As Long as it Lasts

Improving the adaptive reuse process through strategy application in mixed-use areas in The Netherlands

Colophon

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Abstract

Adaptive reuse (AR) is becoming increasingly significant within the construction sector, particularly in mixed-use urban areas where adaptation is essential to meet circular economy objectives and evolving user needs. As existing buildings are expected to undergo multiple adaptations throughout their lifecycle, the complexity of such projects continues to increase. While previous studies have explored the complexity of the AR process and identified a range of contributing factors, there remains a lack of clarity regarding the application and significance of these individual factors.

The aim of this research is to develop a set of strategies to enhance the adaptive reuse process in mixed-use areas within the Netherlands. A final list of fourteen strategies determined to be most effective is proposed. The list can function as a checklist to support clients in making informed decisions and conducting contract documents.

To address the research questions, a literature review and a two-round Delphi study is employed. The literature review establishes the theoretical foundation, examining the concepts of adaptive reuse processes, strategy, strategic management, and effectiveness. This literature study is foundational to the initial compilation of a list of strategies relevant to AR. The Delphi study engages twelve experts across two phases. In the first round, a survey is conducted to preliminarily prioritise the strategies identified in the literature, followed by semi-structured interviews to further contextualise and enrich the findings. The second round involves a second survey to validate the prioritised list and incorporate additional strategies identified during the interviews. Among the experts there are multiple stakeholders from three completed AR projects in The Netherlands, to contextualise the findings.

This research results in an enriched, prioritised, and validated set of fourteen strategies. The list provides clients in AR with guidance on which strategies are most critical, when they should be implemented, how they function within the process, and which stakeholders are involved. All information is visualised by the means of the AR process.

Ultimately, the study offers insights into the effectiveness of strategies in adaptive reuse and delivers a list of strategies, compiled to enhance clarity and decision-making for clients. This information is to be used for agreements and to compile contracts with other stakeholders of the AR project. The list's success is contingent upon collaboration and knowledge exchange, and it holds considerable potential to support future adaptive reuse initiatives when used in conjunction with complementary resources.

KEYWORDS | Adaptive reuse Process, Strategies, Process improvement, Strategy effectiveness

Preface

This thesis contains my graduation project for the master's programme *Management in the Built Environment* at Delft University of Technology. It concludes a seven-year academic journey within the Faculty of Architecture. Over these years, my perspective on architecture has developed significantly. During my bachelor studies, I came to a realisation that has stayed with me ever since: creativity in architecture is not only found in how a building looks, but also in the way we approach problems, structure processes, and make decisions. There is creativity in the process. What started as a fascination with design and aesthetics gradually evolved into an interest in how we manage and adapt our built environment over time.

The central theme of this research is adaptive reuse: a practice that is becoming increasingly relevant as we face major environmental, economic, and social challenges. Buildings are responsible for a significant share of material use and energy consumption. Reusing and adapting what we already have is not only a sustainable choice, but often a necessary one. At the start of this research, my ambition was to explore how we might optimise the adaptive reuse process. How can we make it more effective and efficient, not just for today, but for future adaptations as well? How can we design and manage buildings in a way that they remain flexible, relevant, and usable over time?

I quickly learned, however, that there is no one-size-fits-all solution. The future is unpredictable, and the only reliable foundation we have is the past. By examining completed adaptive reuse projects and understanding the decisions made throughout the process, we can begin to identify what contributes to success, and where things tend to go wrong. This thesis builds on that idea. It investigates how strategic decisions shape the reuse process and what kind of choices lead to successful outcomes. The goal is not just theoretical understanding, but to offer practical guidance, especially to clients, on how to navigate the complexity of adaptive reuse through informed, thoughtful strategy implication.

I'm incredibly grateful for the people who supported me throughout this journey. First and foremost, I want to thank my supervisors, Hilde Remøy and Vitalija Danivska, for their guidance and support. They challenged me to think critically, gave me the freedom to take ownership of my process, and were always there when I needed their input. I also want to thank my colleagues at Stevens Van Dijck, and especially Bram Jongejan, for showing interest in my work, supporting me throughout the process, and allowing me the space and time to focus on this research.

Finally, I am grateful towards all the experts who participated in this study. Your openness, insights, and willingness to share your experiences made this research possible.

I hope that the insights in this thesis will contribute to a better understanding of how we approach the adaptive reuse of buildings, and how we can do it more effectively, not only today but well into the future.

Pien Wilmink
Delft, June 2025

“The majority of products that we encounter in our day-to-day lives scream for attention or try to impress us with their magnificence or miniscule size. These objects try to dictate our relationships with them. Good design creates powerful long-lasting relationships with products as good design creates objects with balanced proportions”

~ Dieter Rams: Design by Vitsœ

(Delivered in December 1976 to an audience at Jack Lenor Larsen’s New York showroom)

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CONTEXT.

1. Introduction

1.1 Background

In a reality where the building stock is static relative to the demand, there is a need for future value and flexibility in our real estate stock (WorkPlace, 2023). For initiators and investors, the term ''adaptability'' is most of the time associated with rising cost on the short term. Simultaneously, the current building stock mostly existing of inflexible buildings causes high vacancy rates in The Netherlands, which result in complex adaptive reuse processes (BouwTotaal, 2015). In 2024 there are 279 thousand vacant objects, of which relatively the largest part is found in office buildings (CBS, 2024). The real estate stock is static, 87% of our building stock needed in 2050 has already been build (Remøy & Wilkinson, 2017). Simultaneously there is a huge demand for (affordable) housing as an effect of the housing crisis. However, building practice subjected to a dynamic market demand with a static building stock is far from ideal.

The imbalance between the static building stock and especially the unpredictable, dynamic market demand has already been addressed in 1995 by Steward Brand. He stated: *''You cannot predict or control adaptability. All you can do is make room for it.''* (Brand, 1995).

Additionally, the building and construction industry is responsible for 36% of the energy uses and 39% of the related carbon dioxide emission globally (IEA, 2019). Looking back at the 1990s, buildings were already responsible for one third of the consumed energy and 40% of the consumption of raw materials worldwide (Rees, 1999). During the decades in between, various actions have been taken, and goals were set to reduce the environmental impact of the building industry. The focus mainly was on reducing energy consumption and carbon emission (Pomponi & Moncaster, 2016). Even though mankind has been highly aware of the impact of the CO^2 emission related to buildings, it continuous to rise. Reusing buildings extends the lifespan of a buildings structure and therefore reduces carbon emission.

Additionally, to obtain a better management of resources the European union set certain goals in the circular economy action plan. The aim of this plan is to reduce pressure on natural resources (*Circular Economy Action Plan - European Commission*, n.d.). An abstract version of the linear economy and the circular economy are visualised in Figure 1. The traditional chain of extract, produce, use, dump, is linear and therefore unsustainable (Frosch & Gallopoulos, 1989). The circular economy (CE) provides with a cyclical flow model in which the idea is that materials have cycles is central (*Circular Economy Introduction*, n.d.).

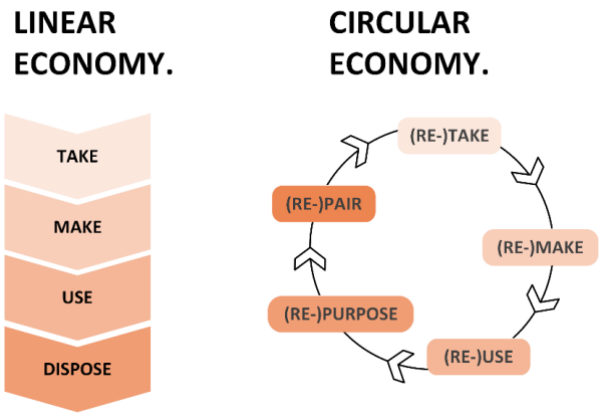

Figure 1: Transitioning from a linear economy to the circular economy, based on (Embracing the Circular Economy, n.d.).

Even though the Netherlands is frontrunning many other countries, less than 40% of building materials used, are from reused sources (CBS, 2019). To obtain the goals of a circular economy, the building sector needs to contribute. The concept of circular economy states that the inner ring of the circle in Figure 2 demands the least resources and energy. Therefore the aim is to maximise the time in the 'reuse-circle' (Mihelcic et al., 2003).

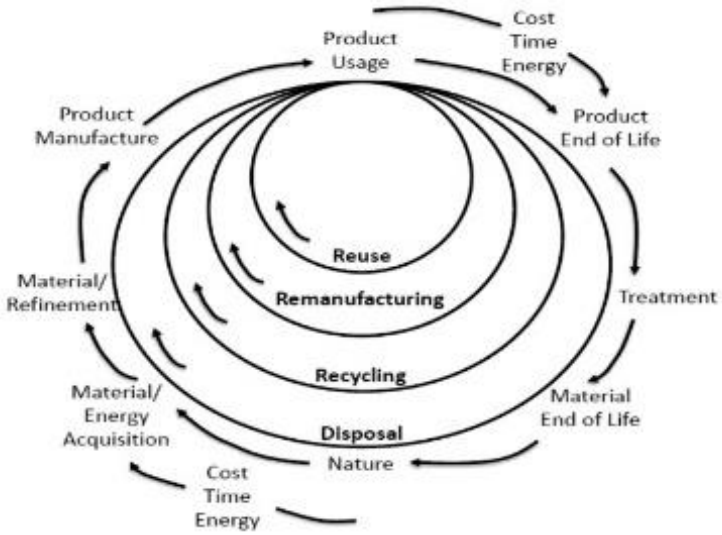

Figure 2: Product usage circle (Mihelcic et al., 2003).

1.2 Problem statement

It is clear that there is a need for adaptive reuse of our building stock because of a dynamic market demand and the European union having the goal to transition from a linear economy toward a circular economy. However, the question is: what is withholding us from adaptive reuse practice? Vijverberg (2003) explains this by the means of various lifespans of an building: a technical, functional, and economic lifespan. In Figure 3 the functional lifespan of a building is visualised. When the level of performance drops below the required limit, the building may be upgraded.

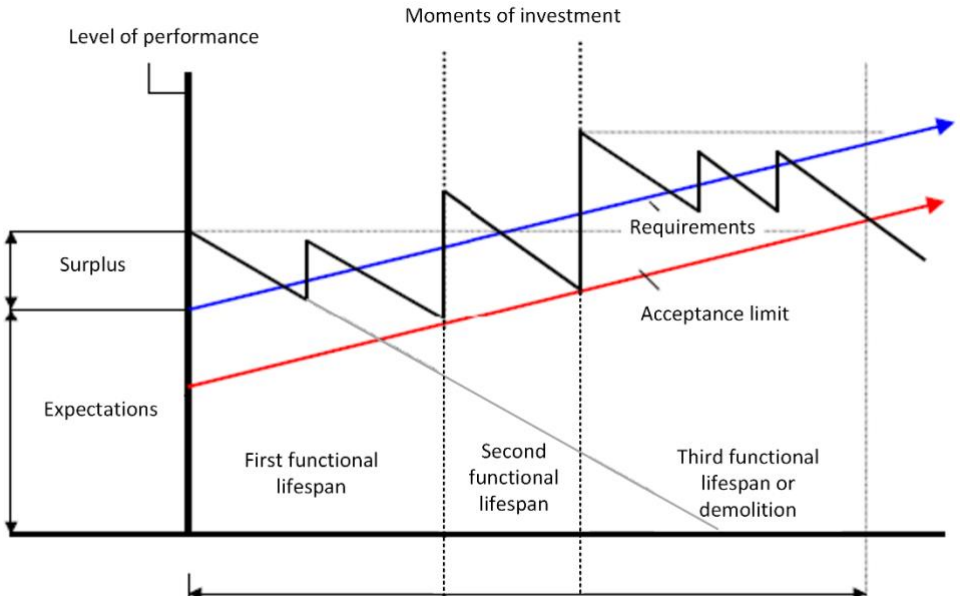

Figure 3: Functional lifespan of real estate (Vijverberg, 2003).

When it drops below the acceptance limit, and the quality of the building is no longer accepted, a decision must be made about the continued existence of it. When this occurs, the building can be demolished, renovated, transformed, or sold (Den Heijer et al., 2021). The choice to demolish a building is often based on supressing initial costs, without consideration of the long term effects (Douglas, 2006). Relative to the whole lifecycle of a building, demolition accounts for half of the solid waste generation (Bullen & Love, 2010).

Douglas (2006) states: *''Inflexibility is one of the main physical constraints affecting the effective reuse of any building''* (Douglas, 2006, p. 136). Flexibility of both the building structure and the users is seen as one of the main enablers of adaptive reuse and can improve the balance between market demand and building stock.

Even though there is a focus on enhancing the development of new adaptable buildings, the 87% of the stock in 2050 which is already existing needs to be reused as well. Adaptive reuse of these existing buildings contributes to the circularity goals and creates the opportunity to be responsive to dynamic demands. The complexity of the adaptive reuse process has been researched and to deal with this complexity several strategies and frameworks have been conducted. However, these frameworks are theoretical and the way of using strategies in practice and the effectiveness still needs to be explored (Hamida et al., 2024). Furthermore, flexibility and adaptability in the sense of the physical building receives a lot of attention, but other aspects of adaptability, for example in stakeholders or in the process, do not come forward frequently. There may be an opportunity in regarding adaptability from a process perspective. To explorer this, research has been executed regarding improvement of the adaptive reuse process, by identifying success factors (Dyson et al., 2016; Vafaie et al., 2023, 2025; van Hout, 2021). Identifying the actionable choices, being strategies, to obtain these success factors and determining their effectiveness can further improve adaptive reuse practices.

1.3 Research aim

The primary aim of this research is to explore the possibilities to foster improvement of the adaptive reuse process, by developing a comprehensive list of strategies that can be employed during the process. The underlying hypothesis is that certain strategies, when applied within the AR process, can improve the adaptive reuse process, hence improving the outcome of the project. The list creates overview for the client and makes it more appealing for stakeholders to engage. The strategies are retrieved from both academic literature and interviews with stakeholders of completed AR projects. The overarching objective is to bridge the gap between theoretical frameworks and real-world practices, thereby increasing the strategies' relevance and applicability through clear and systematic categorisation.

The list of strategies will be derived from two primary sources: existing frameworks and strategies identified in the literature and insights gained from expert interviews. The focus will be on providing actionable, and applicable strategies, prioritised based on effectiveness on the adaptive reuse projects' results.

To achieve these objectives, the following main research aim is formulated:

"Development of a list of strategies to improve the adaptive reuse process in mixed-use areas in The Netherlands"

To obtain this goal, the following sub-questions are compiled:

SQ1. What is the adaptive reuse process?
SQ2. What are the benefits of adaptive reuse in mixed use areas?
SQ3. How can effectiveness be measured in adaptive reuse?
SQ4. What strategies are applicable in the adaptive reuse process?
SQ5. What strategies can most effectively improve future adaptive reuse projects?

1.4 Conceptual framework

The central concepts underlying the research questions as described in the previous chapters and their interrelations are illustrated in the conceptual framework presented in Figure 4. Within this framework, the vacant/obsolete building (input) is undergoing an adaptive reuse process (conversion), resulting in the adapted building (output). This happens within the context of mixed-use areas in The Netherlands. During the AR process strategies (actionable choices) are applied. These strategies can have low (small ellipse) or high (big ellipse) effectiveness on the course of the process. Furthermore, a strategy can be causing the course of the process to descend (negative impact) or climb up (positive impact). Identifying the results of the strategy application and the associated effectiveness on the result of the adaptive reuse process, contributes to process improvement of future adaptive reuse projects. Therefore, this research aims to identify the strategies that have a positive impact and a high effectiveness on the course of the AR process.

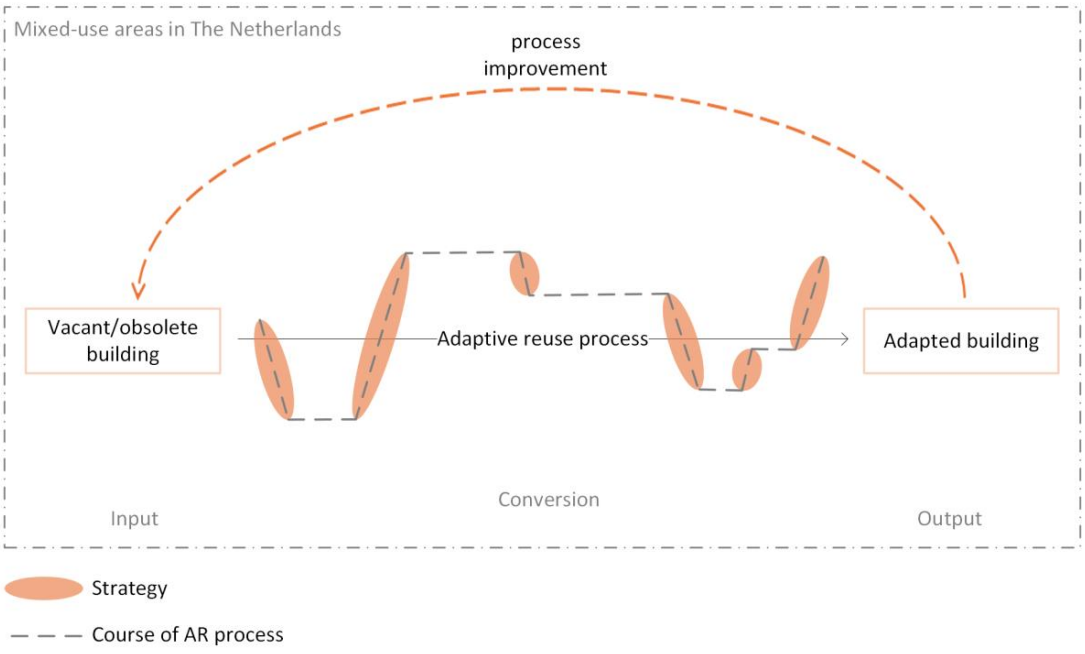

Figure 4: Connection between the core concepts in the conceptual framework (own work).

1.5 Relevance

1.5.1 Scientific relevance

This research is scientifically relevant because it combines different concepts which already have been researched. However, former research is mostly focussed on solely theory or practice. This study combines both aspects to get a result with higher validation.

Adaptive reuse has been researched thoroughly. Especially the adaptive reuse of heritage buildings is discussed a lot in the literature (Arfa et al., 2022; Bottero et al., 2019; Bullen & Love, 2011b; Foster, 2020; Sugden, 2018; Vafaie et al., 2023; Yung & Chan, 2012). However, regarding strategies in adaptive reuse, focus mainly lies on design, building specifications, and location, rather than on the process (Bottero et al., 2019; Bullen & Love, 2011a, 2011b; Hamida et al., 2023, 2023, 2024). For the adaptive reuse process, both barriers and enablers are stipulated (Bullen & Love, 2011c; De Silva & Perera, 2016) and critical success factors (CSFs) are discussed (Conejos et al., 2018; Vafaie et al., 2023, 2025; van Hout, 2021). It stands out that in previous research the focus mainly is on barriers, enablers and success factors in current adaptive reuse processes, missing actionable implications to avoid or obtain these factors. A gap can be found between the theoretical identification of effectiveness and success, and the translation from these factors to actionable strategies.

Even though different aspects of adaptive reuse have been researched, there is a gap found in the literature when it comes to the actionable strategies relating to increasing effectiveness in the adaptive reuse process. This gap is visualised in Figure 5. Simultaneously, the focus in adaptive reuse research is mostly on the building itself, rather than strategies applicable during the adaptive reuse process.

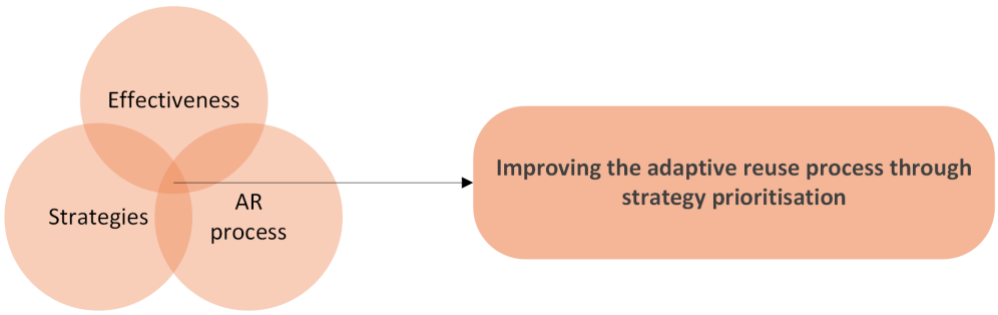

Figure 5: Filling the gap between the three main aspects of this research (own work).

1.5.2 Societal relevance

Buildings need to be able to respond to both internal and external changes (Kamara et al., 2020). The largest part of the buildings already existing, needs to be adapted multiple times in the future to meet the changing demands (Conejos et al., 2014). In the Netherlands, adaptive reuse gained popularity in the recent decades. Drivers for adaptive reuse are vacancy as a result of market dynamics, growth of the population, and technological developments (Ross, 2017). Adaptability of buildings is much researched on the level of the physical building (Hamida et al., 2023). However, the process improvements to accomplish a futureproof built environment are underreported. Complexity of reuse project is seen as a crucial barrier by both initiators and financiers in considering adaptive reuse over new-built (Kurul, 2007). Insights into strategies regarding the adaptive reuse process and its effectiveness can both reduce complexity for the stakeholders and improve the adaptive reuse process in the future.

The theoretical knowledge can be mirrored to reality and can be used to compile strategies improving the adaptive reuse process. This research will provide insights in the applicable strategies that can be derived from the literature, but above all will mirror these strategies to practice testing its applicability, and to be able to provide with actionable recommendations for practitioners.

1.6 structure of thesis

This research will be lined out in ten parts. The current chapter, part 1, provided with the introduction including background information and the conceptual framework. The methods used for this research will be explained in part two. In part three, the literature review is conducted. Following, the empirical research and the findings are described in part four, five, and six. The proposal as a result of the theoretical and empirical research results will be discussed in part seven. Subsequently, part eight discusses the results and part nine answers the research questions in the conclusion. Finaly, part ten closes the research with a reflection.

Methodology.

2. Research Method

2.1 Research Questions

As described in the introduction, the main research aim and the sub-questions of this research are formulated to accomplish the research goal. The following main aim will be central in this research:

''Development of a list of strategies to improve the adaptive reuse process in mixed-use areas in The Netherlands''

To fulfil the research aim, five questions are compiled. Each question has a certain purpose and is answered according to a research strategy and method. In the following part these aspects are described for each of the five questions.

SQ1 – Adaptive reuse process

"What is the adaptive reuse process?''

Purpose Defining the adaptive reuse process and its phases, complexity in these phases and the stakeholders involved.
Strategy Explorative research
Method Semi-systematic literature review

SQ2 – Mixed-use areas

"What are the benefits of adaptive reuse in mixed use areas?''

Purpose Definition of mixed-use areas and exploration of the use and future of adaptive reuse in these areas.
Strategy Explorative research
Method Semi-systematic literature review

SQ3 - Effectiveness

"How can effectiveness be measured in adaptive reuse?''

Purpose Defining what factors are contributing to the effectiveness of a adaptive reuse project, to enable to rank the strategies on effectiveness.
Strategy Explorative research
Method Semi-systematic literature review

SQ4 – Strategy

"What strategies are applicable in adaptive reuse processes?"

Purpose Collecting strategies from both literature and practice to delineate the options and to be able to prioritise.
Strategy Explorative research
Method Semi-systematic literature review, Delphi method (survey, semi-structured interview)

SQ5 – Improve

"What strategies can most effectively improve future adaptive reuse projects?"

Purpose Prioritising certain strategies over others (with validation) and understanding why these priorities are made.
Strategy Explorative research
Method Delphi method (survey)

2.2 Research design

This research will be conducted using an inductive logic. According to Blaikie and Priest (2019), the inductive logic tries to achieve limited generalisation, and observes or measures characteristics, individuals and phenomena. Inductive research is suitable to answering a 'what' question (Blaikie & Priest, 2019), which is compliant with the questions of this research. In this research, the adaptive reuse process is regarded; to find out what strategies can be used to improve the AR process. The phenomenon, which is regarded, is the AR process. The result of the AR process is successful adaptation. The research aims to define how this result can be achieved, which indeed makes this research inductive (Groat & Wang, 2013).

This research uses a combination of qualitative and quantitative methods for data collection, and therefore is a mixed method research (Blaikie & Priest, 2019). The research studies a process, which includes interrelations between stakeholders. The literature review and the semi-structured interviews are the qualitative part of this research. Subsequently, the ranking of the strategies involves numerical information, which makes it a quantitative method (Blaikie & Priest, 2019).

The first part of the research will be a qualitative semi-structured literature review. In the literature review sub-question one, two, three, and four will be (partially) answered, as visualised in the first collum of Figure 6.

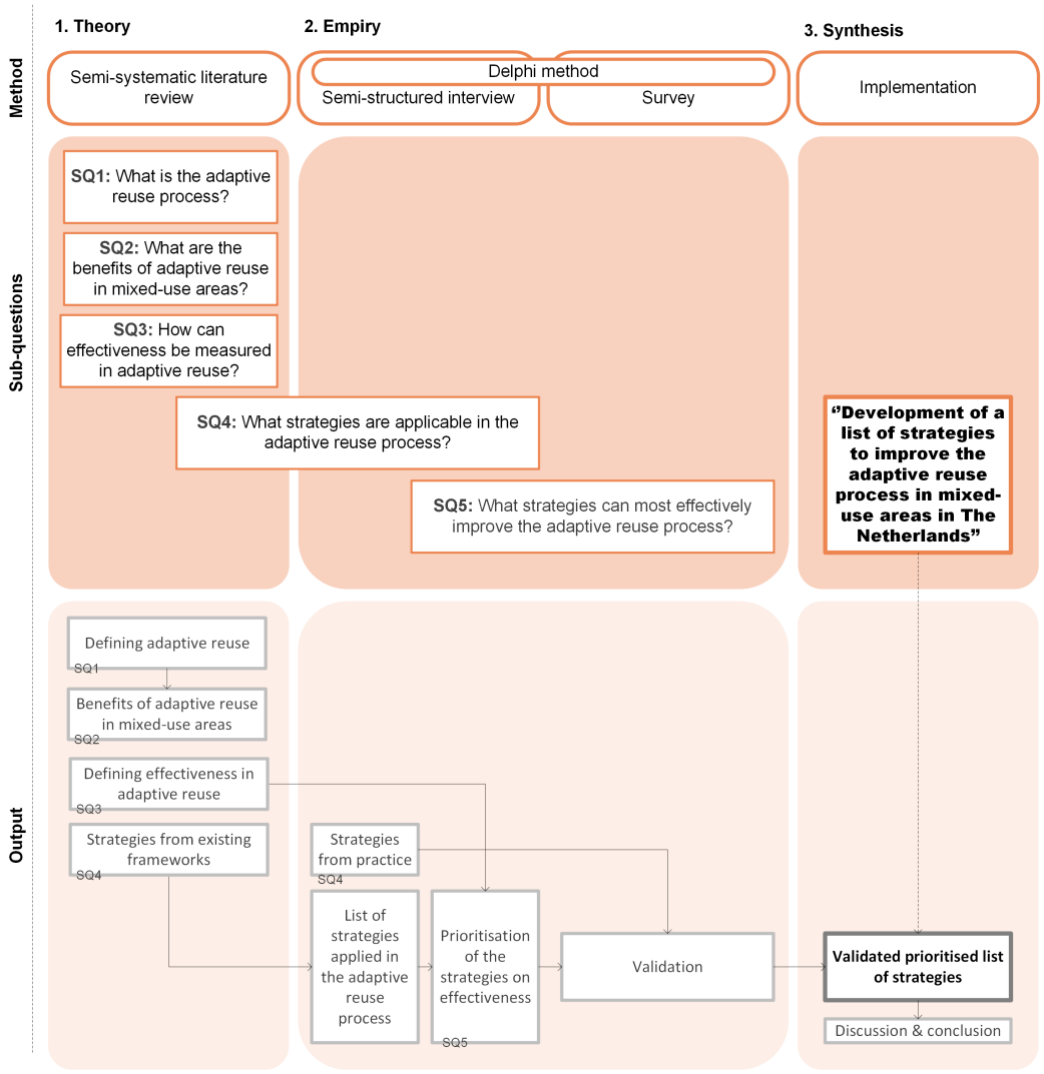

Figure 6: Research design (own work).

The second part of the research is the empirical part, in which both qualitative and quantitative research data is processed. The semi-structured interviews from the first round of Delphi provide with qualitative information regarding the AR process and the cases, to enrich the information from the literature review. Additionally, the survey results from the first round of Delphi will synthesise the quantitative information to compile a preliminary ranking of the strategies. Subsequently, the survey in the second round of Delphi will validate the prioritised list of strategies and include the interview results in the list. Both methodologies will be explained further in chapter 2.3. The empirical part of the research answers the second part of sub-question four and sub-question five. The last part of the research will synthesise the results and conclude the research.

2.3 Research methods

2.3.1 Semi-systematic literature review

The first part of this research involves a literature review, which establishes the theoretical foundation and examines what aspects of the topic have already been studied. A literature review focuses on key concepts, and its structure is guided by the different aspects highlighted in the research questions (Webster & Watson, 2002). In this study, the literature review primarily addresses the first three sub-questions to build this foundation.

The purpose of the literature review is to explore the following components:

1. The adaptive reuse process and its stakeholders.
2. Benefits of adaptive reuse in mixed-use areas.
3. Measurement of effectiveness of adaptive reuse projects.
4. Identification of strategies applied in adaptive reuse projects.

The main goal in addressing these four components is to define the core concepts of this research: Adaptive reuse, effectiveness, and strategies applied in the AR process. In the literature review these core concepts are explained both from an etymological perspective and through descriptions derived from prior research. By combining insights from etymology and previous literature, this study establishes working definitions for these concepts.

Based on this theoretical foundation, a preliminary list of strategies applicable in the AR process in buildings is derived from the literature as well. This list will be further refined and enriched through findings from semi-structured interviews conducted during the case studies and Delphi method phases.

The knowledge and information gathered during the literature review are primarily drawn from academic journal articles and other scientific research. Definitions from dictionaries are also included to complement the scientific background and provide additional clarity for explaining the core concepts.

2.3.2 Delphi method

To be able to conclude this research with a validated ranking of the strategies, the Delphi-approach will be used. Providing feedback to the participants about their contribution by presenting them the expert group's view and by enabling them to revise their own view and answers, is the key element of the Delphi technique (Linstone & Turoff, 1975). According to Remøy et al. (2007), the Delphi method comes with several advantages. First, the group size

requirements are modest, because the results are not depending on statistics, but rather on dynamics. The goal is for the experts to react to the group's interpretation, which increases validity. For this to happen, there is no need to physically meet each other (Remøy et al., 2007).

In this Delphi research twelve experts will be participating. Because the research aim is to regard strategies applied in the AR process which can be used to improve the adaptive reuse process and the outcome of the project, selected projects are used to contextualise the experts' input. Because the AR process is complex and dynamic, incorporating analysis of real-life projects is beneficial for the outcome (Groat & Wang, 2013). The experts' perspectives on the success of the project they participated in, and the strategies employed, provide a basis for comparing their interpretations with the outcomes observed in practice. Therefore, the experts participating in this research have been participants of three selected adaptive reuse projects. To ensure these projects are within the scope of this research, four selection criteria are formulated for the projects from which the experts are to be selected:

1. The project needs to be situated in a mixed-use area in The Netherlands.
2. The project concerns an across use adaptation, where major changes to both the building and the function it accommodates are made (Wilkinson et al., 2014, p. 95).
3. The project needs to be successfully completed and delivered, before the execution of the empirical part of this research.
4. The projects' stakeholders should be available through the internship company or via own networks.

To broaden the comprehensiveness of the expert group, four experts independent from one of the selected projects are participating in this research. This enables to balance representation of different stakeholder groups. Here the vision of the National Renovation Platform, someone who has worked on AR projects both as an architect and project manager, and a developing company with a pioneering vision on AR is represented. Even though these experts are hard to link to a specific project, they provide with valuable insights and regards AR from a different perspective.

Survey 1

The first round of the Delphi method will be used to compile a preliminary ranking of the strategies derived from the literature. In the survey, the participants will be asked to rate the effectiveness of the strategies based on the prescribed criteria, which will be clarified in the literature part of this research. The experts will be encouraged to give a written elaboration on their assessment. The survey ultimately provides with a preliminary ranking of the strategies from literature.

Semi-structured interviews

Following the survey, all twelve experts are interviewed in the first round of Delphi. The interviews will provide with additional information regarding strategies enhancing the future adaptability, to enrich the list of strategies for the following round. This qualitative part of the empirical research aims to find which strategies are applied in the AR process, which makes it an inductive analysis (Blaikie & Priest, 2019; Groat & Wang, 2013).

The semi-structured interviews create the opportunity to speak to various stakeholders of the process and to get close to the stakeholders experiences and interpretations of the processes they were involved in (Blaikie & Priest, 2019). In total, twelve experts in the field of adaptive reuse are interviewed. Eight of them are related to a specific case. The four remaining stakeholders have

been involved with AR as well. As mentioned, the inclusion of these stakeholders increases the comprehensiveness of this research.

The findings from the interviews will provide with enrichment for the preliminary strategy list. The additional strategies from the interviews will be included in the final strategy list of this research through the Delphi method, which is explained in the next chapter.

Survey 2

In the second round, the expert will be provided with feedback about the results of the first round via email. The feedback includes an overview of the ranking of the strategies. While considering these results, the experts are asked to revise their choices and to elaborate on the reasons why they make their choices. In this second round, the additional strategies acquired from the semi-structured interviews will be added to the list of strategies. The second round will be conducted via an online survey.

After these two rounds of Delphi, a validated list of strategies ranked on the level of perceived effectiveness in improving adaptive reuse in the future is compiled. This listed, together with the analysis of it, will contribute to the fulfilment of the main research aim.

Theory.

3. Literature Review

This part of the thesis will be compiled based on theory from scientific literature, to define core aspects and to create a basis for the empirical part of this research. The goal for the literature review is to select strategies having the potential to improve the adaptive reuse process. The review will start with the definition of adaptive reuse, its process, the stakeholders in the process and the barriers, enablers and success factors. Subsequently the term strategy, as interpreted in this research, is defined and linked to adaptive reuse. The literature review concludes with a preliminary list of strategies, selected according to the occurrence in former research. Understanding the adaptive reuse process, the stakeholders and the strategies is highly important to be able to understand what strategies might be effective for future adaptability.

3.1 Adaptive reuse

3.1.1 Definition of adaptive reuse

Adaptive reuse is not a new phenomenon (Wilkinson et al., 2014). For example, in the Netherlands the canal houses have been adapted multiple times in the past decennia. The façade always remains, but the function and spatial configuration have been altered repeatedly.

