Enabling the adaptive reuse of industrial heritage: A municipal perspective

MSc thesis
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Colophon

Enabling the adaptive reuse of industrial heritage: a municipal perspective
Studying the involvement of the municipality in the adaptive reuse process of industrial heritage buildings in the Netherlands

MSc graduation thesis
P5 report | 20 June 2023

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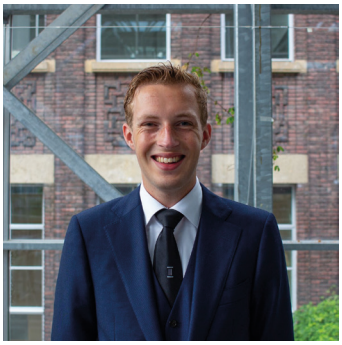

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Preface

This research studies the involvement of the municipality in the adaptive reuse process of industrial heritage buildings in the Netherlands. This master's thesis represents the end of the one-year graduation research performed for the master's track Management in the Built Environment (MBE) at the Faculty of Architecture and the Built Environment at Delft University of Technology.

Therefore, the report laying in front of you also marks the end of my study career at the Faculty of Architecture and the Built Environment. Pursuing both my bachelor's degree and master's degree at this faculty, next to many other activities, made me feel very connected to the BK faculty and community. While it saddens me to leave the BK Community behind, I am also excited to move on to the next chapter that is ahead.

I am proud of this report, which highlights my passion for (industrial) heritage, and my interest in preserving these beautiful buildings. Thinking about how this process works, who is involved, what values are of relevance, and how the adaptive reuse can be enabled more, sparked my interest even more for this field in the past year.

The graduation process over the last year had its highs and lows, yet I look back on a great learning experience. Being thrown in the deep; setting up, executing, and evaluating a year's worth of research, was a challenging task, but has taught me a lot.

I want to thank my both mentors, Alexandra den Heijer and Daan Bossuyt, for standing by me, providing me with feedback and support. Moreover, I want to thank all the participants for their time, effort, and interesting stories. Last but definitely not least, I want to thank my family and friends for the support, motivation, and encouragement.

Enjoy the read!

Sincerely,

Nick Coes

ABSTRACT

Introduction - Industrial heritage buildings possess unique characteristics and significant potential, yet often many remain vacant: presenting an untapped opportunity. Adaptive reuse of these buildings can have an extra-large impact, especially as catalysts for urban (re)development. However, the adaptive reuse process is complex, particularly for municipalities. Municipal roles have shifted towards being demand-oriented, market-following, and market-organizing, yet municipalities are considered to be responsible for vacant areas. This shift combined with the complexity of the process, highlights the need for this reserach, which explores municipal involvement in the adaptive reuse process of industrial heritage buildings in the Netherlands.

Methods - The methodology consists of a market review, case studies, and a cross-case analysis. The market review gives a broad overview of projects in the Netherlands, and their characteristics. Six heterogenous case studies are selected: LocHal (Tilburg), Klokgebouw (Eindhoven), Baronie (Alphen a/d Rijn), RDM Campus (Rotterdam), Ploeg (Bergeijk), and Greswarenfabriek (Reuver). Each case is studied by reviewing documents and conducting two interviews.

Results - The case studies demonstrate the practical complexity and diversity of adaptive reuse processes, municipal involvement, and relevant public values. Municipalities primarily adopt an active approach during the preparation phase, often focusing on their roles as connectors and stimulators, and incorporating arrange/provide and stimulate/align approaches. However, municipalities tend to be more passive during the pre-project phase, despite its extensive nature.

Discussion - The research reveals varied forms of municipal involvement, making it challenging to establish clear causal relationships between project characteristics, public values, and types of municipal involvement. Further research is required to enhance understanding of municipal involvement in this context and its reasons. To contribute to this understanding, a model is proposed, linking project complexity to active municipal involvement, in which more roles and approaches are incorporated in the municipal strategy if the process is mroe complex. Municipalities are recommended to adopt an active stance, integrate knowledge development and exchange, and remain adaptable to evolving circumstances.

Keywords
Industrial heritage, adaptive reuse, public commissioning, municipality, heritage buildings

Executive summary

Introduction

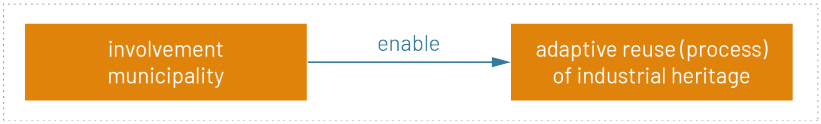
Dutch cities face a big redevelopment task in inner-city areas in the coming decades (Loos, 2014). The adaptive reuse of industrial heritage in such areas can have a great effect on its context and can be used as a catalyst for urban (re)development (Lelie, 2012). These unique buildings are often left vacant for a long time (Cultural Heritage Agency of the Netherlands, n.d.) and adaptive reuse can therefore be a great opportunity, especially in the context of urban (re)development (Goossens, 2006).

However, the adaptive reuse process of industrial heritage has proven to be quite complex, especially at the beginning of such projects (Pallada, 2017; van Hout, 2021). Adaptive reuse projects of heritage have many involved stakeholders, lots of concerned (public) values, and varying ambitions. The extra-large size and extra-large impacts of industrial heritage make it even more complex. Local governments are considered to be responsible for the conservation or adaptive reuse of these unique buildings, whether they are owners or not (Loos, 2014). The government has become more demand-oriented, market-following and market-organising, requiring a different attitude of local governments and new methods of working together with the market (Loos, 2014; van Laar, 2013). Due to the complexity and their shifting role, municipalities are struggling to find the right involvement to use in such developments.

Despite the fact that the concepts of adaptive reuse and industrial heritage have been researched extensively and the role of (industrial) heritage in urban (re)development is widely analysed, a new approach is required. Current studies often rationalize the process or consider an 'ideal' situation, although this is often not the case in practice. Furthermore, empirical insights into how local governments are involved and how they choose how they want to be involved seems to be lacking. Especially with the municipality's changing attitude and the growing value of industrial heritage, new insights about municipal involvement and the adaptive reuse process are essential. Previous research by Loos (2014) concludes that the role of local governments can not officially be concluded, and more research into relevant cases is needed in this municipal involvement.

Research approach

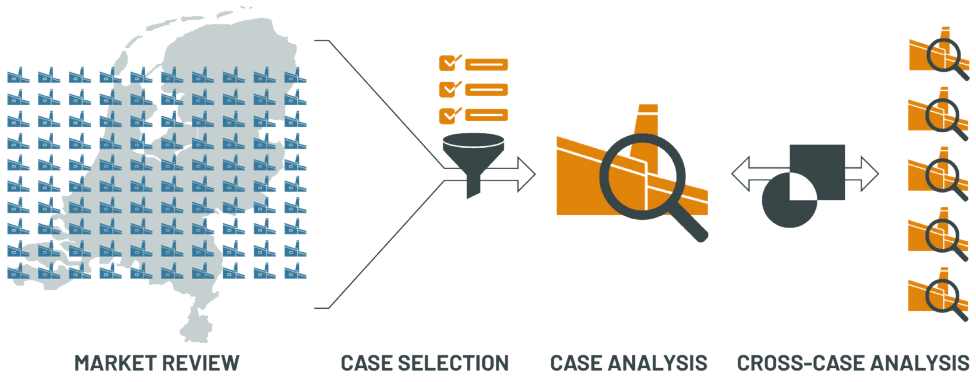
This research focuses on describing the municipality's involvement in the adaptive reuse process of industrial heritage buildings in the Netherlands. The main research question is (see figure): "**How can the involvement of the municipality enable the adaptive reuse (process) of industrial heritage buildings in the Netherlands?**"



The study comprises four steps, that is also used to structure this summary:

SI 1. exploring the significance of industrial heritage (SI),
PR 2. examining the process of adaptive reuse (PR),
MU 3. analysing types of municipal involvement (MU),
PV 4. and identifying relevant public values (PV).

The research gives a theoretical background, yet focusses on empirical research (see figure). A market review of 100 cases aims to get an understanding of the context of industrial heritage, after which six heterogeneous case studies are selected to be part of a comprehensive case analysis to dive into the variety of these processes and the types of municipal involvement. Cross-case analysis of the cases reveals commonalities and differences. The aim is to gain insights into the involvement of municipalities and their impact on the adaptive reuse of industrial heritage buildings. Overall, this research contributes to understanding how municipalities can facilitate adaptive reuse, providing valuable insights into their involvement and the public values at play.

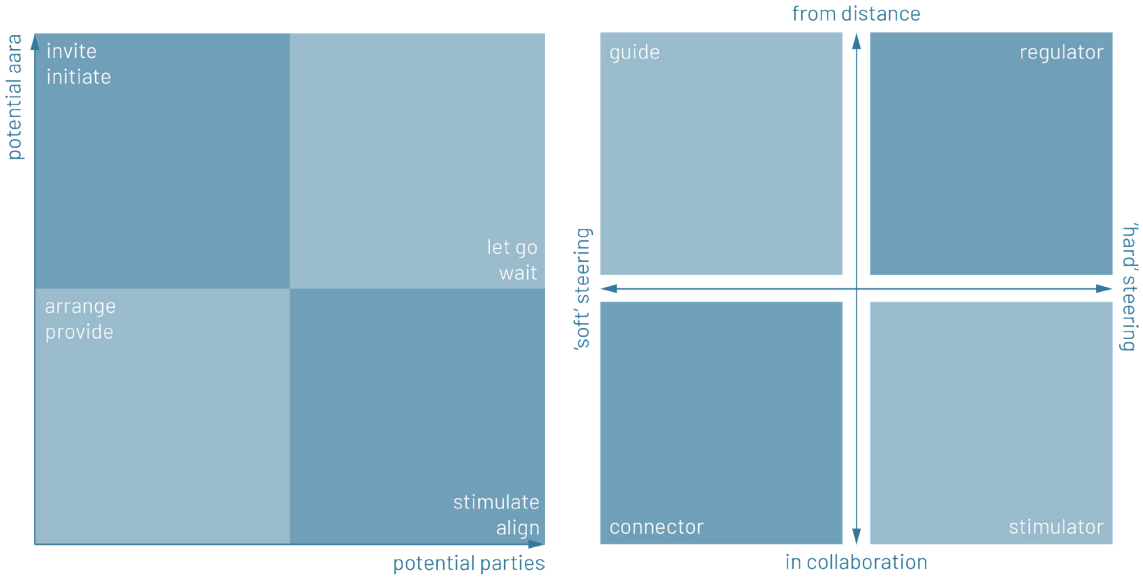


Theoretical background

SI Industrial heritage refers to the "the remains of industrial culture which are of historical, technological, social, architectural or scientific value" (TICCIH). In contrast to the past practice of demolishing such structures, there is a growing trend of conserving these buildings due to their profound significance and their potential to make a substantial impact within their respective contexts. These buildings are characterized by their extra-large scale and their ability to deliver considerable value to users while also serving as catalysts for urban development. Additionally, they play a crucial role in shaping the overall strategies and economic landscape of the cities they inhabit. Consequently, industrial heritage holds significance at various scales.

PR Due to this significance, there has been an increasing trend in the adaptive reuse of these buildings. Adaptive reuse is defined as "the process of converting a building to a function which is significantly different from the original function" (Arfa et al., 2022). It serves as a critical component in extending the life cycle of a building and preventing various forms of obsolescence. The adaptive reuse process can be broadly categorized into four phases: the pre-project phase, preparation phase, implementation phase, and post-completion phase. Temporary utilization of the building often plays a vital role during the initial two phases as part of the adaptive reuse strategy.

MU Municipal involvement in the adaptive reuse of industrial heritage has evolved over time. It is considered to be a form of public commissioning, which is "the way in which a public sector organization, with regard to its responsibilities in the built environment, shapes and implements its interaction with the market internally and externally" (M.H. Hermans et al., 2018). Although no specific model exists for municipal involvement in industrial heritage, two existing models focus municipal involvement in the context of urban (re)development. The municipal approach model (left in the figure, van der Velden et al., 2012) identifies four approaches based on area potential and the potential of the involved parties: let go/wait, stimulate/align, invite/initiate, and arrange/provide approaches. The municipal steering role model (right in the figure, Verheul et al., 2017; 2018) outlines four steering roles based on collaboration vs. working from a distance and hard vs. soft steering: guide, regulator, stimulator, and connector. These models provide insights into different types of municipal involvement.



PV Municipalities must consider various public values when choosing their roles. Public values encompass a "reflection of what society believes are important values in the production of certain products or services and whose provision is the responsibility of the government" (Kuitert, 2021). While different interpretations of public values exist, there is a lack of comprehensive models that address their balancing. However, den Heijer's (2021) model offers a structured decision-making model that helps balance four perspectives: organizational, financial, physical, and functional perspectives (see figure). Each perspective represents different public values and stakeholder considerations.

Empirical research

The empirical research commences with a comprehensive market review, encompassing the analysis of 100 cases across the Netherlands. These projects are geographically dispersed and were completed between 2000 and 2022. The examined buildings exhibit a wide range in size, varying from 350 to 60.000 square meters, with an average size of 13.512 square meters, underlining the substantial dimensions of industrial heritage. The former functions of these buildings varied, including factories, workshops, warehouses, and others. Following adaptive reuse, many of these projects accommodate multiple users, a characteristic facilitated by their extensive size. Additionally, approximately half of the cases were incorporated within urban (re)development initiatives.

From this pool of cases, a deliberate selection process was conducted, considering criteria centered around the municipality, project characteristics, and available information. As a result, the following six cases were chosen for case analysis: LocHal in Tilburg, Klokgebouw in Eindhoven, Baronie in Alphen aan den Rijn, RDM Campus in Rotterdam, Ploeg in Bergeijk, and Greswarenfabriek in Reuver (see images from left top to right bottom). Each case study entails a thorough analysis of the case's characteristics, significance, context, process, municipality's involvement, and relevant public values. These elements are also scrutinized in the cross-case analysis, allowing for comparative examination across the selected cases.




SI The analysis reveals that industrial heritage holds significance on multiple scales in practical terms. Primarily, the adaptive reuse of these buildings effectively prevents their obsolescence or deterioration, as affirmed by several interviewees. The majority of projects (5 out of 6) are integrated into urban development initiatives, acting as catalysts for positive change. Additionally, these projects frequently align with the municipality's strategic objectives, contributing to the overall recognition and reputation of the city.

PR The process of adaptive reuse observed in the cases is typically characterized by its extensive nature, particularly during the pre-project phase, resulting in a considerable amount of time before a viable plan is formulated. This timeline can be influenced by unfavorable market conditions. Temporary use emerges as a significant factor in the initial phases, enhancing the attractiveness of the area and serving as a catalyst for subsequent urban (re)development endeavors.

MU The cases reveal a wide range of municipal involvement and instrument usage. Municipalities are generally active participants, primarily focusing on stimulate/align and arrange/provide approaches within the municipal approach model. In terms of the municipal steering role model, municipalities predominantly adopt the roles of guide, connector, and stimulator, occasionally incorporating regulator instruments.

PV The analysis of public values underscores the intricate nature of these processes, encompassing a multitude of values from diverse perspectives that can potentially conflict with one another. Organizational values emerge as the most frequently cited, although the financial perspective is also deemed critical. Notably, tensions often arise between the financial perspective and the other perspectives, reflecting the complexity inherent in balancing these considerations.

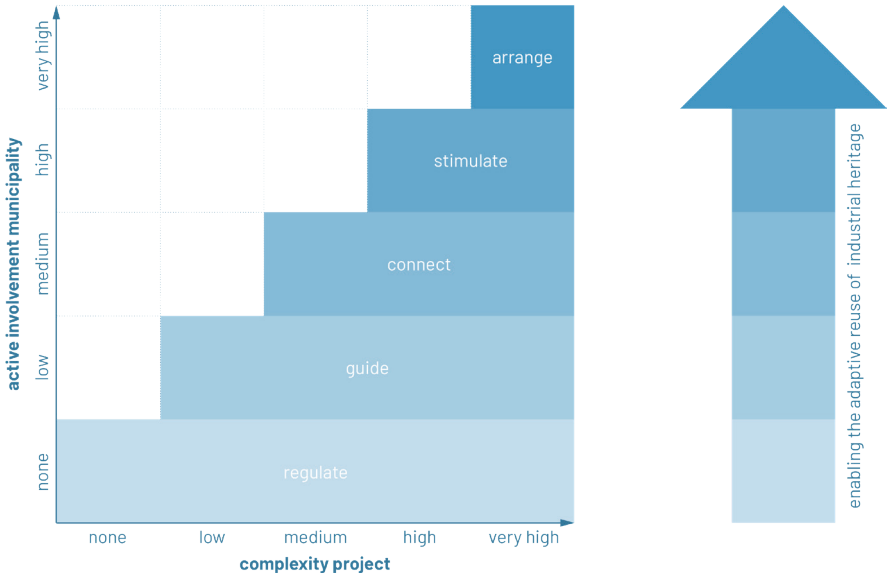
Despite comprehensive analysis of the different characteristics, contexts, and values in conjunction with municipal involvement, pinpointing the specific inputs that significantly influence or drive the type of municipal involvement remains challenging.

Discussion

The theoretical models employed in this research, while generally practical tools, were not without limitations. The four-perspective model by den Heijer (2021) was adapted and tailored to different scales (recommended to be used in other research as well), with an additional organizational value incorporated specifically for this research. The phasing model by Arfa et al. (2022) served as a valuable framework for structuring the process but fell short in capturing the complexity of the analyzed processes. The municipal approach model (van der Velden et al., 2012) provided a broad framework that allowed for interpretation and occasionally led to confusion, yet it effectively described the overall approach of municipalities. The municipal steering model (Verheul, 2017) offered a more concrete and practical approach by integrating instruments, facilitating the identification of these instruments in the context of industrial heritage. The last two models regarding municipal involvement have been supplemented with a practical and concrete list of instruments specific to industrial heritage, but further research is necessary to validate and expand upon this list.

The research aligns with existing studies on municipal involvement (often in other contexts), emphasizing the significance of effective communication (connector role) and proactive engagement (utilizing multiple instruments). However, it does not establish a clear connection between the potential of the area and involved parties in combination with a specific municipal approach, as outlined by Verheul (2017; 2018). This is due to the finding that municipalities tend to integrate multiple approaches in their strategies rather than strictly adhering to a singular approach.

In order to understand the municipal involvement in the realm of industrial heritage, a new model has been devised that addresses the complexity of these processes and the utilization of diverse instruments in municipal strategies. The model delineates a reactive form of municipal involvement, primarily assuming the role of a regulator in less complex environments. As the complexity of the context increases, additional instruments are incorporated into the municipal strategy (addition of instruments instead of substitution), progressively taking on the roles of a guide, connector, stimulator, and arranger (see figure). In cases of maximum complexity, it is expected that the municipality encompasses all of these roles.



The limitations of this research lie in its broad scope and the diversity of the case studies, making it difficult to establish causal connections between specific factors and municipal involvement. Additionally, the research does not explore how municipal involvement directly enables or hinders the adaptive reuse process. However, it provides a comprehensive description of industrial heritage, adaptive reuse, municipal involvement, and public values. This exploratory study is among the first in its field, giving it an important exploration, yet also making direct comparisons with other specific research challenging.

Therefore, it is recommended that the academic field further explores the involvement of municipalities in the complex context of industrial heritage to provide a more definitive understanding of how municipalities can effectively enable adaptive reuse. In practice, municipalities should enhance collaboration and knowledge sharing among themselves. They can establish a project database to document their municipal involvement and engage in regular meetings to discuss the subject. These initiatives can be facilitated by organizations such as the Vereniging voor Nederlandse Gemeenten (VNG), G40, M50, Centrum voor Gebiedsontwikkeling, het Opdrachtgeversforum in de bouw, or BOEi. Knowledge development should be integrated into every process the municipality is part of, with knowledge exchange with other municipalities in similar projects. Next to this, municipalities should analyze project complexity, identify the stakeholders and their perspectives and proactively ask them what they need or expect for the municipal involvement. However, municipalities should remain adaptable to changing circumstances.

Conclusions

To answer the main research question (MRQ), first the sub-questions, relating to the four subjects, are answered.

SI **What is the significance and impact of (the adaptive reuse of) industrial heritage for its context?**

Industrial heritage holds significant value across various scales and perspectives. The adaptive reuse of these buildings not only safeguards them from obsolescence or destruction but also provides immense value to their users and organizations. Moreover, it acts as a catalyst for urban (re)development, contributing to the overall economic and organizational objectives of the city.

PR **What are the different steps in the adaptive reuse process of (industrial) heritage?**

The process of adaptive reuse encompasses four distinct phases: pre-project, preparation, implementation, and post-completion. The municipality plays a crucial role in the initial two phases, which are often the most time-consuming in practice. Specifically, the pre-project phase tends to be extensive, with market conditions also influencing its duration. Adopting a more proactive approach, the municipality could potentially expedite these phases.

MU **How are municipalities involved in the adaptive reuse process of industrial heritage buildings?**

Municipalities employ a wide range of instruments in the adaptive reuse process, encompassing various municipal approaches and steering roles. Overall, municipalities exhibit an active involvement, primarily employing the stimulate/align and arrange/provide approaches, alongside the connector and stimulator steering roles. However, the municipal strategy entails a combination of involvement types, prompting the proposal of a new model. This model suggests that as the context becomes more complex, municipalities should integrate additional types of involvement into their strategy.

PV **Which (trade-off between public) values do municipalities take into consideration for their style of involvement in the adaptive reuse process of industrial heritage?**

The involvement of public values in the adaptive reuse process of industrial heritage reveals the complex nature of the process, incorporating values from all four perspectives. While the majority of values are aligned with the organizational perspective and goals, the financial perspective is also deemed crucial. Nevertheless, the most significant tension arises between the financial perspective and the other perspectives. It is worth noting that in most cases, all stakeholders concur on the necessity of adaptive reuse, mitigating the need for a real "trade-off" scenario.

MRQ **How can the involvement of the local government enable the adaptive reuse (process) of industrial heritage buildings in the Netherlands?**

Municipalities possess ample opportunities to enable the adaptive reuse process of industrial heritage. The examined successful projects underscore the significance of proactive municipal involvement, particularly during the pre-project phase to expedite the process. As the complexity of the process intensifies, a combination of various approaches and steering roles becomes necessary to enable progress. However, it is crucial for municipalities to remain adaptable to the circumstances, as there is no one-size-fits-all approach. As expressed by an interviewee (C1), municipalities should 'be like a chameleon'.

Contents

0. INTRODUCTION

0.1 CONTEXT

Industrial heritage buildings are unique. Aesthetically, but also because their construction "transformed familiar landscapes, disrupted habits and challenged established values" of the times (Alfrey & Putnam, 1992). In many cities and villages, heritage buildings are a representation of the community's identity.

However, in recent years, social and economic developments led to more frequent property vacancies of historical buildings, which can later be seen as heritage buildings. Religious heritage, industrial heritage and historic farms are particularly affected by this (Cultural Heritage Agency of the Netherlands, n.d.). For example, in just one (Noord-Brabant) of the twelve provinces of the Netherlands, 1800 industrial heritage complexes are vacant (Cibuk, 2015). In the past, these unique buildings with great potential were lost, but over the last few decades, interest has grown intensively to give heritage buildings a new life (Pas, 2009).

0.1.1 ADAPTIVE REUSE

Adaptive reuse can be a promising opportunity to reuse the unique selling points of heritage (van Laar, 2013), and can play a big role in reducing the amount of vacant buildings. Also, adaptive reuse is considered an important strategy to enable conservation of heritage buildings (Plevoets & Van Cleempoel, 2011). Working with these existing heritage buildings, restoring and repairing them for a new life has become a new architectural discipline and is a growing domain within the architectural and conservation practice (van Knippenberg & Boonstra, 2021).

Adaptive reuse is a process that has shown to improve the financial, environmental and social value of existing built assets (Bullen & Love, 2011a). Furthermore, it can help a community recognise itself in terms of its character, past problems, achievements and direction for the future (Alfrey & Putnam, 1992). Adaptive reuse of a characteristic building, such as industrial heritage, can also have a positive effect on the surrounding area (Dekker, 2010). After a long period of preference for demolition of governments and market parties, the conservation and adaptive reuse of such buildings is increasingly seen as essential for urban (re)developments (Goossens, 2006). Adaptive reuse of a characteristic building, such as industrial heritage, can also have a positive effect on the surrounding area (Dekker, 2010).

