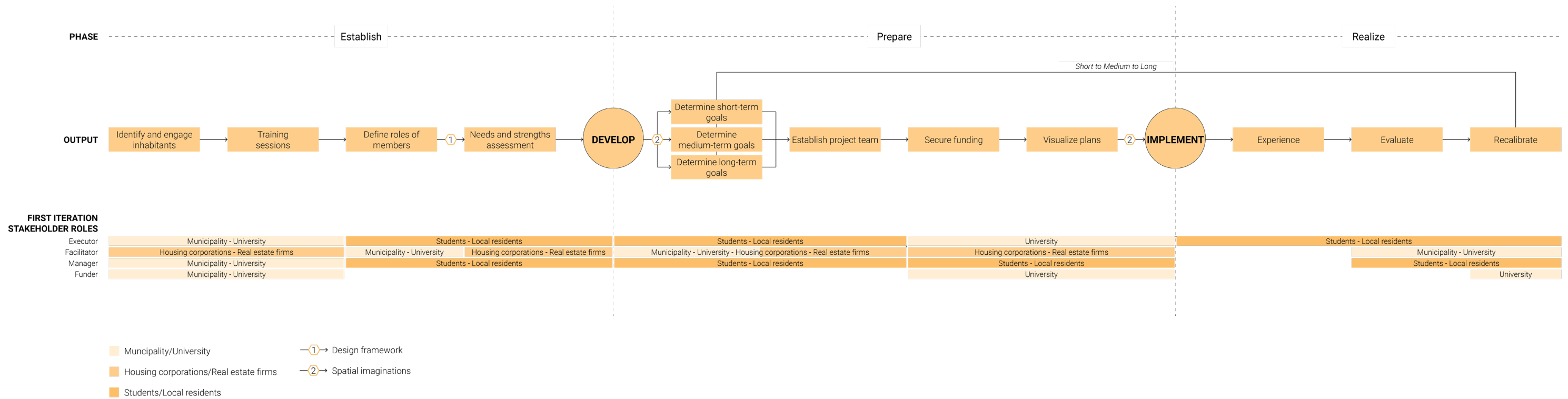


Figure 89. Empowerment-oriented spatial strategy (Own work).

This research clarified the divide between two communities in Delft that are shaped by conflict and intolerance. The nature of confrontations constituting this divide, along with the nature of consequences resulting from studentification therefore also brings forth a need and urgency to rebuild community in the city and to integrate students within the local community. Looking at the neighbourhoods of Krakeelpolder and Wippolder suggests that a large portion of challenges experienced by local residents emerge from how spaces changed due to the increase of student housing and what homogeneous occupants in densified spaces entail. This firstly called for a paradigm shift in the interactions between stakeholders, along with how they respond to identified challenges. Due to this, transformations in policies, regulations, and strategies were not only needed, but also prioritized in a strategic approach. However, inhabitants are

also impacted by the change in space itself and how this has blocked opportunities to interact and build a community, which strengthens the divide between students and local residents. A spatial strategy is therefore necessary to rebuild the connection between different groups and to integrate students within the local community.

This spatial strategy comes after the transformation paths have been followed as it can only occur once the fundamental conditions of studentification have been tackled using policies, regulations, and strategies. Otherwise, the high degree of conflict and tension between the university and local community would prevent the acceptance of community building strategies by local residents. Tackling community building through space is informed by the success of the Abtswoude bloeit! project in Delft that successfully achieved co-existence between students

and other groups through the availability of public space for appropriation.

After the transformations paths have been implemented, community building can become a stimulus for which inhabitants can reclaim their space. Weil, (1996) defines community building as “an ongoing comprehensive effort that strengthens the norms, supports, and problem-solving resources of the community”, which are rooted in community-based or grassroots changes. This approach will be used to inform the empowerment-oriented spatial strategy in this chapter which aims to clarify a process by which local inhabitants of Krakeelpolder and Wippolder can be empowered to work together and reclaim their space by implementing spatial projects, in order to foster positive interactions and build a community. Therefore, this chapter serves to expand and elaborate on the recom-

mended strategy seen in the previous chapter: establish and empower neighbourhood groups.

Empowerment is increasingly necessary in tackling processes like studentification wherein the community of residents, residing in spaces in which it occurs, is most affected by its consequences. This necessity is due to the changing concept of citizenship wherein flexible citizens, defined as “external stakeholder groups that always have a decision-making role in any community-building initiative, even though they are not residents of the particular target neighbourhood” (Lepofsky & Fraser, 2003), are taking control of how spaces and exchange of interactions are structured in the city. This can be seen in the conversion of single-family houses to student houses or the expansion of the university in the city, that all take place without consideration of local residents’ input. Although there are some

13. Empowerment

opportunities to participate in the spatial planning process, the inhabitants are not afforded a role in the spatial production of the space itself; therefore, a focus on how the community can organically develop their space for their own purposes is needed.

This empowerment-oriented spatial strategy also has the capacity to involve local inhabitants in the implementation of spatial recommendations described in the previous chapter. Moreover, a community-building approach to spatial change also necessitates local residents and students to work together in a manner wherein they can focus on their similarities instead of fighting their differences. By including both students and local residents as representatives of the wider neighbourhood population, community can be strengthened. The following text will detail each step in the empowerment-oriented spatial strategy as seen in Figure 89.

Using a community-building approach to an empowerment-oriented spatial strategy consists of three key phases: establishment, preparation, and realization – resulting in different outputs to reach the intended goals of inhabitants. This process calls for the initial involvement and commitment of different institutions such as the municipality, university, housing corporations, and real estate firms at the first iteration. Here, their resources and investment are necessary to support inhabitants towards realizing plans. This method of sharing and decentralizing power is also a way to overcome the cynicism and alienation that local residents have from campus-sponsored outreach and research efforts (Jacoby et al., 2003). After the first iteration, the neighbourhood group is expected to secure investment and realize plans on their own.

In the establishment phase, the main objectives are to identify the students and local resident members of the neighbourhood group

and unite their conviction towards the needs of their neighbourhood as a whole. Therefore, the first step is to engage with inhabitants through a variety of traditional participatory means such as: public hearings, public surveys, conferences, municipality meetings, focus groups, and social media (Kleinhans et al., 2015). Here, the goals of the spatial strategy should be emphasized as the interviews conducted for this research show the strong enthusiasm local residents have towards mitigating the negative consequences of studentification, and to be able to implement spatial changes themselves. Nevertheless, this process does not mandate the participation of every inhabitant in the neighbourhood. Rather, the goal is to identify a small group of enthusiastic inhabitants that can act as representatives of their neighbourhood.

Upon identification of inhabitants, training sessions aimed towards efficient local governance and spatial thinking should be offered with the aid of the municipality and university. This is a way for the partnership between the municipality and university to materialize for the benefit of inhabitants. These institutions can provide lessons on conflict resolution, mediation, intergroup relations, resource development, budgeting, research methods, and information management systems (Weil, 2016), in order to enable local residents to elicit support and guarantee the implementation of their plans in the long run. As inhabitants are trained, the roles of members can be defined based on their strengths and capacities. An assessment of their needs and strengths can then be conducted using lived experience and spatial tools. To support this assessment, a guiding design framework, elaborated on in chapter 13.2, is used as a reference to inform inhabitants about basic ideas that need to be spatially explored when it comes to diverse groups in dense spaces. This will be used to identify and derive shared values in space so that neighbourhood groups can successfully cope with

complex and various problems. These values are sustained in interactions as members work together to develop their goals (Weil, 2016).

The development of these shared values is the first step towards determining spatial goals from short-term to long-term in the preparation phase. These can be categorized according to their duration, scale of impact, and required resources. This categorization determines the members of the project team when it comes to their commitment capacity and strengths. At the first iteration of this empowerment-oriented spatial strategy, the first priority should be short-term goals in order to maintain the enthusiasm of members. It is imperative that the project team receives a form of gratification that their plans are realized in order to move onto medium-term or long-term goals. Once the short-term goal and project team behind it is decided, the next step would be to secure funding in order to realize it. For the first iteration of the empowerment-oriented spatial strategy, funding would be a shared responsibility between aforementioned institutions. Following the first iteration, the project teams are expected to secure public and private funding themselves using takeaways from training sessions held in the establishment phase and with assistance from institutions if necessary.

Once funding is secured, it is prudent to visualize the intended plan using a variety of visualization tools. Al-Kodmany, (2001) suggests that the combination of traditional tools (pen and paper, paper maps, photographs, 3D models) and computerized tools (GIS, 3D modelling, virtual reality, urban simulation) has the ability of enabling the public to make more well-informed decisions. These visualizations should also employ a high degree of realism as literature suggests that they work better for a lay audience. To do this, the project team must employ the aid of experts from the university or outside expertise, thereby making the partnerships between experts and community-based organizations imperative.

Once plans are visualized and finalized, implementation will follow into the realization phase. This phase heavily relies on the input of inhabitants experiencing the spatial projects. The degree of acceptance and overall measure of success needs to be evaluated through open discussions and surveys across all residents of the neighbourhood as much as possible. The feedback gathered from this process provides the opportunity to recalibrate the plan or the project team as necessary. This creates a feedback loop to the preparation phase for which realized plans can be improved, or for which medium-term to long-term plans can begin to be realized.

In this empowerment model, it is important to note the difference between neighbourhoods with an already established and functioning neighbourhood group such as Wippolder, against a neighbourhood like Krakeelpolder with no organized neighbourhood group. The former may not require to follow the establishment phase as the outputs required in this phase may already be known and acknowledged. Subsequent phases may therefore be easily achieved in contrast to neighbourhoods like Krakeelpolder wherein the first phase would require more vigour from institutions to invite inhabitants to participate. In doing so, the establishment phase for Krakeelpolder may require a longer time-scale.

Nevertheless, the need for an empowerment-oriented spatial strategy is identified in both neighbourhoods to strengthen their communities. It is also a valuable method for which other problems arising in the neighbourhood can be solved or mitigated without the help of institutions in the long run. Furthermore, a focus on spatial projects allows differing groups to work together under shared values and has the capacity to change their experience of the neighbourhood, formerly characterized by conflict.

13. Empowerment

13.2. Design framework

Diversity and inclusion are essential to build healthy communities; however, practices of the past and unforeseen changes in demographic patterns have limited the ability of neighbourhoods such as Krakeelpolder and Wippolder to have spaces that truly reflect the neighbourhood's cultural diversity - spaces that are responsive to different lifestyles and for people to become active members of their community (OpenCity Projects, n.d.). Designing spaces such as these is a difficult task, especially when inhabitants are not used to thinking in a spatial manner. The empowerment-oriented spatial strategy therefore calls for a design framework to guide and inspire inhabitants towards shaping their neighbourhoods in a locally relevant way in order to make both students and local residents feel part of a community.

This design framework is intended to be used as a set of guiding principles rather than a rigid menu to follow. Instead, it invites appropriation of spaces using basic spatial ideas to bring people together and spatially represent the desires of the community. This framework is a conglomeration of different theories that aimed to design for diversity, positive interaction, and behaviour change, strengthened by the results of the interviews, analyses and recommended transformation paths, respectively conducted and suggested in this research.

Figure 90 illustrates the design framework and its supporting design elements, along with the global theories and practices that prompted them. It should be noted that participation is also an essential criteria towards designing for

diversity; however, since this design framework is entrenched within an empowerment process for local inhabitants, this has been omitted. This framework therefore aims to answer basic to complex design needs with participation in mind.

The design framework depicts the need for neighbourhoods to accommodate diverse types of people not only through public space, but also at the level of housing and neighbourhood amenities. It depicts the necessity of safety and accessibility in space, as well as a social mix with diverse types of residents and housing types, as the basis for a good neighbourhood design. With these, the public space can strengthen community bonds through a broad appeal, welcoming amenities, and spaces for interaction

The following sections will look into each criteria by describing its goals, design elements, and reference projects that have successfully implemented the criteria into its design and strategy. This is meant to invoke inspiration so that inhabitants can visualize and get an idea of how each criteria can be realized.

As an exception, the criteria of a social mix will not be expanded on, as this is in direct response to the recommended transformation paths of the threshold approach and building regulations for shared houses, see pages 134-139. However, all criteria in the design framework will be used as a lens to strengthen the spatial analysis of Krakeelpolder and Wippolder. It will also be used as the basis to visualize spatial scenarios for these neighbourhoods, as seen in chapters 13.3 and 13.4.

Death and life of great american cities Jacobs (2020)

Advocates for community-oriented, diverse, and vibrant neighbourhoods that prioritize the needs and interactions of inhabitants.

Design for cultural diversity

OpenCity Projects (n.d.)

A framework for designing public spaces aimed to reflect the diversity of people residing around it by focusing on physical and social aspects.

Defensible space theory

Newman (1973)

Posits that the physical design of an environment influences behaviour and should focus on natural surveillance, territoriality, and a positive image.

Broken windows theory

Kelling & Wilson, 1982

Theorizes that disorderly and neglected environments can increase antisocial behaviour and crime.

Design for diversity

Talen (2015)

A design guide that embraces diverse cultures and groups through mixed land uses, housing, and socioeconomic backgrounds.

CRITERIA

Interaction

Amenities for cultural exchange
Special activities

Welcome

Community infrastructure
Program activities

Broad appeal

Flexible for appropriation
Multifunctional uses
Natural elements

Safe access

Within reach
Visible and accessible

Social mix

Diverse types
Building standards

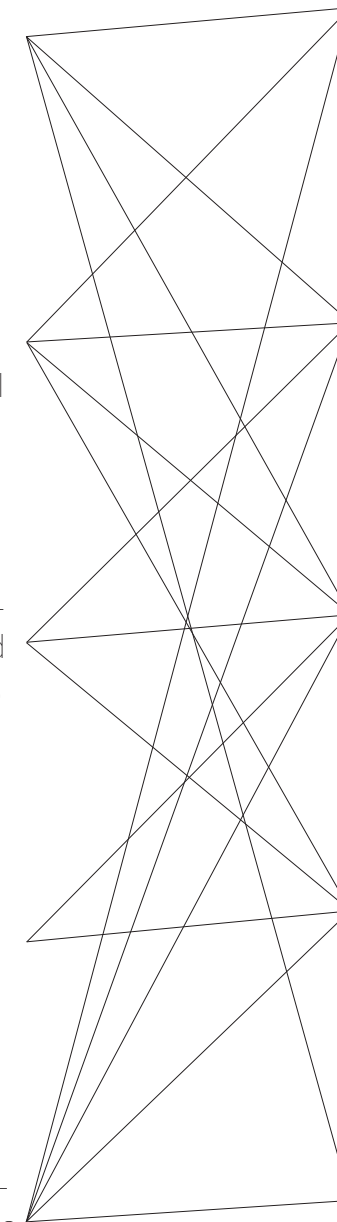


Figure 90. Design framework (Own work).

13. Empowerment

SAFE ACCESS

Well-designed spaces need to be physically and comfortably accessible by its users. This entails a need for traffic space to accommodate different modes of mobility, such as walking, cycling, and driving. As seen in the spatial analysis of Krakeelpolder and Wippolder, sufficient parking spaces are also in high demand to support the large number of bikes and cars in densified areas. This is therefore an important factor to consider in the redesign of neighbourhoods. Apart

from this, spaces also need to be visible and visually accessible in terms of sightlines and lighting at night. Through this, the space can feel safe and activated throughout the day, and in turn, inhabitants can see what occurs in their environment, thereby creating a sense of safety and territory (OpenCity Projects, n.d.; Newman, 1973; Kelling & Wilson, 1982; Talen, 2015). To summarize, below are the elements required for the neighbourhood to have safe access.

SA1. Within reach

The neighbourhood needs to be accessible by all means of transport, have sufficient parking spaces for bikes and cars, and multiple entry points for residents or visitors to easily come and go.