The word adaptation is derived from the Latin words 'ad' and 'aptare' which means 'to' and 'fit' (Douglas, 2006). The term is described as being *''any intervention to adjust, reuse or upgrade a building to suit new conditions or requirements''* (Douglas, 2006, p. 1). By this definition it appears that building adaptation is executed because of a change in its context which asks for a change of (the use of) the building. The term 'adaptation' has been researched, interpreted and defined by many researchers (Bullen, 2007; Douglas, 2006; Ellison & Sayce, 2007; Wilkinson et al., 2014). The literature gives many terms used for adaptation like conversion, renovation, transformation, refurbishment, and of course 'adaptive reuse'.

In Figure 7 an overview of the options for potential outcomes for the building stock is shown. When the potential outcome is determined to be 'partly demolish and adapt', 'modify, refurbish and adapt', or 'part extend', the model in Figure 7 states that 'adaptation within/across use' is executed. For adaptation projects there is a distinction between building adaptation 'within use', and 'across use' (Ellison & Sayce, 2007). For example, an office configuration can be adapted within use because of changing workplace preferences. In this case the function of the building remains. However, when the office is transformed into housing and therefore the building function changes, it is defined as across use transformation. The model in Figure 7 shows that when 'across use adaptation' is executed, the building is adapted towards a mixed-use building.

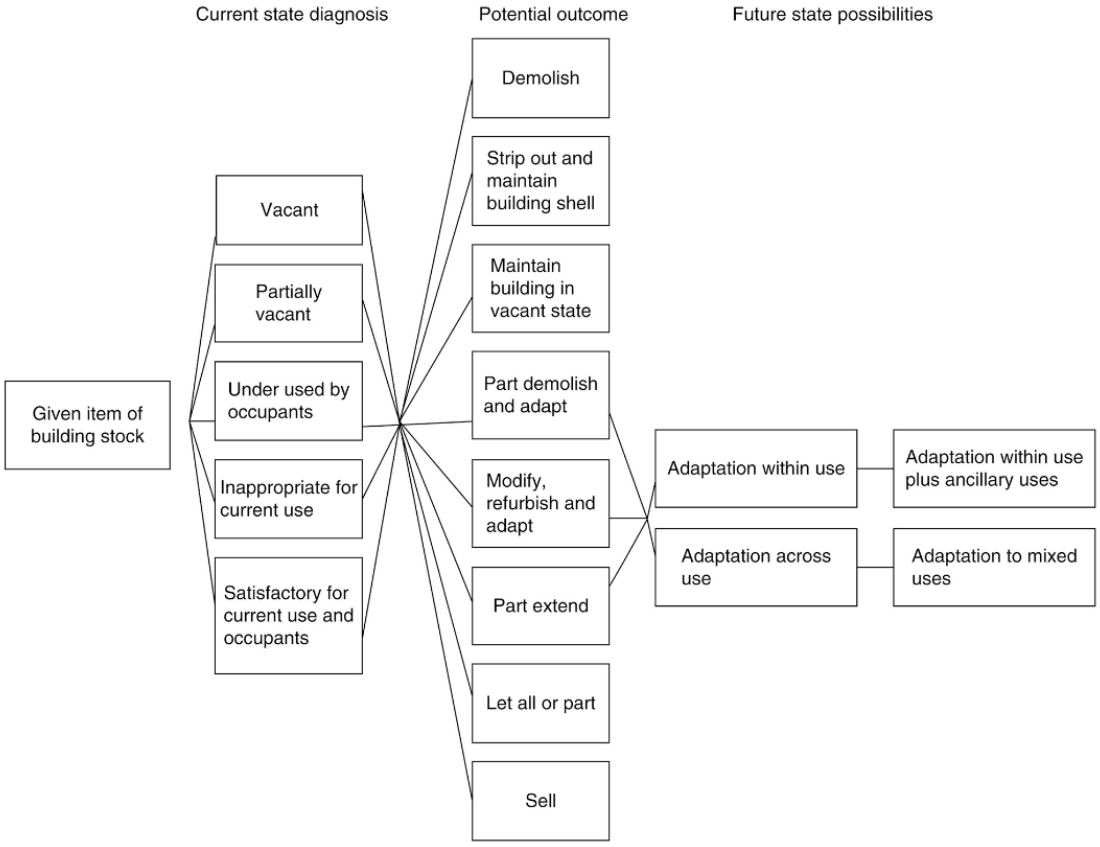

Figure 7: Options for adaptation (Wilkinson et al., 2014, p. 12).

Most often the extensiveness for across use projects is bigger than for within use projects. The increasing project size comes with increasing complexity. Complexity is the main bottleneck in adaptive reuse projects (Baccarini, 1996; BOEi, 2009; Kurul, 2003). It induces a broader role for project and process managers (Pallada, 2017).

Adaptive reuse can also be defined with the help of adaptability criteria. For a building to be adaptable, it has to comply with five criteria; convertibility, dismantlability, disaggregatability, expandability, and flexibility (Douglas, 2006). A convertible building economically, technically, and legally facilitates change in the use of a building. Dismantlability withholds that it is safe to demolish a building in an efficient way with sufficient speed. Disaggregatability concerns the sustainability of the adaptation process. It secures the reusability of dismantled building components. Furthermore, an adaptable building should have the capacity to be extendable in volume and/or capacity. Lastly, an adaptive building must be flexible. Flexibility is mentioned a lot in relation to futureproof and sustainable buildings (BouwTotaal, 2015; Cobouw, 2021; Contentmarketing, 2021; Mohammadi & Slob, 2010; Remøy, 2010; WorkPlace, 2023). A flexible and (within use) adaptable building retains tenants longer and endures longer periods of time in between major interventions. Adaptability therefore increases the sustainability of a building (Ellison & Sayce, 2007).

The term adaptive reuse in this research concerns the across use adaptation projects, in which a major change is made to the building as well as to the function it accommodates (Wilkinson et al., 2014). To remain clearness in this report, adaptive reuse will be referred to as this act of majorly changing the physical building combined with an ‘across use’ function change.

3.1.2 Mixed-use areas

As outlined in the previous chapters, this study is dedicated to examining adaptive reuse activities, with a particular emphasis on cross-use applications. The transformation potential of vacant, obsolete buildings is influenced, at least in part, by their location (Remøy, 2010). According to Remøy (2010), offices situated in mixed-use areas, characterised by a functional integration of workspaces, residential units, leisure facilities, and retail establishments, demonstrate significantly higher transformation potential compared to those in monofunctional areas. Mixed-use areas typically exhibit lower structural vacancy rates, and when vacancies arise due to market imbalances, their impact is less pronounced than in monofunctional areas (Remøy, 2010).

In addition, mixed-use environments enhance neighbourhood walkability, as highlighted by Leyden (2003). These areas, including historic urban centres and rural regions, foster greater resident interaction and a stronger sense of community than monofunctional neighbourhoods, such as the 'Vinex-wijken' developments in the Netherlands (Leyden, 2003). Tan et al. (2018) emphasises that conversion to mixed use areas can facilitate revitalisation of the neighbourhood and its surrounding.

Lastly, the development of mixed-use areas holds the potential to mitigate structural vacancy. Consequently, the demand for adaptive reuse may be lower in these regions compared to monofunctional zones. However, mixed-use areas present substantial advantages for the future, particularly in terms of accessibility and the cultivation of social capital (Tan et al., 2018).

To further promote the development of mixed-use areas and reduce structural vacancy, this research emphasises the adaptability of buildings located within these environments.

3.1.3 The adaptive reuse process

Adaptive reuse of a building is subject to a complex process. In general a process is defined as: "a series of actions that you take in order to achieve a result'' (Cambridge Dictionary, 2024c). The result for this matter is the adaptive reuse of a building, as defined in chapter 3.1.1. Examining the process is a crucial step for effective management (Winch, 2010). The process of construction has been complex and therefore it is highly important to understand the process, its complexity and how it can be managed (Baccarini, 1996; Kurul, 2003). Reuse projects in particular are regarded as complex projects, because the reuse process has many different stakeholders with different perspectives (Winch, 2010). The increased complexity is occurring in the decision-making process, where different stakeholders make decisions in different stages, influencing the process and adding complexity to it (Douglas, 2006; Wilkinson et al., 2014).

The AR process being building conversion essentially is a form of property management, which comes with certain risks (Douglas, 2006). Therefore, multiple researchers have opted to define the AR process. An overview of the findings is visualised in Table 1. The process descriptions regarded are from both new-build, adaptive reuse, and heritage adaptive reuse processes. The different processes show similarities, independent from the kind of project. The process starts with an initiating phase, followed by definition of the ideas and preparation. Subsequently there is a feasibility study, a design phase, execution phase, the delivery and management of the property. It does stand out that for the reuse of heritage the initiative/ idea forming phase requires relatively more time and attention (Pallada, 2017; van Hout, 2021).

Table 1: An overview of the phases of the adaptive reuse process (information from sources in the first row, 2024).

(Andriessen, 1999)	(Kurul, 2007)	(Douglas, 2006)	(Nozeman et al., 2008)	(Wamelink et al., 2010)	(Bond, 2011)	(Vervloed, 2013)	(Pallada, 2017)	(van Hout, 2021)	(Arfa et al., 2022)	(van Wijk, 2024)
Adaptive reuse	*Adaptive reuse*	*Adaptive reuse*	*New build*	*New build*	*Adaptive reuse*	*Adaptive reuse heritage*	*Adaptive reuse heritage*	*Adaptive reuse heritage*	*Adaptive reuse heritage*	*Adaptive reuse*
Initiative	Initiation	Initiative	Initiative phase	Initiative	Market feasibility	Initiative	Idea forming	Initiative	Initiative	initiative
	Emergence of the initial scheme					Definition	Refining ideas		Analysis	Definition
Definition	Pre-application negotiation	Definition		Definition	Design	Design		Idea forming	AR potential	Feasibility
							Feasibility		Design (strategy)	
Design	Planning application	Preparation	Development stage	Feasibility			Contract negotiation	Feasibility		Design
	Design detailing and tender	Design		Preparation	Financing		Preparation for execution	Refining ideas	Contract negotiation	
Pre-construction					Regulation	Elaboration		Contract negotiation	Final decision-making	Contract negotiation
Realisation	Construction marketing and sales	Realisation	Realisation	Execution	Construction	Execution	Execution	Preparation and execution	Execution	Execution
			Exploitation	Use		Delivery and aftercare	Use	Delivery and use	Evaluation and management	Use

The main difference between the AR process and a new-built process lies in the initiative and preparation phases (Pallada, 2017). During the initiative phase, in depth research is needed about both the building, its potential functions, and the required involvement of different stakeholders (Douglas, 2006; Pallada, 2017). The added complexity in the preparation phase lies in the scenario planning and the related risks and alternatives ((Wamelink et al., 2010). The increased complexity mentioned is identified for AR of heritage. The complexities for heritage reuse in particular are obliged procedures from the government in the initiation and preparation phase of the process, for example about historical- and cultural value (Vervloed, 2013). Furthermore, the fact of working with an existing building comes with certain requirements about building condition research, stakeholder analysis, and market feasibility studies (van Hout, 2021). The fact that for these kinds of projects there are more required stakeholders, specialists, and regulations causes that the process withholds more complexity than for new-build (Bond, 2011). The specific types of research needed to be executed in AR of heritage are distinguishing the process the most from a new-built process (Kurul, 2003)

Even though this research does rather focus on AR in general instead of AR of heritage, the increased complexity relative to new-built projects still exists. Because of dealing with an existing building, it is crucial to conduct building condition research, stakeholder analysis, and market feasibility studies.

3.1.4 Complexity of the process

From Table 1 it appears that even though there are differences in the exact sequence of the process, the process components for new-build, adaptive reuse, and adaptive reuse of heritage are similar. Van Hout (2021) combined the process description from the research of Vervloed (2013) and Pallada (2017). In Figure 8 the process steps from Van Hout (2021) are enriched with information from other studies mentioned in Table 1. The scheme is remodelled to fit the general AR process, rather than the AR process for heritage only. The stages up until the design phase are determined to be most complex (Pallada, 2017; van Hout, 2021; van Wijk, 2024; Vervloed, 2013). Primarily the initiative and the definition stage are regarded as most complex (van Hout, 2021). These early stages of the AR process differ from a new-build process because the starting point is an existing building, instead of a plot as a blank page (Arfa et al., 2022). Therefore, the potential for fostering the process lies in these early stages. The existing building is effecting the following stages as well, because it demands a continuous extensive analysis (Arfa et al., 2022). During the initiative phase, the first explorations of feasibility are conducted, which determines if the project is continued. During the feasibility phase, the more detailed feasibility studies once again determine whether the project is executable. The elements form the most complex phases of the AR process in Figure 8 serves as an overview to better understand the AR process. The overview enables to put stakeholders, and barriers, enablers and success factors into context and ultimately aids to implement strategies at the right moment.

Figure 8: Elements of the adaptive reuse process, among others based on (van Hout, 2021).

3.1.5 Stakeholder identification

According to Winch (2010), stakeholders in any construction project can be divided into two groups of internal stakeholders and external stakeholders. The internal stakeholders are in a legal contract with the client and can be subdivided in the demand and supply side. External stakeholders are not in contract with the client, but they do have a direct interest in the project. Similarly, Mısırlısoy and Günçeon (2016), subdivided the stakeholders in the AR process into four categories: investors, producers, regulators, and users. The subgroups are compiled based on the different interests of the stakeholders in the adaptive reuse process. Categorising the stakeholders in four groups will enable for the barriers, enablers, success factors and ultimately the strategies to be allocated in a simpler way. The division of the stakeholders in the AR process is visualised in Table 2.

Table 2: Stakeholders in the AR process, based on (Mısırlısoy & Günçe, 2016; Pallada, 2017; van Hout, 2021; van Wijk, 2024; Wilkinson et al., 2014; Winch, 2010).

Internal		External	
Investor	*Producer*	*User*	*Regulator*
Client	Architect	Residents	Regulatory agencies
Financiers	Engineer(s)	Local landowners	Local government
Client's employees	Manager	Conservationists	National government
Client's customers	Principal contractors	End-user	Environmentalists
Client's tenants	Trade contractors		Archaeologists
Client's suppliers	Materials suppliers		Non-governmental organisations (NGO)
Building owner(s)			

Investors

The ''investors'' are the stakeholders on the demand side. These stakeholders bring in the monetary resources to enable the project to be fulfilled, and they have a business-oriented and more pragmatic view on the project (2003, Stipe in Aigwi et al., 2021). The role of the investor can be fulfilled by for example the current *owner of the building, a real estate developer, a private investor or a funding organisation*. Most regularly investors are business-oriented and their aim in the AR process is to make a profit. However, in the case of a social organisation being the investor, they might have various goals like improving a neighbourhood or achieving sustainability goals. The challenge for investors lies in creating a financially viable project, as they are the most risk bearing stakeholder. Therefore, they prefer to know about the available financial incentives before they start a project (Aigwi et al., 2021). Without clarity about these incentives, AR projects turn out to be too challenging for the investors (Bond, 2011).

Producers

The ''producers'' are the stakeholders who are participants of the AR decision-making process in preparing and actualising the building (Aigwi et al., 2021). The stakeholders in this category are for example the *project/process manager, (sub-)contractor(s), (landscape) architects, engineers, and urban designers*. The producers are the 'executors' of the plan, and are hired by the investor or the client (van Hout, 2021). Their aim is to successfully deliver the project, and they play a big role in the execution of the project (Aigwi et al., 2021). It is in the interest of the producers that the project has a certain level of clarity, to ensure sufficient speed (Bond, 2011). In the AR process, the challenge for the producers is to achieve a balance between the expectations of the producers and the regulators, and the prospectives of the users, while making an effort to achieve flexibility in the project (Aigwi et al., 2021).

Users

The stakeholder group ''users'' include *residents, communities, original users (user before AR, which can be the owner), future users (users (potentially) after AR), but also passer-by's* (Bond, 2011). The most important task for the users is to represent the demand for the new use, which enhances the strategies in the AR process (Aigwi et al., 2021). Users can be stimulated to participate in processes by (financial) compensation, keeping them informed, enabling them to give input, and by showing them that they are listened to by project adaptation (Verheul et al., 2021). It has always been a challenge to ensure inclusion of the users during the decision-making process in AR (Aigwi et al., 2021). Therefore, from 2024 onwards, the environmental law in The Netherlands obligates for developers to report on participation processes when executing a project (Rijkswaterstaat, n.d.). It is mandated that the end-users and the local communities are included in the process, and local communities are allowed to appeal against the environmental permit (van Wijk, 2024).

Regulators

The typical profile of a ''regulator'' is a *governmental organisation*, both on regional and national levels. However, a regulator can be a *private party* as well (NGO). The aim of the regulators is to contribute to the AR process by accomplishing goals regarding the area's economics, environment and socio-cultural aspects. The regulators main task during the AR process is to ensure that the ''producers'' plans, acts, and strategies are compliant to the regulatory procedures (2009, Mason in Aigwi et al., 2021). The challenge for regulators is to protect regulations from producers' non-compliant development strategies (Bond, 2011), and from producers by-passing the relevant review processes (Rypkema, 2008). However, regulators are typically not much interested in the benefits of the AR project and believe that the AR processes for the redevelopment of especially historical buildings is unnecessary complex and takes too much time (Gratz & Mintz, 2000; Rypkema, 2008).

3.2 Effectiveness

Effectiveness in adaptive reuse is one of the core concepts of this research. To be able to rank strategies based on its effectiveness, first 'effectiveness' needs to be defined. Arfa et al. (2022) created an overview of criteria and its aspects derived from the NRP (Gulden Feniks) and the Europa Nostra award, to measure effective adaptive reuse of heritage buildings (Arfa et al., 2022). The definition of effectiveness for this research will be derived from the overview of Arfa et al. (2022). The following description will function as a guideline in the empirical part of this research.

3.2.1 Determinants of effectiveness

As a starting point, the determinants of measuring effectiveness in adaptive reuse of heritage buildings are regarded. According to Arfa et al. (2022), the level of effectiveness is determined by six criteria: Economic value creation, social value creation, environmental sustainability, innovation, sublimation-architectural aspects, and sublimation-cultural aspects (Arfa et al., 2022). In this part, the six determinants are explained and mirrored against adaptive reuse in general.

Economical value creation

The determinant economical value creation concerns job creation, contribution to economic growth, and attractiveness for circular cultural tourism, and creative, cultural and innovative enterprises. Examples of effective economic value creations are housing smaller businesses, and by creating new employment opportunities.

Social value creation

The determinant social value creation concerns the community, wellbeing and physical contexts of the adapted building. Social value is added by integrating the adapted building into its surroundings and by revitalising the neighbourhood. Furthermore, the building adaptation can strengthen the bond with the local community by involving the citizens in the process to create attachment and widen the community by for example stimulation of tourism, opening up a closed building, or introducing public and private events. Lastly, the adaptation should be safe for visitors and provides with acoustic and visual comfort.

Environmental sustainability

The determinant environmental sustainability revolves around energy efficiency of the building and reduction of greenhouse gas emission. To achieve this, the building can be circular, and CO2 neutral. Usage of sustainable design solution and local materials can reduce the carbon footprint of the building.

Innovation

The determinant innovation concerns both the usage of innovative technologies and innovatively approaching stakeholder cooperation. Furthermore, replicability of models is an important aspect of this determinant. Perfect citizen involvement, fundraising strategies, stakeholder cooperation, and usage of innovative technologies and for example virtual reality, can function as a lesson to other projects.

Sublimation of architectural aspects

The determinant sublimation of architectural aspects concerns the physical aspects and the atmosphere of the adapted building. Effectiveness of this determinant is defined by the spatial quality of the different zones, and the physical and visual linkage with both the former function and the surroundings of the building. Furthermore, quality of the design, materials and execution is highly determining the effectiveness.

Sublimation of cultural aspects

The determinant sublimation of cultural aspects concerns the authenticity, integrity, intrinsic value and the local identity of the building. The adaptation should be conducted in a way that the history is preserved, and the future value of the building is ensured.

Even though these six aspects are compiled regarding 'effective adaptive reuse of heritage', it is applicable to 'effective adaptive reuse' in general as well. Economic value creation, social value creation, innovation and sublimation of architectural aspects are highly important for adaptation of both listed and non-listed buildings. However, the sublimation of cultural aspects specifically focusses on preserving the history. This aspect is highly relevant for listed buildings but does not apply to all adaptive reuse projects. Therefore, the cultural aspects will not be considered when determining the effectivity of strategies in this research. Furthermore, the environmental sustainability turns out to not be very applicable to the strategies derived from the literature in the next chapter. Therefore, this aspect is left out in the assessment of the strategies as well. In conclusion, The following four themes are derived from the description by (Arfa et al., 2022): economic value, social value, innovation, and architectural value.

3.3 Strategies

3.3.1 Definition of a strategy

The term *strategy* is derived from the Greek word *strategos*, which means "general'. The ancient Greeks did not use this expression in the way we use the word ''strategy'' these days. Instead, to express similar meaning, they would use the term *strategike episteme* (general's knowledge) or *strategike sophia* (generals wisdom) (richhorwath, 2020). Furthermore, in Latin the title *Strategmata* was given to one of the Roman most famous works related to the military. The title was derived from the word *strategems*, which means "tricks of war'' (richhorwath, 2020). Later on, during the nineteenth century, the term "strategic thinking'' arose in the military as well in the sense of systemised and institutionalised thinking (White, 2017).

When looking at the meaning according to the dictionary, strategy is defined as: *''a detailed plan for achieving success in situations such as war, politics, business, industry, or sport, or the skill of planning for such situations''* (Cambridge Dictionary, 2024a). Comparing the definition in the ancient languages and the definition right now, it appears that the term became broader applicable over time, beyond the boundaries of war and the military. Similar to the definition from the dictionary, White (2017) states that a strategy exists to *link a purpose to an action*. A strategy is a combination of mankind articulating goals and acting in a way that these goals can be achieved (White, 2017). According to this statements, the four main ellements of strategies are composed. These four elements are shown in Figure 9.

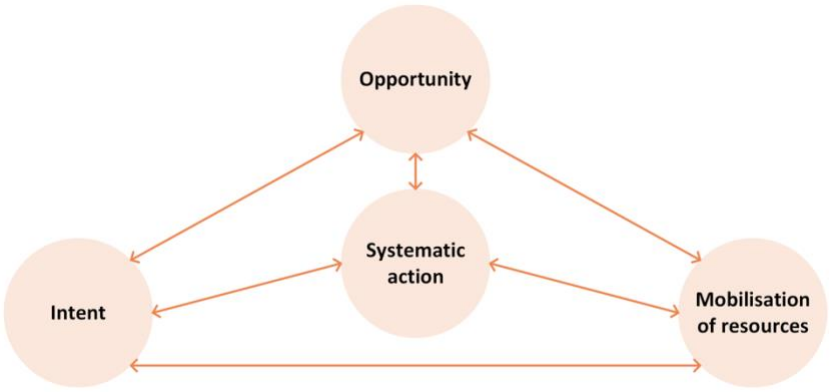

Figure 9: The four main elements of strategy, based on (White, 2017).

Regarding the application of strategies, it is advocated that a strategy is only likely to succeed when it is compliant to certain requirements (White, 2017). Firstly, compiling a strategy should involve looking into the future, as an addition to the analysis of the past. Second, a strategy should seek for a balance between rigidity and flexibility in its solutions. Therefore, it seeks for both relevant questions and its answers. It takes notice of issues worth of consideration, even though people might be unaware of these problems. Because of these facts, a strategy should consist of intricate patterns, including both the cause and the effects. Lastly, the intricateness of a strategy asks for a holistic approach, in which all relevant factors are coherently regarded (White, 2017).

3.3.2 Strategic approaches

In literature when strategies are regarded in relation to building adaptability, the term *strategic approach* is coming forward. Here *strategic* is defined as ''helping to achieve a plan'' and *approach* as ''to come near or nearer to something or someone in space, time, quality, or amount'' (Cambridge Dictionary, 2024b). In literature, the most important aspects of a strategic approach in the field of building adaptation are: Having a certain mindset about changes in the relation between the building and the user; taking decisions iteratively and based on analysis and actions; using tools within the process of decision-making; and using measures which are to be applicable to either a building, the use of the building, or the financial/ contractual parts enhancing adaptability (Blakstad, 2001).

The strategic approach, as described in the literature, mainly focusses on a certain mindset. In this research, the 'strategic approach' is mainly serving as a way of thinking regarding collection of the strategies to improve the adaptive reuse process.

3.3.3 Strategies in adaptive reuse

Former research regarding strategies in adaptive reuse, for a large part focusses on design strategies. For example, Hamida et al. created a framework listing these design strategies (Hamida et al., 2023, 2024). Hamida et al. indicated that the framework had not been measured against practice (Hamida et al., 2023). Therefore, the design strategies are tested on applicability and effectiveness by Sarikaya (2024). Their research concludes with a conclusion about the applicability and effectiveness of the proposed design strategies (Sarikaya, 2024). Furthermore, decision-making models and strategy implications regarding adaptive reuse are mentioned in the literature (Bottero et al., 2019; Bullen & Love, 2011b, 2011a). Once again, these models and strategies are primarily focussed on the building specifications and its location.

Strategies focussed on improvement of the process are researched less often. A foundation has been formed by identification of success factors of the adaptive reuse process (Dyson et al., 2016; van Hout, 2021). These factors have the potential to be translated in actionable strategies.

Based on the etymological background and former literature, the definition of a strategy in this research is determined based on the following criteria:

1. A strategy articulates the intends, which are the goals of the project. These goals can be derived from for example success factors and enablers of the process.
2. The goals of the project, which form a basis for the strategies, are serving the main purpose: 'improving the outcome of the adaptive reuse process'
3. A strategy is actionable. It is articulated in such a way that a stakeholder can act upon it.

These three items frame the type of strategies that will be included in this research.

3.3.4 Barriers

As discussed in the previous part, a strategy should have a certain intent and an opportunity to achieve something. Barriers in adaptive reuse can pave the way to form the intent. Subsequently, a corresponding strategy can be compiled. Project complexity is regarded as one of the crucial barriers of AR (Bond, 2011; Douglas, 2006; Kurul, 2007). The complexity itself does origin from multiple different factors. Many researchers have tried to grasp the different causes of this complexity. These causes are part of the identified barriers of adaptive reuse. The complete list of barriers can be found in Appendix 1 – Barriers from literature. In chapter 3.3.6 will be explained how the barriers are used to compile the final strategy list.

3.3.5 Strategy themes

Following the type of strategies which are regarded in this research, identifying themes relevant in adaptive reuse can further frame the list of strategies. Van der Staak determined five aspects which determine the success of reused religious buildings: financial, functional, building, communicative, and legal aspects (van der Staak, 2013). Van Hout revises this list for heritage in general and ads the aspect of 'preparation'. The resulting six categories are: legal, financial, preparatory, communicative, building & location, and functional aspects (van Hout, 2021).

These themes are adopted in this research to categorise and merge the strategies which are found in literature. The category 'functional' is excluded, because the topics in this theme are subdividable into the other five themes. Furthermore, the 'building & location theme is slightly adapted to 'building & environment', to make it more comprehensive regarding the non-physical

environment of a building. These adaptations result in the five following themes: legal, economy, preparation, communication, and building & environment.

1. Legal – Adaptive reuse is subject to legal procedures, which can lead to challenges in terms of costs and time (van der Staak, 2013). Examples of legal aspects are zoning plans, building codes, legal procedure/obligations, and support from legal authorities.
2. Economy – Adaptive reuse needs throughout research into the financial feasibility, because of the complexity of it (van Hout, 2021). Examples of economic aspects are financial support, specific financing methods, and suppressing costs.
3. Preparation – The moment when a choice is made in the initiative phase of the AR process is highly determining for the project success (BOEi, 2009; Pallada, 2017). Examples of preparational aspects are the moment of involvement of contractors, end-users, and advisory roles.
4. Communication – In adaptive reuse processes many parties are involved, because of the existing building. Open communication is highly important to build trust and willingness to cooperate (van der Staak, 2013). Examples of communicational aspects are the interaction between internal and external stakeholders and the creation of clear agreements and contract document.
5. Building & Environment – In adaptive reuse there is an existing building at an existing location, with an existing community. The values of these existing structures are determining the success of a project (van der Staak, 2013). Examples regarding the building and location are concerning changes to the building, the community, the function of the building, and area development.

3.3.6 Strategy list

The preliminary list of strategies fostering the adaptive reuse process is conducted with the help of the criteria described in Chapter 3.3.3. The strategies are collected from twenty different research papers, with a variety of focus projects and topics within the topic 'adaptive reuse', from studies conducted between 1999 and 2025. The strategies are grouped in the five themes: legal, economy, preparation, communication, and building & environment.

The listed strategies are assessed based on their occurrence in the reviewed literature. The strategies are marked based on whether the strategy is mentioned in literature, or whether the literature mentions a barrier to which the given strategy can be a solution. The complete list and its review can be found in Appendix 2 – Strategies from literature.

The list of strategies in Table 3 will be the starting point for the next phase of this research. In the next phase, the strategies are assessed by the experts, based on their effectiveness in the adaptive reuse process to achieve successful completion. In the following sections, the strategies are explained.

Table 3: Strategies from literature improving the adaptive reuse process

Legal	Economy	Preparation	Communication	Building & Environment
Create land use / zoning flexibility	Reduce the project timeline to reduce risks	Seek early advice on building condition research	Engage communities / local businesses in the process	Use adaptive reuse to revitalise neighbourhoods
Change building codes to allow flexibility and creativity	Provide with incentives for adaptive reuse	Involve the construction team early	Create a clear ambition document	Take the interest of the wider community into account
Create political support	Suppres maintenance costs	Involve the end users early	Enhance communication between stakeholders	Minimise changes to the building
		Involve advisors experienced in adaptive reuse		Create a "good fit" between the old and new building function
		Create awareness of the adaptive reuse opportunities		
		Seek for an innovative / creative designer		

Legal

Create land use/zoning flexibility
Flexibility in land use and zoning policies, results in less time being wasted on legal obligations and procedures.

Change building code to allow flexibility and creativity
Introducing relaxations in building codes regarding AR creates room for flexibility and creativity in de process. Furthermore, it lowers the barrier to reuse an existing building.

Create political support
Political support comes in different forms. Examples are adaptive reuse of governmental buildings, or actions taken by the government to make AR easier and more appealing.

Economic

Reduce project timeline
Keeping the project timeline shorts reduces risk for stakeholders, particularly investors. Reduced risk lowers the barrier to participate in AR.

Provide with incentives for adaptive reuse
Financial incentives from the national/local government when executing adaptive reuse makes it a more appealing option.

Suppress maintenance costs
Low maintenance costs create long term financial benefits for the investor, which makes it more appealing for them to participate in AR and to retain ownership of the building.

Preparation

Seek early advise on building condition research
By investigating the structural condition of a building early in the process, there is the opportunity to anticipate. This reduces delays later in the projects, caused by undetected technical defects.

Involve construction team early
The AR process is complex, because of the existing building and stakeholders. Early involvement of parties with varying expertise, creates the opportunity to integrally analyse and design. This reduces delays later in the project.

Involve end user early
Success of an AR project partly depends on the opinion of the end user. Involving the end user in an early phase creates the possibility to use their input from the start.

Involve advisors experienced in adaptive reuse
Consulting parties with experience in adaptive reuse projects, reduces risks. Their experience in AR contributes to a more successful result.

Create awareness of the adaptive reuse opportunities
Knowledge about the possibilities in AR leads to informed decision-making. When the options are unknown, these will not be chosen.

Seek for an innovative/creative designer
Designing in an existing building is more complex than starting from scratch (new built). Success of AR is increased by innovation and creativity in the design.

Communication

Engage communities/local businesses in the process
The effectiveness of AR depends on the people who will use the building. Involving the community and local businesses creates support for the project.

Create a clear ambition document
A clear ambition document, with input from all the stakeholders, provides with something to fall back on. A clear ambition document safeguards the shared goal of the project.

Enhance communication between stakeholders
Clear communication between stakeholders increases the chance they stay on the same page.

Building & Environment

Use adaptive reuse to revitalise neighbourhoods
An existing building, which is in use, gives identity to the area and kickstarts its development (placemaking). The area development that follows introduces new people to the area, which can make use of the adapted building.

Take the interest of the wider community into account
Involving the wide community ensures that the project is adding value for these people as well, which increases support and therefore success.

Minimise changes to the building
Retaining the original appearance of a building as much as possible, is most effective in retaining value. Additionally, minimising changes is risk reducing since there is less chance to find hidden defects.

Create a “good fit” between the old and new building function
A 'good fit' between the former and future function of the building reduces risk and therefore increases success of the project.

Empirical Research.

4. Delphi round 1

The first round of the Delphi study in this empirical part of the research comprises two parts. The first part is conducted in the form of a survey and provides a preliminary ranking of the strategies identified in the literature. The second part involves semi-structured interviews, designed to enrich the list of strategies through the professional insights of twelve experts.

4.1 Expert selection

Stakeholders from selected projects

The participating experts in this research were selected based on a set of criteria. The principal criterium is that they have been participating in the adaptive reuse process of a projects that lies within the scope of this research. Therefore, the experts are selected from a set of three adaptive reuse projects: 'De LocHal', 'Bruis', and 'Het Zandkasteel'. Table 4 presents the selection criteria and variation preferences applied for the selected projects. For two of the three projects, all four selection criteria were met. The third case, *Bruis*, had not yet been completed at the start of the research but was due for completion before the research concluded. This shortcoming was deemed acceptable as *Bruis* concerns a non-monumental building, unlike the other two projects. The preference for at least one non-monumental building is set to make the research about adaptive reuse in general, rather that adaptive reuse of heritage. The exact projects will be further elaborated upon in Chapter 4.3.

Table 4: Project selection criteria.

Case selection criteria	LocHal	Bruis	Zandkasteel
Mixed-use area	x	x	x
Across use adaptation	x	x	x
Delivered	x		x
Reachability of stakeholders	x	x	x
Variation preferences			
Non-monumental building		x	

Besides the involvement of the experts with one of the selected projects, there are two additional selection criteria formulated: (1) the experts have to be stakeholders from one of the stakeholder groups defined in chapter 3.1.5; and (2) the experts need to be willing to participate in both the first and second round of the Delphi research.

Experts independent from selected projects

From the three selected projects, eight stakeholders were suitable to participate in this research. Additionally, four additional experts with substantial experience in adaptive reuse independent of the selected projects were included in the group of twelve experts. These additional experts were selected to enhance the representation of certain stakeholder groups, broaden perspectives on adaptive reuse, to ultimately improve the accuracy of the results.

The first additional expert contributes from the perspective of a project manager involved in adaptive reuse projects. At Wereldhave, they oversee (re)development projects for shopping centres, focusing on the alignment between these centres and area development initiatives.

