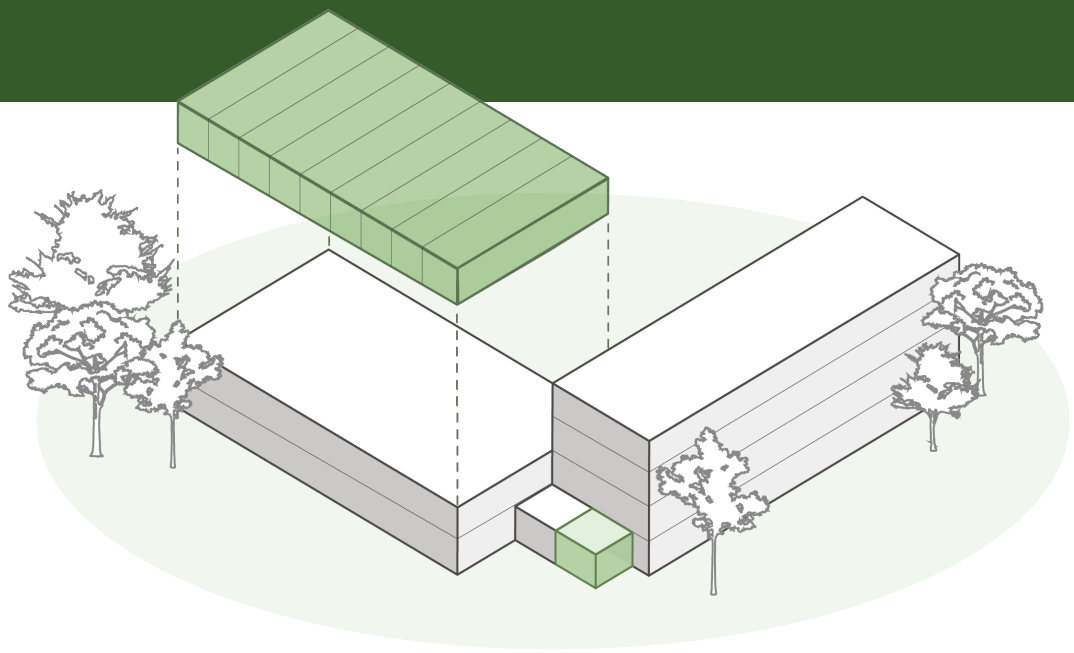
TOPPING UP TOGETHER

Evaluating participation processes to accelerate residential top-ups in the Netherlands



Olivia Wong

Thesis for MSc Metropolitan Analysis, Design and Engineering

Supervised by dr. ing. Gerard van Bortel and dr. ir. Bas van Vliet

TU Delft I WUR I AMS Institute

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MSc MADE

Author
Olivia Wong

1096788

Supervisors
dr. ing. Gerard van Bortel
Assistant Professor of Housing Management
Faculty of Architecture and the Built Environment
Department of Management in the Built Environment
TU Delft

dr. ir. Bas van Vliet
Associate Professor Environmental Policy
Department of Social Sciences
Environmental Policy Group
Wageningen University and Research

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ABSTRACT

Currently, the Netherlands is facing a great housing shortage, estimated at a deficit of 390.000 dwellings in 2023 (ABF Research, 2023). The efforts to solve this housing shortage are challenged by the limited space within existing urban boundaries and housing demand outpacing the supply. More importantly, there is a mismatch between the housing stock and preferences, particularly for starters and senior citizens. Additionally, it is crucial to consider the environmental impact of the construction of new dwellings, as 38 percent of all CO_2 emissions in the Netherlands derive from the construction sector (DGBC, 2021).

Top-ups offer an opportunity to alleviate this shortage, as it enables more efficiently and sustainably constructed dwellings within existing urban boundaries (Gillott et al., 2022; Julistiono et al., 2023). Moreover, it can utilise the window of opportunity provided by retrofitting, as all dwellings owned by housing corporations with energy labels E, F and G must be retrofitted before 2030 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023a). Not only can it aid the housing shortage quantitively, but also qualitatively as it can solve the mismatch by catering the dwellings to the needs of citizens.

While academic and public debate in the Netherlands primarily focusses on the financial and technical feasibility of top-ups, there is a knowledge gap regarding the role of citizen participation in the implementation of top-ups. In order to investigate the influence of citizen participation processes on the support for the top-up by residents, a qualitative multiple case study approach is applied.

This research provides a framework to evaluate participation processes and their contribution to citizen support for top-ups. The findings have illustrated how participation processes contribute to the support for top-ups by using a context-specific approach, adjusting the level of participation to the needs of both current and future residents, and combining both issue- and action-based activities. Additionally, it presents an overview of key social factors for top-ups, that moderate the influence of the participation process on the support for top-ups.

By acknowledging the social domain in the decision-making of top-ups, it can guide future participation processes to be more inclusive and effective, accelerating the implementation of successful top-ups. In other words, more avenues of opportunities are created for **topping up together**.

Key words: top-ups, vertical extensions, citizen participation, retrofitting, densification strategies

PREFACE

During my time at the AMS Institute for MSc MADE, I was immerged in an environment that always motivated me to be solution driven, keeping sustainability and innovation at the top of my priorities. This thesis is the cherry on top of my academic career, combining all the interactions and opportunities I have been presented with. Considering my background in Human Geography and Urban Planning, my strength lies in interdisciplinarity, tackling technical innovations from a social perspective. Thus, it seemed more than fitting to investigate top-ups with a human-centered lens.

What intrigued me most about top-ups is the great potential it has to aid the housing shortage, but the lack of acknowledgement for citizens as key players to the success of this concept. It seems obvious, but it is important to remember that discussions regarding top-ups or the housing shortage are not solely about the dwellings, but also about people. While the housing sector might worry about financial feasibility or innovation, residents have to cope with the reality of these choices. I am grateful with the generosity of interviewees that took the time to talk about their experiences as this research was not possible otherwise.

As for acknowledgements, I want to express my gratitude to my supervisors Gerard van Bortel and Bas van Vliet, for sharing their expertise and most importantly, their positive encouragement that motivated me to make the most out of my thesis.

Finally, I would like to thank my nearest and dearest. I am grateful for my family and my friends from and beyond MADE, who accompanied me throughout the process. A special thanks to Matias Cardoso, whose impeccable eye for design I admire, Irina Köhrer, for helping me dot the i's and cross the t's of this thesis, Kristen Valdez, as we conquered this thesis adventure together, and Hidde Spaa, for his daily support and words of affirmation.

Now at the end of the journey, I can conclude that I am satisfied with this thesis being the accumulation of all my lessons learned during my academic career.

Onwards and (top-)upwards!

Olivia Wong
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1.INTRODUCTION

1.1 Metropolitan challenge

Currently, the Netherlands is facing a great housing shortage, estimated at a deficit of 390.000 dwellings in 2023 (ABF Research, 2023). In order to aid this shortage, the Dutch government has set the aim to add 900.000 dwellings to the housing stock by 2030 through new urban developments and transformation (Rijksoverheid, 2023a). However, the efforts to solve this housing shortage are paired with various challenges.

First of all, regardless of the addition of 90.000 dwellings to the housing stock in 2022, the housing shortage increased strongly simultaneously. This can be partly accounted to the strong population growth as a result of migration and a decreasing trend in household size (ABF Research, 2023). In 2006, the average household in the Netherlands consisted of 2,26 persons, while it is estimated that a household will consist of 2,06 persons by 2035 (ABF Research, 2023). In other words, there is not only a need for housing in terms of quantity, but also quality as housing should suit the needs of the households.

At the same time, future developments are challenged with the limited space within the existing urban boundaries. The current trend in the Netherlands is to investigate the possibilities for new dwellings within existing urban boundaries before considering building in greenfields to prevent urban sprawl (Rijksoverheid, 2023b). Not only does this enable the preservation of limited green areas outside existing urban areas, but it also contributes to a healthier living environment (Julistiono et al., 2023; Resnik, 2010). Moreover, increasing the urban density also results in a more efficient use of energy transportation, mobility infrastructure, social facilities, and other networks (Gillott et al., 2022; Hernández-Palacio, 2017; Julistiono et al., 2023). It allows for concepts such as the 15-minute city to flourish and consequently to reduce the use of energy sources, contributing to a more sustainable urban environment (Hernández-Palacio, 2017).

Finally, it is important to acknowledge the environmental impact of this desire to build more dwellings. The construction sector is responsible for 38 percent of all CO_2 emissions in the Netherlands (DGBC, 2021), while the Dutch government is also challenged with their sustainability ambitions. These ambitions include cutting down the carbon emissions with 50 to 55 percent by 2030 and encouraging a circular economy by reducing 50 percent of the material-related environmental impact (Copper8 et al., 2023). Consequently, it is crucial to consider the materials and methods used for the desired additions to the housing stock.

But what if we do not look horizontally, but vertically within the existing urban boundaries for more opportunities to aid the housing crisis?

1.2 Top-ups as a solution

As a response, top-ups provide great potential for sustainable urban densification. In essence, top-ups are vertical extensions of buildings through the addition of new floors on top of existing buildings (Julistiono et al., 2023). In efforts to work towards a more circular economy, top-ups are an effective strategy to adapt and reuse existing buildings, instead of demolishment and replacement (Gillott et al., 2022; Julistiono et al., 2023).

It has peaked great interest from the Dutch government, as it is estimated that around

100.000 dwellings can be added to the housing stock through top-ups (Geuting et al., 2023; Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023b). Consequently, top-ups can offer opportunities to overcome the challenges to the current housing shortage in the Netherlands.

The first opportunity is the ability to construct dwellings in a shorter timeframe with a smaller environmental footprint compared to new constructions in greenfields. Top-ups are generally constructed with lightweight materials such as steel or timber to limit the impact on existing structures. In recent years, mass timber has been gaining popularity due to its low carbon footprint and lack of point loads (Wijnants et al., 2019). This also enables top-ups to be prefabricated, making it a more efficient and sustainable way of topping up (Julistiono et al., 2023). Prefabrication also limits the nuisance created on site, as the construction time is less than on-site assembly (Amer et al., 2019). Additionally, most of the materials of existing buildings remain utilised in its most useful form and thus whole life-cycle emissions are minimised compared to demolition and replacement (Gillott et al., 2022; Julistiono et al., 2023).

Secondly, top-ups can benefit from the window of opportunity presented by the upcoming energy retrofits in the Netherlands (Geuting et al., 2023). With the goal of transforming energy provision into energy neutral in the built environment by 2050, there is the ambition to retrofit 675.000 dwellings owned by housing corporations. Additionally, all dwellings with energy label E, F or G are prohibited to be rented out by 2030, affecting approximately 1.5 million dwellings in the Netherlands. This forces housing corporations to retrofit these dwellings to comply with these stricter standards (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023a).

For context, this mainly concerns post-war mid-rise tenement apartment blocks, which makes up 10,5 percent of the Dutch housing stock (Gruis, 2018). These flats were constructed in a standardised and affordable manner to alleviate the housing shortage after World War II (Gruis, 2018). Since then, the dwellings have aged, prompting renovation to improve insulation and reduce energy usage. Due its standardised character and often flat-roofed structure, this typology is commonly chosen for top-up pilots in the Netherlands. It is estimated that two-thirds of the 100.000 potential top-ups dwellings in the Netherlands consists of dwellings within this typology (Geuting et al., 2023).

And lastly, top-ups can also aid the housing shortage from a social perspective. One of the underlying reasons behind the deficit is the current mismatch between the housing stock and demand. College van Rijksadviseurs (2022) propose that starters and senior citizens are the primary demographic groups that are most in need of suitable housing. Simultaneously, empty nesters remain in their family homes, resulting in less family homes available to starters looking to expand their household, while they in turn still occupy smaller starter homes. As a result, starter homes are in high demand, limiting the options for renters who are looking to buy a starter home. This chain of housing can be set into motion if suitable housing is created through top-ups.

In summary, top-ups can lead to a more efficient and sustainable construction of dwellings within existing urban boundaries, utilising the window of opportunity provided by retrofit ambitions. Not only can it aid the housing shortage in a quantitative manner, but also in a qualitative manner by remedying the mismatch in housing stock and demand.

1.3 Knowledge gap

1.3.1 Academic relevance

While its potential is gaining recognition in major European cities, there is still a limited body of academic literature on the topic of top-ups (Amer et al., 2019; Julistiono et al., 2023). Although top-ups are not a novel concept, its popularity grew due to its ability to accommodate the ever-growing demand for space in the city, while also preventing urban sprawl (Julistiono et al., 2023).

To preface, there is a fragmentation in existing literature on top-ups that is created by the use of different terminology. While this research uses the term *top-up*, it has also been referred to as *vertical extension* or *vertical expansion* (VE) (Artés et al., Gillott et al., 2022; Julistiono et al., 2023; Nilsson et al., 2016, Reitberger et al., 2022; Wijnants et al., 2019) *roof stacking* (Amer et al., 2018), and *rooftop* and *upward extensions* (Wijnants et al., 2019) in English written literature. The term *aufstockung* is used in German and Austrian literature (Floerke et al., 2014; Tichelmann et al., 2019), while Dutch literature opts for *optoppen* (Geuting et al., 2023).

Generally, academic literature on top-ups is centred around the structural characteristics and technical implications of top-ups (Amer & Attia, 2018; Amer & Attia, 2017; Amer et al., 2019; Hermens et al., 2014; Pattison, 2021; Sundling et al., 2019). Moreover, there are classifications based on the typologies of top-ups (Floerke et al., 2014; Tichelmann et al., 2019). Specifically, there have been spatial explorations of the potential of top-ups (Amer & Attia, 2017; Amer et al., 2017), with construction-based criteria such as building strength and urban regulations. The potential of utilising steel and timber structures for top-ups has also been explored (Amer & Attia, 2017).

Furthermore, Julistiono et al. (2023) investigate the early decision-making processes, in which the common challenges and solutions in vertical extension projects are identified. However, the interviews were conducted with only participants from the construction sector and had mostly operational and technical aspects in mind. Additionally, Gillott et al. (2022) have done a similar research in which they identified the drivers and enablers of top-ups from the perspective of the construction sector. However, this was mainly based on experiences and attitudes towards applying top-ups in general rather than case-specific learned lessons.

While the physical and technical aspects of top-ups have been investigated previously, it can be concluded that there is a lack of literature on top-ups from a social perspective. While the importance of including residents at an early stage is acknowledged (Geuting et al., 2023; KAW, 2020; Newig et al., 2018), there is little information on applied participation strategies and the deciding role it can play in implementing a successful top-up. After all, technical feasibility is not always the sole key to a successful top-up: the organisational processes and social acceptance are also crucial (van Lidth et al., 2017). Thus, understanding the participation processes of top-ups is crucial, as it creates insight into what social factors are important for a successful top-up implementation.

Specifically, there is a lack of academic literature from the Dutch context. While there are explorations from governmental and private organisations (Geuting et al., 2023; KAW, 2020),

there are only a limited number of master theses on the topic of top-ups (Bor, 2023; Vafa, 2023; Zwanink, 2017).

Therefore, the focus of this research on top-ups from a social perspective, including perspectives beyond the construction sector and applying a case study approach highlights its academic relevance.

1.3.2 Societal relevance

Considering the Netherlands has one of the highest population densities of Europe (Eurostat, 2023), there is a growing need for exploring innovative and sustainable solutions that alleviate this housing shortage. Moreover, the Dutch construction sector is currently facing postponement on a great scale due to restricted nitrogen emissions, high material costs and limited labour force (Autoriteit Woningcorporatie, 2022; Economisch Instituut voor de Bouw, 2023; Ministerie van Landbouw, Natuur en Voedselkwaliteit, 2019). Furthermore, housing corporations currently have limited green fields in possession for new housing developments (Autoriteit Woningcorporatie, 2022). In other words, housing corporations are forced to look for sustainable densification strategies within their existing housing stock.

In contrast, top-ups can optimally utilise current urban structures and therefore it makes the acquisition of land positions less relevant. Moreover, it can limit the embodied carbon and nitrogen emissions resulting from the construction of new dwellings (Amer & Attia, 2017).

Additionally, the retrofitting of a great number of post-war mid-rise tenement apartment blocks creates a window of opportunity for top-ups. Energy retrofits can be seen as an enabler for top-ups, as both efforts can be implemented at the same time, thus minimising the nuisance for residents. Considering the great scale in which the post-war tenement apartment blocks owned by housing corporations need to be retrofitted to achieve higher energy efficiency by 2030, and the standardised character of this typology, this creates potential for a scalable approach and implementation of residential top-ups (KAW, 2020; Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023a).

Currently, housing corporations are inventorying the top-up capacity of their housing stock, and developers are in the process of creating top-up units in order to accelerate and standardise top-ups (Buurtboost, 2022; van Rijswijk, 2023). However, there is still a great need for an overview of successful standardised top-up projects (Geuting et al., 2023).

More importantly, there is a lack of insight on how citizen participation processes should be included into the decision-making process of top-ups from both the public and private sector. Although there is political support in the Netherlands for accelerating a large-scale implementation of top-ups (Rijksoverheid, 2023c), most of the top-ups are implemented individually. Therefore, this research contributes to this limited body of knowledge by showcasing executed top-ups and the learned lessons from their participation processes. Consequently, this can be utilised to open up opportunities for implementing future top-ups in a scalable manner.

Moreover, including citizen participation in shaping the city is key to a successful decision-making process from a social justice perspective (Arnstein, 1969). Not only can tacit

knowledge from residents be included, but it also increases the democratic capacity of residents (Glucker et al., 2013).

Additionally, the Dutch Environment and Planning Act (Omgevingswet) will take effect from 2024 onwards, making it mandatory to include an outline of a participatory approach when applying for an environmental permit. This includes a description of who is included in the participation process, how and at what moment they are included, and what the subject of discussion is (IPLO, n.d.). This act aims to encourage early inclusion of stakeholders during the decision-making, to ensure timely consideration of all interests (IPLO, n.d.). This act highlights the necessity of more knowledge on how the participation processes of top-ups should be shaped.

Moreover, citizen support for the top-up is necessary from a legislative perspective. Dutch legislation prescribes that at least 70 percent of current tenants should voluntarily agree with the proposal before the renovation can be executed (de Jonge, n.d.; Overheid, 2023). This applies to renovations to housing blocks with over ten dwellings owned by housing corporations. A change to a dwelling is considered a renovation if it improves the living comfort of sitting residents. As top-ups do not affect the dwellings of existing residents directly, it is not seen as a renovation. While this threshold is applicable if top-ups are combined with retrofits, it is not relevant if it concerns solely a top-up. Nevertheless, it underlines the importance of generating support before the top-up can be implemented.

In conclusion, the societal relevance of investigating participation processes of top-ups has been illustrated by the current challenges to the housing sector, the lack of overview of successful top-ups and the necessity of societal support in successful implementations of top-ups.

2. RESEARCH QUESTIONS

2.1 Description of problem

Due to the limited number of top-ups in the Netherlands, there is a knowledge gap on how residents should be involved to generate support for a top-up, to enable a successful implementation (Geuting et al., 2023). With technological innovation, the social context must be considered to ensure a successful transition (Geels, 2002).

With large-scale interventions such as retrofitting of housing blocks, a citizen participation trajectory is desired to create consensus and satisfaction amongst the residents (De Feijter, 2021). While the benefits of retrofits such as lower energy costs can be more apparent to residents, top-ups generally do not lead to change to the physical state of their homes or financial situation. This leads to the question of what factors influence the support for top-ups by residents.

2.2 Aim

In order to contribute to the solution of this problem, the following research aims are defined:

First of all, this research aims to identify key social factors that influence the residents' motivation or ability to support the top-up in the participation process. Secondly, this research seeks to investigate how current participation processes of top-ups are shaped. Lastly, this research aims to qualitatively analyse the relationship between participation processes and support by residents.

Ultimately, the overarching aim is to generate more knowledge on participation processes of top-ups to improve the decision-making processes of future top-ups, working towards a large scale approach to top-ups in order to aid the housing shortage.

2.3 Research questions

In order to achieve these aims, the following main research question is formulated:

In what ways do participation processes contribute to creating sufficient support for the implementation of residential top-ups in the Netherlands?

In order to answer this research question, the following sub-questions are investigated:

1. *What are key social factors for participation processes of residential retrofitting?*
2. *What are key social factors for participation processes of residential top-ups?*
3. *In what ways are residents included in the decision-making process of residential top-ups to generate support?*

The primary focus of sub-question one is the key social factors that influence the resident's motivation or ability to support residential retrofitting. In the context of housing, a retrofit is defined as adding a component or feature to a building that it did not have when first constructed (Eames et al., 2014). Thus, a top-up can in essence be seen as a type of retrofitting. While there is a lack of information on the participation processes of top-ups specifically, the importance of including residents in residential retrofits and renovations has been investiga-

ted previously (Cockbill, 2017; de Feijter et al., 2019; de Feijter, 2021; van Lidth et al., 2017; Mallaband et al., 2013; Xu et al., 2023).

Regarding sub-question two, it explores the key social factors for top-ups by using the key social factors for participation processes of residential retrofits as a foundation for comparison.

Both sub-questions one and two are grounded in the hypothesis that key social factors can moderate the influence of a participation process on the support for the desired retrofit and top-up. While a participation process can be designed to encourage a high level of citizen involvement, there is the possibility that predetermined attitudes, experiences or social characteristics can still influence the support by residents for the proposed top-up (Wilson et al., 2015).

The third research question includes insights into how residents are currently involved in decision-making processes of top-ups, and how these approaches contribute to or obstruct support by residents. Specifically, it focuses on the productive dimensions, which refer to the *definition of the issue, interest representation, moments of participation, and the models of participation* (Chilvers & Longhurst, 2016; Uittenbroek et al., 2019).

To synthesise the acquired insights, the participation processes are mapped using a *heuristic framework for comparative case analysis* (Chilvers et al., 2021) to illustrate the diverse approaches to citizen participation. Consequently, participatory processes are mapped based on who, when, how and in what citizens participate.

For context, sufficient support is defined based on the perception of the stakeholders. This includes the housing corporation, residents and others that are involved in the top-up. This often coincides with the legislative threshold of 70 percent of residents' approval. While this threshold is only relevant for top-ups combined with retrofits, this research proposes that support is still needed in decision-making processes for top-ups in which the threshold is not applicable. This ensures the top-up aligns with the preferences of residents.

2.4 Reading guide

This reading guide provides an overview of the structure of this research. This research commences with the theoretical framework in chapter three. Existing literature on citizen participation and key social factors for retrofits provide the foundation for analysis. Specifically, the latter provides the answer to sub-question one. Based on this framework, a conceptual framework is established in chapter four. Remarks on the research design and validity, phases of methodology and selection criteria for case studies are included in the chapter five. It also mentions the boundaries and ethical considerations of this research. Furthermore, the case studies are introduced in chapter six. The results of this research are highlighted in chapter seven, answering sub-questions two and three. The discussion of chapter eight includes reflections on the results in relation to existing literature. It also highlights the strengths and limitations of this research. Subsequently, recommendations for future research and future top-up practices are proposed. This research concludes by summarising the findings and reflecting on the research questions.

3. THEORETICAL FRAMEWORK

The following chapter provides a robust framework rooted in existing academic literature on which this research builds upon. Additionally, findings related to sub-question one can be found in paragraph 3.4.

3.1 Citizen participation

This research defines participation as *'emergent socio-material collectives of humans, non-human artefacts, and other elements through which publics engage in addressing collective public problems'* (Chilvers & Longhurst, 2016). It implies that participation processes are shaped through both human and non-human influences that enable citizens to participate in public matters. This refers to not only to stakeholders that provide the means for citizens to participate, but also the organisational form and context which allow for certain participatory processes.

3.1.1. Objectives of citizen participation

With regard to the objectives of citizen participation, Glucker et al. (2013) make a distinction between three different rationales in the objectives of public participation: *normative, substantive*, and *instrumental*.

The objectives within the normative rationale are based on democratic ideals (Glucker et al., 2013). This includes enabling citizens to **have an influence over the decision-making**. This derives from the democratic belief that an individual has '*the right to be informed, to be consulted or express their views on matters which affect them personally*' (Petts, 2003). Including citizen participation can enhance **democratic capacity**, **encourage social learning**, and **empower marginalised individuals and groups**. This is due to the opportunities that are created to actively participate in the decision-making (Glucker et al., 2013).