SA2. Visible and accessible

The neighbourhood needs to have clear sightlines for residents and visitors to orient themselves in the space, along with a well-lit environment for public spaces to remain safe and accessible even at night.



Figure 91. Hammarby Sjöstad (Wikipedia contributors, 2022).

The Hammarby Sjöstad district in Stockholm is a neighbourhood with a strong focus on all modes of mobility. It has a network of interconnected streets and pathways with sustainable bike lockers and bike-sharing stations to accommodate large numbers of bikes (Wikipedia contributors, 2022).



Figure 92. Pioneer Square Alley (Alliance for Pioneer Square, n.d.).

The Pioneer Square Alley corridor project uses permanent cable and entry lighting to illuminate alleys at night and improve desolate spaces in the neighbourhood. The accessibility and dynamism of the alley was able to attract local residents to appropriate and meet in the space (Alliance for Pioneer Square, n.d.).

BROAD APPEAL

Different groups may have different expectations of how public spaces should be used; therefore, a broad appeal is necessary to invoke interest. Interviews with residents of Krakeelpolder and Wippolder show that public spaces in these neighbourhoods are not inviting and lack amenities. To combat this, public spaces need to be flexible for appropriation so that residents can decide what activities to perform in

BA1. Flexible for appropriation

Public spaces need to be flexible to evolving community needs. This requires not only open spaces that can be appropriated, but also moveable public furniture for users to perform different types of activities in.

BA2. Multifunctional uses

Amenities and activities in the public space need to accommodate different demographic needs.

the space themselves, and be multifunctional in use so that multiple groups can efficiently use amenities. Furthermore, they also need to have natural and green elements as residents find these to be important for the aesthetic quality and comfort of the public space (Jacobs, 2020; OpenCity Projects, n.d.; Newman, 1973; Kelling & Wilson, 1982; Talen, 2015). There are therefore three main factors necessary, as seen below.

This entails both quiet and active spaces, along with elements or provisions in the space that attract different groups.

BA3. Natural elements

Trees and other plants, along with water infrastructure create a pleasant atmosphere and a comfortable climate for residents using the space. Different vegetation types also ensure that the space does not feel desolate.



Figure 93. Parklet Ghent (McAskie, 2021).

The living street projects in Ghent turns roads and parking spaces into temporary playgrounds, areas for barbecues, street parties, meet-ups, street furniture, and flower beds for residents to enjoy. The type of activity is completely decided by the residents themselves (McAskie, 2021).



Figure 94. WelPark (Supateerawanitt, 2021).

The Wat Hua Lamphong Rukkhaniwet pocket park in Bangkok is an urban greening project that creatively features exercise machines, seating and eating spaces, and a small playground, amid lush greenery. It was done in collaboration with different stakeholders (Supateerawanitt, 2021).

13. Empowerment

WELCOME

A sense of belonging is vital for any resident to feel part of the community. Friendly and familiar environments are therefore important factors for inhabitants to feel welcomed in their neighbourhood. To achieve this, there is a need for human-scale infrastructure to connect people to place, and for inhabitants to associate a specific place to community activities (Jacobs, 2020; OpenCity Projects, n.d.; Newman, 1973; Talen, 2015). A lack of community infrastructure

in Krakeelpolder and Wippolder limits not only attachment to place, but also opportunities for different inhabitants to meet and interact. Due to this, program activities to bring inhabitants together are also lacking, especially in times where outdoor spaces are unusable due to climatic or seasonal conditions. Community infrastructure and program activities are therefore necessary for inhabitants to feel welcome in the neighbourhood.

W1. Community infrastructure

A community building is essential for inhabitants to gather and plan events. It is also a space where knowledge and services can be exchanged to strengthen the bond between different inhabitants.

W2. Program activities

To bring inhabitants together, different program activities are needed that is responsive to the different needs of local inhabitants. These need to be iterative and designed to not only bring people together, but also to help one another.



Figure 95. Liberty hall (Claptoncommons, n.d.).

The Liberty Hall of Clapton Commons in London offers a range of activities and services for its residents, such as a coffee kiosk, cycle clinic, community kitchen, community garden, and flower stall. By working together, a stronger community is formed (Claptoncommons, n.d.).



Figure 96. Neighbourhood campus (Buurtcampus Zuidoost, 2022.).

The neighbourhood campus project of Amsterdam University of Applied Sciences uses the community library for students to help local residents with different challenges in the neighbourhood. They do this through a program of activities involving loneliness, health, and more (Hogeschool van Amsterdam, n.d.).

INTERACTION

Strengthening community in a neighbourhood requires spaces that bring people together. These spaces need to provide opportunities for interaction both through design and activities. Through this, inhabitants have a common purpose in using the space such as learning or engaging with one another, or to come together. As inhabitants share experiences, relationships and commonality is built (Jacobs, 2020; OpenCity Projects, n.d.; Talen, 2015). Neighbourhood public spaces and infrastructure therefore need

amenities for cultural exchange such as seats and tables for people to be in close proximity with each other. They also need activities with themes that transcend demographic, cultural, or social barriers, such as nature, art, music, food, and sport. With this, inhabitants can also learn about different backgrounds and cultural lifestyles that were previously unknown to them. In this way, positive interaction can be fostered between inhabitants.

I1. Amenities for cultural exchange

Public spaces and community infrastructure need amenities for people to engage and learn from one another, such as communal seats and tables where they can simply talk and engage with one another.

I2. Special activities

Amenities in space should enable activities that provoke interest in order to engage different individuals to participate. These should consider concepts that are enjoyable for all, regardless of cultural background.



Figure 97. Superblock (Pintos, n.d.).

The Superblock of Sant Antoni transformed an urban highway into a green street with plenty of communal amenities such as seats, picnic tables, and amenities to play chess games with one another. The space also offers a flexible landscape for future transformations (Pintos, n.d.).



Figure 98. Princess gardens (Prinzessinnengarten, n.d.).

The Prinzessinnengarten is a public space project that provides organic vegetable plots for residents to come together and grow organic food. Through the maintenance of this garden, residents can get to know and work together with the community (Prinzessinnengarten, n.d.).

13. Empowerment

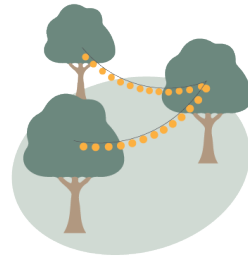
The reference projects depicted in the design framework inspires a number of spatial projects, activities, and events, as seen in Figure 99. Implementation of these potential projects are geared and aimed to require minimal capacity and budget in order for a quicker realization phase. As these spatial projects arise from the criteria of the design framework, they are able to have a large impact in responding to different people and in bringing together diverse groups in neighbourhoods to positively interact despite their different backgrounds and lifestyles.

Using the criteria in the design framework along with the projects and activities from the reference projects, not only are inhabitants aided in identifying the strengths and weaknesses of their neighbourhoods as a space, but they are also able to have a catalogue of ideas with a broad appeal that can be implemented in their neighbourhood

Bike sharing



Cable lights



Picnic tables



Coffee kiosk



Student services & Knowledge sharing



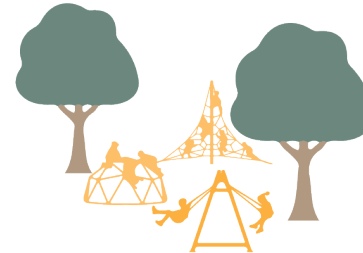
Street parties/markets



Wayfinding signs



Playgrounds



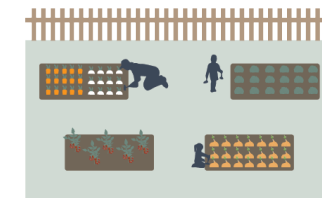
Cycle clinic



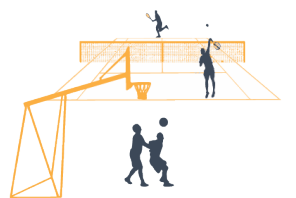
Greening



Community garden



Sports courts



Barbecue facilities



Street furniture



Community building



Community kitchen



Flower stalls



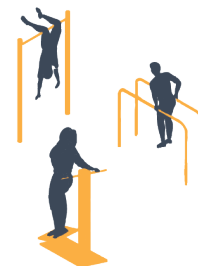
Cultural events



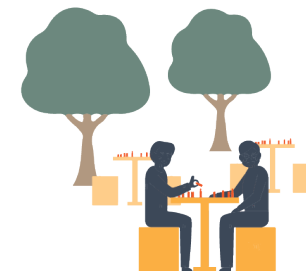
Flower beds



Outdoor gyms



Chess game facilities



Pavilions



Food trucks



Community library



Figure 99. Catalogue of spatial projects, activities, and events for neighbourhoods (Own work).

13. Empowerment

13.3. Spatial scenarios - Krakeelpolder

Using the design framework, the spatial analysis of Krakeelpolder can be strengthened. Spatial strengths and weaknesses of the neighbourhood regarding designing for diversity are defined using the criteria of the framework. This shows that majority of the weaknesses that the neighbourhood have are concentrated around De Krakeelhof student complex acting as an urban island, and in the open green public spaces.

Furthermore, Figure 100 and Table 10 illustrate the need for different amenities and activities to occur in space for the neighbourhood to facilitate the different cultures in the neighbourhood. The strengths identified in this analysis can be connected in order to form a pedestrian axis that connects the different areas of the neighbourhood where different activities that bring inhabitants together can be performed.

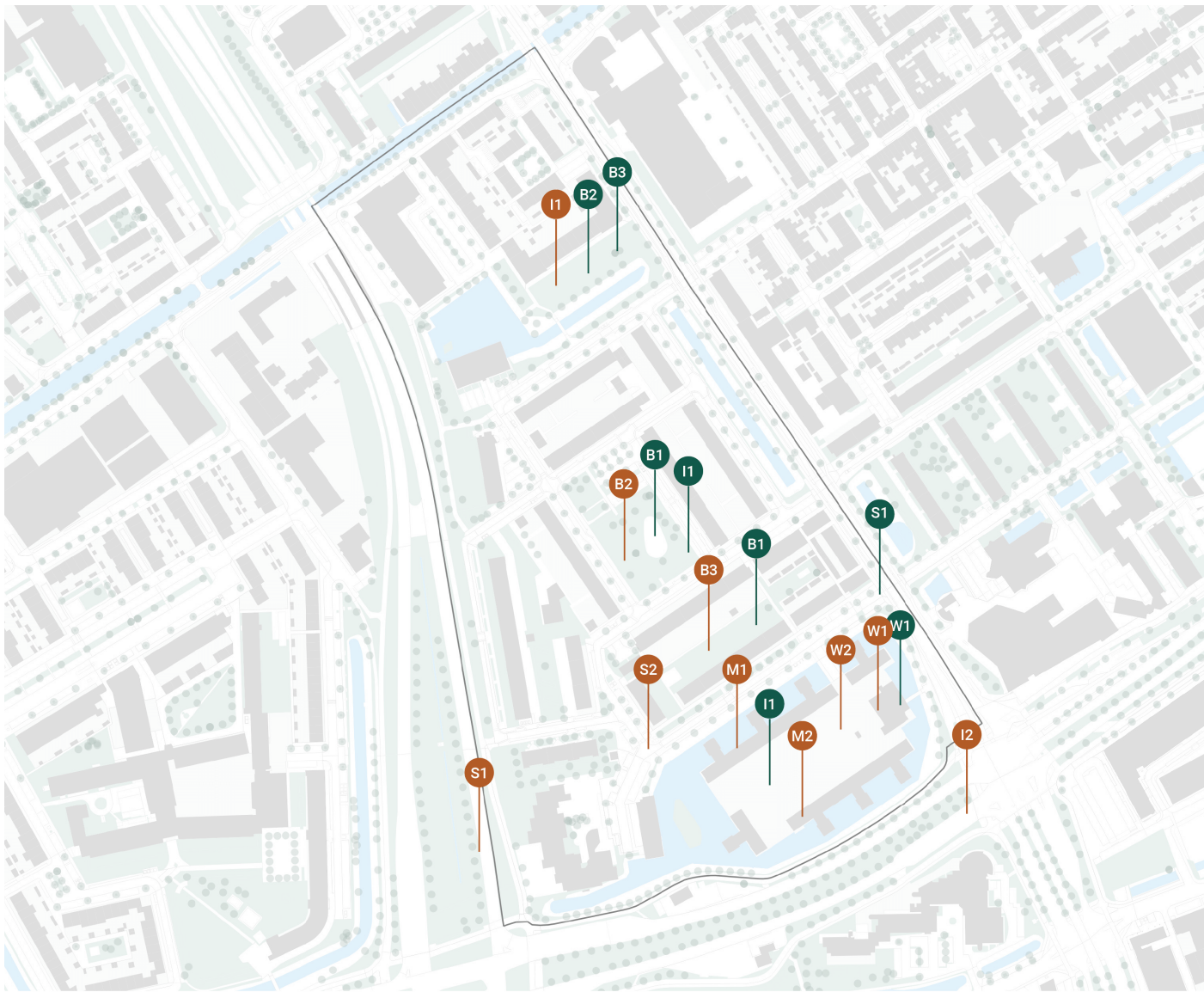


Figure 100. Design framework analysis on Krakeelpolder (Own work).

● Strengths
● Weaknesses

MIXED

- M1 Around 35% of residents in the neighbourhood are students
- M2 The student complex courtyard is unmaintained and the housing units have single-glazed windows, radiators on the ceiling, and uninsulated walls

SAFE ACCESS

- S1 The South and West borders of the neighbourhood is difficult to cross over due to wide roads
- S2 Apartments block your view towards the central spaces and open public spaces are not well-lit or used at night

- S1 The neighbourhood is easily accessible by all mobility modes and has plenty of parking spaces for bikes and cars

BROAD APPEAL

- B2 Public spaces do not have a lot of amenities apart from playgrounds and some seats
- B3 Public spaces do not have a high variety of low or high vegetation

- B1 Open spaces are available for appropriation
- B2 There are quiet spaces to relax in and active spaces for playing and interacting
- B3 Some public spaces rely on greenery and trees for appeal

WELCOME

- W1 The community building is only used by students
- W2 No activities to work or enjoy together happen in the neighbourhood

- W1 A community building is present

INTERACTION

- I1 Some public spaces have no amenities for cultural exchange
- I2 Wide roads and public transport lanes separate the neighbourhood from nearby cultural spaces, and the neighbourhood has no activities to facilitate interaction in space

- I1 Pocket park and student complex courtyard have seats and tables to facilitate interaction

Table 10. Strengths and weaknesses of Krakeelpolder (Own work).