The second additional expert is an architect-project manager, formerly employed by ZECC Architects, where they predominantly design and manage renovation and transformation projects. Recently they switched jobs to solely focus on project management.

A third expert, representing Re:Born Real Estate, was included due to the company's pioneering vision on reuse of the existing building stock. Re:Born aims to create beloved, durable, and dynamic built environments, focusing on circular, energy-neutral buildings that connect with the urban fabric and can easily adapt to future changes (Re:Born, 2023).

The fourth expert brings in a distinct perspective, as a jury member for the *Gulden Feniks* award in the Netherlands. This prize is intended to raise awareness of successful renovation and transformation projects and to encourage the application of lessons learned in future initiatives (NRP, 2025).

Group of experts

The group of twelve participating experts includes four stakeholders from 'De LocHal', one stakeholder from 'Bruis', three stakeholders from 'Het Zandkasteel', and four stakeholders independent from one of the cases. An overview of all participating experts is presented in Table 5.

Table 5: Overview of the participants of the research.

Interview	Company	Role	Party
A1	CIVIC	Architect	Architect
A2	Braaksma & Roos	Renovation architect	Architect
A3	Binx Smartility	Project leader	Contractor
A4	Library (BMB)	Project leader	User
B5	Municipality of Bladel	Project coordinator	Client
C6	Wonam	Construction manager	Developer
C7	Kondor Wessels	Project leader	Contractor
C8	Alberts & van Huut	Architect	Architect
D9	Wereldhave/SVD	Project manager	Consultant
D10	ZECC Architects	Architect/ Project manager	Architect/ Consultant
D11	RE:BORN Real Estate	Real estate developer	Developer
D12	NRP	Architect/ Jury	Architect/ NRP

4.2 Survey

The first round starts with the stakeholders assessing the nineteen strategies derived from the literature. In a survey each strategy assessed based on the five aspects: economic value, social value, innovation, architectural value, and overall project success. The first four themes are adopted from existing research, identified as appropriate indicators of effectiveness in adaptive reuse (Arfa et al., 2022). The theme of overall project success is added to provide a broader evaluation. The survey design is presented in Appendix 7 – Survey round 1.

4.2.1 Preliminary ranking of the strategies

Formula's

In the first-round survey, experts are asked to rate the effectiveness of each strategy across the five themes, from 'not effective' (lowest score) to 'extremely effective' (highest score). From these ratings, an effectiveness index is calculated for each theme, with a resulting value between 0 and 1.

The following formula is established to calculate the effectiveness index for each theme:

$$Index = \frac{1*n1+2*n2+3*n3+4*n4+5*n5}{5*N}$$

- n1 = number of responses for 'not effective'
- n2 = number of responses for 'somewhat effective'
- n3 = number of responses for 'effective'
- n4 = number of responses for 'very effective'
- n5 = number of responses for 'extremely effective'
- N = total number of responses

The result of the strategy effectiveness is the average index across the five teams. The result has a value between 0 and 1.

The following formula is established to calculate the average result of the indices:

$$Result1 = \frac{Index^{EV}+Index^{SV}+Index^{I}+Index^{AV}+Index^{OPS}}{5}$$

- $Index^{EV}$ = Index of the economic value
- $Index^{SV}$ = Index of the social value
- $Index^{I}$ = Index of the Innovation
- $Index^{AV}$ = Index of the architectural value
- $Index^{OPS}$ = Index of the overall project success

Results

According to the survey results from the twelve experts, the preliminary ranking of strategies derived from literature is presented in Table 6 on the next page. Notably, even the lowest-rated strategy achieved an effectiveness score of 0.5, which corresponds to an average rating of 'effective'. This suggests that the experts, on average, consider all strategies identified in the literature as positively contributing to the outcomes of adaptive reuse projects.

Among the indices calculated for the four key themes (economic value, social value, innovation, and architectural value), the highest value for each strategy is highlighted in orange in Table 6. It stands out that, for most of the strategies, economic value was rated the highest. This indicates that experts perceive the strategies from literature as primarily enhancing the economic value of adaptive reuse projects.

In the second round of the Delphi study, the results from Round 1 will be shared with the twelve experts to allow for revision and validation.

Table 6: Preliminary prioritisation of the strategies from literature.

#	Strategy	$Index^{EV}$	$Index^{SV}$	$Index^{I}$	$Index^{AV}$	$Index^{OPS}$	Result1
1	Involve advisors experienced in adaptive reuse	0,90	0,68	0,85	0,75	0,83	**0,80**
2	Provide with (financial) incentives for adaptive reuse	0,82	0,78	0,69	0,73	0,84	**0,77**
3	Involve construction team early	0,80	0,67	0,72	0,68	0,80	**0,73**
4	Use adaptive reuse as a part of area development to revitalise neighbourhoods	0,78	0,78	0,64	0,62	0,76	**0,72**
5	Create political support	0,78	0,75	0,63	0,60	0,75	**0,70**
6	Create a clear ambition document	0,72	0,73	0,68	0,62	0,75	**0,70**
7	Engage communities/local businesses in the process	0,80	0,87	0,57	0,53	0,73	**0,70**
8	Seek for an innovative/creative designer	0,65	0,65	0,73	0,73	0,72	**0,70**
9	Create land use/ zoning flexibility	0,74	0,70	0,66	0,58	0,72	**0,68**
10	Seek early advise on building condition research	0,82	0,53	0,60	0,68	0,76	**0,68**
11	Enhance communication between stakeholders	0,65	0,77	0,62	0,57	0,73	**0,67**
12	Involve end user early	0,67	0,75	0,58	0,60	0,70	**0,66**
13	Reduce project timeline to reduce risks	0,80	0,58	0,62	0,47	0,74	**0,64**
14	Create awareness of the adaptive reuse opportunities	0,68	0,68	0,62	0,54	0,69	**0,64**
15	Change building code to allow flexibility and creativity in adaptive reuse	0,66	0,56	0,70	0,62	0,64	**0,63**
16	Suppress maintenance costs	0,72	0,53	0,65	0,58	0,65	**0,63**
17	create a 'good fit' between the old and new building function	0,66	0,64	0,55	0,58	0,64	**0,61**
18	Minimise changes to the building	0,73	0,50	0,50	0,48	0,60	**0,56**
19	Take the interest of the wider community into account	0,53	0,65	0,42	0,40	0,54	**0,51**

4.3 Interviews

The second part of the first round consisted of semi-structured interviews, conducted with the same twelve participating experts. As mentioned, eight of these experts were stakeholders from the three selected projects, while four were independent of any specific project. All participants have substantial professional engagement with adaptive reuse. The goal of the interviews is to be able to enrich the list of strategies from literature with the help of the experiences of the experts. In this chapter quotations underpinning the additional strategies are explained and contextualised by the means of the three selected projects. All interviews are conducted in Dutch; hence the quotes are translated by the author of this research. In the following sub chapters the additional strategies from the interviews are identified and. Described in the context of the selected projects. The chapter concludes with an overview of eighteen additional strategies, subdivided in the five strategy themes from literature.

4.3.1 De LocHal – Tilburg

Project details

Adress	*Burgemeester Brokxlaan 1000, 5041 SG, Tilburg*
Municipality	*Gemeente Tilburg, Noord-Brabant*
Construction	*1932*
Reuse timeframe	*2015 – 2018*
Delivery	*Q4 – 2018*
Monumental status	*Municipal monument*
Gross floor area	*11.000 m² (old - 5.000 m²)*
Program	*Old – Workstation (NS)* *New – Culture, office: library, flex-workspace, hospitality industry, culture (mixed-use public building)*
Owner	*Gemeente Tilburg*

Context

De LocHal is located in an area known as the 'Spoorzone' (railway zone), situated on the northern side of Tilburg Central Station. The building, which reaches a height of eighteen metres, was formerly used as a warehouse for the maintenance and repair of locomotives and is also referred to as 'Building 60' (*Historie | LocHal*, n.d.). Constructed in 1932, the building consists of three sections: the trolley track (60A), the depot (60B), and the boiler repair workshop (60C). De LocHal was developed during the second phase of the NS workshop expansion. This period saw the emergence of modern construction techniques involving steel and glass, which facilitated the creation of a large, open interior space with abundant natural light (*Historie | LocHal*, n.d.)

Due to a decline in demand for NS workspaces, the Municipality of Tilburg decided in 2009 to acquire the Spoorzone with the intention of redeveloping the area into a mixed-use area (Tilburg, n.d.). As part of the agreement with NS, six buildings within the zone, including De LocHal, were to be preserved. In 2012, the masterplan for the Spoorzone was formally introduced. In 2015 the LocHal became monumentally listed by the municipality of Tilburg. To support the area's transformation, the municipality constructed two tunnels beneath the railway line, to enhance connectivity between the Spoorzone and Tilburg city centre (Tilburg, n.d.).

The redevelopment of De LocHal was carried out between 2015 and 2018. During this period, the former industrial warehouse hall was converted into a mixed-use public building, accommodating the Tilburg Public Library, flexible workspaces, hospitality venues, and cultural amenities. After completion, the project was awarded with several prices like the NRP Gulden Feniks Award, World Building of the Year 2019, and Inside World Festival of Interior Awards.

Figure 12: The NS workspace in 1939 (The LocHal in Tilburg, 2019).

Figure 11: Interior of De LocHal (Braaksma & Roos, n.d.).

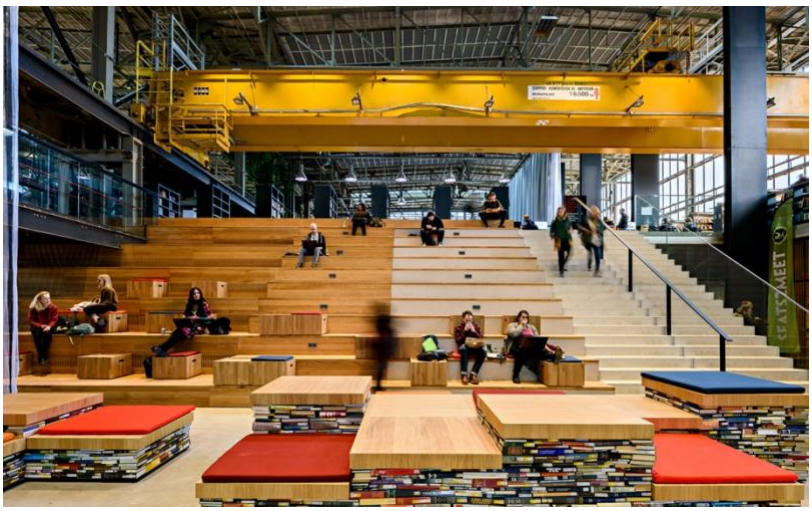

Figure 10: A staircase landscape creating connection whitin the building (Braaksma & Roos, n.d.).

Figure 13: De LocHal after the transformation (LocHal Tilburg | LocHal, n.d.).

Data collection

Stakeholders	
Initiator	*Gemeente Tilburg*
Client	*Gemeente Tilburg (CHIRON Development Consultancy)*
Investor	*Gemeente Tilburg*
Project management	*Stevens Van Dijck*
Architect	*CIVIC Architects, Braaksma & Roos Architects, Petra Blaise*
Contractor	*Binx Smartility*
Advisor	*Arup*
End user	*Bibliotheek Midden-Brabant (Library), Seats-2-Meet, Kunstloc, retail.*

Four parties who participated in the transformation process of De LocHal are interviewed. The reason for selecting these specific stakeholders is elaborated on in the following section and an overview is displayed in Table 7.

As previously noted, the redevelopment of De LocHal formed part of the broader redevelopment of the 'Spoorzone' area. At a very early stage in 2007, the municipality approached the library 'Bibliotheek Midden-Brabant' (BMB) to assess its willingness to relocate to a new building. Shortly thereafter, the other prospective end-users were also involved in the process. Owing to the continuous involvement of end-users throughout the project, the project leader from BMB was interviewed.

A consortium comprising CIVIC (formerly 'The Cloud Collective'), Braaksma & Roos, Petra Blaise, and ARUP was formed to submit a proposal for the De LocHal tender. CIVIC, a relatively young and inexperienced firm at the time, was interviewed for this research to gain insight into their role and perspective as a newcomer to a large-scale project. Braaksma & Roos Architects, recognised for their expertise in restoration architecture and with prior experience in similar projects, was interviewed as well.

At a later stage, the contractor was involved into the process. As the project was tendered under UAV-GC (Uniform Administrative Conditions for Integrated Contracts), the contractor assumed (part of) the associated risks. Furthermore with this form of contract, the client provides functional specifications rather than a detailed technical design (IBR, 2025). The contractor was primarily interviewed regarding the project's execution phase.

Interview	Company	Role	Party
A1	CIVIC	Architect	Architect
A2	Braaksma & Roos	Renovation architect	Architect
A3	Binx Smartility	Project leader	Contractor
A4	Bibliotheek MB	Project leader	User

Table 7: Interviews for 'De LocHal'.

Interview results

All four interviewed stakeholders emphasise that they are extremely proud of the result of the redevelopment of the LocHal. In this section the actions and choices which contributed to the outcome of the project are explained and illustrated by the stakeholders' citations.

End-user involvement

The initial steps for the redevelopment of De LocHal were taken in 2007, when the municipality of Tilburg approached the library regarding its willingness to relocate from 'Koningsplein' at the south of the city centre, to a new building in the 'De Spoorzone'. At that time, the library was already thinking about the question, "What is the library of the future?". From this point onward, the library and other end-users were actively involved in the redevelopment process.

> *"It was highly unique that we, being end users, were involved from the very start of the process. We had a stake in the selection of the architect and could participate in the meetings with the architects and contractors every other week." ~ project leader, BMB*

Innovation and researching the question

The financial crisis of 2008 temporarily halted the redevelopment of the LocHal. Following the crisis, the project resumed, and the architect was selected. The winning team consisted of a collaboration between several firms: CIVIC (initially called 'The Cloud Collective'), Braaksma & Roos, and Petra Blaisse (Inside Outside). At the time of their selection, CIVIC lacked experience, particularly in adaptive reuse projects. However, they advanced through the first round of selection with references from Braaksma & Roos and Petra Blaisse. In the second round, they competed against more experienced firms. Because they were unexperienced, the architect reconned that they had to 'think outside the box' if they wanted to stand a chance.

> *"In the second round, we were up against four very experienced parties. And we immediately felt that if we simply coloured within the lines, we would never win." ~ architect, CIVIC*

This approach led to a pioneering way of thinking about heritage and a different method of looking at the building.

> *The LocHal was truly distinctive in the way it engaged with and preserved heritage. ~ architect, Braaksma & Roos*

The design process began with an extensive analysis of the building, which consisted of two large warehouse halls. Initially, the focus was on researching the call for tender rather than conducting a detailed analysis of the physical structure of the building.

> *"We actually spent much more time exploring the underlying question than examining the architectural design of a library. The brief was titled: 'Library of the Future.' But then, what* is *a library of the future?" ~ architect, CIVIC*

The architects researched this question by talking to pioneering library directors about the current vision on libraries and to a philosopher about the definition of the future, to be able to combine these two aspects. This research led to the interpretation of the library as a public workspace, designed to foster community interaction. The two large warehouse halls, both with a width of 28 meter and a length of 100 meters, were originally built in 1932. These halls had to be adapted to accommodate this new function while preserving the openness and flexibility of the space. The design team opted to implement a hybrid climate concept, which included zoning within the

building to meet the specific climate requirements of different rooms, without the need to climatise the entire building.

> *"At the time, it was considered highly innovative to say: we're not going to climatise everything, that's simply not feasible. Instead, we're going to introduce a kind of hybrid climate zoning." ~ architect, CIVIC*

Leaving research for execution phase
When the contractor joined the project, the conceptual design was finished. However, some technical specifications were still to be finalised. By leaving these details for the contractor to determine, the project saved valuable time in the early stages. The ability to make design decisions on-site, based on the existing conditions of the building, had a positive impact on both the course of the process and the final result.

Municipal support
Throughout the redevelopment, the municipality remained closely involved. They supported the vision of the LocHal that was created together with all different stakeholders and represented that vision towards the higher-ups in the municipality. The municipality provided crucial support, both in terms of the project's vision and its financial backing. The municipality really fought to realise aspects that were fostering the shared vision of the project.

> *"The municipality had high ambitions with the development of De LocHal and Spoorzone, and they made sure that there was enough money available to realise that ambition." ~ contractor, Binx Smartility*

Expertise and communication
Additionally, the municipality hired a project management firm to coordinate the process, ensuring effective communication and a successful outcome. The project manager assisted the different stakeholders when necessary. For parties like the end users, with little experience in projects of this magnitude, the project manager was highly valuable.

> *"Stevens Van Dijck was highly involved with all different stakeholders, and they managed to keep the project on track. Their help for us in understanding and participating was extremely valuable." ~ project leader, BMB*

Social value
The success of the project is, in part, attributed to the enthusiastic embracement of the building by the residents of Tilburg and the way they still use the building after six years.

> *"A citizen from Tilburg stated: I have been living here for 40 years, and this is the first time that I am proud of my city." ~ project leader, BMB*

Applied strategies

The citations and findings from the interviews can be translated into strategies. This chapter highlights and explains the explicit strategies which are used in the project according to the interview results. Here strategies derived from the literature are recognised, and additional strategies are formulated.

Drawing upon both the interview findings and the numerous awards received by the LocHal, the project can be regarded as a highly successful example of adaptive reuse. Collaboration played a central role in achieving this outcome. The involvement of a broad range of stakeholders and the communication between them proved instrumental in the formation of a shared vision. This collective vision fostered a strong commitment among stakeholders to work collaboratively towards its realisation. Here the following strategies are used:

- *Involve the end user early*
- *Formulate a strong concept / vision with all stakeholders*

The architect combined design and research methodologies to translate the vision into a coherent concept and design, whilst maintaining continuous communication with end-users throughout the process. Here the following strategies are used:

- *Seek for an innovative/creative designer*
- *Research the question / call for tender extensively*

Upon the contractor's involvement, they actively contributed to refining the design by identifying opportunities within the existing structure. Meetings with the various stakeholders were held on-site, enabling practical and context-sensitive decision-making. Here the following strategies are used:

- *Leave some technical building research to be done during execution*
- *Analyse, work, design, and make choices at the project site*

According to the experts consulted, the social and financial support provided by the municipality was a key enabler of the project's success as well. The municipality adopted a facilitative role and made sure they had expertise on board, empowering stakeholders to collectively develop a shared vision for the LocHal. Here the following strategies are used:

- *Create political support*
- *Take on an encouraging and facilitating attitude as a governmental body*
- *Invest municipal money in AR projects as a part of area development*
- *Involve someone with knowledge about adaptive reuse at the side of the client*

Finally, the integration of the LocHal within the broader development of the Spoorzone was identified as another contributing factor to the project's success. This aspect is closely tied to the area's identity, as the LocHal previously served as a workshop for the Dutch Railways (NS). Preserving the spatial and historical connections between the buildings within the Spoorzone was vital in maintaining the area's unique character, thereby enhancing the success of the LocHal. Here the following strategies are used:

- *Use adaptive reuse as a part of area development to revitalise neighbourhoods*
- *Give the building back to the community*
- *Maintain intangible values of the existing building*

4.3.2 Bruis – Bladel

Project details

Adress	*Markt 20, 5531 BC, Bladel*
Municipality	*Gemeente Bladel, Noord-Brabant*
Construction	*2001*
Reuse timeframe	*2020 - 2025*
Delivery	*Q1/2 – 2025*
Monumental status	*Non-listed*
Gross floor area	*8.411 m²*
Program	*Old – Office (Rabobank)*
	New – Culture: community centre (mixed-use public building)
Owner	*Gemeente Bladel*

Context

Located on the market square in the city centre of Bladel is a former Rabobank office building. In 2019, the Municipality of Bladel acquired the building, motivated by a desire to retain ownership of this strategically positioned property and to relocate the community centre, previously situated on the outskirts of Bladel, to the heart of the city. Consequently, a project was initiated to establish a new communal facility within the former Rabobank building. In addition to its function as a community centre, the new facility was designed to accommodate the library, the tourist information point, and several art and cultural associations. This new mixed-use development is named “Bruis”.

Originally constructed in 2001, the Rabobank building was relatively young and remained in a reasonable condition. Nevertheless, the building lacked internal connectivity, and its spaces were organised without a clear rhythm (*Van Bankgebouw Naar Gemeenschapshuis | Den Herd*, n.d.).

The project officially started in 2019 with the Municipality of Bladel’s purchase of the property. In March 2025, the new community centre was completed, and the first performances were staged in the new theatre hall. While the structural framework of the building was retained, significant alterations were made to its configuration, including the creation of larger spaces such as the atrium and the main theatre hall. The introduction of open spaces and sightlines facilitated improved connections between the various areas within the building.

Figure 14: The Rabobank building at the market square in Bladel (Van Bankgebouw Naar Gemeenschapshuis | Den Herd, n.d.).

Figure 15: Bruis during execution (Group A, 2025).

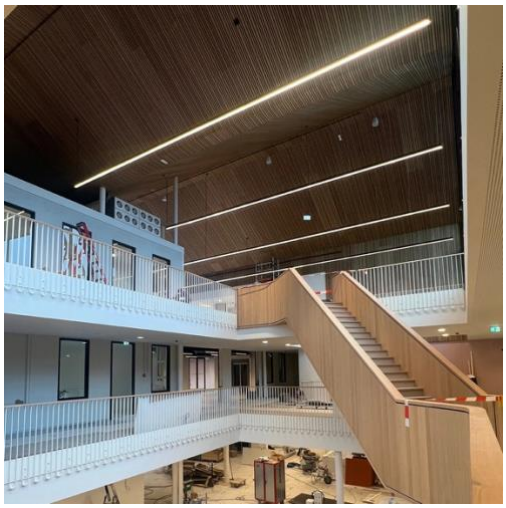

Figure 16: Realisation of the loft (Group A, 2025).

Figure 17: The annex to realise the new theatre hall (Moeskops' Bouwbedrijf B.V., n.d.).

Data collection

Stakeholders	
Initiator	*Gemeente Bladel*
Client	*Gemeente Bladel/ Den Herd*
Investor	*Gemeente Bladel*
Project management	*Stevens Van Dijck*
Architect	*Group A*
Contractor	*Moeskops Bouwbedrijf*
Advisor	*Ingenieursbureau ABT*
End-users	*Community centre, library, (cultural) associations*

One party who participated in the transformation process of Bruis is interviewed. The reason for selecting this specific stakeholder is elaborated on in the following section and an overview is displayed in Table 8.

The decision to relocate the community centre to the market square of Bladel, along with the acquisition of the former Rabobank building, marked the start of the project. These initial steps were taken by the Municipality of Bladel. Consequently, the project coordinator from the Municipality of Bladel was interviewed for this research.

Throughout the redevelopment process, the principal stakeholders involved were the architect (Group A), the contractor (Moeskops Bouwbedrijf), and the engineering firm (ABT). Subsequently, Stevens Van Dijck joined the project to oversee its execution, once the design phase had already started. In order to gain a more comprehensive understanding of the process, both the architect and the contractor were approached to participate in the study. However, they either did not respond or were unwilling to take part. As a result, only the client/regulatory perspective is represented in the interviews concerning Bruis. Further details regarding the interview of the project coordinator of the Municipality of Bladel can be found in Table 8.

Table 8: Interview for 'Bruis'.

Interview	Company	Role	Party
B5	Gemeente Bladel	Project coordinator	Client

Interview results

The interview with the project coordinator from the municipality was conducted one month prior to the final delivery of Bruis. A project manager from the managing party, Stevens Van Dijck, was also present. The project coordinator from the municipality was responsible for the redevelopment of the Rabobank building located at the market square, as well as the redesign of the market area. The following section summarises the municipality's (client's) perspective on the process, highlighting the factors considered beneficial and those viewed as detrimental to the project's outcome.

Location

Although the Municipality of Bladel had been considering the future of the community house for some time, the project officially started with the purchase of the Rabobank building. This acquisition was primarily motivated by the desire to retain control over developments within the town centre.

> *"It's a location at the heart of the community, and we purchase it to ensure it doesn't end up in the hands of a developer. Otherwise, you risk having undesirable developments at the very core of your community." ~ project coordinator, Municipality of Bladel*

Participation

Due to Bladel being a merged municipality with several local centres of varying sizes, the early stages of the project were particularly complex. The municipality led the initiative, while different centres demanded the same developments and financing for developments in their cores.

> *"Coordinating between the various local centres within the municipality makes the process incredibly exhausting. In addition to constantly ensuring support from users, you also must keep checking in with the political side: Will I get the funding? What do I need to do for it? What do I need to come up with to make things at least somewhat comparable? At a certain point, you're essentially writing council proposals that apply specifically to Bladel or to Hapert." ~ project coordinator, Municipality of Bladel*

An important aspect mentioned by the project coordinator was the necessity of maintaining support from the community and the volunteers who operate the community centre. While the Municipality of Bladel was responsible for the development, construction, and subsequent management of the building, organisations such as the library and the community centre would serve as its tenants. Retaining community support presented an ongoing challenge throughout the process.

> *"As a local authority, you can say to the users, 'We know what's best for you, and in two and a half years you'll get the keys...' But these are all volunteers, and they'll respond with, 'That's nice, but then you can do it yourself.' So, in tackling this challenge, which I still find quite complex, you really must constantly seek support, involve people in decisions, and, crucially, allow them to make choices themselves, even if those choices differ from what you might have preferred. Otherwise, you risk losing their support." ~ project coordinator, Municipality of Bladel*

Expertise

Following the drafting of the initial construction specifications, the municipality engaged Stevens Van Dijck as an external project management party to provide specialist expertise.

> *"Particularly during the execution phase, we brought in Stevens van Dijck to support us with project supervision, oversight, and management assistance. Simply because I don't*

have those competencies myself, and because they're essential for managing the contractor." ~ project coordinator, Municipality of Bladel

Stakeholder Involvement

The project was tendered as an integrated design assignment, where the architect had responsibility for the coordination of involved parties. The contractor was involved later, shortly before the execution phase. The project coordinator identified this as a key lesson learned in the context of adaptive reuse, suggesting that earlier involvement of the contractor within a 'bouwteam' would have been preferable. Nevertheless, it was also noted that early involvement does not inherently guarantee the quality or expertise of parties involved.

"When the person leading the design team fails to recognise the importance of involving a contractor early on, or other aspects that we now consider crucial, that remains the weak spot in the process." ~ project manager, Stevens Van Dijck

A related consideration was the importance of designing for an existing building while being physically present on-site, to reach well-informed decision-making. However, the architect was based in the Randstad and had to travel across the country to be present at the project site. Simultaneously, Covid-19 made it difficult to physically work together. This potentially negatively impacted the success of the project.

"If you're not physically present here, you can spend a long time debating whether or not for example a silo funnel should be included. But when you're here, when you can feel it and see it, those kinds of decisions become easier and quicker, and you're more likely to spot potential risks." ~ project manager, Stevens Van Dijck

Adaptive Reuse versus New Build

Although the building was not listed as a heritage monument and lacked intrinsic historical value, the municipality chose to redevelop rather than demolish and rebuild. The main reason for that was the belief that the proposed programme could be accommodated within the existing structure, avoiding major architectural alterations. However, during the design process, part of the building was ultimately demolished to create space for a theatre hall with sufficient capacity, diverging from the initial vision.

"The extension was definitely of added value to the building. But to realise it, a part of the building was demolished. We initially started with the idea that everything should be resolved within the existing contours of the building. We did not want to demolish." ~ project coordinator, Municipality of Bladel

Community

The project coordinator further emphasised that adaptive reuse of such buildings should serve goals in the broader social domain. The former Rabobank office, once a privately-owned structure in a prime location, has been transformed into a building of community value.

"The main purpose of the community centre has been to serve as a means of strengthening the social cohesion within the local community. That people look out for one another and get along well. That they engage in enjoyable activities after work, in the evenings, on weekends, and celebrating events like carnival. That's truly what it's meant for, and that's also part of the municipality's responsibility." ~ project coordinator, Municipality of Bladel

Applied strategies

The citations and findings from the interview can be translated into strategies. This chapter highlights and explains the explicit strategies which are used in the project according to the interview results. Here strategies derived from the literature are recognised, and additional strategies are formulated.

The relocation of the community centre from a suburban location to the city centre of Bladel was initiated and executed by the Municipality of Bladel. Following completion, the municipality remained the owner of the building. The project formed part of a broader initiative to revitalise the market square area, which was also included within the scope of work for the municipal project coordinator. Here the following strategy is used:

- *Stay involved as a client by managing the building after completion*

During the project, the design team was led by the architect. In relation to the project's success, it is emphasised that expertise played a critical role. For instance, the managing party should recognise the importance of conducting design activities on-site and of involving the contractor at an early stage to ensure an integrated design process. In this respect, the contractor's expertise was again a key determining factor. Moreover, due to a recognised lack of specific expertise on the client side, the municipality engaged a project management firm to provide support during the later design and execution phases. Here the following strategy is used:

- *Involve someone with knowledge about adaptive reuse at the side of the client*

A central pillar of this project was its service to the social domain of Bladel. The former Rabobank building had functioned as a private facility. Its transformation into a community centre, incorporating a theatre and a library, made the building accessible to all citizens. This new public function necessitated strong support from the local community, which is particularly crucial in projects led by governmental organisations. Here the following strategies are used:

- *Invest municipal money in AR projects as a part of area development*
- *Give the building back to the community*

4.3.3 Het Zandkasteel – Amsterdam

Project details

Adress	*Bijlmerplein 888, 1102 MG, Amsterdam*
Municipality	*Gemeente Amsterdam, Noord-Holland*
Construction	*1986*
Reuse timeframe	*2020 - 2023*
Delivery	*Q2/Q3 – 2023*
Monumental status	*Municipal monument*
Gross floor area	*48.000 m²*
Program	*Old – Office (ING)* *New – Residential, office, culture: apartments, hospitality industry, office, culture (Mixe-use, primarily residential)*
Owner	*Wonam, Zadelhoff*

Context

Het Zandkasteel is located at the Bijlmerplein in Amsterdam's Bijlmer district. The building was designed by the architectural firm Alberts & Van Huut in 1987. The client at the time was 'De Nederlandse Middenstandsbank', the former name of ING. Its distinctive architectural style is inspired by anthroposophical principles, an approach that emphasises natural light and green structures, integrating architecture with the landscape and avoiding the use of straight angles ("Zandkasteel Amsterdam," n.d.). The building was named 'Het Zandkasteel' ('The Sandcastle') because its colour and shape were reminding one of a sandcastle. In 2017, the building was declared a municipal monument (*Over Zandkasteel*, n.d.).

When a new campus was developed for ING at another location, it was stipulated as part of the agreement that the developer responsible for the new campus would also acquire the existing building. The reason for that was that it was to be prevented for the building to become structurally vacant. As a result, G&S Vastgoed became the new owner of Het Zandkasteel. G&S Vastgoed initiated plans to transform seven out of the ten towers of the office complex into residential apartments. The remaining three towers had already been sold to the Municipality of Amsterdam in 2018 for conversion into an international school.

Upon completion of the Definitive Design (DO) at the end of 2019, the contractor KondorWessels was engaged. However, shortly after the contractor's involvement, G&S Vastgoed sold the seven towers to Wonam and Zadelhoff, who subsequently continued the development.

Wonam and Zadelhoff adapted the existing plans to create a mixed-use building, centred around an 'internal street' designed to connect the towers and foster interaction among users. In the final design, the complex comprises 263 rental apartments, 47 office spaces, and 12 meeting rooms, intended for use by both businesses and residents (*Zandkasteel – Wonam*, n.d.). A central focus throughout the transformation was the preservation of the building's distinctive architectural features. Furthermore, as the original design in 1987 had already prioritised energy efficiency, during the redevelopment sustainability and circularity were key themes. The transformed building was completed and delivered in the second quarter of 2023.

Figure 22: View of south-east facade of ING Headoffice, Amsterdam (Voeten, 2010).

Figure 18: The entrance of Het Zandkasteel (Wonam, n.d.).

Figure 19: The entrance hall of Het Zandkasteel (Wonam, n.d.).

Figure 20: Appartment in the former office space (Wonam, n.d.).

Figure 21: One of the gardens of Het Zandkasteel (Zandkasteel wonen, n.d.).

Data collection

Stakeholders	
Initiator	*AMP (G&S Vastgoed, OVG Real Estate)*
Client	*Zandkasteel Amsterdam C.V. (Wonam, Zadelhoff)*
Investor	*Wonam, Zadelhoffl*
Project management	*Stevens Van Dijck*
Architect	*Albers en Van Huut, a/d Amstel architecten*
Contractor	*Kondor Wessels (IBP Condor)*
Advisor	*Ahron Raadgevende Ingenieurs, Hiensch Engineering, IBP Kondor/ Van Dorp Installaties*
End-users	*Residents, community, companies*

Three parties who participated in the transformation process of Het Zandkasteel are interviewed. The reason for selecting these specific stakeholders is elaborated on in the following section and an overview is displayed in Table 9.

The transformation of *'Het Zandkasteel'* was carried out through a collaborative effort between two parties, Wonam and Zadelhoff. Wonam took the organisational lead in the development and continued to manage the building post-completion. Additionally, Wonam's office is located within *'Het Zandkasteel'*. Given Wonam's significant involvement in the building's transformation, a construction manager from Wonam was interviewed.

As noted in the previous section, the contractor KondorWessels had already been engaged with the project when the building was sold to Wonam and Zadelhoff. The project was executed under a contract resembling a turn-key agreement. In a turn-key contract, one party (typically the contractor) assumes full responsibility for the entire project and delivers the building to the client as a finished, ready-to-use product (danush, 2021). In this case, the contractor played a crucial role in a major part of the process, which is why the project leader from the contractor was interviewed.

'Het Zandkasteel' was originally designed by the architectural firm Alberts & van Huut. Upon the decision to transform the building from office spaces into apartments, Alberts & van Huut was re-engaged. Alongside *a/d Amstel Architects*, they worked on the redesign. The involvement of Alberts & van Huut in both the original design and the transformation is particularly noteworthy. Therefore, the architect was also interviewed.

Table 9: Interviews for 'Het Zandkasteel'.

Interview	Company	Role	Party
C6	Wonam	Construction manager	Investor
C7	Kondor Wessels	Project leader	Contractor
C8	Alberts & van Huut	Architect	Architect

Interview results

The three parties interviewed were unanimously positive regarding the adaptive reuse process and the outcome of the transformation of 'Het Zandkasteel'. This section elaborates on the different themes discussed during the interviews and illustrates them with citations.

Municipal support

Following the acquisition of 'Het Zandkasteel' by Wonam and Zadelhoff, design alterations proved necessary to create a financially viable project. In the design commissioned by G&S Vastgoed, the building was to receive a rooftop extension, and every apartment would feature a balcony. Due to the size of the apartments, these balconies were mandatory. However, these were very costly and would significantly alter the façade of the building. The municipality collaborated closely to find the most appropriate solution.