The *substantive* rationale includes all objectives that aim to improve the quality of the decision output (Glucker et al., 2013). Citizen participation can improve decision-making processes by **utilising tacit knowledge** to make more informed decisions (Edelenbos and Klijn, 2005; Glucker et al., 2013). Moreover, it can provide information on the significance of predicted impacts and risks for citizens, thus **incorporating value-based knowledge** (Glucker et al., 2013). Finally, the output of the process can be improved by **testing the robustness of information from other sources**. If the information of proponents of the plans is challenged by different sources, it prevents negative impacts or risks being overlooked, or benefits being exaggerated (O'Fairchaeallaigh, 2010).

With regard to the *instrumental* rationale, it refers to objectives that enable the proposed intervention. For example, citizen participation can **generate legitimacy** for the intervention. This includes creating a sense of ownership and influence over the decision-making, that leads to the support by residents (Glucker et al., 2013). Without legitimacy, citizen participation can in turn lead to objection to the plans, creating an obstacle for the implementation (Petts, 2003). It can also potentially **resolve conflict** between stakeholders, as it provides the opportunity to identify and solve conflict amongst stakeholders before decisions are made. Consequently, it prevents the alienation of citizens (Glucker et al., 2013).

Rationales	Objectives
Normative	Have influence over decisions
	Enhance democratic capacity
	Enable social learning
	Empowering marginalised individuals and groups
Substantive	Utilise tacit knowledge
	Incorporate value-based knowledge
	Test robustness of information from other sources
Instrumental	Generate legitimacy
	Resolve conflict

Figure 1. Overview of objectives of citizen participation (Glucker et al., 2013)

3.2 Elements of participation processes

Chilvers and Longhurst (2016) state that all forms of participation are shaped and constructed by *human subjectivities (who), objects of concern (what),* and *models of participation (how)*. All three factors are responsible for the performance of the participatory process. It must be noted that the process design is not fixed: it evolves due to constant interaction between the design and the management of the process. In other words, every interactive decision-making process needs to be adjusted to the local context (Edelenbos & Klijn, 2005).

Figure 2 shows that the participatory practice is also influenced by the wider systemic-constitutional relations. This refers to the setting in which the process occurs, which is shaped by existing relationships between stakeholders. Thus, analyses using the elements of participation should be context sensitive.

Similarly, Uittenbroek et al. (2019) state that the citizen participation design is related to the organisation of the process in terms of *who* can take part, *when* and *how*. Due to its similarities, categorisations by Uittenbroek et al. (2019) and Chilvers and Longhurst (2016) are combined to create a comprehensive framework.

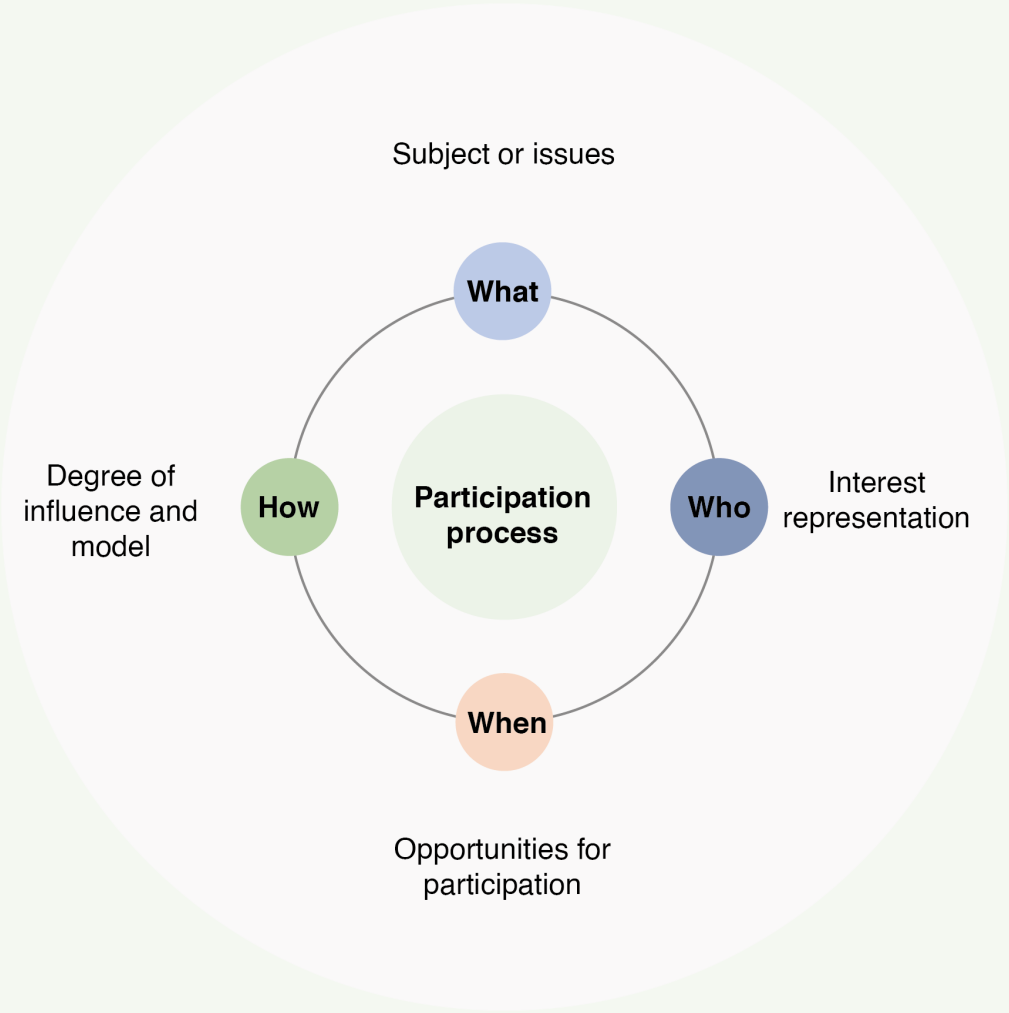


Figure 2. Elements of participation process (Edelenbos & Klijn, 2005; Chilvers & Longhurst, 2016; Chilvers et al., 2021; Uittenbroek et al., 2019; edited by author)

3.2.1 Who – interest representation

While the '*who*' refers to the public who can participate, there is no clear understanding of this public, what their interests are and how they benefit from participation (Glucker et al., 2013). Ideally, all citizens affected by the top-up are included in the participation process to enhance the legitimacy of plans. However, it generally is too demanding to include every affected citizen in terms of costs and time (Dietz and Stern, 2008). More importantly, residents are not a homogenous entity (Glucker et al., 2013; Petts, 2003). Therefore, the main objective of participation is to have a complete representation of interests, rather than full inclusion (Uittenbroek et al., 2019).

The '*who*' also refers to the possibility of exclusion or unequal representation of communities. Citizens who have the financial resources, knowledge, or physical ability to engage in the participation process might have the most dominant voice, thus creating inequalities disadvantaging those that are already marginalised (Uittenbroek et al., 2019; Wilson et al., 2015).

3.2.2 What – subject of participation

As for the issues that are the subject of the participation process, these are often pre-defined and thus potentially framed by predetermined interests of stakeholders (Chilvers & Longhurst, 2016). While housing corporations may have the ambition to top up, this may not be the best solution that adheres to the interests of all stakeholders. Thus, it is important to be aware of the interests that shape the subject of the participation process.

3.2.3 When – opportunities for participation

'*When*' refers to the opportunities for residents to participate during the decision-making process (Uittenbroek et al., 2019). Uittenbroek et al. (2019) make a distinction between *policymaking, policy implementation, policy evaluation* and *maintenance phase*. Including participants early on in the process generally is beneficial, as the preferences of residents can be integrated in the decision-making process (Uittenbroek et al., 2019). Early inclusion also means that conflicting interests can be mediated early on, thereby preventing them from obstructing the process later on (Olander, 2006). Moreover, the acceptance of stakeholders is also based on trust, which can be established more easily if all stakeholders all included early on (Olander, 2006). Inclusion in later stages of the decision-making process can limit their impact to being solely informed.

3.2.4 How – models of participation

The '*how*' indicates the degree of influence that residents have in the process through the selected model of participation. The degree of formalisation of the decision-making process also influences the depth in which the citizen participation can be organised (Edelenbos and Klijn, 2005). This depth can be illustrated by the levels of participation according to the ladder of participation, coined by Arnstein (1969). This method is often implemented in Dutch policies (Berenschot & VNG, 2023; Rijksoverheid, 2020; Schröder and Nguyen, 2022).

To specify the level of participation, Arnstein (1969) distinguishes eight types of participation which are based on the power citizens have to influence decision-making processes. This approach assumes that the higher the type of participation is positioned on the ladder, the higher the level of power citizens have over the process and thus the higher the democratic legitimacy of the process.

Subsequently, these types can be categorised in *non-participation, tokenism*, and *citizen power*. For non-participation, which consists of therapy and manipulation, citizens do not have any power but are merely given the illusion that they have a say. Furthermore, tokenism generally entails that citizens are included in the process, but it is not guaranteed that their input is included in the decision-making. Finally, Arnstein (1969) states that participation forms categorised under citizen power include a power distribution amongst stakeholders, including citizens.

Nevertheless, this ladder has been criticized as it oversimplifies power structures between participants and organisations (Guijt & Shah, 1998). It is also considered to be too static, as various activities within the same decision-making processes can be positioned differently on the ladder depending on the phase of the process (Schröder and Nguyen, 2022). Moreover, the standardisation of participation approaches also contradicts the aim of participation to move away from blueprint planning to enable more context-specific approaches (Muchunguzi, 2023).

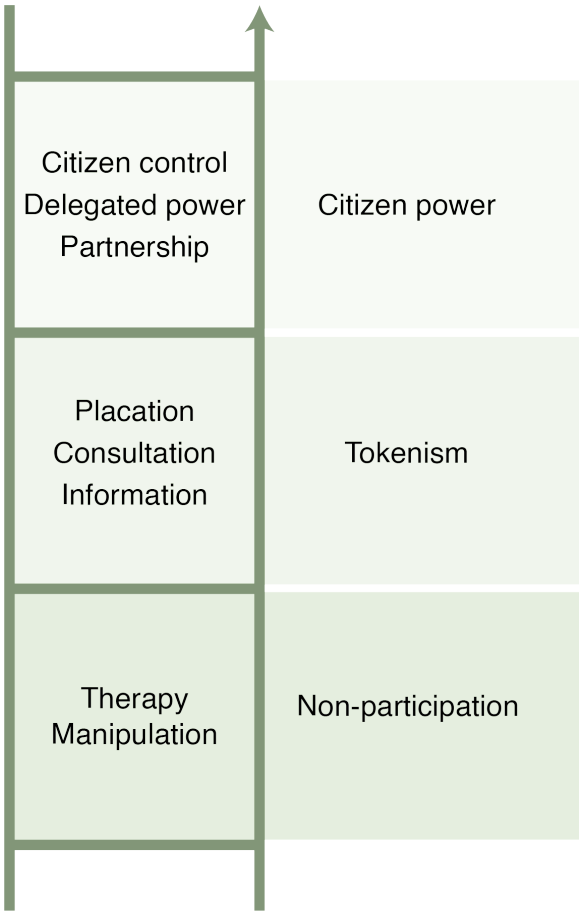


Figure 3. Ladder of partiicpation (Arnstein, 1969)

3.3 Comparative case analysis

Going beyond the Ladder of Participation (Arnstein, 1969), comparative case analysis is utilised in this research to categorise and compare participation processes based on who participates, in what they participate and how they participate (Chilvers et al, 2021). Different from the ladder, various activities within the same participation process can be categorised differently based on its initiator and the nature of the activity. As a result, Chilvers et al. (2021) propose that all forms collectively shape wider ecologies of participation, as actions within participation processes do not occur in isolation.

To visualise the comparative case analysis, Chilvers et al. (2021) propose a heuristic mapping space to map the activities of participation processes. Heuristic in this context implies that parameters are utilised to enable clear analysis of the case studies. By mapping the different forms, it provides knowledge on current applied approaches to participation processes of top-ups in general.

The models of participation, also the '*how*', is positioned within this mapping space based on the x and y-axes. For this research, the '*how*' refers to the various participative activities within the models of participation. The x-axis refers to the '*who*' (Chilvers & Longhurst, 2016; Uittenbroek et al., 2019) ranging from institution-led to citizen-led initiation of the intervention. These terms are also sometimes referred to as centralized or invited versus distributed or uninvited. This implies that process is initiated by more formalised and top-down parties such as the government or housing corporations, while citizen-led refers to bottom-up approaches.

Furthermore, the y-axis is related to the '*what*', ranging from issue-based to action-based participation activities. Issue-based activities focus on expressing views on the matter, shaping the discourse and making commitments accordingly (Chilvers et al., 2021). Action-based activities can include discussions on the requirements for the implementation for example, leading to material commitment and change (Chilvers et al., 2021).

To align to the theoretical framework as illustrated in figure 2, opportunities for participation, also referred to as '*when*', are introduced to the comparative case analysis (Chilvers et al., 2019).

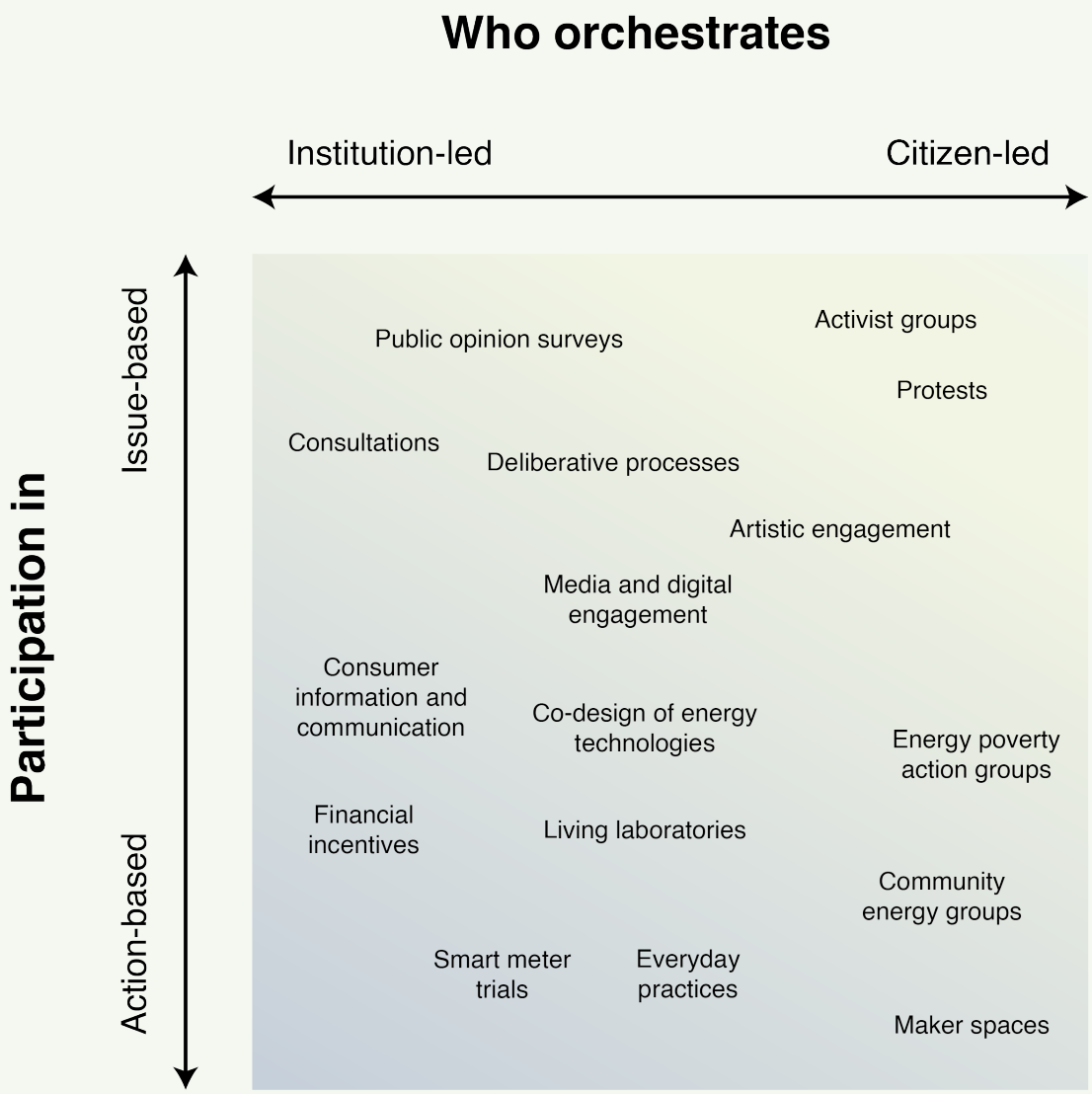


Figure 4. Example of the heuristic mapping of comparative case analysis in the context of energy transitions (Chilvers et al., 2021).

3.4 Key social factors for top-ups

Considering the limited knowledge on the key social factors for top-ups and the similarity with retrofits, the following paragraph is dedicated to the key social factors for residential retrofitting. It provides an overview of key social factors that influence the residents' ability or motivation to agree or disagree with the implementation of retrofits. Consequently, it provides the answer to sub-question one.

This research defines key social factors as '*factors that influence the resident's motivation or ability to support residential retrofitting'* (Wilson & Dowlatabadi, 2007; Wilson et al., 2015). While it is acknowledged that financial and technical factors such as uncertain cost savings or improving aesthetics can contribute to support for a retrofit (Wilson et al., 2015), this research highlights the importance of the social domain in achieving sufficient support for top-ups.

It must be noted that academic literature often refers to retrofitting in the context of energy-related retrofitting. This can range from better insulation to reduce energy loss to the installation of renewable heat and energy sources (Cockbill, 2017). Not only does this impact the physical environment of the dwellings, but it could also change energy use and therefore financial costs for residents.

To preface, this research acknowledges that key social factors do not occur isolated, as values, beliefs and norms are also influenced by other factors such as socio-demographic status.

The following paragraphs investigate the key social factors for retrofits. The factors are divided into the categories of '*decision about retrofit measures', 'personal influences'* and '*contextual influences*' as coined by Wilson et al. (2014).

3.4.1 Decisions about retrofit measures

First of all, the category of 'decisions about retrofit measures' includes the dimension of information and beliefs (Wilson et al., 2014). Within this dimension, lack of **credible information** can lead to misunderstandings, thus influencing the residents' choice to retrofit. This can result in misjudgement of the scope, impact and possibly the benefits of the retrofits (Cockbill, 2017; Jaffe et al., 1999; Mallaband et al., 2013).

Part of the information provision is dependent on the **interpersonal communication and trust of contractors**, which in this case are the housing corporations (Wilson et al., 2014). The likelihood to adopt retrofit measures is higher if information is acquired through personal contacts and social networks than through expert advice (Wilson et al., 2014; Wilson et al., 2015). Liu et al. (2021) adds that a successful retrofit requires not just **trust** in contractors, but mutual trust and genuine power sharing can improve the retrofit implementation.

3.4.2 Personal influences

The category of influences within the personal domain includes motivations, experiences

and skills, attitudes and beliefs, and socio-demographics as key social factors. All factors within this domain refer to the individual decision-maker.

Regarding motivations, **pre-existing values and preferences** of residents can be a barrier to the uptake of a retrofit. These can relate to the physical appearance of the dwelling or perceived worth of retrofit for example (Mallaband et al., 2013). Whether it is the financial responsibility of the homeowner or the landlord to retrofit, cost can play a role in the decision-making for a retrofit either way. This is connected to the values and preferences, as the homeowner or landlord may not have retrofitting high in their list of priorities (Mallaband et al., 2013).

Moreover, a retrofit can lead to improved **thermal comfort** and **energy saving**, and therefore a reduction of energy costs. In turn, this can motivate a resident to approve of a retrofit (Wilson et al., 2014).

Previous experiences with retrofitting or **with the housing corporation** executing the retrofitting can also add to the residents' perspective towards retrofits. This can include learned lessons that can be integrated to improve the participation process, or adversely affect the process due to negative prior experiences.

Looking towards attitudes and beliefs, **awareness of the current state of energy market** can also motivate to approve of the retrofit (Wilson et al., 2014). If energy prices are high, it would be beneficial to reduce the energy usage by retrofitting. From a sustainability perspective, a reduction in demand for energy would also be advantageous to limit emissions needed for energy generation.

Furthermore, **perceived difficulty** of the retrofit can lead to residents feeling overwhelmed and thus failing to uptake the retrofit (Mallaband et al., 2013). This might be less applicable for cases in which the retrofit is mainly facilitated by landlords, but it can still influence residents' choice or ability to participate and thus support the retrofit. In that case, it mainly refers to the disruption or hassle created by the retrofit (Wilson et al., 2014). This includes having to move to temporary homes or coping with living in a construction site.

Finally, socio-demographic characteristics of individuals also influence the perspective of residents towards retrofits (Pelenur, 2013; Wilson et al., 2014). Socio-demographic variables such as **income**, **education level** and **age** appear to be significantly correlated to barriers to retrofitting (Pelenur, 2013).

3.4.3 Contextual influences

The category of influences within the contextual domain includes status of home tenure, duration of occupancy, life stage and uncertain future. Factors within the contextual domain generally concern households (Wilson et al., 2014).

As for **status** of the home tenure, the impact and responsibilities of a retrofit can be different depending on the type of ownership. The housing corporation typically bears the majority of the financial burden for top-ups. This can lead to split incentives, where housing corporations invest in retrofitting but residents primarily benefit from lower energy costs (Pelenur &

Cruickshank, 2011). Service costs for residents can increase accordingly to offset the investment of the retrofit (Eigen Haard, 2020; Vidomes, 2022). Beyond financial stakes, the housing corporation is involved in the housing block for an indefinite time, unlike residents who are not obligated to decide with a long-term perspective as they do not own the property.

Furthermore, the **duration of occupancy** of the resident in the dwelling also matters (Wilson et al., 2014). Residents that have lived in their homes for an extended period is more likely to feel a sense of attachment and ownership. That could result in higher sense of responsibility to participate. Yet, it could also mean that they have lived in the less agreeable situation longer and yearn for improvement or are more complacent with the status quo.

Lastly, salient events encourage residents to stay or move out of their homes. This coincides with the **life stage** of residents (Mallaband et al., 2013). This can include starting families with young children. They can either be hesitant to retrofit due to the disruption by the construction works or it can motivate to improve their home. Furthermore, empty nesters are offered the opportunity to move to a smaller home as they do not need additional bedrooms anymore. Senior residents may be hesitant about retrofitting due to an **uncertain future** in their current homes, due to declining health for example. This uncertainty makes retrofitting less appealing since they anticipate residing there for only a limited time.

Category	Dimensions	Key social factors	Source
Decisions about retrofit measures	Information and beliefs	- (Credible) information provision - Interpersonal communication and social networks - (Mutual) trust between housing corporation and residents	Jaffe et al., 1999 Liu et al., 2021 Mallaband et al., 2013 Pelenur, 2013 Wilson et al., 2014 Wilson et al., 2015
Personal influences	Motivations	- Pre-existing values and preferences - Energy saving - Thermal comfort	Mallaband et al., 2013 Pelenur, 2013 Wilson et al., 2014
	Experience	- Experience with retrofitting - Experience with housing corporation	Wilson et al., 2014
	Attitudes and beliefs	- Awareness of energy-environment issues and the housing market - Perception of difficulty of retrofit	Mallaband et al., 2013 Pelenur, 2013 Wilson et al., 2014
	Socio-demographics	- Age - Income - Education	Pelenur, 2013 Wilson et al., 2014
Contextual influences	Home tenure	- Status (social housing, private rent or owned) - Duration of occupancy	Wilson et al., 2014
	Salient events	- Life stage - Uncertain future	Mallaband et al., 2013 Wilson et al., 2014

Figure 5. Overview key social factors on (energy) retrofits

4. CONCEPTUAL FRAMEWORK

To reiterate, the main research question is:

In what ways do participation processes contribute to creating sufficient support for the implementation of residential top-ups in the Netherlands?

In order to answer this question, the conceptual model is based on the following hypothesis:

The participation process influences the level of citizen support for the residential top-up, which is moderated by the key social factors.

In this case, support for the top-up by residents is seen as the dependent variable, which can be influenced by the participation process, which in turn is the independent variable. Additionally, the key social factors act as moderating factors to this relationship. While a participation process can be designed to encourage a high level of citizen involvement, the hypothesis poses that there is the possibility that social factors such as predetermined attitude can moderate the influence of the participation process on the support for the top-up (Wilson et al., 2015). It is also important to reiterate that it concerns the level of support perceived by stakeholders.