After a long period of preference for demolition of governments and market parties, the conservation and adaptive reuse of such buildings is increasingly seen as essential for urban (re)developments (Goossens, 2006). Industrial heritage can therefore serve as catalyst for urban (re)development (Goossens, 2006; Lelie, 2012; Loos, 2014; Pintossi et al., 2021). Industrial heritage makes surrounding properties more attractive which can result in added value and faster sales and/or rentals, giving a strong economic impulse to an urban (re)development (Goossens, 2006).

This means that the recent adaptive reuse of industrial heritage is almost always part of a strategy for urban (re)development, such as in the case of the Caballerofabriek in The Hague (NL) (Scheltens et al., 2009). By now, we increasingly understand that cultural and industrial heritage has (besides an educational, recreational and social value) an economic value that can be crucial for the feasibility of sustainable area development (Daamen & Franzen, 2020).

0.1.2 COMPLEXITY

(Adaptive) reuse processes are often called 'complex projects', since these processes require decision-making with a lot of involved stakeholders that represent different perspectives (Winch, 2010). The adaptive reuse process of (industrial) heritage is considered to be even more complex, since there are even more parties involved and more (public) values are engaged (Pallada, 2017). (Industrial) heritage processes therefore have a multidimensional nature, a large set of values they represent (Liu, 2022), and varying ambitions (Arfa et al., 2022). Industrial heritage is in this research considered to be comparable to public real estate, due to its similarities: extra-large in size, and making extra-large impact in different perspectives: organisational, functional, physical, and financial impact (den Heijer, 2021). This also relates to a wide and multidisciplinary set of (public) values.

Yet, the adaptive reuse of industrial heritage is still an unknown or complex process and/or business case for many parties (Lelie, 2012). A lot of real estate parties try to avoid working with these buildings since these projects are considered to be 'difficult' (Goossens, 2006).

0.1.3 MUNICIPAL ROLE

In these challenges that involve (long-term) vacancy or stagnation in redevelopment, municipalities are often considered to be (socially) responsible to deploy (financial) resources for conservation or adaptive reuse, whether they are owners or not (Loos, 2014). Municipalities are often considered to be responsible for the quality and renewal of neighbourhoods (van der Meer, 2013), also in these cases.

To add to the complexity, the role of municipalities in spatial planning is shifting. The government has become more demand-oriented, market-following and market-organising, requiring a different attitude of local governments and new methods of working together with the market (Loos, 2014; van Laar, 2013). This often leads to municipalities struggling to find the right approach to be involved in such projects.

0.2 PROBLEM STATEMENT

Dutch cities face a big redevelopment task in inner-city areas in the coming decades (Loos, 2014). The adaptive reuse of industrial heritage in such areas can have a great effect on the surrounding area and can be used as catalyst for urban (re)development (Lelie, 2012). These unique buildings are often left vacant for a long time (Cultural Heritage Agency of the Netherlands, n.d.) and adaptive reuse can therefore be a great opportunity, especially in the context of urban (re)development (Goossens, 2006).

However, the adaptive reuse process of industrial heritage has proven to be quite complex, especially in the beginning of such projects (Pallada, 2017; van Hout, 2021). Adaptive reuse projects of heritage have many involved stakeholders, lots of concerned (public) values and varying ambitions. The extra-large size and extra-large impacts of industrial heritage make it even more complex.

Local governments are considered to be responsible for the conservation or adaptive reuse of these unique buildings, whether they are owners or not (Loos, 2014). Due to this complexity and their shifting role, municipalities are struggling to find the right involvement to use in such developments.

Despite the fact that the concepts of adaptive reuse and industrial heritage have been researched extensively and the role of (industrial) heritage in urban (re)development is widely analysed, a new approach is needed. Current studies often relate to a rationalisation of the process or an 'ideal' situation, although this is often not the case in practice. Furthermore, empirical insights in how local governments are involved and how they choose how they want to be involved, seems to be lacking. Especially with the municipality's changing attitude and the growing insights about the value of industrial heritage, new insights about the municipal involvement and the adaptive reuse process are essential. Previous research by Loos (2014) concludes that the role of local governments can not officially be concluded, and more research into relevant cases is needed into this municipal involvement.

0.3 RELEVANCE

This thesis conducts an elaborate research into the adaptive reuse process of industrial heritage and the involvement of the municipality in this process. Moreover, it aims to get a grip on the (extra-large) impact these projects make on its context, but also identify the public values that local government (can) take into account when they determine their type of involvement in these processes. By doing this, this research has both societal and academic relevance.

0.3.1 ACADEMIC RELEVANCE

Even though research on adaptive reuse is growing, it often rationalizes the process structure, not taking the practical complexity into account. This research aims to focus on how this process works in practice, elaborating on the different factors that are part of the adaptive reuse process. Next to this, Pintossi et al. (2021) show that current literature considers adaptive reuse as a product, rather than a process and is often conducted in non-European settings. This research has a broad scope and will focus on cases in the Netherlands, adding to current literature.

Moreover, this research has academic relevance due to its focus on the involvement of the municipality in these processes, which has until now, been researched very limited. Especially since the government's attitude has been shifting, research lacks into their involvement in spatial planning, even more specifically in the context of the adaptive reuse of (industrial) heritage. The limited research that is available, is often more theoretical and prescriptive, rather than descriptive or explanatory. Therefore, this research aims to give a representation of the adaptive reuse process and municipal involvement therein in practice, yet also tries to explain why a certain type of involvement is applied.

0.3.2 SOCIETAL RELEVANCE

The role of local governments in urban (re) development processes is changing. The combination of this changing context and the complex character of adaptive reuse processes of industrial heritage makes that local governments are struggling to find the right type of involvement in these processes. This research identifies different types of involvement and identifies which public values play a role in the choice for their approach. It aims to describe these different types in detail, yet also aims to make them concrete, so municipalities can learn from the case studies and implement studied instruments in their own practice. Giving insights in other working methods and processes might inspire or help municipalities to find the right approach for their projects.

0.4 READING GUIDE

This research is divided into four main parts: part A until Part D.

PART A describes the research approach. In this part, the research questions are outlined (Chapter A1) and the research methods to answer these research questions will be described (Chapter A2). The type of study, research techniques, data collection methods, data analysis methods, data management methods and ethical considerations will be part of this chapter. Chapter A3 portrays the research output, looking at the goals and objectives, deliverables and dissemination and audiences. The last chapter of this part, Chapter A4, concerns the personal study goals, planning and reflection on the graduation lab course.

PART B forms the theoretical background of this research, containing information from other sources which will be used and applied in the empirical research. Theory is gathered around four topics: industrial heritage and its significance (Chapter B1), adaptive reuse and its process (Chapter B2), local government involvement and the other stakeholders (Chapter B3) and public values (Chapter B4). Chapter B5 concludes with the main theories and typologies that are used for the empirical research.

PART C reports that empirical research, starting with a market review in chapter C1. From this extensive list of cases, several cases are selected for a thorough analysis: LocHal in Tilburg (Chapter C2), Klokgebouw in Eindhoven (Chapter C3), Baronie in Alphen aan den Rijn (Chapter C4), RDM Campus in Rotterdam (Chapter C5), Ploeg in Bergeijk (Chapter C6), and Greswarenfabriek in Reuver (Chapter C7). After the individual analyses, they will be compared with each other, using a cross-case analysis, which is the topic of Chapter C8.

PART D is the closing section. It includes the discussion (Chapter D1) and conclusion (Chapter D2) of this thesis, summarizing the findings of this research. It will also reflect on (the process of) this thesis (Chapter D3).

After these four main parts, a list of references is added. Lastly, some appendixes (part E) are added: the interview protocol (Appendix I), informed consent form (Appendix II), codes used in transcript analysis (Appendix III), data management plan (Appendix IV) and the full market review overview (Appendix V).

DEFINITIONS

adaptive reuse	the process of converting a building to a function which is significantly different from the original function
heritage	a. monuments: architectural works (e.g. monumental sculpture and painting, elements or structures of an archaeological nature, etc.); groups of separate or connected buildings, which have outstanding value from the point of view of history, art, or science; b. sites: areas including archaeological sites or works of man or the combined c. works of nature and man, which are of outstanding value from the point of view of history, art, ethnology, or anthropology
industrial heritage	the remains of industrial culture which are of historical, technological, social, architectural or scientific value
public commissioning	the way in which a public sector organization, with regard to its responsibilities in the built environment, shapes and implements its interaction with the market internally and externally
public value(s)	reflection of what society believes are important values, considering different perspectives, in the production of certain products or services and whose provision is the responsibility of the government

RESEARCH APPROACH

1. RESEARCH QUESTIONS

1.1 MAIN QUESTION

This research focuses on governments in the Netherlands, looking at municipal organisations. Their (type of) involvement in the adaptive reuse process of (vacant) industrial heritage buildings will be researched, to see how this involvement enables the adaptive reuse (process) of industrial heritage. The focus lies mainly on the beginning on the process, where the process is the most complex and the involvement of the municipality can make the biggest impact. It focusses on the municipal role in the adaptive reuse process of industrial heritage buildings and the public values they take into account to choose that role. Therefore, the main research questions is as follows (also see Figure A1.1):

MAIN RESEARCH QUESTION (RQ):

How can the involvement of the municipality enable the adaptive reuse (process) of industrial heritage buildings in the Netherlands?

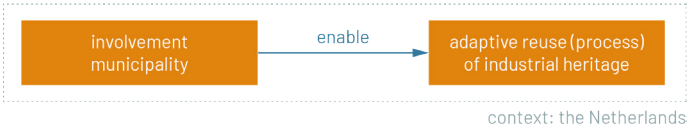


Figure A1.1 *Conceptual model at the core of this research (NC)*

1.2 SUB-QUESTIONS

In order to research the main research area, sub-questions (SQ) are developed which will structure this research, but also helps to systematically analyse the adaptive reuse process of industrial heritage buildings in the Netherlands and the involvement of municipalities in these processes (also see Figure A1.2).

First, its important to elaborate on industrial heritage and its importance, to systematically underline the relevance of industrial heritage and to focus on this context in this research. It is important to see how industrial heritage has emerged, yet especially on why it is paramount to conserve these buildings and use them in new (re)developments. Therefore, the first sub-question relates to this significance and impact.

When it is defined why industrial heritage is significant for its context, it is important to completely understand how the adaptive reuse process of industrial heritage building works. This also helps to identify and understand factors in the empirical research. Therefore, the different phases of the adaptive reuse process will be outlined.

After the process of adaptive reuse is comprehended, the involvement of municipalities in these processes can be researched. It is important to research the recent shift in the municipal involvement and the other stakeholders that are part of the adaptive reuse process.

Moreover, it should give insight into how municipalities act in these processes, what approach they have and which instruments they can use to enable the adaptive reuse.

Zooming in on this involvement, the reason to be involved in a certain manner will be studied, looking into the (public) values that local governments (can) take into account when they take part in the adaptive reuse process of industrial heritage. While it can be used to explain the municipality's involvement, it can also be applied to understand the complexity of the adaptive reuse of industrial heritage and the different perspectives that municipalities are dealing with.

RESEARCH SUB-QUESTIONS:

1. What is the significance and impact of (the adaptive reuse of) industrial heritage for its context?
2. What are the different steps in the adaptive reuse process of (industrial) heritage?
3. How are municipalities involved in the adaptive reuse process of industrial heritage buildings?
4. Which (trade-off between public) values can municipalties take into consideration for their choice of involvement in the adaptive reuse process of industrial heritage?

1.3 CONCEPTUAL MODEL

The different sub-questions are interrelated, as shown in the figure below. Municipalities are expected to weigh off the different values, before they choose a certain type of involvement. Therefore, the trade-off of public values is considered to be an input for the type of involvement of the municipality. It can explain why a municipality chooses for a certain approach, in their effort to enable the adaptive reuse of industrial heritage.

Which instruments or types of involvements they use is part of the second sub-question, yet how their involvement enables the adaptive reuse process touches upon the main focus of this research. This can not be done without understanding how the adaptive reuse process works. The outcome of this process and project, has a certain influence on the building's significance and/or impact on its context.

Figure A1.2 *Complete conceptual model of this research (NC)*

2. RESEARCH METHODS

2.1 TYPE OF STUDY

This study is a hybrid research using both quantitative and qualitative research. The quantitative research focusses on exploring the field of adaptive reuse of industrial heritage, getting a grip on the subject and its context. The qualitative research focusses on getting a better understanding of a few cases within that field. The research aims to describe local government involvement in the adaptive reuse process of industrial heritage, in the context of the Netherlands. This research therefore has a descriptive nature.

2.2 RESEARCH TECHNIQUES

This research will first create a theoretical background for the different topics that this research addresses. In Part B, four different topics will be discussed, using literature review:

- The concept of industrial heritage and how it can be significant for its context
- The concept of adaptive reuse and the steps taken in its process
- Possible types of involvement of municipalities in adaptive reuse processes
- Public values that municipalities can take into account in their choice for their type of involvement

However, the main question of this research relates to how this works in practice, which will be researched using empirical research, represented in Part C. To research this in practice, the empirical research will start with a broad **market review**, making an inventory of recent adaptive reuse projects of industrial heritage. This gives insight in the different types of industrial heritage but also in their size(s), ownership situations and important stakeholders.

From this inventory, several case studies will be selected, based on criteria focussed on the aim to show the broad and heterogeneous spectrum of the industrial heritage cases. While the criteria are already established partly upfront, the market review aims to give insight into potential other factors that can be used to make a clear **case selection**. Therefore, the criteria will be elaborated in in paragraph C1.2.

The **case studies** focus on a more thorough understanding of industrial heritage projects. In these case studies, internal and external documents about the projects will be studied, and interviews will be conducted with different stakeholders in the process.

This is done to get a full overview of how the involvement of the local government enabled (or harmed) the adaptive reuse process (the main research question). By doing so, it aims to give a more practical answer to the various research sub-questions (next to the theoretical approach in Part B). Therefore, the four focus points of the empirical research are:

- The perceived significance of industrial heritage for its context by the involved stakeholders
- The design of the adaptive reuse process of industrial heritage
- The type of involvement of the municipality in the adaptive reuse process of industrial heritage, and the experienced advantages and disadvantages of this type of involvement by the involved stakeholders
- The perceived public values that municipalities (could) take into account in their choice for their involvement in the adaptive reuse process of industrial heritage

For each case, the case will first be introduced, giving the most important project characteristics. Next, some context will be given, relating to its urban (physical) context, the municipal context (looking at for instance the size of the municipality and the official ways they are involved in the project), the market context and the historical context. It aims to provide a better understanding of the different factors that might have an influence on the adaptive reuse process of the project. After this contextualization, the data collection methods for the case study will be shortly described, introducing the conducted interviews and their type of perspective.

After this, the case study will elaborate on the topics above, the adaptive reuse process, the involvement of the municipality and the public values that are relevant. In order to do so, models developed in Part B (Theoretical background) will be applied to systematically analyse these subjects. Each individual case study will end with a short conclusion.

After the individual case analysis, the different cases will be compared with each other, using a **cross-case analysis**, to inventarise differences and overlaps between the cases. By doing this, this research aims to find general conclusions about municipal involvement in the adaptive reuse process of industrial heritage, yet also aims to explain why this (or these) type(s) are chosen or are dependent on.

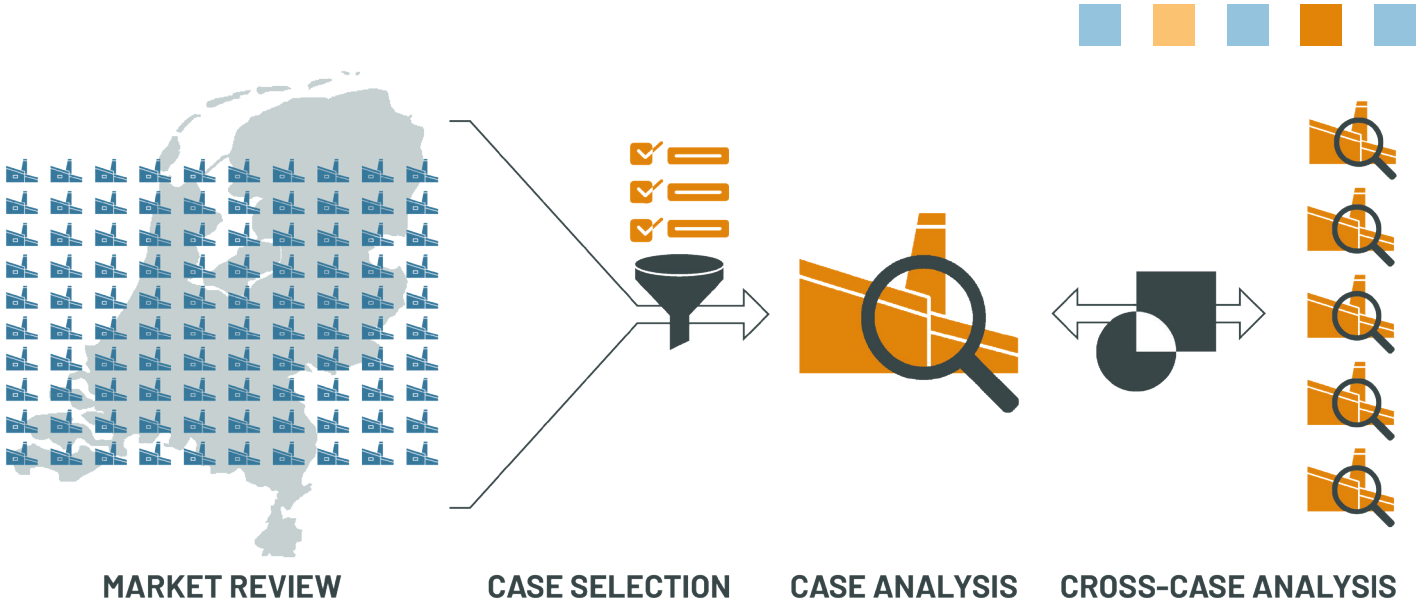


Figure A2.1 Methods for this research (NC)

2.3 DATA COLLECTION

In order to be able to perform the proposed techniques, data is collected. New data is collected both for the market review, as well as for the case analyses. The data collection methods are summarised in Table A2.1.

2.3.1 THEORETICAL BACKGROUND

Next to the empirical research, theoretical data is also collected for the establishment of the theoretical fundament of this research.

Data for the theoretical background is collected using academic databases, such as Google Scholar and Scopus, as well as from books from the TU Delft Library. Academic sources are browsed with the use of keywords (such as 'adaptive reuse (process)', 'industrial heritage', 'heritage', 'public commissioning', 'role municipality', '(public) values') dependent on the subject requiring more (theoretical) information. An overview of the used resources can be found in the reference list at the end of this report.

Table A2.1 Data collection methods for this research (NC)

METHOD	GOAL	SAMPLING
MARKET REVIEW	Collect information about recent adaptive reuse projects of industrial heritage and their characteristics	Amount: ≈100 Sampling: Convenience sampling
CASE STUDIES	Collect case-specific information about the adaptive reuse (process) of industrial heritage and the municipal involvement	Amount: 6 Sampling: Stratified sampling (and/or convenience sampling) Selection: Diverse case selection
	Case studies: Review internal/external documents	Amount: Dependent on availability Sampling: Convenience sampling, dependent on what is open access and/or what involved stakeholders can offer
	Case studies: Semi-structured interviews	Amount: 2 per case (12 in total) Sampling: Convenience sampling, but focus on interviewing both a public and a private organisation

2.3.2 MARKET REVIEW

In order to get a grip on recent adaptive reuse projects of industrial heritage and their characteristics, a market review is performed. This forms a project database with around 100 projects. All these projects had an industrial function in the past and (will) have a new function, and are all located in the context of the Netherlands.

The data is collected mainly from academic sources found via academic databases, books from the TU Library, but also other (not necessarily academic) online databases, such as boei.nl (database of BOEi, a pioneer in restoration and adaptive reuse of cultural heritage in the Netherlands) and herbestemming.nl (database of the Dutch 'Restauratiefonds' ('restoration fund'), an organization that aims to support initiators and other stakeholders in their plans with knowledge and practical examples).

Data that is relevant and collected for this research concerns: Project name, location (city), year of delivery, urban (re)development the project is part of, original (industrial) function, new function(s), size (m2), original owner(s), new owners, and some important stakeholders.

2.3.3 CASE STUDIES

Out of the project database built up in the market review, several cases will be selected as case studies. Case studies can give a full insight in the different types of local government, yet also the different perspectives of different stakeholders on this involvement and its impact.

The case studies are selected via diverse case selection. Diverse cases are "likely to be representative in the minimal sense of representing the full variation of the population" (Seawright & Gerring, 2008, p.297). This research ensures diversity based on categorical values, looking at different municipalities in the Netherlands. By doing this, the research aims to find different types of municipal involvement. More case study selection criteria are developed based on the market review, and will there be explained in more detail. The cases will be selected in Chapter C1 (par. 2).

When the case studies are selected, they will be researched based on data from a review of internal/external documents and interviews.

For the review of internal/external documents, this research will focus on documents that describe the adaptive reuse process or the involvement of the municipality in this process. This can concern for instance: publications of the project, publications of local governments about their approach or action plans for the project.

If internal documents are available upon request, permission will be asked and anonymized if necessary. Topics that is aimed to gather information about are:

- The aimed or realised significance or impact of the project for its context
- The adaptive reuse process design of the project
- The involvement of the municipality in the project
- The public values that are important in the project

For the interviews, the goal is similar. The goal is, in every case study, to interview 2 stakeholders, of which one is the municipality and the other one is either the owner or the main user of the project. By asking questions about the adaptive reuse process and the involvement of the municipality in this process, insights will be gained about the focus points of this research. The interviews will be semi-structured, following the order of the sub-questions (1. goals/significance, 2. adaptive reuse process, 3. municipal involvement, 4. public values). Semi-structured interviews enable room for detail and richness yet excludes distractions (only focussing on predetermined themes).

Each interview will last for about 45-60 minutes and will be recorded (with informed consent) and transcribed. The interview protocol can be found in Appendix I. The interview will involve questions regarding the following topics, and will focus on how it these topics are perceived by the interviewee(s):

- The aimed significance or impact of the project for its context
- The realised significance or impact of the project for its context (as perceived by the interviewee)
- The need for adaptive reuse (what would have happened if it stayed vacant)
- The design of the adaptive reuse process
- The barriers in and possible improvements for this process
- The type of involvement of the municipality in the adaptive reuse process
- The advantages and disadvantages of this involvement for enabling the adaptive reuse of the project
- The public values that municipalities (should) take into account
- The (possible) conflicting values in the project

An overview of the conducted interviews is shown in Table A2.2.

Table A2.2 Conducted interviews for this research (NC)

INTERVIEW	ORGANISATION	DATE
A1	Municipality of Tilburg	11 April 2023
A2	Bibliotheek Midden-Brabant	16 March 2023
B1	Municipality of Eindhoven, Park Strijp Beheer	31 March 2023
B2	Sint Trudo	15 March 2023
C1	Municipality of Alphen aan den Rijn	21 April 2023
C2	Green Real Estate	3 April 2023
D1	Municipality of Rotterdam	12 May 2023
D2	Havenbedrijf Rotterdam, RDM	6 April 2023
E1	Municipality of Bergeijk	28 March 2023
E2	Bruns	18 April 2023
F1	Municipality of Beesel	11 April 2023
F2	Stichting Onderwijs Midden-Limburg	13 April 2023

2.4 DATA ANALYSIS

The data that is gathered will be analysed using thematic analysis, both concerning the the documents and interviews.

2.4.1 MARKET REVIEW

The data collected in the market review is not extensively analysed. In the data collection, certain information about characteristics of adaptive reuse projects of industrial heritage is specifically looked for, leaving out irrelevant information for this purpose. From these specific characteristics, basic analysis will be performed, for instance looking at size differences, location occurrence or typical original and new functions. Parts that are considered to be useful, will be analysed using thematic analysis, as well as the transcribed interviews.

This thematic analysis will be performed using the programme AtlasTI, which is software for qualitative data analysis and research. In the program, the transcripts are coded in different categories, defined by the researcher, yet coming from theoretical frameworks.

A codes to theory model for qualitative inquiry is presented by Saldaña (2013), as can be seen in Figure A2.2 (Saldaña, 2013, p.14). The coding process includes four steps. First, the data (documents and transcripts) should be read and codes should be applied, short words or phrases that capture the essence of the data.

Next, these codes should be categorized, putting codes together in a bigger group or category. After this, the categories become themes and then assertions (Saldaña, 2013).

2.4.2 CASE STUDIES

The case-specific data collected via the internal/ external documents is analysed by reading and scanning these documents, and identifying relevant parts of these documents.

The labels will be based on the theoretical background that is gathered in Part A, in which for instance different types of local government involvement are defined.