13. Empowerment

Identifying intervention sites in Krakeelpolder

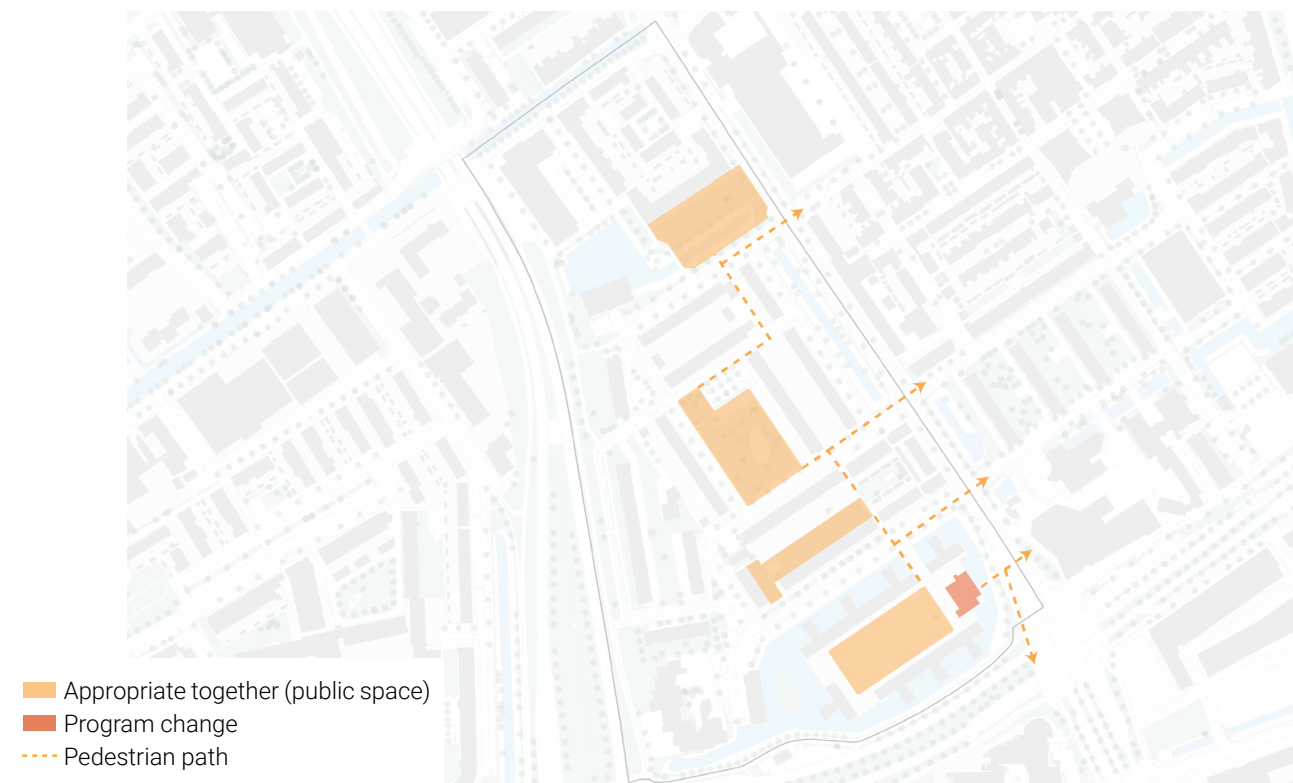


Figure 101. Scenario A: Intervention sites for public spaces in Krakeelpolder (Own work).

To implement the empowerment-oriented spatial strategy and to utilize the design framework, intervention sites that are interesting for the appropriation of inhabitants need to be identified in the neighbourhood. Here, it is important to make a distinction between appropriating public spaces or collective spaces in the neighbourhood. Public spaces refer to open spaces that are accessible to the general public, while collective spaces are public spaces used for private activities (Scheerlinck, 2010) where in order to be part of the collective, individuals must understand rules of behaviours of members (Magnusson, n.d.).

Considering all open spaces in the neighbourhood as public spaces would be scenario A wherein positive interactions are encouraged and achieved through spatial projects bringing different people together in the neighbourhood. This scenario entails that all open spaces in the

neighbourhood are accessible and inviting for all inhabitants as they appropriate spaces with amenities, events, and activities that can be enjoyed together, in order to build a community, as seen in Figure 101. In this way, students and local residents have the opportunity to positively interact as they work together in realizing the project, but also as a result of the project itself. The assumption made here is that the transformation paths discussed in the previous chapter are successful in mitigating conflict by changing the non-normative behaviour of students, and by reducing the density of students in the neighbourhood as well. Therefore, this scenario is ideal and optimistic towards building a community wherein similarities are celebrated in neighbourhoods, after mitigating conflicts and achieving co-existence through the transformation paths. However, unresolved conflicts in space and behaviour may still exist between these groups despite the implementation of the recommended

transformation paths. Therefore, another scenario B would require strengthening spaces in the neighbourhood through a mix of public and collective spaces wherein appropriation is done by primary users, as seen in Figure 102. In this way, students don't dominate spaces that are mainly accessible and used by local residents, and vice versa. This while these spaces are strengthened according to inhabitants' needs. On the other hand, open spaces that are not currently active can be appropriated by both groups to bring users to the space. In this scenario, students and local residents are empowered to reclaim their own collective spaces while avoiding conflict and co-existing with one another in the neighbourhood. It should be noted that appropriating the space for primary users does not mean that other groups are unable to use or partake in it. For example, if students would like to partake in spaces that are collectively appropriated by local residents, they are able to do so provided that they adhere to the rules of behaviours of local residents and do not dominate the space.

The likelihood of each scenario cannot be theoretically determined and requires a degree of experimentation by the inhabitants to ascertain which is beneficial for their context. This is encouraged by the realization phase in the empowerment model shown in page 166 where inhabitants are encouraged to experience, evaluate, and recalibrate the project along with the process that went behind it.

The goal of the empowerment-oriented spatial strategy and the design framework is to bring different people together in space to achieve positive interactions and community-building. This can only occur after the transformation paths discussed in the previous chapter have been implemented, which aimed for students and local residents to co-exist by minimizing conflict through the reduction of student density and antisocial behaviour in neighbourhoods. With this goal of positive interactions and community-building in mind, scenario A will therefore be the main focus for the spatial scenarios.

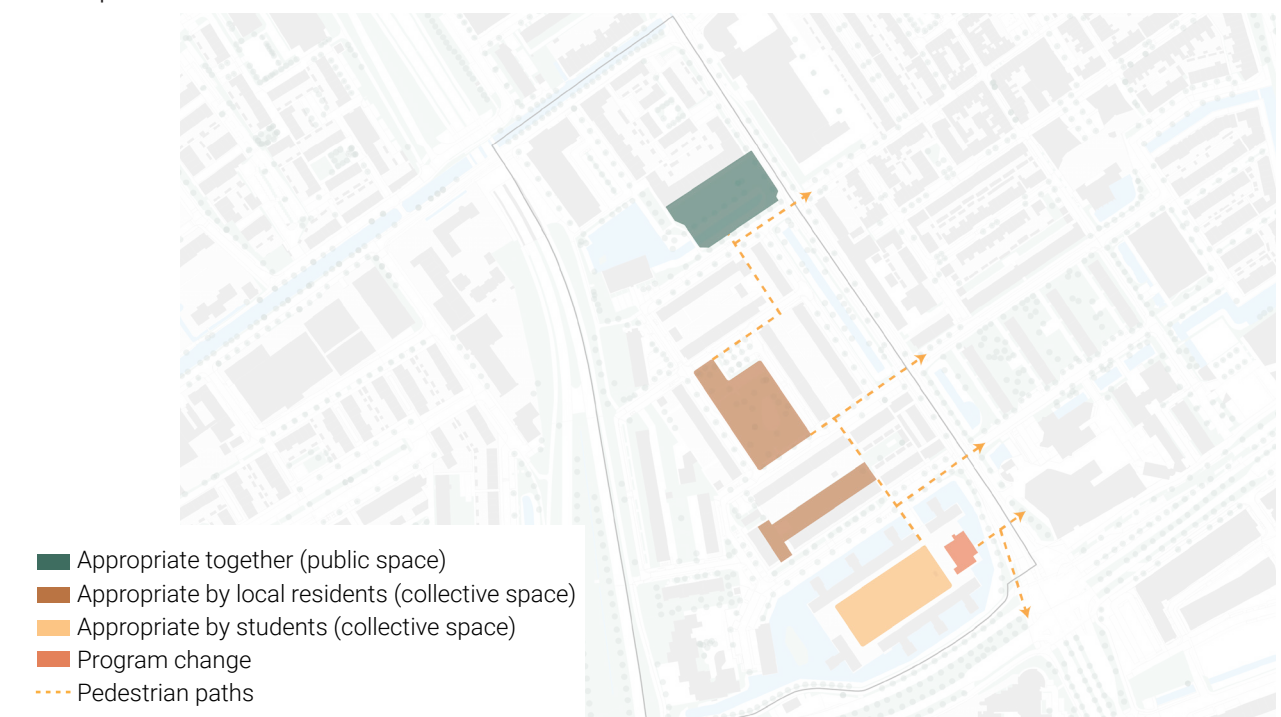


Figure 102 Scenario B: Intervention sites for collective spaces in Krakeelpolder (Own work).

13. Empowerment

The results of using the design framework to further analyze the neighbourhood with regards to its reflection of cultural diversity, can be used to inform the empowerment-oriented spatial strategy and create different spatial projects for the neighbourhood that are planned and realized with community at the center.

The disconnect of spaces in Krakeelpolder that conceptually divides the neighbourhood into 3 areas can be bridged through the appropriation of public spaces. This creates a pedestrian axis running through the neighbourhood that engages inhabitants with one another through activities and amenities with a broad appeal that invite different types of individuals. In this way, students are encouraged to use the space beyond De Krakeelhof while local residents feel welcomed in their courtyard. The physical segregation in the use and allocation of space between students and local residents can therefore be blurred. By appropriating the different public spaces in the neighbourhood, interactions between students and local residents are increased not only as they work together in planning and realizing these spatial projects, but also as a result of the project itself.

The ideas in Figure 103 therefore map out the different public spaces that are interesting for appropriation of inhabitants. This is connected by a pedestrian paths that makes use of dull alleys between buildings along with existing pedestrian paths. The activities and amenities suggested here are a result of the spatial analysis done in chapter 8.2 and the response of interviewed students and local residents in the neighbour-

hood when asked about an ideal Krakeelpolder. These interviews show that different amenities are needed in the neighbourhood, such as:

- Different types of vegetation, especially trees
- More play areas for children
- More amenities that young adults can use
- Seating and eating spaces

These suggestions also consider the criteria and references in the design framework. Therefore, the community building currently used only for students in the Krakeelpolder is suggested to be a community building for all inhabitants wherein meetings and knowledge sharing can take place. The courtyard of the student complex can then be utilized as an extension of the community building wherein outdoor community events can occur. As this courtyard is primarily a parking space, it also offers possibilities for food trucks to bring inhabitants together. Moreover, the abundance of empty grass fields in the neighbourhood allow for amenities that cater to different age groups such as a community garden, play areas, and an outdoor gym. The number of green spaces in the neighbourhood also enable some public spaces to be more activated with different amenities while others can function as quiet spaces, such as the green space north of Krakeelpolder.

It should be noted that ideas shown in Figure 103 are only meant to trigger the imaginations of inhabitants regarding what can happen in space. The type of spatial projects in these spaces should be decided by the inhabitants themselves, following the empowerment-oriented spatial strategy.

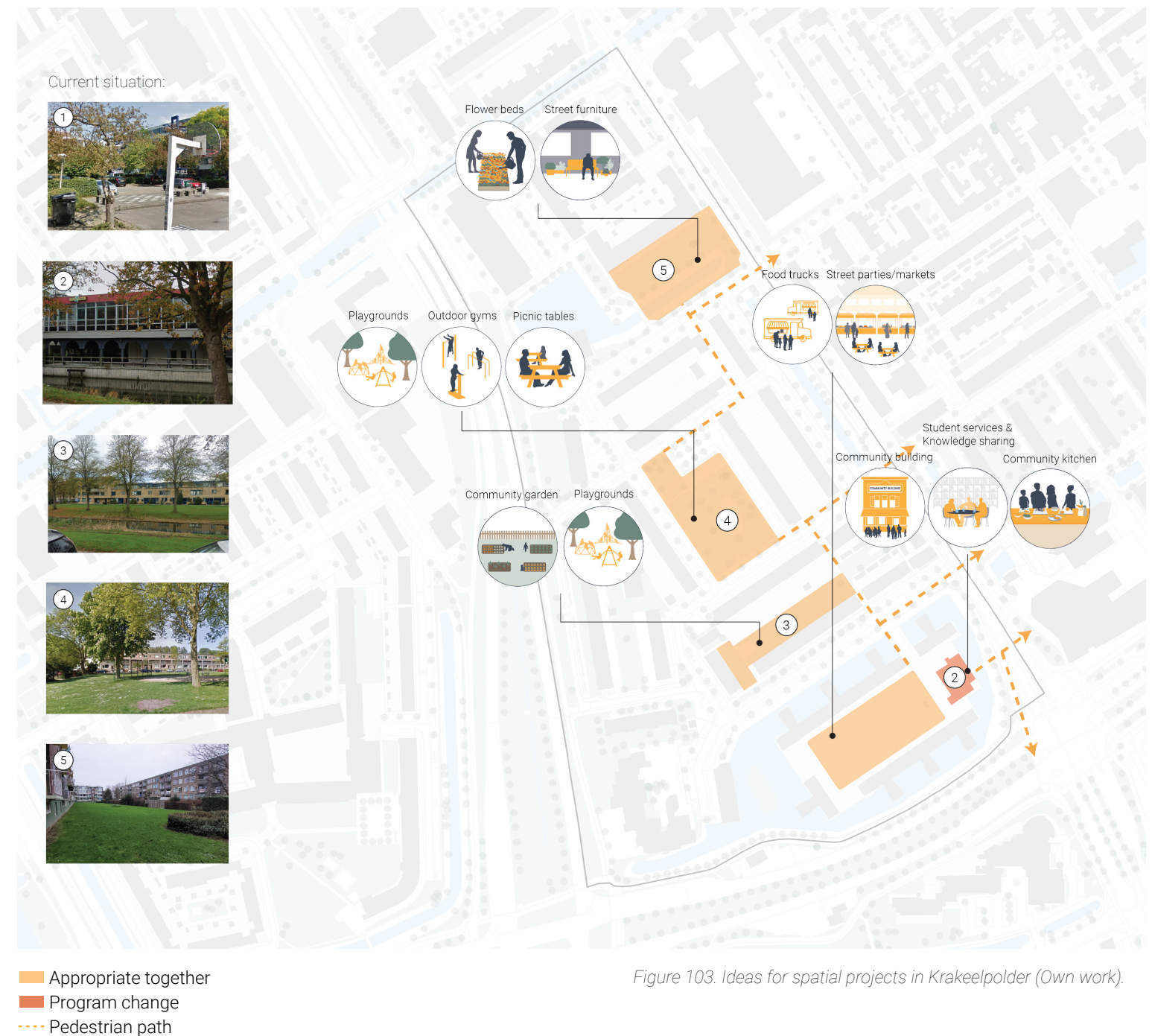


Figure 103. Ideas for spatial projects in Krakeelpolder (Own work).