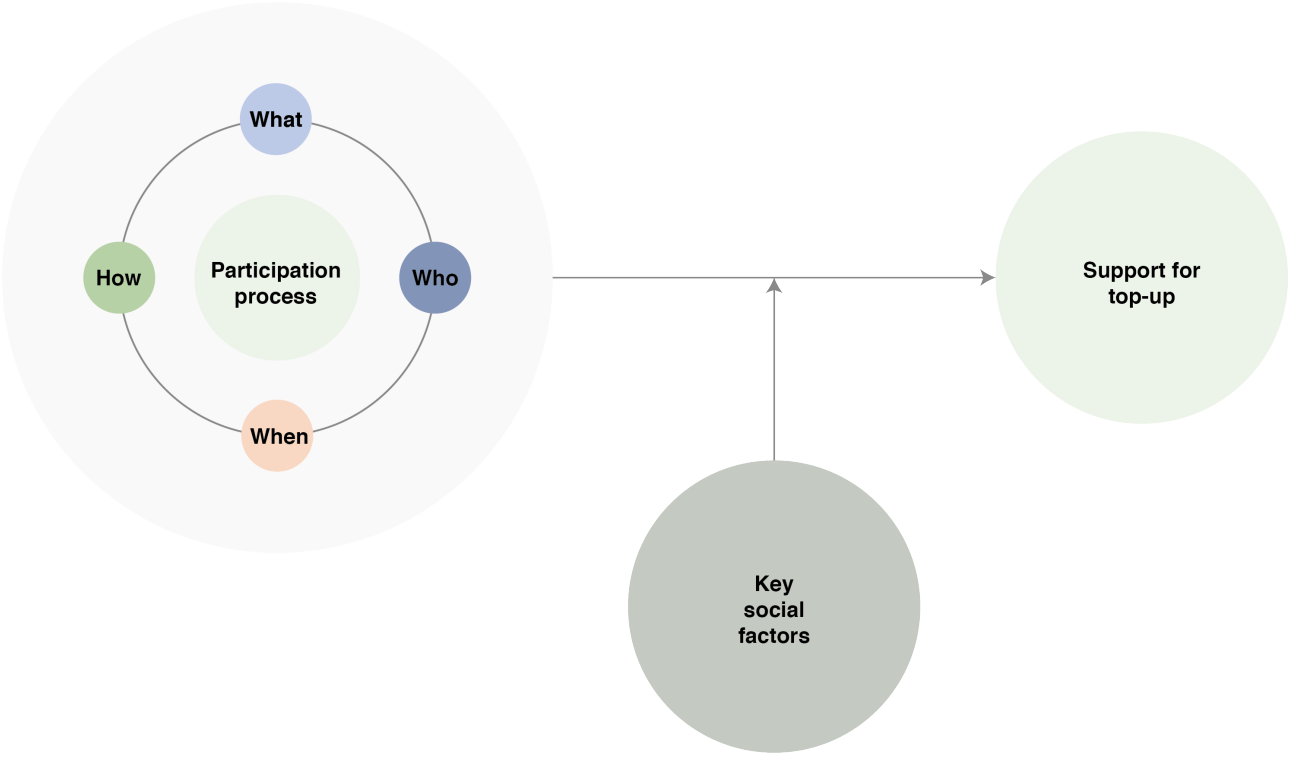


Figure 6. Conceptual framework

5. METHODOLOGY

The following chapter elaborates on the research design, research validity and the structure of the methodology of this research. It provides description of the phases of data collection and data analysis, the selection criteria for the case studies, and the boundaries and ethical considerations of this research.

5.1 Research design

A qualitative case study research design is chosen considering its ability to examine a case in a real-life context in depth (Yin, 2006). Specifically, it involves a multiple case study research, as it aims to obtain a variety in approaches to participation processes of top-ups in the Netherlands.

Schramm (1971) proposes that case studies attempt to illuminate a decision in why they were taken, how they were implemented and what result it had. While case studies investigate a contemporary phenomenon, it does not mean that its characteristics are applicable for all cases in similar context. In other words, the boundaries between phenomenon and content are not always evident (Yin, 2006).

Moreover, this research has a deductive approach. Grounded in theories of the key social factors for retrofits (Mallaband et al., 2013; Wilson & Dowlatabadi, 2007; Wilson et al., 2015) the objectives of citizen participation (Glucker et al., 2013) and the elements of participation process (Chilvers & Longhurst, 2016; Uittenbroek et al., 2019), these are applied to the case studies to analyse the participation processes of top-ups and its relation to the support for top-ups by residents.

As for the research paradigm, this research can be categorised as constructivist (Guba & Lincoln, 1994). Within this paradigm, it is assumed that realities are multiple, subjective, and equally valid (Ponterotto, 2005). Therefore, no constructions are more or less 'true' but could just be less informed or less sophisticated (Guba & Lincoln, 1994). This applies to this research, as the retrieval of information is based on the realities of the interviewed and observed stakeholders, together creating their perception of support.

5.2 Research validity

Four measures of research validity (Guba & Lincoln, 1994) are utilised to evaluate the quality of this research based on its research design. These measures include *construct validity*, *internal validity, external validity,* and *reliability*.

First of all, construct validity refers to utilising the correct measures for the study units. A qualitative approach is deliberately chosen over a quantitative approach, as it provides the opportunity to retrieve in-depth information on the experiences with the participation process and perception of support for the top-up from stakeholders. This enhances the construct validity of this research.

Furthermore, internal validity represents the extent to which there is a causal relationship between the independent and dependent variable. Other possible variables influencing this dependent variable should be identified, to avoid false assumptions. In this case, this research hypotheses that participation processes can influence the support for top-ups by

residents, while key social factors act as a mediating variable that operates independently from the participation process. It also acknowledges the possibility of financial or technical aspects of the top-up influencing the level of support.

Moreover, external validity includes the ability to generalise the findings of this research to a broader context. While it can be argued that findings resulting from case studies are limited in generalisation, Flyvvberg (2006) states that this is one of the common misunderstandings about case studies. They pose that case studies are apt to identify black swans to invalidate the statement that all swans are white, which connects to the test of falsification (Popper, 1959).

The multiple case study approach of this research helps to mitigate the limitations of single-case studies, increasing the possibility for the identification of 'black swans'. This is beneficial for the external validity of this research (Guba & Lincoln, 1994).

Lastly, reliability involves the replicability of the results when using the same methods on the same research subjects. Following constructivism, the results depend on the information retrieved by the interviewed and observed stakeholders. Thus, repeating the same methods do not guarantee the same results, as it relies on the input from stakeholders and the interpretation by the researcher. Nonetheless, the topic list based on the theoretical framework provides a consistent foundation for data collection and analysis. This improves the consistency and thus, the reliability of this research.

In summary, by acknowledging the measures of research validity, it addresses potential limitations of the research design and strategies to overcome these limitations, contributing to the research validity.

5.3 Structure of methodology

In order to answer the main research question, the methodology is divided in two phases: data collection and data analysis. Figure 7 provides an overview of the phases and used methods to answer the respective sub-questions.

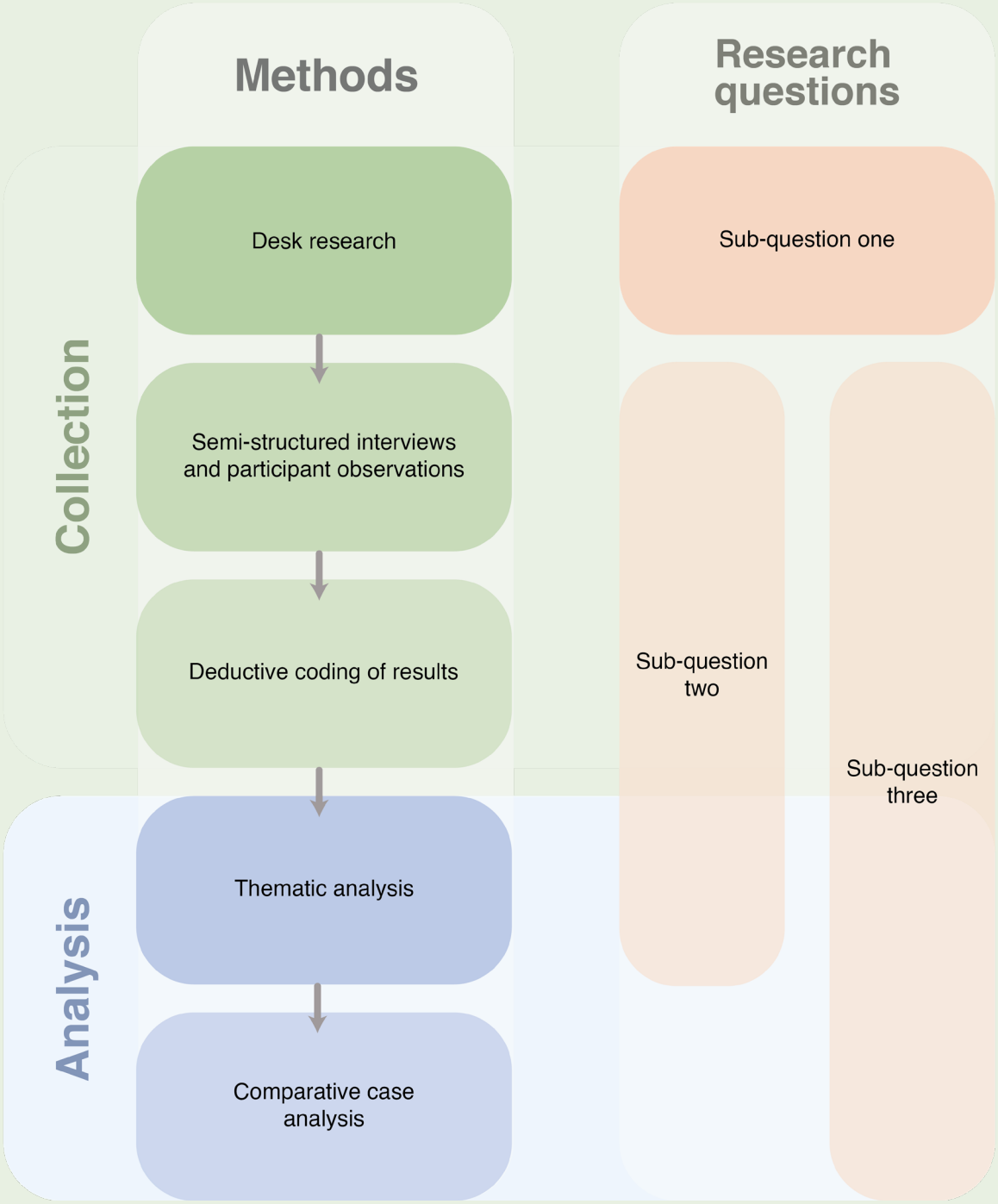


Figure 7. Methodology of research

5.4 Data collection

5.4.1 Methods

Desk research

Desk research refers to the review of grey and academic literature. Grey literature gives insight into the structure and progress of the decision-making of the top-ups. This includes documents such as meeting reports, social plans and newsletters published by the housing corporations of the case studies. The review of academic literature on key social factors of retrofitting provides the answer to sub-question one.

It is important to note that the key social factors as described by Mallaband et al. (2013) and Wilson et al. (2014) influence the residents' choice to retrofit, while this research looks into the residents' choice to support the retrofit. The main difference lies in the fact that the housing corporations are the main stakeholder executing the retrofit and top-up, while the aforementioned authors have homeowners as their main stakeholder. This is taken into consideration in the selection of key social factors, excluding factors that are solely relevant for individual uptake of retrofits.

Semi-structured interviews

Furthermore, data is collected through semi-structured interviews with stakeholders involved in the case studies. This includes employees of the housing corporations, residents and others involved in the top-up. Semi-structured interviews enable the retrieval of information on the case studies based on the predetermined themes, while it also allows for flexibility for participants to coin new topics (Bryman, 2012; Wahyuni, 2012). Aside from questions about the structure of the process itself, perceptions of and experiences with participation processes are also obtained.

Part of these interviews are held in informal settings, making it hard for recordings and transcripts. In this case, key remarks are noted down during the interview and further elaborated on directly after the interview to get a comprehensive grasp of the interaction. In cases in which it is possible, recordings are made with informed consent of the interviewee and are summarised afterwards.
The theoretical framework is utilised for the operationalisation of concepts. The participation processes are operationalised using the four elements of participation processes (Chilvers & Longhurst, 2016; Uittenbroek et al., 2019) and the objectives of citizen participation (Glucker et al., 2013). Key social factors are operationalised according to the definition by Wilson et al. (2015), dividing the factors into dimensions regarding the retrofit measures, and of personal and contextual influences. The operationalisation provides the foundation for the topic list, which is included in appendix A.

The interview topic list is adjusted accordingly to the interviewee. The topic list mainly caters towards representatives from housing corporations. Not all interviewees have the same role or level of involvement in the process, and thus, not every topic is applicable or relevant for every stakeholder. Consequently, the objective of interviews varies depending on the inter-

viewee. During the interviews with residents, the topic list was mainly used to retrieve information on their personal experience of the process, mainly focussing the key social factors.

The coding of results is executed through the software ATLAS.ti, of which the coding tree can be found in appendix B. The method of coding can be seen as primarily deductive, as the codes are predetermined based on the theoretical framework and not directly derived from the input. However, the analysis does allow for inductive coding as well, as themes can be identified after the retrieval of data.

Participant observations and personal interactions

Participant observations are used as opportunities for the researcher to immerse in the case studies, by observing during on-site events. This includes events such as tours of the top-up buildings with professionals and information sessions for residents. These events also provide the chance to have unstructured, informal conversations with present stakeholders.

Furthermore, it also gives insight into the interaction amongst the stakeholders. While the semi-structured interviews allow for in-depth one-on-one conversations, giving the interviewees the space to speak freely, it is also beneficial to have knowledge on how stakeholders interact amongst each other.

Moreover, another advantage is that it allows for conversations with participants, without having the obstacle of making an appointment. While the conversations can be less in-depth than semi-structured interviews, it lowers the threshold for data collection.

Due to the informal setting, and risk to interfere with the objective of the event, these conversations were all short, each lasting a maximum of five minutes. While not all conversations adhered to the themes of the topic list for the semi-structured interviews, it does contribute to more knowledge on the context of the case study. Results from the participant observations and personal interactions that did fit into the themes of the topic list were included in the coding of results in ATLAS.ti.

5.4.2 Sampling

The interviewees are selected through *snowball sample* (Bryman, 2012). The first point of contact are representatives from housing corporations, who facilitate the participation process. This involves project managers or others involved in participation process of the top-up project. Housing corporations are the most visible stakeholder as their plans for top-ups are often published and thus easiest to contact first.

After conducting the initial interview with a representative from the housing corporation, other stakeholders are approached based on availability and recommendations by representatives of housing corporation. However, obtaining corporation from other stakeholders might not always be successful, as the dynamic between stakeholders could be sensitive. Therefore, the objective of the interviews is to gain a saturated understanding of the participation processes and the relationship between corporation and residents, and how support is generated.

Case study	Role of interviewee	Organisation	Date	Medium	Length
De Beren	Manager Customers	Parteon	16/11/23	In person - including site visit	2 hours
	Director	De Wijde Blik	7/12/23	Online	30 minutes
Aquarius	Project lead	Eigen Haard	30/11/23	Online	1 hour
	Returning resident	-	12/12/23	Telephone	30 minutes
	Returning resident/ former member of residents' committee	-	14/12/23	Telephone	30 minutes
Vaartdreef	Project lead	Vidomes	15/11/23	In person - including site visit	2.5 hours
	Student responsible for social activities	-	23/11/23	Telephone	30 minutes
	Members of renters' council	Vidomes	11/12/23	Telephone	30 minutes
	Resident	-	13/12/23	Telephone	30 minutes

Figure 8. Overview of semi-structured interviews

Case study	Activity	Interactions with	Date
De Beren	Information session	- 16 residents, including former members of residents' committee - Senior consultant social management of Parteon - Project lead of Parteon	11/12/23
	Meeting	- Project lead of Heren5 Architecten	06/01/24
Aquarius	Tour of the building	- Project lead of Eigen Haard	13/12/23
Vaartdreef	Tour of the building	- 1 resident	15/11/23
	Completion party	- 7 residents, including former members of Residents' committee	2/12/23

Figure 9. Overview of participant observations and personal interactions

5.5 Data analysis

Having collected data from desk research, interviews and observations, phase two revolves around the analysis of this data. Two main methods are used to analyse the retrieved data: thematic analysis and comparative case analysis utilising a heuristic framework.

5.5.1 Methods

Thematic analysis

First of all, thematic analysis is applied to structure the input from the semi-structured interviews, participant observations and personal interactions. This type of analysis is used to identify, organise and report patterns and themes within the input (Julistiono et al., 2023). The operationalisation of concepts are used as codes for the thematic analysis of the results. The coded excerpts are analysed, providing the base for sub-questions two and three.

Comparative case analysis

Furthermore, the retrieved information on the concepts of '*who*', '*what*' and '*how*' is used to map the participation processes into a heuristic framework for comparative case analysis (Chilvers et al., 2021). Mapping is defined as framing, identifying, arranging and visualising constitutive elements and their relations to one another around an object of analysis' (Chilvers et al., 2021). Additional to the method of Chilvers et al., 2021, the concept of '*when*' is also added, adhering to the theoretical framework of this research. Its aim is to create an overview of all activities of the participation processes of the selected case studies.

As mentioned, the participation activities are mapped based on the axes ranging from action-based and issue-based, referring to the subject of the participation activity, and institution-led and citizen-led, alluding to the initiator of the activity. The phase of participation, which is the element of '*when*', is indicated by the colour of the icon representing the participation activity. This colour is based on a gradient, showcasing the phases of participation from policy making, to implementation, evaluation and maintenance (Uittenbroek et al., 2019). The activities that are coloured with a gradient colour indicate that it has been constant throughout multiple phases of the participation process. In this case, all gradient-coloured shapes range from the plan making phase to the implementation phase. Additionally, the size of the icon represents the occurrence of the activity, with smaller icons representing one-time activities, and larger icons referring to activities that are reoccurring or have taken place various times.

This method allows the analysis to open up for both diversity and difference, as patterns of similarities and differences are investigated, rather just categorising the processes according to the more static Ladder of Participation (Arnstein, 1969; Chilvers et al., 2021).

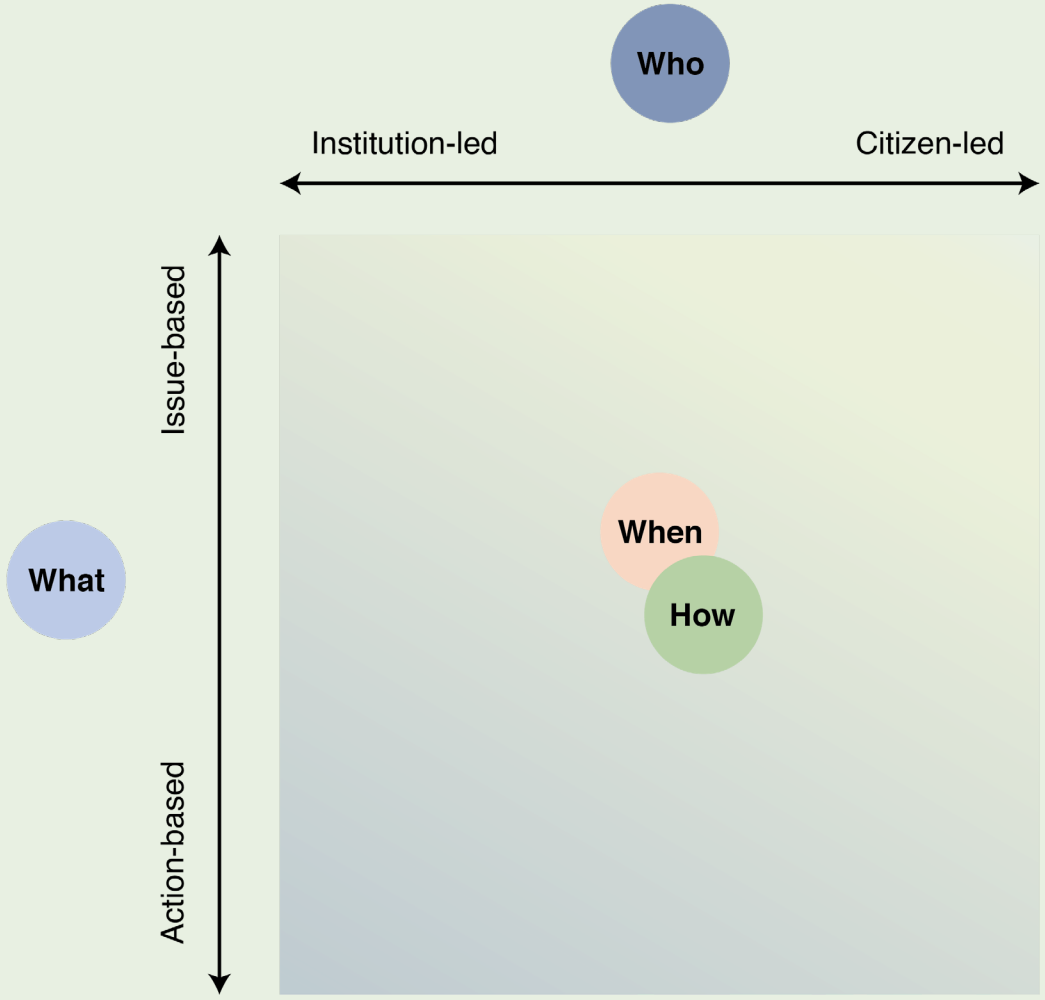


Figure 10. Mapping for comparative case analysis through a heuristic framework (Chilvers et al., 2021; Uittenbroek et al., 2019)

5.6 Case selection

A selection of three case studies is made for this research. Considering the limited scope and timeline of the research, it is desirable to keep the selection of cases small, in order to enable in-depth analysis and still obtain insights into different case studies.

The following case selection criteria are applied:

a. Case study must be within an urban area in the Netherlands.
b. Case study must fit within the typology of tenement apartment blocks, generally built in the post-war period between 1950 and 1979.
c. The housing block should be owned by a housing corporation.
d. The participation process for top-ups must be at least at the stage of initiation, in which the course of the process is outlined.

a. Case study must be within an urban area in the Netherlands.

The underlying aim of this research is to aid the current housing shortage in a sustainable manner. Instead of building new dwellings beyond urban edges in green fields and needing great investment for infrastructure and amenities, creating dwellings within the existing urban boundaries is desirable. Thus, case studies must be situated within urban areas in the Netherlands.

b. Case study must fit within the typology of tenement apartment blocks, generally built in the post-war period between 1950 and 1979.

Post-war tenement apartment blocks are the most targeted typology for top-ups in the Netherlands currently (KAW, 2020). These apartment blocks built after World War II are generally three to five storeys tall and were constructed in a standardised manner, often with a flat-roofed structure. This makes it attractive for standardised top-up units to be placed on top of existing structures (Oorschot and Konstantinou, 2017). Due to their aged and cheap construction, these building have a very energy-intensive structure, resulting in the need for improvement of insulation and other retrofitting measures (Kullberg and Ras, 2018). Thus, the construction of the top-up and the retrofit can be combined to minimise nuisance for residents.

Together with tenement apartment blocks built in the interbellum (1916-1925), which are similar to those built post war, it is estimated that there are 480.000 tenement apartments in Amsterdam, Rotterdam, Den Haag, and Utrecht (Oorschot and Konstantinou, 2017). Considering the sheer number of dwellings, their standardised nature and aged state, creating a general approach to top-ups for this typology would be a great number of dwellings can be topped up more efficiently.

c. The housing block should be owned by a housing corporation.

Housing corporations are the main organisations that are investigated in this research, as large-scale implementation of top-ups generally is executed by parties that already have ownership of real estate. 28,6 percent of all dwellings in the Netherlands are owned by housing corporations, and this percentage is above average in strongly urbanised areas (CBS, 2023). Moreover, their portfolio includes a great share of post-war tenement apartment blocks, which are generally seen as the housing typology with the most potential for top-ups (KAW, 2020). Additionally, housing corporations have the benefit of more budgetary flexibility and employees with knowledge to develop a strategy for the participation process compared to private homeowners. In other words, there is potential for the housing corporations to execute the implementation of top-ups in a greater, and standardised manner.

Furthermore, participation processes for top-ups of privately owned dwellings tend to follow a different structure, as private owners of dwellings are organised through Vereniging van Eigenaren (VvE) in the Netherlands. In most cases, all owners within the housing block need to support the top-up before it can be executed. Exceptions can occur if 80 percent of owners agree, together with the board or with intervention of a judge (!Woon, n.d.). This is different from housing blocks owned by housing corporations, as 'only' 70 percent of current residents need to agree with the top-up, if combined with a renovation. More importantly, homeowners might have different interests than residents that rent, as they have a higher financial stake. Homeowners, like housing corporations, are involved in the housing block for an indefinite time, while residents are not obligated to make decisions based on a long-term perspective if they do not own the property. Therefore, this research solely focuses on housing blocks owned by housing corporations.