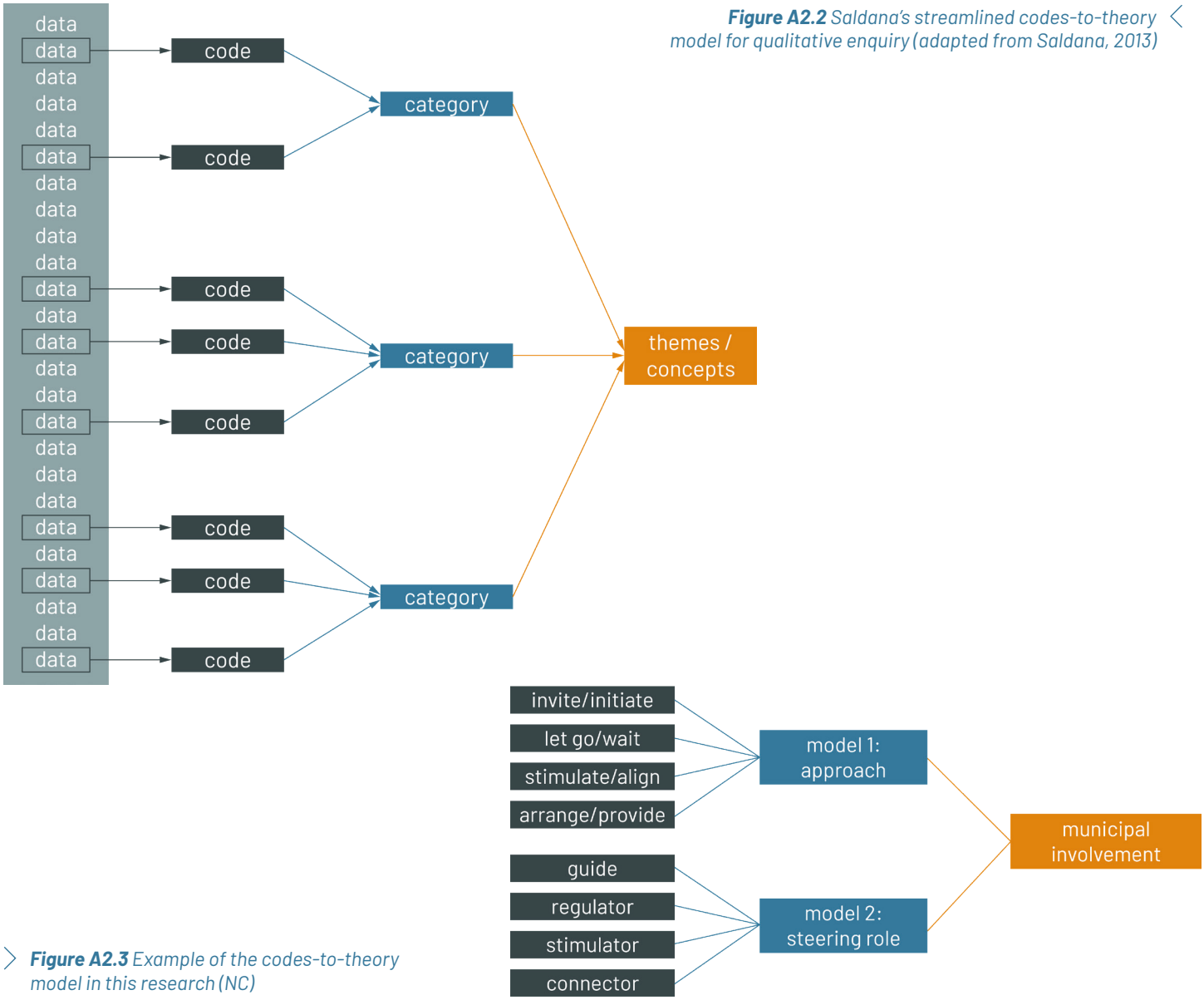


Figure A2.2 *Saldana's streamlined codes-to-theory model for qualitative enquiry (adapted from Saldana, 2013)*

Figure A2.3 *Example of the codes-to-theory model in this research (NC)*

When characteristics of such a type are mentioned in the interview, this part will be labelled as a characteristic of that type of local government involvement. Figure A2.3 shows an example in this research. The municipal involvement is studied using two models (categories), to which different codes apply for different types.

2.4.2 CROSS-CASE ANALYSIS

After the case studies have been analysed individually, it is important to compare the cases in a cross-case analysis, to find general answers to the research sub-questions related to practice.

This is done by comparing the separate thematic analyses of the individual case studies, seeing if patterns occur or similarities or differences can be identified. This will be done by making a big overview of the project characteristics, municipal involvement, and public values. This enables the researcher to look at one glance to find potential patterns.

2.4 DATA MANAGEMENT

The data management plan is developed using an online tool made available by Delft University of Technology: DMP Online. The plan is added in Appendix IV.

The FAIR data principles are applied in this research. FAIR data is data that meets the principles of Findability, Accessibility, Interoperability, and Reusability. To make this thesis findable and assessable, the thesis will be published in the repository of Delft University of Technology. To make this research interoperable, it is written in English and the concepts that are being researched are defined specifically, and are provided with theoretical background in Part B. Lastly, to make it reusable, the methodology is explained in detail in this Chapter A2 and all references are cited and can be found in the reference list at the end of this research.

2.5 ETHICAL CONSIDERATIONS

To make sure this research will be conducted ethically, it's important to describe some ethical considerations. Research by Diener & Crandall (1978) describe four main areas that should be taken into account.

1. Research participants should not be subjected to harm in any way whatsoever.
2. Full consent should be obtained from the participants before the study.
3. The protection of the privacy of research participants has to be ensured.
4. Any deception or exaggeration about the aims and objectives of the research must be avoided.

The research is fully voluntary, and all participants are not obliged to answer a question if they do not want to. If they choose not to answer questions, this might have impact on data analysis but is important for doing no harm. They can also opt out of the research any time they want. Furthermore, if participants want to remain anonymous, this will be taken into account. All participants will be asked for their informed consent (see Appendix II) and will be given a description of the purpose and benefits/ risks behind the study, before they decide whether to join or not. They will also be informed about the data collection methods and publication of this thesis. All not-needed information for this research will be deleted, and the needed information will be collected and stored in a confidential manner. Lastly, every step of this research will be reported with full honesty, to avoid deception or exaggeration. The work is free of plagiarism or research misconduct, and the results will be accurately presented.

3. RESEARCH OUTPUT

3.1 GOALS AND OBJECTIVES

The adaptive reuse process of industrial heritage continues to be complex. Especially with the changing role of the local governments, the are struggling to find the right approach for their involvement. This research aims to explore the different types of local government involvement in these processes in theory ánd in practice. By performing this research, different types of municipal involvement will be described and the instruments used will be inventoried. Lastly, this research aims to make the impact of industrial heritage buildings more concrete and define public values that are concerned with the complexity of this approach.

3.2 DELIVERABLES

These goals asks for some translation into specific deliverables of this research (also see Figure A3.1). First of all, this research will describe a thorough theoretical background for the main topics of this research. Part B will describe industrial heritage and its significance/ impact, adaptive reuse and its process, local government involvement and the other stakeholders, and the public values for local governments to take into account.

After this, the market review will be conducted, with as deliverable a list of 100 cases and their characteristics. It provides municipalities and other researchers with a solid basis to find reference projects for their research, or learn from other approaches as a municipality. Additionally, some basic analysis will be part of a summary of the market review.

The case studies will deliver transcripts and analyses of the internal/external documents, which will be used to give an elaborate description of the projects and their processes. The process will be described using the process structure that will be developed in the theoretical background. It gives an elaborate insight in six adaptive reuse projects concerning industrial heritage.

Lastly, by comparing the different cases an inventorying the different approaches and instruments used, a sort of toolbox will be developed, giving an overview of instruments the municipalities in the cases have used to enable the adaptive reuse of industrial heritage, also categorized by approach or steering role. It provides municipalities with the opportunity to learn from other cases and implement one of the instruments themselves.

3.3 DISSEMINATION AND AUDIENCES

This research focusses on municipalities (local governments) in the Netherlands. This research aims to give them more insight in their involvement, and how they can choose this in the adaptive reuse process of industrial heritage, but also structure their decision-making process. Next to municipalities, provinces are also often an important stakeholder and can therefore also be seen as an important audience for this research.

Next to this practical approach, it also aims to have scientific relevance. Therefore, the research also focusses on scientists focussing on the adaptive reuse process, (industrial) heritage, public commissioning and/or urban (re)development.

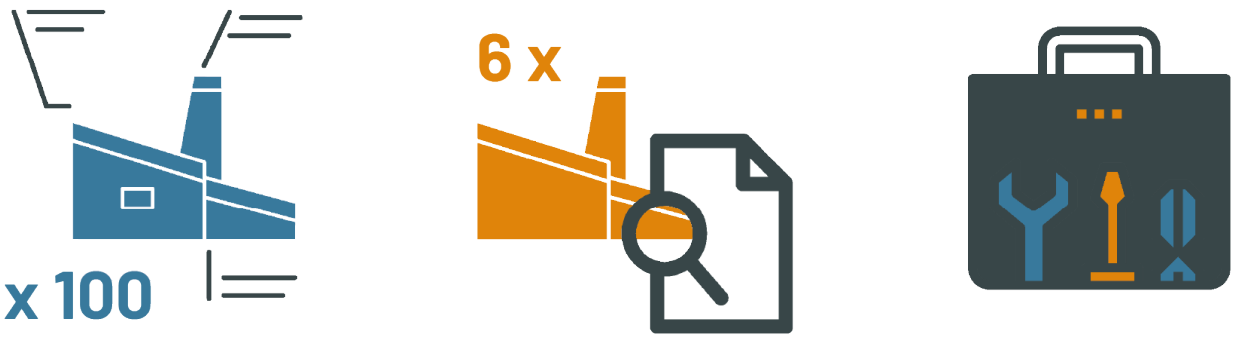


Figure A3.1 *Research deliverables: 1. List of 100 projects and their basic characteristics 2. six thorough case descriptions 3. toolbox of instruments that municipalities can use*

THEORETICAL FRAMEWORK

1. INDUSTRIAL HERITAGE

1.1 DEFINITION

Industrial heritage is a specific kind of heritage and it is therefore important to define these different concepts.

1.1.1 HERITAGE

The definition of heritage varies and is often broadened beyond their legal status in cultural and/or planning policies (OpenHeritage, 2020). This research follows the definition of heritage by UNESCO (n.d.), which contains:

- "monuments: architectural works (e.g. monumental sculpture and painting, elements or structures of an archaeological nature, etc.);
- groups of separate or connected buildings, which have outstanding value from the point of view of history, art, or science;
- sites: areas including archaeological sites or works of man or the combined works of nature and man, which are of outstanding value from the point of view of history, art, ethnology, or anthropology."

1.1.2 INDUSTRIAL HERITAGE

Industrial heritage is a special kind of heritage, and is mainly concerned with parts b and c of this broad definition. The International Committee for the Conservation of the Industrial Heritage (TICCIH) defines industrial heritage as "the remains of industrial culture which are of historical, technological, social, architectural or scientific value", which is the definition that is applied in this research.

1.1.3 DESIGNATION

Heritage is above all subjective. What one person thinks is a magnificent building that belongs on a monument list, someone else may just as well think is an ugly pile of bricks that should be razed to the ground as soon as possible. This is certainly true for industrial heritage. However, not everyone has the power to actually designate that heritage as such and have it legally recorded through addition to a List of Monuments. 2013). The government does have this power (since 1961): so an important question is what the government considers as heritage (Knol, 2013).

The Cultural Heritage Agency (part of the central government) has compiled a list of valuation criteria, that guide the decision on whether or not to designate something as a monument. The criteria are divided into main criteria and sub-criteria.

The 5 main criteria are (Cultural Heritage Agency of the Netherlands, 2012): Cultural-historical values, architectural and art-historical values, situational and ensemble values, neatness and recognisability, and rarity. The government therefore bases its designation of monuments mainly on a value judgment (Knol,

1.2 HISTORY

Industrial heritage has its origins during the industrial revolution. In the Netherlands, large-scale industrial developments started relatively late (A.M. Hermans, 2012). Whereas in Britain the industrial revolution started in the middle of the eighteenth century, in the Netherlands industrial activities began around 1895 and only really took off from 1920 onwards (Nijhof, 1978). From the 1960s onwards, the functionality of these types of buildings and complexes declined significantly as a result of developments such as economies of scale, changing production processes, changing location factors, competition with so-called low-wage countries and the rise of the service industry (Nijhof & Schulte, 1994).

1.2.1 TABULA RASA PRINCIPLE

The Netherlands has chosen a very compact cities policy since the reconstruction after World War II. Lots of cities and villages have, via certain extension plans, accommodated the growing population and businesses. Around the 1980's, big restructuring- and transformation plans were part of urban development and big VENIX-locations (large-scale new construction developments with associated facilities) were built. In order to make room for these developments, the 'tabula rasa' principle was often used: they wiped out an area and redesigned it fully (Daamen & Franzen, 2020).

At the time, industrial heritage buildings and complexes were not perceived as having cultural-historical value, and lack of funding and/or a new plan often resulted in demolition (A.M. Hermans, 2012). Many industrial buildings were therefore historically ignored due to their lack of famous associations and functional design, unlike building types like palaces or castles, who were highly valued for their association with famous people (Cantell, 2005).

1.2.2 ACCEPTANCE AND INTEGRATION

From the mid-1970s, however, acceptance of industrial heritage began to emerge in the Netherlands, making demolition less likely. Since the Year of Industrial Heritage in 1996, interest is also growing among governments and the general public, and "there is a growing appreciation for the cultural-historical appearance and special excess of industrial heritage, increasing the opportunities for reuse. The experiential value is increasingly commercially valued as a carrier of identity" (Harmsen, 2008).

Since then, stakeholders are increasingly working with the existing structure and assets, both in physical sense as well as in a process or strategic sense. This change often leads to more organic, incremental development strategies with pre-planned aspects, which are often beneficial for environmental (planet) dimensions of (area) development. This shows that the approach has turned into an approach more concerned with sustainable urban (re)development, which means that in growing cities, more attention is given to the existing structure and assets. The combination of existing elements and new elements is from the 'profit' perspective considered to be cost-saving, but can also create financial (added) value. If the existing assets also have social and cultural-historic value, the attractiveness of an area will increase even more (Daamen & Franzen, 2020).

1.2.3 CONSERVATION THROUGH DEVELOPMENT

The economic recession after the credit crisis in 2008, has broadened the valuation of existing real estate in urban development. Besides a book value, buildings can have a social and cultural-historical value that can be both a pleasure and a burden in area development. This often shows in the (partly thus forced) 'temporary' programming of existing buildings and objects that would have been demolished in the period 2010-2014 if it were not for the recession (e.g. Honig factory in Nijmegen (NL) or the Hembrug site in Zaandam (NL)) (Daamen & Franzen, 2020).

Where buildings were demolished for a diverse set of reasons, the realisation that this value of industrial heritage has grown and can contribute to urban (re)development has grown within market parties and governments. Using these buildings for new functions can give an economic impulse and can form a underpinning for the conservation of the buildings themselves (Nijhof, 2004). This way of thinking and working is called 'conservation through development' (Goossens, 2006). In urban development, it is now obligatory to make an inventory of the existing buildings and what part has to be conservated. Buildings can still be marked as monument in this phase (Goossens, 2006).

1.3 SIGNIFICANCE

Industrial heritage is due to its function, often very large and is among the biggest buildings of a city. Therefore, it can also have a big impact, comparable to public real estate that is also extra-large (den Heijer, 2021). Den Heijer (2021) elaborates on the extra-large phenomenon of public real estate: XL impact on cities, XL impact on the identity of the organisation, XL impact on employees and regular users, XL impact on the population, XL impact on the environment, XL in size, XL impact on project and operating costs, and XL impact on the local/regional economy.

Looking closely at these types of impact, it becomes apparent that industrial heritage building can be considered important on multiple scales. Also other studies highlight the different scales of looking at the planning context, for instance looking from a physical perspective or economic perspective. Talking about the example of the economic perspective, a division if often made between localization (area level) and urbanisation (city level) economies (McDonald & McMillen, 2011).

Since the scales of building/project level, area level, and city level are the most relevant for this research, significance for these three scales will be elaborated upon.

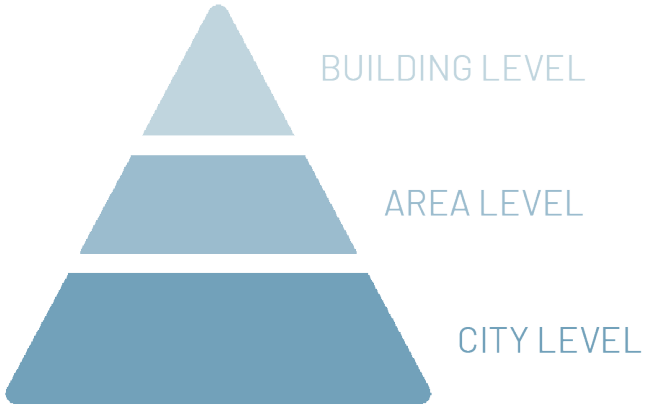


Figure B1.1 *Different scale levels industrial heritage can be considered significant (NC)*

1.3.1 BUILDING LEVEL

The most important goal from the owner or main users perspective, is that industrial heritage can have an impact on the identity (of the organisation). Often industrial heritage buildings are considered to be important atmospheric elements in urban development, giving it a certain look and feel (Goossens, 2006). The building gives an image and an identity to the organisation that uses the building, but can also give identity to an area and can thus influence development.

Researchers such as Claassen et al. (2012) & Verheul (2012; 2013) refer to this as 'image value'.

Next to organisations wanting to distinguish themselves from the masses, their employees or visitors also want to live and work in a characteristic buildings (Goossens, 2006). Therefore, industrial heritage can also have an extra-large impact on employees and regular users. Claassen et al. (2012) & Verheul (2012; 2013) refer to this as 'user value' that is exploited.

Industrial buildings are often extra-large in size which is often also highly adaptable since it was designed to give room to technical machines and industrial plants. Therefore, industrial buildings often have big interior spaces which can be used for a variety of functions. Successful examples show museums, libraries, performance spaces, and other activities which often require a big (interior) space.

Moreover, their location being often close to infrastructure and city centres is often a big advantage in the decision for the adaptive reuse of industrial heritage (Dell'Anna, 2022).

Industrial heritage can in financial terms have an extra-large impact on project and operating costs. For instance, Mehr & Wilkinson (2021) show that the adaptive reuse of heritage buildings can be costly, often due to the use of traditional materials and techniques and the needed highly skilled workers. Also the conservation of heritage buildings are high and can be one of the most significant challenges in adaptive reuse processes.

1.3.2 AREA LEVEL

Verheul indicates that a building can also have a meaning that transcends to the neighbourhood level to urban or regional level, which can also be referred to as a 'symbolic value' (Claassen et al., 2012; Verheul, 2012, 2013). This gives the area and therefore municipalities, developers and other involved stakeholders a possibility to distinguish themselves and try to meet changing market demands. The consumer wants to distinguish him- or herself from the masses (Goossens, 2006).

Next to this, industrial heritage buildings are often considered as catalyst for urban (re)delopments. The catalyst function of buildings can be categorized in different types. Claassen et al. (2012) describe a classification in four types. First, a building can fulfil a temporary role of 'meaning-creating booster' ("betekenis creërende aanjager"). In the initial phase, when a definitive function is still being sought, a temporary function can give meaning to the future image for the area with relatively few resources.

The second type is called the 'confidence-building booster' ("vertrouwenwekkende aanjager"), which describes such buildings and functions as pioneers who give other parties the confidence to also invest and move into the urban area.

The third type, the 'public attracting booster' ("publiek aantrekkende aanjager") indicates that a building can have a role in attracting people to an unfamiliar area or an area that has a negative image, enabling to make the area positively known to a wider public. The fourth type is the 'history evoking booster' ("historie oproepende aanjager"), showing the historical qualities to be conservated in combination with new elements.

In all these types, the 'booster' and the area are 'inseperable', and by using the building as 'booster', it can trigger further investment in the rest of the area (Claassen et al., 2012; Loos, 2014). However, the effect of adaptive reuse of a building on the area is not easily to define academically, but examples from practice show results that confirm the catalyst function that adaptive reuse can give to urban areas (Claassen et al., 2012; Verheul, 2012).

1.3.3 CITY LEVEL

Industrial heritage can have an extra-large impact on cities, also by being important in urban (re) development. Industrial heritage is therefore often called 'driver', 'enabler' or 'catalyst' in this context (e.g. Goossens, 2006; Lelie, 2012; Liu, 2022; Loos, 2014; Pintossi et al., 2021). It can enhance urban livability, foster human well-being and maintain an urban identity (Pintossi et al., 2021). Liu (2022) notes that heritage anchors the identity and culture of cities, making it a key element in the development of a sense of place.

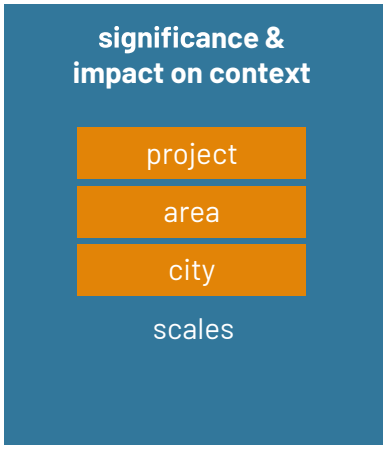
However, industrial heritage can also have an extra-large impact on the population, especially directly around the building. Research show that old buildings have a high appeal and that there are "deep-seated, interwoven and contradictory" motives for this appeal (Latham, 2000). Moreover, a new function for a vacant building significantly reduces the chances of the building and its immediate surroundings becoming dilapidated and decaying (Claassen et al., 2012; Verheul, 2012, 2013).

Industrial heritage buildings can also have an extra-large impact on the local/regional economy, for instance on property values. Research carried out at the Vrije Universiteit of Amsterdam shows that homeowners have extra money to spare to live in or near a municipality with a lot of cultural heritage (van Dommelen & Pen, 2013). Van Dommelen & Pen (2013) also highlight the concept of heritage as marketing instrument.

1.3.4 SUSTAINABILITY

Furthermore, industrial heritage buildings can have an extra-large impact on the environment. From a sustainability point of view, the adaptive reuse of heritage is a promising strategy. As a rule, the reuse of monumental and industrial objects is already sustainable. Moreover, the object itself is often already maximally sustainable due to its physical characteristics, such as its long lifespan, strong construction, and great flexibility (Lelie, 2012). Therefore, adaptive reuse of heritage can pay a decisive role in increasing the life cycle of the building, but can also be used as urban strategy to support innovative dynamics of local development.

Della Spina (2020) describes that if you look at heritage as a potential element of 'self-sustainability' territorial system, which "continually redefines itself and sustains and reproduces itself from within", it is possible to consider the reuse of heritage as crucial in the realisation of 'circular' cities and territories, which are capable of the elimination of the waste environmental and cultural resources ánd transforming 'waste' into new economic, environmental, cultural and social resources (Della Spina, 2020)



1.4 KEY TAKE-AWAYS

This chapter described industrial heritage and the different ways it can be significant for its context. An extensive review was given on the different scales industrial heritage can be significant for: the project level, the area level, and the city level. It shows the great amount of impact industrial heritage can have, yet also a more concrete explanation of what this looks like is given. This theoretical background contributes to identify these impacts in the case studies which are part of the empirical part of this research.

2. ADAPTIVE REUSE (PROCESS)

2.1 DEFINITION

Adaptive reuse is considered in this research as 'the process of converting a building to a function which is significantly different from the original function', a definition developed by Arfa et al. (2022). Transformation is often confused with adaptive reuse, but transformation is the set of measures that serve to accommodate - after adaptive reuse - a new function, while also changing the physical appearance of the building (Hek et al., 2004).

2.1.1 BUILDING LIFE CYCLE

The adaptive reuse process is (or can be) part of the life cycle of a building (Isenia, 2022). Douglas (2006) illustrates the life cycle of a building as a linear model. After the phases of decision, design, construction, and occupancy, the building enters its maintenance stage, which alternates with the adaptation stage (Douglas, 2006), also see Figure B2.1.

Some buildings, for instance churches and schools, can retain their original use for decades through these two alternative methods (maintenance and adaptation). Other types of buildings and uses can not be viable for more than a few decades.

Isenia (2022) elaborates that through adaptive reuse, a building can be converted to a more efficient use, expanding its life span.