> *"We started the conversation with the municipality to explore where we could make adjustments to make the plan financially feasible. And the municipality genuinely engaged with us in that process." ~ construction manager, Wonam*

Area development

In addition to supporting the transformation of 'Het Zandkasteel', the municipality invested in the development of the surrounding area. For a developing investor, this serves as a substantial incentive to participate in projects in the Bijlmer. The municipality adopts a leading role in enhancing the liveability of the Bijlmer and promoting the development of a mix of social and mid-segment rental housing.

> *"The municipality takes the lead. Every month, there is a coordination meeting with all the developers involved in construction, where we come together, and everything is discussed. We were part of those meetings during the development. Now that the project is completed, we participate in the communication meetings, so we still coordinate closely with the municipality, for example, on how to ensure continued engagement with the neighbourhood." ~ construction manager, Wonam*

Mutual trust

In addition to communication with the municipality, internal communication between Wonam as the client/developer and KondorWessels as the contractor was deemed highly valuable by both parties. Both acknowledged that their smooth collaboration was fundamental to the successful outcome of the project.

> *"You're working in a building full of surprises. For us as the client, for the contractor, and for the consultants. You can take a black-and-white approach, but then you'll constantly be in opposition to one another. However, if you approach it openly and honestly, with mutual respect and understanding, then you enter true collaboration. And once you're working together, you not only start to understand each other, but you also become willing to do something for one another." ~ construction manager, Wonam*

> *"During the execution phase, I worked with the construction manager from Wonam. We had a great mutual understanding, and we were completely on the same page." ~ project leader, KondorWessels*

Mixed-use building

The former ING building was originally a closed, private establishment within the Bijlmer. Under the initial redevelopment plans, which involved creating apartments exclusively, the building would have remained private. However, considering the development of the Bijlmer area and the iconic

value of ‘Het Zandkasteel’, Wonam reconsidered how the building could contribute to the community. This became a pivotal element of the transformation, leading to the addition of offices and public facilities at the building’s entrance and along its internal street, resulting in a mixed-use facility. In reflecting on the process, it was emphasised that engagement with the community was crucial for ensuring the building’s added value.

> *The designing party should start the conversation with the client and users to find out what their wishes and needs are.” ~ architect, Alberts & van Huut*

Circularity and architecture

When ‘Het Zandkasteel’ was constructed in 1986, it was highly energy-efficient for its time. This served as a foundation for implementing circularity as a core principle during the transformation. Furthermore, the architecture of ‘Het Zandkasteel’ was distinctive, characterised by predominantly sloping walls and non-perpendicular angles. The involvement of the original architect in the transformation process underscored the importance placed on preserving the building’s existing architectural character. The architect emphasised that maintaining the building’s soul and character requires the creation of a shared vision.

> *"We started immediately as a team, with all parties involved, to design the process in an organic and co-organising way. When you organise things together, you create space for everyone to design from a shared vision. It’s not just us taking the lead, the whole team takes the lead." ~ architect, Alberts & Van Huut*

This organic approach towards the process reflected the architect’s broader view of the building. The developer also highlighted the original suitability of the office layout for residential conversion.

> *"The original architect says: “I always had the sense that the building wouldn’t remain an office forever. That it would one day be transformed into housing, a hotel, or some other form.” And in a way, the building and its configuration actually suits that." ~ construction manager, Wonam*

Unforeseen costs

In any transformation project, the risks associated with working on an existing structure must be acknowledged. During the transformation of ‘Het Zandkasteel’, the team discovered that, despite earlier intentions, the roofing needed to be entirely renewed. Additionally, although it had been determined that the façade would be maintained, it became necessary to refurbish the windows during execution.

> *“There were a lot of surprises during the process and more money was needed. We did anticipate in advance.” ~ construction manager, Wonam*

Clear contract documents

Although the developer had set aside additional funds for unforeseen circumstances, the contractor noted that there was a lack of clear contract documents. In this case, the project was successful due to the high level of mutual trust and willingness to collaborate, but clear contractual agreements are cited as crucial for transformation projects such as ‘Het Zandkasteel’.

> *"Of course, I’m simply looking for clear contract documents, clear agreements, and proper ways of working together, with good consultation. I do think that here, despite it having been a great success, this was still a problem. A contract with loose ends, with quite a lot of uncertainties, where neither of us really knew what we were supposed to deliver." ~ project leader, KondorWessels*

Management of the building

Following the building's completion in 2023, Wonam, as the developer, remained involved in the management of the property. In collaboration with ReEvent, they oversee the apartments, offices, and public spaces. Both Wonam and ReEvent established offices within the building, thereby increasing their involvement and supervision and enabling them to monitor and adjust operations where necessary.

> *"I think this is a remarkable building that, actually, has turned out really well. But, and this is very important, it's delivered and in use now, but you must keep working on it continuously. You have to stay fully engaged with it." ~ construction manager, Wonam*

Applied strategies

The citations and findings from the interviews can be translated into strategies. This chapter highlights and explains the explicit strategies which are used in the project according to the interview results. Here strategies derived from the literature are recognised, and additional strategies are formulated.

A clear correlation was observed between the transformation of *'Het Zandkasteel'* and the broader development of the surrounding area. The municipality has been striving to revitalise the Bijlmer district and to enhance its liveability. The promising future prospects of the area motivated the developing parties to participate in the transformation of *'Het Zandkasteel'*, aiming to create a mixed-use building that would actively engage the community. Both the political support from the municipality and the location of the building within a developing area contributed significantly to the project's success. Here the following strategies are used:

- *Take on an encouraging and facilitating attitude as a governmental body*
- *Use adaptive reuse as a part of area development to revitalise neighbourhoods*
- *Create political support*
- *Take the interest of the wider community into account*
- *Give the building back to the community*

In addition to the municipality's involvement, the contractor was engaged at an early stage. This early collaboration allowed the project to benefit from the contractor's expertise, and the joint involvement of both the municipality and the contractor facilitated a comprehensive analysis of the existing building. Here the following strategies are used:

- *Involve the construction team early*
- *Integrally analyse and design the building and its context*

During the project, unforeseen issues with the existing structure arose. However, the developer had allocated additional funds within the budget to account for such unexpected costs, enabling the project team to respond effectively. Here the following strategy is used:

- *Reserve more money for unforeseen circumstances*

The design for the building's new residential function was particularly well-suited to the original office configuration. The organic forms and anthroposophical character of the building were preserved, thereby maintaining its intangible values and ensuring a harmonious fit between the building's former and new functions. Here the following strategies are used:

- *create "good fit" between the old and new building function*
- *Maintain intangible values of the existing building*

Wonam was the developer of the building in a consortium together with Zadelhoff. After the transformation of the building was completed, Wonam remained in charge of the management of the building. Moreover, Wonam's office is situated within the building itself. This enables them to prolong the vision created in the redevelopment and to maintain close oversight of the utilisation of the building. Here the following strategy is used:

- *Stay involved as a client by managing the building after completion*

4.3.4 Strategies used in the cases

The previous chapters describe for each of the selected projects which strategies are used and experienced to be beneficial to the outcome of the project. The strategies mentioned to be used for each project are marked in Table 10. In the table all strategies, both from literature (black) and from the interviews (orange), are included. The strategies included from the interviews are further elaborated on in Chapter 4.3.5.

In the first column of Table 10 the five strategy themes are displayed, and in the second column the list of thirty-seven strategies is shown. For each of the three selected projects it is indicated how many of the experts mentioned a specific strategy to be used and improving the projects outcome in the third, fourth and fifth column. The last column displays the total number of times a strategy is mentioned in all three projects by the eight stakeholders.

It stands out that from the nineteen mentioned strategies, seven are from literature and twelve are from the additional list. Furthermore, from in total nine strategies in the theme 'Building & Environment', seven are mentioned to be used and beneficial to the project by the stakeholders of the projects.

Table 10: Strategies applied in the three selected projects.

	Strategy	LocHal	Bruis	Zandkasteel	Total
Legal	Create land use/ zoning flexibility				
	Change building code to allow flexibility and creativity in adaptive reuse				
	Create political support	3		1	4
	Take on an encouraging and facilitating attitude as a governmental body	2		2	4
	Draw up clear contract documents				
	Make adaptive reuse obligatory by law				
Economy	Reduce project timeline to reduce risks				
	Provide with (financial) incentives for adaptive reuse				
	Suppress maintenance costs				
	Invest municipal money in AR projects as a part of area development	1	1		2
	Reserve more money for unforeseen circumstances			2	2
	Leave some technical building research to be done during execution	1			1
Preparation	Seek early advise on building condition research				
	Involve the construction team early			2	2
	Involve the end user early	3			3
	Involve advisors experienced in adaptive reuse				
	Create awareness of the adaptive reuse opportunities				
	Seek for an innovative/creative designer	2			2
	Integrally analyse and design the building and its context			1	1
	Research the question / call for tender extensively	2			2
	Formulate a strong concept / vision with all stakeholders	3			3
Communication	Engage communities/local businesses in the process				
	Create a clear ambition document				
	Enhance communication between stakeholders				
	Involve someone with knowledge about adaptive reuse at the side of the client	1	1		2
	Remain the same design and construction team for multiple projects				
	Involve a neutral party safeguarding inclusion and communication				
	Involve end users in the analysis and research				
Building & Environment	Use adaptive reuse as a part of area development to revitalise neighbourhoods	3		2	5
	Take the interest of the wider community into account			2	2
	Minimise changes to the building				
	create "good fit" between the old and new building function			2	2
	Stay involved as a client by managing the building after completion		1	1	2
	Give the building back to the community	2	1	2	5
	Maintain intangible values of the existing building	1		1	2
	Analyse, work, design, and make choices at the project site	2			2
	Create structures / layers in the building which facilitate future alterations				

4.3.5 List of strategies from the interviews

Additionally tot the analysis of the interview results separately for the three selected projects, the interviews with the totality of twelve experts are analysed to identify strategies which has not been mentioned in literature yet. This analysis revealed a totality 63 quotations where additional strategies were mentioned. These strategies were categorised according to the same five groups used for the literature-derived strategies: legal, economy, preparation, communication, and building & environment. The strategies were subsequently clustered and condensed into a list of eighteen additional strategies, presented in Table 11. These strategies, together with the original strategies, will be ranked in the subsequent survey round in Chapter 5.2.

Table 11: Strategies derived from the interviews.

Legal	Economy	Preparation	Communication	Building & Environment
Take on an encouraging attitude as regulatory authority	Invest municipal money in adaptive reuse projects as part of area development	Integrally analyse and design the building and its contexts	Involve someone with knowledge about adaptive reuse at the side of the client	Stay involved as a client by managing the building after completion
Draw up clear contract document	Reserve more money for unforeseen circumstances	Research the question/ call for tender extensively	Remain the same design and construction team for multiple projects	Give the building back to the community
Make adaptive reuse obligatory by law	Leave some technical building research to be done during execution	Formulate a strong concept/ vision with all stakeholders	Involve a neutral party safeguarding inclusion and communication	Maintain intangible values of the existing building
			Involve end users in the analysis and research	Analyse, work, design, and make choices at the project site
				Create structures and layers in the building which facilitate future alterations

The additional strategies are explained and illustrated in this chapter using insights gained from the interviews. The experts are referred to using the labels (A1, A2, …) which are designated to them in Table 5.

Legal

Take on an encouraging attitude as regulatory authority

Support and enthusiasm from regulatory authorities regarding the concept are highly influential on the outcomes of adaptive reuse projects. Particularly during the initial phase, the AR process is complex, and decision-making takes considerable time (D10). Support for the vision of the AR project from regulatory authorities is crucial for success (A4), and municipalities should take a pioneering role in stimulating AR in general (B5). Support is required not only from the municipality but also from aesthetic and historic preservation committees (A2).

Draw up clear contract documents

It is essential to document agreements regarding liability in detail in adaptive reuse projects, due to the uncertainties associated with existing buildings. Contractors seek clear contract documents, well-defined agreements, and regular meetings, combined with effective collaboration (C7).

Make adaptive reuse obligatory by law

It is necessary to impose a legal obligation on parties to reuse buildings in order to increase the frequency of such projects. In this way, the existing building stock retains its value for the future. It has been observed that monumental buildings are preserved and adapted due to legal obligations (C7).

Economic

Invest municipal money in AR projects as a part of area development

Existing buildings carry emotional, cultural, and historical value, all of which facilitate area development. Combining AR and area development practices can enhance the success of both. For instance, the redevelopment of the LocHal was financed by the Municipality of Tilburg as part of the redevelopment of the Spoorzone. The municipality demonstrated high ambitions and ensured their realisation by providing funding (A3). In contrast, Het Zandkasteel was developed by a private entity, although government investment in the Bijlmer area helped make the region more attractive to developers (C6).

Reserve more money for unforeseen circumstances

Risks are inherently higher in AR projects compared to new builds. The AR process is far more unpredictable (D10), leading to increased unforeseen circumstances and consequently higher unforeseen costs. Thus, the ‘contingency fund’ must be larger in AR projects than in new construction (D10). In the case of Het Zandkasteel, the allocation of money in the budget to cover surprises during the process was cited as a major enabler of project success (C6).

Leave some technical building research to be done during execution

Leaving some aspects of the building investigation to the execution phase can shorten the preparation phase and therefore reduce complexity. In AR projects, it is impossible to achieve complete clarity in early stages of the process. By deferring specific research to the construction phase, significant time can be saved during preparation and design (A3). A shorter preparation period increases the likelihood of financiers maintaining their commitment to the project (D11).

Preparation

Integrally analyse and design the building and its context

It is needed to design the process thoroughly from the outset (D9). The design phase should include an in-depth analysis of the building, its (future) users, and its values, establishing a strong foundation for a coherent concept. Investing time early on to understand the building and its surroundings is crucial, given the complexity of AR projects, and helps prevent delays and unforeseen costs later in the process (D11). The comprehensiveness of the AR process and the design is a particular focus of NRP and the Gulden Feniks award (D12).

Research the question/call for tender extensively

In AR projects, emphasis should be placed on the design question rather than solely on physical design specifications. It is important to investigate the needs of all project stakeholders before initiating the design process (D9). Accordingly, the design team should engage with both the client and the (end) users to establish their wishes and needs (C8). The resulting design should serve as the bridge between the users and the initial question. In the LocHal project, the brief was extensively researched to inform the tender for the “Library of the Future”, which provided the basis for the building’s transformation (A1).

Formulate a strong concept / vision with all stakeholders

Developing a shared vision enhances stakeholder commitment and fosters trust between parties. A shared goal is a prerequisite for creating something exceptional (D10). Achieving such alignment requires collaboration among the entire team from the very beginning (C8). This cooperation promotes mutual understanding among stakeholders and strengthens trust and the willingness to support one another (C6).

Communication

Involve someone with knowledge about adaptive reuse at the side of the client

It is essential for the client to be aware of the specific challenges inherent to AR projects, enabling them to engage appropriate parties and make informed decisions. Client-side expertise brings awareness of the opportunities in AR (D9). When clients understand the associated opportunities and risks, they can formulate a clear vision together with the relevant stakeholders. The professionalism and engagement of the client are prerequisites for the architect’s ability to deliver a successful design (A2). Should the client lack in-house AR expertise, an external (project management) party must be engaged from the project’s outset to provide guidance and safeguard decision-making.

Remain the same design and construction team for multiple projects

Collaborating with the same team across multiple projects builds trust and ensures a smoother process. Familiarity among parties allows for better expectations management (D11). This continuity is particularly vital in AR projects, where numerous unforeseen challenges must be solved collaboratively (C6).

Involve a neutral party safeguarding inclusion and communication

A neutral (project management) party enhances communication and ensures that all relevant stakeholders remain involved. End-users, who often have limited experience with construction projects, may find it overwhelming to communicate and align with contractors, architects, and municipal officials. A neutral intermediary aids communication without appearing to advocate solely for the client’s interests, thereby supporting less experienced stakeholders (A4).

Involve end users in the analysis and research
Including end-users in the research phase generates support and provides them with the opportunity to contribute input, thereby reducing the risk of misalignment between project team vision and user expectations (D9). In the LocHal project, early involvement of end-users was perceived as highly beneficial to its success (A4). The various organisations that would eventually use the building were able to establish relationships prior to its completion. The opportunity for end-users to communicate their wishes and participate in decision-making fostered a connection to the building before its delivery (A4).

Building & Environment

Stay involved as a client by managing the building after completion
Continued client involvement in building management after project completion enables the sustained realisation and adaptation of the original project vision. Complexity during the AR process is reduced if the client retains a management role post-delivery (B5). Furthermore, ongoing client engagement supports future alterations in line with the original vision (D11). In the case of Het Zandkasteel, the presence of Wonam's office within the building greatly contributed to community involvement over time (C6).

Give the building back to the community
When a private building becomes obsolete and vacant, there is an opportunity to return it to the community through the introduction of a public function (D10). In such cases, the building serves as a tool for achieving broader social goals (B5). Furthermore, buildings with former public functions, such as churches, should ideally retain a public role to maintain their community value (A2).

Maintain intangible values of the existing building
Existing buildings embody history and intrinsic (cultural) values. They preserve the collective memory of a city, and the goal of AR should be to enrich existing values with new meaning (D12). The value of such buildings lies not only in their physical attributes but also in their intangible heritage (A2). Consequently, it is important to preserve the character and soul of the building (C8). Achieving this requires a detailed analysis of the existing building, 'peeling back' layers metaphorically to reveal and protect its characteristic elements (D10). These intangible values strengthen the bond between the building, the city, and its people.

Analise, work, design, and make choices at the project site
Sound decisions regarding the treatment of the existing building and alignment with the project vision must be made on-site. Only through direct engagement with the building can stakeholders make fully informed decisions (B5). During the execution phase, as the design crystallises, decisions should be made based on first-hand experience within the building (A3). On-site presence leads to better decision-making and limits unnecessary discussions.

Create structures and layers in the building which facilitate future alterations
Building adaptation is an ongoing process. Understanding the different layers within an existing structure (e.g., structure, skin, services, space plan) informs the possibilities for future interventions (A2). Redesigning according to these layers and maintaining their separation enables flexibility and ease of future adaptations (D12).

5. Delphi round 2

The second round of the Delphi study consists of a survey conducted with the same twelve experts who participated in the first round. At the start of round two, the experts are informed about the results from the initial round via email. They receive a document providing an explanation of all thirty-seven strategies. The email and explanation are included in Appendix 11 – Invitation Delphi round 2. Thereafter, the experts are invited to complete the survey to reassess the effectiveness of the strategies.

5.1 Survey

The core component of the survey is the ranking of the strategies. The experts are asked to formulate their top ten most effective strategies for adaptive reuse, selected from a total of thirty-seven strategies: nineteen derived from the literature and eighteen from the expert interviews conducted in round one. The assessment of the strategies in the first and second survey differs. In round one the effectiveness of the strategies was assessed based on the five aspects. For the survey in the second round these aspects are disregarded. The assessment of the effectiveness of the strategies in round two is solely based on the experts' definitions and interpretations. Subsequently, for each strategy included in the experts' top ten, they are asked to elaborate on the conditions necessary for making the chosen strategy applicable. Furthermore, for each of the ten selected strategies, the experts are requested to indicate the project phase(s) in which the strategy should be applied. These phases correspond to those discussed in Chapter 3.1.4.

In addition, the experts are given the opportunity to respond to the results of Round One and to provide general comments regarding the research. The design of the survey is included in Appendix 12 – Survey round 2.

5.2 Final ranking of the strategies

Formula

To rank the strategies from the second round, a calculation method is developed. Given that there were thirty-seven strategies from which to choose, the strategy ranked in first place is awarded thirty-seven points. This score decreased by one point for each subsequent ranking, resulting in the strategy ranked tenth receiving twenty-eight points. By dividing the total score by the maximum achievable score, a value between 0 and 1 is obtained.

The following formula is established to calculate the results for each strategy:

$$Result2 = \frac{37*R1+36*R2+35*R3+34*R4+33*R5+32*R6+31*R7+30*R8+29*R9+28*R10}{37*N}$$

- R1 = strategy at ranking 1; R2 = strategy at ranking 2; R3 = …
- N = total number of responses

Results

In the second round of the Delphi study, two experts withdrew from the research. Consequently, the results of round two are based on the survey responses of the ten remaining experts. The complete results and rankings derived from the second survey can be found in Table 12.

In the survey in round two the experts ranked their top ten strategies. Every time a certain rank in the top ten was allocated to a strategy by one of the experts, it was marked in Table 12. For example: the strategy 'Formulate a strong concept / vision with all stakeholders' was ranked first by one expert, third by another, fourth by three others, and so on. Indicating these rankings for every strategy and filling it in to the formula explained in the previous part of this chapter, results in a score for each strategy between 0 and 1. Sorting the strategies based on this score (Result2) from high to low results in the final ranking of the thirty-seven strategies.

In the final list of strategies to be compiled for the audience of this research, the fourteen strategies rated as most effective are included. The decision to include fourteen strategies is based on the occurrence rate: the first fourteen strategies were each included in the top ten rankings by at least three of the ten experts. The following section provides a detailed discussion of the experts' perspectives on the top fourteen strategies.

Table 12: Final ranking of the strategies.

#	Strategy	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Result2
1	Formulate a strong concept / vision with all stakeholders	1		1	3	1	1		1		1	0,80
2	Involve advisors experienced in adaptive reuse		4			1	1		1			0,65
3	Reserve more money for unforeseen circumstances			1	2	2	1	1				0,63
4	Involve the construction team early	2			1	1		1	1			0,55
5	Seek for an innovative/creative designer	1				1	1	1			2	0,51
6	Integrally analyse and design the building and its context	3	1		1							0,49
7	Create political support	1	1		1		1		1			0,46
8	Involve the end user early		1	1		1				1	1	0,44
9	Engage communities/local businesses in the process				1		1	1		1	1	0,42
10	Minimise changes to the building			2			1	1				0,36
11	Maintain intangible values of the existing building		1			1			1	1		0,35
12	Create structures/layers in the building which facilitate future alterations			1						2	1	0,33
13	Create awareness of the adaptive reuse opportunities							1	1	1	1	0,32
14	Stay involved as a client by managing the building after completion			1						1	1	0,25
15	Provide with (financial) incentives for adaptive reuse	1			1							0,19
16	Take on an encouraging and facilitating attitude as a governmental body		1	1								0,19
17	Create a clear ambition document			1		1						0,18
18	Analyse, work, design, and make choices at the project site		1				1					0,18
19	Involve a neutral party safeguarding inclusion and communication							2				0,17
20	Research the question / call for tender extensively					1					1	0,16
21	Use adaptive reuse as a part of area development to revitalise neighbourhoods							1		1		0,16
22	Draw up clear contract documents							1		1		0,16
23	Involve someone with knowledge about adaptive reuse at the side of the client								2			0,16
24	Suppress maintenance costs								1	1		0,16
25	Seek early advise on building condition research								1		1	0,16
26	Create land use/ zoning flexibility	1										0,10
27	Involve end users in the analysis and research			1								0,09
28	Take the interest of the wider community into account						1					0,09
29	Remain the same design and construction team for multiple projects						1					0,09
30	Enhance communication between stakeholders											-
31	Reduce project timeline to reduce risks											-
32	Change building code to allow flexibility and creativity in adaptive reuse											-
33	create a 'good fit' between the old and new building function											-
34	Make adaptive reuse obligatory by law											-
35	Invest municipal money in AR projects as a part of area development											-
36	Leave some technical building research to be done during execution											-
37	Give the building back to the community											-

#1 Formulate a strong concept / vision with all stakeholders
This strategy should be implemented by the client. Involving all stakeholders in the creation of the vision fosters authenticity and enthusiasm across all parties. Such involvement ensures continued commitment and generates widespread support, thereby increasing the feasibility of the project. A shared vision allows progress to be monitored against original objectives and creates the opportunity for collective adjustment where necessary. A key consideration is to involve all relevant stakeholders to be able to integrate the various interests within the overall vision. This strategy should be applied during the definition phase of the process.

#2 Involve advisors experienced in adaptive reuse
This strategy should be implemented by the client. Adaptive reuse projects demand specific expertise from advisors, who must possess a thorough understanding of the existing building. The knowledge and experience of advisors are critical drivers of project feasibility. A key consideration is to prioritise the substantive expertise of advisors rather than the external information they might acquire. Although this strategy should be considered throughout the project, it is particularly crucial during the definition and feasibility phases.

#3 Reserve more money for unforeseen circumstances
This strategy should be implemented by the project's investor. Several options exist for its application: a higher overall percentage of the total budget can be reserved to account for increased risk. However, some expert mention instead that additional funds should be allocated to specific parts of the project deemed to carry greater risk. A key consideration is the involvement of a financial expert to ensure accurate cost estimation. Furthermore, clear communication regarding the availability of contingency funds is vital in adaptive reuse projects. This strategy should be applied during the feasibility phase.

#4 Involve the construction team (bouwteam) early
This strategy should be implemented by the client, who is responsible for selecting the most appropriate contract form for the project. Nevertheless, the architect may assist the client based on their professional experience. Early involvement of the construction team leads to more accurate planning and budget estimations. Expertise brought into the project at an early stage reduces risks later and supports informed decision-making. In adaptive reuse projects specifically, early engagement with the contractor is essential to gain valuable insights into the existing building's potential. This strategy should be initiated during the definition phase and further implemented during the feasibility and design phases.

#5 Seek for an innovative/creative designer
This strategy should be implemented by the client and/or the investor. They bear the responsibility of selecting an architect who adopts a supportive role towards the overarching ambition and collaborates effectively with the construction team. The architect acts as a key stakeholder and carries the vision, while also playing a vital role in communicating ambitions and alternative solutions to the municipality and other stakeholders. Reference projects are the most important selection criteria. A key consideration is to select a heterogeneous architect team to incorporate diverse perspectives. In some cases, it is advisable to engage an architectural team comprising different areas of expertise, such as a restoration architect and one with experience in the future function of the building. This strategy should be applied during the definition phase, enabling the architect to present their vision for the building's future use in an early stage.

#6 Integrally analyse and design the building and its context
This strategy should be implemented by the client or project initiator. Awareness that adaptive reuse projects necessitate an integrated approach is a precondition for project success. The client must organise the team, engage a suitable architect, and consult the municipality regarding opportunities and risks. A key consideration is the involvement of all relevant stakeholders during the analysis phase and the conduct of comprehensive research into the building, its surroundings, and its (future) users. It is important to avoid tunnel vision by considering alternative approaches. This strategy should be applied during the initiation and definition phases.

#7 Create political support
This strategy should be implemented by both the client and the architect, with indispensable cooperation from the municipality or province. The client should initiate consultation with aldermen, or occasionally the mayor, at an early stage. Early engagement fosters trust and allows these parties to contribute ideas, which can be crucial for accelerating permit procedures and changes to zoning plans. Political support can also lead to financial assistance. Generating political support requires persuasive communication, aided by clear visualisations of the project's ambitions and concepts. This strategy should be applied during the initiation phase.

#8 Involve the end user early
This strategy should be implemented by the client, who is responsible for representing the interests of future end users from the start of the project. Early involvement of end users introduces diversity into the project team and enables the programme to be tested against user expectations. Their input can support the assessment of the redesign's social value. A key consideration is the necessity of granting a clear mandate to the end users and communicating expectations to them effectively. This strategy should be initiated during the initiation phase and continue into the design phase.

#9 Engage communities/local businesses in the process
This strategy should be implemented by the client. Local communities and businesses can offer insights that may not be apparent to the project team. While these stakeholders may possess substantial ideas for the building's future function, they often lack the financial means to realise their visions. Their involvement builds mutual trust and fosters support throughout the process. A key consideration is to maintain engagement through recurring events such as open viewing days and public participation sessions. This strategy should be implemented during the feasibility and design phases.

#10 Minimise changes to the building
This strategy should be primarily implemented by the architect, with essential cooperation from the advisors and the client. Minimising alterations helps to preserve the building's identity, fosters broader support, and simplifies complex permit processes. The extent to which changes should be limited depends on the specific building, making thorough analysis critical. This strategy should be applied during the feasibility and design phases.

#11 Maintain intangible values of the existing building
This strategy should be implemented by the client and the architect, although (local) government authorities can play a supporting role in guiding this, by creating support from the community. Comprehensive research into the building is essential to identify and define its intangible values. This strategy should be applied during the definition and design phases.

#12 Create structures/layers in the building which facilitate future alterations
This strategy should be implemented by the client and the architect. Anticipation on potential future changes in the building's function should be incorporated into the design tender. Future transformations can be facilitated by features such as sufficient daylight, generous spatial arrangements, the use of natural materials, and flexible structural systems. Although highly relevant for adaptive reuse projects, this strategy is equally important in new-build projects. It should be implemented during the definition phase (by the client) and the design phase (by the architect).

#13 Create awareness of the adaptive reuse opportunities
This strategy should be implemented primarily by the client. However, throughout the project, all involved parties should share their knowledge to foster broader support. Experience within the design and construction teams plays a vital role. Awareness can be raised through innovative thinking, the avoidance of the most straightforward solutions, and the creation of multifunctional programmes and spaces. This strategy should be applied during the initiation, definition, feasibility and design phase.

#14 Stay involved as a client by managing the building after completion
This strategy should be implemented by the client. Continued client involvement following project completion allows the original visions and ambitions to be further developed in use. The client's intimate understanding of their own design choices ensures that the intended user groups remain engaged. The decision to remain involved can be made during the definition phase, with the actual execution of this strategy occurring at the end of the execution phase of the project.

6. Findings

The execution of the empirical research according to the Delphi method results in a list of fourteen strategies described in the previous chapter, which are determined to be most effective in improving the adaptive reuse process. In this chapter the final results are analysed and compared with the results of the first round of Delphi. Doing this gives the opportunity to reflect on the assessment methods in the survey. Furthermore, the final results are compared to the list of strategies which were used during the processes of the regarded case projects. Evaluating this uncovers whether there is a relation between the findings in the different rounds. Lastly, the strategy ranking is analysed regarding the five themes, to see if there is any pattern to be found.

6.1 Round one and round two

The strategies in round one and round two of Delphi are assessed different. In round one the experts rated the effectiveness based on five themes. Subsequently the prioritisation list was compiled based on the average effectiveness of the five themes. In the second round of Delphi, the same experts compiled a list of the ten most effective strategies based on their evaluation and interpretation, disregarding the five themes.

The final list after round two consists of fourteen strategies. Out of these fourteen, eight strategies were derived from literature prior to round one (black), and six strategies emerged during the interviews in the first round of Delphi (orange). In Table 13 in column 'rate in round 1' the rank designated to the relevant strategies in round one can be found. The complete results of round one can be found in Table 6.

It stands out that strategy with final ranking 8 (involve the end user early), 10 (minimise changes to the building), and 13 (create awareness of the AR opportunities) were in the lower half of the ranking in round one. The strategy 'Minimise changes to the building' was even rated as one of the least effective strategies in round one. Nevertheless, these three strategies are ranked in the top fourteen out of the total of thirty-seven in the second round. These three strategies where respectively categorised in theme preparation (8) and building & environment (10,13).

Additionally, for four strategies outside the top fourteen there is a significant difference of ranking between round one and two as well. These four strategies, showed in Table 14 had a high rating in round one, but a lower rating in round two. These four strategies where categorised in theme legal (15,27), preparation (17), and building & environment (21).

Table 13: Analysis of the final ranking of the strategies.

Fourteen most effective strategies		Rate in round 1	Mentioned in project	Theme
#1	Formulate a strong concept / vision with all stakeholders	-	Yes	Preparation
#2	Involve advisors experienced in adaptive reuse	1	-	Preparation
#3	Reserve more money for unforeseen circumstances	-	Yes	Economy
#4	Involve the construction team early	3	Yes	Preparation
#5	Seek for an innovative/creative designer	8	Yes	Preparation
#6	Integrally analyse and design the building and its context	-	Yes	Preparation
#7	Create political support	5	Yes	Legal
#8	Involve the end user early	12	Yes	Preparation
#9	Engage communities/local businesses in the process	7	-	Communicati on
#10	Minimise changes to the building	18		Building & Environment
#11	Maintain intangible values of the existing building	-	Yes	Building & Environment
#12	Create structures/layers in the building which facilitate future alterations	-	-	Building & Environment
#13	Create awareness of the adaptive reuse opportunities	14	-	Preparation
#14	Stay involved as a client by managing the building after completion	-	Yes	Building & Environment

Table 14: Peculiarities in the final strategy list.

Strategies and ranking in the final list		Rate in round 1	Mentioned in project	Theme
#15	Provide with (financial) incentives for adaptive reuse	2	-	Legal
#17	Create a clear ambition document	6	-	Legal
#21	Use adaptive reuse as a part of area development to revitalise neighbourhoods	4	Yes	Preparation
#27	Create land use/ zoning flexibility	9	-	Building & Environment

The differences in the ranking in the distinct rounds can be a result of the fact that the experts' perspectives changed after the interviews and the revision of the results of round one. However, the inconsistent ranking can be explained by the different assessment methods as well. In the first round the effectiveness of the strategies is measured by the means of the five aspects: economic value, social value, innovation, architectural value and overall project success. In the second round the assessment criteria were open and were dependent on the experts' interpretation and definition of effectiveness and project success. If this matter is true, the five aspects on which the strategies are assessed in round one are not representative for the experts' perception and definition of effectiveness on project success in adaptive reuse.

6.2 Projects and survey

The semi-structured interviews in the first round of Delphi both provided with strategies additional to the ones identified from literature and gave insight into the strategies which were perceived as improving to the AR process and the result.

In total, nineteen out of the thirty-seven strategies were mentioned by at least one of the experts as improving the outcome of one of the regarded projects. These results can be found in Table 10. In Table 13 the strategies from the top fourteen which were mentioned to be contributively to the outcome of one of the selected AR projects, are marked in the column 'mentioned in project'. In total, nine out of fourteen were recognised by at least one of the experts as improving the outcome of their selected AR project.

From the results in Table 13 it can be concluded that there are quite some similarities in strategies being implemented and beneficial in the selected projects, and the perceived effectiveness of the strategies to improve the AR process in the final ranking. However, there are still strategies that are perceived beneficial by many stakeholders, which are ranked low in the final strategy list. The fact that there are similarities was to be expected, because the strategy effectiveness as perceived by the participating experts is (partly) based on the experiences they had with the three selected projects.

6.3 Themes

The thirty-seven strategies all are allocated to one of the five themes: legal, economy, preparation, communication, and building & environment. To each theme, six to nine strategies are allocated. In Table 10 the distribution of the totality of the strategies over the themes can be found. The themes of each strategy in the top fourteen are displayed in column 'theme' in Table 13. It stands out that seven out of the strategies in the top fourteen are categorised in theme preparation. When looking at the fourteen lowest rated strategies in the final round in Table 12, a strategy from theme 'preparation' is occurring only once. Furthermore, a strategy from theme 'economy' occurs once in the top fourteen, and four times in the bottom fourteen. For the other three themes, the differences are minor. An overview of the occurrence of the strategies in the top and bottom fourteen of the final ranking is shown in Table 15. This observation implies that the experts see strategies related to preparation as effective, and strategies related to economy as less effective on the improvement of the AR process.