Additionally, housing corporation are dealing with limited land positions currently, making top-ups an attractive densification strategy. Together with the high costs to acquire new land for housing construction, housing corporations are only allowed to own unbuilt land zoned for residence for up to five years. Afterwards, if no plans are made for new constructions, the land must be sold. This makes the corporation more dependent on the municipalities and private parties such as developers for the acquisition of new land (Autoriteit Woningcorporaties, 2022). In order to still achieve the construction of new dwellings, it can be attractive to look into the densification of existing properties through top-ups.

d. The participation process for top-ups must be at least at the stage of initiation, in which the course of the process is outlined.

This research focuses on the participation processes of residential top-ups during decision-making, which is initiated before implementation. Therefore, it is desired to include case studies in which the participation trajectory has been outlined, has been set into motion or has been concluded. It is important to note that the participation process must have taken in recent years. While there are a few top-up case studies that have been finished over ten years ago, the participants and the housing corporation that were involved might not be able to participate in the research. Moreover, there is the possibility of a warped sense of memory of the process.

As there is limited experience with top-ups in the Dutch context, the number of potential case studies is finite. A majority of the post-war housing block top-ups in the Netherlands

owned by housing corporations are still in the preparation phase and have yet to involve residents, which narrowed down the available case studies. Aside from content-specific criteria, the selection of case studies, and interviewees as an extension, is also dependent on the willingness and availability of stakeholders.

5.7 Boundaries of research

Despite the primary focus on top-ups, it has to be acknowledged that urban densification can be achieved through under-topping, division within dwellings, land fill-ins and other urban densification strategies (KAW, 2020). However, to narrow the scope for the case studies, top-ups are chosen as the main subject due to its potential for scalability, while division of dwellings and other strategies generally need a more case-specific intervention.

Moreover, this research concentrates on residential top-ups. There are examples of office buildings with top-ups, such as the Karel Doorman in Rotterdam (Hermens et al., 2014) and the VORM office in Rotterdam (VORM, n.d.). However, the participation process appears to be less relevant, as often times there are no current residents who can participate in the decision-making. As a result, these non-residential cases are not included.

As mentioned, there is a variety of terms used to refer to the vertical extension of a building. This research has chosen to translate the Dutch terminology into 'top-ups'. Consequently, it remains recognisable and consistent for researchers within the Dutch context.

5.8 Ethics

In regard to ethics, there needs to be awareness for the delicate relationship between the housing corporation and the residents, and the possibility of interference by this research. It is important that the researcher explains their role and aim during conversations with stakeholders, to prevent them from feeling misled. Especially in cases when the relationship between housing corporation and residents is strained, the researcher should underline their independence from the housing corporation.

Recordings and interview notes will not be shared with third parties and names of participants are anonymised.

6. CASE STUDIES

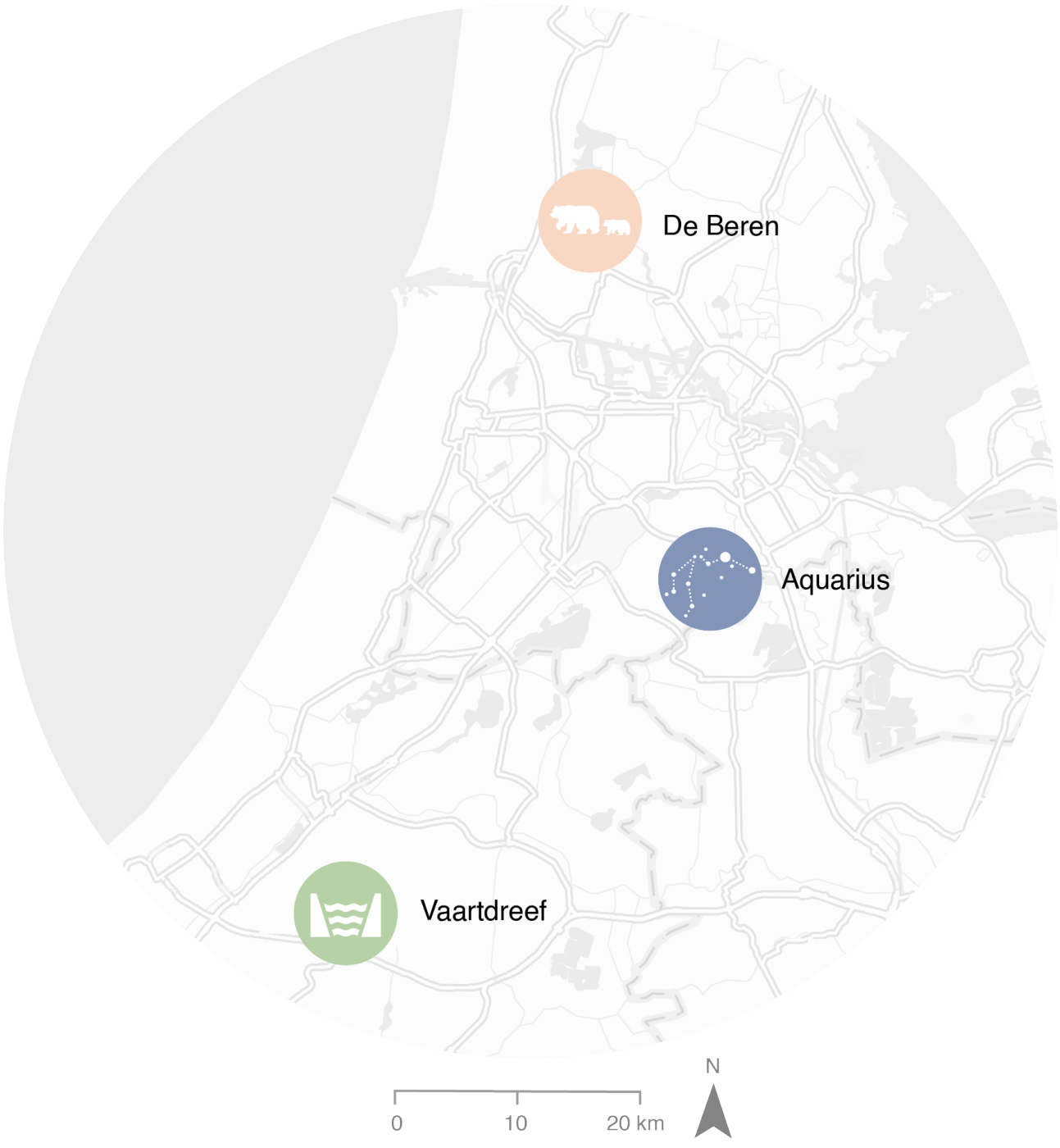


Figure 11. Map of case studies

6.1 De Beren

The complexes of de Beren are built in 1973 in the village of Krommenie, which is part of the municipality of Zaanstad. These are all owned by the housing corporation Parteon. In May 2022, Parteon initiated a participation process to densify the current housing stock of De Beren. After a first proposal of the densification of De Beren through replacement of the garage boxes, residents were not content with the decision-making. Consequently, De Wijde Blik was hired by Parteon to assist with shaping the participation process. De Wijde Blik is a communication bureau specialised in spatial development, with experience in participation processes. Furthermore, Heren5 Architects are involved in the design of the retrofit and top-up. They are also present during information sessions for residents.

Currently, it consists of three complexes: the Grote and Kleine Beer, named after the respective streets they are situated on, and the 'seniorenbeer', which is also located along the street Grote Beer. The 'seniorenbeer' has obtained this nickname as all residents in this complex are 55 years or older. The 'seniorenbeer' will not be topped up but will be retrofitted at the same time as the other complexes. The 'seniorenbeer' consists of two housing blocks, while the Grote and Kleine Beer consists of three blocks that form a U-shape. Of this U-shape, two housing blocks consists of six floors and one housing block only consists of four floors. Parteon aims to top up the housing blocks with four floors of Grote and Kleine Beer with one additional floor.

The Grote and Kleine Beer, referred to as De Beren from now onwards, consists of 358 dwellings and 42 dwellings will be added through the top-up. Different from the other two case studies, this project does not require a 70 percent approval rate from all residents. While retrofit measures and the top-up will be implemented at the same time, the participation processes are not combined but executed in parallel. The retrofit measures are mainly targeted towards improving insulation and energy efficiency of dwellings. Parteon aims to ensure that residents can remain in their homes when the retrofit and top-up is implemented. At De Beren, over 70% of current residents is 55 years old or older.

Figure 12. Photo of current De Beren, before top-up (Pascal Fielmich, n.d.)

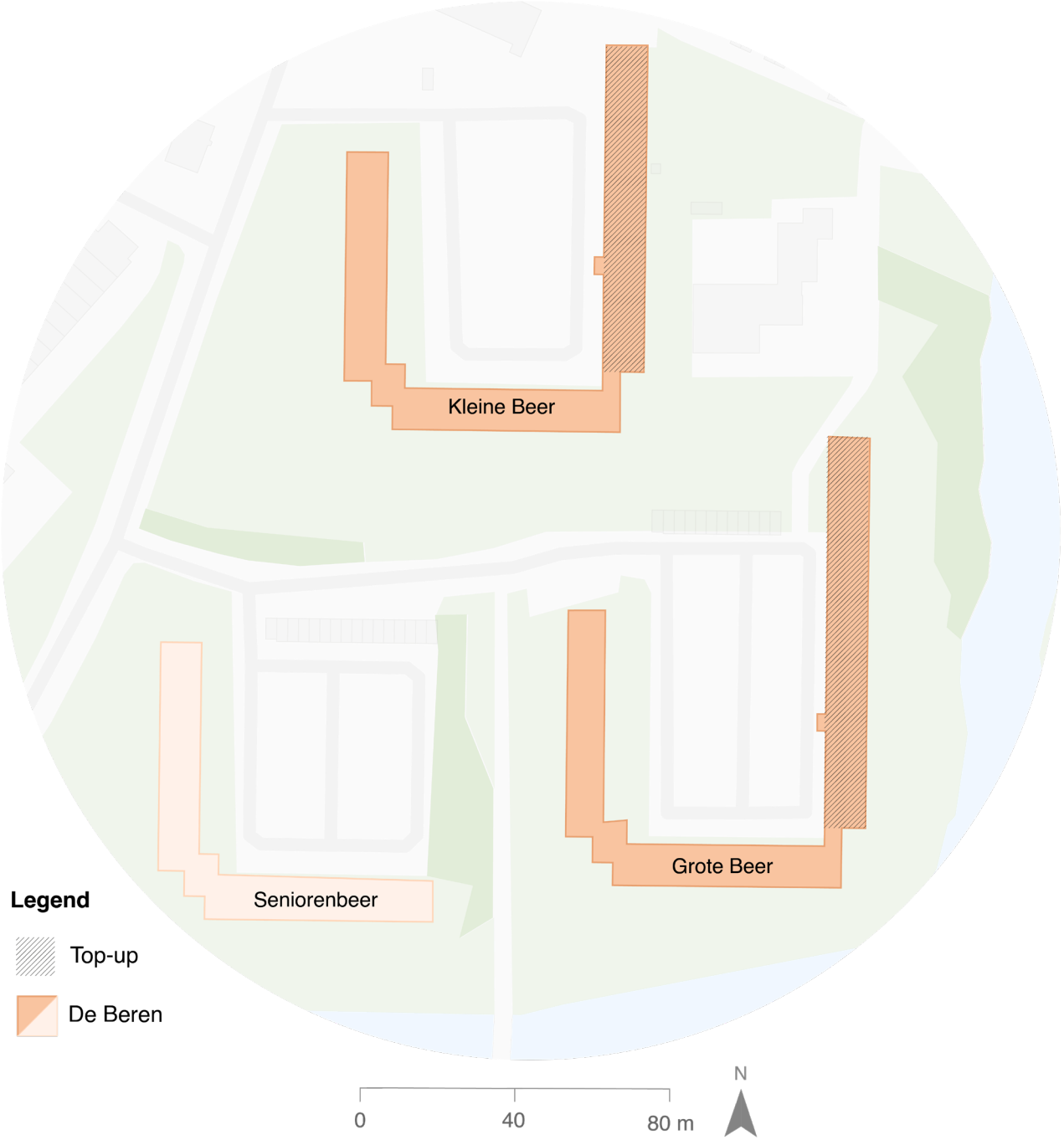


Figure 13. Map of De Beren

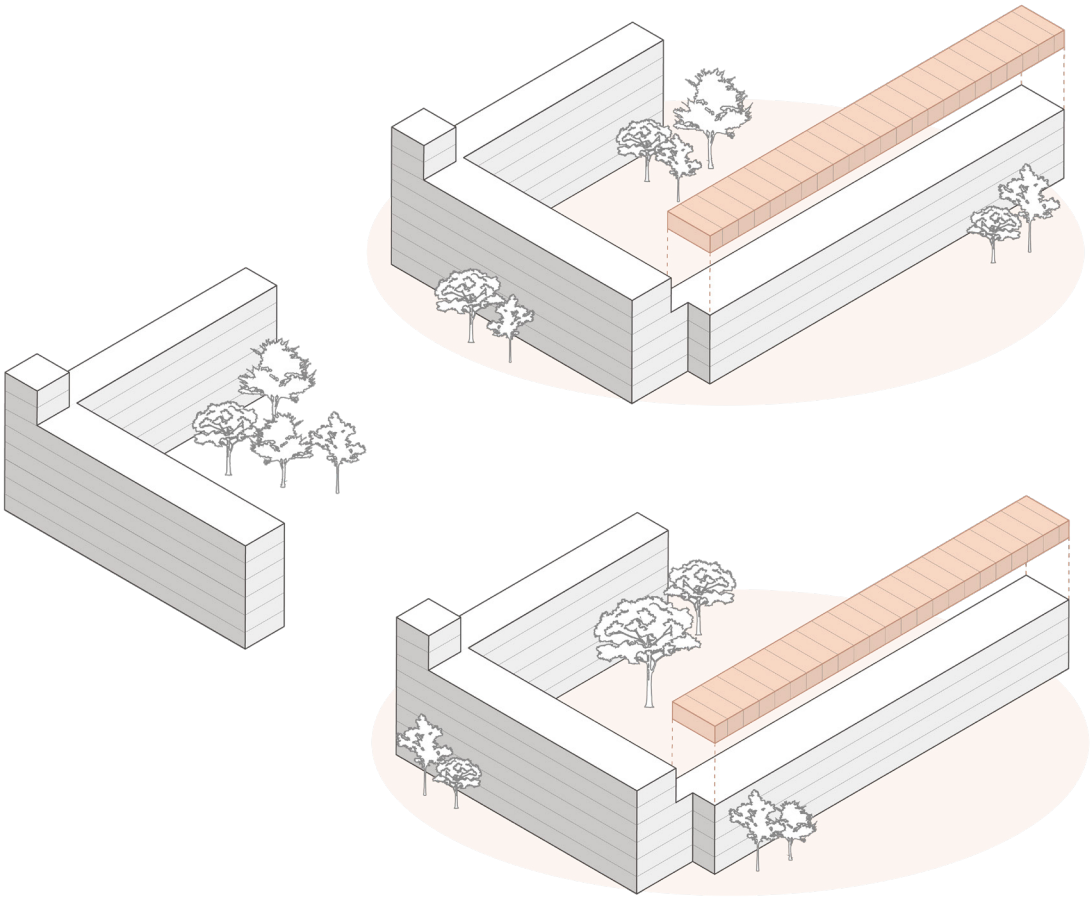


Figure 14. Schematic overview of De Beren

6.2 Vaartdreef

The Vaartdreef is a tenement apartment complex built in 1980 in the municipality of Zoetermeer. Vidomes is the involved housing corporation and Heijmans is the executive constructor. Vaartdreef is part of a larger project, which consists of three sub-projects. The first phase and sub-project is the Vaartdreef apartment block, which is renovated and topped up in 2023. The second phase involves sub-project two and three, which is the transformation of the former care home 't Seghe Waert and an additional housing block near the pond.

The Vaartdreef consists of two blocks: one consists of two levels, while the other is four levels. The former block is currently topped up with an additional level. As a result of the retrofit and top-up, ten dwellings are added in total. Five dwellings are created due to redistribution of dwellings within the existing structure, and five dwellings are the result of the top-up. Two of the new dwellings are assigned to students who organise social activities for the residents of Vaartdreef, in exchange for reduced rent. Another dwelling is transformed into a common recreation space for residents. Additionally, the entrance is extended for improved access.

The residents' committee has been closely involved in shaping the plans for the renovation and top-up of the Vaartdreef but was disbanded shortly after the renovation proposal was sent out to residents for approval. Similar to the Aquarius, the residents' committee of the Vaartdreef were provided with legal support from the Woonbond.

During the meetings between residents' committee and employees of Vidomes, a representative of the renters' committee of Vidomes was also present. This committee operates on the scale of the entire housing corporation. It serves as an intermediary party between Vidomes and the respective residents' committees of complexes. They are an independent advisory board that residents' committees can turn to when matters with the corporation are not handled properly.

While Vidomes has been in conversation with the residents' committee about a potential renovation over the past ten years, three potential scenarios for a future renovation or intervention were established in December 2018. Due to postponement as a result of COVID-19 and dispute with the residents' committee, the renovation proposal was approved in August of 2022. The construction works were kicked off in January 2023 and finalised in December 2023.

Figure 15. Front of the Vaartdreef prior to renovation, with the entrance on the left (Google Maps, October 2020).

Figure 16. Sideview of the Vaartdreef prior to renovation. This is the block that is topped up as of December 2023 (Google Maps, October 2020).

Figure 17. Artist impression of the renovation and top-up of the Vaartdreef (Heijmans, 2023).

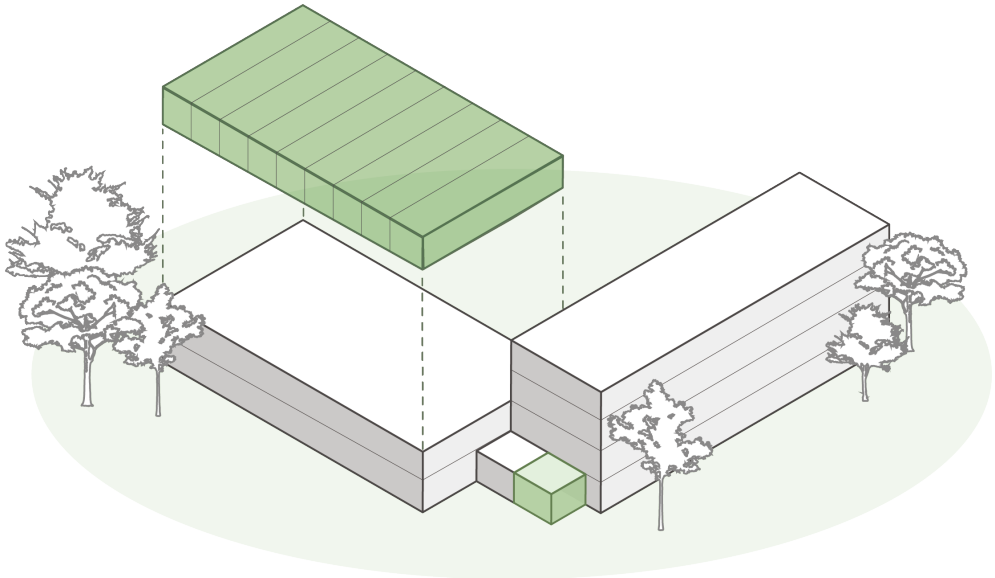


Figure 18. Schematic overview of the Vaartdreef

6.3 Aquarius

The flat Aquarius is built in 1973 in the municipality of Amstelveen. It is the property of housing corporation Eigen Haard, which is the largest corporation in Amstelveen. The responsible architect bureau is AG NOVA, who also has had a role in the choice for the top-up. The renovation was initiated due to various complaints about negligent maintenance and dissatisfaction of residents. The representative of Eigen Haard mentions that there were incidents with drug dealing and prostitution in the building, negatively impacting the living pleasure of residents. After negative media attention, this led to the building receiving the nickname “Horrorflat” (De Leeuw, 2019; Amstelveenz, 2020). Additionally, the former elderman Rob Ellermeijer of the municipality of Amstelveen had voiced their concern about the conditions of residents in Eigen Haard properties, including the Aquarius, and called for an urgent intervention (Damen, 2018; NH Nieuws, 2020).

In November 2018, Eigen Haard announced the start of the plan making phase for the Aquarius, and residents were able to move out announced of the Aquarius from July 2019 onwards. The formal renovation proposal was approved by over 80 percent of the residents in October of 2020, allowing the start of the construction by constructor ERA Contour in July 2021. As of December 2023, the renovation and top-up have been finished and the first residents are able return to the Aquarius.

The main body of resident representation is the residents' committee, of which there have been two iterations. The first iteration of the residents' committee was set up before the renovation was announced. After most members left as part of the relocations due to the renovation, a second committee was formed with residents that had decided to return to the Aquarius after the renovation. The Woonbond was also involved to provide the residents' committee with legal support on regulations regarding participation.

Before the renovation, the Aquarius consisted of 148 dwellings and one space for a business. In total, 34 dwellings are added post-retrofit and top-up, while also diversifying the housing stock. More importantly, only 15 from the original 148 households are returning.

The entire housing block was stripped to its foundations, due to its dire condition. While the majority of dwellings previously were one-bedroom apartments, the current housing stock also includes appartements with two to four bedrooms, designated for larger families. The diversification is also in the rental prices, as it now consists of a mix of affordable rent and mid-range rent. The upper threshold for mid-range rent is €1123 as of June 2023 (Rijksoverheid, 2023d).

With an additional floor through the top-up, the Aquarius currently consists of 7 floors. Different from other case studies, the top-up is an extension of the dwellings on the existing top floor, creating dwellings with two floors, also called maisonettes. The architect AG Nova and Eigen Haard opted for this, as it meant that the lift did not have to be extended an additional floor. The current entrance of the top-up dwellings is on the sixth floor. The top-up is primarily made out of timber, which is often favoured due to its lighter weight compared to steel or concrete, to limit the impact on existing structures.

Figure 19. Backside of Aquarius pre-retrofit and top-up (Google Maps, June 2020)

Figure 20. Backside of the renovated and topped-up Aquarius as of December 2023

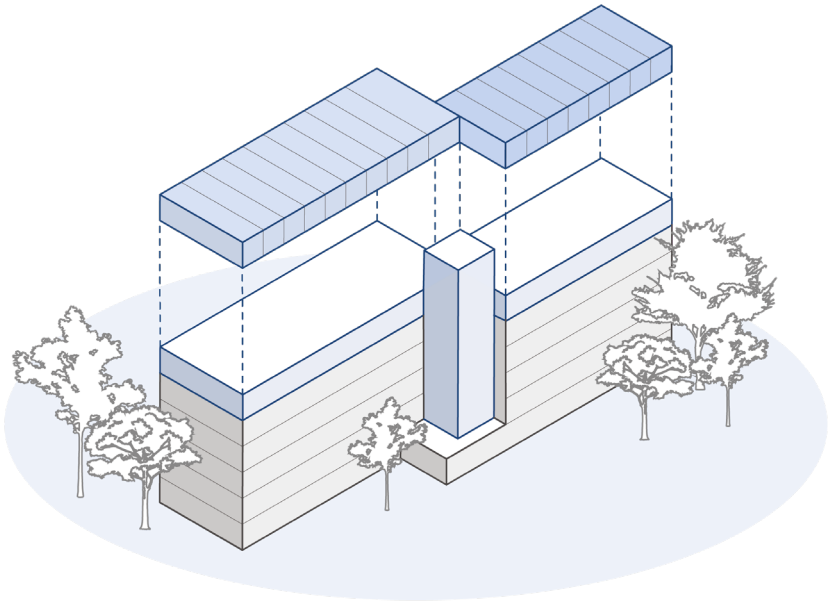


Figure 21. Schematic overview of the Aquarius

	De Beren	Vaartdreef	Aquarius
Location	Krommenie	Zoetermeer	Amstelveen
Housing corporation	Parteon	Vidomes	Eigen Haard
Residents can remain in their homes during the top-up	x*	x	x
70% approval needed from residents		x	x
Main demographic group of current residents	Senior residents (70%) and small households	Senior residents	Small households, but high share senior residents
Phase	Plan-making	Evaluation: construction finished as of Dec 2023	Evaluation: construction finished as of Dec 2023
Residents' committee		x	x
Construction year	1973	1980	1974
Number of additional dwellings added by top-up	40	5	34

Figure 22. Overview characteristics of case studies

*not combined retrofit and top-up, but in parallel

7. RESULTS

The results of this research are divided into three sections: first of all, all participation processes are assessed according to the elements of participation processes (Chilvers & Longhurst., 2016; Uittenbroek et al., 2019). It aims to gain insight into how elements within participation processes contribute or obstruct the support for top-ups. Secondly, these insights are then synthesised by a comparative case analysis through a heuristic framework (Chilvers et al., 2021). And lastly, key social factors for the participation processes of top-ups are identified based on the key social factors of retrofits.