1. Decision to build
2. Design stage
3. Construction stage
4. Occupancy
5. Maintenance
6. Adaptation
7. Irreversible building obsolescence sets in
8. Building fully obsolete
9. Dispose/demolish

Douglas (2006) also elaborates on the causes of building obsolescence (step 7 in Figure B2.1), which is often one of the main motives for adaptive reuse, and the types that exist. These are summarized in Table B2.1.

Table B2.1 Main types of building obsolescence (adapted from Douglas, 2006)

OBSOLESCENCE	CRITERIA
Economic (incl. financial & site)	Cost-effectiveness, rate of return, depreciation
Functional (incl. locational)	Fulfilment of purpose, degree of use, technological adequacy
Physical (incl. environmental)	Structural stability, weather-tightness, overall performance
Social (incl. cultural)	Satisfaction of human needs, cultural requirements
Legal (incl. control)	Compliance with statutory requirements
Aesthetic (incl. architectural)	Style of architecture no longer fashionable

However, successful redevelopment of existing complexes is not easy (and certainly not quick) to achieve. The buildings are often abandoned after very long use, and in their last few years there has been little investment in maintenance (Dekker, 2010). Adaptive reuse processes of industrial heritage distinguishes themselves from other adaptive reuse processes by their duration.

This duration can be extended compared to other adaptive reuse processes due to the presence of cultural-historical values, the possible monumental status (that entails stricter rules), and because of the size of the industrial complexes, which is often larger than in other reuse projects (A.M. Hermans, 2012).

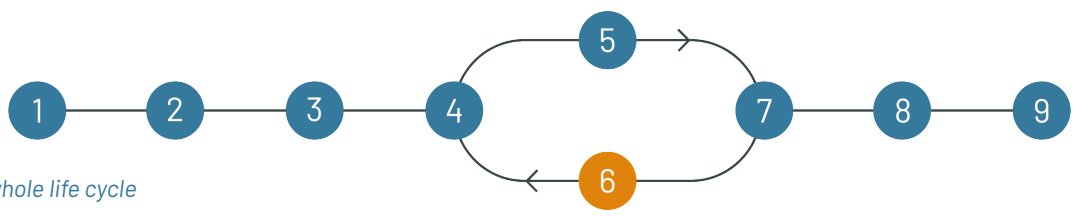


Figure B2.1 Linear model of the whole life cycle of a building (Douglas, 2006)

However, Cantell (2005) considers adaptive reuse always as the preferred strategy for a vacant industrial building if it can not be used for another industrial function, and should definitely be chosen over demolition or redevelopment.

2.1.2 OTHER OPTIONS

However, adaptive reuse is often not the only option for property owners. Douglas (2006) identifies seven options for property owners what to do with their property, see Table B2.2.

Table B2.2 Options for property owners with a vacant building (Douglas (2006), adapted from Nutt (1993))

OPTION	BENEFTIS	DRAWBACKS
Do nothing but still occupy	▪ No additional outlay in the short term ▪ No immediate adverse consequences ▪ Other options still open	▪ Defers problems to a later date, when they may become even greater ▪ Maintenance backlog likely to increase at a faster rate ▪ Existing deficiencies not addressed
Maintain in current use	▪ Preserves the asset ▪ Sustains its use – in the short term ▪ Ensures its ongoing service life	▪ Continues to require financial support ▪ Still liable for property taxes
Mothball	▪ Reduces property tax liabilities ▪ Minimizes running costs	▪ Property put into temporary disuse ▪ Costly to keep safe and secure ▪ Vulnerable to vandalism and squatting ▪ Dust and dirt accumulation ▪ Higher humidity levels internally ▪ No rental income generated
Redevelop	▪ Provides a new building tailored to meet the needs of the user	▪ Takes time ▪ In the short term, most expensive option
Dispose	▪ Realizes asset/site value ▪ Reduces management and operating cost burdens	▪ Loss of prestigious or potentially useful asset ▪ Time-consuming ▪ Advertising and professional fees to pay
Market	▪ Finds a suitable new tenant/owner ▪ May ensure ongoing beneficial use of the property	▪ Requires funding for advertising ▪ May require time to realize a suitable buyer
Adapt	▪ Enhances physical and economic characteristics of the building ▪ Retards deterioration ▪ Postpones obsolescence ▪ Reduces the likelihood of redundancy ▪ Sustains the building's long term beneficial use	▪ Disruptive and may be expensive ▪ Extended life is unlikely to be as great as new building ▪ Upgraded performance cannot match wholly match that of a new building

2.2 PERSPECTIVES

There are multiple perspectives on the relevance of adaptive reuse of industrial heritage. Therefore, the need for adaptive reuse, resistance against adaptive reuse and incentives for adaptive reuse will be described in this paragraph.

2.2.1 NEED FOR REUSE

Literature and practice shows that vacant properties often attract unwanted groups in valuable heritage, such as vandals, homeless, arsonists, and drug dealers. Their presence can result in a decrease of property values (of the heritage and the surrounding buildings), taxes, services, but also a discouragement for investment in the community.

Cantell (2005) states that such a 'neglected property allowed to remain in such a condition is a signal to the community that no one cares'. When put in a broader context, Douglas (2006) elaborates on the many types of obsolescence and the many reasons for vacancy. Douglas (2006) identifies economic, functional, physical, social, legal and aesthetic types of obsolescence, which can be considered to be different categories that show why adaptive reuse is needed.

Douglas (2006) divides building vacancy in two forms: temporary vacancy (0-5 years) and long-term vacancy (5-10 years). He also summarizes the main reasons for building vacancy, when (adaptive) reuse is requested:

- Occupants moving to larger or better premises
- Cessation of activities or use because of economic influences
- Seasonal activities resulting in only occasional or short-term use of the building
- Lack or new tenants or owners of empty buildings
- Ignorance on the part of some vacant property owners

2.2.2 RESISTANCE AGAINST REUSE

However, other research highlight the resistance towards adaptive reuse. The conservation of heritage buildings is often considered to be 'investment sinkholes', also since there is limited research that elaborates on the economic benefits of heritage buildings (Bullen & Love, 2011b). Moreover, when looking at environmental performance, heritage buildings often do not reach the standards of new-built techniques, even after adaptive reuse. Some buildings are considered to have reached a state in which adaptive reuse is uneconomical or inappropriate due to their lay-out (Bullen & Love, 2011b). Also, Cantell (2005) highlights that stakeholders in heritage projects often face many regulatory and financial barriers.

Furthermore, Bullen & Love (2011b) show that the adaptive reuse of heritage can also cause a lot of problems, mainly concentrating on technical difficulties. For instance, many of the used materials and components in heritage buildings are no longer available and in some cases have to be specially manufactured. Even if this is possible, this requires a high level of suitable and qualified craftsmanship on the location. Such problems can also have a considerable impact on the financial viability of an adaptive reuse project or can be considered to be technically unfeasible for critical stakeholders in the project.

Lastly, (temporary) vacancy also makes way for temporary use of the space, which also has its benefits. It gives room to experiment (and find appropriate new functions), contributes to creating a social platform, can function as incubator and can create value (Bruijning, 2016).

2.2.3 INCENTIVES FOR REUSE

Due to the fact that adaptive reuse can be challenging, there are a lot of reasons and incentives to choose this approach. Douglas (2006) describes available grants, timing, deterioration, performance, change of use, legal restraints, conservation and sustainability as reasons for the adaptive reuse of buildings. Bullen & Love (2011b) show that incentives can also play a big role in the encouragement of building owners and developers to choose for the conservation or adaptive reuse of buildings. In their research, the most persuasive incentives were 'relaxation of building requirements for heritage listed buildings and 'monetary contributions to construction works' (Bullen & Love, 2011b).

2.3 PROCESS

The process of adaptive reuse, is considered to be complex, especially if the process concerns heritage buildings, due to their cultural significance, the large amount of involved stakeholders and their varied ambitions (Arfa et al., 2022).

Douglas (2006) divides the adaptive reuse process in four phases, yet Arfa et al. (2022) highlights a similar phasing with different terms. This last one will be used to elaborate on the different activities in each phase, yet other phasing structures would have been possible as well. The two phasing divisions are shown in Table B2.3 and Figure B2.2.

Table B2.3 *Phasing of an adaptive reuse process according to named authors*

DOUGLAS (2006)	ARFA ET AL. (2022)
Incubation phase	Pre-project phase
Negotiation phase	Preparation phase
Construction phase	Implementation phase
Management phase	Post-completion phase

Figure B2.2 *The four phases of an adaptive reuse process (adapted from Douglas (2006) & Arfa et al. (2022))*

2.3.1 PRE-PROJECT PHASE

The incubation or pre-project phase is the first phase of the adaptive reuse process and focusses on the decision to preserve, reuse or demolish a building. The main aspect of this phase is often considered to be the 'initiative', in which the scope is defined, the research plan is requested, and the tender procedure and commission are requested (Arfa et al., 2022). Possible uses are explored and a plan is devised. Since this research entails heritage buildings, the use should respect the character of the building and should include a minimum amount of changes in its fabric, interior or setting. Douglas (2006) highlights the fact that local authority and public support should already be sought in this phase, while preliminary appraisal should establish the viability and desirability of the project (Isenia, 2022).

2.3.2 PREPARATION PHASE

The negotiation or preparation phase entails reading, analysing, valuing and re-designing the building (Arfa et al., 2022). This concerns negotiations after which detailed designs can be made and planning permission can be obtained.

Douglas (2006) also marks the need for the raise of financial resources. The redesign requires a competent production team with "skills and knowledge to handle the challenges posted by heritage buildings" (Isenia, 2022). This is needed since the project already started with an existing building.

To make this redesign, a detailed analysis of the current fabric is needed. Mısırlısoy & Günçe (2016) consider four types of analysis: analysis from original functions, physical character, heritage values, and the needs of the district. The determination of the significance of different values is one of the main complexities in this phase (Clarke et al., 2020). Once the appropriate function for the building is determined, strategies for (re)design have to be developed (Arfa et al., 2022). Robert described in 1989 different strategies to add new elements to existing buildings: building within, building over, building alongside, building around, adapting to a new function, and building in the style of, and recycling materials of vestiges (Plevoets & Van Cleempoel, 2013). Brooker & Stone (2004) categorises strategies in other terms: insertion, intervention, and installation.

Several other studies, including those by Bloszies, Cramer and Breitling, and Plevoets and Van Cleempoel, have addressed the same strategies using alternative terminologies (Arfa et al., 2022).

2.3.3 IMPLEMENTATION PHASE

The construction or implementation phase consists of the implementation of the chosen design strategies. This phase is often defined as the 'execution' phase and often considered as the final phase of the adaptive reuse process (Arfa et al., 2022; Pallada, 2017; van Hout, 2021).

The adaptation work is carried out on the building, which requires efficient project management to keeps the costs and quality under control and enable the project to finish in time (Douglas, 2006; Isenia, 2022).

2.3.4 POST-COMPLETION PHASE

The management or post-completion phase is firstly about the communication to all the stakeholders involvement and develop an efficient management strategy (Douglas, 2006), needed to ensure the long-term quality of the project and to see if further action is necessary (Cramer & Breitling, 2007). Maintenance is an important aspect in this phase and the end of the process is considered to be evaluation.

According to the Royal Institute of British Architects (RIBA) Plan of Work, this evaluation is often conducted six months after the realisation of the design and also involves a post occupancy evaluation (POE) by the architect (Arfa et al., 2022).

2.3.5 OTHER OUTLINES OF ADAPTIVE REUSE PHASING

However, other academics divide the process in other phases. For instance, van Tienen (1996) consider five phases: initiative phase, design phase, contract phase, execution and operation. In the initiative phase lies the consideration and decision-making of adaptive reuse, including the determination of function. This is divided into a project research phase and a feasibility phase.

In the project research phase, the boundary conditions within which the project should be carried out are examined. The feasibility phase will only be launched if a positive conclusion follows from this first phase (Goossens, 2006). Research by Pallada (2017) elaborates on the different approaches to the phasing of the adaptive reuse process. This is illustrated in Table B2.4 on the next page.

2.3.6 TEMPORARY USE

The research by A. Hermans (2012) shows the importance or potential of temporary use of heritage buildings. In adaptive reuse projects, the new function is not always definite. Temporary functions are functions that are not necessarily part of the final plan (to the extent already known). Oswalt et al. (2006) argue that a use can be referred to as temporary if the person initiating it and the other people involved expect it to be temporary.

Temporary functions can vary over time: from one-day events like a festival, to temporary functions that last for years like a studio. A well-known form of temporary use is the squatting of vacant buildings. With regard to the end goal of repurposing and temporary intermediate functions, two different repurposing processes can be distinguished.

On the one hand, there are reallocation processes in which it is clear almost at the beginning what the concrete final infill will be, and on the other hand, the final goal apart from reallocation can be little concrete/filled in (A.M. Hermans, 2012). Therefore, (temporary) vacancy of buildings also has its benefits in some cases.

2.4 COMPLEXITY

As elaborated, the adaptive reuse of industrial heritage is considered to be quite complex. As elaborated, the adaptive reuse of industrial heritage is considered to be quite complex. To make this more concrete, this will be elaborated upon using three types of complexity, developed by Carver (2014): structural, emergent, and socio-political complexity.

Table B2.4 *Phases in development processes; either new-built or adaptive re-use (Pallada (2017), based on named authors)*

AUTHORS	PHASES					
Andriessen (2007)	Initiative phase: specific research into state of building, extension potential, possibilities. Financial principles	Definition phase: define listing, discuss possibilities transformation with public bodies, define preservation, select architect, select contractor	Preparation phase: Specifications (from PoR), Budget, choose materials	Design phase: PoR in design, flexibility in negotiations, measuring	Realisation phase: demolition, find solutions for setbacks, supervision and surveillance during construction	
Douglas (2006)	Cient's brief Choice of options	Outline scheme design	Prepare production information; design drawings for applications; tender		Monitoring building operations	Formulate aftercare strategy
Miles, Berens & Weiss (2001)	First stage: first ideas	Second stage: redefine ideas, Third stage: feasibility study	Fourth stage: contract negotiations Fifth stage: formal commitment		Sixth stage: construction Seventh stage: completion and formal opening	Eighth stage: property, asset and portfolio management
Nozeman & Fokkema (2008)	Initiative phase: vision on possibilities, feasibility studies, discussions with landowners, determine feasibility		Development phase: write PoR, architectural designs, test designs, write specifications for execution		Realisation phase: work preparations, work execution, completion, formal opening, use	Exploitation phase: use and maintenance
Wamelink (2010)	Initiative phase: Initiative, Feasibility, Project definition		Preparation phase: preliminary, conceptual and definitive design		Execution phase: plan of approach, attract experts, guard time, quality and budget	Use phase: use and maintenance

2.4.1 STRUCTURAL COMPLEXITY

The adaptive reuse of industrial heritage encompasses various dimensions of structural complexity. First of all, the buildings are often extra-large in size and lots of stakeholders are involved. Next to this, the projects are often relatively old and/or in decay, therefore requiring a lot of (big) interventions to make them usable and sustainable. Consequently, considerable financial resources are required, and accommodating the new functional requisites and users can present challenges. Lastly, the processes involved tend to be extensive, demanding an individual or entity taking the initiative to propel the project forward.

2.4.2 EMERGENT COMPLEXITY

Emergent complexity pertains to dimensions that are inherently unforeseen or where the situation is unknowable. It can encompass various aspects, including market dynamics. However, due to its inherently unpredictable nature, attempting to concretely define emergent complexity for the purposes of this research is impractical.

2.4.3 SOCIO-POLITICAL COMPLEXITY

When considering the socio-political complexity associated with these projects, it is essential to recognize the involvement of multiple governmental entities. Alongside the municipal government, other relevant governing bodies often play a role, such as provincial governments, national governments, or even European commissions. Given the heritage aspect of these projects, they frequently engage numerous additional parties and commissions, such as the municipal monumental commission. Moreover, the goals and objectives of such buildings or projects tend to be diverse, influenced by various factors that also extend to their surrounding context.

2.5 KEY TAKE-AWAYS

This chapter discussed adaptive reuse and its process. Moreover, it showed the diverse perspectives on the need for adaptive reuse. When chosen for adaptive reuse, it mainly involves four main phases: pre-project phase, preparation phase, implementation phase, and post-completion phase. It is also important to highlight the frequency of temporary use. This structure will be used for the description of the adaptive reuse processes of the case studies part of the empirical part of this research.

3. MUNICIPAL INVOLVEMENT

3.1 DEFINITION

Local government involvement in the adaptive reuse process of industrial heritage process is considered to be part of public commissioning. Public commissioning is "the way in which a public sector organization, with regard to its responsibilities in the built environment, shapes and implements its interaction with the market internally and externally" (M.H. Hermans et al., 2018).

The research by Daamen, Franzen & van der Vegt (2012) describes the involvement of the local government as a way in which it has to steer in a market environment in which it is also an actor itself. The local government is no longer 'above' the market, but is right in the middle. In other words, it not only regulates, but shapes and stimulates the progress and outcomes of what is essentially a hybrid, public-private development game. The municipality will therefore have to constantly be able to balance and connect both its own (policy) goals and interests and those of other actors in this game. This demands a lot from a municipality that is used to hierarchical oversight and control due to its sectoral set-up, public rules and bureaucratic procedures. Now that this top-down way of working can no longer be enforced by means such as land and money, softer instruments such as trust, expertise and commitment will have to fuel the municipality's steering capacity (Daamen et al., 2012).

3.1.1 IMPORTANCE

Governments play an important role in preserving and incorporating existing buildings and objects in urban development (Daamen & Franzen, 2020). Without the involvement of the local government, the risk of a viscous and lengthy process is significant (Scheltens et al., 2009). Daamen & Franzen (2020) show that heritage appreciation occurs more easily when multiple parties support heritage redevelopment, which has happened at several (mostly centrally located) port and industrial sites in the Netherlands.

Motivated parties, including the local government, are a critical factor for a successful adaptive reuse project. In some cases, the local government even takes the initiative for the project (Scheltens et al., 2009). Moreover, governments should take care of the public interest, as the municipal council is a representation of the inhabitants of the municipality.

3.2 HISTORY

Loos (2014) sheds light on the history of the role of local governments in urban development and heritage in this process. In traditional development until the 1980s, agreements were usually made only between urban planners (responsible for spatial quality) and financial specialists (responsible for the resources). Zoning plans laid down which uses were allowed and which were not, leading to the name of the procedure as 'admission planning'.

3.2.1 SHIFT TOWARDS MARKET

From the 1980s, a lot of municipalities got involved in market demand, due to a movement that emerged against the idea of the social engineering of society (van 't Verlaat, 2008). This growing market forces went hand in hand with the drive to reduce public debt. In the 1990s, the involvement was scaled back in financial and regulatory terms, and decentralisation of government tasks took place alongside corporatisation. This lead to the appearance of 'development planning', alongside the 'admission planning'. Municipalities initiated and requested help from market parties in urban development (Loos, 2014).

After this, a further shift towards the market can be observed, in which municipalities adopt a more inviting and facilitating attitude. Municipalities set clear preconditions and frameworks, so private individuals and initiatives, market players and social parties know where they stand and can take the initiative. This is called 'invitation planning' (Daamen et al., 2012; Heurkens, 2012).

Municipalities are going through a structural change in their position and role in spatial planning, due to the financial-economic crisis. The government has to become 'more demand-oriented, market-following and market-organising'. It requires a different attitude, with different instruments and a new internal organisation. It often leads to the government being alongside market parties, rather than above them (Loos, 2014).

3.2.2 FACILITATIVE ATTITUDE

Municipalities need to invest in "other competences and procedures" when adopting a (more) facilitative attitude in which direction is (more) shared or left to other parties (Daamen et al., 2012, p. 6). This involves more contact with the city, its residents and users and puts the interest of the end-user at the centre without a dominant role for municipalities (Loos, 2014).

Table B3.1 Two different approaches (van Dommelen & Pen, 2013)

OPTION	APPROACH 1	APPROACH 2
Characteristics	Big scale High ambitions Supply-driven	Scaling down Organic growth Demand-driven
Focus	Profit	Cashflow management
Settlement	From profit (re)development of land and buildings	Focused on temporary exploitation and revenues that the heritage site can generate
Risk	Disappointing sales and prices	Integral quality

In giving more space to market parties, municipalities have to make a choice in what role they want to adopt.

Also, the current trend of scaling down and organic growth has major risks for realising the ambitions of integrality and sustainable quality in the present transformation challenge. Therefore, more attention will have to be paid to incremental approaches, without losing sight of these ambitions (see Table B3.1). Thinking from integral value development at area level should be the starting point (van Dommelen & Pen, 2013).

3.3 OTHER STAKEHOLDERS

Before diving into the different types of local government involvement, it is important to consider the context looking at the broad range of stakeholders involved in adaptive reuse projects.

There are a lot of different categories that can be defined. A often used classification is the division into users, producers, investors and regulators (e.g. Mısırlısoy & Günçe, 2016). Other researchers, such as Douglas (2006) & Kincaid (2002) add a few other stakeholder groups: marketeers, developers and conservationists (Isenia, 2022). This is summarised in Table B3.2.

Table B3.2 Adaptive reuse stakeholders (based on Douglas (2006), Misirlisoy & Günçe (2016) & Isenia (2022))

STAKEHOLDER	INVOLVEMENT	EXAMPLES
Investors	Arrange capital to fund adaptive reuse projects and purchase buildings	Owner, tenant, municipality, government, funding organisation, bank, insurance company
Producers	Design, specify, cost, and execute adaptation projects	Architect, designer, engineer, restoration expert, specialist, builder, surveyor
Marketeers	Find users for the building and building for users	Estate agents, surveyor
Regulators	Ensure compliance with the statutory requirements	Planning authorities, local authorities, municipality, building control, heritage officials
Users	Occupy, manage, and use the building	Original users, contextual users, facility and maintenance managers
Developers	Undertake some or all of the investor, producer, and marketing roles above	Contractor, development company
Conservationists	Advocate or act for the protection or preservation of heritage building	Heritage advocates and enthusiasts

3.4 TYPES OF GOVERNMENT INVOLVEMENT

This paragraph highlights two models for looking at types of local government. It should be noted that these models are based on other (both larger) contexts. Until now, no model is available for the building level or for (industrial) heritage.

The essay of van der Velden et al., part of a KEI/Nicis report (2012), considers the type of local government to differ per project in the context of urban renewal. This means that various governments are expected to adopt different approaches, shown in Figure B3.1. According to van der Velden et al., the type of local government depends on the potential of involved parties and the potential of the area. Vertically there are actors with different potentials: residents, users, entrepreneurs. Horizontally, there are strong and weak areas respectively, with high or low potential. This leads to four quadrants in the model: letting go & wait, initiating and inviting, arranging & providing, and stimulating & aligning (see Figure B3.1).

The role of the municipality can cover several quadrants in the model, "as a disc that can be placed over a quadrant to a greater or lesser extent" (Loos, 2014). While this model does provide insight into different types of governmental involvement in the context of urban renewal, it does not concretize how this looks like in practice or which instruments can be used in order to take on such an approach.

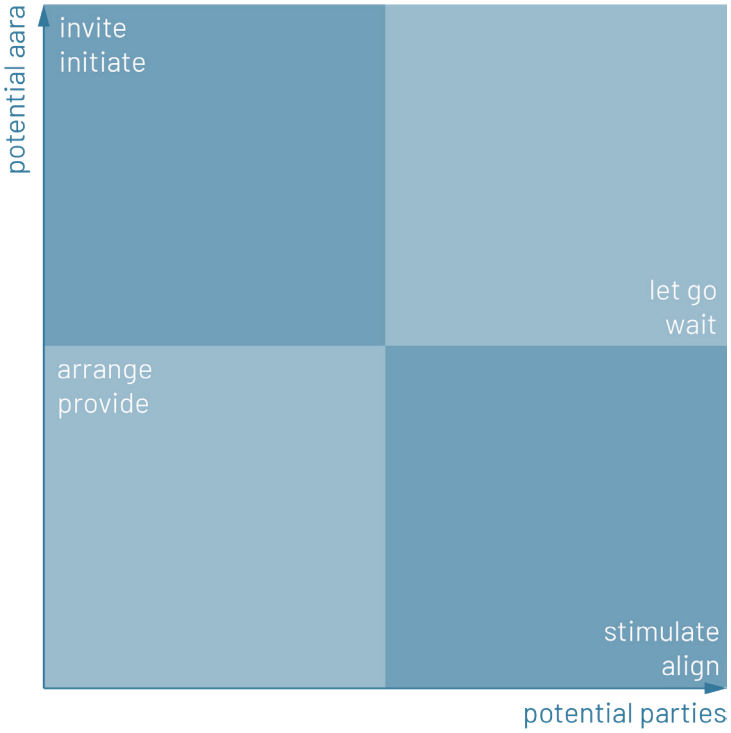


Figure B3.1 *Municipal approach in different circumstances (adapted from Van der Velden et al. (2012))*

This model, with the involvement being dependent on potentials of the area and parties, is from now on referred to as the municipal approach model.