Table 15: Occurrence of the themes in the top and bottom fourteen strategies in the final list.

Theme	Top 14	Bottom 14
Legal	1	3
Economy	1	4
Preparation	7	1
Communication	1	3
Building & Environment	4	3

From these results it can be concluded that the theme 'preparation' is dominant when it comes to the effectiveness of the strategies. Therefore, the focus should lie on the preparation phases when the strategies from the final list of this research are applied in practice.

SYNTHESIS.

7. Proposal

The objective of this research was to develop a prioritised list of strategies to support stakeholders involved in adaptive reuse (AR) processes, enabling them to have a clear overview of the most important strategies to enhance the outcomes of their projects. This chapter presents the final deliverable developed to achieve this aim. The deliverable comprises two core components. The first is a curated list of fourteen strategies identified as most effective in improving adaptive reuse project outcomes. The second is a visual representation outlining when, and by whom, these strategies should be implemented throughout the adaptive reuse process.

7.1 Compiling the list

To reach the aim of this research and to contribute to the improvement of the adaptive reuse process, strategies are measured against effectiveness. In the conceptual framework (Figure 23) it was shown that this aim was to be fulfilled by exploring the process of adaptation of vacant/obsolete buildings towards an adapted buildings and strategies that can be applied in this process in the context of a mixed-use area in The Netherlands. Answering the sub-questions of this research enabled to compile a list of strategies. The literature in chapter three provided with theory to answer sub question one, two, and three. This created a basis for the empirical part described in chapter four, five and six. The final ranking of the strategies and the insights regarding the adaptive reuse process and its stakeholders enable to illustrate the list and make it applicable.

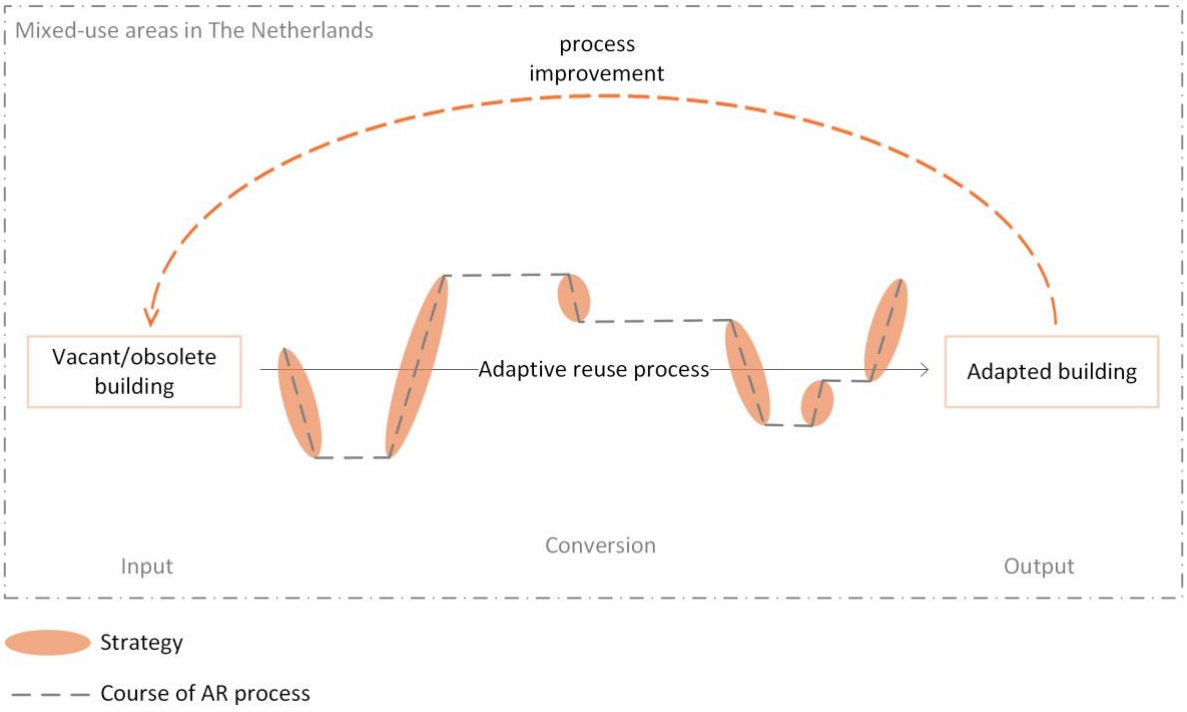

Figure 23: Conceptual framework (own work).

The strategy list is compiled through three selection rounds, visualised in Figure 24. The first round involved categorising strategies derived from the literature. The second round prioritised these strategies based on effectiveness via a survey with twelve experts and enriches the list with insights from practice through expert interviews. The third and final round assessed all strategies with the experts, ranking them accordingly. The outcome was a consolidated list of fourteen strategies considered to enhance the adaptive reuse process.

In addition to the strategy list, guidance is offered on the timing of each strategy's application and identifies the key stakeholders to be involved. This aspect was informed by both literature and expert consultation conducted during the second round of Delphi.

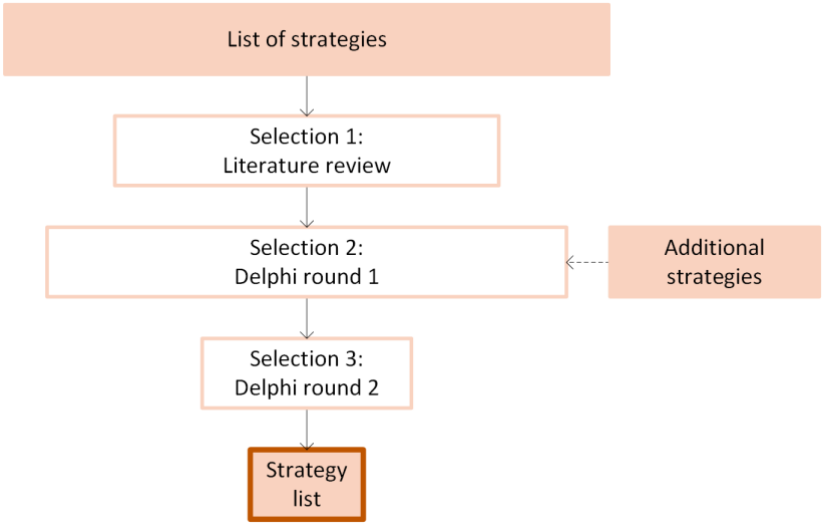

Figure 24: Selection rounds to compile the strategy list (own work).

7.2 Focus points

All information that was proposed to be necessary to achieve the aim of this research is collected and regarded. Nevertheless, the process of adaptive reuse knows many insecurities and risks and is highly complex. The research shows a list of strategies which is determined to be effective in terms of improvement of the adaptive reuse process in general. However, each process and each building are unique. The list is illustrated in a visualisation, being an instrument that aids the audience to improve the process outcome. However, for the application of the strategy list, there are several focus points one should keep in mind:

- The strategies in the list, its context, and visualisation are designed to support the client in the adaptive reuse process but do not constitute a comprehensive roadmap;
- The indicated starting point for each strategy represents the initiation of its application, which must be revisited and adapted continuously for maximum effectiveness;
- The timing of strategy implementation may vary depending on the specific context and characteristics of individual projects;
- The level of influence in each project phase reflects the impact of the listed strategies, not the absolute influence a stakeholder may exert;
- The list and is visualisation provide guidance to the client in identifying which stakeholders to engage and when.

7.3 Audience

The strategy list is compiled to give guidance to stakeholders engaged in the adaptive reuse process. These stakeholders are broadly categorised into four groups: investors, producers, users, and regulators. Investors and producers constitute internal stakeholders, while users and regulators are considered external stakeholders. The research results indicate that the client is the principal initiator of the fourteen most effective strategies. According to the literature, the client is part of the 'investors' stakeholder group. However, for two out of the three selected projects in this research, the municipality was the client. In the literature the municipality is designated to the stakeholder group 'regulators.

The fact that the client can be part of multiple stakeholder groups and the broad categorisation of stakeholders, makes it complicated to define which group should be the audience of this research. However, it is made clear that the client is the most important stakeholder to initiate the strategies. Even though multiple stakeholders are necessary for implementing the strategies, it is the client that bears primary responsibility for initiating them. Consequently, the primary audience for the deliverable is defined to be the client.

The purpose of the strategy list for the client is as follows:

- To assist in identifying the most critical strategies, understood as actionable decisions, within the adaptive reuse process;
- To provide a structured overview of the appropriate timing and method of implementing each strategy;
- To enable to use the list as a checklist for including the strategies in agreements/ contracts with multiple stakeholders;
- To enable to share the list with other stakeholders involved in the project by including the list in the contracts that are signed with other stakeholders.

7.4 The strategy list

The final list of fourteen strategies is shown in the visualisation of the strategy list in Figure 26. It visualises the effective strategies in relation to the process phases and the stakeholder groups. In the following paragraph, the components of the list and visualisation are described and explained. The components of the list (strategies, who, when, and how) are explained in the following part of this chapter. The operational visualisation of the strategy list can be found in Appendix 13 – The strateg list.

Strategies

From the start of adaptive reuse projects, the process is a sequence of actionable choices. These actionable choices, denoted as strategies, influence the outcome of the project. Through this research the fourteen strategies on the following page are prioritised on the effectiveness they have on the improvement of the process. The effectiveness in general adaptive reuse projects can be measured against five aspects: economic value, social value, innovation, architectural value, and overall project success. These aspects are the foundation for the ranking of the strategies in the first round. In the second round the assessment and the ranking is based on the perception of effectiveness of the experts, disregarding the five aspects.

Strategies in adaptive reuse can be subcategorised in five themes: legal, economic, preparation, communication, and building & environment. For adaptive reuse the strategies from theme 'preparation' are perceived as most effective in improving the process. Therefore, strategy application during the initial stages is emphasised as most influential on the improvement of the process.

Who?

The main stakeholders of adaptive reuse projects are categorizable in four groups: investors, producers, users, and regulators. The investor group among others exists of the client, investors, and building owner. The producer group exists of architects, engineers, (project) managers, and contractors. This group regularly aids the client in applying strategies from the list. The users (residents, end users) and regulators (government, NGOs) are needed to be able to execute specific strategies. For each strategy it is indicated which stakeholder is initiating it, according to the experts' assessments. The initiator is a specific stakeholder, rather than one of the stakeholder groups. Subsequently, stakeholder groups needed for the implementation of the strategy are identified and indicated in the visualisation of the strategy list.

When?

The adaptive reuse process consists of seven main phases. In Figure 25, the phases are shown and described according to the literature review by the means of indicated actions. These phases and actions are utilised to link the strategies to a moment in the process timeline to make it operatable.

How?

To make the strategies actionable and operational, the audience needs to be informed about how it can be implemented into the process. For this component the points of attention for each strategy are briefly explained.

Figure 25: The adaptive reuse process based on the literature (own work).

In the following part, the strategy in the final top fourteen, and who when and how it is implemented is described for each of the fourteen strategies.

1	Strategy	*Formulate a strong concept / vision with all stakeholders*
	Who?	*Client*
	When?	*Definition*
	How?	*Repeatedly meet with all stakeholders and discuss the vision to create support and trust.*
2	Strategy	*Involve advisors experienced in adaptive reuse*
	Who?	*Client*
	When?	*Definition, feasibility*
	How?	*Select advisors based on their in-house expertise.*
3	Strategy	*Reserve more money for unforeseen circumstances*
	Who?	*Investor*
	When?	*Feasibility*
	How?	*Involve a financial expert to ensure accurate cost estimations and allocate money to the specific part of the projects which are expected to carry greater risks.*
4	Strategy	*Involve the construction team (bouwteam) early*
	Who?	*Client*
	When?	*Definition, feasibility, design*
	How?	*Choose a contract form that comes with early involvement of all stakeholders, including the contractor.*
5	Strategy	*Seek for an innovative/creative designer*
	Who?	*Client/Investor*
	When?	*Definition*
	How?	*Select the architect based on reference projects and consider involving an architectural team of different architects with various expertise.*
6	Strategy	*Integrally analyse and design the building and its context*
	Who?	*Client/Initiator*
	When?	*Initiation, definition*
	How?	*Make sure all stakeholders (both internal and external) are involved to and consider their input to avoid getting a tunnel vision.*
7	Strategy	*Create political support*
	Who?	*Client/Architect*
	When?	*Initiation*
	How?	*Initiate consultation with alderman to create trust and allow regulatory parties to contribute ideas.*

8 Strategy
Who?
When?
How?

Involve the end user early
Client
Initiation, design
Involve a mandate of the end users, test ideas against their expectations and keep communicating expectations you have from them.

9 Strategy
Who?
When?
How?

Engage communities/local businesses in the process
Client
Feasibility, design
Seek for insights from the community/local businesses which are not apparent within the project team and keep involving these parties to create trust end support.

10 Strategy
Who?
When?
How?

Minimise changes to the building
Architect
Feasibility, design
Analyse the building to determine which aspects must be maintained to preserve the buildings' identity and to simplify permit processes.

11 Strategy
Who?
When?
How?

Maintain intangible values of the existing building
Client/Architect
Definition, design
Research the physical building, its cultural background and its history to define the intangible values and to be able to preserve them.

12 Strategy
Who?
When?
How?

Create structures/layers in the building facilitating future alterations
Client/Architect
Definition, design
Incorporate the anticipation on potential future changes in the design tender and focus on features (daylight, spatial arrangement, flexible systems) in the design that facilitate that.

13 Strategy
Who?
When?
How?

Create awareness of the adaptive reuse opportunities
Client
Initiation, definition, feasibility, design
Compile a team with sufficient experience to encourage awareness by innovative thinking, to create multifunctional programmes, and to avoid the most straight forward solutions.

14 Strategy
Who?
When?
How?

Stay involved as a client by managing the building after completion
Client
Definition, execution
Further develop the original visions and ambitions and ensure that the intended user groups remain engaged after completion.

7.5 Illustration of the list

To facilitate the implication of the fourteen prioritised strategies and to provide with a clear overview for the client being the audience, the strategy list is illustrated by the means of the AR process and the stakeholders. In the visualisation shown in Figure 26 the whole process of adaptive reuse is visualised. The strategy list and the visualisation as it can be used by the client can be found in Appendix 13 – The strateg list.

The X-axis of the visualisation represents the timeline of the adaptive reuse process, while the Y-axis reflects the relative importance of each process phase, as inferred from the strategy rankings. Strategy initiation is indicated along the upper portion of the timeline, while the lower section illustrates the reapplication or sustained relevance of each strategy across phases. Stakeholder involvement for each strategy is also marked.

In the following part, each phase is elaborated upon, with reference to the relevant strategies.

1. **Initiative**

During the initial phase, the project initiator assembles a small core team to explore and assess the potential for adapting a building. Key activities include thorough analysis of the building and its context, engaging end users, and raising awareness of adaptive reuse opportunities. It is also vital to establish political support early by getting in contact with local government officials.

2. **Definition**

This phase is pivotal to the success of the process, with numerous strategies initiated here. Advisors with specific expertise in adaptive reuse should be engaged. An innovative and creative design team should be selected, and the construction team, including the contractor, should be involved from the outset. A shared vision must be developed collaboratively to build trust and consensus.

Investors and producers should prioritise the preservation of the building's intangible values, explore future flexibility through adaptable design, and continue fostering awareness of reuse potential. At this stage, investors should also determine long-term management responsibilities and consider remaining engaged post-completion.

3. **Feasibility**

Feasibility encompasses financial, social, legal, and operational dimensions. Financial resilience can be enhanced by allocating contingency budgets, particularly where risks are higher. Social feasibility is supported through engagement with local communities and businesses. Minimising alterations to the existing structure simplifies regulatory approval, thereby improving legal feasibility. Early contractor involvement strengthens operational feasibility.

4. **Design**

Although no new strategies are initiated in this phase, it is critical due to the continued application of earlier strategies. Active participation of all stakeholders, being users, advisors, contractors, and local actors, remains essential. Design priorities include maintaining intangible values, preserving existing building elements, and planning for future adaptability.

5. **Negotiation & Execution**

These phases have comparatively less influence on process improvement, as key strategic decisions occur earlier. However, one strategy remains particularly relevant: clients should continue their involvement by overseeing building management post-completion to realise long-term ambitions.

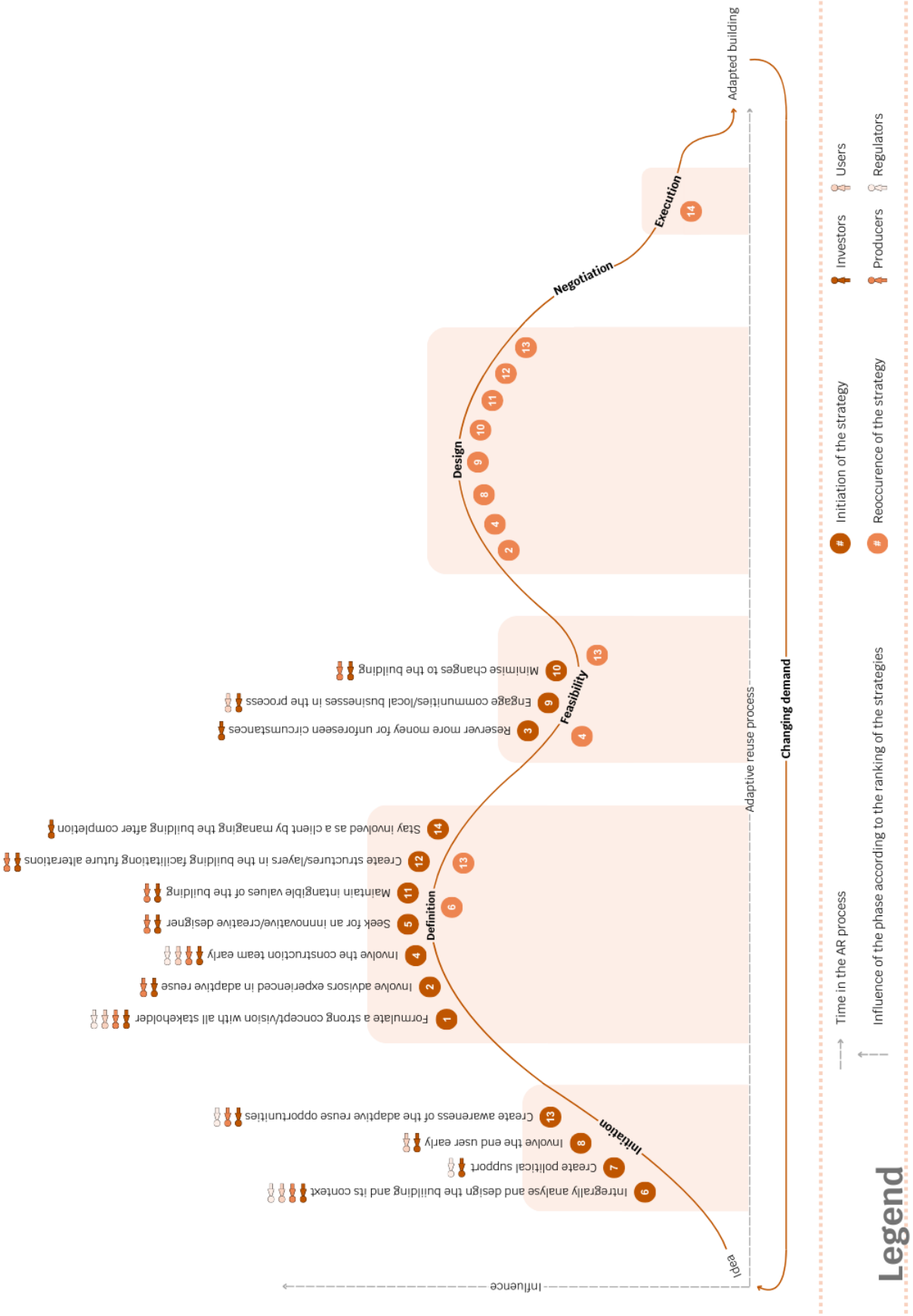

Figure 26: Visualisation of the strategy list (own work).

Discussion, Conclusion & Reflection.

8. Discussion & Limitations

8.1 Discussion

8.1.1 Problem statement versus research findings

This research was initiated in response to the pressing need for the reuse of the existing building stock, as part of broader goals to achieve circularity in our built environment. Despite widespread awareness of the urgency of adaptive reuse, the actual implementation of AR projects in the Netherlands has not increased in line with expectations. It has been suggested that improvements to the adaptive reuse process are necessary to promote its broader adoption.

Previous studies have predominantly focused on design strategies in AR. This study identified a gap in the literature concerning strategies that support actionable decision-making throughout the reuse process. In response, this research proposes a set of strategies that can effectively enhance outcomes in adaptive reuse projects by focussing on the process.

The key findings include: (1) a ranked list of fourteen strategies perceived to be the most effective; (2) insight into the application of these strategies in practice; and (3) the development of a visualisation of the strategy list. The identification and sequencing of these strategies according to their timing within the project process contributes to the knowledge on actionable interventions in adaptive reuse. Nonetheless, this rests on the assumption that offering actionable choices inherently leads to process improvement. The notion of “improvement”, however, may differ significantly among stakeholders, making this assumption context dependent.

8.1.2 Definition of a strategy

In this study, a strategy is defined as an actionable choice that links a project’s purpose to concrete actions. It became evident that academic literature lacks a unified definition of what constitutes a strategy, complicating the comparison across studies. Definitions vary widely, which complicates alignment between the strategies identified here and those in prior work. To mitigate this, the study reviewed not only literature on AR strategies but also on related concepts such as success factors, enablers, and barriers, in order to establish a comprehensive and inclusive strategy list.

8.1.3 Assessment methods

The criteria for assessing the effectiveness of AR strategies in this study were initially drawn from heritage reuse literature. Four aspects were used: economic value, social value, innovation, and architectural value. A fifth dimension, overall project success, was added to better reflect practical considerations. The aspect ‘overall project success’ had no specific definition. This aspect was added to enable the experts to include their own interpretation of the success of an AR project, additional to the bordered definition of the first four aspects.

These criteria were employed in the first round of a Delphi study, where experts assessed each strategy against the five dimensions. In the second round, experts ranked the strategies in terms of their overall effectiveness without explicit reference to the five dimensions. The same group of experts participated in both rounds.

Two key observations emerged: (1) In the first round, the average score for overall project success consistently exceeded the combined score of the four individual dimensions across all strategies,

and (2) significant changes occurred in the strategy rankings between the first and second rounds.

The first finding suggests that additional, unaccounted-for factors may influence perceptions of effectiveness, prompting the question: what defines the overall success of an AR strategy? The second raises concerns about whether the first-round criteria are truly suitable for evaluating effectiveness. The perception of effectiveness in adaptive reuse of the experts seems to differ from the definition found in the literature. Therefore, it should be explored how the experts, and stakeholders in adaptive reuse in general, would define project success and effectiveness on improving the process' outcome.

Discrepancies in rankings between rounds may also stem from partial overlap between strategies. For instance, the strategy "create a clear ambition document" (from literature) closely resembles "formulate a strong concept/vision together with all stakeholders" (from interviews). Even though the first strategy was ranked high (rank 6) in the first round, it seems like it was replaced by the second strategy in the final list.

8.1.4 Measuring effectiveness

The results of this research display the perceived effectiveness of strategy application in the adaptive reuse process, because the experts assessed the strategies based on the experiences they have in adaptive reuse.

In this research, all strategies are categorised in one of the five themes: legal, economy, preparation, communication, and building & environment. In Table 16 the share for each of the five strategy themes is indicated for each list of strategies.

The first column of the table displays the five strategy themes. The remaining four columns show the distribution of the strategies over the five themes in the designated lists. Here the total list of thirty-seven strategies, the top ten of round one, the nineteen strategies mentioned to be applied in the selected projects, and the final top fourteen most effective strategies after round two are regarded. From the total list of strategies, 16% is in theme legal, 16% in economy, 24% in preparation, 20% in communication and 24% in building & environment. The distribution of the strategies over the themes of the remaining lists is displayed in the same way.

Table 16: Share of the number of strategies for each theme.

Theme	Total list (37)	Round1 (10)	Projects (19)	Final list (14)
Legal	**16%**	20%	12%	7%
Economy	**16%**	10%	17%	7%
Preparation	**24%**	40%	33%	50%
Communication	**20%**	20%	6%	7%
Building & Environment	**24%**	10%	37%	29%

In Table 16 the distribution of the strategies in the different lists can be compared. The results show that the share of the theme 'preparation' is high in each list identifying high effectiveness, compared to the total list of strategies. This confirms the importance of the preparation phases in adaptive reuse. By contrast, the shares of the theme 'communication' in the projects and final list

is low compared to the share in the total list. This is not in line with the expectations based on the interviews where the experts emphasised the importance of good communication in complex adaptive reuse processes. Lastly, the shares of the theme 'building & environment' is somewhat high for the projects and final list compared to the total list. This might be caused by the imbalance of stakeholders among the participating experts and overrepresentation of architects, which will be further elaborated on in Chapter 8.1.5.

The different assessment methods, discussed in the previous chapter, can be contributional to the varying distribution of the strategies over the themes in the distinct lists as well. Assuming this is true, there must be a difference between the definition of effectiveness regarding the improvement of the adaptive reuse process in this research, and the definition of the experts of project success when it is left to their own interpretation. Exploring the definition of project success of the experts might provide with insights into this topic.

8.1.5 Stakeholder representation

Twelve experts contributed to this research, eight of whom participated in case study interviews. Their distribution across the case projects was as follows:

- For 'De LocHal' four experts where interviewed, being the architect, the restauration architect, the contractor, and the end user (from the library);
- For 'Bruis' one expert was interviewed, being the municipality as the client of the project;
- For 'Het Zandkasteel' three experts were interviewed, being the investor/client, the architect and the contractor.

The representation of stakeholders is different for every case project. Given the fact that the information about strategy application during the three projects is solely retrieved from the interview results, comparison of the applied strategies in each of the case projects might be inadequate. For the selection of the case projects, it was preferred that one project would be a non-monumental building, and that for each project at least two stakeholders were interviewed. Eventually, from the non-monumental project (Bruis) only one stakeholder was willing to participate. Therefore, the inclusion of information about non-monumental adaptive reuse projects is lower than aimed for, making it debatable if indeed the research outcome is regarding adaptive reuse in general rather than adaptive reuse of heritage. However, independent from the cases there are four experts included who are both involved in adaptive reuse of monumental and non-monumental buildings. These additional experts increase the comprehensiveness of the group of participants.

Furthermore, out of the total of twelve, five experts have an architectural background. In the second round, due to withdrawn of two experts, there were four architects and six other stakeholders who rated the strategies on effectiveness. Therefore, the perspective of the architect might have had a large effect on the results of this research. In the overview of the applied strategies in the selected project, it is observed that seven out of nine strategies in the theme 'Building & Environment' are mentioned by the stakeholders. Compared to the other four themes, this is a large share. The fact that the representation of architects is high together with the fact that architects are particularly interested and involved with the physical building, raises questions about these results. It implies that even though the focus of this research lies on the process rather that the design aspects, the focus still shifted towards the building. This effect could be limited by specifically including stakeholders who prioritise the process.

Comparing the results of solely the architects on one hand and solely the other seven experts on the other hand to some extend provides with insights into the actual effects of this occurrence.

The results of solely the architects show that they would suggest including two other strategies in the top fourteen:

- Provide with (financial) incentives for adaptive reuse.
- Involve someone with knowledge about adaptive reuse at the side of the client.

The results of the remaining six other stakeholders suggest one additional strategy in the top fourteen:

- Involve a neutral party safeguarding inclusion and communication.

Although these differences seem to be relatively minor, the limited representation of certain stakeholder groups may have influenced the overall outcome. These observations confirm that the architects are more pragmatic, focussing on incentives and knowledge about AR practice. On the other side, the other six stakeholders prioritise soft skills like communication, to focus on the social side of adaptive reuse.

8.1.6 Audience

The intended audience for this research is the client, who is typically responsible for initiating and implementing the strategies in the adaptive reuse project. Accordingly, the client holds significant influence over the project direction. However, the strategy 'Involve someone with knowledge about adaptive reuse at the side of the client' is ranked rather low at place 23 in the final strategy list. This seems contradictive to each other. The list of solely the architect, described in the previous part, on the other hand shows that they would indeed include the strategy in their top fourteen. The contradiction can be explained by the assembly of the expert group and the prioritisation of the participating experts. However, it can also be the case that it was difficult for the experts to translate their experiences in adaptive reuse to the questions as these have been formulated in the surveys of this research.

8.1.7 Stakeholder groups

Stakeholders of the adaptive reuse process in this research are defined to be categorizable in four groups according to the literature: investors, producers, users, and regulators. As indicated in the proposal in Chapter 7.3, in the case where the client is the municipality, they can be grouped as both an investor and a regulator. From the ambiguousness of the stakeholder groups the question arises whether these groups are adequately representing the relevant stakeholders and if the categories are the most suitable to aid the audience of the research in the implementation of the strategies. In this research, and the final deliverable, it is chosen to maintain the stakeholder groups as these are derived from literature. However, being more specific about the actual stakeholder instead of stakeholder groups and listing the strategies for each specific stakeholder may enhance the applicability of the research results.

8.1.8 Field of application

This study focussed specifically on improving the adaptive reuse process of across use transformations in mixed use areas in The Netherlands. Now the results are compiled, the question arises if the strategies indeed are specific for across use transformation, or if they can also be applied in within use transformation or new built projects, and if the list is applicable in another geographical context.

The results indicate that all fourteen strategies are also applicable to within-use transformations, though their sequencing may vary due to differing regulatory and user dynamics. However, assuming that within use transformation is less complex than across user transformation, some strategies might be unnecessary. Additionally, while mixed-use areas have proven particularly fruitful for adaptive reuse, the strategies may be transferable to other urban contexts. To figure out if this is indeed true, it must be figured whether the effectiveness is high in these differnt urban contexts as well.

The strategy list seems less useful for new-built projects, because a part of the strategies focusses on preservation. However, strategies regarding future alterations might be very useful for new build as well, because it improves the possibilities in future transformation. Once again, the effectiveness of the strategies in new-build practices must be assessed.

8.2 Limitations

This research provides with additional knowledge about the adaptive reuse process, which has the potential to improve it. However, the research has limitations, due to choices made and the time that was available to conduct this research.

8.2.1 Method

The Delphi method, which is used to validate and refine the identified strategies, has inherent limitations. A small sample size of experts reduces the breadth of perspectives represented in the findings, and the results are highly dependent on the selection of participants. While efforts were made to include a diverse and knowledgeable panel, there remains the possibility that certain relevant viewpoints were not captured. Hence, the perspective of the architect in this research had a higher representation than other stakeholder groups. Furthermore, the iterative nature of the Delphi process, combined with potential participant fatigue, may have influenced the consistency and depth of responses across rounds. Even though the effort was made to reduce the length of the second survey, it is still possible that certain experts did not think their assessment through. The participant fatigue might as well be the reason that two experts withdrew in the second round of Delphi.

Another key limitation lies in the inclusion of strategies deduced from the semi-structured interviews conducted during the first round of the Delphi method. By only incorporating these strategies into the second round, the validity of the empirical research may be compromised. Additionally, there is a risk of bias in the interpretation of qualitative data derived from the semi-structured interviews. Despite efforts to systematically analyse the data, the researcher's perspectives and assumptions may have influenced the conclusions.

8.2.2 Expert influence on findings

The selection of experts had a significant influence on the findings. Although care was taken to ensure diversity and expertise, practical constraints (time and availability) limited participation. Not all experts responded to the second Delphi round, and some stakeholder groups, particularly in the Bruis case, were underrepresented.

Since data on strategy implementation were obtained solely through interviews, comparisons between case projects may reflect inconsistencies not inherent in the projects themselves, but in data collection.

8.2.3 Snowball effect

The theoretical knowledge acquired for this research is primarily based on scientific literature. The literature is found through specific query terms. Subsequently, literature mentioned in these research papers are analysed and used as well. The practice of finding literature through other literature comes with the risk that there is a bias in the results of the review.

Furthermore, in the empirical part of this research, eight out of the twelve experts were involved in projects executed in collaboration with Stevens Van Dijck, the graduation company. This introduces the potential for bias. However, the impact of this limitation is likely limited, as the case studies primarily served to contextualise rather than determine the final results.

8.2.4 Context

The strategy list developed here is tailored for adaptive reuse in mixed-use areas in the Netherlands. While it draws upon expert opinion within this context, its effectiveness may vary in other cultural or regulatory environments. It should be denoted that strategies indicated as effective for the improvement of the adaptive reuse process in the given context, might not have the same effect in a different geographical context.

8.2.5 Application of the list

This research primarily focusses on the identification of strategies in adaptive reuse. Additionally, the application of the top fourteen strategies is described based on the ideas and perspectives of the experts. In the results, important focus points of the strategies are briefly described. The research combines theory and practical implications and therefore contributes to improvements in the field of adaptive reuse. The development of the list is the first step towards this improvement.

The success of the strategy list ultimately depends on uptake by practitioners. Its utility will be shaped not only by its content but also by the willingness of users to apply it in real-world projects. The core assumption underpinning this work is that clearly defined, well-ranked strategies can support process improvement in adaptive reuse. Whether this assumption holds true in practice depends not just on the strategies themselves, but also on the human behaviours and decisions that shape every project.

9. Conclusion

The aim of this research was to develop a list of strategies to support the improvement of adaptive reuse processes, specifically within the context of mixed-use areas in the Netherlands. To achieve this, (1) applicable strategies were identified and clarified, (2) their effectiveness was evaluated, and (3) guidance was provided on the implementation and timing in the process of each strategy, including the stakeholders involved.

This chapter addresses the research sub-questions and demonstrates how the central aim of the study has been met. It concludes with recommendations for both professional practice and future research.

9.1 Research questions

The first four sub-questions were primarily addressed through a review of existing literature, while the fourth was also complemented by empirical insights. The fifth sub-question was answered through the empirical part of the study. Collectively, these sub-questions form the basis for the development of the strategic list and its visualisation proposed as a result of this research.

***SQ1. Adaptive reuse process** – What is the adaptive reuse process?*
This question explores the stages of the adaptive reuse process and identifies areas for potential improvement. It also categorises the key stakeholder groups.