7.1 Elements of participation processes

7.1.1. Who - interest representation

The following paragraphs elaborate on the various aspects of interest representation within participation processes that influences the support for the top-up by residents.

Identity and representation

For context, the general demographic group of social housing needs to be considered. Social housing renters generally have a lower income than private homeowners, as social housing is only available for households whose income is in the lower 40 percent scale of the Netherlands (Ministerie van BzK, 2021). Moreover, the population of social housing is aging, as the number of elderly has increased over the past decades and they tend to remain in their homes for a longer period of time (Ministerie van BzK, 2021).

Furthermore, the characteristics of the dwellings is inviting to certain demographic groups. For example, most dwellings of the Aquarius consisted of two-room apartments pre-renovation, suitable for one-person household or smaller families. This is in line with general trends within the social housing population, as 58 percent of social renters in the Netherlands consists of one-person households, followed by 20 percent consisting of two-person households (Ministerie van BzK, 2021).

In regard to the identity of residents, senior residents are well represented in all populations of case studies. Residents are considered senior if they are aged 55 years or older. Around seventy percent of current residents of De Beren are senior residents, while the Vaartdreef is exclusively accessible to senior residents. Meanwhile, the Aquarius has more of a mix of age groups but these are mostly one-person households or small families.

There is great variety, even within the group of senior residents. It includes residents that have not retired yet, while others are over 80 years old and require medical care at home. While some are more able to cope with the nuisance created by top-up, others are not interested in participating and are more concerned with the impact on their last years of life.

As for the identity of participants, representatives from all three case studies voice the difficulty to include a representative sample of residents to participate. They note that reoccurring participants tend to be older, white men that have retired and have lived in the building for an extended period of time. Simultaneously, there is a significant share of residents in De Beren and Aquarius that have a non-western ethnic background, who tend to be underre-

presented in the participation processes.

While the Vaartdreef and Aquarius had residents' committees as their main body of resident representation, it does lead to the question if the committee had self-serving biases. For example, the first residents' committee of the Aquarius was set up due to discontent with Eigen Haard and their negligent maintenance. In the end, the committee did approve of the renovation proposal, but it is unclear whether the committee approved of the contents of the proposal, or merely agreed to obtain 'stadsvernieuwingsurgentie', which gives residents priority in the housing assignment system, to expedite their relocation outside of the Aquarius.

It must also not be forgotten that some residents simply are not interested in participating. Additionally, a resident from De Beren highlights that while some residents might not be involved, they emphasise that these residents will voice their opinions once the impact on their homes will become apparent.

Another point of interest is that lack of information could lead to lack of participation. One resident from the Vaartdreef notes that house visits were the only moment of contact with the corporation on the subject of the retrofit and top-up. However, Vidomes did organise information sessions and walk-in hours. Thus, it can be assumed that it is not merely about organising sufficient opportunities for participation, but also if these opportunities suit and reach the residents.

Varying levels of involvement

The degree of involvement or concern can vary, partly depending on where the participant lives in relation to the top-up and the retrofitted building. This includes not only the location of a participants' dwelling within the complex, but also in the surroundings of the top-up building.

Current residents of de Beren living directly under the top-up have expressed their concerns about the impact of the top-up. After all, the top-up has a more direct impact on them, as they are inconvenienced most with construction related nuisance. At the Vaartdreef, residents living directly under the top-up have confirmed that they experienced a higher level of nuisance compared to their other neighbours, as their dwellings had to be entered consistently for top-up related construction measures. Interestingly, they did not oppose the top-up necessarily.

Additionally, the response of the residents of De Beren living directly under the top-up are similar to a NIMBY effect (Pol et al., 2006). These residents note that they do acknowledge that more dwellings should be built but do not agree with the top-up above their home. A reoccurring concern is noise nuisance from the top-up dwellings and fire safety.

Moreover, this leads to the question of the physical borders of the impact of the top-up. From a legislative perspective, the approval of at least 70 percent of residents from the housing block is required. Thus, housing corporations are not obligated to include surrounding residences in the participation process. Nonetheless, it can still be beneficial to keep surrounding residents informed.

This became apparent at De Beren, where residents from surrounding streets voice that they had not been included in the information provision but do desire to be included, as the top-up could obstruct sunlight and the view from their homes.

Interestingly, the surrounding residents of the Aquarius have no oppositions towards the renovation. The representative of Eigen Haard suggests that a large number of housing blocks in the neighbourhood are being renovated currently, thus minimising the sense of nuisance created specifically by the Aquarius.

Introduction of new residents

One of the reoccurring concerns of residents is the impact that new residents will have on the neighbourhood. Residents from De Beren comment that they are afraid that it will change the social dynamics of the neighbourhood, as the new residents might not 'share the same norms and values'. This has led to fear of alienation in their own buildings.

Conversely, the introduction of new residents at Aquarius summons less hesitance, as only 15 out of the initial 148 households are returning. On top of that, one resident from Vaartdreef indicates that they are looking forward to the new residents. There is a great divide between more vocal residents that have lived at the Vaartdreef for decades, and residents that have moved into the building the last ten years. Therefore, this resident sees it as an opportunity to create a better atmosphere amongst residents.

The introduction of new residents also prompts discussions about the identity and needs of these residents. The representative from Parteon underlines that home seekers 'do not have a seat at the table'. To address this issue, Parteon organised a brainstorm session with young adults to incorporate their needs in the plans for the top-up. By allocating the top-ups dwellings to this group, it presents an opportunity for youth already living at De Beren to move from their parents' home to their own home. This would also mean that the youth can remain in their familiar neighbourhood. Thus, it is established that 25 percent of the new top-up dwellings is going to be assigned with a priority for youth from Krommenie.

Moreover, introducing younger residents can also contribute to the social cohesion in the neighbourhood. Both Vaartdreef and Aquarius have had students living in the complexes, who were responsible for organizing social activities in exchange for reduced rent. A student living at the Vaartdreef notes that her responsibilities include biweekly activities with residents such as baking pancakes, while also providing sympathetic ear to the concerns of the elderly residents by visiting them. One resident from the Aquarius mentions that the contact with the students and the activities 'were fantastic'.

It is important to note that the introduction of students for social activities is most relevant for elderly residents, as loneliness seems to be a reoccurring theme with residents from the case studies. Despite its utility for both students and senior residents, participants from the youth session of De Beren state that organising activities should not be a prerequisite for youth to live in the complexes.

7.1.2 What – subject of participation

As the subject of participation processes can be framed by predetermined interests of actors, this chapter investigates the interests that motivated the subject of participation, the potential benefits of top-ups for residents and flexibility that is provided in shaping the subject.

Interests behind the top-up

A common denominator in motivation to top-up among residents and housing corporation is the current housing shortage. Various residents from all case studies have expressed sympathy towards this issue, thus acknowledge the necessity for the top-up. While opposing residents demonstrate a NIMBY sentiment (Pol et al., 2006), it would still be a desirable option to look for densification over new construction on green fields considering the scarcity of unbuilt land within city boundaries and limited land positions of housing corporations (Autoriteit Woningcorporaties, 2022; Rijksoverheid, 2023b).

From the perspective of the housing corporation, conditions facilitating a smooth top-up serve as motivation to top up. The representative of Vidomes states that 'all ingredients for a top-up' were already there at the Vaartdreef. In combination with a much-needed roof replacement, they mention that the availability of temporary homes in the adjacent complex, along with space for an additional lift, enabled a smoother implementation of the top-up.

Furthermore, all cases were in urgent need for retrofit according to the housing corporation, thus utilising the window of opportunity to also include a top-up in the construction works. For the benefit of current residents, it would be best if the construction nuisance would be limited.

However, from the perspective of the residents, the main interest is shaping the subject of participation to adhere to their housing preferences. While they can have sympathy for the need for more housing to aid the housing crisis, it does not directly mean that the top-up is the only solution. Moreover, residents at the Vaartdreef showcased opposition towards the plans not due to its contents but opposed to any construction at all. This has to do with the age of the residents, and their willingness or ability to cope with the inconvenience of construction works.

Benefits of top-up for existing residents

There appears to be a split incentive for current residents to support the top-up. The main beneficiaries are the new residents of the top-up dwellings and the housing corporation, as the new tenants are provided with a home, while it generates more revenue for the corporation. Meanwhile, the existing residents have to endure the nuisance of the construction works, while their homes will not be improved by the top-up directly. Moreover, concerns of current residents on the top-up also include fire safety, the availability of parking spaces, and the capacity of the foundation to bear with the weight of the top-up. Consequently, this raises the question of what benefits can incentivise current residents to support the top-up.

First of all, top-ups can provide the opportunity for current residents to relocate to a dwelling that better aligns with their housing preferences. This means it can accommodate changes in household composition, allowing empty nesters to move to smaller dwellings or facilitating growing families in their need for space. This applies for residents of Vaartdreef and Aquarius, as they were able to relocate within the building, either to a top-up dwelling or another dwelling within the building.

On the other hand, top-ups can create a more diverse housing stock that caters to the housing preferences of future residents. As seniors and starters are perceived as the demographic groups who currently are the most in need of suitable housing (College van Rijksadviseurs, 2022), top-ups can adhere to these needs by creating new dwellings accordingly. In turn, this can enhance the chain of movement in the housing market and aid the housing crisis in a qualitative manner.

Consequently, this calls upon resident to support the top-up out of collective benefit. Concluding from various interactions with residents, there seems to be consensus on the need for more dwellings due to the housing shortage. Aside from the NIMBY effect, measures such as the prioritisation of local youth at De Beren can ensure that the new dwellings can adhere to the preferences of current residents, instead of creating the fear of 'outsiders entering the community'.

Additionally, the creation of new dwellings also means more opportunities for investment in the existing building and community. While residents do not profit from the revenue of the new dwellings, Vidomes present the top-up as an opportunity to finance the general retrofit of the building. One resident of De Beren considers the retrofit and top-up as a positive sign that the housing corporation is willing to invest in their homes. They state that living in social housing is a matter of giving and receiving, and thus the nuisance is a necessary means to an end.

In regard to direct benefit, residents are offered financial compensations for the inconvenience and costs of the relocation as a result of the top-up and renovation at the Vaartdreef and Aquarius. A resident from the Aquarius mentions that the compensation was not enough to cover all costs and efforts to relocate. It also does not consider any initial investments in their previous homes, such as a new floor which was renewed on their own costs.

Flexibility in subject

To prevent predetermined interests of the housing corporation neglecting the interest of residents, flexibility in the decision-making process is essential to ensure that the subject of participation aligns with the preferences of residents.

The representative from De Beren justly notes that the option most popular with residents cannot be blindly chosen. Thus, there can be flexibility in the subject of the participation process, on the condition of financial and technical feasibility. They state that a corporation cannot mislead residents by stating there is an unrealistic amount of flexibility. Therefore, expectation management and good communication amongst stakeholders is key to generate support for the proposed intervention.

An example can be found in the brainstorm sessions with the residents of De Beren, in

which various densification strategies, including options coined by residents, are explored. The main restriction set by Parteon is the number of 40 dwellings that have to be realised within the boundaries of De Beren. It can be argued that this inflexibility is needed to change the narrative from questioning the need for dwellings to discussing the content, which can be necessary to ensure progression of plans.

Additionally, flexibility can be perceived differently depending on the stakeholder. Despite the close deliberation on the renovation proposal, the residents' committee of the Vaartdreef felt like the housing corporation were determined to execute the plans at all costs. This led to the members of the committee feeling misguided. In contrast, a member of the renters' committee argues that Vidomes were already flexible as they adhered to many of the residents' wishes for the renovation, while these were not obligatory.

On the one hand, there had been a great need for a retrofit of the building and general improvement of the housing block for over ten years. This explains the determination of Vidomes to ensure the execution of the retrofit. On the other hand, a member of the residents' committee states that they did see the urgency of the retrofit but did not agree with how the participation process was handled. This leads to the question to which degree the renovation and top-up is a given, or whether it is open for discussion to not execute a retrofit or top-up.

In conclusion, these examples highlight the delicate balance between incorporating flexibility in the decision-making process and ensuring progress.

7.1.3 When – opportunities of participation

The following paragraph elaborates on the involvement of residents based on the phases of participation in the case studies.

Uittenbroek et al. (2019) make a distinction between participation in policy making, policy implementation, policy evaluation and maintenance phase to opportunities for citizen participation. They propose that the contribution of residents can differ depending on the phase: the earlier residents are included, the larger the impact residents can presumably have on the process.

As illustrated by figure 23, the top-ups of Vaartdreef and Aquarius have already been implemented and the participation processes have now entered the policy evaluation phase. While it has been established that a top-up will be executed at De Beren, it is still in the policy making phase as the specifics are yet to be determined.

Primarily, all three case studies have engaged residents in the policy making process. However, the initiation of the top-up and level of resident involvement differs. While residents of De Beren were included in the ideation, selection and evaluation of the top-up, the residents' committees and residents of the Vaartdreef and Aquarius were mostly included in the evaluation.

The process of De Beren illustrates while Uittenbroek et al (2019) proposes a linear distinction between phases, the participation processes can follow a reiterative pattern. Before

the top-up came into the picture at De Beren, the housing corporation was planning on replacing the garage boxes with new modular houses. This was met with discontent from the residents, objecting the plans of the garage boxes. The housing corporation had to start from scratch and opted to include the residents more intensively in shaping the subject of participation.

As for the phase of policy implementation, it appears that there were limited participation activities linked to the top-up at the Vaartdreef and Aquarius. At the Vaartdreef, the housing corporation worked closely with the residents' committee to set up ground rules for the construction works, such as limited nuisance at set hours and no use of loud music speakers. Yet, these were not directly related to the top-up, but the general renovation. As for the Aquarius, residents were not involved during the implementation phase as they all had to relocate to enable the renovation.

Both the Aquarius and Vaartdreef have just entered the evaluation phase, thus it is unclear what the participation process in this phase entails. The representative of Vidomes noted in December that a survey will be conducted among the residents to evaluate the entire participation process and their experience with the retrofit and top-up. It is expected that the outcome of this survey will not lead to changes to the top-up of Vaartdreef, but it can shape future top-ups.

While relevant for retrofits, it can be argued that the maintenance phase is less relevant for top-ups. Participation in this phase mainly concerns the effects of the retrofit measures on the households, such as energy savings or ventilation. However, the top-ups do not directly impact the physical state of the homes of the existing residents. Moreover, the top-up in itself requires little maintenance on the short term after implementation compared to retrofit measures.

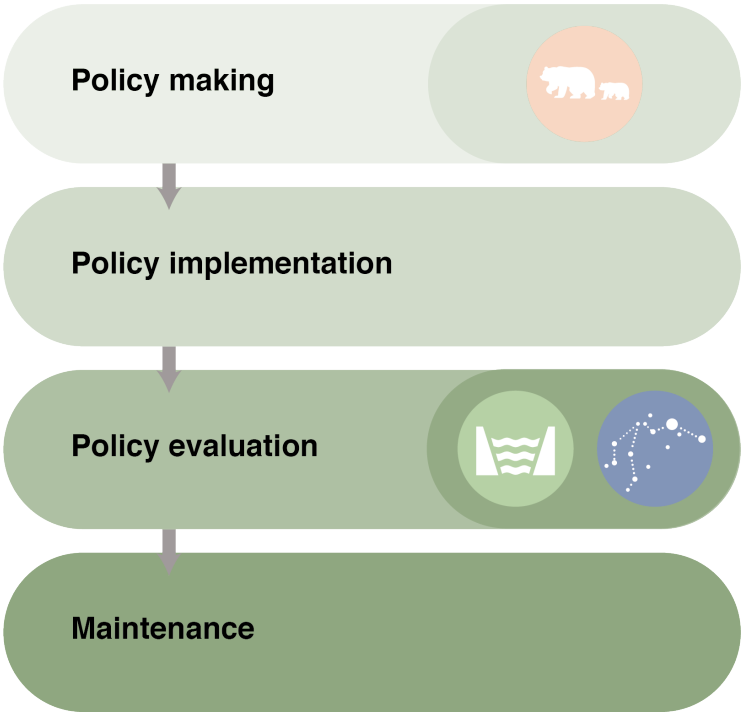


Figure 23. Phases of participation of case studies as of March 2024

7.1.4 How – models of participation

The following paragraphs gives an overview of the engagement measures and discusses the level of participation. Moreover, it compares participation processes of retrofits and top-ups, and examines the advantages and disadvantages of combining the execution of the processes.

Measures of engagement

This paragraph elaborates on the used engagement measures, the differences amongst the case studies, and how the measures contribute to the support for the top-up.

Quick scan

Both Parteon and Eigen Haard inquired the residents at the start of the process on their preferences related to the renovation. While Eigen Haard did this per survey, Parteon held a plenary session led by the representative of de Wijde Blik. Furthermore, employees of Parteon and De Wijde Blik visited 'opinion leaders' among residents to get insight into the sentiment towards the top-up beforehand. These initial insights were integrated during the decision-making process, to ensure that the plans adhere to the preferences of residents which can accumulate to support for the top-up.

Newsletters

The newsletters are the primary source of information for many residents. While all case studies utilise newsletters, the responsible parties for the letters differ. At the Vaartdreef, the newsletters were drafted by the housing corporation with the input of residents' committee, while the newsletters of Aquarius and De Beren are primarily written by the housing corporation themselves. Yet, this difference does not appear to influence the level of support for the top-up.

Information sessions

All case studies held general information sessions for all residents discussing the progress and creating expectation management. Different from other case studies, Parteon opts for a walk-in style for the sessions at De Beren. Various panels with information were set up side by side, accompanied by employees from Parteon, Heren5 Architecten and the municipality of Zaanstad. This approach was deliberately chosen to prevent group formation and having only the loudest voices controlling the narrative during the sessions. While this does not implicitly contribute to more support for the top-up in comparison to more 'traditional' presentation format, it does open up the process for more deliberation.

Residents' committee

While Vidomes and Eigen Haard mainly relied on the input of the residents' committee to shape the renovation and top-up proposal Parteon and De Wijde Blik chose to not establish a residents' committee at De Beren for the top-up.

Having a residents' committee can be convenient, as it gathers a group of residents that are

willing to commit their time on a long term. Moreover, they are kept informed throughout the whole process, enabling them to make more informed decisions. However, the representation of residents by the committee is disputable, as it often attracts the most opinionated residents, while they might not be the most representative of all interests.

Instead, De Beren opted for brainstorm sessions, opening up the discussion for all residents and thus lowering the threshold to participate. While some residents might not be interested to make a long-term commitment by joining the residents' committee, they can be willing to join the conversation on top-ups. Even though it cannot be concluded that the participants of the brainstorm sessions are more representative for the interest of all residents than the residents' committee, it does open up the process for more opportunities to participate.

While this research uses the term residents' committee to refer to this body of resident representation, there is a difference between klankbordgroep and bewonerscommissie in Dutch. In this case, the Vaartdreef utilises a 'klankbordgroep', which was set up by the corporation. On the other hand, the Aquarius includes a 'bewonerscommissie', that was set up by the residents themselves. Considering the bewonerscommissie has a formal status as it is part of the Overlegwet, housing corporations are legally bound to include insights from the bewonerscommissie. In contrast, they are not obliged to with a klankbordgroep.

Model dwelling and house visits

As residents of the Vaartdreef were urged not to agree to the renovation proposal by the residents' committee, Vidomes took a more personal approach by inviting residents to visit a model dwelling, which showcased the potential improvements of the retrofit. They also made house visits individually to have conversations with residents on the proposed retrofit and top-up. These visits were made months prior to the renovation, and again just before the start of the renovation. As a result, the threshold of 70 percent approval of residents was met and the renovation could move forward.

Although Eigen Haard did utilise house visits, their aim was to help residents understand the repercussions of the renovation and help with the relocation, rather than clarification to encourage them to sign the proposal. Either way, visiting individual homes is a very labour-intensive approach. The process of De Beren has yet entered the stage in which measures such as house visits and model dwelling are relevant.

Walk-in hours and visibility

Both Vaartdreef and Eigen Haard held weekly walk-in hours for residents to ask questions on site. The visibility of the housing corporation employees in the hallways can also lower the threshold for residents to engage. It allows for them to become aware of all developments in the building firsthand. Residents from both the Vaartdreef and Aquarius note that the close contact with employees of the housing corporation gave reassurance about the construction and therefore contributed to their support for the top-up.

Moreover, the representative of Parteon notes that if newsletters or information sessions are not frequent, the project becomes out of sight for residents, leaving them to wonder if any progression is made at all. As a result, residents might lose interest and thus, their support for the top-up becomes unsure. This highlights the importance of the visibility of the employees of the housing corporation and the process in general.

	De Beren	Vaartdreef	Aquarius
Initial general meeting (value-oriented)	x		
Explorative survey			x
Visit of opinion leaders	x		
Information sessions	x	x	x
Walk-in hours		x	x
Residents' committee		x	x
Brainstorm sessions	x		
Newsletters	x	x	x
House visits		x	x
Model dwelling		x	
Evaluation survey		x	

Figure 24. Overview of engagement measures

Level of participation

First of all, the representatives of de Wijde Blik and Parteon pose that different levels of participation are desired for different subjects within a participation process. Tacit knowledge (Glucker et al., 2013) from residents, particularly on topics such as public space design and social amenities, can ensure that plans adhere to the preferences of residents. However, flexibility is limited with subjects like financial feasibility and insulation materials, making extensive citizen participation less desirable.

Moreover, a higher level of participation is not always necessary for residents to obtain support for the top-up. A member of the residents' committee of the Aquarius states they could evaluate the proposals made by the corporation and they were provided with feedback on their own suggestions. While the housing corporation is not obligated to incorporate the insights from residents, therefore categorising as *placation* (Arnstein, 1969), it appears that the participation process has been sufficient for this resident to support the top-up.

Furthermore, the walk-in hours, house visits and the model dwelling offered at the Vaartdreef specifically are considered to be on the level of informing, as its aim is to give clarification on the implications of the retrofit and top-up. While these activities have a relatively low level of participation, the representative from the Vidomes state that these activities have proven to be essential for generating support for the top-up.

In essence, the representatives from Parteon and de Wijde Blik state that the optimal level of the participation process is not co-creation. Instead, they propose that the decision-making process needs to be made as accessible as possible for residents to participate. This includes providing appropriate tools or plentiful of opportunities to voice their opinions.

For example, residents from De Beren were able to visualise the 40 additional dwellings by using a physical model of the complexes at the brainstorm sessions. The discussion becomes more tangible for residents and therefore it enables them to form an opinion on the densification options for De Beren. This illustrates how residents can have influence over decisions, and how their tacit and value-based knowledge is integrated but are still limited by the restrictions set by the corporation.

In conclusion, these insights illustrate how levels of participation do not only vary within participation processes, but also that activities with lower levels of participation are needed to acquire support for the top-up.

Comparison with retrofit procedure

While the results illustrate that all three participation processes of the top-ups deviated from standard retrofit procedures set by the respective housing corporations, the motivations to deviate vary.

The representative from Eigen Haard confirms that the atypical participation process of the Aquarius did not deviate due to the top-up. The main reason was the high time pressure resulting from the great interest of stakeholders due to the dire state of the building. Instead of establishing a technical plan for the renovation and creating a social plan accordingly, a draft of the social plan was formulated first. This was to ensure that existing residents could relocate to other dwellings as soon as possible. This fell under the regulation of 'stadsvernieuwingsurgentie', which gives residents priority in the housing assignment system of Eigen Haard.

While the participation process of the Vaartdreef did initially follow standard retrofit procedures, it did take a more personal approach through house visits and showings of a model dwelling to obtain support for the renovation proposal. Nevertheless, this deviation was not directly related to the top-up.

Regarding De Beren, it is clear that the participation process for their top-up follows a different structure entirely as the execution of the retrofit and top-up are executed in parallel. Due to the novel character of the top-up, Parteon opted for a more flexible approach by opening up the dialogue with brainstorm sessions.

Thus, while all case studies deviated from standard retrofit procedures, only De Beren deliberately changed its participation process due to the top-up.