13. Empowerment

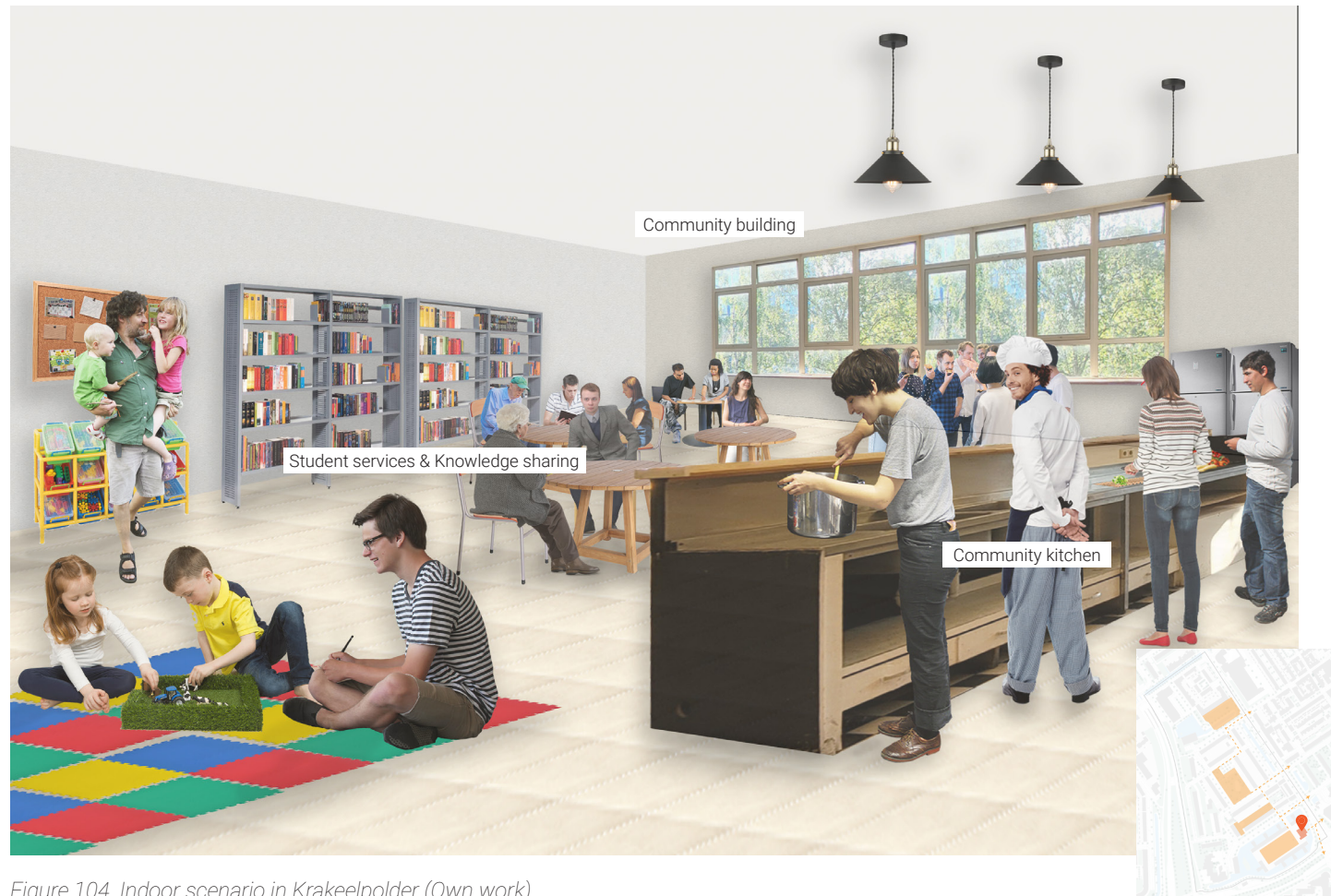


Figure 104. Indoor scenario in Krakeelpolder (Own work).

To give an idea of how spaces in the neighbourhood can look like after a spatial project has been implemented, scenarios are depicted here of both an indoor and outdoor scenario. The importance and process of these projects are also further elaborated on in the following paragraphs.

Figure 104 depicts a scenario wherein the community building that is currently solely used by students, is converted into a neighbourhood community building for all inhabitants. Here, the workspaces and kitchen units that are currently already in place, are utilized to create an area for student services, neighbourhood meetings,

and knowledge sharing. This enables students to help and learn from local residents, and vice versa, to not only improve the neighbourhood together and enrich personal lives, but also to discuss any remaining nuisances. The existing kitchen units in the building also provides opportunities for monthly meals to be prepared and shared with the community. This can become a program activity with a powerful method to bring people together and encourage a conversation as food is a universal necessity. Furthermore, the available space in the building can further be used for community initiatives of student associations members living in De Krakeelhof to bring families with children, students, and other young adults together.



Figure 105. Outdoor scenario in Krakeelpolder (Own work).

An example of an outdoor scenario is the green space in between buildings in the neighbourhood as seen in Figure 105. The interviews show that students and local residents find this space uninviting due to the lack of trees and amenities in the space. Furthermore, local residents living in the building surrounding the space also wish for more play areas for children. This space can therefore be opportune from the wishes of both students and local residents by implementing a greening project to plant trees and adding a playground for children. Moreover, temporary community garden plots can also be added as many social housing residents in the neighbourhood do not have a backyard. The produce from

this community garden can then be used for the shared meals in the community building.

The activities suggested in these scenarios can be realized with the help of housing corporations that own both the buildings and public spaces proposed here. The ability of these spatial projects and activities to create social ties and positive interactions according to the design framework, are in line with the social goals of housing corporations such as DUWO and the desires of students and local residents, thereby making them feasible to realize and likely to have positive outcomes for community building.

13. Empowerment

13.4. Spatial scenarios - Wippolder

In contrast to Krakeelpolder, the spatial analysis of Wippolder strengthened by the design framework criteria, focuses on a larger scale due to the neighbourhood's close proximity to the TU Delft campus. This spatial analysis illustrates the different spatial strengths and weaknesses of the neighbourhood when it comes to responding to the needs of diverse inhabitants. Figure 106 and Table 11 show the role that the

campus can play in bringing students and local residents together. Connecting the campus with the neighbourhood enables inhabitants to opportune from the strengths that the campus offers, while weaknesses on campus can be strengthened as more local residents are invited to the space. Therefore, in order to build community through spatial projects, the segregation between the campus and neighbourhoods need to be blurred.

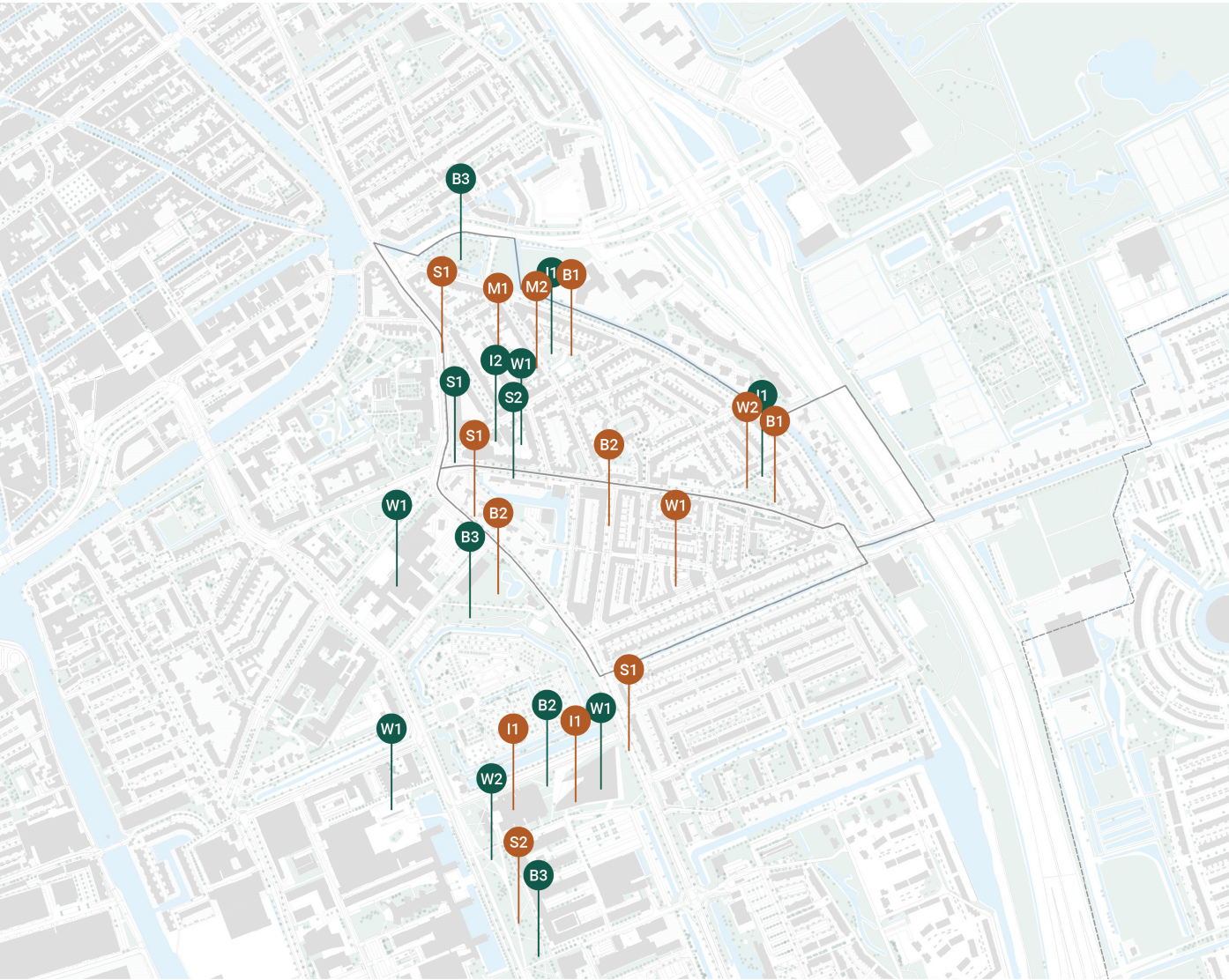


Figure 106. Design framework analysis on Wippolder (Own work).

● Strengths
● Weaknesses

MIXED

- M1 Around 25% of residents in the neighbourhood are students
- M2 Old floorboards and uninsulated walls exacerbate nuisance while high density in student houses lowers the quality of yards

SAFE ACCESS

- S1 The campus is gated by roads, greenery, and dull facades that inhibit transparency to activities indoors or on the center of the campus
- S2 Public spaces, especially at the university, are desolate at night
- S1 The neighbourhood is easily accessible by all means of mobility modes with plenty of car parking spaces
- S2 There are clear sightlines towards different housing blocks

BROAD APPEAL

- B1 Open spaces available for appropriation are lacking
- B2 Quiet public or open spaces are lacking in lieu of active spaces
- B2 The university provides a lot of different spaces for young adults to older people while the neighbourhood public spaces cater mainly children
- B3 Some public spaces have plenty of greenery

WELCOME

- W1 There is no community building in the neighbourhood
- W2 Events are not held between students and local residents in the neighbourhood
- W1 There are cultural spaces on campus and in the neighbourhood
- W2 The university holds many events and activities for students throughout the year

INTERACTION

- I1 Amenities on campus are closed off or not easily accessible for residents
- I2 There are no activities that encourage interaction in space
- I1 Public spaces have seats and tables to facilitate interaction

Table 11. Strengths and weaknesses of Wippolder (Own work).

13. Empowerment

Identifying intervention sites in Wippolder

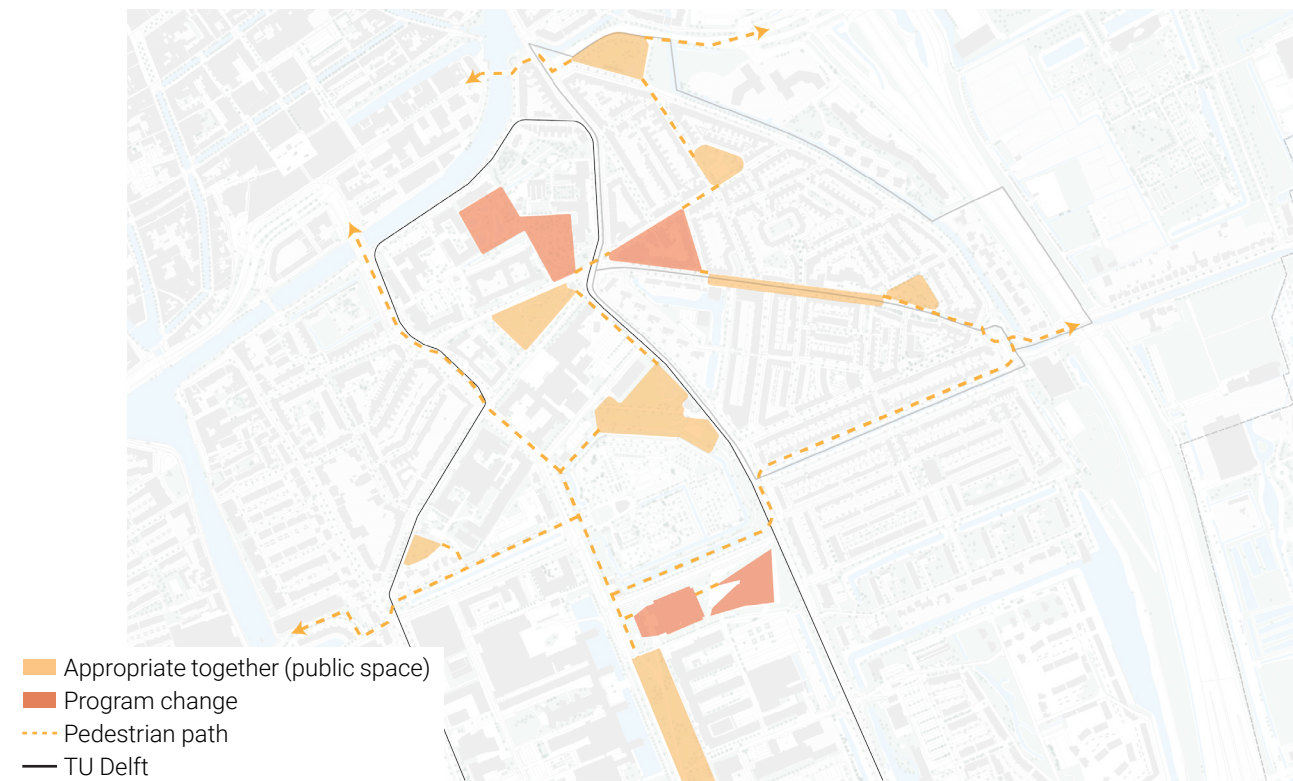


Figure 107. Scenario A: Intervention sites for public spaces in Wippolder (Own work).

Similar to Krakeelpolder, there are also different scenarios in how inhabitants can appropriate the spaces in Wippolder. Here, the focus is on blurring the boundary between the campus and the neighbourhood. The boundary of the campus consist mainly of roads, parking spaces and greenery followed by university building facades wherein activities inside are not transparent nor inviting to local residents. Because of this, the campus becomes a sort of gated community that takes up a large proportion of the district but does not contribute to the local community, thereby strengthening local residents' animosity towards TU Delft.

Therefore, open spaces and semi-public spaces both in the neighbourhood and on the boundary of the campus provide opportunities to realize

spatial projects that are attractive to both students and local residents, as seen in Figure 107. By working together to implement spatial projects aimed at positive interactions and community building after the transformation paths have been implemented in scenario A, public spaces can become a tool for students and local residents to celebrate their similarities and engage with one another in spaces that were previously unused or used only by homogeneous groups. This is especially necessary as the public spaces in this neighbourhood were previously dominated by bikes and therefore limited opportunities for inhabitants to positively interact. This is also responsive to the results of the interviews wherein local residents express their dismay that students are not present in community activities.

On the other hand, conflicts may still exist between students and residents that may prevent positive interactions from occurring in space. Therefore, in scenario B as seen in Figure 108, appropriation of certain open areas in the neighbourhood has to be done by the primary users of the space as a collective - the local residents. This consists of the 2 pocket parks in the neighbourhood. In contrast, open spaces that are primarily used by students can be appropriated by them as a collective. These are mainly spaces located on campus. In this way, negative interactions can be avoided in the neighbourhood while inhabitants are still empowered to strengthen their claim to their own spaces. However, the campus still needs to become a part of the city to mitigate the animosity local residents have towards the university. In order to do this, semi-public buildings on campus would need to change their programs to be appealing and accessible for local residents as

well. Moreover, the Mekelpark also provides an opportunity to become a central attraction for surrounding local residents in this scenario. Therefore, this park can be appropriated by local residents as well, next to existing amenities that cater students. In this scenario, open spaces in the neighbourhood that are currently not in use such as the pocket park on the north, and the street separating Wippolder North and Wippolder South, also provides opportunities to invite users through appropriation.