The concept of adaptive reuse stems from the broader notion of adaptation, derived from the Latin *ad aptare*, meaning "to fit" (Douglas, 2006). A building's adaptability is determined by its convertibility, dismantlability, disaggregatability, expandability, and flexibility (Douglas, 2006). Adaptive reuse can be categorised into *within-use* adaptation, where the building function remains unchanged, and *across-use* adaptation, which involves a functional transformation and is typically more complex (Baccarini, 1996; BOEi, 2009; Kurul, 2003; Wilkinson et al., 2014).

The process begins with the initiative phase, followed by the definition of the project and feasibility analysis. After the feasibility phase, the design phase is started, followed by negotiation, eventually leading to project execution and delivery. The initial stages, initiative and definition, are particularly complex in adaptive reuse compared to new construction, due to the necessity for extensive research on the exiting building and stakeholder engagement (Douglas, 2006; Pallada, 2017).

Stakeholders are categorised into four groups: investors (financial contributors), producers (managers and executors), users (residents or other end-users), and regulators (oversight and compliance bodies). Understanding the interaction between these groups is essential for optimising the adaptive reuse process.

***SQ2. Mixed-use areas** – What are benefits of the adaptive reuse process in mixed use areas?*
This question investigates the advantages of adaptive reuse specifically within mixed-use urban contexts.

Adaptive reuse in mixed-use environments presents several advantages, such as higher transformation potential and reduced vacancy rates when compared to monofunctional areas

(Remøy, 2010). These areas promote walkability, foster social cohesion, and support urban regeneration (Leyden, 2003). Their multifunctional nature enhances accessibility and social capital, contributing to a more resilient urban environment. While lower vacancy rates may reduce the frequency of reuse projects, the inherent adaptability of buildings in these areas supports their continued relevance and utility.

***SQ3. Effectiveness** – How can effectiveness be measured in adaptive reuse?*
This question defines the concept of effectiveness to facilitate its assessment in the empirical component of the study.

Effectiveness of adaptive reuse in mixed-use areas can be measured across four main criteria: economic value, social value, innovation, and architectural quality. Economic value encompasses job creation, economic stimulation, and the attraction of tourism and business. Social value reflects community integration, neighbourhood revitalisation, and improvements in accessibility and safety. Innovation is assessed through technological advancements, collaboration, and replicability. Architectural quality is evaluated based on spatial design, material use, and contextual integration.

Although cultural heritage preservation and environmental sustainability are important, they were excluded from the analysis as they are not central to the strategies examined in this study. An additional dimension, overall project success, was introduced to offer a holistic reflection on the four criteria and to enhance the comprehensiveness of the evaluation framework.

***SQ4. Strategy** – What strategies are applicable in adaptive reuse processes?*
This question seeks to identify actionable strategies for improving AR processes. The concept of strategy was first defined before identifying suitable examples through both literature review and empirical research.

A strategy is defined as an actionable decision comprising intent, opportunity, systematic action, and resource mobilisation (White, 2017). While literature on AR strategies often focuses on technical specifications, this research emphasises process-oriented strategies. A strategy, as applied in this context, must (1) support a key success factor in the AR process, (2) aim to improve process outcomes, and (3) be actionable.

A literature review resulted in nineteen strategies, categorised into five themes: legal, economic, preparation, communication, and building & environment. Empirical interviews conducted during the first Delphi round added eighteen more, resulting in a comprehensive list of thirty-seven applicable strategies.

***SQ5. Improve** – What strategies can most effectively improve future adaptive reuse projects?*
The final question aims to identify the most effective strategies for improving the AR process.

First, expert feedback was obtained via a survey in round one combining literature-based strategies measured against effectiveness based on five aspects, providing a preliminary ranking. The survey also ensured that interviewees had sufficient context in the subsequent interviews.

The second part of answering this question involved the ranking of the total list of strategies. Asking the experts to rate their top ten most effective strategies in round two of Delphi, resulted in a final ranking of the thirty-seven strategies derived from both literature and practice. The top fourteen ranked strategies are included in the list of strategies marked as most effective. The limit of fourteen is based on the occurrence of the respective strategies in the top ten rating of the experts. The following fourteen listed strategies were included in the top ten rating of at least three out of the ten participating experts:

1. Formulate a strong concept / vision with all stakeholders
2. Involve advisors experienced in adaptive reuse
3. Reserve more money for unforeseen circumstances
4. Involve the construction team (bouwteam) early
5. Seek for an innovative/creative designer
6. Integrally analyse and design the building and its context
7. Create political support
8. Involve the end user early
9. Engage communities/local businesses in the process
10. Minimise changes to the building
11. Maintain intangible values of the existing building
12. Create structures/layers in the building which facilitate future alterations
13. Create awareness of the adaptive reuse opportunities
14. Stay involved as a client by managing the building after completion

9.2 General conclusion

The answers to the sub-questions collectively address the central aim: ''Development of a list of strategies to improve the adaptive reuse process in mixed-use areas in The Netherlands''. It was assumed that understanding actionable choices (strategies) and their effectiveness would contribute to process improvement. The sub-questions clarified which strategies are most effective, who should apply them, when they should be applied, and how to implement them.

The strategy list is visualised and presented in Figure 27. The visualisation links the fourteen most effective strategies to both their moment of application within the process and the stakeholder groups involved. The list and its visualisation can guide stakeholders through the process and support improved outcomes. However, its effectiveness depends on context and should be used in combination with other methods. Every AR project is unique and demands a tailored approach. This list should be viewed as a source of inspiration and a supporting instrument, to be used as a checklist during the adaptive reuse process.

According to the results of the second round of Delphi, the fourteen most effective strategies are primarily initiated by the client of the process. Therefore, the list and its visualisation, as presented in Appendix 13 – The strategy list, is to be used by the client in the adaptive reuse process. The list on the front page of the deliverable describes the fourteen most effective strategies and highlights how these can be applied in practice. The visualisation on the second page (Figure 27) indicated when in the process the strategy should be applied, and which stakeholders need to be involved. The indication of involved stakeholders is predominantly important, because the document can be used as a checklist when compiling contracts with the relevant stakeholders in the early stages of the process, to ensure that these fourteen effective actionable choices are incorporated in the process at the right moment. Communication about the document and therefore the strategies increase the chance for it to be applicated in the process. Hence, the document has the potential to improve the adaptive reuse process.

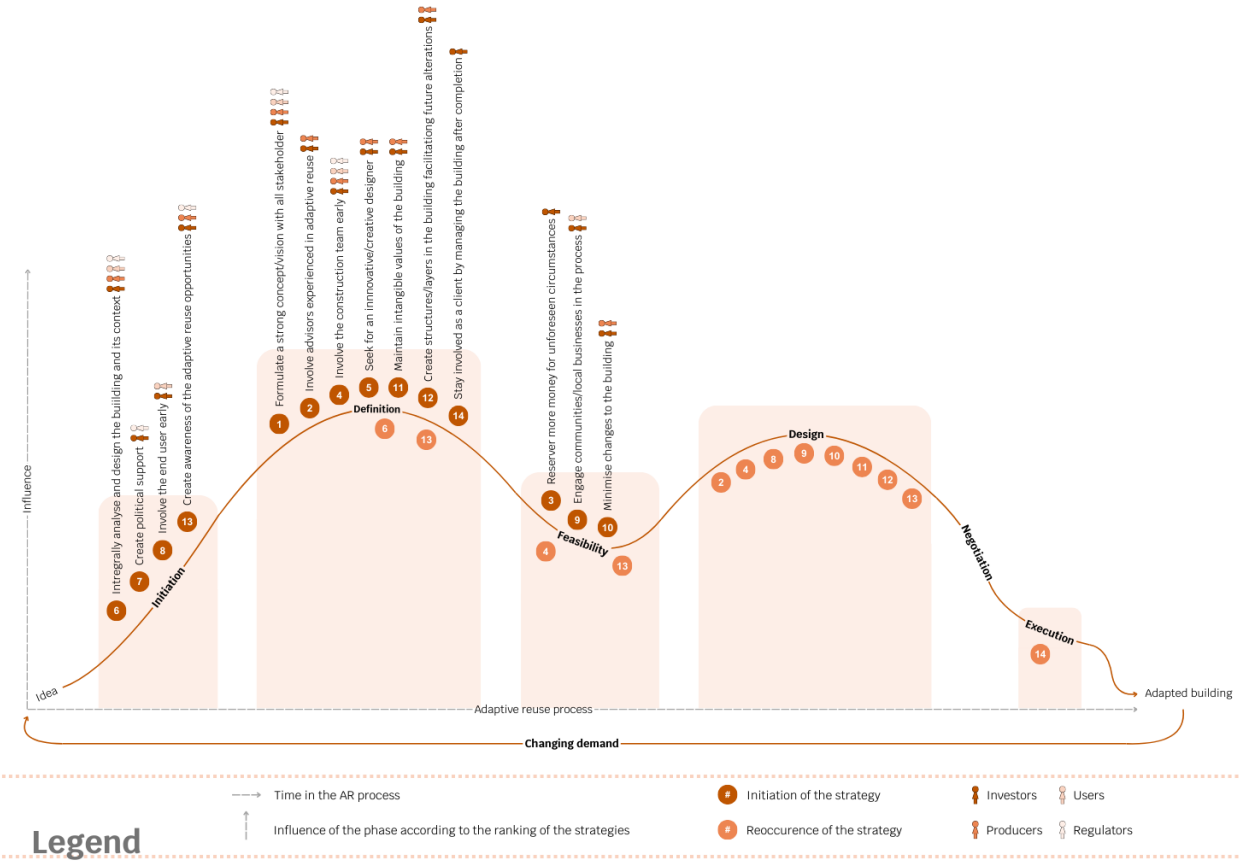

Figure 27: Visualisation of the strategy list to be used in the adaptive reuse process (own work).

9.3 Recommendations

9.3.1 For practice

The goal of this research was to enhance the adaptive reuse process by offering clients a prioritised list of actionable strategies. Based on the findings, several recommendations for professionals involved in adaptive reuse projects are proposed to improve decision-making, process clarity, and project outcomes.

Use the strategy list as a communication document
The strategy list developed in this research can serve as a valuable resource for communication between stakeholders. Clients are advised to use the list early in the project to initiate discussions about goals, expectations, and responsibilities. Making strategies explicit helps align visions across stakeholders and reduces misunderstandings during later phases of the project.

Integrate strategies in contractual documents
To increase the impact of the proposed strategies, clients and project managers should incorporate the selected strategies into formal agreements and contractual documents. Clearly stating expectations regarding stakeholder involvement, communication lines, and process goals in the contract helps ensure accountability and supports a more structured reuse process.

Focus on the early stages of the process
The research highlights that the greatest opportunity for influencing project success lies in the early stages of the adaptive reuse process. Practitioners are advised to apply key strategies, such as early involvement of the construction team, stakeholder mapping, and feasibility assessments, during the initiative and definition phases to reduce risk and foster integrated decision-making.

Foster knowledge exchange
It is vital to transfer knowledge and experience in AR to the next generation. More importantly because of the high complexity of the AR process, it is highly complex to acquire all the knowledge one selves. Therefore, focus should lie on teaching the younger generations. This can be achieved through:

- Showcasing successful projects via awards, publications, exhibitions, and guided tours;
- Involving younger professionals in project processes;
- Approaching each project with a learning mindset, to support continuous improvement.

For less experienced practitioners, a willingness to learn is essential. This means acknowledging gaps in knowledge and seeking advice from more experienced professionals. To raise curiosity among the younger generations, sharing knowledge as described in the previous part, is essential. This is the starting point for learning. However, for this knowledge to be absorbed, younger generation should be involved and interested.

Promote cross-disciplinary collaboration
Adaptive reuse projects involve multiple disciplines and perspectives. To navigate this complexity, clients should stimulate collaboration between architects, project managers, end-users, and regulatory bodies from the outset. Applying strategies related to communication and participation helps to create shared ownership and improve project adaptability.

Adapt the strategy list to project-specific needs
Although the strategy list presents a general prioritisation, not all strategies may be equally relevant in every project. Clients are advised to assess the list considering their specific project context, and to select and sequence strategies accordingly. Flexibility in using the strategies allows it to better support various adaptive reuse ambitions.

9.3.2 For research

Based on the results and limitations of this research, several recommendations for further research are proposed. These suggestions aim to validate, expand, and deepen the understanding of strategies in adaptive reuse processes, and to support the practical implementation of the developed strategy list.

Validate the strategies in practice
Although this research developed and validated a list of strategies based on literature and expert insights, the list was not applied and tested in a real-life project. Future research could focus on implementing the strategy list in ongoing adaptive reuse projects to assess its actual impact. This would allow for evaluation of the practical applicability, perceived value, and measurable effectiveness of the strategies, including how they influence decision-making and project outcomes.

Incorporate circularity considerations

While the research was inspired by circularity and future adaptability, these aspects were not explicitly addressed as standalone themes in the strategy list. Experts mentioned the importance of durability and maintaining meaningful connections between buildings and their users. Further research is recommended to explore how circular design principles, such as reusability and material cycles, can be integrated more explicitly into the adaptive reuse process. A more in-depth exploration of circularity strategies could enhance the results further.

Adopt research-through-design methodologies

The complexity of adaptive reuse projects and their multi-stakeholder dynamics make them well-suited for research-through-design methodologies. Future research could apply the strategies within a design process, reflecting iteratively on its application and outcomes. This approach may uncover how strategies affect design thinking, cooperation, and user integration when applied early in the process.

Reassess project success and effectiveness

In this research the definition of project success and effectiveness is retrieved from previous studies. These definitions are implemented in the assessment of the strategies in the empirical research. However, the described ambiguousness of the results in the different rounds with different assessment methods raise the question if the definitions from literature are matching the definition of the experts. Researching the interpretation of these topics and comparing them with the results of this research might provide with new insights.

Application in different geographical contexts

This research focuses on adaptive reuse in Dutch mixed-use urban areas. To test the generalisability of the findings, future studies could investigate the applicability of the strategies in different contexts, such as rural areas, other building types (e.g., monofunctional use), or international settings. This would help determine whether the strategies are context-dependent or have universal relevance.

Specification of stakeholders

The research uses four broad stakeholder categories: investors, producers, users, and regulators. Although this provided structure, it may lack the specificity needed for practical application. Future research could explore more detailed stakeholder mapping or role-based classifications, to clarify responsibilities and improve strategy communication and execution.

Relevance for new-build projects

Although the strategies were developed for adaptive reuse, several of them—particularly those focused on flexibility, early involvement, and stakeholder communication—may also benefit new-build developments aiming for long-term adaptability. Future research could examine how and to what extent these strategies are transferable to new-build contexts.

10. Reflection

10.1 Topic

This research was conducted as a part of the completion of the master track Management in the Built Environment at the faculty of architecture at the TU Delft. The master programs at the faculty of architecture combine both scientific and social knowledge to foster future proof development. The overarching topic of this research is the graduation theme 'adaptive reuse' and this research is performed at the research section Real Estate Management (REM). The REM section researches the government and management of real estate to develop knowledge about strategy design, decision making, and implementation to contribute to a futureproof built environment (*Management in the Built Environment*, n.d.). This thesis shows overlay with both the graduation theme and the REM section, as it researches the process of adaptive reuse and the strategy application during the process. It combines scientific and social aspects to improve future adaptive reuse projects, which complies with the goals of the faculty as well.

10.2 Relevance

Scientific

This research is scientifically relevant because it combines three aspects that have been researched regarding adaptive reuse and aims to fill the gap visualised in Figure 28. As described in chapter 1.5.1, the AR process, effectiveness of AR and strategies (under several designations) in AR have been researched separately. Strategies are mostly regarded as 'design strategies' concerning the physical building rather than the process. Furthermore, strategies in the process of AR are mostly researched from a theoretical perspective, with insufficient connection to the practical implications. In contrast to previous studies, this research focusses on formulating strategies as actionable choices to be able to propose applicable recommendations.

In retrospect this approach does indeed provide with guiding principles regarding the three main aspects of this research. Even though continued research is recommended, a start is made to fill the scientific gap between the AR process, strategies and effectiveness.

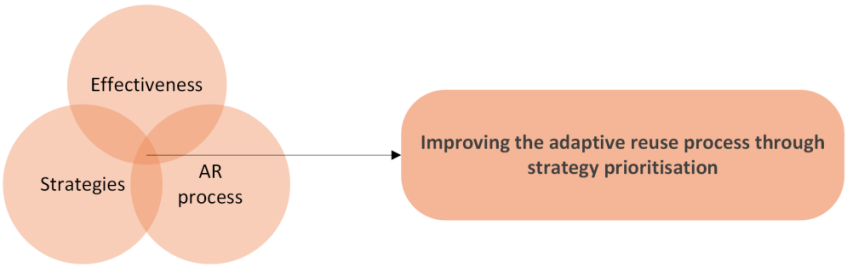

Figure 28: Filling the gap between the three main aspects of this research (own work).

Societal

This research is societally relevant because it provides practitioners with actionable recommendations regarding the adaptive reuse process. As described in chapter 1.5.2, adaptive reuse gained popularity in the recent decades, but stakeholders are reluctant in participating in these projects. This study aimed to create more clarity regarding the process, increasing the attractiveness of adaptive reuse.

Even though the results of this research provide with actionable recommendation making this research societal relevant, it is not complete yet. The societal relevance can be improved by increasing the comprehensiveness of the strategies in practice.

10.3 Method

My main interest when starting this research was to contribute to the future by using the existing building stock and by exploring the process towards adaptation of these buildings. To achieve this, focus was on prioritisation of strategies. The predominant research method applied in this research is the Delphi method. Because of the time available, it was determined to execute the method in two rounds. The first round existed of a survey and an interview. The second round only included a survey via email.

The first round of Delphi existed of a survey, followed by a semi-structured interview. The goal of the survey was to obtain a primarily ranking of the strategies. However, it turned out that the most valuable result of the survey was that the experts had a right impression about the topic of the interview. As a result, the interview results from the first round were highly valuable in terms of additional strategies.

In the second round of Delphi the experts had the opportunity to reflect on round one. However, because the interviews of the first round added eighteen strategies to the existing list of nineteen strategies, comparison was rather complicated. Even though the results of round one and round two are compared in this research in chapter 6.1, the experts' reflection on the results of round one is marginal.

During the whole data collection process, several challenges were faced. Several stakeholders were unresponsive or hard to schedule an interview with. This resulted in underrepresentation of certain stakeholder groups and stakeholders form specific cases. The stakeholders were informed about what to expect from their participation in this research via an information letter included in Appendix 6 – Invitation for participation. Even though the experts knew what to expect, the completion of the surveys needed repetitive reminders. Regardless the extra time scheduled for these delays in the planning, it was not managed to collect the results of two out of twelve experts in time. Therefore, this research eventually included the input from ten experts.

10.4 Outcome

During the early stages of this research up until P2 the aim was to research future adaptability of adapted buildings. The literature review and the feedback from the mentors showed that this plan was ambitious. Future adaptation of adapted buildings is hard to grasp, because little theoretical and practical information is available. Taking a step back and changing the expectations enabled to get an overview and to work towards a more specific goal.

10.5 Process

I started this process with a high ambition: I wanted to find out how we can use the existing building stock in the best possible way. All kinds of buildings are adapted, but what happens next? This was the problem I wanted to solve. This resulted in the idea to research strategies fostering future adaptability. In this phase of the process my biggest challenge was defining the research

components. Strategies are described differently in distinct research. I found it difficult to deal with the insecurities and open ends during these early stages of the process. It took a lot of going back and forth between the literature and the research questions to find the right alignment.

Literature review
What aided me during the entire process was the designation of specific phases. The period between P1 and P2 was designated to the literature review. In this period, I allowed myself to collect information and to further define the core concepts of the research. The reviewed literature included research papers from all sorts of research, including master theses. In retrospect I recognise that the way I collected the information from literature, namely via references, may induce a bias in my results.

At the end of the literature review period all findings were presented at the P2 and were provided with feedback. Even though the focus was on the information, the theoretical research and feedback helped to adjust the research questions. Up until the P2 I had the ambition to achieve pioneering results, but I realised that within the timeframe and with my modest experience in research, that was too ambitious. Adjusting the research questions enabled to move on to the next phase of the research.

Empirical research
After the P2 the empirical part of my graduation research could start. This was something I was really looking forward to. The course of the Delphi research was mapped out and the experts were approached. I aimed for 12-18 participants. I contacted twenty experts, of which twelve responded that they would want to participate. In this phase I really underestimated the time it would take to conduct all the interviews all over The Netherlands, and to transcribe and analyse it. However, I think the interviews were the most crucial step in this research, because of the additional information on strategies I obtained.

The second round of Delphi was less intense because it was only conducted via a survey. However, the challenge in this round was the response rate of the experts. The second survey as designed differently than the first survey, to make it less time consuming for the experts and therefore improve the results.

The biggest challenge in the empirical part of the research was in the design of the surveys and the incorporation of the results into the next round, while balancing it with my time planning. To get the most out of the surveys I wanted to be precise, but I also wanted to safeguard my planning and leave enough time for the experts to fill in the survey.

Goals
One of my goals formulated in the P2 was to contribute to the improvement of adaptive reuse practice. The initial steps regarding strategy effectiveness in adaptive reuse are taken, and a list of strategies and the strategy list and its visualisation is presented. However, the model needs feedback from practice and the topic of effectiveness needs to be researched further.

The second goal was to develop skills regarding the management of my own (small) project. During this research I learned that my strength is in planning and perseverance. Creating a clear plan for myself aids me to create overview. The perseverance is connected to the loyalty I have to others, but to myself as well. At the time I started looking for a graduation company, I was already working at Stevens Van Dijck. Executing my graduation with them as well gave me the opportunity to gain more experience and find out if their work suits me. Even though their stake in my research was minor, I felt very much supported. My time at the company taught me that my sense of responsibility and independence are characteristics that really fit in this field of work.

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Appendix 1 – Barriers from literature

Barrier	Reference	Theme
Building codes and regulations/ legal constraints	(Bullen & Love, 2011c; Douglas, 2006; Manewa et al., 2013)	Legal
Government strategies not enhancing AR	(Manewa et al., 2013)	Legal
Difficulty to comply with building codes	(Bullen, 2007; Bullen & Love, 2011b; Douglas, 2006)	Legal
Need for governmental support to develop socially sustainable urban areas	(Golić et al., 2023; Yung & Chan, 2012)	Legal
Low return on AR projects	(Bullen, 2007; De Silva & Perera, 2016; Yung & Chan, 2012)	Economy
AR being more expensive than new build	(Kurul, 2007)	Economy
Uncertainty about the length and (financial) risks of the process	(Bullen & Love, 2011c)	Economy
Lack of knowledge and awareness on the AR opportunities	(Bullen, 2007; Bullen & Love, 2011c; Remøy & van der Voordt, 2007)	Preparation
Complexity of the process	(Baccarini, 1996; Kurul, 2007; Pallada, 2017; van Hout, 2021)	Preparation
Insufficient knowledge among legislators/ regulators about social sustainability	(Golić et al., 2023)	Preparation
Lack of expertise in the AR process	(De Silva & Perera, 2016; Pintossi et al., 2023)	Preparation
Insufficient community engagement in the process	(Pintossi et al., 2023; Yung & Chan, 2012)	Communication
Low willingness to participate	(Pintossi et al., 2023)	Communication
Lack of participation of certain groups	(Pintossi et al., 2023)	Communication
Technical building complexity	(Bullen & Love, 2011c; De Silva & Perera, 2016)	Building & Environment
Physical restrictions due to existing layout	(Bullen, 2007; Bullen & Love, 2011c; Hamida et al., 2024)	Building & Environment
Lack of information about technical information (drawings) and defects of the building.	(De Silva & Perera, 2016; Remøy & van der Voordt, 2007)	Building & Environment
Lack of achieving identity/ sense of place	(Yung & Chan, 2012)	Building & Environment
Lack of resources (materials, skills, expertise)	(De Silva & Perera, 2016; Pintossi et al., 2023)	Building & Environment
Latent conditions of the building	(Dyson et al., 2016)	Building & Environment

Appendix 2 – Strategies from literature

Strategy	Reference	Theme
Changing building codes to allow for more flexibility and creativity	(Bond, 2011)	Legal
Create a clear ambition document	(van Hout, 2021)	Legal
Early involvement of agents	(Kurul, 2003)	Legal
Encouragement of conversion projects utilising public facilities and revitalising neighbourhoods	(Tan et al., 2018)	Legal
Find political support	(van Hout, 2021)	Legal
Including historic preservation consultants throughout the whole process	(Bond, 2011; Langston, 2011)	Legal
Involve the construction team early	(van Hout, 2021)	Legal
Requirements for multiple use buildings	(Bullen & Love, 2011c)	Legal
Reserving more time for legal request procedures	(Andriessen, 1999)	Legal
Deploying policy initiatives to encourage sustainable outcomes or AR	(Ball, 2002; Tan et al., 2018)	Legal
AR with application of green concepts	(Tan et al., 2018)	Economy
Compiling a detailed plan counter-balancing the potential of the building and the expected returns	(Andriessen, 1999)	Economy
Conducting feasibility studies with certified advisors who focus on transformation opportunities	(Andriessen, 1999)	Economy
Considering certain financing methods (ex. PPP) to reduce financial risks	(Tan et al., 2018)	Economy
Economic impact and catalytical effects of AR need to be expressed to policymakers to make them understand	(Bond, 2011)	Economy
Financial incentives for AR of industrial buildings	(Tan et al., 2018)	Economy
Find innovative financing sources	(van Hout, 2021)	Economy
Introducing potential users to ensure market demand	(Andriessen, 1999)	Economy
Provide incentives for adaptive reuse	(Bond, 2011)	Economy
Providing consulting service on assessment of existing buildings	(Tan et al., 2018)	Economy
Reduce project timeline to reduce risk	(Tan et al., 2018)	Economy
Reserving more time for the feasibility study and objection procedures	(Andriessen, 1999)	Economy
Review policies	(Tan et al., 2018)	Economy
Seek out to public authorities for financial support	(van Hout, 2021)	Economy
Supress maintenance and repair costs	(Bullen & Love, 2011c; Remøy & van der Voordt, 2007; Tan et al., 2018)	Economy
Conduct research to identify KPIs for each process stage	(Kurul, 2003)	Preparation
Create awareness on the AR opportunities	(Bullen, 2007; Remøy & van der Voordt, 2007)	Preparation
Developing codes of practice (ease of adaptation) for adaptive reuse potential	(Tan et al., 2018)	Preparation
Development of an appropriate organisation structure	(Chan et al., 2004)	Preparation
Early definition of the building layout advised by architect	(Andriessen, 1999)	Preparation
Early research and determination on demolishing/preserving parts of the building	(Andriessen, 1999)	Preparation
Find experts in the field and trust them	(van Hout, 2021)	Preparation
Including team members/advisors experienced with adaptive reuse	(Andriessen, 1999; Bond, 2011)	Preparation
Innovative designing	(Dyson et al., 2016)	Preparation
Managing project complexity in a way that it does not peak during the construction phase	(Kurul, 2003)	Preparation
Seek for an innovative/ creative designer	(Vafaie et al., 2025; van Hout, 2021)	Preparation
Seeking early advice to conduct research into the building	(BOEi, 2009; Dyson et al., 2016)	Preparation
Enhance collaboration between involved parties	(Volker, 2011)	Communication
Integrate new elements into the existing culture	(Tan et al., 2018)	Communication

Involve the end user	(van Hout, 2021)	Communication
Maintain ambitions and enthusiasm level	(van Hout, 2021)	Communication
Minimising the gap between developers and regulators	(Kurul, 2003)	Communication
Public participation	(Tan et al., 2018; van Wijk, 2024)	Communication
Remaining a flexible and open attitude throughout the AR process	(Bond, 2011)	Communication
Using personal experience for contracting architects	(Andriessen, 1999)	Communication
''Good fit'' between the old and new building function	(Dyson et al., 2016; Vafaie et al., 2025)	Building & Environment
Consider the overall interest of the wider community	(van Hout, 2021)	Building & Environment
Focus on flexibility rather that adaptability	(Blakstad, 2001)	Building & Environment
Keeping requirements for the new function close to what the building was designed for (matching function)	(Dyson et al., 2016)	Building & Environment
Minimal change to the building	(Dyson et al., 2016)	Building & Environment
Minimising structural changes	(Dyson et al., 2016)	Building & Environment
Set high sustainability ambitions	(Volker, 2011)	Building & Environment

Appendix 3 – Clustered strategies from literature

1: strategy mentioned in literature

1: Strategy derived as a solution to certain barriers

	Strategy	Andriessen, 1999	Ball, 2002	Kurul, 2003	Douglas, 2006	Bullen, 2007	Remøy & van der Voordt, 2007	BOEi, 2009	Bond, 2011	Volker, 2011	Bullen & Love, 2011c	Yung & Chan, 2012	Fleuren, 2013	Manewa et al., 2013	Dyson et al., 2016	Tan et al., 2018	van Hout, 2021	Pintossi et al., 2023	Golič et al., 2023	van Wijk, 2024	Vafaie et al., 2025	Total
Legal	Create land use/ zoning flexibility		1		1						1			1		1						5
	Reserve extra time for legal procedures	1																				1
	Require multiple-use building										1											1
	Change building code to allow flexibility and creativity in adaptive reuse		1		1	1			1		1			1		1						7
	Require public participation															1				1		2
	Create political support							1						1		1	1					4
economic	Use financing methods (ex. PPP) to reduce risks															1						1
	Reduce project timeline to reduce risks						1				1					1						3
	Provide with (financial) incentives for adaptive reuse			1		1			1							1						4
	Seek for financial support from authorities					1			1													2
	Find inovative financing sources															1	1					2
	Reserve more time for feasibility studies	1									1											2
	Communicate economic inpact and catalytical effects with policymakers					1			1													2
	Conduct feasibility studies with experts	1																				1
	Suppress maintainance costs							1			1					1						3
Preperation	Seek early advise on building condition research						1	1							1	1						4
	Early determination of conservation/demolishment of building parts	1													1							2
	Early construction team involvement	1		1				1		1			1				1					6
	Early end user involvement	1						1		1							1					4
	Create a public support base							1														1
	Involve advisors experienced in adaptive reuse	1					1	1	1	1							1	1				7
	Create awareness of the AR opportunities				1	1	1				1							1	1			6
	Manage in a way that project complexity does not peak during construction			1																		1
	Seek for an innovative/creative designer														1		1				1	3
Communication	Engage communities/local businesses in the process											1				1		1		1		4
	Create a clear ambition document							1		1			1				1					4
	Collaboration with stakeholders in all stages of the process									1			1									2
	Enhance communication between stakeholders			1				1		1			1									4
Building & environment	Use adaptive reuse as a part of area development to revitalise neigbourhoods											1				1			1			3
	Regard the interest of the wider community											1					1	1				3
	Minimise changes to the building					1					1				1							3
	create "good fit" between the old and new building function					1					1				1						1	4
	AR with application of green concepts															1						1
	Set high sustainability ambitions									1												1

Appendix 4 – Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: Future adaptability in adaptive re-use through process strategies

Creator:P.C.M. Wilmink

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2021)

Project abstract:

Adaptive reuse is increasingly significant in the building sector, particularly in mixed-use areas where flexible buildings are vital to meet circularity goals and evolving user demands. As existing structures will require multiple adaptations over their lifespan, the complexity of such projects continues to grow. While research on building adaptability exists, it largely emphasizes current transformations, often overlooking long-term considerations and practical applications.

This study examines the management strategies for adaptive reuse projects, focusing on their impact on the future adaptability of the buildings. It aims to prioritise strategies that support long-term flexibility. A comprehensive literature review establishes the theoretical foundation, exploring concepts such as strategic management, adaptive reuse, and the barriers and enablers of future adaptability. This review generates an initial list of strategies for fostering adaptability.

The research incorporates case studies of completed and ongoing projects to contextualise findings and refine the strategy list. Using the Delphi method, 12 experts contribute in two phases: semi-structured interviews to enrich and preliminarily prioritise strategies, followed by a survey to validate the prioritisation list.

By bridging the gap between theory and practice, this research provides a prioritized set of management strategies for enhancing future adaptability in buildings. It highlights the critical role of process management in ensuring that current adaptive reuse projects are prepared for evolving needs over time.

ID: 164959

Start date: 02-09-2024

End date: 27-06-2025

Last modified: 15-01-2025

Future adaptability in adaptive re-use through process strategies

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

The data and DMP for this project has been discussed with my supervisor, Dr. H.T. (Hilde) Remøy.
My Faculty Data Steward, Janine Strandberg, has reviewed this DMP on 13/12/2024.

2. Date of consultation with support staff.

2024-12-13

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Personal Identifiable Data (PII): participants' names, email, company, mobile phone number	.pdf .xlsx	Information about the participants of the interviews, recieved from network. Participants' name and email in signed informed consent form	For administrative purpose, to comunicate with the participants	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Personal Identifiable Research Data (PIRD): occupation, type of company, professional view	.docx	Information about the occupation and professional view of the interview/survey participants.	The occupation of the participants is a relevant factor in relation to their professional view.	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Audio recordings of the participants	.mp3	Interviews with experts will be recorded on an external device, before being moved to the OneDrive. After transcriptions the recordings will be removed.	Enriching the information from literature on future adaptability and process strategies. Capturing experts' opinion on effectiveness of the strategies.	External recording device (temporary storage) + TU Delft OneDrive (primary storage)	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Anonymous summaries of interviews	.docx	Manually created summaries based on audio-recordings.	privacy-perserving data on future adaptability process strategies from the experts.	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Survey data	.csv / .xlsx	Online survey in Qualtrics. The survey is distributed via email to the experts interviewed previously. In the survey IP-adress tracking will be turned off.	Capturing experts' revised opinion on effectiveness of the strategies after recieving the results from the interviews.	Qualtrics server (temporary storage) + TU Delft OneDrive (primary storage)	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Anonymous summaries of survey	.docx	Manually created summarries based on surveys	privacy-perserving data on future adaptability process strategies from the experts.	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Data on adaptive reuse building projects	.docx .pdf .xlsx	Ru-use of existing data from the graduation company	To get insight in the management strategies and barriers and enablers in adaptive re-use projects	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).
Report/thesis	.docx	Serves as a record of the process as well as documentation	Long-term documentation	TU Delft OneDrive	Master student (Pien Wilmink) + Supervisors (Hilde Remøy + Vitalija Danivska).

4. How much data storage will you require during the project lifetime?

- 250 GB - 5 TB

II. Documentation and data quality

5. What documentation will accompany data?

- Other - explain below
- Methodology of data collection

The dataset will not be shared in a data repository, but the methodology of data collection will be explained in the MSc thesis, which

is made available in the TU Delft Education repository.