Additionally, it must be noted that the two processes are generally perceived as one unanimous process. Generally, the approval of the renovation and top-up proposal was primarily influenced by the content of the renovation, while the top-up was secondary.

Combining the decision-making processes of retrofit and top-up

To preface, current legislation regarding top-ups seems to be a grey area at present. The threshold of 70 percent resident approval is only applicable if the living pleasure is impacted by the intervention, which is not the case with top-ups.

All case studies execute the decision-making and participation processes of the retrofit and top-up in the same time frame. While the Vaartdreef and Aquarius have a unified process for both interventions, De Beren executes the participation processes in parallel instead of combined. Although the legislative threshold is not applicable for De Beren, thus not obligating them to have an extensive participation process to generate support, the representatives of Parteon and De Wijde Blik state this is still desirable to adhere to the preferences of residents.

Both top-ups and retrofits can profit from a combined implementation due to their mutual beneficial relationship. On the one hand, it means that residents undergo construction nuisances only once. As mentioned, all social housing dwellings that have the energy label of E, F or G are prohibited to be rented out as of 2030. This forces housing corporations to retrofit dwellings on a large scale in order to meet higher energy label standards in the coming decade (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023a). This provides a window of opportunity for top-ups.

On the other hand, top-ups can become an enabler of energy retrofits (Gillott et al., 2022). The profit generated from the new top-up dwellings can finance the costs of the energy retrofits. Moreover, the same architect and constructor can be hired, thus minimising the efforts and costs of the process. Additionally, it is beneficial to have a unified communication on both the retrofit and top-up towards the residents, as it is perceived as one process from the perspective of residents.

In contrast, separating the processes can allow for flexibility to cope with the novel character of top-ups. While Parteon has a set retrofit procedure that is applied across all their properties, this will be the first time that the housing corporation is topping up. Thus, flexibility is needed to deviate from the set procedure to allow the process to be shaped along the way.

Additionally, separate processes can be desirable as the financial feasibility of the top-up is disconnected from the retrofit processes, which is mentioned by the representative of Heren5 Architecten. In situations where retrofit procedures cannot afford to delay for top-up decisions, progress can still be achieved in the decision-making process for the retrofit.

In conclusion, whether the participation processes of the retrofit and top-up are combined, or executed in parallel, implementing both interventions in the same timeframe is most desirable.

7.2 Maps for comparative case analysis

To synthesise the insights from the analysis of the elements of the participation processes, a heuristic framework for comparative case analysis (Chilvers et al., 2021) is utilised. Its aim is to create an overview of all activities of the participation processes of the case studies and determine any patterns in similarities or differences among case studies.

7.2.1 Who – interest representation

In regard to the initiator of the participation activities, figures 26-28 show that most activities of all case studies are primarily institution-led, as they are initiated by the housing corporation. Nevertheless, the space that residents are provided with to participate does differ among the activities. For example, the residents' committees seem to be a grey area, as they generally are set up by the housing corporation but are governed by residents. Their purpose is to represent the interests of residents, and therefore are not obligated to reflect the opinion of the housing corporation.

The role of the committees of the Vaartdreef and Aquarius has been more evaluation-oriented, while the brainstorm sessions of De Beren allow for a more deliberative dialogue between residents and corporation. Therefore, the brainstorm sessions are considered still institution-led but gravitating more towards citizen-led than the residents' committees.

All case studies utilise newsletters and information sessions to inform the residents of the top-up and retrofit. As for the newsletters, the residents' committee was involved in writing the newsletters, while the housing corporation of De Beren and Aquarius were the main authors of the letters. Thus, the newsletters of the Vaartdreef can be categorised as more citizen-led.

The newsletters, model dwelling and walk-in hours are positioned in the middle of the y-axis, as it is not issue-based nor action-based as its objective is to inform residents, and not discuss their preferences or make commitments. It must be noted that the house visits and visits of opinion leaders is not more action-based than the quick scans, and the model dwelling is not more issue-based than the newsletters but have been positioned this way to prevent overlap.

Different from the other case studies, de Beren opts for walk-in information sessions. While the information sessions of all case studies encourage information retrieval from residents, the walk-in sessions can be seen as more citizen-led than an information session with a general presentation given by the housing corporation. This is due to the fact that walk-in sessions create more opportunities for one-on-one conversations between residents and other stakeholders.

7.2.2 What – subject of participation

The approaches of the Vaartdreef and Aquarius are similar in terms of the variety of activities, with their approaches to the residents' committee being the main difference. While the residents' committee of the Vaartdreef was involved right up until the end of the policy

making period in both issue- and action-based matters, there were two iterations of the residents' committee at the Aquarius involved with different purposes.

According to the representative of Eigen Haard, the first iteration of the residents' committee was mainly focused on expressing their views and shaping the discourse according to their preferences, thus categorising as issue-based. On the other hand, the representative notes that the second iteration was primarily focused on the content of the implementation of the renovation and top-up, therefore being a more action-based activity.

Furthermore, the nature of the brainstorm sessions at De Beren is similar to the nature of a residents' committee, as they are both issue- and action-based. Both were employed to express their views, and most importantly, their values and priorities for the upcoming intervention.

Yet, the brainstorm sessions were open for all residents, while residents' committees hold meetings exclusively with its own members, representing all residents. As the committees are open for any resident to join, the threshold to join a brainstorm session without any other commitments attached is lower than joining the residents' committee as that includes a reoccurring commitment.

7.2.3 When – opportunities for participation

The issue-based activities such as the quick scans, the initial general meeting and visits of opinion leaders at the Beren appear earlier in the process than the action-based activities, with the exception of the evaluation survey of the Vaartdreef. This is understandable, as a process usually starts with expressing and exchanging views, setting the norms and objectives. Subsequently, action-based commitments are made to execute the plan according to these norms and objectives.

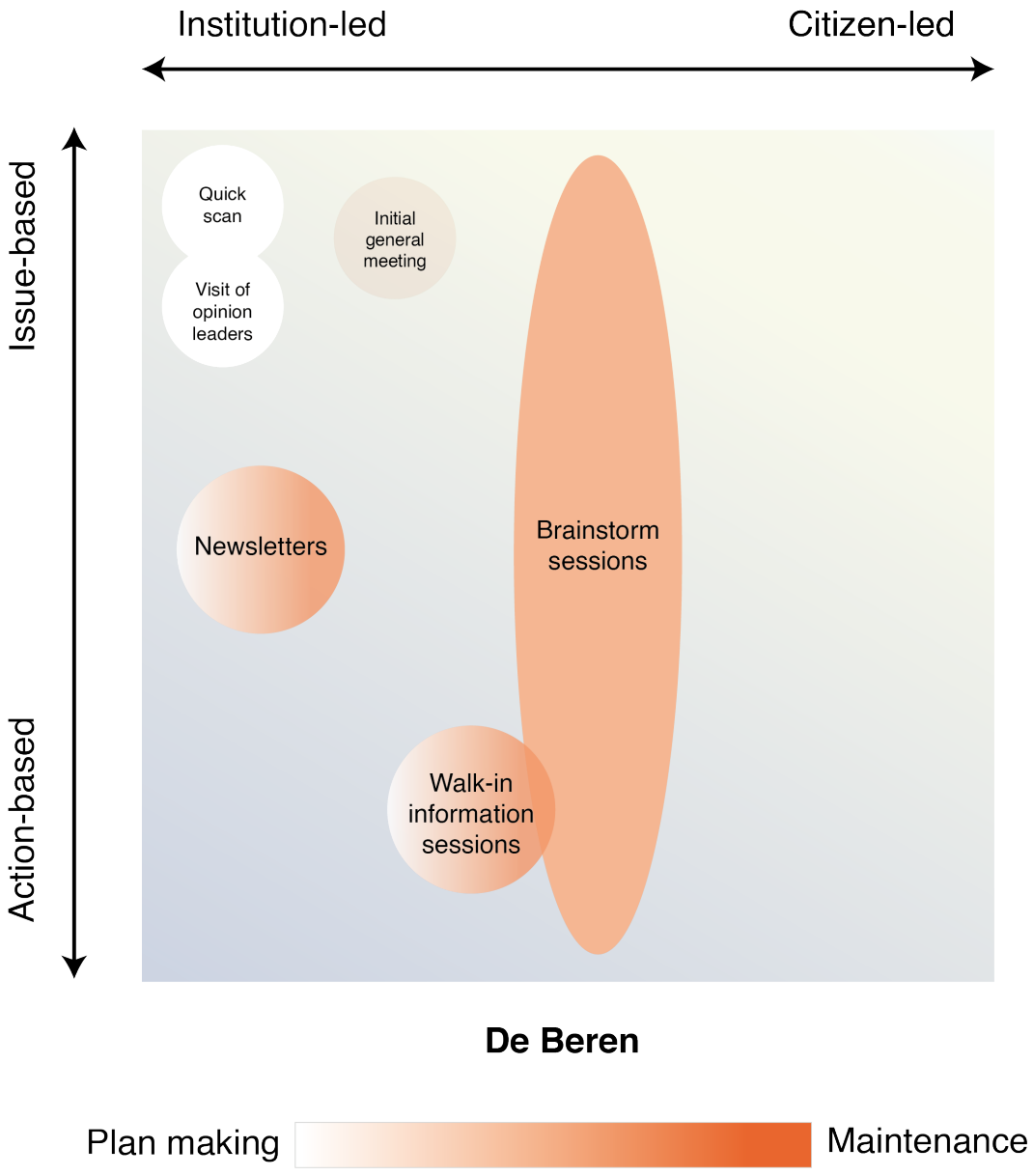


Figure 26. Map of engagement measures of De Beren

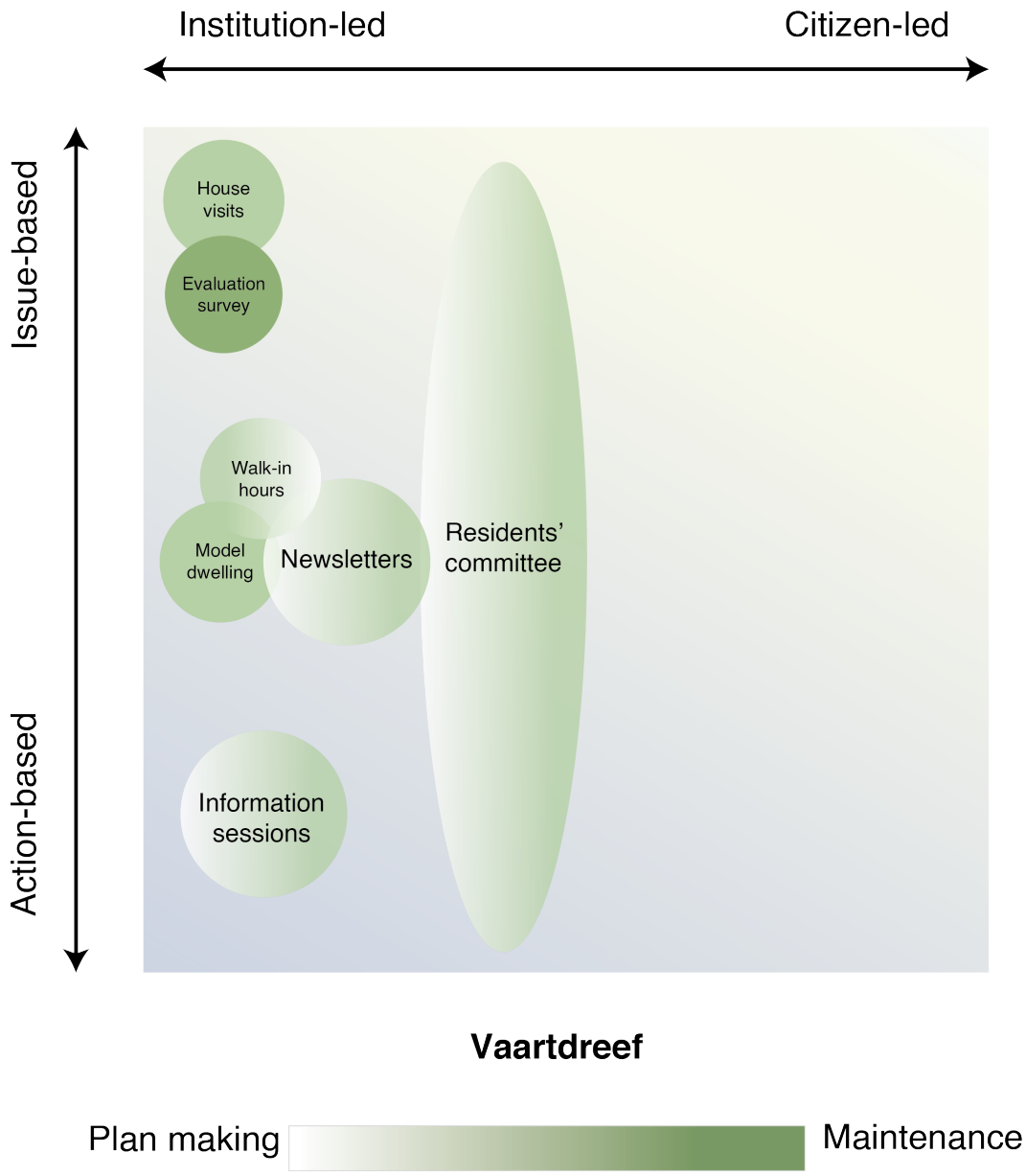


Figure 27. Map of engagement measures of Vaartdreef

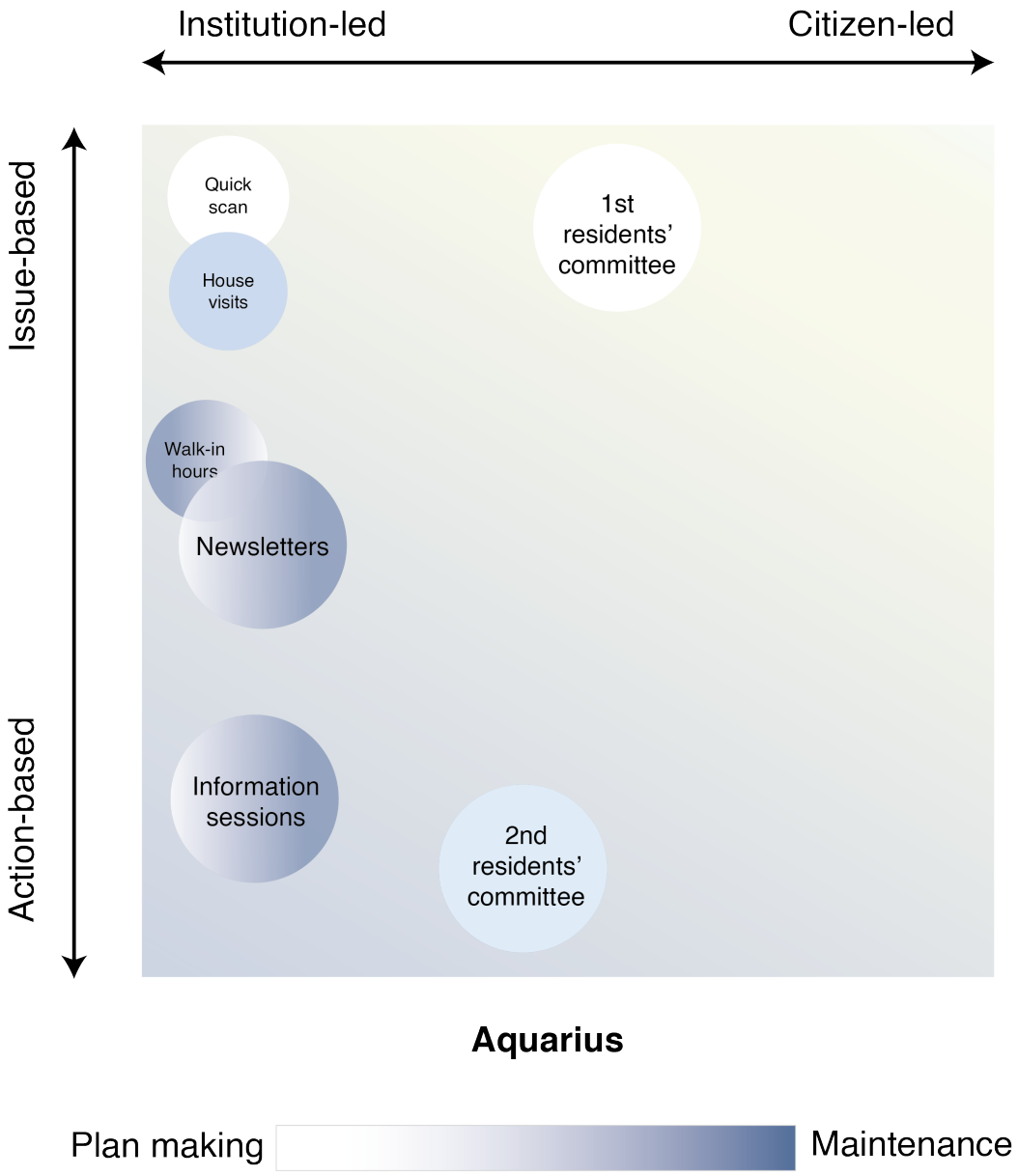


Figure 28. Map of engagement measures of Aquarius

7.3 Key social factors for top-ups

The next chapter investigates the relevance of the key social factors for retrofits on top-ups. Consequently, it provides the answer to sub-question two.

7.3.1 Decision about top-up measures

This following paragraph elaborates on the key social factors related to the decision-making that influence the perspective on the top-ups. This includes information provision, interpersonal communication, mutual trust and efforts to participate.

First of all, the results confirm that **information provision** is essential in creating support for top-ups by residents, making it one of the most important key social factors. Many concerns of residents stemmed from hearsay information or social media, showcasing how the narrative is heavily influenced by the source of information. This is particularly relevant for senior residents, as the representative of Vidomes notes that gossip or misinformation has led to fears to the top-up. While concerns may stem from illegitimate sources, the resulting fears or opposition are still legitimate.

Moreover, one resident from the Vaartdreef indicates that they did not participate, due to the 'culture' that was created by a dominant group of residents that he did not agree with. In contrast, the representative of Parteon notes that the brainstorm sessions were an opportunity for residents to discuss amongst each other. Both factors underline the importance of **communication** not only between corporation and residents, but also amongst residents.

Furthermore, **trust** between housing corporation and residents seems to be a prerequisite for the support for a top-up. This applies to not only trust in the ability of the housing corporation, but also trust in the process, which is mainly facilitated by the housing corporation. This is underlined by all representatives of the respective housing corporations.

When the renovation of the Aquarius was announced in 2019, the residents' committee was already weary of the initiative due to previous unfulfilled promises by Eigen Haard. Thus, housing corporation felt this was a significant disadvantage, which had to be overcome before starting the discussions on the content of the renovation.

Yet, a majority of the residents were proponents of the renovation proposal at the Aquarius. It is important to keep in mind that most of the initial residents did not return after the renovation. Therefore, the representative of Eigen Haard notes that it is hard to say whether the residents actually agreed with the proposal, or just voted in favour to expedite their relocation.

7.3.2 Personal influences

The category of personal influences refers to key social factors related to the individual decision-maker (Wilson et al., 2014). The following paragraph touches upon pre-existing values and preferences, energy saving, thermal comfort, previous experiences with the housing corporation and top-ups, the current housing shortage and perceived difficulty. It also highlights indicators of socio-demographic status, including age, income, education and ethnicity.

Pre-existing values and preferences of residents have proven to be important in issue-based activities, shaping the participation process outcomes according to these needs. For instance, residents of De Beren emphasise their attachment to the neighborhood's green spaces, advocating against developments that would harm them. This is acknowledged and integrated in the decision-making process by Parteon. As it is assumed that the subject of participation is shaped by predetermined interests, this confirms the relevance of this key social factor.

Different from retrofits, **energy saving** and **thermal comfort** are not relevant with for top-ups, as the top-up does not lead to energy saving or increased thermal comfort.

Previous experience with the housing corporation emerges as another one of the most key social factors for top-ups. This relationship and thus stance towards the housing corporation is heavily influences by previous experiences, influencing the residents' choice to support the top-up. While some residents of De Beren strongly opposed the plans, even threatening with legal action, the housing corporation was still able to have an open dialogue with them. This is beneficial for both parties, as housing corporations should acknowledge and cope with the concerns, while opposing residents should also be open for dialogue.

While the Aquarius has been depicted as 'the horrorflat', not all residents had a bad relationship with or perception of the corporation Eigen Haard. The two returning residents report that while they did disapprove of the illegal activities happening in the building, they did not recognize the complaints of negligent maintenance by the housing corporation.

Although the relationship between residents of the Vaartdreef and Vidomes has worsened due to the delay of the construction works and various incidents regarding safety as a result of the construction, the residents indicate that their relationship prior to the renovation and top-up was good.

Despite **previous experiences with retrofits** being relevant in the case studies, previous experiences with top-ups were not relevant yet as none of the residents had experienced a top-up before.

As for attitudes and beliefs, residents indicate that the **current housing shortage** fosters more understanding for the need for more dwellings. The representative of Parteon underlines this by stating that 'everyone knows someone who is in need of housing'. By presenting the current housing shortage at the centre of the narrative, it makes an appeal to residents to act in collective interest. Nevertheless, it does generate a NIMBY sentiment at times, as the location of the additional dwellings is up for discussion.

The **perceived difficulty** appears to be mainly targeted towards the nuisance created by the renovation, and not the top-up specifically. In particular, perceived difficulty is of less relevance at the Aquarius, as the top-up concerns an extension rather than an addition of dwellings.

Furthermore, representatives of the corporation underline the importance of the socio-demographic background of residents on their support for or against the top-up. In relation to

age, all three case studies have a significant large share of senior residents. The representative of De Wijde Blik posits that senior residents tend to be a more conservative target group, which can be more hesitant towards 'novel' concepts such as top-ups. While there are seniors that have a heightened interest, as they have more time on hand, there are also seniors that would like to spend their time enjoying their home without too much nuisance. Moreover, physical ability plays a larger role within this demographic, as visiting the community centre for information sessions might be too large of an obstacle.

Even though it has been established that social housing tenants generally have a lower **income**, this research did not find that income is not a key social factor for top-ups. This is due to limited financial repercussions for residents resulting from the top-up. Moreover, **education** level was also not identified as key social factor for top-ups.

Additionally, representatives have also indicated that residents with non-western background tend to be less likely to participate in the decision-making process. A lower level of proficiency in Dutch can lead to residents being unaware of the participation process, and thus in less involvement. This is mainly relevant for first generation migrants. Although **ethnicity** was not part of the operationalisation, it is apparent that it does influence the ability to participate.

7.3.3 Contextual influences

The category of influences within the contextual domain includes status of home tenure, duration of occupancy, life stage and uncertain future. Factors within the contextual domain generally concern households (Wilson et al., 2014).

The **status** of home tenure plays a significant role in setting the context for the participation process. Social housing tenants generally do not experience any direct financial repercussions of the top-up, as they do not have to invest in the construction of the top-up nor will their rent change directly due to the top-up. This is different from retrofits, as service charges and costs due to reduced energy usage are subject to change. Moreover, the housing corporation is involved in the housing block for an indefinite time, while residents are not obligated to make decisions based on a long-term perspective.

This also highlights the delicate relationship between acknowledging the needs of residents while making long-term investments as a housing corporation. While participation processes might aim to integrate the insights from residents as much as possible, and 70 percent threshold serves as a measure to ensure resident support, the housing corporation still has the most deciding power.

Furthermore, home tenure appears to be closely related to socio-demographics. Generally, social housing tenants tends to have lower income than private homeowners, as social housing is only available for households whose income is in the lower 40 percent scale of the Netherlands (Ministerie van BzK, 2021).

This leads us to the importance of the **duration of occupancy** on the support for the top-up. Residents from De Beren note that they have a strong sense of neighbourhood attachment, and therefore feel the responsibility of participating in the decision-making process. Most of the participants that were present at the information session in November had lived at De

Beren for over ten years.

Residents from both Aquarius and De Beren note that their quality of life in the buildings have deteriorated over the years, and some even account this to the introduction of residents that 'do not share the same values'. Existing residents mention examples of leaving trash out in the corridor, or not being able to communicate due to language barriers. This has led to fear of alienation in their own buildings, as top-ups leads to new tenants in the building.

Furthermore, salient events are crucial for the support in the case studies. Depending on the ***life stage***, residents are obliged to move in the near future due to changes in household composition or preferences. However, its objection was mostly linked to the retrofit rather than the top-up. While various senior residents argue that they struggle to cope with the renovation due to their age, their objection was not targeted towards the top-up specifically.