Another model, by Verheul et al. (2017), identifies four other roles for municipalities in the context of urban transformations. According to their research, the role of the government can not be categorized as one, yet view its involvement as combining multiple roles. The research defines four roles: the guiding role (e.g. area vision, plan optimization, interactive planning, area branding), the regulatory role (e.g. flexible policies), the stimulating role (mainly financial incentives), and the facilitating role (e.g. aligning (investment) agendas and (chain) cooperation).

Later research by the same authors (for instance Verheul et al., 2019), changes the latter into the connecting role, using a similar description. The four roles can be placed on two axes, using steering from a distance or in collaboration and the difference between 'soft' and 'hard' steering (see Figure B3.2). Heurkens et al. (2014) also concretized these different roles, by showing what instruments can be used when taking on the different roles (see Table B3.3).

It is important to note that these instruments are focussed on area development, not specifically on a project level nor on the specialism of industrial heritage. This model, with the involvement being characterised by working in collaboration or from a distance and 'soft' or 'hard' steering, is from now on referred to as the municipal steering role model.

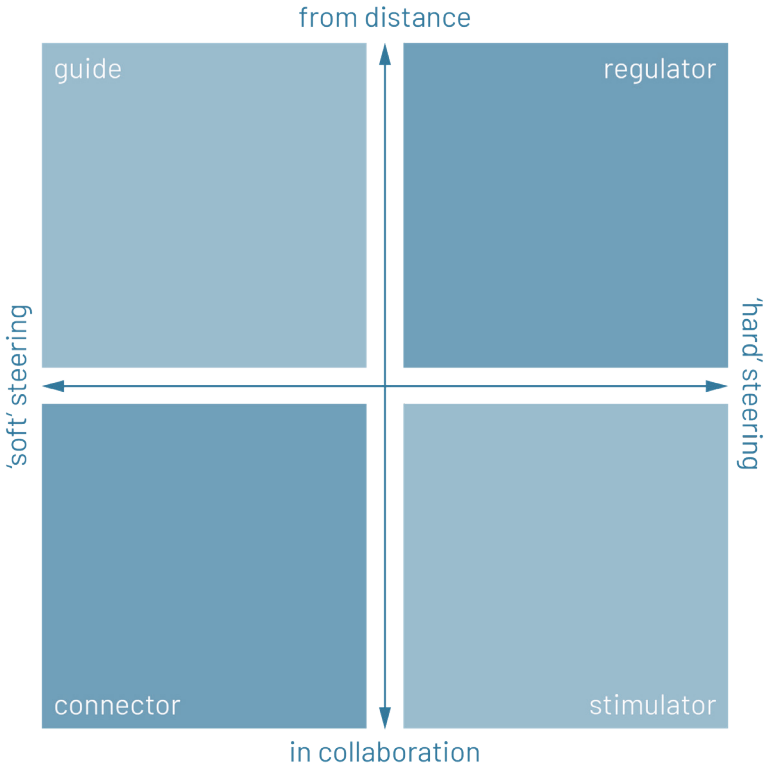


Figure A3.2 *Municipal steering role in urban transformations (adapted from Verheul et al., 2017; 2019)*

Table B3.5 *Public instruments in three categories (translated and adapted from Loos (2014))*

STEERING ROLE	INSTRUMENTS
Guide	▪ Urban policy ▪ Vision documents ▪ Convenants ▪ Area prioritizing ▪ Spatial principles ▪ Master plans ▪ Image quality plans
Regulator	▪ Structural visions ▪ Zoning plans ▪ Ordinances ▪ Environmental permits ▪ Building permits ▪ Tender (procedures) ▪ Development agreements
Stimulator	▪ Subsidies ▪ Premiums ▪ Tax schemes ▪ Financial contributions ▪ Acquisitions ▪ Expropriations ▪ Investments ▪ Maintenance ▪ Public real estate
Connector	▪ Partnership forms ▪ Networks ▪ Process management ▪ Area managers ▪ Municipal offices

Table 3.3 Overview of municipal steering roles and instruments (Heurkens et al, 2014; adapted from Adams & Tiesdell, 2012; Daamen, Franzen & van der Vegt, 2012)

3.4.1 STRATEGIC PUBLIC INSTRUMENTS AND TOOLS

To shape their involvement, municipalities have a lot of instruments that they can use. Many municipalities are looking for the right approach to the deployment of the right steering instruments (Loos, 2014).

Adams et al. (2012) elaborate on three types of strategies to steer a project, considered in a very broad sense.

They distinguish methods to shape markets, methods to regulate markets and methods to stimulate markets. Adams et al. (2012) also highlight that governments should be well aware of the instruments that are at their disposal to create (sufficient) preconditions, in order to protect public values and allow private parties to create value. The research by Daamen et al. (2012) makes the typology of instruments more concrete (see Table B3.4).

This research by Daamen et al. (2012) into the involvement of the Municipality of Rotterdam show that next to using formal tools, its also important to work on more informal, soft steering capacity and to work on building sustainable relationships with both large and small initiators in the city. The ability to steer for value, besides the adequate deployment of available tools, is hidden in and between people (Daamen et al., 2012).

Table B3.4 *Types of public instruments (translated and adapted from Adams et al. (2012) & Daamen et al. (2012))*

INSTRUMENT	GOAL	TYPE
Shape	Creation of potential	▪ Spatial (above-plan) development plans and investments ▪ Public law plans and decisions (partial) municipality ▪ Policy plans and policy papers
Regulate	Delineate of potential	▪ Frameworks supra-municipal authorities and bodies ▪ Regulation through contracts or (bilateral) agreements
Stimulate	Increase of potential	▪ Financial or fiscal measures/incentives ▪ Risk-bearing government intervention

CATEGORY	INSTRUMENT
Legal	laws, (policy) regulations, plans, permits, concessions and exemptions to achieve policy objectives, directive, agreement, covenant
Financial-economical	purchase and sale of land and/or buildings, ground lease issue, subsidy, loan, (bank) guarantee, planning damage, financial contribution, levy, priority from budget
Communicative	information, knowledge, education, marketing, lobbying, linking, consulting, negotiating, relationship management, advising

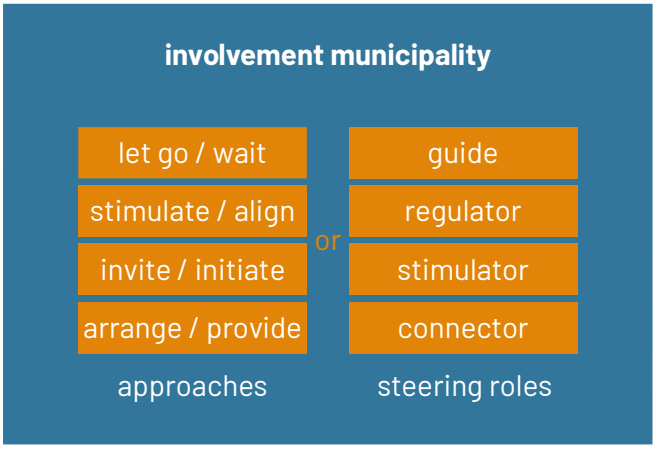
Each of these strategic instruments can have a different nature. Loos (2014) elaborates on three kinds of tools or steering instruments that governments can use. These are summarized in Table B3.5.

3.5 EMBEDMENT IN MUNICIPAL ORGANISATIONS

The research by M.H. Hermans et al. (2018) describes how public commissioning is embedded in Dutch municipalities, analysing 18 cases. In all municipalities, public commissioning projects have one or more official and/or administrative principals, people who ask the questions. Generally, one of these principals is then appointed as coordinating principal.

The kind of public commissioning is dependent on the positioning of the public commissioning role. Moreover, some municipalities indicated that the positioning of the official internal principal varies based on the size and complexity of the project (M. Hermans et al., 2018).

Especially in municipalities using a (concern) services model (in which the alderman acts as administrative principal), there is a lot of variation in the position of the official internal principal. External commissioning is usually organised per project. A part of the analysed municipalities have a project/ engineering office, that act as project manager and/or external principal for all projects related to the physical domain (M. Hermans et al., 2018).



3.6 KEY TAKE-AWAYS

This chapter discussed the stakeholders in the adaptive reuse process, focussing on the involvement of local governments. With the shifting role of the local government, a lot of local governments are struggling to find the right approach to local government involvement in adaptive reuse processes. This chapter described two models to categorizes types of local government involvement. The first model, looking at the municipal approach is based on research of van der Velden et al. (2012), identifying: letting go / wait, stimulate / align, invite / initiate or arrange / provide. The other research by Verheul et al., (2017), looking at municipal steering roles, identifies: guide, regulator, stimulator, and connector (see Figure B3.3). This provides this research with a two typologies, in which the municipal involvements in the case studies will be classified.

4. PUBLIC VALUES

4.1 DEFINITION

Value is one of the key concepts in the care for heritage. After all, what is considered valuable deserves to be (re)used, preserved or cherished. Something that is thought to have no value is neglected, destroyed or discarded. It really concerns a difference in appreciation. Traditionally, a cultural-historical perspective on the value of heritage plays a leading role. Nowadays, there is also much more attention to the economic valuation of heritage: what does it cost and what does it yield? (van Dommelen & Pen, 2013).

In professional heritage conservation, the valuation of heritage is defined almost exclusively in scientific-substantive or cultural-historical terms. Valuation gives expression to the objective state, condition and significance of heritage. The perspective of owners, users, stakeholders and interested parties is not taken into account, or only indirectly. Other types of values, such as user value, market value, amenity value or philosophical values, play little to no role. However, this professional system of heritage valuation is under pressure. Several political and societal trends are responsible for this (van Dommelen & Pen, 2013).

Public values are a "reflection of what society believes are important values in the production of certain products or services and whose provision is the responsibility of the government" (Kuitert, 2021). In order for a value to be a public value, a collective benefit is needed (de Bruijn & Dicke, 2006).

Public authorities, including local governments, have additional responsibilities in the built environment: They are responsible for the realisation of public value through the projects they are involved, also by an efficient use of spending public funds (M. Hermans et al., 2018; Janse, 2021; Szentes & Eriksson, n.d.). Public values are often 'incommensurable and incompatible' (Kuitert, 2021) which leads to their conflicting character (de Graaf et al., 2014).

4.2 TYPES

The research by Kuitert, (2021) compares different researches into public values typologies. For instance, Jorgensen and Bozeman (2007) identified eight central public values: sustainability, human dignity, engagement of citizens, secrecy, openness, integrity, compromises and robustness. However, van der Wal (2008) elaborates on 13 main values in public organizations: honesty, humanity, social justice, impartiality, transparency, integrity, obedience, reliability, responsibility, expertise, accountability, efficiency and courage.

Kuitert (2021) summarized these different typologies into a public value framework that presents a comprehensive overview of 25 public values, considering procedural, performance and product values, see Table B4.1.

Table B4.1 *Public value framework (adapted from Kuitert (2021)*

TYPE	VALUES				
Procedural values	Lawfulness	Accountability	Collaboration	Participation	Transparancy
	Integrity	Safety	Reliability	Equality	Honesty
	Honesty	Collegiality	Wisdom	Health	
Performance values	Efficiency	Effectiveness			
Product values	Quality	Functionality	Innovation	Sustainability	Context
	Character	Beauty	Integrality		

Table B4.2 Categories of heritage values according to different authors and organisations in the field (Smit, 2014)

Lipe (1984)	Frey (1997)	Klamer (1999)	Mason (2002)	English Heritage (1997)	ICOMOS (2013)
Symbolic Aesthetic Economic Informative	Monetary Optional Existence Inheritance Value Prestige Educational	Cultural Social Economic	Social-cultural Economic	Cultural Aesthetic Scientific Economic Resource Recreation Educational	Historical Aesthetic Scientific Social Spiritual

4.2.1 CONTEXT OF HERITAGE

In the public debate around heritage, the emphasis is often not so much on the importance the adaptive reuse for sustainable urban development, but rather the added value that heritage has for spatial development. However, what exactly that added value is, often remains unclear (Smit, 2014).

The assumption is that the positive effect translates into added value. However, determining the added value of cultural heritage is not easy. Bazelmans (2013) even speaks of 'value in plural'. He distinguishes use value, market value, experiential value, cultural-historical value, status value and philosophical value. Other authors use their own (different) classifications. For instance, Trosby (2001) suggests that for a complete valuation of heritage, a distinction should be made between the aesthetic, spiritual, social, symbolic and authenticity value of heritage (Smit, 2014). Table B4.2 shows different interpretations of heritage values, according to various authors and organisations in the field (Smit, 2014). Loos (2014) translates some of these categories into to municipal interest, making the relations with interventions in the adaptive reuse of heritage more concrete (see Table B4.3).

4.3 CONFLICTING VALUES

The variety of actors, as described in Chapter 3, also often represent the wide variety of values they stand for. Values are often in conflict with one another in adaptive reuse processes of industrial heritage (Pintossi et al., 2021). There are several examples of projects that have been stopped due to such conflicts of interest (Arfa et al., 2022). The multiple stakeholder groups tend to make claims over space and make different cost/benefit equations for the (re)development scenarios. This might satisfy the interest of one group but can compromise the interest of another group (Liu, 2022).

Decisions to be made about heritage are therefore very complex, given their multidimensional nature and the large set of values they represent. In the decision on their involvement, local governments have to compromise on certain values, often called a 'value trade-off'.

The internal commissioner is often the main representative of the public organization. Value conflicts often emerge between different management levels (Janse, 2021).

Table B4.3 Municipal interest in the adaptive reuse of heritage in urban development (translated and adapted from Loos (2014))

CATEGORY	MUNICIPAL INTEREST
Cultural	monument conservation, identity, heritage conservation, history, pride, recognisability
Ecological	infill, reuse, avoid unnecessary construction/ traffic, enhance sustainable values, rehabilitate
Financial/ Economic	economic structure coverage, attracting/sustaining employment, higher educated and tourists, city revenues, support base for facilities, land exploitation
Spatial	accommodate functions, spatial quality, accessibility
Social	improving liveability, residential climate, safety, combating pauperisation and degradation

Talbot (2008) in Kuitert et al. (2019) describes competing value orientations within organizations as "Human organisations are shaped by just two fundamental contradictions - the desire for flexibility and autonomy versus the need for control and stability; and the focus on internal concerns and needs versus responsiveness to the external environment (Janse, 2021; Kuitert et al., 2019; Talbot, 2008).

Conflicts in public organisations often arise in the collaboration with private parties. On this interface between parent- and project organisations, "a value trade-off manifests between the organisation's continuity and responding to external developments" (Kuitert et al., 2019).

4.3.1 FOUR-PERSPECTIVE MODEL

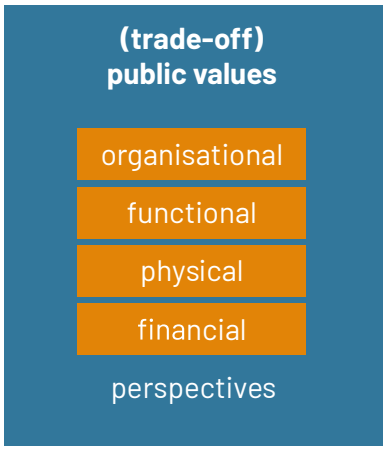
Research by den Heijer (2021) structures the decision-making process and therefore the balance between different perspectives and values in the four-perspective model. This model shows four perspectives: organisational, functional, financial and physical (see Figure B4.1), that need to be considered in every real estate decision.

These different perspectives represent different values, as illustrated in Table B4.4, next to the corresponding performance indicators, variables and represented stakeholder.

Figure B4.1 *The four-perspective model (adapted from den Heijer (2021))*

Table B4.4 *Elements of the four-perspective PREM model (Den Heijer, 2021)*

PERSPECTIVE	PERFORM.	VARIABLE	VALUE	ST. HOLDERS
Organisational	Continuity Community Identity Diversity	Organisational goals	Societal Cultural	Policy-makers
Functional	Functionality Well-being Productivity	Users	User	Users
Financial	Feasibility Accountability	Euros	Property Financial	Controllers
Physical	Sustainability Quality Circularity	Footprint	Environmental Architectural	Engineers



4.4 KEY TAKE-AWAYS

This chapter discussed public interests and values, which local governments (can) take into account when choosing their (type of) involvement in the adaptive reuse process of industrial heritage. It showed the complex nature of adaptive reuse processes of heritage, and the diversity of values that are in play. It also illustrated the value trade-off, that often has to be considered.

The research by den Heijer (2021) elaborates on a value typology that decision-makers can use in their consideration, focussing on the four perspectives: organisational, functional, physical and financial values value (see Figure B4.2). These values can local governments also take into account in their consideration which type of involvement they want to execute.

5. KEY TAKE-AWAYS

This part (B) with theoretical background serves as fundament for the empirical part (Part C) of this research. Each chapter aimed to give background information about a certain topic, related to the research sub-questions, in order to improve the understanding of these concepts in the empirical research, but to also enable the identification and classification of certain types that are explored in theory (also see Figure B5.1).

To identify the impact and significance of the adaptive reuse of industrial heritage buildings (chapter B1) that will be researched, theory shows this can be researched on three levels: project/building level, area level, and city/region level. Industrial heritage buildings can have an impact on all three levels, yet also regarding different perspectives.

Chapter B2 described the concept of adaptive reuse and its process, giving a thorough understanding of such processes and the activities that are taking place. Based on multiple studies, a clear outline for an adaptive reuse process has four phases: pre-project, preparation, implementation, and post-completion phase (Arfa et al., 2022). The characteristics and activities of each phase were identified, enabling this research to analyse the case studies in a systematic way. Besides, this chapter highlighted the occurrence of temporary use, either before or during the adaptive reuse process.

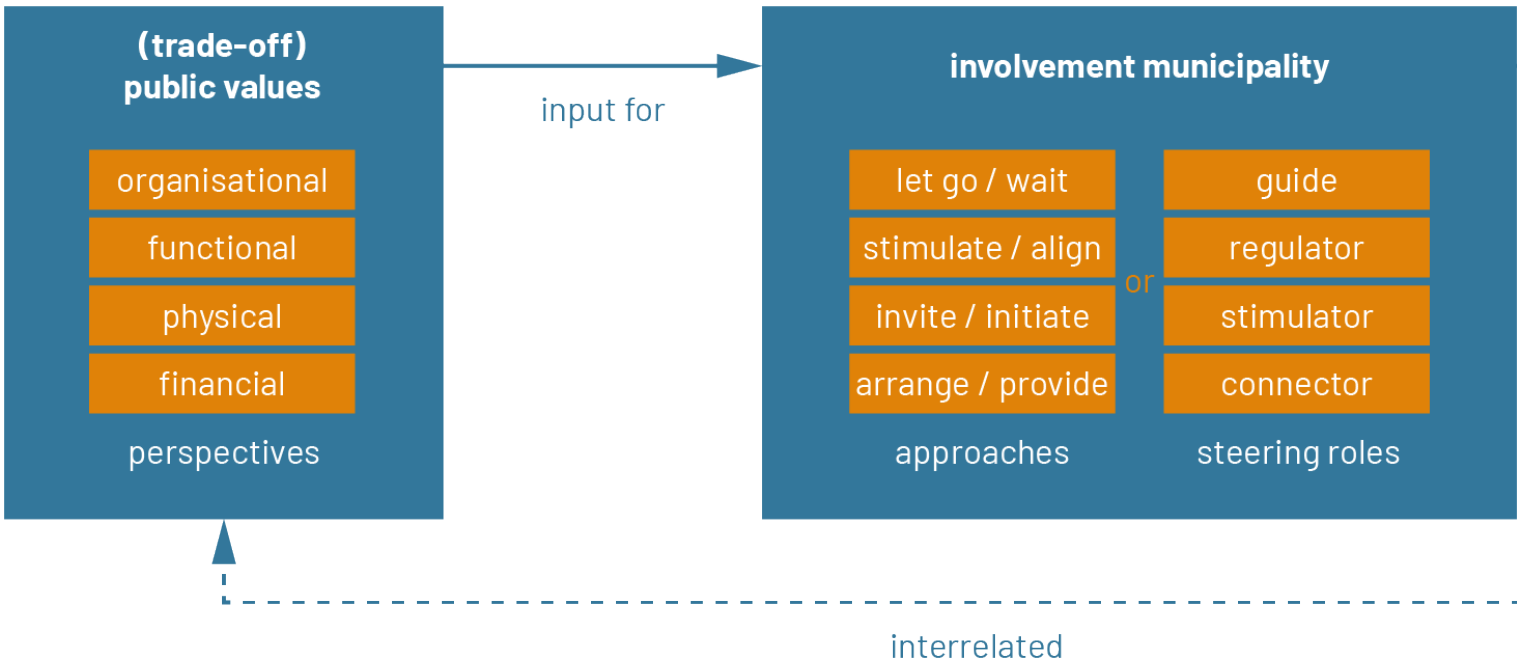
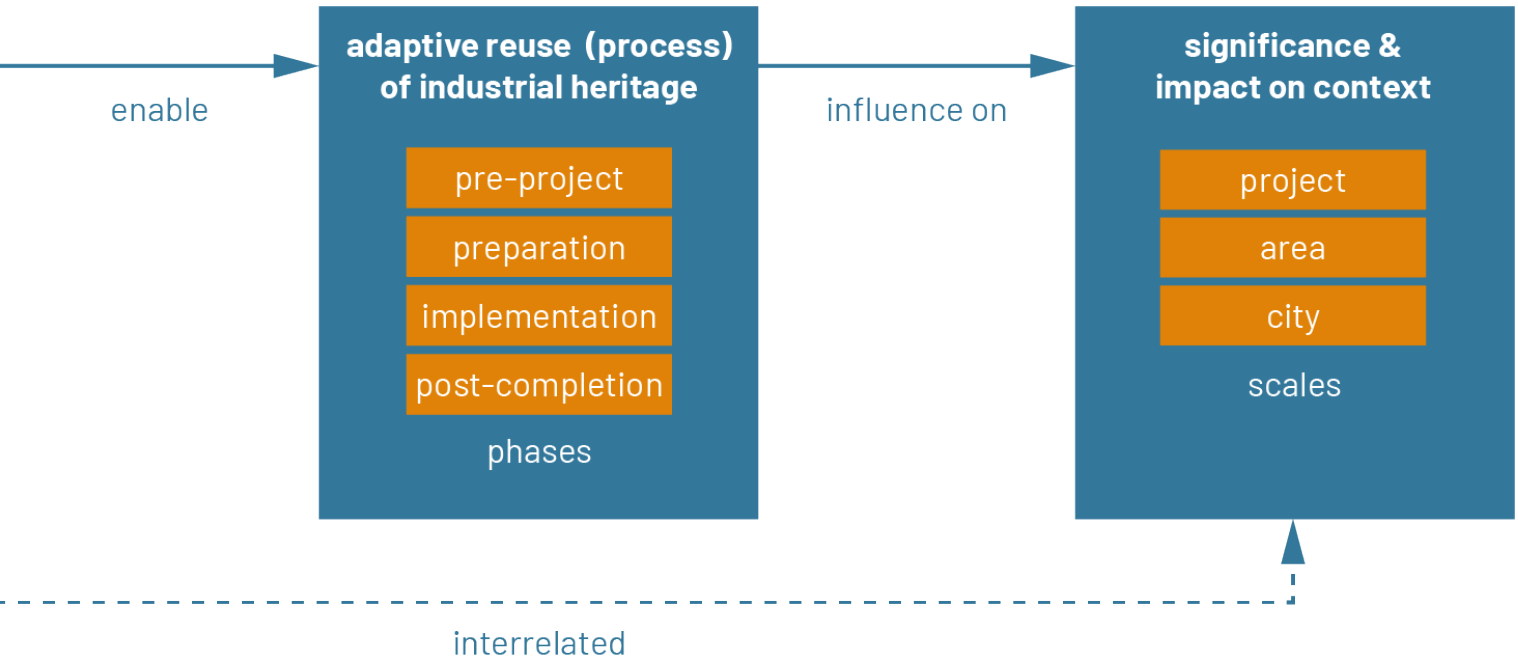


Figure B5.1 *Key take-aways and typologies in the theoretical background (NC)*

The third chapter (B3) described the involvement of local governments in adaptive reuse processes and described how the role of the municipality is changing. The research by van der Velden et al. (2012) outline four approaches for municipal involvement: let go/wait, stimulate/align, invite/initiate, and arrange/provide. However, other research highlight the municipal steering role in the categories of guide, regulator, stimulator, and connector. These two models provide this research with two options to analyse municipal involvement.