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

- Another storage system - please explain below, including provided security measures
- OneDrive

OneDrive: Primary research data storage. The OneDrive is accesable for TU Delft members (Pien Wilmink, Hilde Remøy, Vitalija Danivska) only. The data is stored in seperate folders. The audio-recordings, informed consent information and contact information will be stored in encrypted folders, to minimise the risk of re-identification. In case of a physical signed informed consent form, the form wil be scanned and uploaded to the encrypted folder in the ondrive. After the form is scanned it will be destroyed. Until that moment it will be kept in a locked desk.
External recording device: Using a temporary storage location for the audio-recordings of the interviews. Recordings will be deleted from the device after moving to the OneDrive.
Qualtrics server: Online survey platform. Terporary storage of the survey responses, before they will be moved to OneDrive (encrypted folders).

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

- Yes

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, first ask your Faculty Data Steward for advice. You can also check with the privacy website . If you would like to contact the privacy team: privacy-tud@tudelft.nl, please bring your DMP.

- Yes

The research data collected will be anonymised, but processing of personal data is required for conducting the research project.

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- No, I will not work with any confidential or classified data/code

The data reuse from the graduation company is non confidential. This is discussed with the company.

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question. If this is not the case, you can use the example below.

The master student (Pien Wilmink) conducts the research independently, and is the owner of the interview and survey data. The data retrieved from the database of the graduation company is non confidential. The data can be used without restrictions. During the active phase of the research the master student will oversee the access rights to the data. The anonymised data from the interviews and survey underlying the thesis will be included in the appendix of the report, which will be published in the TU Delft Education

repository.

10. Which personal data will you process? Tick all that apply

- Photographs, video materials, performance appraisals or student results
- Other types of personal data - please explain below
- Names and addresses
- Gender, date of birth and/or age
- Data collected in Informed Consent form (names and email addresses)
- Signed consent forms
- Telephone numbers
- Email addresses and/or other addresses for digital communication

Personal Identifiable Information (PII): Interviewee name, work adress, company name, email adress, and mobile phone number for administation and communication.
Personally Identifiable Research Data (PIRD): Personal research data processed for interview participants and via the online Qualtrics survey including:

- Audio recordings (interview).
- Professional oppinion of process strategies fostering future adaptability (interview + survey).
- Occupation (project manager, contractor, consultant, ...) (interview + survey).

Data from both the interviews and survey is summarised and anonymised after collection.

11. Please list the categories of data subjects

The participants of the interviews and survey are experts on (circular/ adaptable) building renovation/ transformation in The Netherlands.

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

- No

15. What is the legal ground for personal data processing?

- Informed consent

16. Please describe the informed consent procedure you will follow:

Interviews: The interview participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview. They will be allowed to review the anonymised summaries of the interviews.
Survey: The survey will be conducted with the same participants as the ones in the interviews. The participants will be asked to give consent for the survey in a seperate point within the informed consent form.

17. Where will you store the signed consent forms?

- Same storage solutions as explained in question 6

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if

any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to complete the DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If only one of the options listed below applies, your project might need a DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to get advice as to whether DPIA is necessary.
If you have any additional comments, please add them in the box below.

- None of the above applies

22. What will happen with personal research data after the end of the research project?

- Personal research data will be destroyed after the end of the research project
- Anonymised or aggregated data will be shared with others

The anonymised research data consisting of anonymised interview summaries, anonymised survey results, will be used in the body of the thesis and included in the appendix.
Audio recordings will be destroyed after completion of the interview summaries. Other personal research data will be destroyed at the latest of 1 month after the end of the project.

V. Data sharing and long-term preservation

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

- All other non-personal data (and code) produced in the project

Data from case studies will be collected from the graduation company. The data is non confidential. This data will be processed and publically shared in the final report.

29. How will you share research data (and code), including the one mentioned in question 22?

- My data will be shared in a different way - please explain below

Anonymised data collected during the project will be included in the body of the thesis and in the apendices. The thesis will be made available in the TU Delft Educational repository.

30. How much of your data will be shared in a research data repository?

- < 100 GB

31. When will the data (or code) be shared?

- At the end of the research project

The research data will only be shared in the final thesis, which will be made available and automatically be placed under copyright in the TU Delft Educational repository.

32. Under what licence will be the data/code released?

- Other - Please explain

Research data are only shared within the MSc thesis, which is automatically placed under copyright in the Education repository.

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

- Yes, leading the collaboration - please provide details of the type of collaboration and the involved parties below

In addition to the TU Delft, a graduation company is involved. The final thesis will be shared with the graduation company (Stevens Van Dijk, Bouwmanagers en Adviseurs).

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

Thesis supervisor, Hilde Remøy from the department of Real Estate Management: h.t.remoy@tudelft.nl

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

Research data are only shared within the MSc thesis: no additional resources are required.

Appendix 5 – HREC approval

Lab Servant

Dear Pien Wilmink,

From: HREC
Date: 12-Feb-2025
Application number: 5095

Your application titled *"As Long as it Lasts: Fostering future adaptability through strategy application in adaptive reuse process for buildings in ixed-use areas in The Netherlands"* is **Approved**.

View the approval letter and the details of your application (after log-on to the Lab Servant).

View application

Kind regards,
Lab Servant

If you're having trouble clicking the "View application" button, copy and paste the URL below into your web browser:
https://labservant.tudelft.nl/index.php/ethics/edit_request/5095

Appendix 6 – Invitation for participation

Allereerst wil ik u hartelijk bedanken voor uw tijd en uw deelname aan mijn afstudeeronderzoek. Dit document bevat aanvullende informatie over het onderzoek, evenals de doelstellingen van het interview en de enquête.

Het onderzoek

Mijn afstudeeronderzoek richt zich op herbestemmingsprojecten in gemengde gebruiksgebieden in Nederland, waar functies zoals wonen, werken en winkelen gecombineerd worden in een gebied. Dit onderwerp is ontstaan vanuit de overtuiging dat herbestemming een sleutelrol speelt in de toekomst van de gebouwde omgeving, waarin duurzaamheid en de circulaire economie centraal staan. Eerder uitgevoerd onderzoek richt zich voornamelijk op de flexibiliteit van het gebouw zelf en de bouwtechnische aspecten, zoals demontabel bouwen en circulair gebruik van grondstoffen.

Ik ben ervan overtuigd dat de keuzes die tijdens en met betrekking tot het herbestemmingsproces gemaakt worden, een aanzienlijke invloed hebben op het succes van het project. Inzicht in deze keuzes en hun effectiviteit is essentieel om de complexiteit van het herbestemmingsproces te verminderen en het proces te verbeteren. Dit onderzoek richt zich daarom op de mate waarin actiegerichte keuzes, die binnen het herbestemmingsproces worden gemaakt, bijdragen aan de effectiviteit en het succes van het project. Deze 'actiegerichte keuzes' worden in het onderzoek gedefinieerd als strategieën. Het uiteindelijke doel is het ontwikkelen van een strategie voor betrokken partijen, gebaseerd op de effectiviteit van deze keuzes, die het herbestemmingsproces verbetert en daarmee toegankelijker maakt.

Ronde 1: Het interview

Om dit doel te bereiken, ga ik in gesprek met verschillende partijen die betrokken zijn of zijn geweest bij herbestemmingsprojecten, zoals cliënten, architecten, ontwikkelaars, investeerders en adviseurs. Deze gesprekken bieden inzichten in de overeenkomsten en verschillen in perspectieven van betrokkenen. Voorafgaand aan het interview zal ik u vragen een enquête in te vullen, waarmee de effectiviteit van de uit de literatuur verzamelde strategieën beoordeeld kan worden aan de hand van verschillende criteria. Tijdens het interview zal ik met u in gesprek gaan over herbestemmingsprojecten en uw persoonlijke ervaringen. Tijdens het interview zullen onderwerpen zoals uw rol in het proces, uw ervaringen met herbestemming en uw visie op herbestemmingsstrategieën aan bod komen. Het invullen van de online enquête en het interview zal in totaal één tot anderhalf uur duren. Het interview zal worden opgenomen met audioapparatuur, zodat ik de informatie zo volledig mogelijk kan vastleggen. Dit is opgenomen in het toestemmingsformulier, dat u aan het begin van het interview van mij zal ontvangen. U heeft dan de mogelijkheid om hier vragen over te stellen.

Ronde 2: De enquête

De tweede fase van het onderzoek bestaat uit het invullen van een online enquête. Via e-mail stuur ik u de resultaten van de vragenlijst uit ronde 1 en vraag ik u om feedback te geven op deze resultaten. Daarnaast zullen de strategieën die naar voren zijn gekomen in de interviews aan de nieuwe vragenlijst worden toegevoegd. De opzet van de enquête zal vergelijkbaar zijn met die van de eerste ronde.

Mocht u naar aanleiding van deze informatie nog vragen hebben, kunt u altijd contact met mij opnemen.

Met vriendelijke groet,
Pien Wilmink

Appendix 7 – Survey round 1

Strategieën in het herbestemmingsproces (ronde 1)

Deze vragenlijst is bedoeld om inzicht te krijgen in de effectiviteit van strategieën, toegepast in het herbestemmingsproces. Klik op 'beginnnen' om door te gaan naar de volgende pagina met uitleg over het beantwoorden van de vragen.

1 Naam

Deze vragenlijst bevat 19 strategieën. Elke vraag start met een strategie en een korte toelichting. Vervolgens wordt er van u gevraagd de effectiviteit van de strategie in het herbestemmingsproces te beoordelen op basis van vier verschillende aspecten, welke hieronder uitgelegd zijn. Ook wordt er gevraagd om de 'algehele effectiviteit' van de strategie of het resultaat van het herbestemmingsproces te beoordelen. Na de beoordeling, vraag ik u om uw keuze toe te lichten. Voor het goed verwerken van de resultaten zou het mij erg helpen als u deze toelichting kan geven. Onderaan deze pagina vind u een voorbeeldvraag ter illustratie. U hoeft deze vraag niet te beantwoorden.

De aspecten waarop de strategieën beoordeeld worden zijn als volgt:

Economische waardecreatie

De determinant economische waardecreatie heeft betrekking op werkgelegenheid, bijdrage aan economische groei en aantrekkelijkheid voor circulair cultureel toerisme, evenals creatieve, culturele en innovatieve ondernemingen. Voorbeelden van effectieve economische waardecreatie zijn het huisvesten van kleine bedrijven en het creëren van nieuwe werkgelegenheidskansen.

Sociale waardecreatie

De determinant sociale waardecreatie heeft betrekking op de gemeenschap, het welzijn en de fysieke context van het aangepaste gebouw. Sociale waarde wordt toegevoegd door het aangepaste gebouw te integreren in zijn omgeving en door de buurt te revitaliseren. Daarnaast kan de aanpassing van het gebouw de band met de lokale gemeenschap versterken door inwoners bij het proces te betrekken, waardoor er een gevoel van verbondenheid ontstaat en de gemeenschap wordt uitgebreid. Dit kan bijvoorbeeld door toerisme te stimuleren, een gesloten gebouw toegankelijk te maken of publieke en private evenementen te introduceren. Tot slot moet de aanpassing veilig zijn voor bezoekers en zorgen voor akoestisch en visueel comfort.

Innovatie

De determinant innovatie betreft zowel het gebruik van innovatieve technologieën als een vernieuwende benadering van samenwerking tussen belanghebbenden. Daarnaast is de reproduceerbaarheid van modellen een belangrijk aspect binnen deze determinant. Een perfecte betrokkenheid van burgers, strategieën voor fondsenwerving, samenwerking met belanghebbenden en het gebruik van innovatieve technologieën zoals virtual

1

reality kunnen als voorbeeld dienen voor andere projecten.

Architectonische verfijning

De determinant verheffing van architectonische aspecten heeft betrekking op de fysieke kenmerken en de sfeer van het aangepaste gebouw. De effectiviteit van deze determinant wordt bepaald door de ruimtelijke kwaliteit van de verschillende zones en de fysieke en visuele verbinding met zowel de voormalige functie als de omgeving van het gebouw. Bovendien zijn de kwaliteit van het ontwerp, de gebruikte materialen en de uitvoering bepalend voor de effectiviteit.

Algeheel succes van het project

De effectiviteit van het algehele succes kan samenhangen met meer dan alleen de vier bovenstaande determinanten. Een toelichting over de reden voor de effectiviteit van de strategie is hier heel waardevol.

2 VOORBEELD

Vraag instructies: *Kies één antwoord in elke rij*

	Niet effectief	Een beetje effectief	Effectief	Erg effectief	Heel erg effectief	Geen antwoord
Economische waardecreatie	○	○	○	○	○	○
Sociale waardecreatie	○	○	○	○	○	○
Innovatie	○	○	○	○	○	○
Architectonische verfijning	○	○	○	○	○	○
Algeheel succes van het project	○	○	○	○	○	○

3 Toelichting

Het doel van deze enquête is om een beeld te krijgen van de visie vanuit uw praktijkervaring op de strategieën verzameld uit de literatuur. Sommige vragen zijn hierdoor makkelijker om te beantwoorden dan andere. Bij het beantwoorden van de vragen mag u daarom afgaan op uw eerste ingeving. Daarnaast zijn de vragen niet specifiek gericht op één project, maar verzoek ik u te antwoorden vanuit uw ervaring met herbestemming in het algemeen.

Op de volgende pagina zal de vragenlijst van start gaan.

4 Creëer flexibiliteit in landgebruik en het bestemmingsplan

Vraag instructies: *Door flexibiliteit te creëren in het beleid met betrekking tot landgebruik en het bestemmingsplan, hoeft er minder tijd verloren te gaan aan de wettelijke verplichtingen die hieraan verbonden zijn zoals het wijzigen van het bestemmingsplan.*

	Niet effectief	Een beetje effectief	Effectief	Erg effectief	Heel erg effectief	Geen antwoord
Economische waardecreatie	○	○	○	○	○	○
Sociale waardecreatie	○	○	○	○	○	○
Innovatie	○	○	○	○	○	○
Architectonische verfijning	○	○	○	○	○	○
Algeheel succes van het project	○	○	○	○	○	○

5 Toelichting

Question 4 and 5 are continued for each of the 19 strategies.

Appendix 8 – Informed consent form

Informed Consent Formulier (NL)

Geachte deelnemer,

Via dit formulier nodig ik u uit om deel te nemen aan mijn afstudeeronderzoek: **"As long as it lasts: Improving the adaptive reuse process through strategy application"**

Dit onderzoek wordt uitgevoerd als onderdeel van mijn masteropleiding **Management in the Built Environment** aan de faculteit Bouwkunde van de **TU Delft**. In mijn scriptie onderzoek ik de effectiviteit van strategieën die toegepast worden in het proces van herbestemming. Het doel van het onderzoek is om op basis van de gemeten effectiviteit een strategie op te stellen, die bijdraagt aan het verbeteren van het herbestemmingsproces.

Ronde 1: Het interview

Ronde 1 zal naar verwachting 60 minuten duren. Voorafgaand aan het interview vraag ik u een online enquête in te vullen. Vervolgens zal ik op het afgesproken moment een interview met u houden. Om de verkregen data zorgvuldig te kunnen analyseren, vraag ik uw toestemming om dit interview op te nemen. De opnames worden uitsluitend gebruikt om de informatie anoniem samen te vatten en te analyseren. Na het opstellen van de geanonimiseerde samenvatting worden de opnames verwijderd. Citaten uit het interview worden anoniem verwerkt, en alle data wordt strikt vertrouwelijk behandeld.

Ronde 2: De enquête

Ronde twee zal worden afgenomen in de vorm van een online enquête en zal naar verwachting 15 tot 25 minuten duren. Per email wordt u op de hoogte gesteld van de resultaten uit ronde 1 en wordt u gevraagd de enquête in te vullen. De resultaten van de enquête worden anoniem verwerkt, en alle data wordt strikt vertrouwelijk behandeld.

U bent, zowel tijdens het interview als tijdens de enquêtes, volledig vrij om op elk moment uw deelname te beëindigen of specifieke vragen niet te beantwoorden, zonder opgaaf van reden.

Als u akkoord gaat met deelname, verzoek ik u dit formulier in te vullen en te ondertekenen en naar mij terug te sturen. Hierna zal ik het formulier ook ondertekenen en ter bevestiging naar u terugsturen.

Kruis het vakje aan dat van toepassing is.

Toestemming voor deelname aan het onderzoek (algemeen)	**Ja**	**Nee**
1. Het doel van dit onderzoek is mij duidelijk. Ik heb de gelegenheid gehad om vragen te stellen aan de onderzoeker en deze zijn naar tevredenheid beantwoord.	□	□
2. Het is mij duidelijk dat dit interview zal worden opgenomen, zodat de informatie geanonimiseerd samengevat en geanalyseerd kan worden.	□	□

Toestemming voor deelname aan het onderzoek (algemeen)	Ja	Nee
3. Het is mij duidelijk dat persoonlijke en identificeerbare informatie strikt vertrouwelijk behandeld wordt en verwijderd wordt na voltooiing van het onderzoek.	□	□
Toestemming voor deelname aan ronde 1		
4. Ik bevestig dat ik zal deelnemen aan de enquête en het interview en ben mij ervan bewust dat ik mijn deelname op elk moment mag beëindigen, zonder opgaaf van reden.	□	□
Toestemming voor deelname aan ronde 2		
5. Ik bevestig dat ik zal deelnemen aan de enquête en ben mij ervan bewust dat ik mijn deelname op elk moment mag beëindigen, zonder opgaaf van reden.	□	□
Toestemming voor gebruik van informatie in het onderzoek		
6. Het is mij duidelijk dat de geanonimiseerde samenvatting en het onderzoek geen identificeerbare informatie zullen bevatten, en dat de opnames verwijderd worden na het opstellen van de samenvatting.	□	□
7. Ik begrijp dat de informatie uit dit interview uitsluitend geanonimiseerd wordt gebruikt voor academische doeleinden binnen de TU Delft.	□	□
8. Ik geef toestemming om geanonimiseerde citaten uit dit interview te gebruiken in het onderzoek.	□	□
Toestemming voor toekomstig gebruik van de data		
9. Ik stem in met publicatie van dit afstudeeronderzoek in de TU Delft Educational Repository. Het is mij duidelijk dat de resultaten gebruikt kunnen worden in toekomstig onderzoek.	□	□

Handtekening

Door ondertekening verklaart u dat u vrijwillig deelneemt aan dit onderzoek en akkoord gaat met de voorwaarden zoals hierboven beschreven.

Naam deelnemer	Handtekening deelnemer	Datum
Naam onderzoeker	Handtekening onderzoeker	Datum

Informed Consent Form (EN)

Dear participant,

Through this form, I would like to invite you to participate in my graduation research: **"As long as it lasts: Improving the adaptive reuse process through strategy application"**

This research is conducted as part of my master's program **Management in the Built Environment** at the Faculty of Architecture, TU Delft. The thesis investigates the effectiveness of strategies applied in the process of adaptive reuse. The aim of the research is to develop a strategy based on the measured effectiveness, which contributes to improvement of the adaptive reuse process.

Round 1: The Interview

The first round is expected to last approximately 60 minutes. This round starts with an online survey, followed by an interview. To ensure careful analysis of the collected data, I kindly ask for your consent to record the interview. The recordings will be used solely to summarise and analyse the information anonymously. Once the interview data is anonymously summarised, the recordings will be deleted. Quotes from the interview will be processed anonymously, and all data will be treated with strict confidentiality.

Round 2: The Survey

The second round will be an online survey and is expected to take approximately 15 to 25 minutes. You will be notified via email of the results from Round 1 and will be invited to complete the second survey. The survey results will be processed anonymously, and all data will be treated with strict confidentiality.

You are entirely free, both during the interview and the survey, to withdraw your participation at any time or choose not to answer specific questions, without providing any reason.

If you agree to participate, I kindly request that you complete and sign this form. Subsequently I will sign the form, and I will provide you with a copy after the interview.

Please check the applicable box.

Consent for participation in the research (general)	Yes	No
1. I understand the purpose of this research. I have had the opportunity to ask the researcher questions, and these have been answered to my satisfaction.	□	□
2. I understand that this interview will be recorded to allow the information to be summarized anonymously and subsequently analysed.	□	□
3. I understand that personally identifiable information from this interview will not be shared outside the research team (student + supervisors) and that this information will be deleted upon completion of the research.	□	□

Consent for participation in round 1	Yes	No
4. I confirm my participation in the interview and understand that I can withdraw at any time without having to provide a reason.	□	□
Consent for participation in round 2		
5. I confirm my participation in the survey and understand that I can withdraw at any time without having to provide a reason.	□	□
Consent for Use of Information in the Research		
6. I understand that the anonymised summary and the research will not contain identifiable information, and the recordings will be deleted after the summary has been compiled.	□	□
7. I understand that the information collected from this interview will only be used anonymously for academic purposes at TU Delft.	□	□
8. I give permission to use anonymised quotes from this interview in the research.	□	□
Consent for Future Use of Data		
9. I consent to the publication of this graduation research in the TU Delft Educational Repository. I understand that the results may be used in future research.	□	□

Signature

By signing, you confirm that you voluntarily agree to participate in this research and accept the terms as described above.

Participant's name	Participant's signature	Date
Researcher's name	Researcher's signature	Date

Appendix 9 – Interview protocol

Opbouw

Introductie

1. Werkgeschiedenis
2. Betrokkenheid herbestemming
3. Rol

Herbestemmingsproces

4. Waarom herbestemming
5. Fases
6. Samenwerking
7. Verschillen nieuwbouw

Strategieën

8. Geslaagd project?
9. Obstakels
10. Succesfactoren
11. Meest bepalende fase
12. Bepalende strategieën/ actiegerichte keuzes (voor proces)
13. Wat meenemen volgende projecten?
14. Hoe doorgeven?
15.

Protocol voor interviews experts (gerelateerd aan case)

Introductie

1. Kan u iets vertellen over uzelf?
    a. Wat is uw functie binnen [naam bedrijf]?
    b. Wat zijn (voornamelijk) uw werkzaamheden?
    c. Bij wat voor soort projecten bent u doorgaans betrokken?
        i. Voorbeelden
2. Bent u eerder betrokken geweest bij herbestemmingsprojecten?
    a. Zo ja, wat voor projecten?

Proces

3. Kan u iets vertellen over het project [naam project]?
    a. Hoe bent u met het project in aanraking gekomen?
    b. Wat was uw rol?
    c. Waarin was dit project uniek?
4. Wat waren uw beweegredenen om aan dit project deel te nemen?
5. Wanneer bent u gestart en geëindigd (data)?
6. Hoe heeft u het proces in zijn algemeenheid ervaren?
    a. Samenwerking
    b. Tijdplanning
    c. Technische obstakels
    d. Wettelijke obstakels
    e. Community/omwonenden
7. Uit welke fases bestond het project?
    a. Bij welke fase(s) van het project was u betrokken vanuit [naam bedrijf]?
    b. Hoe verliep:
        i. De initiatie/definitiefase?
        ii. De ontwerpfase?

iii. De voorbereidingsfase?
iv. De uitvoeringsfase?
v. De opleveringsfase?

8. Met welke betrokken partijen werkte u (nauw) samen?
    a. Hoe heeft u deze samenwerkingen ervaren?
9. Wat waren de belangrijkste doelen in dit project?
    a. Zijn de doelen behaald?
    b. Wat was hiervoor de belangrijkste reden?
    c. Zijn deze doelen afhankelijk geweest van uw functie? Waarom?
10. Wat zijn in uw ogen de grootste verschillen tussen het proces van herbestemmen en nieuwbouw?
    a. Wat betekent dit voor de keuzes die in het proces gemaakt worden?

Strategieën

11. Vind u dit project geslaagd?
    a. Waarom wel/niet?
12. Welke uitdagingen bent u tegengekomen in het project?
    a. Wat was hiervan de invloed op het proces?
    b. Wat was de invloed op het resultaat?
    c. Wat had er volgens moeten gebeuren om deze weg te nemen?
    d. Zijn er betrokkenen die hier meer invloed op kunnen hebben dan anderen?
13. Welke factoren hebben bijgedragen aan het succes van het project?
    a. Wat is er gedaan om deze factoren te realiseren?
    b. Wie was hiervoor verantwoordelijk?
14. Welke fase(s) is/zijn het meest bepalend geweest voor het succes van het project?
    a. Zijn er hierin verschillen tussen herbestemming en nieuwbouw?
15. Welke actiegerichte keuzes (strategieën) in het proces heeft u ervaren als bevorderend voor het proces?
    a. Wie maakte deze keuzes?
    b. Wanneer zijn deze keuzes gemaakt?
16. Wat ziet u op dit moment als de grootste barrière(s) voor herbestemming?
    a. Wat moet er volgens u gebeuren om deze weg te nemen?
    b. Zijn er betrokkenen die hier meer invloed op hebben dan anderen?
17. Wat zijn de belangrijkste aspecten en actiegerichte keuzes (strategieën) uit dit project die meegenomen kunnen worden naar volgende herbestemmingsprojecten?
18. Op welke manier of in welke vorm kunnen deze onderdelen het best gecommuniceerd en overgedragen worden?
    a. Denk aan actieplan, flowchart, lijst?

Protocol voor interviews experts (onafhankelijk van case)

Introductie

1. Kan u iets vertellen over uzelf en uw (werk)geschiedenis?
    a. Wat is uw functie binnen [naam bedrijf]?
    b. Wat zijn (voornamelijk) uw werkzaamheden?
    c. Bij wat voor soort projecten bent u doorgaans betrokken?
        i. Voorbeelden?
2. Bent u in uw werk betrokken bij herbestemmingsprojecten?
    a. Zo ja, wat voor projecten?
3. Wat is de rol die u vervult binnen herbestemmingsprojecten?

Herbestemmingsproces

4. Wat zijn voor u beweegredenen om betrokken te zijn in herbestemmingsprojecten?
    a. Heeft u ook redenen om juist niet te kiezen voor herbestemming?
5. Uit welke fases bestaat het herbestemmingsproces volgens u?
6. Met welke partijen werkt u nauw samen in herbestemmingsprojecten?
7. Wat is volgens u het doel van herbestemmen?
    a. Waarom?
8. Wat zijn in uw ogen de grootste verschillen tussen het proces van herbestemmen en nieuwbouw?
    a. Wat betekent dit voor de keuzes die in het proces gemaakt worden?

Strategieën

9. Wanneer is een herbestemmingsproject volgens u geslaagd?
10. Welke obstakels ziet u in herbestemmingsprojecten?
    a. Wat is de invloed hiervan op het proces?
    b. Wat is de invloed op het resultaat?
    c. Wat moet er volgens u gebeuren om deze weg te nemen?
    d. Zijn er betrokkenen die hier meer invloed op hebben dan anderen?
11. Welke factoren dragen bij aan het succes van herbestemmingsprojecten?
    a. Wat kan er gedaan om deze factoren te realiseren?
    b. Wie is hiervoor (hoofd)verantwoordelijk?
12. Welke fase(s) is/zijn het meest bepalend voor het succes van herbestemmingsprojecten?
    a. Zijn er hierin verschillen tussen herbestemming en nieuwbouw?
13. Welke actiegerichte keuzes (strategieën) in het herbestemmingsproces ervaart u als bevorderend voor het proces?
    a. Wie is verantwoordelijk voor deze keuzes?
14. Wat zijn de belangrijkste aspecten en strategieën uit uw projecten die meegenomen kunnen worden naar volgende herbestemmingsprojecten?
15. Op welke manier of in welke vorm kunnen deze onderdelen het best gecommuniceerd en overgedragen worden?
    a. Denk aan actieplan, flowchart, lijst?

Appendix 10 – Strategies from interviews

(listed per theme)

Onderwerp	Rol	Strategie (NL)	Toelichting (NL)	Legal	Economic	Preperation	Communication	Building & Environment
Bruis!	**Gemeente**	De gemeente als als vliegwiel en faciliteerder	De gemeente moet een faciliterende rol aannemer in herbestemming. Ambitie om aan te pakken en openheid voor verandering vanuit de gemeente vergroten het project succes.	x				
LocHal	**Architect (C)**	Creëer draagvlak in de politiek	Door de politiek/gemeente het belang van een concept en project en concept in te laten zien wordt er meer inzet getoond om dit te realiseren.	x				
LocHal	**Architect (B)**	Creeer draagkracht bij regulerende partijen	Door de politiek, rijksdienst, welstand, stedenbouw en landschap partijen te betrekken en mee te nemen, creeer je draagkracht. Draagkracht vanauit deze partijen is onmisbaar voor het realiseren van herbestemming.	x				
Zandkasteel	**Aannemer**	Stel heldere contractstukken op	Met heldere afspraken en door hierover te blijven communiveren verbeter je onderling vertrouwen. Ook verminderen duidelijke afspraken onenigheden met betrekking tot onverwachte aspecten in het proces.	x				
Zandkasteel	**Aannemer**	Verplicht transformeren opnemen in de regelgeving	Om de bestaande vastgoed te gebruiken en om doelen voor een circulaire economie te behalen, moeten wetten opgesteld worden die ervoor zorgen dat gebouwen niet onnodig gesloopt worden.	x				
Algemeen	**Ontwikkelaar**	Creëer een gezonde balans in projecten om rendement te garanderen	Een ontwikkelaar moet een gezonde balans vinden tussen herontwikkelingen die langer duren en projecten die relatief snel gaan. De snellere projecten geven minder risico en meer rendement, waardoor ontwikkelaars aan herontwikkelingsprojecten kunnen blijven deelnemen.		x			
Algemeen	**PM/ Architect**	Reserveer voldoende voor onvoorziene kosten	Bij herbestemming moet een groter percentage begroot worden voor onvoorziene kosten dan bij nieuwbouw.		x			
LocHal	**Aannemer**	Combineer ambitie met het beschikbaar stellen van liquide middelen	Houdt als financierend orgaan bij het opstellen van ambities rekening met de daaraan verbonden kosten, zodat de ambities waargemaakt kunnen worden.		x			
Zandkasteel	**Ontwikkelaar**	Ben als bestuurlijk orgaan betrokken bij het haalbaar maken van een project	Door je als bestuurlijk orgaan (gemeente) in te zetten voor het haalbaar maken van herbestemmingsprojecten, zorg je ervoor dat deze succesvoller uitgevoerd kunnen worden.		x			
Zandkasteel	**Ontwikkelaar**	Investeer als bestuurlijk orgaan in gebieden waar potentie ligt voor herbestemming	Door als bestuurlijk orgaan te investeren in kansrijke gebieden, maak je deze plekken aantrekkelijker voor investeerders.		x			
Zandkasteel	**Ontwikkelaar**	Houdt rekening met hoge onvoorziene kosten	In vergelijking met nieuwbouw zullen er meer verrassingen komen in het proces. Zorg dat het project ook dan haalbaar blijft, door hogere onvoorziene kosten in te calculeren.		x			
Algemeen	**Ontwikkelaar**	Focus op de voorbereiding van het process	Een goede voorbereiding van het proces zorgt ervoor dat de kans op hinder later in het process kleiner wordt.			x		
Algemeen	**Architect (GF)**	Breng kansen van herbestemmen in kaart en creëer aan de hand daarvan een visie	Gebruik als opdrachtgever het bestaande gebouw om kansen te ontdekken. Hiermee kan een creatieve visie gevormd worden.			x		
Algemeen	**PM**	Betrek een architect die ervaring heeft met de te realiseren functie	De ervaring van de architect zit hem in de functie die gerealiseerd wordt, boven ervaring met herbestemmen an sich.			x		
Algemeen	**PM**	Focus op schetsen en analystisch het gebouw bekijken	Duik niet gelijk in technische tekenprogramma's. Door de integrale aard van herbestemming is het van belang globaal/ conceptueel te starten.			x		
Algemeen	**PM**	Focus op het begin van het proces	Maak een gedetailleerde inventarisatie van het gebouw, gecombineerd met een risicoanalyse. Zo kom je later in het proces minder voor verrassingen te staan.			x		
Algemeen	**PM/ Architect**	Plan voldoende tijd in voor de initiatiefase en ontwerpfase.	Er is in herbestemming langer de tijd nodig voor de initiatie, de haalbaarheidsstudies en het ontwerp, dan bij nieuwbouw. Door deze tijd in te bouwen voorkom je vertraging later in het proces.			x		
Algemeen	**PM/ Architect**	Vergaar kennis over herbestemmen aan de opdrachtgevers kant	Kijk naar succesvolle voorbeelden en kernwaardes van herbestemmen om een eenduidige doelstelling te creeren binnen het herbestemmingsteam.			x		
Bruis!	**Gemeente**	Focus op de beginfase van het process	Geef een verdiepende laag aan het advies inwinnen over het bestaande gebouw.			x		
LocHal	**Architect (C)**	Besteed tijd aan het onderzoeken van de vraag	Door de vraag te onderzoeken ontstaat er een sterk concept. Een sterk concept zorgt er later in het proces voor dat men bereidwillig is om mogelijkheden te faciliteren om dit verleidelijke concept te realiseren.			x		
LocHal	**Architect (C)**	Creeer een stek concept en houdt daaraan vast	Het creeeren van een concept met veel tijd en aandacht, waar je je vervolgens aan vasthoudt, maximaliseert het succes van het project.			x		
LocHal	**Aannemer**	Zoek bij herbestemming niet alles 100% uit in het voortraject	Door niet alles tot in de puntjes uit te zoeken in het voortraject beperk je de tijd die deze fase in beslag neemt. Hiermee vergroot je de kans dat financierders aan boord blijven en het project haalbaar blijft.			x		
LocHal	**Architect (B)**	Reserveer extra tijd voor de analyse van het bestaande pand	Herbestemming vraagt een uitgebreidere voorbereiding dan nieuwbouw. Deze tijd moet ingecalculeert worden. De uitgebreide voorbereiding is essentieel voor het succes van het project.			x		
Zandkasteel	**Aannemer**	Tijd en aandacht voor gebouwanalyse gecombineerd met ontwerp van plattegronden	Ruim veel tijd in om het gebouw te analyseren en om het nieuwe ontwerp en de nieuwe plattegronden integraal te maken aan het bestaande gebouw.			x		
Zandkasteel	**Architect**	Ontwerp een visie met alle betrokken partijen	Een gezamenlijk opgestelde visie zorgt voor minder conflict in het proces.			x		