Just like Krakeelpolder, experimentations by local residents are also required here to determine which scenario is beneficial towards positive interactions and community building in the neighbourhood. As the goal of the empowerment-oriented spatial strategy is to enable students and local residents to work together, scenario A will be further expanded on.

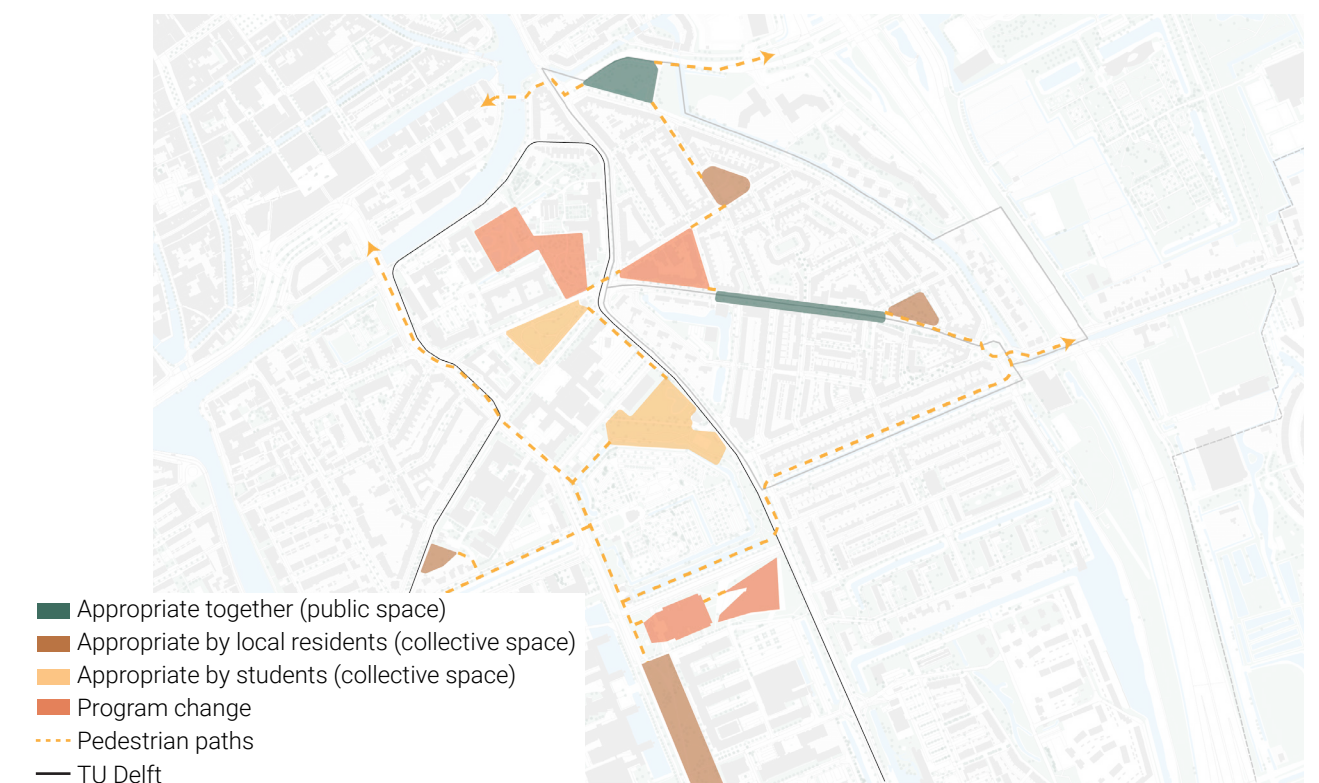


Figure 108. Scenario B: Intervention sites for collective spaces in Wippolder (Own work).

13. Empowerment

To create a cohesive transition between the neighbourhood and campus, connecting public and semi-public spaces through pedestrian paths play a binding role to enhance the experience of inhabitants as they walk through the district. In this way, the campus shifts from a sort of gated community to an inviting space where people of different backgrounds and cultures can gather and walk through. In doing so, not only the connection between the neighbourhood and campus is strengthened but also the connections of the district to large local parks in the north-east, the city center, and other districts in the west, as suggested in Figure 109. This connection utilizes a pedestrian path that follows existing green branches in the neighbourhood.

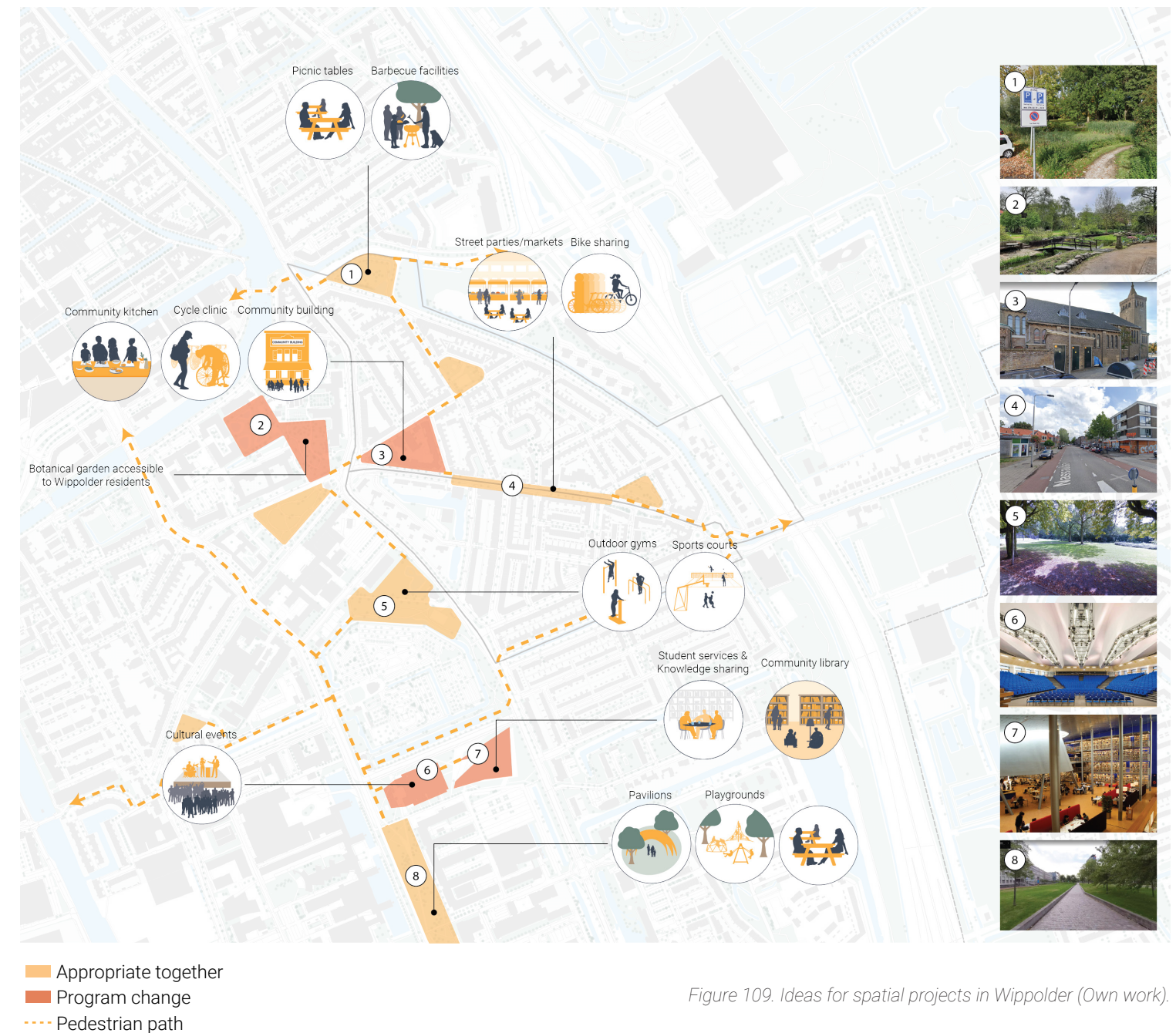
One of the public spaces that this path runs through is the border between Wippolder-North and Wippolder-South. As most existing public spaces in the neighbourhood are already occupied with amenities for children and families, the Nassaulaan road provides opportunities for appropriation in the form of neighbourhood street parties or marketplace for students and local residents to meet and interact. Doing so also attracts more people to shops that line this street. Furthermore, the edge of this street connects the pedestrian path to a cluster of semi-public buildings in the neighbourhood including a church, school, and gym. As community buildings are not present in the neighbourhood, this cluster can be used for different program activities that bring people of different cultures together. These activities could include cooking together in a community kitchen, or exchanging knowledge on bike maintenance such as a cycle clinic.

Opening up the campus to local residents responds to recommended transformation paths as discussed in chapter 12.1. This requires making facilities on campus accessible to local residents of Delft, such as the botanical garden, and

increasing non-academic functions on campus such as supermarkets and cafes. By increasing the residential environment and increasing accessibility on campus, clusters of amenities are created and enables an attractive center that is otherwise not available in the neighbourhood.

In doing so, other green spaces on campus also become interesting for appropriation. Where facilities such as a sports court is already present, inhabitants can introduce new amenities such as communal seats and an outdoor gym to encourage a broad appeal. Furthermore, the Mekelpark can also become a hub for inhabitants of the Wippolder district through spatial projects such as a pavilion, playgrounds, picnic tables, and food trucks. Despite a 10-minute walking distance, local residents can be attracted to the campus by providing opportunities that the neighbourhood cannot offer, and centrality to different functions and amenities that the campus offers after the transformation paths have been implemented. These spatial projects do not only encourage interaction between different groups, but also allows the space to remain lively and activated after university and office hours. The Mekelpark also allows for connection to the library and Aula convention center where different program activities can occur for local residents as well, such as a community library, and large cultural events.

The suggestions in Figure 109 shows spaces that would be interesting for inhabitants to appropriate and benefit from in order to work together and form a community. It also gives ideas of spatial projects that could be implemented in these spaces, as inspired from references in the design framework. Realizing spatial projects gives them the opportunity to reclaim space that have been lost due to high student densities in the neighbourhood and rebuild community with their neighbours. These can be used to inspire the planning process of the empowerment-oriented spatial strategy.



13. Empowerment

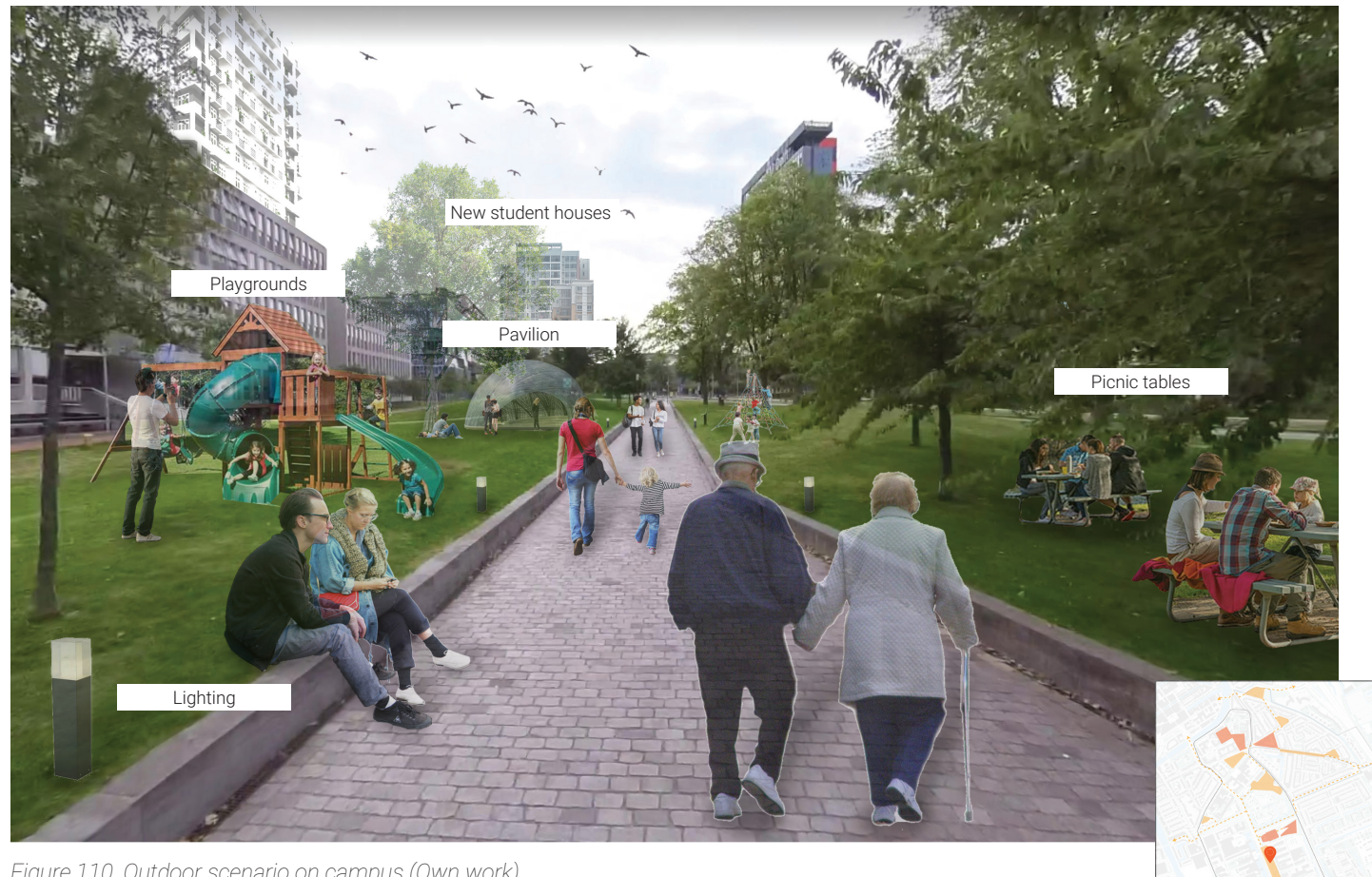


Figure 110. Outdoor scenario on campus (Own work).

Scenarios of spatial projects implemented in the campus and in the neighbourhood are visualized here to give an idea of the atmosphere that these projects can create. These will also be further explained in the upcoming paragraphs to emphasize their importance and the process that can aid their realization.

Figure 110 depicts spatial projects implemented in the Mekelpark on campus. As this space does not have amenities apart from food trucks during lunch hours, it is primarily used as a walking route by students during university hours. Because of this, it is relatively desolate at night and during holiday seasons. Therefore, as the park offers large open spaces, different amenities and activities can be introduced here in or-

der to attract local residents. Due to the different types of inhabitants in Wippolder, different spatial projects are also necessary to accommodate people of different ages and cultural backgrounds.

By adding a playground and picnic tables to the park, families are invited to let children play while parents engage with other users of the space. This therefore introduces new users to the park that students can interact with. Furthermore, a pavilion project can also create an attraction that provides shade from the sun and rain so that the space can remain useable even in unfavorable weather. Introducing lighting also enables the park to be used after university hours. Through these projects, the park can become activated



Figure 111. Indoor scenario in Wippolder (Own work).

allowing for students and local residents to interact or engage with one another as TU Delft opens up the campus to the city.

In addition, Figure 111 depicts an indoor scenario of how the school in the neighbourhood can be used as a community building after school hours or on the weekends. Here, the school classrooms provide opportunities to hold knowledge sharing meetings for the neighbourhood group. Meanwhile, the existing kitchen in the school can be used as a community kitchen to share conversations over shared meals or coffee. Furthermore, as both students and local residents of different ages use bikes in this neighbourhood, a cycle clinic can be beneficial for neighbours to learn from one another and

learn together. These activities therefore provide opportunities for students and local residents to engage with one another and positively interact. To facilitate this, the school is known to be open to community activities as the Wippolder pilot program meetings are also held in its building. Therefore, the existing willingness of the school can be expanded to strengthen the neighbourhood with a community building.