Chapter 4 elaborates on public values, that local government can take into account when choosing their approach for a project. Since industrial heritage has similarities with public real estate, the four-perspective model of den Heijer (2021) is used, focussing on the organisational, functional, physical and financial perspective. Within these perspectives, different kinds of values are applicable. The public values are interrelated with the significance, where both can be considered from different perspectives and on different scales.

While the adaptive reuse of industrial heritage is quite complex, this theoretical background aimed to give it a clear structure and to develop certain guidelines to analyse these processes in a well-structured manner. This structure and guidelines will be used in Part C, the empirical part of this research. The cases will be analysed using these structures and classifications.



EMPIRICAL RESEARCH

1. MARKET REVIEW

In order to get a grip on the industrial projects that have gone through an adaptive reuse process, a market review is performed. 100 cases were part of this market review, making an inventory of the location, the original and new function, the original and new owner, the size, and the main involved stakeholders.

The market review is developed using data from other studies, books from the TU Library, but also online databases. For instance, the database of BOEi (pioneering organisation in the field of restoration and the adaptive reuse of heritage in the Netherlands) and the database of the Dutch 'Restauratiefonds' (organisation that aims to support initiators and other stakeholders in the adaptive reuse field) were important sources for this market review.

Figure C1.1 *Locations of the projects of the market review (NC)*

1.1 ANALYSIS

The full analysis can be found in Appendix V. This paragraph will highlight the most important analysis, to get a feeling on the characteristics of industrial heritage buildings.

The reviewed projects are located in the Netherlands, scattered over the country (see Figure C1.1). Some bigger cities, such as Amsterdam, Rotterdam, The Hague or Tilburg, have multiple industrial projects that have been reused. The buildings have been redeveloped between 2000 and 2022, yet also some of the projects are still in progress. The distribution of delivery years is shown in Figure C1.2.

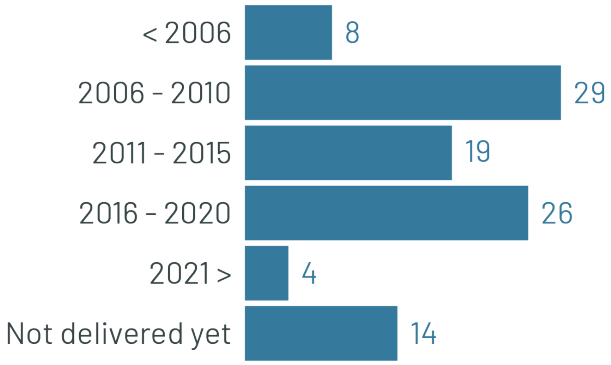


Figure C1.2 *Delivery years of the projects part of the market review (NC)*

Figure C1.3 *Diffference in size between the smallest project (IJsselstroom Zupthen, photo by KRO-NCRV (n.d.))*

The projects range enormously in size, with the smallest project being 350 m² (IJsselstroom Zutphen, left blue square) and the biggest project 60.000 m² (in one building; Van Nelle Ontwerpfabriek Rotterdam, right orange square), see Figure C1.3. The size often relates to its function. The average project is 13.512 m2, and thereby shows the (average) extra-large size of industrial heritage.

Most industrial projects had a function of factory, yet for all different kinds of products. This also has a great impact on the different types of architecture used in the projects, while it can all still be categorized as industrial architecture. For instance, functions of the projects range from warehouses, (tram or train) remises, powerplants, to silo's. The distribution of the most common functions of the 100 projects (each represented by a square) is shown in Figure C1.4, and some examples are illustrated in Figure C1.5.

Figure C1.4 *Functions of the projects of the market review (NC)*

Figure C1.5 *Examples of different functions of the market review: Pastoefabriek Utrecht (factory), De Hallen Amsterdam (workshop), Pakhuis het Bassein Wormer (warehouse), Zwarte Silo Deventer (silo). Photos by BiermanHenket (n.d.), Recycle (n.d.), MVA (n.d.) & BOEi (n.d.)*

The projects are often part of an (urban) area that is being (re)developed. In almost half the cases (49/100) this is the case. In the other cases, the project is in a developed region or in a more rural area or village, see Figure C1.6.

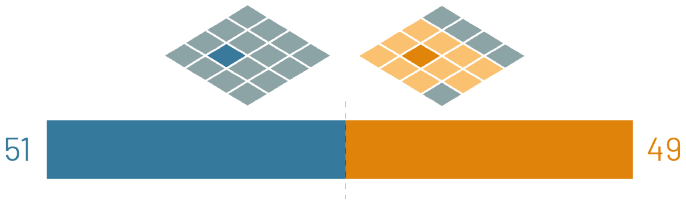


Figure C1.6 *Distribution of separate projects and projects part of an urban (re)development in the market review (NC)*

All these projects are transformed (or in the progress of being transformed) for new users. The new use also ranges considerably. In most cases, the building is used by multiple users, for instance in the form of a company building, offices, horeca, or creative industry. A part of the (often smaller) buildings is also just used by one user. This distribution is visualised in Figure C1.7.

The next page (Table C1.1) shows an overview of the different projects part of the market review. A full overview, including their characteristics, can be found in Appendix V.

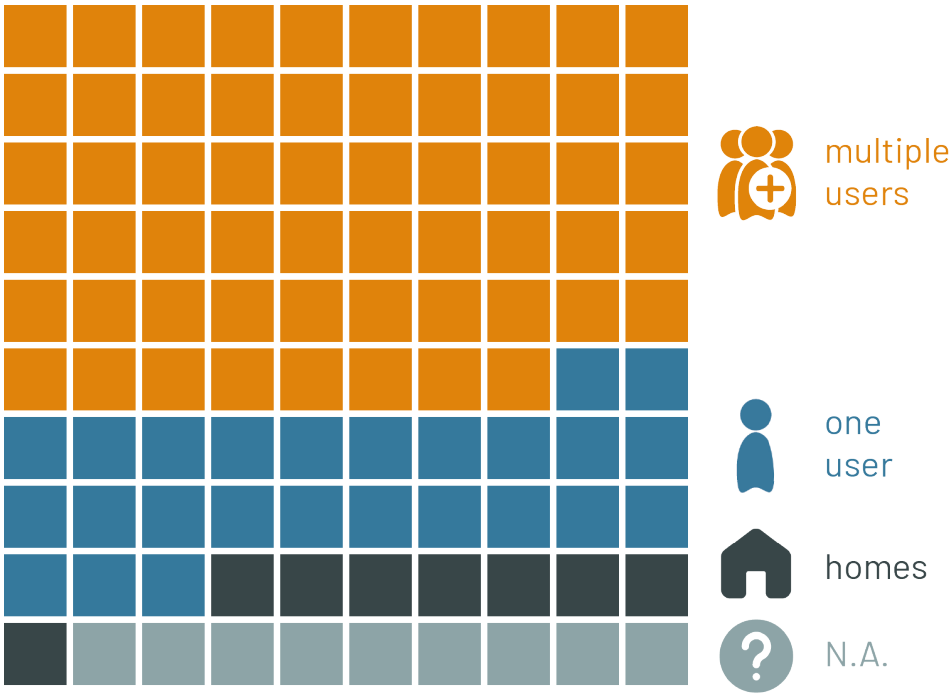


Figure C1.7 *Distribution of different types and amount of users in the market review (NC)*

Table C1.1 *Overview of the projects part of the market review (NC)*

PROJECTS PART OF MARKET REVIEW

Stoomweverij, Aalten	Grote Kantoor DSM, Delft	Steenfabriek de Werklust, Losser	Luchthaven Ypenburg, The Hague
Ringers Chocoladefabriek, Alkmaar	Zwarte Silo, Deventer	ENCI / AINSI Cementfabriek, Maastricht	RAC-Hallen, The Hague
Indie - de Sterkerij & Spoelerij, Almelo	Villa Augustus, Dordrecht	Timmerfabriek Sphinxkwartier, Maastricht	Deprez, Tilburg
De Baronie, Alphen aan den Rijn	ENKA Kantinegebouw, Ede	Gasfabriek, Meppel	Duvelhok, Tilburg
Rohm & Haas, Amersfoort	Kastanjefabriek, Eibergen	Tinfabriek, Naarden	Houtloods, Tilburg
Veerensmederij, Amersfoort	De Hangar, Eindhoven	De Vasim, Nijmegen	LocHal, Tilburg
Wagenwerkplaats, Amersfoort	De Witte Dame, Eindhoven	Honigcomplex, Nijmegen	DRU Badkuipenfabriek, Ulft
A-Factorij, Amsterdam	Fifth, Eindhoven	Hoofdgebouw Koninklijke Verenigde Lederfabriek, Oisterwijk	Cereolfabriek, Utrecht
Centrale Markthal, Amsterdam	Gasfabriek NRE, Eindhoven	Damastfabriek, Ootmarsum	Fabrieksgebouw, Utrecht
CREA, Amsterdam	Ketelhuis Ceres, Eindhoven	Bergoss-complex, Oss	Pastoefabriek, Utrecht
De Hallen, Amsterdam	Klokgebouw, Eindhoven	Greswarenfabriek, Reuver	Werkspoorkathedraal, Utrecht
Graansilo's, Amsterdam	NJ Menko, Enschede	ECI Cultuurfabriek, Roermond	CHV-terrein, Veghel
Kauwgomballenfabriek, Amsterdam	Zeepfabriek de Ster, Etten-Leur	Central Post, Rotterdam	Nedinsco, Venlo
Timmerij - Mediawharf, Amsterdam	Melkfabriek de Eendracht, Garyp	Innovation Dock RDM Campus, Rotterdam	Frederik Hendrik Kazerne, Vught
Valscherm, Amsterdam	Dongecentrale, Geertruidenberg	St. Jobsveem, Rotterdam	Zuivelfabriek Olde Fabriek, Wapserveen
Westergasfabriek, Amsterdam	Mediacentrale, Groningen	Van Nelle Ontwerpfabriek, Rotterdam	Graansilo, Wehl
Arnhems Buiten, Arnhem	Pakhuis Waterborg, Groningen	Vertrekhal Oranjelijn, Rotterdam	Mandenmakerij, Wilhelminaoord
Coberco Melkfabriek, Arnhem	Puddingfabriek, Groningen	Strokartonfabriek de Toekomst, Scheemda	Tramwerkplaats, Winschoten
Oude Remise, Bad Nieuweschans	Hazemeijer, Hengelo	Pompstation, Schiedam	Tricot, Winterswijk
Weverij de Ploeg, Bergeijk	Koninklijke Machinefabriek Stork, Hengelo	Sodafabriek, Schiedam	Pakhuis het Bassein, Wormer
Steenfabriek de Bunswaard, Beuningen	ROC Twente, Hengelo	De Gruyterfabriek, 's-Hertogenbosch	Hembrugterrein, Zaandam
Het Ketelhuis, De Bleekerij, Boekelo	Pakhuis Hartenlust, Leeuwarden	Verkadefabriek, 's-Hertogenbosch	Zaanse Chocoladefabriek, Zaanstad
Bierbrouwerij de Drie Hoefijzers, Breda	Meelfabriek, Leiden	Gashouder, Sneek	De IJsselstroom, Zutphen
Eemlandia-Melkfabriek, Bunschoten	Nieuwe Energie, Leiden	Caballerofabriek, The Hague	Het Koelhuis, Zutphen
Gelderlandfabriek, Culemborg	Gemaal de Lynden, Lijnden	Fokker Terminal, The Hague	IJsselcentrale, Zwolle

1.2 CASE STUDY CRITERIA

From these 100 cases part of the market review, six cases will be studied. This research aims to elaborate on the broad and heterogeneous character of the industrial heritage field, and the different types of municipal involvement that are used in these cases. Therefore, the cases are selected using the diverse case study selection method, based on the following criteria (Table C1.2).

1.3 CASE STUDY SELECTION

All projects of the market review were checked if the criteria were met. Most projects do not meet all of the criteria, yet more than six do. Therefore, it depended on convenience (sampling) which projects were chosen specifically within the selection made using the criteria. This led to the selection of the following six projects:

- LocHal, Tilburg (LH)
- Klokgebouw, Eindhoven (KG)
- De Baronie, Alphen aan den Rijn (BA)
- Innovation Dock RDM Campus, Rotterdam (RDM)
- Weverij De Ploeg, Bergeijk (PL)
- Greswarenfabriek, Reuver (GR)

Table C1.2 *Criteria for the selection of the case studies (NC)*

RELATED TO	ABOUT	CRITERIUM	EXPLANATION
Municipality	Location	Six different municipalities throughout the Netherlands	Researching different municipalities provides more opportunity to find differences municipal approaches (and insights).
	Size	At least two small municipalities and at least two big municipalities	This provides the opportunity to see if the size of the municipality has an influence on their approach in these processes.
	Involvement	Municipality was involved in the process	If the municipality was not involved in the process, their involvement (the subject of this research) cannot be researched.
Municipality	Function	Public function (at least partly)	These projects are often more accessible and more information can be found in sources. Next to this, the four-perspective model can be better used.
	Delivery period	Ranging between 2010-2020	These projects are completed and often also evaluated. Therefore, interviewees can look back at the big picture, yet still have the information needed.
	Ownership	At least two projects in public ownership and at least two projects in private ownership	This provides the opportunity to see if the ownership situation has an influence on the municipal approach in these processes.
Information	Accessible information	Enough information about the project is available.	If not enough information is available, the case study can not be performed with enough depth.

The following Table C1.3 shows how these six projects together meet the established criteria.

The next few chapters elaborate on the different cases, yet the following Table C1.4 shows the main characteristics of the selected projects.

Table C1.3 *Overview of the selected cases and if they meet the criteria (NC)*

LH	KG	BA	RDM	PL	GR	MET?
Tilburg	Eindhoven	Alphen a/d Rijn	Rotterdam	Bergeijk	Reuver	Yes
Large	Large	Large	Large	Small	Small	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes
Public	Semi-public	Public	Public	Semi-public	Public	Yes
2018	2014	2014	2017	2014	2019	Yes
Public	Semi-public	Private	Semi-public	Private	Public	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table C1.4 Overview of the selected case studies and their characteristics (NC)

PROJECT	ADDRESS	URBAN DEVELOPMENT	BVO
	Burgemeester Brokxlaan 1000, Tilburg	Spoorzone Tilburg	11.000
	Klokgebouw 50, Eindhoven	Strijp-S Eindhoven	45.000
	Pr. Margrietlaan 1, Alphen aan den Rijn	Groot Baronie, Alpen a/d Rijn	19.000
	RDM-kade 59, Rotterdam	Heijplaat Rotterdam	34.500
	Riethovensedijk 20, Bergeijk	N.A.	8.000
	Keulseweg 36, Reuver	Oppe Brik Reuver	5.600

BUILDING YEAR	AR PERIOD	STATUS	OWNER	USER(S)	ARCHITECT(S)
1932	2011-2018	Municipal monument	Municipality of Tilburg	Bibliotheek Midden-Brabant (library), Seats2Meet (meeting centre), KunstLoc Brabant (cultural organisation)	Civic Architects, Braaksma & Roos, Inside Outside, Mecanoo Architects
1928	2002-2014	National monument	Sint Trudo	Sint Trudo (housing), Blue Collar (hotel), PopEi (cultural centre), ROC (education), Veem (exhibition space)	FAAM Architecs, van Helmond Architecten
1954	2004-2014	None	Green Real Estate	Shopping centre, Element Offices	S2 Architecten
1914	2008-2014	Municipal monument	Havenbedrijf Rotterdam	Hogeschool Rotterdam & Techniek College Rotterdam (education)	Ineke van Hulshof, PLUS Architecten, van Heerden & Partners Architecten
1958	2014-2017	National monument	Bruns B.V.	Bruns B.V. (workspace and exhibition space)	Diederendirrix, Atelier van Assendonk
1901	2011-2018	Municipal monument	Municipality of Beesel	Greswarencollege (education, Gresbuus (horeca), Cultural organisations	Janssen Wuts Architecten

PROJECT DETAILS

Name	LocHal
Location	Burgemeester Brokxlaan 1000, Tilburg
Urban development	Spoorzone
Size	11.000 m2
Building year	1932
Status	Municipal monument
Adaptive reuse	2011-2018
Owner	Municipality of Tilburg
User(s)	Bibliotheek Midden-Brabant (library), Seats2Meet (meeting centre), KunstLoc Brabant (cultural organization)
Architect(s)	Civic Architects, Braaksma & Roos, Inside Outside, Mecanoo
Contractor(s)	Binx
Project manager(s)	Stevens van Dijck

2. LOCHAL – TILBURG

The LocHal in Tilburg is the heart of the old workspace of the NS (Nationale Spoorwegen), the principal passenger railway operator in the Netherlands. One of the highlights of the workspace area is the old locomotive hall, abbreviated to LocHal, which is a 18-metre high workshop where locomotives were repaired and serviced. Currently, this LocHal accommodates a library, meeting centre, and art and culture centre, and serves as 'living room' of the city.

2.1 CONTEXT

2.1.1 URBAN CONTEXT

The old workspace area the LocHal is part of, is called the 'Spoorzone' ('railroad zone') and is an area of around 75 hectares, close to the city centre and next to the Tilburg train station. In the coming years there will be a lot of construction in the Spoorzone. The interviewee of the municipality highlights the importance of this urban context: "The LocHal, has always been my contention, never stands alone." (interview A1). In the Spoorzone, there will be space for apartments, offices, hospitality, culture and green space.

2.1.2 MUNICIPAL CONTEXT

The municipality of Tilburg is one of the ten biggest municipalities in the Netherlands, having 224.459 inhabitants in 2022 (CBS, 2022). Next to this, they also have a significant amount of heritage buildings: 657 projects (RCE, 2022), see Table C2.1.

The municipality of Tilburg is in multiple ways involved in the adaptive reuse process of the LocHal. First of all, the municipality is the owner of the building, which gives the municipality a lot of power over the process and end-product. Next to this, the municipality is involved as area developer, being in a public-private partnership with SDK Vastgoed (VolkerWessels). Furthermore, they are involved from their public perspective. This is visualised in Figure C2.2.

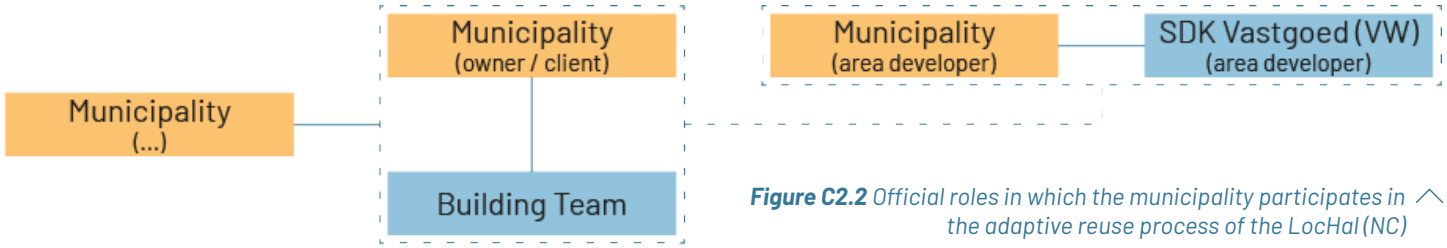


Figure C2.2 *Official roles in which the municipality participates in the adaptive reuse process of the LocHal (NC)*

Table C2.1 *Amount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)*

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

2.1.3 MARKET CONTEXT

The project initiative started during a high-conjuncture (2011), yet it took a while to get all the right people involved and start the implementation (2017). For instance, an important user stepped out due to the high financial risk (2013), also to be considered in the context of poor market conditions. In 2017, the market was better again, enabling the project to actually take place and find a contractor.

2.1.4 HISTORICAL CONTEXT

Shortly after the construction of the Tilburg – Breda railway line in 1863, a railway equipment repair shop was built next to the train station of Tilburg, serving the railway net in the south of the Netherlands.

Due to the big size of land available here in combination with the already present metal industry, machine and steam boiler construction that Tilburg knew through its textile industry, a gigantic workspace grew over the years (Bruers & Keusters, n.d.).

The LocHal is one of the biggest buildings in the area and was developed in 1932. At the time, it was a top of the bill in terms of steel construction. The height of the building was needed to move the locomotives parts through the building. The cranes rolling over the structure are capable of moving weights of more than 100 tonnes through the building (Bruers & Keusters, n.d.).

After the war in which the area was used by the Germans, the buildings in the area slowly disappeared. First, maintenance-intensive steam locomotives waved goodbye and were replaced by diesel and later electric trains. But suppliers also increasingly took care of maintenance themselves, and in 2011 the site became available for new developments. The municipality acquired the land start (re)developing the Spoorzone - close to the city centre (Bruers & Keusters, n.d.).

As early as the end of the 20th century, there were discussions about the departure of repair work from the Spoorzone. For the municipality of Tilburg, the area was of great potential value to the city. Finally, after many years of planning, the Spoorzone was released in 2011. For construction, the timing was terrible due to the crisis. Planners therefore knew that the pace of development in the Spoorzone would be slower than in similar, previously developed industrial areas. They opted for a development that, while setting out a vision, left room for various possible concrete elaborations (Bruers & Keusters, n.d.).

2.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (Table C2.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4.

The policy officer of the municipality of Tilburg is focussed on the goals for the municipality, yet also is closely involved with the (re)development of heritage. Therefore, the interviewee also speaks from a more physical perspective, for instance about the value of its architecture. The director of the main function, the library, speaks from a user perspective.

Table C2.2 *Interviews conducted for the LocHal case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
A1 Policy Officer – Municipality of Tilburg	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
	Engineer	Physical	▪ XL impact on the environment ▪ XL in size
A2 Director - Library Midden-Brabant	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population

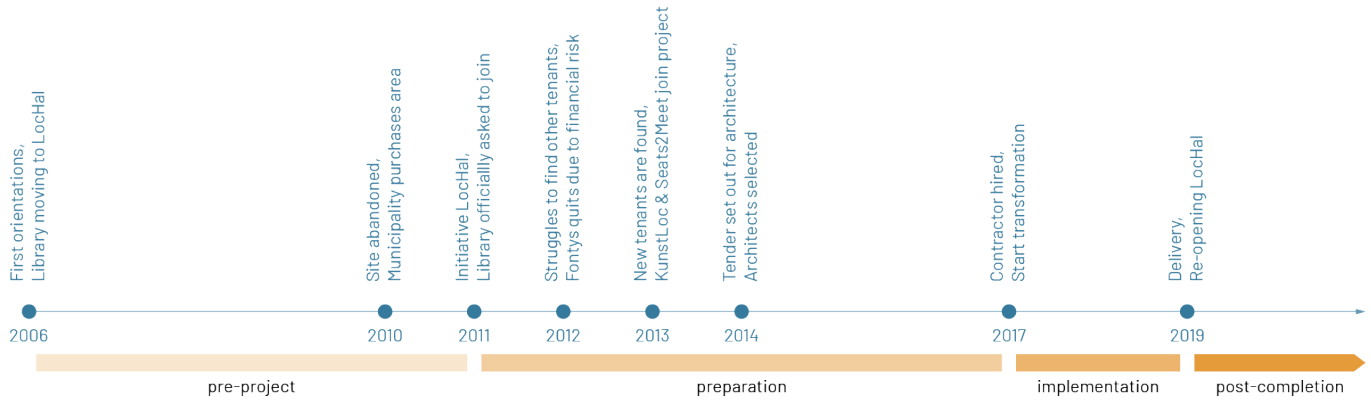


Figure C2.3 *Important moments in the adaptive reuse process of the LocHal (NC)*

2.3 PROCESS

The adaptive reuse process of the LocHal will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C2.3.

2.3.1 PRE-PROJECT

To avoid vacant buildings falling into disrepair and the Spoorzone becoming a ghost town after the leaving the train-related activities, the municipality chose to give buildings a temporary use. Creative companies, a skate hall, a popular theatre, catering establishments and other infills populate the industrial premises in the meantime. The municipality focusses on functions that put the area on the map for the city when searching for these temporary functions (A. M. Hermans, 2012).

Thanks, in part, to these temporary occupants of the existing buildings in the Spoorzone, appreciation for the industrial heritage increased over the years, leading to the municipality of Tilburg intending to preserve much of the heritage in the Spoorzone (Bruers & Keusters, n.d.).