Acknowledging salient events can be useful in encouraging the chain of movement in the housing sector. Top-ups can serve as a vehicle for empty nesters to move from larger family homes to smaller apartments for example. Yet, it does not mean that residents are very willing to move from their existing homes to a smaller top-up dwelling. The representative of Parteon mentions that existing residents perceive it as a downgrade. Thus, while suitable for the needs of small households, it does not mean that the existing tenants are willing to enable the chain of housing movement.

Regarding **uncertain future**, this topic does resonate with the residents, but this does not lead to objection to the top-up as the top-up does not impact the dwellings of existing residents.

Figure 29 shows an overview of all key social factors for retrofits and its relevance for top-ups. This relevance is based on the prominence stemming from the interviews and participant observations.

Category	Dimensions	Key social factors	Relevance
Decisions about retrofit measures	Information and beliefs	(Credible) information provision	+++
		Interpersonal communication and social networks	++
		(Mutual) trust between housing corporation and residents	+++
Personal influences	Motivations	Pre-existing values and preferences	++
		Energy saving	0
		Thermal comfort	0
	Experience	Experience with top-ups	0
		Experience with housing corporation	+++
	Attitudes and beliefs	Awareness of energy-environment issues and the housing market	+
		Perception of difficulty	-
	Socio-demographics	Age	+
		Income	-
		Education	-
		Ethnicity	+
Contextual influences	Home tenure	Status (social housing, private rent or owned)	+
		Duration of occupancy	+
	Salient events	Life stage	+
		Uncertain future	-

Figure 29. Overview of key social factors for top-ups

- = limited to no impact on residents' support for top-up
0 = not applicable

8. DISCUSSION

The following chapter reflects on the results and its contribution to existing literature. It also includes remarks on its research paradigm, strengths and limitations. Additionally, it proposes recommendations for future research and practitioners.

8.1 Reflection on results

8.1.1. Elements of participation processes

This research contributes to existing literature by presenting a framework for analysis of participation processes of top-ups, that builds upon Chilvers et al. (2021) and Uittenbroek et al. (2019). The next paragraph reflects on findings related to the elements of participation processes of '*who*', '*what*', '*when*' and '*how*'.

Who – interest representation

While standardisation is seen as the key to accelerating and scaling up of the implementation of top-ups (Geuting et al., 2023; KAW, 2020; Rijksoverheid, 2023c), this research argues that acknowledging the complexity of interest representation is essential in generating support for top-ups. The results illustrate how senior residents were sensitive towards misinformation and had difficulty dealing with uncertainty due to temporary relocation. Subsequently, a more personal approach including house visits was necessary to obtain the support for the top-up.

Additionally, the results highlight the degree of involvement that depends on where the participant resides in relation to the top-up. As a result, residents can have varying motivations and statuses during the process. This research argues that the main priority is to engage the residents residing in the building, while residents from the neighbourhood should most definitely be kept informed.

The participation process should be mindful of the needs of both current and future residents. The priority of the top-up dwellings to the youth at De Beren demonstrates acknowledging the needs of future residents can generate support with the current residents.

What – subject of participation

The representatives of the housing corporations highlight the delicate balance between providing flexibility and setting boundaries to ensure progression in the decision-making. It comes down to expectation management, as false promises of flexibility can lead to deception of residents. This research proposes that while flexibility is needed during issue-based activities, boundaries are needed to work towards the objectives in action-based activities. This is exemplified by the non-negotiable number of forty dwellings at De Beren during the brainstorm sessions.

Furthermore, the motivations behind the participation process can differ between housing corporation and residents. This research has found that the goal of housing corporations generally is to obtain support for the construction of additional housing, which in this case is through the top-up. In contrast, the residents' goals is to ensure that the proposed intervention fits their housing preferences. Ideally, both goals would align and accumulate into intervention supported by all stakeholders, whether it is a top-up or not. This corresponds

with Chilvers and Longhurst (2016), as they imply that the subject of participation can be the result of predetermined interests.

Moreover, the conditions of the intervention matter in generating support. This includes the invasiveness of the top-up, the need for relocation and the benefits residents receive as compensation. For example, while residents of the Aquarius had to relocate to make space for the renovation and top-up, the residents of Vaartdreef had to endure the construction nuisance for nearly a year as it concerned an in-situ renovation. Consequently, this impacts the residents' support towards the top-up, before and after the implementation.

Surprisingly, the scale of the top-up did not influence the level of support for the top-up. The Vaartdreef has 50 dwellings with 5 added through the top-up, the Aquarius started with 148 dwellings and added 34, and De Beren plans to add 40 to its existing 358 dwellings. While the impact of the top-up on the entire building varies significantly, it has not been mentioned as a reason to object the top-up nor was the support impacted by it.

When – opportunities for participation

The findings showcase that participation processes can follow a reiterative pattern, while Uittenbroek et al. (2019) propose a linear distinction between phases. This is illustrated by De Beren, in which the first proposal for the replacement of the garage boxes made by Parteon was rejected by residents, leading to an issue-based session to collect insights of residents on their wishes for the neighbourhood. This also shows how different levels of flexibility are necessary depending on the phase.

It also appears that the maintenance phase is not applicable yet to the case studies. As De Beren is in its plan-making phase, Vaartdreef and Aquarius have just entered the evaluation phase. Meanwhile, it can be argued that the maintenance phase is less relevant for the top-up than for retrofits, due to the lack of maintenance for the top-up affecting residents on a short term.

Additionally, the analysis has led to the insight that the support for top-ups goes beyond the phase of policy implementation. Support for the top-up after implementation can be embodied in satisfaction with the results of the top-up for example. It is valuable to keep track of the support and satisfaction with the top-up, as it can influence the residents' perception or willingness to participate in the future.

How – models of participation

While the ladder of participation (Arnstein, 1969) proposes that high levels of citizen participation are desired to enable residents to have influence, the findings suggest that activities with varied levels of participation are beneficial for generating support. While some engagement measures do not directly contribute to a higher level of participation, residents are still enabled to form a better-informed opinion on the top-up. This includes high visibility of the employees of the housing corporation. While this was not included by Chilvers and Longhurst (2016) or Uittenbroek et al. (2019, it has proven to be relevant for generating support.

Considering the lack of formal guidelines on participation processes of top-ups, it is most

desirable if the guidelines for retrofits are used as a starting point for top-ups. While all case studies have showcased deviations from standard participation processes for retrofits, only De Beren explicitly changed its process due to the novel character of top-ups. Separate from all considerations to combine or execute the participation processes of top-ups and retrofits in parallel, it is most desirable if the processes are executed in the same time frame.

And lastly, it is important to keep in mind that surpassing the threshold of residents' approval does not mean that sufficient support is generated. On one hand, it is hard to distinct the support for the top-up from the retrofit, due to interwovenness of the participation processes of the top-up and retrofit, especially from the perspective of residents. On the other hand, the Aquarius illustrates how the majority of residents voted in favour for the renovation proposal, but it is unclear if they agreed on the contents of the proposal, or mainly agreed to ensure their leave out of the building.

Comparative case analysis

Based on the maps for the comparative case analysis, it is most desirable to start participation process with issue-based activities to set the objectives and continue with action-based activities to commit to these objectives in order to generate support for the top-up. This can be seen as a process of divergence and convergence.

While the maps contribute to identifying patterns in participation activities to shape future participation processes of top-ups, non-participative aspects of the process should not be overlooked. While visibility of the housing corporation is not included in the maps, it appeared to be valuable in generating support by residents. This shows a limitation to the method of Chilvers et al. (2021).

Although the housing corporations utilise similar measures of engagements such as information sessions or newsletters, it is essential to acknowledge that the involved parties, frequency, or content of the measures are not identical. This underlines how the heuristic framework as proposed by Chilvers et al. (2021) neglects potentially crucial details of the mapped participation activities.

While the comparative case analysis does not show to what degree the level of support per case studies varies, it serves as a stepping stone to get more insight into the nature and initiator of activities contributed to the support. This acts as a support to the in-depth information acquired through the interviews and participant observations. This affects the construct validity of this research (Guba & Lincoln, 1994).

8.1.2 Key social factors

This research contributes to existing literature by presenting an overview of key social factors for top-ups. The findings demonstrate that the majority of the key social factors for retrofits are relevant for top-ups. These include 'information provision,' 'mutual trust' and 'experience with the housing corporation' which emerge as the most prominent key social factors for top-ups.

Deviating from the key social factors for retrofits, this research has found that 'energy sa-

ving', 'thermal comfort', and 'experience with top-ups' are not applicable for top-ups. The former two factors are irrelevant, as top-ups do not improve thermal comfort or result in energy saving, while the latter is limited as the number of implemented top-ups in the Netherlands is scarce.

Additionally, 'perception of difficulty', 'income' and 'education' are not reflected in the results as key social factors for top-ups. Although 'perception of difficulty' does appear relevant for the case studies, it is primarily targeted towards the retrofit. While 'income' and 'education' are implicitly part of socio-demographic status, there are no findings directly connecting them to the motivation or ability to support the top-up.

8.1.3 Objectives of citizen participation

Reflecting on the objectives of citizen participation (Glucker et al., 2013), most of these aims have been found in the case studies. It is apparent that all case studies create the opportunity for residents **to have influence over decisions** and **encourage social learning** (Glucker et al., 2013), albeit in varying degrees, as their input is used as a guideline for the development of the top-up implementation. By creating opportunities for citizen participation, it leads to enhancement of **democratic capacity**. The results have illustrated how incorporating the resident input based on **tacit** and **value-based knowledge** is still desired, on the condition of financial and technical feasibility. In essence, it has become apparent that **generating legitimacy** has been a condition for obtaining support.

The only objectives of citizen participation that were not apparent in these case studies was **testing the robustness of the information from other sources** and e**mpowering marginalised individuals or groups**. The latter can be an objective for future participation processes, due to the underrepresentation of residents with a non-western background in the processes. The representative of De Wijde Blik poses that it can be valuable to host future information sessions at places that underrepresented residents frequently visit, such as mosques or community gardens.

8.2 Research paradigm and role of the researcher

As established, this research can be categorised as constructivist (Guba & Lincoln, 1994). Within this paradigm, it is assumed that realities are multiple, subjective, and equally valid (Ponterotto, 2005). The role of the researcher is therefore considered to be biased, as the findings are the result of the interactions between researcher and respondents (Guba & Lincoln, 1994). Consequently, it becomes apparent that the results from this research are reliant and shaped by the interviews, observations, and grey literature. Due to the limited scope and time frame, this research aimed to obtain a saturated understanding of the participation processes and the various perspectives of the involved stakeholders.

Considering the qualitative nature of this research, it was a deliberate choice to define support for the top-up by residents from the perspective of stakeholders. It is important to acknowledge the impact of sampling of interviewees. While interviewed residents of the Vaartdreef and De Beren included both proponents and opponents of the top-ups, only residents of the Aquarius that were proponents of the top-up were interviewed. As residents of the Aquarius had not returned to the building yet during the interview phase, the sampling of residents was dependent on the contacts provided by Eigen Haard.

In retrospect, interviewing dissatisfied residents of Aquarius would give a different perspective on the process. However, it would be understandable that these residents would be less likely to participate in an interview, as it has been over two years since they relocated.

8.3 Strengths and limitations

The main strength to this research is the verification of the information retrieved from the housing corporation with insights from the interviews with residents and participant observations. By using both semi-structured interviews and participant observations, knowledge is gained on the individual experiences of stakeholders, and the interaction between the stakeholders. This increases the internal validity of this research.

As for the limitations of this research, the following insights could impact the integrity of the conclusions of this research.

This research gives limited insight into what the roles of stakeholders beyond the housing corporation and residents are. While the respective housing corporations are the main facilitators of the participation processes in all case studies, the role of the architect has varied. Although the architect may not always be involved early on in the participation process, input from residents can be valuable for shaping the design of the top-up to adhere to their preferences. In other words, the phases of participation are not only relevant for the residents, but also the involvement of other stakeholders.

While the case studies showcase a variety in participation processes, it would have been beneficial to include cases where top-ups were not implemented due to insufficient support. This absence of top-ups that failed due to lack of support, or succeeded without extensive participation risks falsification (Popper, 1959) of this research, impacting the external validity.

Moreover, it would have been valuable to have a larger variety in cases with more citizen-led activities. All cases have a highly involved housing corporation that is motivated to incorporate the residents' input, while this might not be applicable for all cases in reality.

Lastly, it cannot be guaranteed that the engagement measures and key social factors relevant to these cases are applicable for other demographic groups. While senior residents appreciate personal contact, younger demographic groups can benefit from online interaction for example. This influences the external validity of this research.

8.4 Recommendations

To expand upon this research, the following recommendations for future research and practice are proposed.

8.4.1 Future research

Role division

Considering its limited focus on stakeholders beyond the housing corporation and residents, future research should explore the roles of stakeholders such as municipalities, constructors, or architects in the participation process. This includes investigating the desired degree of involvement, responsibilities, and the moments of involvement during the various phases of participation.

Quantitative and longitudinal research

A valuable contribution to academia would be utilising a quantitative approach to measuring support for top-ups. Future research can utilise quantitative methods such as surveys and regression analysis to obtain insight into what factors are significantly correlated to support or objection towards the top-up. As a result, more knowledge can be generated on to what extent the key social factors and elements of participation processes proposed by this research contribute to the support for the top-up. These insights can be utilised to verify the results from this research, increasing its construct validity and internal validity (Guba & Lincoln, 1994).

Moreover, future research can build upon the methodology of this research by analysing case studies in a longitudinal manner to capture the maintenance phase. While it is not clear what relevance participation activities have in this phase, it has also yet to become relevant as the finished case studies have just entered the evaluation phase.

Top-ups in private sector

Finally, future research could focus on the participation processes of privately owned dwellings. While this research has deliberately opted to focus on top-ups of social housing, top-ups of privately owned dwellings tend to follow a different structure, as homeowners are organised through Vereniging van Eigenaren (VvE) in the Netherlands. In most cases, all owners within the housing block need to support the top-up before it can be executed. Housing corporations have the benefit of having an organisation that has the budgetary flexibility and employees with knowledge to develop a strategy for the participation process, while VvEs are dependent on the residents as main facilitator of the process. Therefore, this provides an interesting avenue for future research.

8.4.2 Recommendations for practitioners

Expectation management

Future top-ups should set clear conditions and expectations for temporary or permanent relocation due to the construction nuisance. The representative from Vidomes highlights the availability of the nearby temporary homes as one of the main learned lessons that can be applied to future top-up projects. Having clear expectation management of the extent to which the current residents are inconvenienced and what measures are offered to mediate this inconvenience are key to gaining support for the top-up.

Quick scans

While quick scans have been applied to the case studies to investigate the technical state of the building, it can also be relevant to execute an inspection from a social perspective. The representative of Eigen Haard underlines the importance of having a good relationship with residents, as initiating a top-up or other interventions without trust can be unnecessarily arduous. Thus, before initiating the participation processes of future top-ups, it would be valuable to assess the identity of the residents and previous experiences that could affect the relationship between housing corporation and residents.

Consequently, it can be seen as the acknowledgement of key social factors prior to any other participative actions. As a result, a more context-specific approach can be executed, and potential obstacles connected to the key social factors can be identified early on in the process.

Nature of participation activities

Based on the results of the comparative case analyses, a combination of issue- and action-based activities have proven to be key to generating support for top-ups. Hence, future participation processes should commence with issue-based activities to collect all views and needs of residents for the intended intervention. Subsequently, these are utilised as a foundation for the action-based activities, to shape commitments to adhere to these preferences.

9. CONCLUSION

First and foremost, the aim of this research was to gain insight into how participation processes of top-ups are currently shaped, and how future processes can be improved to enable large scale implementation of top-ups to aid the current housing shortage in the Netherlands. Consequently, this research was based on the hypothesis that the participation processes influence the level of support for top-ups, moderated by independent key social factors.

To this end, this research has investigated the following main research question:

In what ways do participation processes contribute to creating sufficient support for the implementation of residential top-ups in the Netherlands?

In order to answer this question, the first and second sub-questions investigated the key social factors for residential retrofitting and top-ups, while the third sub-question analysed ways of resident inclusion in the decision-making process of top-ups.

Regarding the first and second sub-question, this research confirms that key social factors set the conditions for the motivation or ability of residents to participate, which validates the hypothesis. The findings demonstrate that 'information provision,' 'mutual trust,' and 'experience with the housing corporation' are identified as the most prominent key social factors for top-ups.

Different from retrofits, the key social factor of 'energy saving', 'thermal comfort', and 'experience with top-ups' have proven to be irrelevant for top-ups. In essence, top-ups do not directly lead to improved thermal comfort or energy savings, and there is a limited number of top-ups in the Netherlands, making prior experience scarce. Furthermore, 'perception of difficulty', 'income' and 'education' are not reflected in the results as key social factors for top-ups. 'Perception of difficulty' was relevant for the case studies, but generally related to the retrofit instead of the top-up. While 'income' and 'education' are closely related to socio-demographic backgrounds, it did not influence the residents' motivation or ability to support the top-up.

In reference to sub-question three, this research argues that a higher level of citizen participation does not necessarily result in more support. Instead, this research has shown the necessity for a context-specific approach to participation processes of top-ups. The engagement measures and their respective level of participation should not only adhere to the pereferences of current residents, but also acknowledge residents from the neighbourhood and new residents.

Although the dwellings of existing residents do not benefit from the top-up, residents are offered the opportunity to relocate to a more desirable dwelling within their building. Moreover, it calls upon residents to support out of collective benefit, as top-ups can also create a more diverse housing stock, which can alleviate the housing shortage in a quantitative and qualitative manner.

Whether the participation processes of retrofit and top-up are combined or executed in parallel, implementing both interventions in the same timeframe is most desirable considering their mutual beneficial relationship. Regardless of the legal threshold of resident approval, the results have illustrated that it is worthwhile to invest in an inclusive participation process to generate legitimacy and therefore support for the plans.

While residents are included in the policy making phase primarily, this research has shown that support for top-ups can go beyond the phase of implementation, as support can be affected by the satisfaction with the results of the top-up. In addition, this research has illustrated that the phases of participation can occur iteratively rather than solely linear.

Based on the comparative case analysis, it is concluded that the participation activities of the case studies are primarily institution-led, with varying degrees of involvement of residents. Although all case studies share a similarity in variety of activities, De Beren has opened up their process for more dialogue and interaction with the residents.

Additionally, it is concluded that both issue-based and action-based activities are necessary to obtain support for the top-up. The findings highlight that initiating the participation process with issue-based activities to set the objectives, and continuing with action-based activities to commit to these objectives is most desirable. Simultaneously, it illustrates the importance of balancing flexibility to accommodate these preferences with necessary inflexibility to ensure progress.

In terms of the most desirable initiator for generating support, it is concluded that it is not only about including more citizen-led initiatives, but also having a facilitator who offers accessible tools and opportunities to participate.

In conclusion, this research has provided a framework to evaluate participation processes of top-ups. It has shown that participation processes can contribute to sufficient support for top-ups by using a context-specific approach, adjusting the level of participation to the needs of both current and future residents, and combining both issue- and action-based activities. Additionally, it has presented an overview of key social factors for top-ups, that moderate the influence of the participation process on the support for top-ups. By acknowledging the social domain in the decision-making of top-ups, it can guide future participation processes of top-ups to be more inclusive and effective, accelerating the implementation of successful top-ups. As a result, more avenues of opportunities are created for **topping up together**.

10. REFERENCES

!Woon. (n.d.). Wijziging splitsingsakte VvE. Retrieved on 24 October 2023 from https://www.wooninfo.nl/vraagbaak/vve/wijzigen-splitsingsakte/.

ABF Research. (2023). Primos-prognose 2023. Prognose van bevolking, huishoudens en woningbehoefte. Report. Retrieved on 25 September 2023 from https://abfresearch.nl/publicaties/primos-2023/.

Amer, M., Attia, S. (2017). Roof Stacking: Learned Lessons from Architects. *SBD Lab*, Liège University.

Amer, M., Attia, S. (2018). Timber construction methods for roof stacking: classification and comparative analysis. [Paper]. *World Conference on Timber Engineering*. Seoul, South Korea.

Amer, M., Mustafa, A., Attia, S. (2019). Conceptual framework for off-site roof stacking construction. *Journal of Building Engineering*, 26, pp. 1-10.

Amer, M., Mustafa, A., Teller, J., Attia, S., Reiter, S. (2017). A methodology to determine the potential of urban densification through roof stacking. *Sustainable Cities and Society*, 35, pp. 677-691.

Arnstein, S. R. (1969). A Ladder of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), pp. 216-224.

Leeuw, R. de. (2019, 22 October). Eigen Haard moest ingrijpen bij flatrenovaties. Retrieved on 25 January 2024 from https://www.amstelveensnieuwsblad.nl/lokaal/overig/286572/eigen-haard-moest-ingrijpen-bij-flatrenovaties-651942.

Amstelveenz. (2020). Dossier Amstelveense Horrorflat duurt voort. *Amstelveens Nieuwsblad.* Retrieved on 25 January 2024 from https://www.amstelveenz.nl/nieuws/dossier-amstelveense-horrorflat-duurt-voort-gemeente-uit-zorgen-over-eigen-haard.html.

Autoriteit Woningcorporaties. (2022). Staat van de corporatiesector 2021. Retrieved on 5 January 2024 from https://www.ilent.nl/binaries/ilt/documenten/publicaties/2022/02/28/staat-van-de-corporatiesector-2021/Staat+van+corporatiesector+2021.pdf.

Berenschot., VNG. (2023). Aan de slag met participatie. Handreiking 2.0: Voor de participatieverordening. Retrieved on 25 October 2023 from https://vng.nl/sites/default/files/2023-06/aan_de_slag_met_participatie_-_handreiking_2.0.pdf.

Bor, H. (2023). *Vertical Extension of Council Estates: An effective method to optimize timber top-up designs, considering structural limits and environmental impact*. [Master's thesis, TU Delft]. Retrieved on 26 October 2023 from http://resolver.tudelft.nl/uuid:-b4ab11d7-8977-4c9c-a26f-ccd9131c61ec.

Bryman, A. (2016). *Social research methods*. Oxford, New York: Oxford University Press.

Buurtboost. (2022). De slimste route naar woongeluk. Buurtboost versnelt wijkontwikkeling. Retrieved on 24 October 2023 from https://buurtboost.nl/wp-content/uploads/2023/04/Buurt-

Boost-algemene-brochure.pdf.

CBS. (2023). Private huursector groeit sterker dan koop- en corporatiesector. Retrieved on 9 October 2023 from https://www.cbs.nl/nl-nl/nieuws/2023/11/private-huursector-groeit-sterker-dan-koop-en-corporatiesector.

Chilvers, J., Longhurst, N. (2016). Participation in Transition(s): Reconceiving Public Engagements in Energy Transitions as Co-Produced, Emergent and Diverse. J*ournal of Environmental Policy & Planning*, 18(5), pp. 585-607.

Chilvers, J., Bellamy, R., Pallett, H., & Hargreaves, T. (2021). A systemic approach to mapping participation with energy transitions. *Nature Energy*, 6, pp. 250-259.

Cockbill, S.A. (2017). *The role of co-design in supporting energy-related retrofit by householders.* [PhD thesis, Loughborough University]. Retrieved on 6 November 2023 from https://repository.lboro.ac.uk/articles/thesis/The_role_of_co-design_in_supporting_energy-related_retrofit_by_householders/9360428.

Copper8., Metabolic., Nibe., Alba Concepts. (2023). Woningbouw binnen planetaire grenzen. Materiaalvraag, CO2-uitstoot & milieu-impact van de Nederlandse woningbouw. Report. Retrieved on 25 September 2023 from https://www.copper8.com/wp-content/uploads/2023/04/Woningbouw-binnen-planetaire-grenzen-juni-2023.pdf.

Damen, T. (2018, 17 December). Amstelveen schort afspraken met Eigen Haard op. *Het Parool.*

Dietz, S., Stern, N. (2008). Why Economic Analysis Supports Strong Action on Climate Change: A Response to the Stern Review's Critics. *Review of Environmental Economics and Policy,* 2(1), pp. 94-113.

Dutch Green Building Council (DGBC). (2021). Whole Life Carbon. Position Paper. Retrieved on 21 September 2023 from https://www.dgbc.nl/upload/files/Publicaties/circulariteit/Position%20Paper%20Whole%20Life%20Carbon%20-%20DGBC.pdf.

Economisch Instituut voor de Bouw. (2023). Nationale Woon- en Bouwagenda: Onderzoek naar de haalbaarheid van 100.000 nieuwe woningen per jaar. Retrieved on 31 January 2024 from https://www.eib.nl/pdf/EIB-rapport%20Nationale%20Woon-%20en%20Bouwagenda.pdf.