The projects and activities suggested in these scenarios therefore encourages students and local residents to positively interact and build a community as they follow the empowerment-oriented spatial strategy.



CONCLUSION

14. Conclusion

This research focused on the effects of high student numbers in small-sized university cities. This is termed 'studentification' and leads to a variety of negative consequences in Delft which have negated the once proud stance that local residents have on TU Delft's presence in the city. Analysis on the political and spatial context, as well as the perspectives of key stakeholders show that fundamental conditions that lead to the lack of co-existence in the city are not primarily founded on neighbourhood design, but rather long-standing neglect and dissociation of institutions and organizations towards issues related to behaviour and housing commodification. Studentification in Delft has grown to have a relatively large scope compared to other small-sized university cities in Europe and continue to become a sensitive matter for local residents in the city as they have to endure a lower quality-of-life in their neighbourhoods that increasingly feel unfamiliar.

The depth and scale of negative consequences experienced by inhabitants of the city, ranging from housing shortages and sleep deprivation to displacement and decline in property value, shows the urgency of studentification in small-sized university cities. The influx and concentration of students that result in these consequences need to be tackled now as the issues faced by inhabitants would only worsen as student numbers increase. With TU Delft's plans for expansion, this research ultimately shows that the tipping point with regards to student numbers and the spatial capacity of the city, has been exceeded and further growth can no longer be tolerated especially since the consequences of studentification is not faced by Delft alone. University cities across the Netherlands increasingly have to cope with these consequences as well, making the issue a national problem that cities alone cannot mitigate. Therefore, this urgency proposes recommendations for a strategic ap-

proach that consider the current situation, not further growth. These recommendations aim to implement long-term changes while considering the subsidiarity and participation principles in the planning system of Delft.

The methodological framework in this research provided a valuable and novel approach to studentification research by using 3 components that work in conjunction for recommendations that are rooted in best practices, fit to the local context, and feasible in the socio-cultural fabric of Delft. Using the stakeholder analysis that informed confrontations and opposing perspectives in the city to filter both the results of the case analysis that determine best practices, and the context analysis that determine a map of possibilities, lead to comprehensive and thorough research and recommendations that are responsive to the urgency of studentification in Delft. In this way, different research components that are often missing or lacking in existing literature are brought together in an academically and contextually relevant way. The main findings of this research are summarised below in answer to the main research question and sub questions:

Main research question: What are the fundamental conditions of studentification that need to be tackled in order to stimulate better co-existence in Delft?

The research found that fundamental conditions have to do with 3 main components: housing density, university involvement, and people's behaviour. Due to the rise and concentration of privately owned student houses in certain neighbourhoods along with the presence of segregated student complexes that accommodate large numbers of students, density has led to noise nuisance experienced on an almost daily basis, pedestrian paths overtaken by bikes,

and decreased housing values. The high influx of students can be attributed to the growth of TU Delft both locally and globally, which has failed to consider its effects on the local community of its host city. A single-minded focus of the university towards education and research has hindered this powerful institution's involvement on social issues regarding the role that its spatial claim on the city has on housing market pressure, and the behaviour of its students that disrupts everyday life of local residents. This antisocial behaviour is the result of cultural norms among student associations and students in Delft that have generated lifestyles revolving around drinking and partying. Conflicts arising from antisocial behaviour have shaped the negative interactions and relations between students and residents in neighbourhoods of Delft. The fundamental conditions of studentification therefore have to be tackled through policies, regulations, and strategies to inflict long-term change on a multifaceted and complex process. In doing so, the negative consequences of studentification can be mitigated and co-existence can be stimulated.

SQ1: What are the negative effects of high student numbers in a neighbourhood?

The negative consequences of studentification in Delft can be divided into economic, spatial, cultural, and social consequences. Economically, the private market shift of housing that leads to its commodification significantly increases rent and simultaneously lowers housing values of houses in studentified neighbourhoods, thereby forcing local residents to sell at a loss when moving out. Spatially, the commodification of housing by neglectful landlords lead to poor housing conditions and unkempt gardens that lower the quality of streets in a neighbourhood. The high student density in neighbourhoods also leads to bikes scattered on pavements that

inhibit individuals, especially those with mobility issues, to safely pass through. Culturally, noise nuisance resulting from the lifestyles of students lead to tension and conflict with local residents. Due to this, interactions are minimal and negative. Compiling these issues, the social consequences of studentification in Delft are therefore a lack of co-existence and sense of community in neighbourhoods.

SQ2: What are key conflicts resulting from stakeholder perspectives that harm co-existence?

Conflicts resulting from stakeholder perspectives can be categorized by: university social responsibility, municipal power, good landlordship, and behaviour and interaction. The first is a result of the misalignment regarding TU Delft's response to concerns posed by local residents. As TU Delft mainly tackles problems by funding and coaching student associations on community initiatives, this has had minimal or sometimes adverse effects on their relationship as local residents feel that the severity of the issues they face is overlooked. The second category of conflict regarding municipal power has to do with their lack of enforcement capacity. Due to this, measures taken to mitigate the negative consequences of studentification have had low impact and the municipality is perceived as incapable of responding to issues or are more accommodating to students. This has a large role to play on conflicts regarding good landlordship as a lack of landlord regulations exacerbate studentification in neighbourhoods. Due to the profit-orientation of landlords, the nuisances and conflicts between tenants is unresolved despite the issues stemming from the quality of their properties. Their absence from stakeholder meetings and conversations between inhabitants makes them an invisible force that is unwilling to eradicate causes of nui-

14. Conclusion

sance. Lastly, conflicts regarding behaviour and interaction are a result of different lifestyles between students and local residents. Where local residents feel that students are unsympathetic to their neighbours, students feel that they are accommodating to their needs. Co-existence in Delft is therefore harmed as stakeholders have opposing perceptions of how issues arise and how they are tackled.

SQ3: How can stakeholders be aligned and empowered to mitigate the negative consequences of studentification?

To align stakeholder perspectives and to tackle the fundamental conditions of studentification, a theory of change was proposed that considers the needs and priorities of all stakeholders, as well as best practices from other European cities comparable to Delft. This included a series of sequential recommended policies, regulations, and strategies that involves all direct stakeholders performing different roles and responsibilities towards a singular goal – co-existence. The research shows that an established partnership between these direct stakeholders is the starting point for which recommended transformation paths are decided and implemented. By doing so, the outcome of each recommendation is aligned with the goals of each stakeholder. The theory of change proposes essential preconditions informed by best practices in other countries and supporting pathways following the 3 fundamental conditions of studentification. This pathway also considers alternative paths that can be substituted in case of unprecedented challenges. As the theory of change is founded on research by context and experiences, the recommendations in the pathway are responsive to the negative consequences of studentification.

SQ4: How can behaviour and perception be changed to achieve co-existence?

Behaviour and perception are also tackled in the theory of change as one of the supporting pathways by which co-existence can be achieved. The overall strategic plan in this research also found that the reflection of cultural diversity in space are important factors to ensure that inhabitants are able to positively interact and build a community. Hence, an empowerment-oriented spatial strategy was proposed to be implemented after the theory of change pathways. This guided a planning process that strengthens the capacity of willing inhabitants to implement spatial changes in their neighbourhood aimed at reclaiming space that was lost due to large amounts of student housing and positive interactions. By providing a design framework and spatial imaginations to inhabitants, they can feel guided and inspired to effectively propose spatial solutions to problems they face as neighbours in a spirit of celebrating similarities rather than fighting differences. In working together to plan and implement spatial projects, students, and local residents along with the aid of institutions, can work together and create shared values that can be fostered by their projects in the long run.

By focusing on the involvement of direct stakeholders on a strategic approach to studentification, the theory of change pathways and spatial strategy are able to anticipate local, regional, and national developments. Established plans for expansion and large-scale urban developments in Delft can therefore consider the conflicts highlighted in this research and plan accordingly. Through the strategic plan proposed by this research, the negative consequences of studentification can be mitigated and avoided. Thus, co-existence can be restored and positive interactions can be fostered in the long run.

15. Reflection

Studio and project

The Planning Complex Cities studio focused and directed my research on governance and civil society engagement. As studentification is entrenched in a political sphere that highly involves and affects civil society, the studio was able to effectively support and guide my research process. This is because the research aimed for a governance paradigm in tackling the fundamental conditions of studentification and better stimulating co-existence. The multiplicity of these goals required interdisciplinary research that looked at human behaviour on a neighbourhood scale, the implications and oversight of policies, and the role of citizens' participation in the planning sphere. Therefore, the studio acted as an overarching guiding force towards achieving these goals.

The topic of studentification is a layered process determined by conflicting and directly opposing views. This research attempted to make a concise and understandable presentation of how this process starts and what its implications are. It uses the ideas of best practices identified in comparable cities to Delft and the middle ground of perspectives in the city. In doing so, the research was successful in transferring conceptually informed best practices to Delft that are informed by the context and grounded on the socio-cultural fabric. Due to this, the outcomes detailed in the strategic plan were able to provide a comprehensive approach that is strongly responsive to the complexity of studentification and able to tackle the fundamental conditions of studentification effectively.

Research process

The turning point and shift in scope of this research due to the cancellation of the co-creation workshop was challenging to navigate as it drastically changed not only the approach of

this research but also the types of outcomes that it would produce. This prompted a period of self-reflection halfway through the project phasing wherein my previous mindset and perspective towards the topic had to be changed, causing a setback in the research. It also led to questions regarding my role as an urbanist in creating designs or proposing solutions spatially as this was deemed unfitting by local residents. However, despite the challenges posed by this turning point, the reasons behind the cancellation of the workshop were also extremely valuable in shaping my next steps. Through the guidance and feedback of my mentors, I was able to practice and apply the flexibility required to have a multifaceted and complex research topic by challenging the concept of design as a spatial process. The end outcomes in this research showed that urban problems are not always answered with spatial designs, but sometimes by frameworks of actions or processes that are much more comprehensive in text than in images. The cancellation of the co-creation workshop and the intangibility of studentification in space therefore led to outcomes that are much more focused on processes rather than designs. In this way, they are responsive to the urgency of the situation in Delft.

This research also called for a degree of modesty when it comes to proposing solutions. Through the cancellation of the workshop, it became clear that every research outcome needs to be tested before it can be termed a solution as there could be unforeseen circumstances that disprove it. Therefore, the outcomes in this research are focused on suggestions and recommendations instead that are subject to further experimentation and exploration to see what fits inhabitants best in the long run. Only by learning as we go can we firmly find the path towards solutions. With this, the multiplicity and scales

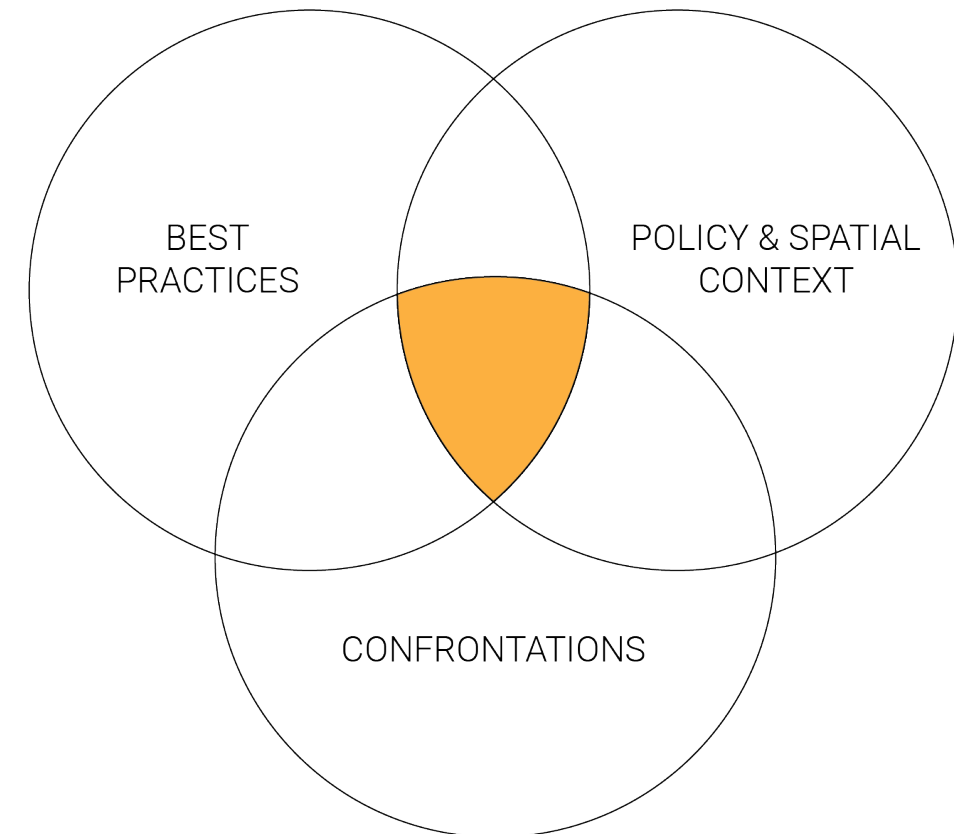


Figure 105. Positioning of strategic approach in the research components (Own work).

of urban planning was made clear and will be embedded in my approach to other research on challenges experienced at a local level, moving forward.

Academic and societal relevance

This research contributes to the wider academic literature on studentification by providing a greater understanding of institutional practices, larger scale phenomena, and stakeholder perspectives that shape conflict and problems on a neighbourhood scale. In doing so, a lens from which studentification in other small-sized university cities in the Netherlands can be analyzed, was created. It also proposes comprehensive methods on how the divide between communities posed by studentification can be mitigated in the Dutch context, thereby filling an existing

gap in studentification research. Furthermore, the methodological framework in this research provides a novel approach by combining 3 components that are rarely seen in existing literature: best practices, context, and confrontations or opposing perspectives. By combining these 3 components in the research, recommendations for the spatial strategy were able to combine best practices, appropriateness, and feasibility.

Societally, this research was able to present the real depth and scale of issues experienced by local residents in studentified neighbourhoods. In this way, the issues associated with studentification in Delft go past known conflicts between differing stakeholder groups, but instead also highlight the displacement process, financial, and psychological burdens that residents have

15. Reflection

to endure in an almost daily basis, along with the fundamental conditions that lead to this. Through the strategic plan proposed in this research, the gap between students and local residents, as well as the wider town and gown, can be mitigated. In doing so, co-existence in neighbourhoods ridden with conflict and tensions can be restored.

Limitations

Despite what this research was able to achieve, limitations still exist. These limitations include limited access to data and information, and the unprecedented broadness of studentification in the Dutch context. First of all, the analysis and recommended policies, regulations, and strategies in this thesis hinged greatly on the availability and correctness of student housing data in Delft. However, due to the lack of statistical data at the address-level and illegal conversions unbeknownst to the municipality, assumptions had to be made with regards to the distribution of students in the city. To aid this, observations and interviews were used to strengthen the assumptions; however, the numerical results could still significantly vary from the real situation.

Furthermore, access to information at the personal level needed to understand the conflicts and perspectives of different stakeholders, was also limited by the language barrier and general unwillingness of some local residents to communicate as this research was conducted by a student of TU Delft. Due to this, interviews and personal communications were limited to stakeholders who were able to communicate in English, which misses the perspectives of some stakeholders, especially older residents. The unwillingness of some local residents to participate in a student conducted research also exemplifies the severity and sensitivity of the issue in the city, which had caused the cancellation of the co-creation workshop. Despite the choice of

focusing the research approach on another direction, the cancellation of the co-creation workshop still limited valuable results that could have informed the outcomes of this research better.