The director of the new library in the LocHal also highlights the importance of the financial crisis disabling the possibility for demolition and new-built. "Thank [...] there was a financial crisis that left those buildings standing, so not everything was demolished." (interview A2).

Fortunately, the municipality already made a gentlemen's agreement with the previous owners of the LocHal, in which was established that during their ownership, they would not demolish the building and maintain it well, and the municipality would not appoint it as monument so they could still use it (interview A1). However, although since 2006 the municipality and library are orientating to gather the possibilities for the LocHal, the financial crisis ensures to get out the momentum of the process, until 2011.

2.3.2 PREPARATION

In 2011, the municipalities officially asks if the library is interested in moving into the LocHal with several partners from the cultural and educational domain. "The municipality wanted a big crowd puller here first, as no one wanted to be here at the beginning." (interview A1). The library is interested, but has a wide range of wishes and demands (Bruers & Keusters, n.d.). However, "The municipality really believed in our [red: the library's] story/vision as a library of the future and have encouraged that." (interview A2).

In 2012/2013, an HBO-educational institution, Fontys, is an important collaborator that could act as buyer. Unfortunately, Fontys decides the financial risks are too high and withdraws from the project. The municipality demands one commercial party to participate in the project, which in the end turned out to be Seats2Meet, a meeting centre. A third renter is found in the provincial cultural sector, under the name KunstLoc Brabant. At the end of 2013, the renters were finally found and officiated (Bruers & Keusters, n.d.).
As mentioned, appreciation of the industrial heritage in the area grew. In 2015, the municipality of Tilburg acknowledges the cultural-historical value and appoints some key buildings as municipal monument (Monumentenbeurs, 2020), including the LocHal.

All the new residents are invited to participate in the process and the municipality acts as official client. The library appoints a project leader, who developed a programme of requirements (PoR).

The municipality takes the lead in the selection of the architect(s) (Bruers & Keusters, n.d.), yet the director of the library also got invited to take part in discussions and decisions: "I joined the steering committee and we took all the decisions together, along with two aldermen and the head of the real estate department of the Municipality of Tilburg." (interview A2). In this process working together with the several users, a representative of the municipality acted as intermediary between the different departments of the municipality, different users and contractors (interview A1).

2.3.3 IMPLEMENTATION

In 2017, a building contractor is hired in the company Binx, via a 'Design and Build' contract, chosen due to the uniqueness of the building and only having a preliminary design at that stage (Bruers & Keusters, n.d.). Together with the architectural team, the transformation takes place.

2.3.4 POST-COMPLETION

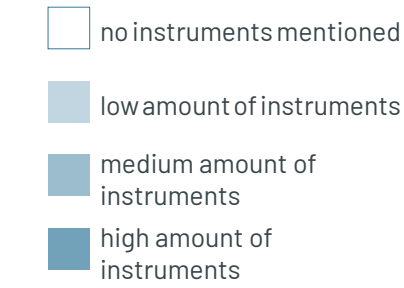
Finally, on 2 January 2019, the new LocHal opens its doors and there is massive interest. More than 100.000 people visit the new LocHal in the first month. In the first year (2019), 741.896 visited the LocHal. The LocHal won eleven national and international nominations and prices (Bruers & Keusters, n.d.).

2.4 INVOLVEMENT MUNICIPALITY

The municipality initiated the project, yet gave the biggest user (Library Midden-Brabant) a lot of room to implement their ideas and take part in discussions and decisions. Discussions were about the functional lay-out of the building, yet also about budgets, climate or acoustics. Sometimes it required serious negotiations, "but we [red: the library and municipality] always figured that out" (interview A2). The interviewee also explains why: the municipality has a duty towards the library, to support them and make sure the library is properly accommodated. The only disadvantage of the active involvement of the municipality in these discussions and decisions might be that it can prolong the process, "but in this case, you take that for granted." (interview A2).

Yet, next to the library's own involvement, the director of the library also describes the general approachability of aldermen in Tilburg. "Here [red: in Tilburg], aldermen are pulled by the necktie on the street. There is a mentality of rolling up your sleeves and doing it together." (interview A2). The policy advisor of the municipality highlights the importance of the 'kwartiermaker' (a municipal representative actively involved in the (re)development of an area) who acted as intermediary, who "made sure all the people had their wishes on the table" (interview A1).

Due to the ownership of the municipality, they were also financially involved, providing the necessary financial resources.



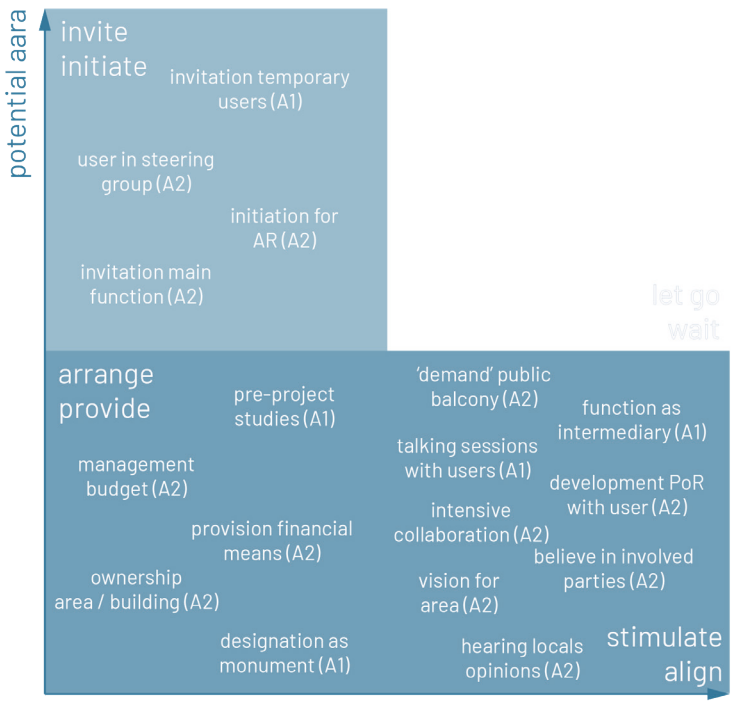
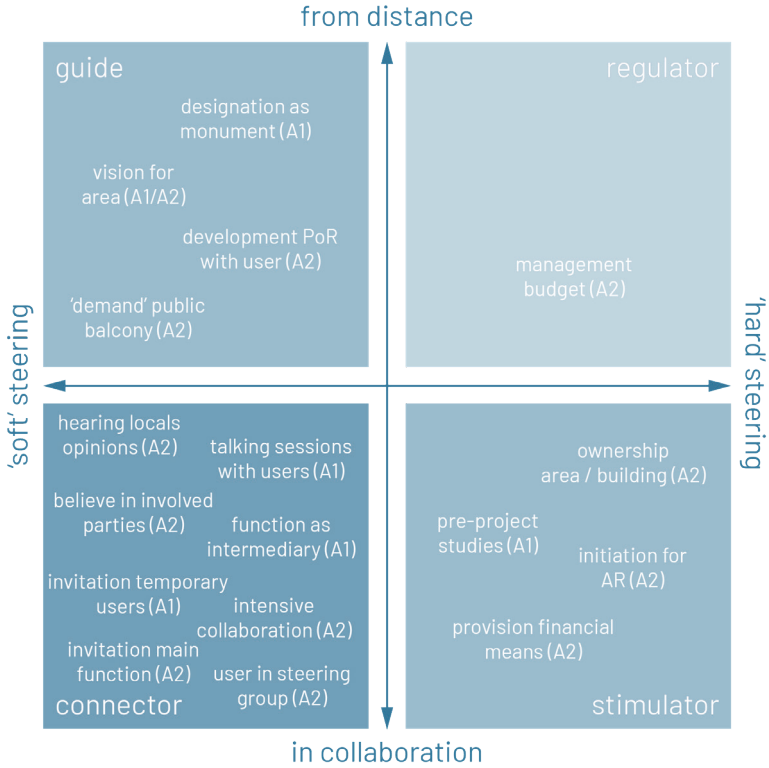


Figure C2.4 Instruments used by the municipality in the LocHal case, categorized in two models by van der InVelden et al. (2012) and Verheul et al. (2017)



According to the interviewee, without the municipality the project would be hard to realize: "There is a lot of public money in it, a developer can't do that so fast. Who else could develop something like that, it has to be a really big guy." (interview A1). The province of Noord-Brabant also contributed. They made 3.5 million available for the conservation of industrial heritage in the Spoorzone of Tilburg. The municipality of Tilburg chose to put that whole amount in the LocHal project (Brabants Dagblad, 2015). The director of the library considers the project 'lucky'. "They [red: the municipality] just has the financial muscle, it is also a financially powerful municipality. We are just lucky that they can do these things." (interview A2).

The different instruments used by the municipality are illustrated in Figure C2.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

When looking into the different phases, it shows the municipal involvement was focussed on the first two phases, whereas the municipality in the pre-project phase took an inviting and initiating role, guiding the process into the right direction. In the preparation phase, they acted more as stimulator and connector (see Table C2.3).

The municipality of Tilburg was announced to be the best governmental organisation of the year 2019. According to the jury report, the LocHal is a good example of the reason Tilburg won. The project, according to the jury report, shows what government and city together show what they can achieve. "The LocHal for all Tilburgers opened in January 2019, offering many opportunities. Here, too, we first listened to what matters to different blood groups in the city, then art, culture and creative entrepreneurship found each other in this unique city campus." (Municipality of Tilburg, 2019). The report of the NRP Gulden Feniks also highlights the great collaboration: "municipality, users, designers, engineers and builders worked together on a common goal" (NRP Gulden Feniks, 2019).

The interviews conducted highlight several instruments and roles that the municipality takes in the project. Generally, the municipality takes a very active role. The research shows that the municipality had a clear vision for the project and surrounding area, yet also leaves room for integration of plans of other stakeholders, for instance the big users of the building, but also 'regular' inhabitants of Tilburg. Due to their ownership of the project, they (almost) never 'wait' for another party to take the initiative and can do a lot of things in collaboration and with 'soft' steering instruments.

Table C2.3 *Municipal involvement in the first two phases of the adaptive reuse process of the LocHal, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Invite/initiate	Guide Connector
Preparation phase	Stimulate/align Arrange/provide	Connector
General	Stimulate/align Arrange/provide	Connector

2.5 PUBLIC VALUES

Most public values in the LocHal case relate to the organisational, functional and physical perspective (see Figure C2.5).

2.5.1 ORGANISATIONAL VALUE

Being in the centre of Tilburg and the first (re) development in the Spoorzone area, the LocHal was very important to make the area attractive. Therefore it also has a lot of organisational goals relating to the area and the rest of the city. As mentioned, the LocHal is supposed to be the 'living room of the city', being accessible for everyone. Next to this, the historical and monumental value is also considered important.

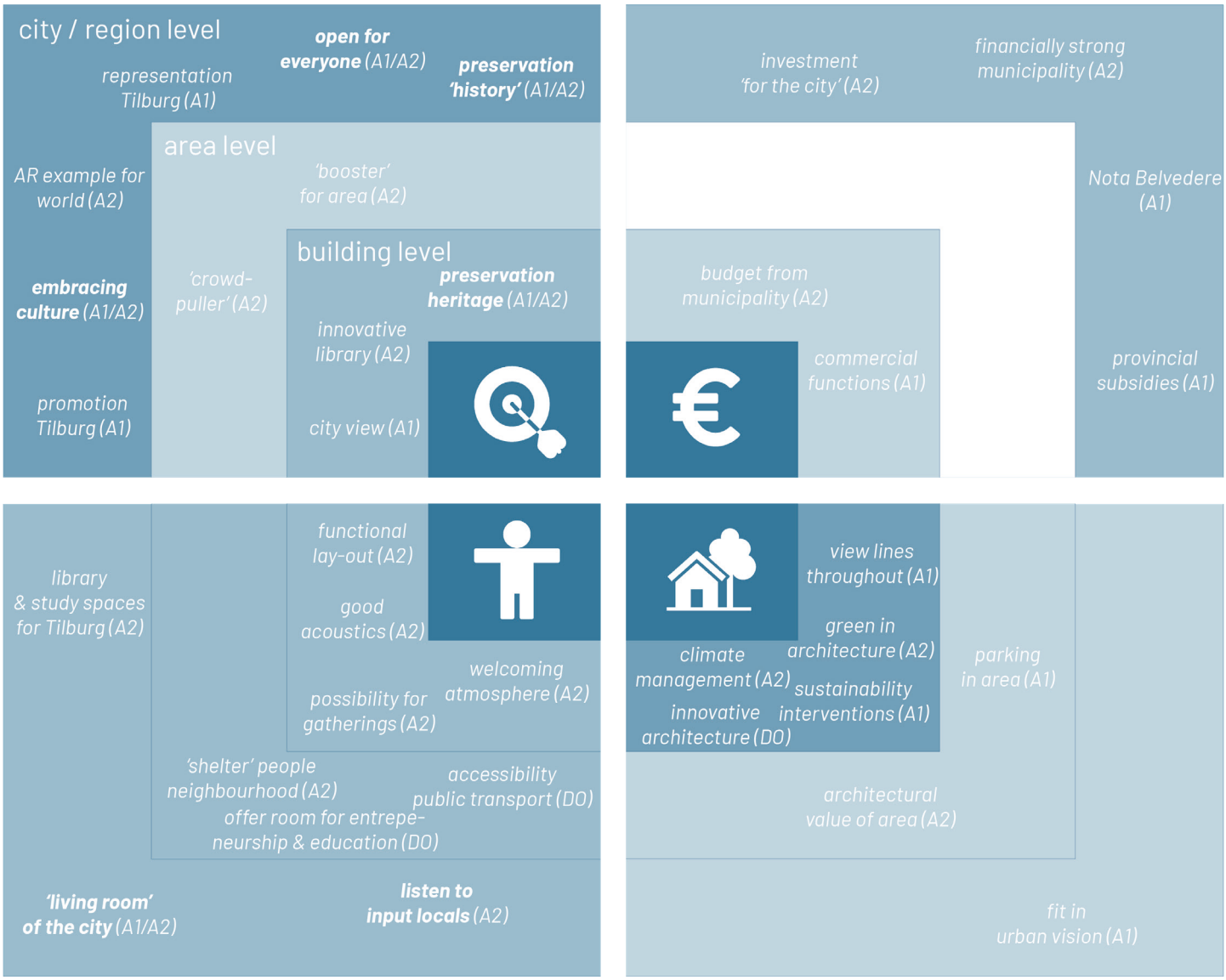
2.5.2 FUNCTIONAL VALUE

Being the 'living room of the city', also relates to the user value of the LocHal. The LocHal should we welcoming to every type of user, relating to physical interventions, but also small details such as coffee and lemonade sold for a below-market price. Moreover, due to the high influence of the (main) user(s), the functional value is also important, for instance looking at the lay-out or acoustics.

2.5.3 PHYSICAL VALUE

The physical values mainly related to architectural and sustainability interventions. Looking at architecture, the character and big size of the building was important to remain visible during the redesign. The project also required a lot of sustainability interventions due to the old function as workshop, which has different climate requirements than the new functions.

Figure C2.5 *Public values in the LocHal case, in an altered model of the four-perspective model of den Heijer (2021)*



2.5.4 FINANCIAL VALUE

The financial values appears to have less importance, which might have a connection with the ownership of the municipality and no shortage of financial means. They considered it an investment for the city and had enough financial resources, also due to provincial subsidies.

2.5.5 VALUE TENSIONS

The tensions among the different value perspectives primarily revolve around the financial value in contrast to the other values. The adaptive reuse of the LocHal entailed a substantial financial investment, largely at odds with the ambitious organizational objectives. Additionally, supplementary funding was necessary for physical and sustainable interventions, including the installation of acoustic bookshelves. Initially, finding a commercial user proved challenging, primarily due to the extensive interventions required to adapt the building for its new functions. However, the organizational goals did align with the user values, driven by the predominantly public functions, as well as the physical values centered on the preservation of the building.

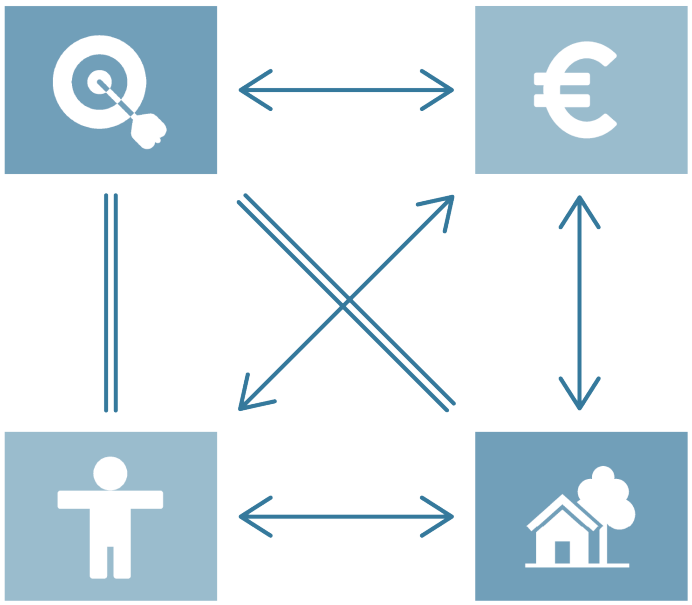
no values mentioned

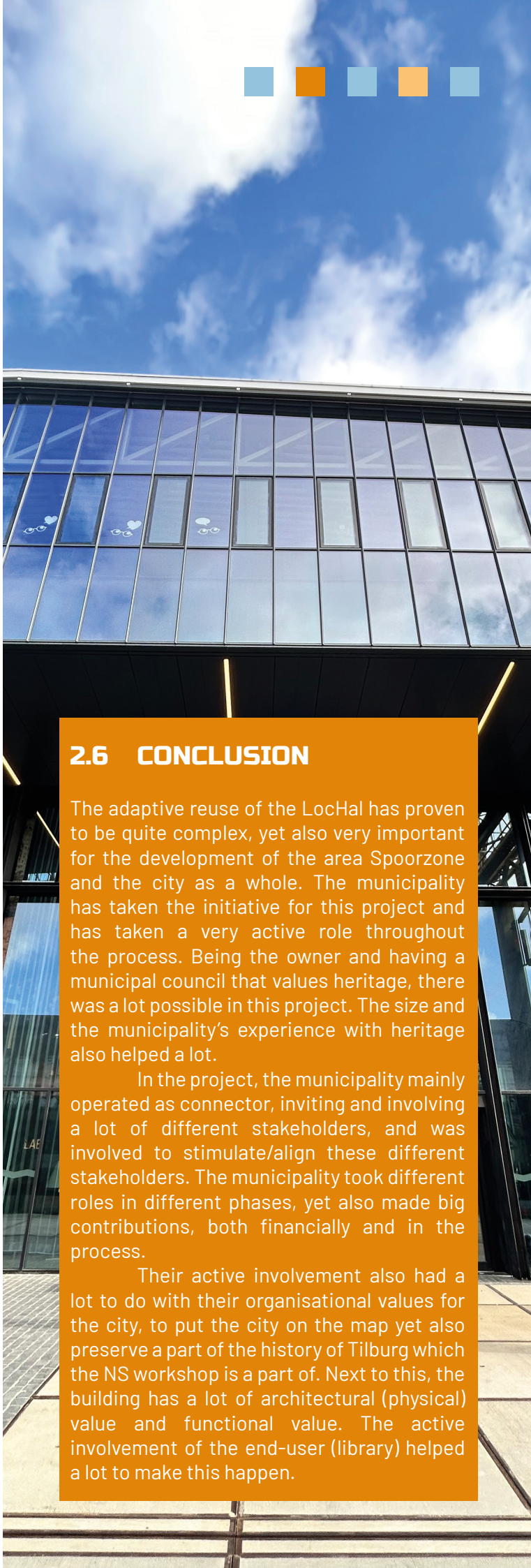
low amount of values

medium amount of values

high amount of values

Figure C2.6 *ension between the value perspectives in the LocHal case (NC)*





2.6 CONCLUSION

The adaptive reuse of the LocHal has proven to be quite complex, yet also very important for the development of the area Spoorzone and the city as a whole. The municipality has taken the initiative for this project and has taken a very active role throughout the process. Being the owner and having a municipal council that values heritage, there was a lot possible in this project. The size and the municipality's experience with heritage also helped a lot.

In the project, the municipality mainly operated as connector, inviting and involving a lot of different stakeholders, and was involved to stimulate/align these different stakeholders. The municipality took different roles in different phases, yet also made big contributions, both financially and in the process.

Their active involvement also had a lot to do with their organisational values for the city, to put the city on the map yet also preserve a part of the history of Tilburg which the NS workshop is a part of. Next to this, the building has a lot of architectural (physical) value and functional value. The active involvement of the end-user (library) helped a lot to make this happen.

PROJECT DETAILS

Name	Klokgebouw
Location	Klokgebouw 50, Eindhoven
Urban development	Strijp-S
Size	45.000 m2
Building year	1928
Status	National monument
Adaptive reuse	2002-2014
Owner	Sint Trudo
User(s)	Sint Trudo (rental offices), Blue Collar (hotel), PopEi (cultural organization) ROC (education)
Architect(s)	FAAM Architects, van Helmond Architecten
Project manager(s)	Sint Trudo

3. KLOKGEBOUW – EINDHOVEN

The Klokgebouw is a business centre in Eindhoven with more than 100 workspaces, music/dance centre and a lot of other functions. On the ground floor, various organisers of festivals, events and concerts have now found a fantastic place in the culture halls; good for 100, but also for 10.000 visitors (This is Eindhoven, 2023).

The building is named after the huge clock on the tower and is the first building of Strijp-S to come into view from the railroad and to be noticed from the highway. The concrete building is architecturally in line with the other buildings of Strijp-S, known as the 'White Spine'. However, the building is double their size, occupying a surface of around 30.000 m2, including a water tower. Originally, the building was used for the production of philite, a special Philips' variant from bakelite (Babalis & Curulli, 2016).

3.1 CONTEXT

3.1.1 URBAN CONTEXT

The Klokgebouw is part of the Strijp-S area, which was one of the big terrains Philips was using for its production. The area is now being redeveloped, including a lot of facilities, offices and housing, yet focussed on the creative industry. The area is more on the border of the city, with the Klokgebouw located at a 25 minute walk from the Eindhoven Central station. However, the Klokgebouw is located right next to the Eindhoven Strijp-S station. The Klokgebouw is thereby also right next to the train tracks and is one of the first things of Eindhoven you see when you travel coming from the north to Eindhoven.

3.1.2 MUNICIPAL CONTEXT

The municipality of Eindhoven is large, having 238.326 inhabitants in 2022 (CBS, 2022), see Table C3.1. Next to this, the city also has a lot of heritage buildings: 560 (RCE, 2022), of which quite a few in the Strijp-S area.

The municipality of Eindhoven is in multiple ways involved in the adaptive reuse of the Klokgebouw. The municipality is intensively involved as area developer, being in a public-private partnership with VolkerWessels. Next to this, they are involved from their public perspective. This is visualised in Figure C3.2.

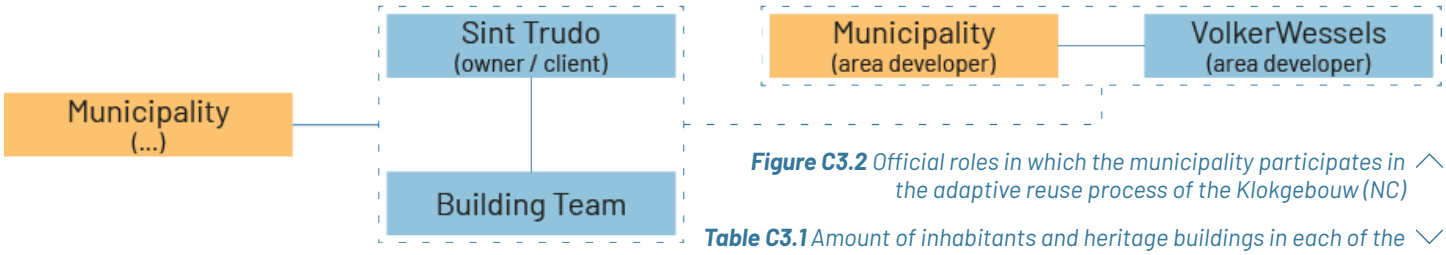


Figure C3.2 *Official roles in which the municipality participates in the adaptive reuse process of the Klokgebouw (NC)*

Table C3.1 *Amount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)*

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

3.1.3 MARKET CONTEXT

The project started in a high-conjucture (2002), yet due to the detoriation of market conditions, it took a long time before the permits were approved and the renovation of the first part, PopEi, started. This first part was only delivered in 2007/2008, when the market was good again. After this, part by part, the building was delivered, also in the context of constantly changing market conditions.