Eigen Haard. (2020). Sociaal Plan 2020. Renovatie Aquarius, Watercirkel 372-666. Retrieved on 5 January 2024 from https://www.eigenhaard.nl/media/ufend5tv/sociaal-plan-aquarius-eigen-haard-2020.pdf.

Eurostat. (2023). Demography 2023 edition. Interactive publications. Retrieved on 4 October 2023 from https://ec.europa.eu/eurostat/web/interactive-publications/demography-2023.

Feijter, F. J. de., Vliet, B.J.M. van., Chen, Y. (2019). Household inclusion in the governance of housing retrofitting: analysing Chinese and Dutch systems of energy retrofit provision. *Energy Research & Social Science*, 53, pp. 10-22.

Feijter, F. J. de. (2021). Housing retrofit: the household-inclusive way? Perspectives from China and the Netherlands. [PhD Thesis, Wageningen University]. Retrieved on 4 October 2023 from http://dx.doi.org/10.1080/09613218.2022.2121905.

Floerke, P. Weiβ, S., Stein, L., Wagner, M. (2014). Typologienkatalog-Gebäudeaufstockungen. *Bauforumstahl.*

Flyvvberg, B. (2006). Five Misunderstanding About Case-Study Research. *Qualitative Inquiry,* 12(2), pp. 219-245.

Geuting, E., Wevers, J., Thomasia, M., Dul, A. (2023). De potentie van splitsen en optoppen. Stec Groep. Retrieved on 11 September 2023 from https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2023/03/20/de-potentie-van-splitsen-en-optoppen/de-potentie-van-splitsen-en-optoppen.pdf.

Gillott, C., Davison, B., Tingley, D. Densley. (2022). Drivers, barriers and enablers: construction sector view on vertical extensions. *Building Research and Information*, 50(8), pp. 909-923

Glucker, A. N., Driessen, P.P.J., Kolhoff, A., Runhaar, H.A.C. (2013). Public participation in environmental impact assessment: why, who and how? *Environmental Impact Assessment Review*, 43, pp. 104-111.

Guba, E.G., Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In: Denzin, N.K., Lincoln, Y.S. (ed) *Handbook of Qualitative Research*. Thousand Oaks: Sage Publications, Inc., Thousand Oaks. Pp. 105-117.

Guijt, I.M., Shah, M. (1998). *The myth of community: Gender Issues in Participatory Development*. Intermediate Technology Publications, London.

Hermens, M., Visscher, M., Kraus, J. (2014.) *Ultra-Light Weight Solutions for Sustainable Urban Densification*. [Paper]. 2014 Shanghai Conference.

Hernández-Palacio, F. (2017). A transition to a denser and more sustainable city: Factors and actors in Trondheim, Norway. *Environmental Innovation and Societal Transitions,* 22, pp. 50-62.

IPLO. (n.d.). Overzicht regels participatie bij de instrumenten van de Omgevingswet. Retrieved on 26 October 2023 from https://iplo.nl/regelgeving/omgevingswet/participatie/participatie-instrumenten/participatie-instrumenten-omgevingswet/#:~:text=De%20wet%20schrijft%20niet%20voor,betrokkenen%20zijn%20elke%20keer%20anders.

Jaffe, A. B., Newell, R. G., Stavins, R.N. (1999). Energy-Efficient Technologies and Climate Change Policies: Issues and Evidence. *KSG Faculty Research Working Paper Series*.

Jonge, B. de. (n.d.). De 70 procent-regeling. Aedes. Retrieved on 9 October 2023 from https://aedes.nl/verduurzaming/de-70-procent-regeling.

Julistiono, E.K., Oldfield, P., Cardellicchio, L. (2023). Up on the roof: a review of design, construction, and technology trends in vertical extensions. *Architectural Science Review*, doi: 10.1080/00038628.2023.2240289.

KAW. (2020). Ruimte zat in de stad. Onderzoek naar beter gebruik van de ruimte die we hebben. Retrieved on 30 August 2023 from https://www.kaw.nl/wp-content/uploads/2020/06/KAW_RUIMTE_ZAT20200623.pdf.

Kullberg, J., Ras, M. (2018). Wonen. In: De sociale staat van Nederland 2018. Retrieved on 26 October 2023 from https://digitaal.scp.nl/ssn2018/wonen.

Lidt, M. van., Mastop, J., Coen, M., Hal, J.D.M. van. (2017). De derde succesfactor Ontrafeld Inzicht in gedrags- en organisatieprocessen die de transitie naar een energieneutrale gebouwde woonomgeving versnellen. Retrieved on 10 October 2023 from http://resolver.tudelft.nl/uuid:eea716be-2dc4-465e-b1e6-fd474140a38b.

Mallaband, B., Haines, V., Mitchel, V. (2013). Barriers to Domestic Retrofit: Learning from Past Home Improvement Experiences. *Conference: Retrofit 2012*.

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (BZK). (2021). Wonen langs de meetlat. Resultaten van het WoonOnderzoek Nederland 2021. Retrieved on 3 January 2024 from https://open.overheid.nl/repository/ronl-6ba59413e76cef7c060942077d1ab7eb072ed52d/1/pdf/Kernpublicatie%20WoON%202021.pdf.

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2023a, 16 June). Voorjaarsbesluitvorming klimaat gebouwde omgeving en voortgangsrapportage PVGO [Kamerbrief]. Retrieved on 21 November 2023 from https://open.overheid.nl/documenten/8fff06fc-b205-4985-adab-616bc3471ce8/file.

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. (2023b, 17 May). Beter benutten van bestaande voorraad [Kamerbrief]. Retrieved on 23 November 2023 from https://open.overheid.nl/documenten/ronl-a53eb5ddfa49350dc199ce169b52dc90f1c832ca/pdf.

Ministerie van Landbouw, Natuur en Voedselkwaliteit. (2019, 13 November). Maatregelenpakket voor de stikstofproblematiek in de woningbouw- en infrastructuursector en voor de PFAS-problematiek [Kamerbrief]. Retrieved on 15 January 2024 from https://open.overheid.nl/repository/ronl-84bad788-119a-488a-9e95-f69074377519/1/pdf/kamerbrief%20Stikstof%2013%20november.pdf.

Muchunguzi, S. (2023). Management and Social Perspectives. The paradox of Citizen Participation and Quality Service Provision in Local Government Authorities: The Tanzanian Experience. *International Journal of Management and Social Sciences,* 2(1), pp. 19-43.

NH Nieuws. (2020, 6 October). 'Herhuisvesting bewoners verpauperde Aquariusflat laat te wensen over'. Retrieved on 25 January 2024 from https://www.nhnieuws.nl/nieuws/274160/herhuisvesting-bewoners-verpauperde-aquariusflat-laat-te-wensen-over.

Nilsson, R., Blomsterberg, Å., & Landin, A. (2016). Vertical Extension of Buildings as an Enabler of Energy Renovation. *CLIMA 2016 - proceedings of the 12th REHVA World Con-*

gress .

O'Faircheallaigh, C. (2010). Public participation and environmental impact assessment: purposes, implications, and lessons for public policy making. *Environmental Impact Assessment Review*, 30, pp. 19-27.

Olander, S. (2006). *External stakeholder analysis in construction project management.* [PhD thesis, Lund University]. Retrieved on 6 November 2023 from https://doi.org/10.1080/01446190600879125.

Oorschot, L., & Konstantinou, T. (2017). Retrofit for continuity! Sustainability and Gentrification of tenement apartment blocks in Dutch Cities from inter and post war period. In: M. Young (Ed.), *Living and Sustainability: An Environmental Critique of Design and Building Practices*, *Locally and Globally* (AMPS Proceedings Series; Vol. 9). Architecture_MPS.

Pattison, J. (2021). Vertical extensions: technical challenges and carbon impact. *The Structural Engineer*, 99(5), pp. 12-15.

Pelenur, M. J. (2013). *Retrofitting the domestic built environment: investigating household peresepctives towards energy efficiency technologies and behaviour*. [PhD thesis, University of Cambridge]. Retrieved on 5 January 2024 from https://doi.org/10.17863/CAM.14069.

Pelenur, M. J., Cruickshank, H. (2014). Motivations to adopting energy efficiency measures in the home. *Proceedings of the ICE – Energy*, 167(3).

Petts, J. (2003). Barriers to Deliberative Participation in EIA. *Journal of Environmental Assessment Policy and Management,* 5(3), pp. 269-293.

Pol, E., Masso, A. Di., Castrechini, A., Bonet, M.R., Vidal, T. (2006). Psychological parameters to understand and manage the NIMBY effect. *European Review of Applied Psychology,* 56(1), pp. 43-51.

Ponterotto, J.G. (2005). Qualitative Research in Counseling Psychology: A Primer on Research Paradigms and Philosophy of Science. *Journal of Counseling Psychology*, 52(2), pp. 126-136.

Popper, K. R. (1959). The logic of scientific discovery. *Studia logica*, 9, pp. 262-265.

Resnik, D.B. (2010). Urban Sprawl, Smart Growth, and Deliberative Democracy. *American Journal of Public Health*, 100, pp. 1852-1856.

Rijksoverheid. (2020). Naar een inclusieve samenleving. In ons land, niemand aan de kant. Brede maatschappelijke heroverweging. Retrieved on 23 October 2023 from https://www.rijksfinancien.nl/bmh/bmh-6-inclusieve-samenleving.pdf.

Rijksoverheid. (2022). Meer nieuwbouw, verduurzaming en lagere woonlasten voor socaile huur door afschaffing verhuurdersheffing. Retrieved on 21 November 2023 from https://www.rijksoverheid.nl/actueel/nieuws/2022/10/07/meer-nieuwbouw-verduurzaming-en-lagere-woonlasten-voor-sociale-huur-door-afschaffing-verhuurderheffing/.

Rijksoverheid. (2023a). 900.000 nieuwe woningen om aan groeiende vraag te voldoen. Retrieved on 25 September 2023 from https://www.rijksoverheid.nl/onderwerpen/volkshuisvesting/nieuwe-woningen.

Rijksoverheid. (2023b). Draft National Strategy on Spatial Planning and the Environment (NOVI). Retrieved on 25 September 2023 from https://www.rijksoverheid.nl/documenten/rapporten/2019/08/01/draft-national-strategy-on-spatial-planning-and-the-environment-engels.

Rijksoverheid. (2023c). Meer woningen door beter benutten van bestaande bebouwing. News article. Retrieved on 26 September 2023 from https://www.rijksoverheid.nl/actueel/nieuws/2023/05/17/meer-woningen-door-beter-benutten-van-bestaande-bebouwing.

Rijksoverheid. (2023d). Betaalbare huur betaalbaar maken. News article Retrieved on 25 January 2024 from https://www.rijksoverheid.nl/actueel/nieuws/2023/11/09/betaalbare-huur-mogelijk-maken#:~:text=Wet%20betaalbare%20huur,-De%20wet%20betaalbare&-text=Om%20huurders%20te%20beschermen%20tegen,13%20(prijspeil%20juli%202023).

Rijswijk, B. van. (2023). Corporaties willen bovenop zittende huurders bouwen in strijd tegen woningnood. BNR. Retrieved on 2 October 2023 from https://www.bnr.nl/nieuws/bouw-woningmarkt/10516864/corporaties-willen-bovenop-zittende-huurders-bouwen-in-strijd-tegen-woningnood.

Schramm, W. (1971). *The Nature of Communication between Humans*. In W. Schramm, & D. F. Roberts (Eds.), The Process and Effects of Mass Communication, pp. 3-516. Urbana, IL: University of Illinois Press.

Sundling, R. (2019). A Development Process for Extending Buildings Vertically – Based on a Case Study of Four Extended Buildings. *Construction Innovation*, 19(3), pp. 367–385.

Tichelmann, K., Blome, D., Matthias, G., Groß, K. (2019). *Deutschlandstudie 2019: Wohnraumpotenziale in urbanen Wohnraumpotentiale in urbanen Lagen*. Aufstockung und Umnutzung von Nichtwohngebäuden. Technische Universität Darmstadt.

Uittenbroek, C., Mees, H., Hegger, D., Driessen, P. (2019). The design of public participation: who participates, when and how? Inisghts in climate adaption planning from the Netherlands. *Journal of Environmental Planning and Management*, 62(14), pp. 2529-2547.

Vafa, S. (2023). The New Norm of Circular Construction: Accelerating successful employment of vertical integration of modular construction's project- and product value chains. *An empirical single case study of an integrated modular building company*. [Master's thesis TU Delft].

Vidomes. (2022). Nieuwsbrief 14. Instemmingstraject. Appartementen Vaartdreef. Retrieved on 5 January 2024 from https://vidomes.nl/media/3071/begeleidende-brief-bij-brochure.pdf.

VORM. (n.d.). Optopping hoofdkantoor VORM: uniek gebruik van 3D laserscan. Retrieved on 26 October 2023 from https://vorm.nl/actueel/nieuws/optopping-hoofdkan-

toor-vorm-uniek-gebruik-van-3d-laserscan.

Wahyuni, D. (2012). The Research Design Maze: understanding Paradigms, Cases, Methods and Methodologies. *Journal of Applied Management Accounting Research*, 10(1), pp. 69-80.

Wijnants, L., Allacker, K., Troyer, F. de. (2019). Life-cycle assessment of timber frame constructions – the case of rooftop extensions. *Journal of Cleaner Production*, 216, pp. 333-345.

Wilson, C., Dowlatabadi, H. (2007). Models of decision making and residential energy use. *Annual Review of Environment and Resources*, 32, pp. 169-203.

Wilson, C., Crane, L., Chrysochidis, G. (2014). *Why do people decide to renovate their homes to improve energy efficiency?* Working paper. Tyndall Centre for Climate Change Research, Norwich, United Kingdom.

Wilson, C., Crane, L., Chrysochidis, G. (2015). Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy. *Energy Research and Social Science*, 7, pp. 12-22.

Yin, R. K. (2006). *Case Study Methods*. In: J. L. Green, G. Camilli, & P. B. Elmore (Eds.), Handbook of complementary methods in education research, pp. 111–122. Lawrence Erlbaum Associates Publishers.

Zwanink, B. (2017). Timber Top-up: Sustainable densification and office transformation in the Amsterdam Navy Area. [Master's thesis, TU Delft]. Retrieved on 26 October 2023 from http://resolver.tudelft.nl/uuid:702acd1c-ed1b-4ddf-99a2-08fcb4a2e96f

11. APPENDICES

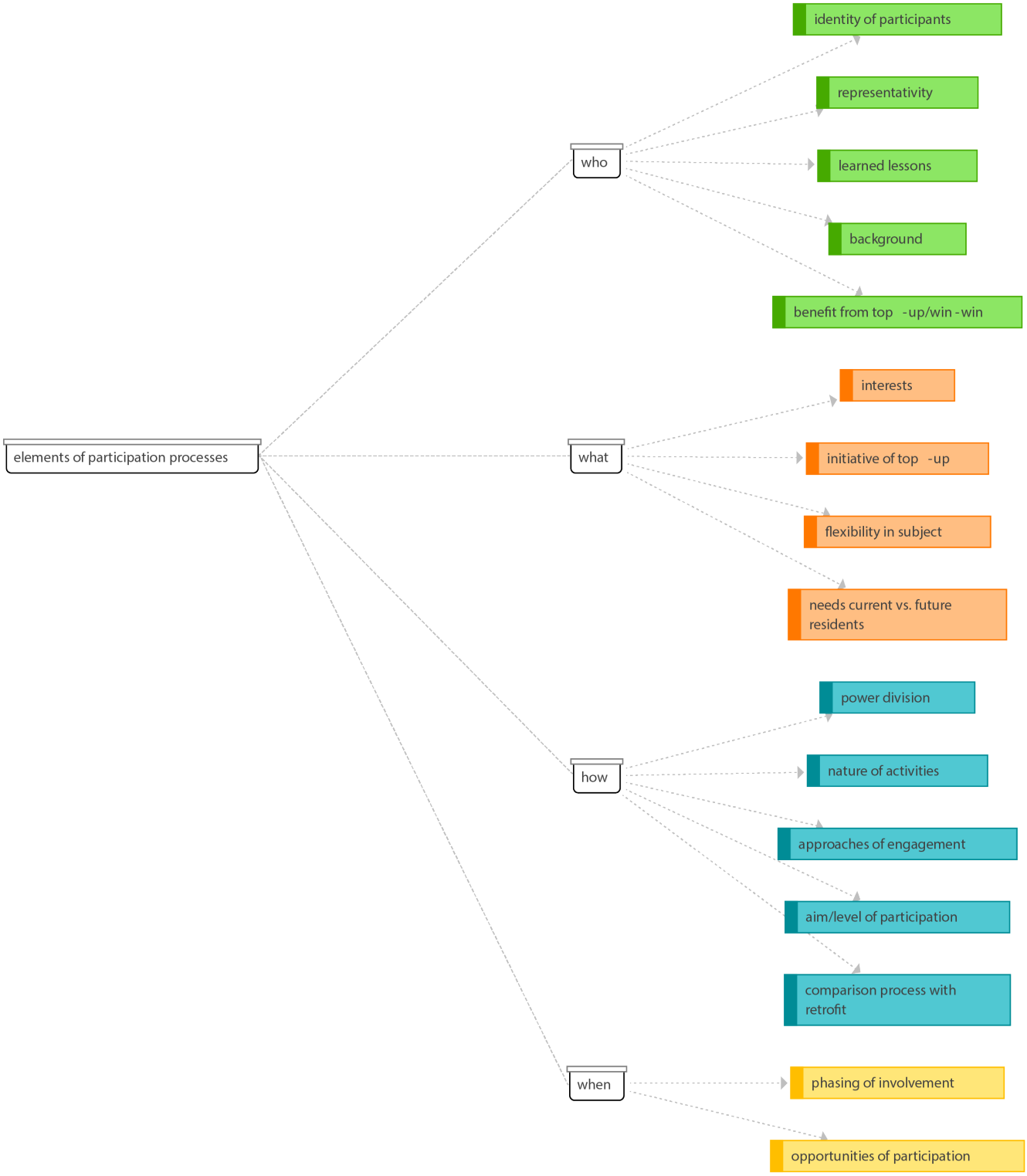
Appendix A: Topic list for interviews

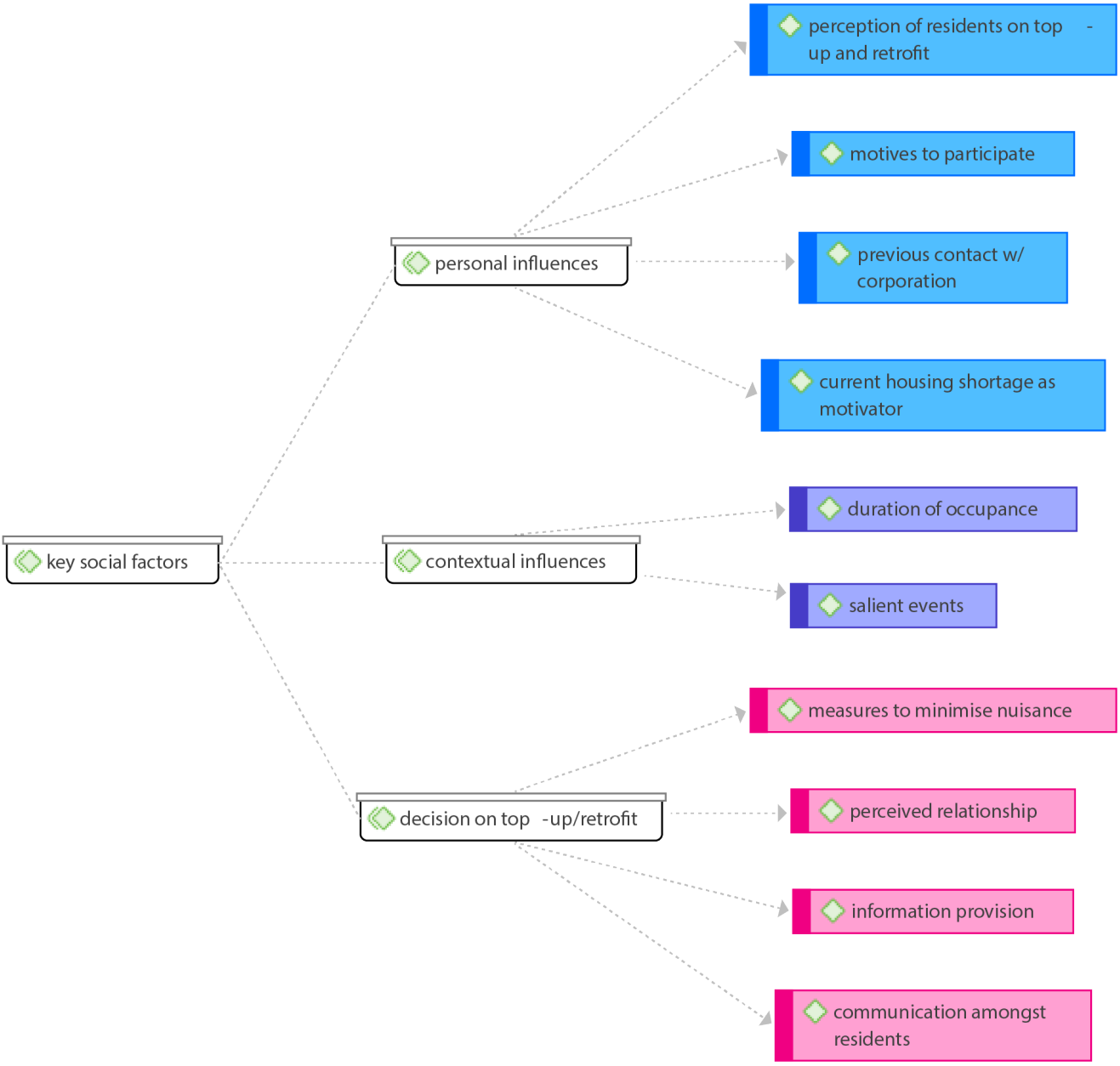
Concepts	Dimensions	Interview questions
Who	Definition of the participants (Chilvers & Longhurst, 2016; Chilvers et al., 2021)	Who are the participants included in the participation process? In what way do current residents benefit from top-ups? To what extent are participating citizens process representative for all residents of the building? Whose initiative is it to choose for a top-up? (Institution-led or citizen-led?)
What	Subject of participation (Chilvers & Longhurst, 2016)	What are the interests of the housing corporation and residents for the implementation of a top-up? To what extent is there any flexibility in defining the subject of participation for residents? To what extent should the needs of current residents be considered versus the needs of future residents?
	Nature of activities (Chilvers et al., 2021)	To what extent are these activities related to discussing of views on the issue and shaping the discourse of the project? To what extent are these activities action based, thus leading to material commitments?
When	Moments of participation (Uittenbroek et al., 2019)	From ideation to implementation, what opportunities for participation do residents have in chronological order? In what way are residents included in the phases of policy making, policy implementation, policy evaluation and/or maintenance phase?

Concepts	Dimensions	Interview questions
How	Models of participation (Uittenbroek et al., 2019)	What approaches are used to engage residents in the top-up? Do you have set approaches for participation processes for retrofits and/or top-ups? How do participation processes for retrofitting differentiate from top-ups? What challenges do housing corporations have to involve residents in the process?
	Aim of participation (Glucker et al., 2013; Uittenbroek et al., 2019)	To what extent do the participation activities aim to For example: > inform residents > extract knowledge > gain feedback and legitimacy from residents > social learning / democratic capacity > co-create top-up plans
	Degree of involvement (Chilvers & Longhurst, 2016)	To what extent do processes have flexibility to adjust its objectives or actions throughout the trajectory? To what extent do residents have power in the decision-making process compared to the housing corporation?

Concepts	Dimensions	Interview questions
Key social factors	Decision about retro-fit/top-up measures (Wilson et al., 2014)	How is the information provision towards residents on the progress of the plans? What kind of communication is there amongst residents? How do residents perceive their relationship with the housing corporation?
	Personal influences (Wilson et al., 2015)	What is the general perception of residents on top-ups? What motives do residents generally have to participate? How has previous contact with the housing corporation shaped this relationship? To what extent does the current housing shortage influence the residents' support for a top-up? What are common household compositions amongst residents? (starters, families with children, elderly etc.)
	Contextual influences (Wilson et al., 2015	In which life stage are households generally?

Appendix B. Coding tree




key social factors
personal influences
contextual influences
decision on top -up/retrofit
perception of residents on top - up and retrofit
motives to participate
previous contact w/ corporation
current housing shortage as motivator
duration of occupance
salient events
measures to minimise nuisance
perceived relationship
information provision
communication amongst residents

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