Another limitation is the unprecedented broadness of the topic. With restricted time, deeper analysis on related phenomena to the fundamental conditions of studentification in Delft such as the nation-wide housing crisis and huisjesmelkers/slumlords, or the operations of universities in the Netherlands, were not feasible. This caused this research to be limited in its understanding of larger processes beyond the city of Delft.

Recommendations

Considering these limitations, the recommendations for further research therefore include a partnership with the municipality or an agreement to access address-level data for the purposes of research. A partnership with the municipality can also overcome the unwillingness or apprehension of some local residents to participate in research conducted through the university due to the degree of tension and conflict in the city.

Another recommendation is to conduct further study on the feasibility and capacity of institutions such as universities or municipalities in implementing policies or spatial changes. The university itself functions with its own ecosystem in the same way municipalities do. This means that they have their own methods of budgeting, management, and operation that are currently unknown to the public. It is therefore important to understand their capacities and organization in order to contribute to a complex social issue like studentification.

Lastly, conditions for interaction need to be further researched as the increase in interaction

spaces do not necessarily mean that it would lead to positive interactions. The conditions as to how interaction spaces can facilitate positive communication and engagement is a separate field of research that is adjacent to studentification and can strengthen proposed transformation paths and spatial strategies.

Scope and transferability

The plurality of the studentification process clarified the difficulty in satisfying the needs and preferences of everybody. In any proposal to mitigate the negative consequences of studentification and to stimulate co-existence, there will always be unsatisfied stakeholders. This is because all stakeholders involved will have their own self-interests and priorities that determine their perspective on the issues. In the same way, institutions and organizations are also limited in their capacity to respond to all challenges. Therefore, the scope of this research was determined by the current fundamental conditions of studentification that may be subject to changes in the future. Due to this, the recommendations in this research would therefore need to be flexible to changing needs.

Nevertheless, the methodological framework and strategic approach to this research may also be applicable to other small-sized university cities in the Netherlands. This is because studentification is experienced in all university cities, albeit to varying degrees. As the studentification process in the Netherlands is greatly influenced by nation-wide phenomena and processes, the approach to this research is likely to be transferrable to other cities.

Ethical considerations

The approach and methodology used in this thesis kept in mind ethical considerations. Residents that were interviewed were given a brief introduction on the topic of this research

and were questioned in a manner that carefully avoided leading their responses. The names of interviewed students and local residents were also anonymized in order to eliminate the link between them and the opinions they have voiced in this research.

The general classification of local stakeholders as either local residents or students also raises ethical questions. It is necessary to acknowledge that the divide between students and local residents is a simplification of wider demographics. The social group of students and local residents alike are comprised of a variety of different individuals within themselves which may hold opposing views. Furthermore, stakeholders were not involved in the design phase of the theory of change pathway. Instead, their opinions and perspectives interpreted from the interviews were used as a basis to recommend policies, regulations, and strategies. Therefore, there may be a difference in results if they were part of the design process instead.

Additionally, the recommendations and strategies strongly rely on the involvement of different institutions, organizations, and individuals from both the public and private sector. However, the capacities of these stakeholders, whether in time or in financing, may not be as assumed in this research. In the same line, students and local residents may not be willing to participate and be part of a community as the spatial strategy dictates. Spatial projects that bring different inhabitants together are also capable of bringing about both negative and positive interactions. These therefore need to be considered in implementation processes.

REFERENCES

Abtswoude bloeit. (n.d.). Abtswoude bloeit. Retrieved from <https://abtswoudebloeit.nl/>

Akkermans, M., Kloosterman, R., Moons, E., Reep, C., Tummers, M. (2022). Veiligheid monitor 2021. Centraal Bureau voor de Statistiek.

Al-Kodmany, K. (2001). Visualization tools and methods for participatory planning and Design. *Journal of Urban Technology*, 8(2), 1–37. <https://doi.org/10.1080/106307301316904772>

Alliance for Pioneer Square. (n.d.). Alley revitalization and activation. Retrieved from <https://allianceforpioneersquare.org/wp/what-we-do/public-realm/alley-activation/>

Buurtcampus Zuidoost. (2022). Buurtgericht onderwijs onder de loep. Retrieved from <https://www.buurtcampuszuidoost.nl/s/article?url-name=Buurtgericht-onderwijs-onder-de-loep>

Cardoso, R. (2015). Reconciling heritage and urban growth in English historic cities. *Researchgate*. https://doi.org/https://www.researchgate.net/publication/309823587_Reconciling_heritage_and_urban_growth_in_English_historic_cities

Charnwood Borough Council, Loughborough College, Loughborough Students Union, Loughborough University, Leicestershire Police, Residents Groups, Leicestershire County Council. (2011). Loughborough off-campus community service delivery strategy.

City of Gottingen. (2018). Municipal action plan to create and secure affordable housing in Gottingen.

City Planning Office. (2013). Framework for the hospital area and university area.

Claptoncommons. (n.d.). Clapton commons builds community and enables action in our neighbourhood. Retrieved from <https://www.claptoncommons.org/>

Conscious Governance (n.d.). Strategic Planning & Strategy Services. Retrieved from <https://consciousgovernance.com/strategic-planning>

Delta (n.d.). 500 student houses in Rijswijk. Retrieved from <https://www.delta.tudelft.nl/500-student-houses-rijswijk>

den Heijer, A. C., & Curvelo Magdaniel, F. T. (2018). Campus–city relations: Past, present, and future. *Geographies of the University*, 439–459. https://doi.org/10.1007/978-3-319-75593-9_13

den Heijer, A. C., Arkesteijn, M., Jong, P. De Bruyne, E. de Meijler, J., & Born, L. (2016). Campus NL: Investeren in De Toekomst. TU Delft.

Domingo, R., Andeweg, A., Lockhorst, A. (n.d.). Introduction to student associations. TU Delft.

Duwo. (n.d.). The figures. Retrieved from <https://www.duwo.nl/en/about-duwo/the-organisation/the-figures>

EUniverCities. (2021). Handbook for strategic city-university co-operation. Retrieved from <https://eunivercitiesnetwork.com/publications/>

Eureda News. (2022). Students in Sweden Face Serious Housing Shortage & Rent Hikes. Retrieved from <https://erudera.com/news/students-in-sweden-face-serious-housing-shortage-rents-hikes/>

Executive Board of Delft University of Technology. (2022). Profile and Size.

Fang, C., & van Liempt, I. (2021). 'We prefer our Dutch': International students' housing experiences in the Netherlands. *Housing Studies*, 36(6), 822–842. <https://doi.org/10.1080/02673037.2020.1720618>

Gemeente Delft. (2016a). Covenant TU Delft

Gemeente Delft. (2016b). Delft Woonvisie 2016-2023. Retrieved from <https://delft.notubiz.nl/document/8832260/1#search=%22woonvisie%202016%22>

Gemeente Delft. (2020). Studenthuisvesting in goede banen - eindevaluatie.

Gemeente Delft. (2021a). Data op Maat. Retrieved from <https://delft.incijfers.nl/>

Gemeente Delft. (2021b). Environmental Vision 2040.

Gemeente Delft. (2021c). Investigation of residential nuisance 2021. Retrieved from <https://www.delft.nl/bestuur-en-organisatie/cijfers-en-onderzoek/delft-internet-panel-dip/onderzoek-woonoverlast-2021>

Gemeente Delft. (2021d). Research students 2021. Retrieved from <https://www.delft.nl/bestuur-en-organisatie/cijfers-en-onderzoek/delft-internet-panel-dip/onderzoek-student-en-2021>

Hogeschool van Amsterdam. (n.d.). De Buurtcampus. Retrieved from <https://www.hva.nl/hvaindestad/gedeelde-content/projecten/living-labs/buurtcampus.html>

Hubbard, P. (2008). Regulating the social impacts of studentification: A Loughborough case

study. *Environment and Planning A*, 40(2), 323–341. <https://doi.org/10.1068/a396>

Hubbard, P. (2009). Geographies of studentification and purpose-built student accommodation: Leading separate lives? *Environment and Planning A: Economy and Space*, 41(8), 1903–1923. <https://doi.org/10.1068/a4149>

Jacobs, J. (2020). The death and life of great american cities. The Bodley Head.

Jacoby, B., Sorensen, J., Reardon, K., & Klump, C. (2003). Empowering residents and students to rebuild neighbourhoods: a case study. In *Building Partnerships for service-learning* (pp. 192–197). essay, Jossey-Bass.

Jolivet, V., Reiser, C., Baumann, Y., & Gonzalès, R. (2022). Before displacement: studentification, campus-led gentrification and rental market transformation in a multiethnic neighborhood (Parc-Extension, Montréal). *Urban Geography*. <https://doi.org/10.1080/02723638.2022.2073150>

Keizer, K., Lindenberg, S., Steg, L. (2008). The spreading of disorder. *Science*, 322(5908), 1681–1685. <https://doi.org/10.1126/science.1161405>

Kelling, G. L., & Wilson, J. Q. (1982). Broken windows: The police and neighborhood safety. *The Atlantic Monthly*, 249(3), 29-38

Kences. (2019). National Monitor Student Housing 2019. Retrieved from <https://www.delta.tudelft.nl/article/no-end-sight-student-housing-shortage#>

Kinton, C., Darren, /, Smith, P., Harrison, J., & Culora, A. (n.d.). New frontiers of studentification:

REFERENCES

The commodification of student housing as a driver of urban change.

Kleinhans, R., Van Ham, M., & Evans-Cowley, J. (2015). Using social media and mobile technologies to foster engagement and self-organization in participatory urban planning and neighbourhood governance. *Planning Practice & Research*, 30(3), 237–247. <https://doi.org/10.1080/02697459.2015.1051320>

Koppes, G. (n.d.). Tilburg, Netherlands. Retrieved from <https://www.alamy.com/tilburg-netherlands-annually-arriving-university-students-are-forced-to-camp-out-due-to-a-lack-of-housing-in-the-city-the-two-major-universities-in-image341493897.html>.

Landelijk Platform Studentenhuisvesting. (2022). National action plan for student housing 2022-2030. Ministerie van Binnenlandse Zaken en Koninkrijksrelaties Volkshuisvesting en Ruimtelijke Ordening.

Lazzeroni, M., & Piccaluga, A. (2015). Beyond 'Town and Gown': The Role of the University in Small and Medium-Sized Cities. *Industry and Higher Education*, 29(1), 11–23. <https://doi.org/10.5367/ihe.2015.024>.

Lepofsky, J., & Fraser, J. C. (2003). Building Community Citizens: Claiming the right to place-making in the city. *Urban Studies*, 40(1), 127–142. <https://doi.org/10.1080/00420980220080201>

Lunds Kommun. (2016). Vision map Spårväg Lund C - ESS. Retrieved from <https://www.mynewsdesk.com/se/lund/images/visionskarta-spaarvaeg-lund-c-ess-522599>.

Lund University. (2023). Student nations. Retrieved from <https://www.lunduniversity.lu.se/>

student-life/student-organisations/student-nations

Macintyre, C. (2003). New Models of Student Housing and Their Impact on Local Communities. *Journal of Higher Education Policy and Management*, 25(2). <https://doi.org/10.1080/1360080032000122598>.

Magnusson, J. (n.d.). Collective space (collective agency). Retrieved from <https://philosophiesresarc.wordpress.com/2013/03/11/collective-space-collective-agency/#:~:text=Examples%20of%20strong%20collective%20spaces,sunbathers%20on%20a%20bench%2C%20etc.>

Marlow, R., Miessner, M. (2019). Immobilieninvestitionen und Verdrängung in Universitätsstädten. Das Beispiel Göttingen. *Forum Wissenschaft* 36(2): 12–15.

Martin, L., Smith, H., & Wende, P. (n.d.). Bridging "Town& Gown" through innovative university-community partnerships. *The Innovation Journal: The Public Sector Innovation Journal*, 10(2).

McAskie, L. (2021). The Streets Are Alive In Ghent: It's More Than Just Removing Traffic, It's Bringing People Together. Retrieved from <https://citychangers.org/the-streets-are-alive-in-ghent/>

Merriam-Webster. (n.d.a). Policy. In Merriam-Webster.com dictionary. Retrieved May 17, 2023, from <https://www.merriam-webster.com/dictionary/policy>

Merriam-Webster. (n.d.b). Regulation. In Merriam-Webster.com dictionary. Retrieved May 17, 2023, from <https://www.merriam-webster.com/>

dictionary/regulation

Miessner, M. (2021). Studentification in Germany: How investors generate profits from student tenants in Goettingen and the impacts on urban segregation. *European Urban and Regional Studies*, 28(2), 133–154. <https://doi.org/10.1177/0969776420934850>.

Nagl, E. (2015). Quo vadis, student housing? [Master's's thesis]. Department of Human Geography, Lund University.

Netwerk Kennissteden Nederland. (n.d.). Power of Knowledge: Position Paper for Agenda City, Network of Knowledge Cities in the Netherlands.

Newman, O. (1973). Defensible space: Crime prevention through urban design. MacMillan Publishing Co. Inc.

OpenCity Projects. (n.d.). Design for diversity toolkit. Retrieved from <https://opencityprojects.com/project/culturally-inclusive-design-toolkit>

O'Mara, M. P. (2012). Beyond town and gown: University economic engagement and the legacy of the urban crisis. *Journal of Technology Transfer*, 37(2), 234–250. <https://doi.org/10.1007/s10961-010-9185-4>.

Pintos, P. (n.d.). Revitalized Public Spaces: Fostering Human Connections in Cities. Retrieved from <https://www.archdaily.com/945220/revitalized-public-spaces-fostering-human-connections-in-cities>

Prinzessinnengarten. (n.d.). About Prinzessinnengarten. Retrieved from <https://prinzessinnengarten.net/about/>

Rauws, W., & Meelker, P. (2019). Students in

Groningen: An exploration of the effects of studentification in neighborhoods in Groningen. University of Groningen.

Rauws, W., van Lanen, S., & Hartman, D. (2021). Students in Groningen: Part 2: The effects of student complexes in the neighborhood. University of Groningen.

Revington, N., Moos, M., Henry, J., & Haider, R. (2020). The urban dormitory: planning, studentification, and the construction of an off-campus student housing market. *International Planning Studies*, 25(2). <https://doi.org/10.1080/13563475.2018.1552565>.

Reynald, D. M., Elffers, H. (2009). The future of Newman's defensible space theory. *European Journal of Criminology*, 6(1), 25–46. <https://doi.org/10.1177/1477370808098103>.

Rymarzak, M., den Heijer, A., Curvelo Magdaniel, F., & Arkesteijn, M. (2019). Identifying the influence of university governance on Campus Management: Lessons from the Netherlands and Poland. *Studies in Higher Education*, 45(7), 1298–1311. <https://doi.org/10.1080/03075079.2019.1616167>

Sage, J., Smith, D., & Hubbard, P. (2012). The Diverse Geographies of Studentification: Living Alongside People Not Like Us. *Housing Studies*, 27(8). <https://doi.org/10.1080/02673037.2012.728570>.

Savills. (2022). Delft is new at number 1 in the Savills Student Housing ranking. Retrieved from <https://www.savills.nl/insight-and-opinion/savills-nieuws/326164/delft-nieuw-op-nummer-1-in-de-savills-student-housing-ranking>

Savills Research. (n.d.). Growing student hous-

REFERENCES

ing shortages. Retrieved from <https://insight.savills.nl/spotlight-student-housing-2021/housing-shortages/>.

Scheerlinck, K.W.B. (2010). Collective space. Retrieved from <https://streetscapeterritories.org/2010/06/29/61/>

Statistics Sweden. (2021). Educational attainment of the population. Retrieved from <https://www.scb.se/en/finding-statistics/statistics-by-subject-area/education-and-research/education-of-the-population/educational-attainment-of-the-population/>.