Algemeen	Ontwikkelaar	Hetzelfde team voor verschillende projecten	Gebuikt het zelfde ontwerp-/constructieteam met dezelfde partijen voor verschillende projecten. Doordat architect, adviseurs en aannemer op elkaar ingespeeld zijn weet men wat er van elkaar verwacht kan worden. Dit zorgt voor een beter resultaat.	x	
Algemeen	Architect (GF)	Stel integraliteit centraal	Integraliteit draait om de verschillende systemen binnen het gebouw, maar ook om het integreren van het gebouw in zijn fysieke en sociale omgeving.	x	
Algemeen	PM	Betrek iemand met inzicht en ervaring aan de kant van de opdrachtgever	Door als opdrachtgever te begrijpen hoe herbestemming werkt en wat je met een gebouw kan met betrekking tot de verschillende functies, worden betere keuzes gemaakt, waarmee het succes van het project vergroot wordt.	x	
Bruis!	Gemeente	Zet iemand uit het politiek orgaan (gemeente) in als voortrekker van het project	Een voortrekker vanuit het bestuurlijk orgaan (bv. Gemeente), die positiviteit en ambitie uitstaalt, creert draagvlak voor het project bij de gebruikers, omwonenden en binnen het bestuurlijk orgaan zelf.	x	
LocHal	Gebruiker	Geef prioriteit aan het vroeg en blijvend betrekken van gebruikers/huurders	Door gebruikers/huurders van het her te bestemmen pand vanaf moment een aan tafel te hebben, verhoog je de gebruikswaarde van het pand en vergroot de saamhorigheid van deze partijen.	x	
LocHal	Gebruiker	Creeer diversiteit in je ontwerp- en bouwteam	Door partijen met verschillende expertises te betrekken worden alle belangen meegenomen.	x	
LocHal	Gebruiker	Betrek een neutrale partij	Een neutrale (projectmanagement) partij ondersteunt (gebruikers)partijen die weinig ervaring hebben met grote projecten en waarborgt de communicatie tussen partijen. Communicatie is cruciaal voor een goed eindresultaat.	x	
LocHal	Gebruiker	Betrek de community	Het betrekken van de community creert verbondenheid met het gebouw. Deze verbondenheid is voelbaar in het resultaat.	x	
LocHal	Architect (B)	Stel transformatiekaders op en gebruik ze als inspiratie	Transformatiekaders worden opgezet op basis van cultuurhistorische verkenning en waardestelling van het bestaande pand. Deze kaders bewaken de objectiviteit van herbestemming.	x	
LocHal	Architect (B)	Complexiteit onder woorden brengen	Breng als architect de complexiteit van het project onder woorden, zodat er minder complexe ontwerpoplossingen gevonden kunnen worden.	x	
LocHal	Architect (B)	Onderzoekend ontwerpen (research through design?)	In herbestemming is onderzoek naar het gebouw en de omgeving onlosmakelijk verbonden met het maken van een succesvol ontwerp.	x	
LocHal	Architect (B)	Betrek de gebruikers in het onderzoek	Neem gebruikers mee in het onderzoek. Hiermee laat je zien wat de opties zijn en geef je de kans om mee te denken.	x	
Zandkasteel	Aannemer	Participatie passend bij de omgeving en gemeenschap	Door je te verdiepen in de gemeenschap en de soort mensen, kan een passende vorm van participatie worden toegepast.	x	
Zandkasteel	Ontwikkelaar	Creeer vertrouwen en een goede samenwerking	Zoek vanaf het begin naar een goede samenwerking tussen de betrokken partijen. Door vertrouwen in elkaar te hebben, bereik je het beste resultaat.	x	
Zandkasteel	Ontwikkelaar	Herhaaldelijke samenwerking met dezelfde partijen	Door samen te werken met partijen die je al vertrouwt, wordt het proces beter en efficienter.	x	
Zandkasteel	Ontwikkelaar	Blijf betrokken bij het gebouw na de oplevering	Het succes van een project is niet bepaald bij de oplevering. Door nauw betrokken te blijven als opdrachtgever waarborg je de kwaliteiten en houdt je zicht op het gebouw.	x	
Zandkasteel	Architect	Achterhaal wat de gebruikers nodig hebben	Ga als ontwerpende parij in gesprek met gebruikers, om te zorgen dat het herbestemde gebouw aansluit bij wat er nodig is.	x	
Algemeen	Ontwikkelaar	Houd een herontwikkeld pand in bezit	Een ontwikkelaar moet een herontwikkeld gebouw in bezit houden en 'opgeknipt bezit' voorkomen. Op deze manier houdt de ontwikkelaar grip op het gebouw en kan het gebouw in de toekomst met kleine aanpasssingen langer in gebruik blijven.		x
Algemeen	Ontwikkelaar	Functievrije herontwikkeling	Herbestem op een manier waarop verandering in gebruik in de toekomst gefaciliteerd kan worden met kleine aanpassingen aan het gebouw.		x
Algemeen	Architect (GF)	Realiseer structuren die goed hergebruikt kunnen worden	Door in een herbestemming de dragen er inbouw van elkaar te scheiden zijn aanpassingen in de toekomst eenvoudiger en kan het pand blijven voldoen aan de vraag.		x
Algemeen	PM/ Architect	Behoudt de identiteit en het karakter van het gebouw	Behoudt de emotionele en culturele waarde van gebouwen die worden herbestemd. Door het gebouw af te pellen en karakteristieke elementen te bepalen kan je dit gebruiken voor het opstellen van een ontwerp.		x
Algemeen	PM/ Architect	Creëer bekendheid over de de karakteristieke waarde	Door de historische en iconische waarde aan het licht te brengen vebeter je de verbondenheid van de gemeenschap met het her te bestemmen pand.		x
Algemeen	PM/ Architect	Geef het gebouw terug aan de gemeenschap	Herbestem het gebouw met een (deels) publieke functie.		x
Bruis!	Gemeente	Dezelfde partij als opdrachtgever en beheerder	Door opdrachtgeverschap en beheer te combineren in een partij (bijvoorbeeld gemeente) is het makkelijker om beslissingen te maken en het proces te managen.		x
Bruis!	Gemeente	Ontwikkel programma's in het gebouw die het sociaal domein faciliteren	Door een gebouw in te zetten als middel om de sociale doelen in een gebied te bereiken, vergroot je het succes van een herbesgtemmingsproject.		x
Bruis!	Gemeente	Doorloop het ontwerpproces op locatie	Door tijdens het proces in het gebouw te zijn worden er gegronderen keuzes gemaakt die resulteren in een succesvollere uitkomst.		x
LocHal	Architect (C)	Pas inovatieve ideeën toe	Door innovatief te transformeren, creeer je bekendheid van een project. Ook kan een project een voorbeeld zijn voor toekomstige projecten. Hiermee wordt het algemeen succes van herbestemmingsprojecten vergroot.		x
LocHal	Aannemer	Creeer en behoudt verbinding tussen gebouwen in een gebied.	Verbindende bestaande elementen zorgen voor identeit.		x
LocHal	Aannemer	Werk, ontwerp en maak keuzes op locatie	Door op locatie het ontwerp te maken, ben je in de gelegenheid om het gebouw te bekijken en beleven. Dit resulteert in passendere oplossingen en daardoor in meer succes.		x
LocHal	Architect (B)	Stem herbestemming af met gebiedsontwikkeling	Door gebiedsontwikkeling te laten sturen door de gebouwen die er al staan, geef je waarde aan zowel het gebied als de herbestemde gebouwen. De 'ziel' van de plek blijft bewaard en dat zorgt voor een beter resultaat.		x
LocHal	Architect (B)	Behoudt historische functies	Gebouwen die in hun oude fuctie bedoeld waren voor de gemeenschap, moeten deze functie in de herbestemde hoedanigheid behouden.		x
LocHal	Architect (B)	Creeer maatschappelijke meerwaarde met herbestemming	Het toevoegen van maatschappelijke waarde van een gebouw zorgt ervoor dat een gebouw omarmd wordt.		x
LocHal	Architect (B)	Succes van herbestemmen wordt bepaald in de voorbereiding	De analyse van het gebouw en de verschillende componenten van omgeving (fysiek, sociaal, etc.) in de initiatie- en ontwerpfase zijn cruciaal is het realiseren van een gebouw dat toekomsbestendig is.		x
LocHal	Architect (B)	Behoud de immateriele waarde van het gebouw	Immateriele (historische) waarde is minstens zo belangrijk als materiele waarde van een her te bestemmen pand.		x
LocHal	Architect (B)	Zet begrip voor de verschillende lagen en structuren van een gebouw in	Heb inzicht in de verschillende lagen van een gebouw (layers of Brand) en stem hier je ontwerp op af.		x
LocHal	Architect (B)	Maak gebiedsontwikkeling erfgoedgedreven	Zet bestaande panden opnieuw in en stem hier gebiedsontwikkeling op af.		x
LocHal	Architect (B)	Realiseer innovatie ideeën	Innovatie en 'out of the box' denken is cruciaal bij het maken van een passend ontwerp voor een bestaand gebouw.		x
Zandkasteel	Ontwikkelaar	Herbestem gebouwen naar een functie die past in het grind	Denk goed na over het grid van het bestaande gebouw en welke functies dit grid goed kan faciliteren.		x

Appendix 11 – Invitation Delphi round 2

Mail:

Beste [naam expert],

In februari/maart heeft u deelgenomen aan de eerste ronde van mijn afstudeeronderzoek. Ik heb de resultaten van de eerste ronde (enquête en interview) verwerkt. Hieronder licht ik deze resultaten toe:

1. *Enquête:*

Aan de hand van de enquêteresultaten heb ik de 19 strategieën uit de literatuur kunnen rangschikken op effectiviteit met betrekking tot het verbeteren van het herbestemmingsproces. Deze resultaten zijn afgeleid van de waarderingen van de 12 experts die de enquête hebben ingevuld. Op basis van de 5 determinanten (economische waarde, sociale waarde, innovatie, architectonische verfijning en algeheel succes van het project) is er een gemiddelde waardering geformuleerd. De rangschikking kan u vinden in het bijgevoegde document 'overzicht strategieën' op pagina 1 onder het kopje 'Resultaten ronde 1'.

2. *Interviews:*

Uit de getranscribeerde en geanalyseerde interviews kwamen 63 aanvullende strategieën naar voren. Door middel van categorisatie en clustering is dit aantal gereduceerd naar 18 aanvullende strategieën. Deze strategieën vindt u in het document 'overzicht strategieën' op pagina 3 onder het kopje 'Extra strategieën n.a.v. de interviews'.

In deze tweede en laatste ronde van het onderzoek is het doel om de resultaten van de eerste ronde te valideren en om de aanvullende strategieën uit de interviews op te nemen in de rangschikking. Hiervoor heb ik een enquête opgesteld waarin ik vraag naar de top 10 strategieën die naar uw mening het meest effectief zijn in het verbeteren van het herbestemmingsproces.

Ik wil u vragen om de enquête voor ronde 2 **uiterlijk op zondag 13 april 2025** in te vullen via de volgende link: https://www.survio.com/survey/d/O6M5J4G8G2C1S9L6S.

Mocht u nog vragen hebben, dan ben ik telefonisch of via email bereikbaar.

Met vriendelijke groet,

Pien Wilmink

Resultaten ronde 1:

De 19 strategieën uit ronde 1 zijn hieronder weergegeven. Nummer 1 is gewaardeerd als meest effectief. Nummer 19 is gewaardeerd als minst effectief.

Betrek adviseurs met ervaring in herbestemming
Door adviseurs met ervaring in herbestemmingsprojecten te betrekken, wordt risico verkleind. De ervaring die zij meenemen resulteert in een beter eindresultaat.

Voorzie van (financiële) tegemoetkomingen voor herbestemming
Wanneer vanuit de overheid en gemeentes te voorzien in tegemoetkomingen wanneer er voor herbestemming gekozen wordt, wordt het een aantrekkelijkere optie.

Betrek het bouwteam in een vroeg stadium (initiatie)
Het herbestemmingsproces is complex, zowel in de zin van betrokkenen als met betrekking tot het bestaande gebouw. Door de verschillende betrokkenen met uiteenlopende expertises vroeg te betrekken, kan er integraal onderzocht en ontworpen worden. Dit vermindert de kans op vertraging later in het project.

Pas herbestemming toe als onderdeel van gebiedsontwikkeling om buurten te revitaliseren
Een bestaand pand dat gebruikt wordt, geeft identiteit aan een gebied (placemaking). Deze identiteit is een startpunt van waaruit een gebied verder ontwikkeld kan worden. Deze ontwikkelingen zorgen op hun plaats weer voor het aantrekken van publiek.

Creëer politieke ondersteuning
Politieke ondersteuning kan op verschillende manieren vormgegeven worden. Een voorbeeld is het herbestemmen van rijksgebouwen, maar het kan ook inhouden dat er vanuit de politiek maatregelen worden doorgevoerd die herbestemming vergemakkelijken of aantrekkelijker maken.

Stel een duidelijk ambitieplan op
Door een duidelijk ambitieplan op te stellen, welke inbreng bevat van alle verschillende betrokkenen, heb je altijd een document om op terug te vallen. Een duidelijk ambitieplan bewaakt het gezamenlijk doel van het project en vergroot daarmee het succes.

Betrek de lokale gemeenschap en lokale bedrijven in het proces
De effectiviteit van herbestemming afhankelijk van de mensen die het gebouw gaan gebruiken. Door de gemeenschap en lokale bedrijven te betrekken wordt draagkracht gecreëerd voor het project.

Betrek een innovatieve en creatieve architect in het proces
Het ontwerpen met een bestaand gebouw is complexer dan het ontwerpen vanaf een wit vel papier. De effectiviteit van de herbestemming wordt vergroot door innovatief en creatief te ontwerpen.

Creëer flexibiliteit in landgebruik en het bestemmingsplan
Door flexibiliteit te creëren in het beleid met betrekking tot landgebruik en het bestemmingsplan, gaat minder tijd verloren aan de wettelijke verplichtingen en procedures.

Vraag vroegtijdig advies over onderzoek naar de bouwkundige staat van het te herbestemmen pand
Door vroegtijdig onderzoek te doen naar de bouwkundige staat van een gebouw, kan je anticiperen op gebreken. Hiermee beperk je de vertraging die later in het proces opgelopen wordt door tegenslagen met betrekking tot de technische staat van het gebouw.

Verbeter de communicatie tussen belanghebbenden van het project
Goede communicatie tussen belanghebbenden vergroot de kans dat men op een lijn blijft.

Betrek de eindgebruiker in een vroeg stadium (initiatie)
De effectiviteit van een herbestemmingsproject hangt mede af van het oordeel van de eindgebruiker. Door deze vroeg te betrekken kan hun input vanaf het begin meegenomen worden.

Verkort de totale projecttijdlijn om risico's te verkleinen
Door de projecttijdlijn kort te houden worden risico's voor investeerders en andere betrokkenen verkleind, wat de drempel tot deelname aan een herbestemmingsproject kan verlaagt.

Creëer bewustzijn over de mogelijkheden voor herbestemming
Met meer algemene kennis over de mogelijkheden van herbestemming, kunnen er beter gegronde keuzes gemaakt worden. Als de mogelijkheden onbekend zijn, zal men er ook niet voor kiezen.

Verander het bouwbesluit zodat er meer ruimte is voor flexibiliteit en creativiteit in herbestemming
Door in het bouwbesluit versoepelingen door te voeren voor herbestemming, is er meer ruimte voor flexibiliteit en creativiteit en wordt herbestemming een aantrekkelijkere optie.

Zorg dat onderhoudskosten laag blijven
Door in het herbestemmingsproces al bezig te zijn met het laag houden van de onderhoudskosten, is het voor een investeerder aantrekkelijker om te investeren in het project en om het gebouw in bezit te houden na de oplevering.

Creëer een 'goede aansluiting' tussen de oude en nieuwe gebruiksfunctie van het gebouw
De afstemming tussen de oude en nieuwe gebruiksfunctie verkleint risico's en zorgt voor een succesvolle herbestemming.

Beperk aanpassingen aan het bestaande gebouw tot een minimum
Door een bestaan gebouw zo veel mogelijk zijn eigen uitstraling te laten behouden, houdt het waarde. Daarbij is het beperken van de aanpassingen risicobeperkend omdat er minder kans is op onvoorziene gebreken.

Houd rekening met de belangen van de gemeenschap in de wijdere omgeving
Door de gemeenschap in de wijdere omgeving te betrekken, is het project ook voor deze groep van toegevoegde waarde. Dit vergroot de draagkracht en daarmee de effectiviteit.

Extra strategieën n.a.v. de interviews:

De volgende 18 strategieën zijn naar voren gekomen uit de interviews in ronde 1.

Neem een stimulerende en faciliterende rol aan als overheidsorganisatie
Ondersteuning en enthousiasme vanuit overheidsorganisaties vergroten het succes van herbestemmingsprojecten.

Stel heldere contractstukken op
Het in detail vastleggen van afspraken over aansprakelijkheid is van groot belang bij herbestemming, vanwege de onzekerheden met betrekking tot het bestaande gebouw.

Maak herbestemming verplicht bij de wet
Door partijen te verplichten bestaande panden her te bestemmen blijft de bestaande gebouwvoorraad waardevol in de toekomst.

Investeer gemeentegeld in herbestemmingsprojecten als onderdeel van gebiedsontwikkeling
De emotionele, culturele en historische waarde van bestaande gebouwen hebben bij goed inzetten van herbestemming een positieve weerslag op gebiedsontwikkeling. Tegelijkertijd zorgen ontwikkelingen in de omgeving van een herbestemd gebouw voor een hogere gebruikswaarde.

Begroot meer voor onvoorziene kosten
Risico's zijn groter bij herbestemming in vergelijking met nieuwbouw. Deze risico's zorgen voor meer onvoorziene omstandigheden en dus voor hogere onvoorziene kosten. Deze kosten moeten vooraf begroot worden.

Laat een deel van het onderzoek uitvoeren in de executiefase
Door sommige gebouwaspecten in de uitvoeringsfase te laten onderzoeken, wordt de voorbereidingsfase verkort. Deze kortere voorbereiding vergroot de kans dat investeerders aan boord blijven.

Analyseer en ontwerp het gebouw en de context integraal
Een uitgebreide en integrale analyse van de technische aspecten, de (immateriële) waarde, en de (toekomstige) gebruikers van het gebouw en de omgeving, creëert een basis voor een sterk concept. Gebruik de eerste fases om het gebouw en de omgeving te leren kennen, om vertraging en onvoorziene kosten later in het proces te beperken.

Onderzoek de (uit)vraag uitvoerig
Richt je op de ontwerpvraag in plaats van op de fysieke ontwerpeisen. Gebruik het ontwerp als verbinding tussen de gebruikers en de vraag.

Stel een sterk concept/duidelijke visie op samen met alle betrokkenen
Het gezamenlijk creëren van een visie vergroot het draagvlak om doelen te bereiken en vergroot het vertrouwen tussen de partijen.

Betrek iemand met kennis over herbestemming aan de kant van de opdrachtgever
Zorg dat je als opdrachtgever interne kennis hebt over herbestemming. Wanneer dit er intern niet is, is het raadzaam een externe partij te betrekken/in te huren die deze rol kan vervullen.

Voer meerdere projecten uit in dezelfde ontwerp- en constructieteams
Door meerdere projecten in hetzelfde (bouw)team samen met dezelfde partijen uit te voeren, vergroot het onderlinge vertrouwen en verloopt het proces soepeler.

Betrek een neutrale partij om inclusiviteit en communicatie te waarborgen
Een neutrale partij (project-/procesmanager) waarborgt goede communicatie en zorgt ervoor dat alle betrokkenen gehoord en gezien worden.

Betrek (eind)gebruikers in het onderzoek en de analyse
De eindgebruikers betrekken in de onderzoeksfase van het project, creëert draagvlak en geeft gebruikers de mogelijkheid input te leveren.

Houdt het gebouw als opdrachtgever in bezit en beheer na de oplevering
Bewaak de kwaliteit van het gebouw wanneer het in gebruik genomen wordt. Door betrokken te blijven kunnen visies, die tijdens het proces zijn opgesteld, bewaakt en behouden worden.

Geef het gebouw terug aan de gemeenschap
Zorg dat het herbestemde gebouw sociale waarde toevoegt, door een publieke functie in (een deel van) het gebouw te realiseren.

Behoudt immateriële waarde van het bestaande gebouw
Het behouden van historische en culturele waardes van een gebouw, zorgt voor connectie met de gemeenschap.

Analyseer, werk, ontwerp en maak keuzes op de projectlocatie
Stel de concepten en het ontwerp op locatie op, om tot de meest passende keuzes te komen. Dit zorgt voor keuzes die goed bij het gebouw passen en voorkomt onnodige discussies.

Realiseer structuren en lagen in het gebouw die aanpassingen in de toekomst faciliteren
Herbestemming van een gebouw is een continu proces. Het creëren van structuren/lagen die gemakkelijk kunnen worden aangepast, resulteert in toekomstbestendige gebouwen.

Appendix 12 – Survey round 2

Ronde 2: Validatie en aanvullende strategieën

Beste deelnemer, welkom bij ronde 2 van mijn onderzoek naar de effectiviteit van strategieën in het herbestemmingsproces. Dankuwel voor het invullen van deze vragenlijst. Klik op 'beginnen' om door te gaan naar de uitleg van deze ronde.

Wat is uw naam?

UITLEG

Deze enquête is onderdeel van ronde 2 van mijn onderzoek. In ronde 1 heb ik u gevraagd de strategieën uit de literatuur te waarderen op basis van hun effectiviteit en ben ik tijdens een interview met u in gesprek gegaan over het herbestemmingsproces.

Via email heb ik u op de hoogte gesteld van de resultaten van de enquête uit ronde 1, in de vorm van een ranglijst. Deze ranglijst van 19 strategieën vindt u, samen met nog 18 aanvullende strategieën die uit de interviews naar voren zijn gekomen, in het document 'overzicht strategieën'. Neemt u dit document alstublieft goed door voordat u met deze vragenlijst start. U heeft dit document nodig om de vragen in deze ronde te kunnen beantwoorden.

In de resultaten van ronde 1 viel het op dat voor het overgrote deel van de strategieën geldt dat de effectiviteit het hoogst ingeschat wordt voor de 'economische waardecreatie'. Daarnaast wordt de gemiddelde effectiviteit voor de vier aspecten (economische waarde, sociale waarde, innovatie en architectonische waarde) lager ingeschat dan de effectiviteit voor het 'algeheel success van het project'.

Heeft u nog opmerkingen over de resultaten van ronde 1?

In deze ronde vraag ik u om uit de 37 strategieën **een top 10 op te stellen van strategieën die naar uw mening het meest effectief zijn in het verbeteren van het herbestemmingsproces.** Daarnaast vraag ik u voor elk van deze 10 strategieën, wat er nodig is om deze toepasbaar te maken en in welke fase(s) de strategieën van toepassing zijn. Op de volgende pagina kunt u de top 10 opstellen en de vragen beantwoorden.

Let op: Neem elke strategie maximaal één keer op in uw lijst

1

Mocht u nog vragen hebben tijdens het invullen van de vragenlijst, dan kunt u mij per mail (wilmink@stevensvandijck.nl) of telefonisch (+31 6 83 05 66 62) bereiken. Dankuwel!

Strategie 1

Vraag instructies: *Selecteer de strategie die u op plek 1 waardeert. De strategieën staan op alfabetische volgorde. Voor toelichting zie document "overzicht strategieën"*

- ◯ Analyseer en ontwerp het gebouw èn de context integraal
- ◯ Analyseer, werk, ontwerp en maak keuzes op de projectlocatie
- ◯ Begroot meer voor onvoorziene kosten
- ◯ Behoudt immateriële waarde van het bestaande gebouw
- ◯ Beperk aanpassingen aan het bestaande gebouw tot een minimum
- ◯ Betrek adviseurs met ervaring in herbestemmingsprojecten
- ◯ Betrek de eindgebruiker in het project in een vroeg stadium (initiatie)
- ◯ Betrek de lokale gemeenschap en lokale bedrijven in het proces
- ◯ Betrek een innovatieve en creatieve architect in het proces
- ◯ Betrek een neutrale partij om inclusiviteit en communicatie te waarborgen
- ◯ Betrek (eind)gebruikers in het onderzoek en de analyse
- ◯ Betrek het bouwteam bij het project in een vroeg stadium (initiatie)
- ◯ Betrek iemand met kennis over hebestemming aan de kant van de opdrachtgever
- ◯ Creëer bewustzijn over de mogelijkheden voor herbestemming
- ◯ Creëer een 'goede aansluiting' tussen de oude en nieuwe gebruiksfunctie van het gebouw
- ◯ Creëer flexibiliteit in landgebruik en het bestemmingsplan
- ◯ Creëer politieke ondersteuning
- ◯ Geef het gebouw terug aan de gemeenschap
- ◯ Houdt het gebouw als opdrachtgever in bezit en beheer na de oplevering
- ◯ Houdt rekening met de belangen van de gemeenschap in de wijdere omgeving
- ◯ Investeer gemeentegeld in herbestemmingsprojecten als onderdeel van gebiedsontwikkeling
- ◯ Laat een deel van het onderzoek uitvoeren in de executiefase
- ◯ Maak herbestemming verplicht bij wet
- ◯ Neem een stimulerende en faciliterende rol aan als overheidsorganisatie
- ◯ Onderzoek de (uit)vraag uitvoerig
- ◯ Pas herbestemming toe als onderdeel van gebiedsontwikkeling om buurten te revitaliseren

- ◯ Pas herbestemming toe als onderdeel van gebiedsontwikkeling om buurten te revitaliseren
- ◯ Realiseer structuren en lagen in het gebouw die aanpassingen in de toekomst faciliteren
- ◯ Stel een duidelijk ambitieplan op
- ◯ Stel een sterk concept/duidelijke visie op samen met alle betrokkenen
- ◯ Stel heldere contractstukken op
- ◯ Verander het bouwbesluit zodat er meer ruimte is voor flexibiliteit en creativiteit in herbestemmingsprojecten
- ◯ Verbeter de communicatie tussen belanghebbenden van het project
- ◯ Verkort de totale projecttijdlijn om risico's te verkleinen
- ◯ Zorg dat onderhoudskosten laag blijven
- ◯ Voer meerdere projecten uit in dezelfde ontwerp- en constructieteams
- ◯ Voorzie van (financiële) tegemoetkomingen voor herbestemmingsprojecten
- ◯ Vraag vroegtijdig advies over onderzoek naar de bouwkundige staat van het te herbestemmen pand

Strategie 1: Op welke manier kan deze strategie uitgevoerd worden in de praktijk?

Vraag instructies: *Denk aan: Wie moet er acties ondernemen om deze strategie te realiseren? Wat kan er gedaan worden om het doel van de strategie te bereiken? Wat zijn aandachtspunten van deze strategie? etc.*

Strategie 1: In welke fase(s) van het proces wordt deze strategie ingezet?

Vraag instructies: *In de onderstaande procesmap vindt u de uitleg van de verschillende fases*

☐ Initiatiefase ☐ Definitiefase ☐ Haalbaarheidsfase ☐ Ontwerpfase ☐ Onderhandelfase ☐ Uitvoeringsfase

The questions above are asked for all strategies in the experts top ten.

Dankuwel voor het invullen van de vragenlijst.

Is er nog iets dat u kwijt wil met betrekking tot mijn onderzoek?

Appendix 13 – The strategy list

In this appendix the strategy list and its visualization are presented as the final deliverable of this research. The list is compiled and operationalized to be brought into practice as a checklist to make the results of this research of use for actual adaptive reuse projects.

Improving the adaptive reuse process

The adaptive reuse process is dynamic and complex. The checklist presented in this document is compiled to aid the client of the project. It aims to create clarity by presenting actionable choices, referred to as strategies, which are most effective to improve the adaptive reuse process. This document can be used as a suplement to contracting documents with stakeholders in the early stages of the adaptive reuse process, to ensure that the application of the strategies is safeguarded.

How to use?
The visualisation of the strategy list on the next page is to be read from left to right. On the X-axis the time in the AR process and the corresponding phases are visualised. On the Y-axis the level of influence of each phase is shown, which is based on the strategy ranking.

At the upper part of the process line, the implication of the strategies is shown. Each strategy is described in the 'strategy checklist' part, on this page. At the lower part of the process line, the reoccurrence of the strategies is shown.

The adaptive reuse process knows four groups of stakeholders: investors, producers, users, and regulators. For each strategy in the tool, the involved stakeholder groups are designated.

Stakeholders

- Investors: bring in monatory resources and have a pragmatic view on the project.
- Producers: Take part in decision-making processes and prepare and actualise the building.
- Users: Represent the demand for future use.
- Regulators: Aim to accomplish goals regarding the areas' economics, environment and socio-cultural aspects.

Strategy checklist

1 **Formulate a strong vission/concept together with all stakeholders**

Involving all stakeholders in the creation of the vision fosters authenticity and enthusiasm across all parties. Such involvement ensures continued commitment and generates widespread support, thereby increasing the feasibility of the project.

2 **Involve advisors experienced in adaptive reuse**

Adaptive reuse projects demand specific expertise from advisors, who must possess a thorough understanding of the existing building. The knowledge and experience of advisors are critical drivers of project feasibility.

3 **Reserve more money for unforeseen circomstances**

High complexity in adaptive reuse results in higher risks. Reserving extra money reduces the impact of these risks. Involvement of a financial expert aids in making informed choices and increases financial feasibility.

4 **Involve the construction team (bouwteam) early**

Early involvement of the construction team leads to more accurate planning and budget estimations. Expertise (especially the contractor) brought into the project at an early stage reduces risks later and supports informed decision-making.

5 **Seek for an innovative/creative designer**

The architect acts as a key stakeholder and carries the vision, while also playing a vital role in communicating ambitions and alternative solutions to the municipality and other stakeholders. A heterogeneous architectural team incorporates diverse perspectives.

6 **Integrally analyse and design the building and its context**

Awareness that adaptive reuse projects necessitate an integrated approach is a precondition. The client must organise the team, engage a suitable architect, and consult the municipality regarding opportunities and risks to conduct and comprehensive research.

7 **Create political support**

Early engagement of alderman (or even the mayor) fosters trust and allows regulating parties to contribute ideas, which can be crucial for accelerating permit procedures and changes to zoning plans. Political support can also lead to financial assistance.

8 **Involve the end user early**

Early involvement of end users introduces diversity into the project team and enables the programme to be tested against user expectations. By granting a clear mandate, the end users' input can support the assessment of the redesign's social value.

9 **Engage communities/local businesses in the process**

Local communities and businesses can offer insights that may not be apparent to the project team. Their repeated involvement builds mutual trust and fosters support throughout the process.

10 **Minimise changes to the building**

Minimising alterations helps to preserve the building's identity, fosters broader support, and simplifies complex permit processes. The extent to which changes should be limited depends on the specific building, making thorough analysis critical.

11 **Maintain intangible values**

Existing buildings always have a historical, cultural or emotional value. Comprehensive research into the building is essential to identify and define its intangible values. Governments can play a supporting role.

12 **Create structures/layers in the building which facilitate future alterations**

Anticipation on potential future changes in the building's function should be incorporated into the design tender. Future transformations can be facilitated by features such as sufficient daylight, generous spatial arrangements, the use of natural materials, and flexible structural systems.

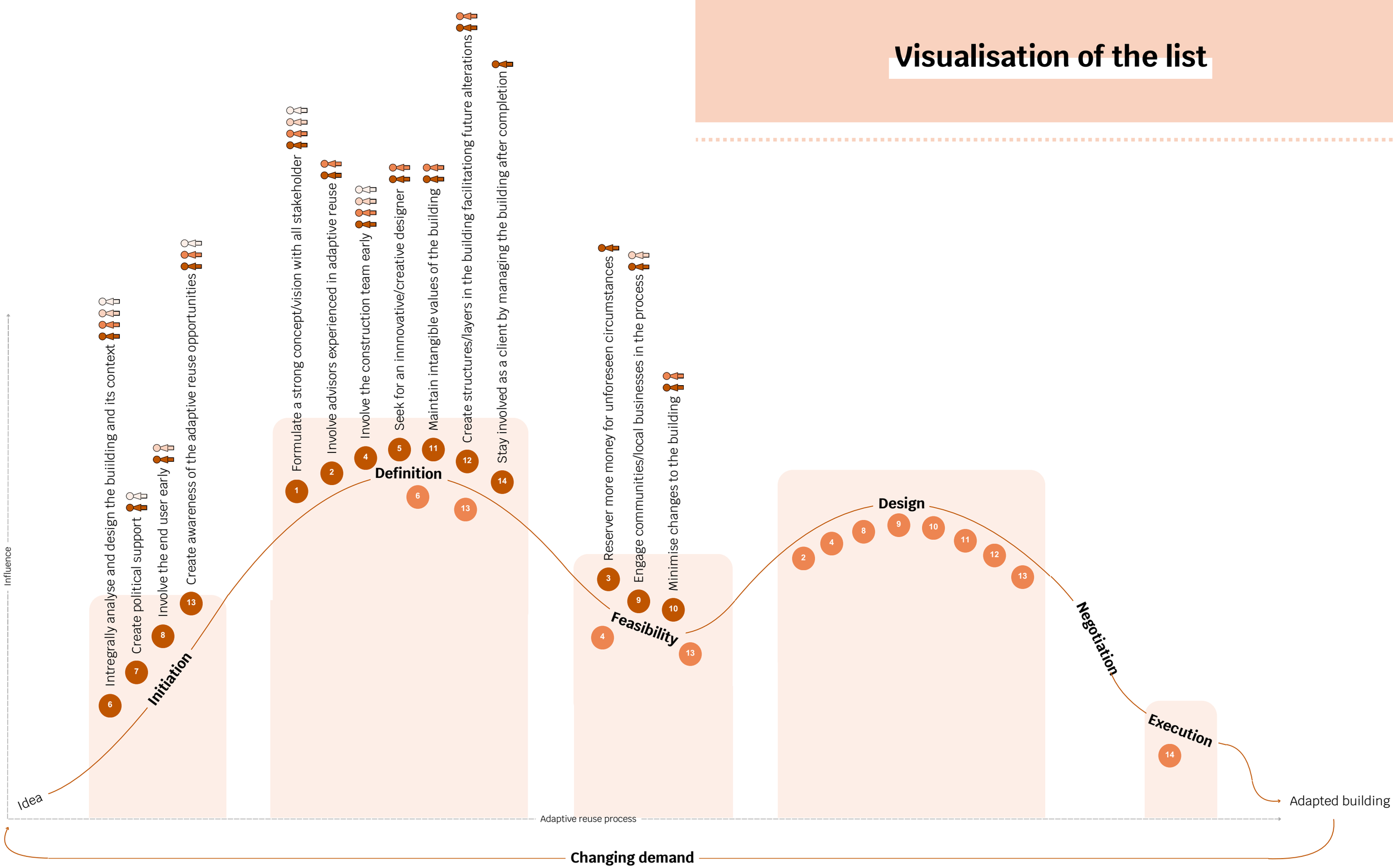
13 **Create awareness of the adaptive reuse opportunities**

Experience within the design and construction teams plays a vital role for creating awareness. Awareness can be raised through innovative thinking, the avoidance of the most straightforward solutions, and the creation of multifunctional programmes and spaces.

14 **Stay involved as a client by managing the building after completion**

Continued client involvement following project completion allows the original visions and ambitions to be further developed in use. The client's intimate understanding of their own design choices ensures that the intended user groups remain engaged.

Visualisation of the list



Legend

- Time in the AR process
- Influence of the phase according to the ranking of the strategies
- # Initiation of the strategy
- # Reoccurence of the strategy
- Investors
- Users
- Producers
- Regulators