Storper, M. (2014). Governing the large metropolis. *Territory, Politics, Governance*, 2(2), 115–134. <https://doi.org/10.1080/21622671.2014.919874>

Supateerawanitt, A. (2021). In pictures: A first look at the new ‘pocket park’ near Wat Hua Lamphong. Retrieved from <https://www.timeout.com/bangkok/news/in-pictures-a-first-look-at-the-new-pocket-park-near-wat-hua-lamphong-091321>

Talen, E. (2015). *Design for diversity*. Routledge.

Tang, C-C. (2005). Enhancing involvement in community planning using incentives. Retrieved from https://www3.uwsp.edu/cnr-ap/clue/Documents/publicProcesses/Enhancing_Involvement_Community_Planning_Using_Incentives.pdf

TU Delft. (2022). Population diploma students. Retrieved from <https://www.tudelft.nl/over-tu-delft/feiten-en-cijfers>.

TU Delft. (n.d.). Organisation. Retrieved from <https://www.tudelft.nl/en/about-tu-delft/organisa->

sation

TU Delft. (n.d.). Studying at TU Delft. Retrieved from <https://www.tudelft.nl/onderwijs/opleidingen/master's/cosem/msc-complex-systems-engineering-and-management/studying-at-tu-delft>

United Nations Development Group (UNDG). (n.d.). Theory of change: UNDAF companion guidance. Retrieved from <https://unsdg.un.org/sites/default/files/UNDG-UNDAF-Companion-Pieces-7-Theory-of-Change.pdf>

Universities UK. (2013). Studentification: a guide to opportunities, challenges, and practice. Retrieved from <https://www.yumpu.com/en/document/read/8735151/studentification-a-guide-to-opportunities-universities-uk>.

van den Berg, A-M. (2016). These people are fed up with the nuisance caused by OWee students. Retrieved from <https://indebuurt.nl/delft/nieuws/mensen-overlast-owee-studenten-helemaal-zat~12621/>.

van der Veldt, M & de Bruijn, A. (2021a). ‘We feel like outsiders with all those students surrounding us’. Retrieved from <https://www.delta.tudelft.nl/article/we-feel-outsiders-all-those-students-surrounding-us>.

van der Veldt, M. & de Bruijn. (2021b). ‘Being a good neighbour is not a request, it is an order’. Retrieved from <https://www.delta.tudelft.nl/article/being-good-neighbour-not-request-it-order>.

van der Veldt, M. (2019). OWee in pictures: A trip around the student associations. Retrieved from <https://www.delta.tudelft.nl/article/owee-pictures-trip-around-student-associations>

van Dorst, M., Vink, J., Groen, E., van Delden, J.,

de Haan, A., Tijchon, L., van den Boomen, V., Zijlstra, R.S. (2022). *Campus Visie 2040*. TU Delft.

Van Essen, M. (2021). Student nuisance in Delft: puke on the street, noise and drug parties. Retrieved from <https://www.telegraaf.nl/nieuws/2071948209/studentenoverlast-in-delft-kots-op-straat-herrie-en-drugsfeesten>

Visser, G., & Kisting, D. (2019). Studentification in Stellenbosch, South Africa. *Urbani Izziv*, 30, 158–177. <https://doi.org/10.5379/urbani-izziv-en-2019-30-supplement-011>.

Weil, M. (1996). Community building: Building community practice. *Social Work*, 41(5), 481–499. <https://doi.org/10.1093/sw/41.5.481>

Wikipedia contributors. (2022). Hammarby Sjöstad. In Wikipedia, The Free Encyclopedia. Retrieved from https://en.wikipedia.org/w/index.php?title=Hammarby_Sj%C3%B6stad&oldid=1129438192

Wilson, J. Q., Kelling, G. L. (1982). The police and Neighborhood Safety Broken Windows. *Social, Ecological and Environmental Theories of Crime*, 169–178. <https://doi.org/10.4324/9781315087863-11>

Yigitcanlar, T., Velibeyoglu, K., & Baum, S. (2008). Knowledge-based urban development: Planning and applications in the information era. In *Knowledge-Based Urban Development: Planning and Applications in the Information Era*. <https://doi.org/10.4018/978-1-59904-720-1>.

ZO makelaars. (n.d.) Jacoba Van Eierenlaan. Retrieved from <https://www.zomakelaars.nl/aanbod/woningaanbod/delft/koop/huis-3920492-Jacoba-van-Beierenlaan-165/>.

APPENDIX

	Student numbers*	Total housing units**	15% value***	20% value***	25% value***	30% value***	Delta 15%****	Delta 20%****	Delta 25%****	Delta 30%****
Bedrijventerrein Wateringseweg	0	0	0.00	0	0.00	0	0	0	0	0
Centrum-Noord	167	505	75.75	101	126.25	151.5	-91.25	-66	-40.75	-15.5
Centrum-West	742	1578	236.70	315.6	394.50	473.4	-505.3	-426.4	-347.5	-268.6
Centrum-Oost	373	1209	181.35	241.8	302.25	362.7	-191.65	-131.2	-70.75	-10.3
Centrum	811	1537	230.55	307.4	384.25	461.1	-580.45	-503.6	-426.75	-349.9
Stationsbuurt	286	260	39.00	52	65.00	78	-247	-234	-221	-208
Centrum-Zuidwest	513	1038	155.70	207.6	259.50	311.4	-357.3	-305.4	-253.5	-201.6
In de Veste	231	721	108.15	144.2	180.25	216.3	-122.85	-86.8	-50.75	-14.7
Centrum-Zuidoost	143	404	60.6	80.8	101	121.2	-82.4	-62.2	-42	-21.8
Zuidpoort	119	605	90.75	121	151.25	181.5	-28.25	2	32.25	62.5
Bedrijventerrein Haagweg	108	55	8.25	11	13.75	16.5	-99.75	-97	-94.25	-91.5
Indische buurt-Noord	30	265	39.75	53	66.25	79.5	9.75	23	36.25	49.5
Indische buurt-Zuid	313	1132	169.8	226.4	283	339.6	-143.2	-86.6	-30	26.6
Sint Joris	231	387	58.05	77.4	96.75	116.1	-172.95	-153.6	-134.25	-114.9
Koepoort	239	750	112.50	150	187.50	225	-126.5	-89	-51.5	-14
Bomenwijk	58	370	55.5	74	92.5	111	-2.5	16	34.5	53
Biesland	326	846	126.90	169.2	211.50	253.8	-199.1	-156.8	-114.5	-72.2
Heilige Land	248	1106	165.9	221.2	276.5	331.8	-82.1	-26.8	28.5	83.8
Bedrijventerrein Delftse Poort-West	3	40	6	8	10	12	3	5	7	9
Bedrijventerrein Altena	0	0	0.00	0	0.00	0	0	0	0	0
Agnetaparkbuurt	140	578	86.7	115.6	144.5	173.4	-53.3	-24.4	4.5	33.4
Ministersbuurt-West	78	603	90.45	120.6	150.75	180.9	12.45	42.6	72.75	102.9
Ministersbuurt-Oost	504	1055	158.25	211	263.75	316.5	-345.75	-293	-240.25	-187.5
Westeindebuurt	68	274	41.1	54.8	68.5	82.2	-26.9	-13.2	0.5	14.2
Olofsbuurt	793	1697	254.55	339.4	424.25	509.1	-538.45	-453.6	-368.75	-283.9
Krakeelpolder	651	1253	187.95	250.6	313.25	375.9	-463.05	-400.4	-337.75	-275.1
Westerkwartier	570	1515	227.25	303	378.75	454.5	-342.75	-267	-191.25	-115.5
Kuyperwijk-Noord	255	907	136.05	181.4	226.75	272.1	-118.95	-73.6	-28.25	17.1
Kuyperwijk-Zuid	227	948	142.2	189.6	237	284.4	-84.8	-37.4	10	57.4
Ecodus	92	374	56.1	74.8	93.5	112.2	-35.9	-17.2	1.5	20.2
Marlot	64	278	41.7	55.6	69.5	83.4	-22.3	-8.4	5.5	19.4
Westlandhof	208	884	132.6	176.8	221	265.2	-75.4	-31.2	13	57.2
Hoorse Hof	210	989	148.35	197.8	247.25	296.7	-61.65	-12.2	37.25	86.7
Den Hoorn	250	884	132.6	176.8	221	265.2	-117.4	-73.2	-29	15.2
Molenbuurt	206	561	84.15	112.2	140.25	168.3	-121.85	-93.8	-65.75	-37.7
De Bras	0	6	0.9	1.2	1.5	1.8	0.9	1.2	1.5	1.8
Bedrijventerrein Ypenburgsepoort	0	1	0.15	0.2	0.25	0.3	0.15	0.2	0.25	0.3
De Grote Plas	6	12	1.8	2.4	3	3.6	-4.2	-3.6	-3	-2.4
Bedrijventerrein Delftse Poort-Oost	8	0	0	0	0	0	-8	-8	-8	-8
Hoflaan	2	4	0.6	0.8	1	1.2	-1.4	-1.2	-1	-0.8
Bedrijventerrein Tanthof-West	18	36	5.4	7.2	9	10.8	-12.6	-10.8	-9	-7.2
Afrikabuurt-West	211	759	113.85	151.8	189.75	227.7	-97.15	-59.2	-21.25	16.7
Afrikabuurt-Oost	230	954	143.1	190.8	238.5	286.2	-86.9	-39.2	8.5	56.2
Latijns Amerikabuurt	211	879	131.85	175.8	219.75	263.7	-79.15	-35.2	8.75	52.7
Aziëbuurt	296	1208	181.2	241.6	302	362.4	-114.8	-54.4	6	66.4
Tanthofkadebuurt	0	0	0	0	0	0	0	0	0	0
Bedrijventerrein Tanthof-Oost	15	41	6.15	8.2	10.25	12.3	-8.85	-6.8	-4.75	-2.7
Boerderijbuurt	147	589	88.35	117.8	147.25	176.7	-58.65	-29.2	0.25	29.7
Dierenbuurt	118	429	64.35	85.8	107.25	128.7	-53.65	-32.2	-10.75	10.7
Vogelbuurt-West	253	1130	169.5	226	282.5	339	-83.5	-27	29.5	86

APPENDIX

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Vogelbuurt-Oost	162	701	105.15	140.2	175.25	210.3	-56.85	-21.8	13.25	48.3
Bosrand	60	339	50.85	67.8	84.75	101.7	-9.15	7.8	24.75	41.7
Poptahof-Noord	132	694	104.1	138.8	173.5	208.2	-27.9	6.8	41.5	76.2
Poptahof-Zuid	263	1011	151.65	202.2	252.75	303.3	-111.35	-60.8	-10.25	40.3
Bedrijventerrein Voorhof	66	181	27.15	36.2	45.25	54.3	-38.85	-29.8	-20.75	-11.7
Mythologiebuurt	449	1201	180.15	240.2	300.25	360.3	-268.85	-208.8	-148.75	-88.7
Aart van der Leeuwbuurt	126	652	97.8	130.4	163	195.6	-28.2	4.4	37	69.6
Roland Holstbuurt	1163	2289	343.35	457.8	572.25	686.7	-819.65	-705.2	-590.75	-476.3
Voorhof-Hoogbouw	520	1314	197.10	262.8	328.50	394.2	-322.9	-257.2	-191.5	-125.8
Multatulibuurt	400	786	117.90	157.2	196.50	235.8	-282.1	-242.8	-203.5	-164.2
Bedrijventerrein Vulcanusweg	1	18	2.7	3.6	4.5	5.4	1.7	2.6	3.5	4.4
Reinier de Graafbuurt	54	317	47.55	63.4	79.25	95.1	-6.45	9.4	25.25	41.1
Buitenhof-Noord	723	2265	339.75	453	566.25	679.5	-383.25	-270	-156.75	-43.5
Juniusbuurt	90	371	55.65	74.2	92.75	111.3	-34.35	-15.8	2.75	21.3
Gillisbuurt	305	655	98.25	131	163.75	196.5	-206.75	-174	-141.25	-108.5
Fledderusbuurt	86	495	74.25	99	123.75	148.5	-11.75	13	37.75	62.5
Het Rode Dorp	88	490	73.5	98	122.5	147	-14.5	10	34.5	59
Pijperring	62	357	53.55	71.4	89.25	107.1	-8.45	9.4	27.25	45.1
Verzetstrijdersbuurt	693	1338	200.70	267.6	334.50	401.4	-492.3	-425.4	-358.5	-291.6
Vrijheidsbuurt	295	757	113.55	151.4	189.25	227.1	-181.45	-143.6	-105.75	-67.9
Buitenhof-Zuid	121	269	40.35	53.8	67.25	80.7	-80.65	-67.2	-53.75	-40.3
Kerkpolder	0	3	0.45	0.6	0.75	0.9	0.45	0.6	0.75	0.9
Abtswoude	9	12	1.80	2.4	3.00	3.6	-7.2	-6.6	-6	-5.4
Delftzicht	171	781	117.15	156.2	195.25	234.3	-53.85	-14.8	24.25	63.3
Bedrijventerrein Zuideinde	0	0	0.00	0	0.00	0	0	0	0	0
Bedrijventerrein Schieweg-Noord	1	1	0.15	0.2	0.25	0.3	-0.85	-0.8	-0.75	-0.7
Bedrijventerrein Schieweg-Zuid	2	8	1.20	1.6	2.00	2.4	-0.8	-0.4	0	0.4
Schieweg-Polder	3	10	1.50	2	2.50	3	-1.5	-1	-0.5	0
Zeeheldenbuurt	312	693	103.95	138.6	173.25	207.9	-208.05	-173.4	-138.75	-104.1
TU-Noord	521	903	135.45	180.6	225.75	270.9	-385.55	-340.4	-295.25	-250.1
Wippolder-Noord	541	1018	152.70	203.6	254.50	305.4	-388.3	-337.4	-286.5	-235.6
Wippolder-Zuid	238	815	122.25	163	203.75	244.5	-115.75	-75	-34.25	6.5
Bedrijventerrein Rotterdamseweg-Noord	6	27	4.05	5.4	6.75	8.1	-1.95	-0.6	0.75	2.1
Professorenbuurt	476	1307	196.05	261.4	326.75	392.1	-279.95	-214.6	-149.25	-83.9
Bedrijventerrein Delftech	178	856	128.40	171.2	214.00	256.8	-49.6	-6.8	36	78.8
Pauwmolen	14	44	6.60	8.8	11.00	13.2	-7.4	-5.2	-3	-0.8
Koningsveldbuurt	64	301	45.15	60.2	75.25	90.3	-18.85	-3.8	11.25	26.3
Bedrijventerrein Rotterdamseweg-Zuid	55	102	15.30	20.4	25.50	30.6	-39.7	-34.6	-29.5	-24.4
Bedrijventerrein Technopolis	0	2	0.30	0.4	0.50	0.6	0.3	0.4	0.5	0.6
Ackersdijk	6	27	4.05	5.4	6.75	8.1	-1.95	-0.6	0.75	2.1
TOTAL	19228	55066	8259.9	11013.2	13766.5	16519.8	-10968.1	-8214.8	-5461.5	-2708.2
						RELOCATE	-10996.8	-8369.2	-6121.5	-4427.3
						INTAKE	28.7	154.4	660	1719.1

* 1 student = 1 student housing unit

** Total housing units considers 1 student room as 1 unit

*** Value is proportion of total housing unit

**** Value is difference between proportion of total housing unit and student housing unit

Relocate is the sum of all negative values in the column (= students can move out of neighbour-hood)

Intake is the sum of all positive values in the column (= students can move into neighbourhood)