3.1.4 HISTORICAL CONTEXT

The Klokgebouw was originally used by the firm Philips & Co as factory for bakelite. Philips turned out to be a big influence on the development of the city of Eindhoven. After starting the business on the Emmalaan, the company grows and aims to become self-sufficient, not relying on other businesses for their resources and materials, leading to the development of Strijp-S, including the Klokgebouw. Over the years, Philips keeps growing and develops two other complexes: Strijp-R and Strijp-T (Driehoek Strijp S, n.d.).

The complexes were not accessible for the public, and therefore these complexes were known as the 'forbidden city' (verboden stad). At the end of the 20th century, the production of Philips products are moved to low-wage countries, leaving these big complexes without function, including the Klokgebouw (Cerutti, n.d.).

The area had to be transformed into the new creative heart of the city of Eindhoven. The area was considered to be developed in a multifunctional manner with functions like housing, working and recreating (Messink, 2011).

3.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (Table C3.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4. The representative of the municipality is also manager of the partnership cooperation between the Municipality of Eindhoven and VolkerWessels (Park Strijp Beheer), therefore focussed on multiple perspectives. The project leader of the Klokgebouw of Trudo is speaking from a user perspective, yet also focusses on financial goals.

Table C3.2 *Interviews conducted for the Klokgebouw case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
B1 Manager Park Strijp Beheer – Municipality of Eindhoven / VolkerWessels	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy
	Engineer	Physical	▪ XL impact on the environment ▪ XL in size
B2 Project leader – Sint Trudo	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy

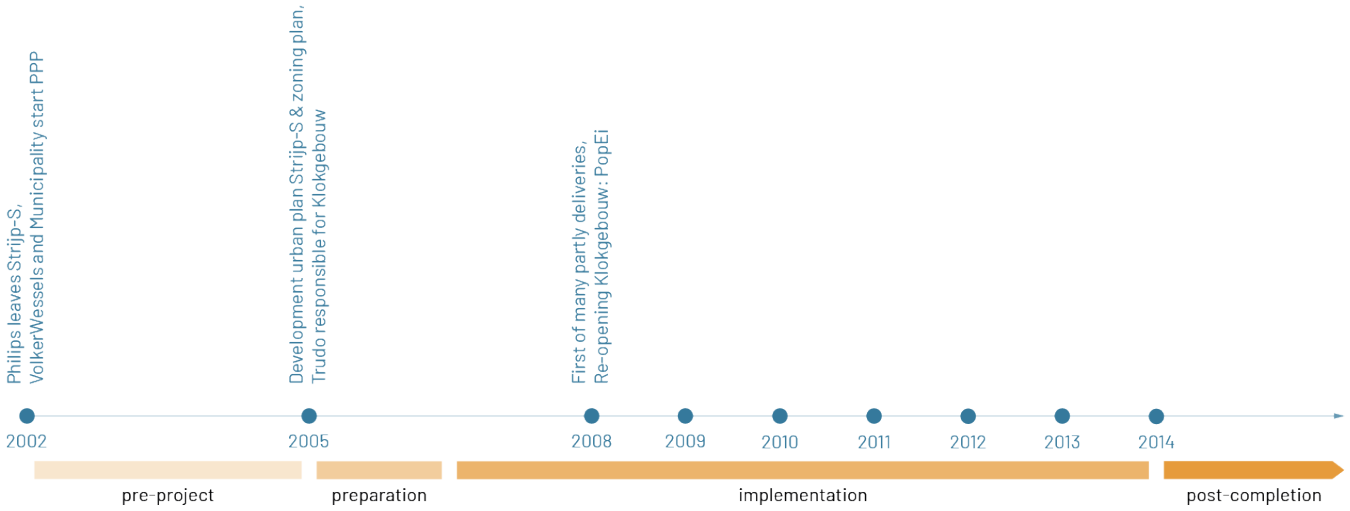


Figure C3.3 *Important moments in the adaptive reuse process of the Klokgebouw (NC)*

3.3 PROCESS

The adaptive reuse process of the Klokgebouw will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C3.3.

3.3.1 PRE-PROJECT

The initiative for the adaptive reuse of the Klokgebouw came after the public debate regarding the adaptive reuse of De Wite Dame. As a result of this debate, the municipality developed a plan in which Strijp S was highlighted as a area to be reconstructed (Jordans, 2012), including the Klokgebouw.

3.3.2 PREPARATION

Philips sells the grounds and buildings in 2002 to developer VolkerWessels and the municipality; a deal of 140 million euros. VolkerWessels and the municipality come together in a public-private cooperation: Park Strijp Beheer (Strijp S, n.d.). "At that point, talks started between the municipality and VolkerWessels and two housing associations: Trudo and Woonbedrijf. This was to look at, what should there be and how? How could we develop this?" (interview B2). VolkerWessels sells a part of the buildings to housing corporations Trudo and Woonbedrijf (Cerutti, n.d.). Trudo is responsible for the redevelopment of the area known as 'de Driehoek' ('the triangle'), including the Klokgebouw. Trudo was chosen due to the fact that they are a bigger organisation with a bigger (financial) buffer (Jordans, 2012).

They also had the same goals for the building, as a 'culture factory'. Trudo first chose for 15 years of events and temporary functions in the area, to invite the public and young creative people to find a living or working space in Strijp S. The Klokgebouw serves as catalyst for the area. In this time, Trudo acts as director and operator (Cerutti, n.d.).

The permits took a long time, even though the municipality has shown some flexibility in this process (Jordans, 2012). However, approval was needed from the province and there was a discussion between municipality and province about the risk zone of the train tracks.

In the mean time, the renovation for PopEI was already prepared (May 2007), being fully financed by the Municipality of Eindhoven (Jordans, 2012).

3.3.3 IMPLEMENTATION

The rest of the building was delivered in phases. Next to PopEI, two fitness studios established themselves in the building. After the renovation of PopEI, 30 working unites were realised on two elevations of the building. After this, two units of 1.000 m2 were developed and around 30 more luxurious units were built on the side of the city. Finally, the culture halls on the ground floor in the building were renovated (Klokgebouw, n.d.).

The resulting combination of functions and target groups in the area enables savings through smart linking.

This is concretised in the steering of partial operations within the land exploitation (calculation of estimated costs and revenues of land in a planning area). The programming with creative entrepreneurs and events in the plinth has been an important driver for value creation in the area, according to research by Franzen (2014).

3.3.4 POST-COMPLETION

The Klokgebouw is a big success. In the near future, the building has to be insulated again and asbestos has to be removed from the façades. Trudo is also thinking about the disposal of ownership of parts of the building, but first wants to make sure the concept stands (interview B2).

3.4 INVOLVEMENT MUNICIPALITY

The success of the Klokgebouw process is a product of the good collaboration and alignment of Trudo and municipality, yet also with the inventivity and creativity of the project leaders. The municipality wanted to be involved, to achieve that the DNA that Philips left behind would remain in the area. The municipality had the focus pillars of culture, media, urban and creativity, and wanted to use these in the development of Strijp-S (Cerutti, n.d.).

The research of Cerutti (n.d.) looks at the development of Strijp-S in general, which is needed to understand how the involvement of the municipality started. To achieve the area development, the municipality of Eindhoven entered into a public-private partnership (PPP) with VolkerWessels. VolkerWessels bought the area (via a tender procedure), and chose to develop the area in collaboration with the municipality. According to the research by van der Leeuw (2016), the municipality mainly used communicative instruments, and almost no financial instruments.

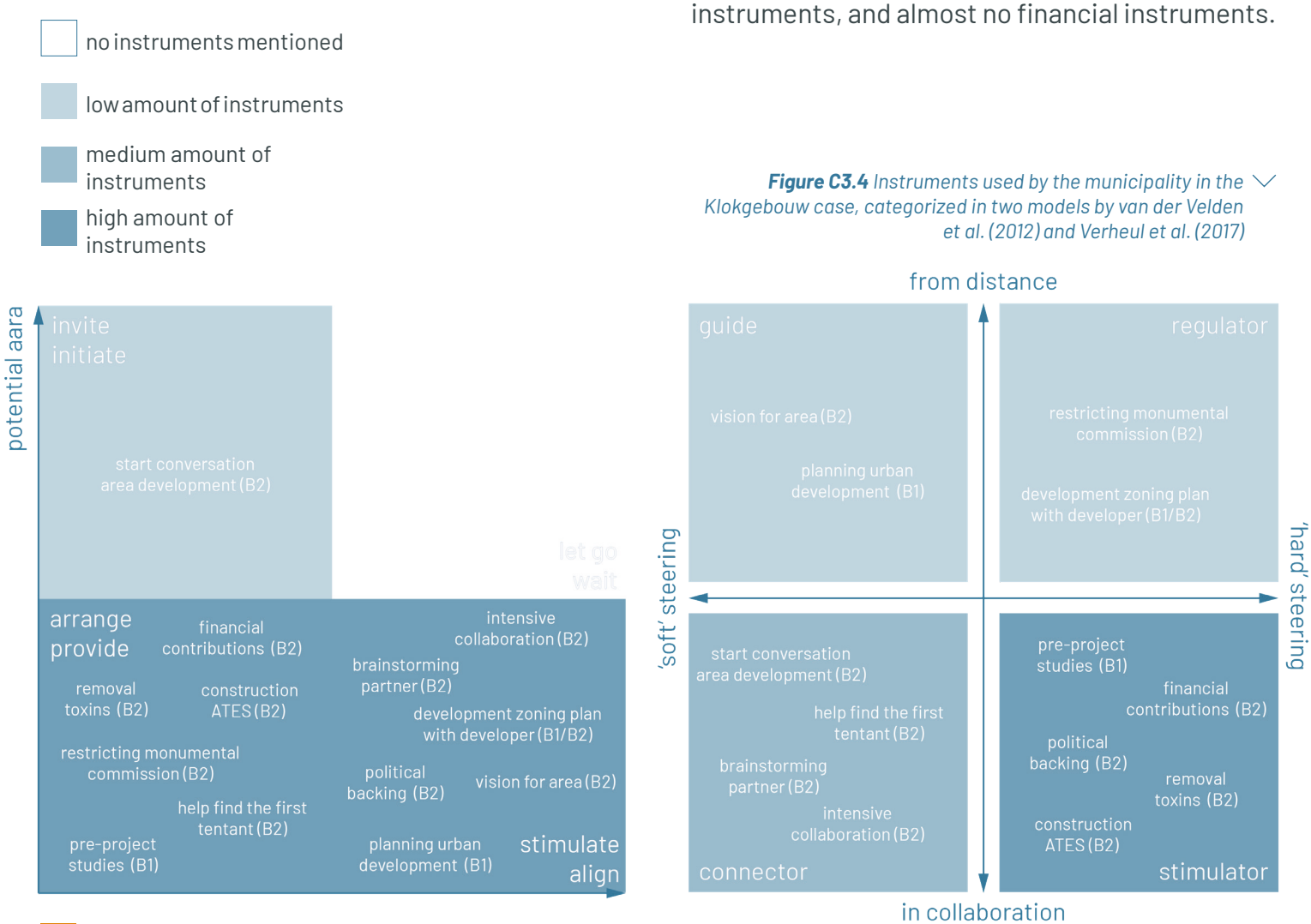


Figure C3.4 *Instruments used by the municipality in the Klokgebouw case, categorized in two models by van der Velden et al. (2012) and Verheul et al. (2017)*

Both interviewees of this research also state that the area development in general received no subsidy at all. However, some projects did receive specific subsidies. Some legal instruments were used. In the partnership agreement, the main agreements are elaborated upon. The zoning plan was also developed in collaboration with VolkerWessels.

In the adaptive reuse process of the Klokgebouw, the municipality was actively involved and acted mainly to arrange and provide or stimulate the project, either in kind or financially. They made some big financial contributions, yet also were involved in for example the construction of the ATES and removal of toxics. They used several tools to steer the process, being quite diverse but with a strong focus on steering in collaboration.

This active role in the specific project, might also come from the whole Strijp-S project in general. "What was a big advantage here was that that vision for Strijp-S was really a cooperation agreement with the municipality, VolkerWessels, Trudo, so all parties did want to cooperate on the whole concept and stood behind each other. You just notice that in political support and support from the civil service at a certain point." (interview B2).

Next to political support, the municipality also tried to align parties, for instance by providing the first tenant in the Klokgebouw: PopEi. Moreover, the local government provided a lot of financial support and invested a lot of money in the project.

The project leader of Trudo also highlights the fact that the local government really cooperated well and helped in the thinking process, also regarding regulations. "The municipality has cooperated really well and has really been, and still is, the driving force for further development." (interview B2).

The different instruments used by the municipality are illustrated in Figure C3.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

When looking at municipal involvement in the different phases, it shows that in the pre-project phase, the focus of the municipality was on the stimulation and aligning the parties, and connecting them. In the preparation, they focussed more on arranging/providing and stimulating/aligning, mainly acting as connector and stimulator (see Table C3.3)

Table C3.3 *Municipal involvement in the first two phases of the adaptive reuse process of the Klokgebouw, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Stimulate/align	Connector
Preparation phase	Arrange/provide Stimulate/align	Stimulator Connector
General	Stimulate/align Arrange/provide	Stimulate Connector

3.5 PUBLIC VALUES

Most mentioned public values relate to the organisational perspective (see Figure C3.5).

3.5.1 ORGANISATIONAL VALUES

After Philips leaving the city, the city had to reinvent themselves. The Klokgebouw was an important booster for the redevelopment of the Strijp-S area, yet also to put Eindhoven as a city 'on the map'. The area was branded as creative centre, next to the commercial centre in the city centre.

3.5.2 FUNCTIONAL VALUES

Aiming to attract small creative businesses, the values mainly involve characteristics for the offices, as well as growing through different buildings in the area as a company. Next to this, the community, that is being 'developed' in the area, and its community feeling in the area is considered important.

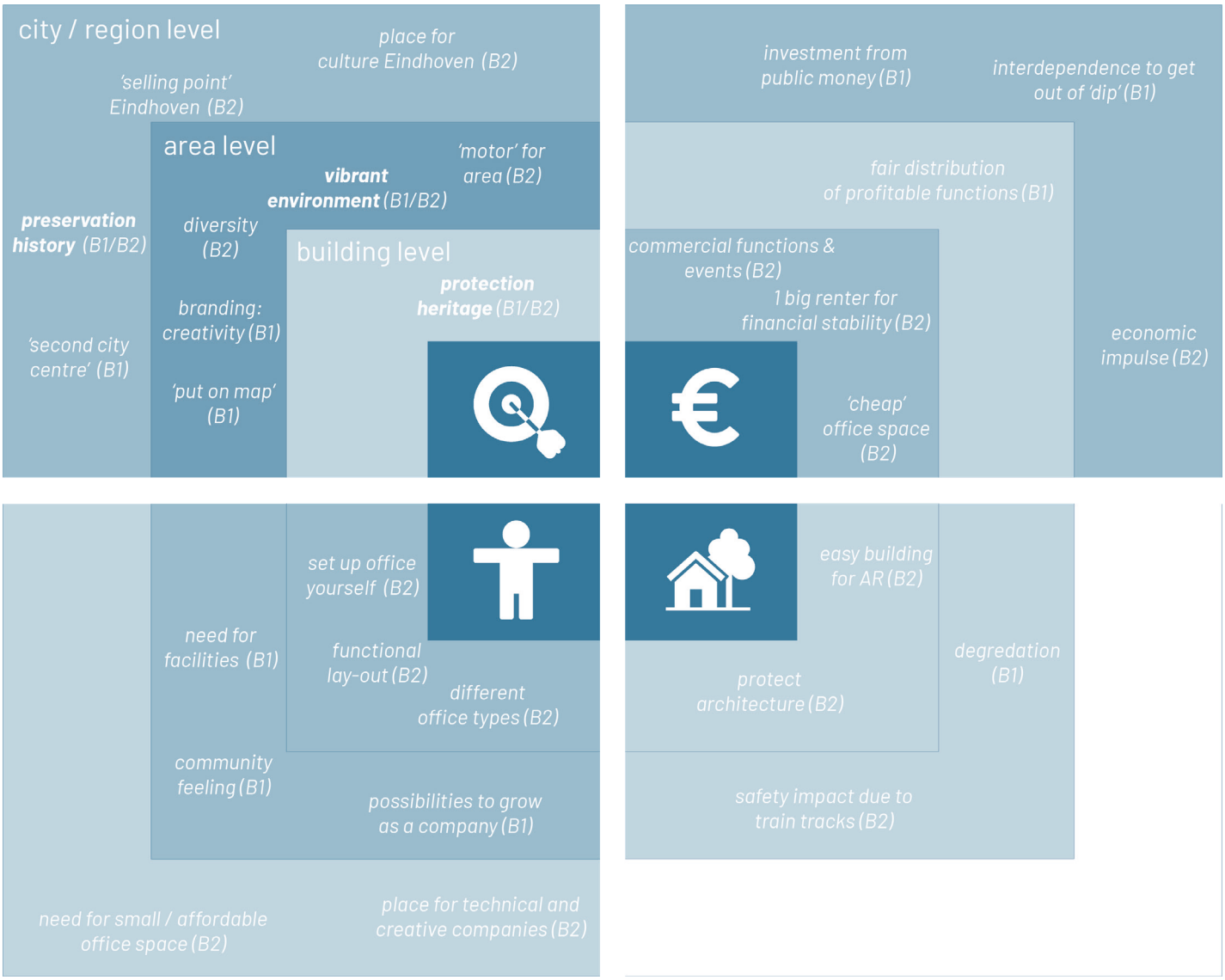
3.5.3 PHYSICAL VALUES

The physical values mainly relate to the preservation of the architectural style and safety due to its position next to the train track.

3.5.4 FINANCIAL VALUES

The project itself is financially speaking focused on the business case of the project, for instance involving a big party for stability in order to provide cheaper offices for smaller businesses. On a larger scale, the project initiated the (re)development of Strijp-S, which aimed to give a strong economic impulse to the city of Eindhoven and get out of their economic 'dip'.

Figure C3.5 *Public values in the Klokgebouw case, in an altered model of the four-perspective model of den Heijer (2021)*

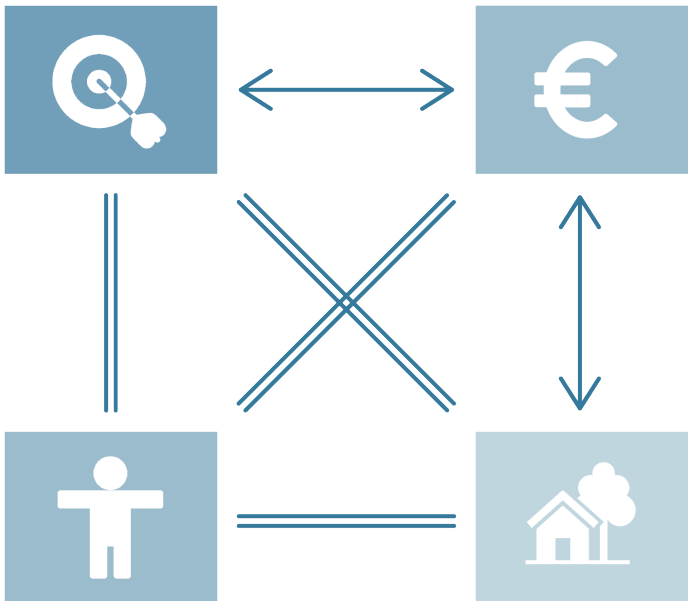


3.5.5 VALUE TENSIONS

The adaptation of the Klokgebouw to its new function(s) was relatively straightforward, and the user values were also in line with the organizational goals, particularly due to its public function. The building offered ample space for creative start-ups at a relatively affordable rent, fulfilling a significant need in the community. Nevertheless, this endeavor necessitated a substantial investment, including public funds, owing to the ambitious objectives set for the project. The undertaking involved extensive technical interventions and meticulous architectural considerations to ensure its successful transformation.

- no values mentioned
- low amount of values
- medium amount of values
- high amount of values

Figure C3.6 *Tension between the value perspectives in the Klokgebouw case (NC)*



3.6 CONCLUSION

The adaptive reuse of the Klokgebouw was the first in the area of Strijp-S, and therefore served as an example for the rest of the area, yet also as national and international example. With the municipality and VolkerWessels, two large powerful organizations, being end-responsible for the area development, the municipality was very involved in this first project.

The municipality used a lot of different instruments, mainly to stimulate/align and arrange/provide. The municipality worked closely with the owner (Sint Trudo) and had a strong vision for the area. To make this happen, they made big investments, both for the building and the area. They also played in a big part, both financially and in kind, in the process.

Their active involvement can best be explained due to the value of the area development to put the city on the map and give an economic impulse when Eindhoven was in a dip. The Klokgebouw being the first project, it was important to boost the area and attract new stakeholders. This also shows in the big amount of organisational values, both on an area and city scale.

PROJECT DETAILS

Name	(de) Baronie
Location	Prinses Margrietlaan 1, Alphen aan den Rijn
Urban development	Groot Baronie / Rijnhaven
Size	19.000 m2
Building year	1954
Status	No monumental status
Adaptive reuse	2008-2014
Owner	Green Real Estate
User(s)	Shopping stores, Offices

4. BARONIE – ALPHEN A/D RIJN

In Alphen aan den Rijn, an old chocolate factory is transformed into a neighbourhood shopping centre: de Baronie (Figure C4.1). The former chocolate factory has been restored and stripped of later extensions, yet new construction in the form of stores, a parking garage and housing has also been built (Visser, 2014).

4.1 CONTEXT

4.1.1 URBAN CONTEXT

The project is part of the urban development called 'Groot Baronie' and the 'Rijnhaven' area. This old industrial site is being transformed into a mixed urban live-work area. De Baronie forms the transition between the existing residential neighbourhoods and the (to be) transformed industrial area (Green Real Estate, n.d.). The area is located next to the water of the Rijnhaven, in the north of the city of Alphen aan den Rijn, with the Baronie being a 21 minute walk from the train station Alphen aan den Rijn.

4.1.2 MUNICIPAL CONTEXT

The municipality of Alphen aan den Rijn has 112.926 inhabitants (CBS, 2022), making it just a 'big' municipality (see Table C4.1). The municipality has 267 heritage buildings (RCE, 2022).

The municipality of Alphen aan den Rijn is only involved from their public perspective in the case of the Baronie. This is visualised in Figure C4.2.

4.1.3 MARKET CONTEXT

The first initiative-taker started the project in 2006, within poor market conditions. After figuring out the project, Green took over in 2008, when the market was at it best. However, while the plan was already layed out, it took long to actually redevelop and build the project (2014), under constantly changing market conditions. After delivery in 2014, the office spaces and retail spaces were hard to fill, also due to poor market conditions.

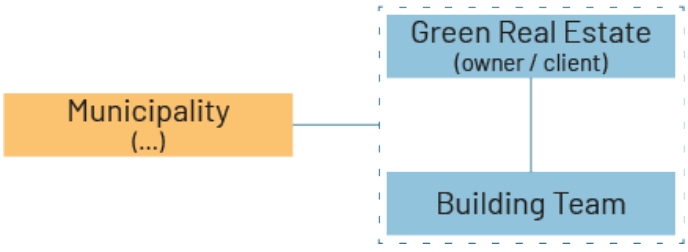


Figure C4.2 Official role in which the municipality participates in the adaptive reuse process of the Baronie (NC)

Table C4.1 mount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

4.1.4 HISTORICAL CONTEXT

De Baronie is a chocolate factory originally from Schiedam. After a fire and lack of room for expansion in Schiedam, the company chose in 1952 to leave the Schiedam area. After getting several offers from municipalities, the company chose to go to Alphen aan den Rijn, where they built their factory in the middle of the pastures. The old plans for a new factory in Schiedam (which were cancelled), were copied to this new unbuilt area (CAS Alphen aan den Rijn, n.d.).

In 1954, the new factory was opened, a unique development for the city. For years, the Baronie was the icon for the ambitious character of the city of Alphen aan den Rijn (CAS Alphen aan den Rijn, n.d.). Alphen was already in full development, being an example of modernism and advancement.

The Baronie brought a lot of employment to the area, yet also brought a period of fast growth of the population and economy of Alphen aan den Rijn. Consequently, the Baronie Cocoa and Chocolate Factory remained the figurehead of the municipality's ambitious plans for many years.

In 2001, the company leaves Alphen aan den Rijn, leaving the factory vacant. The building was planned for demolition (Visser, 2014), yet no one wanted to pay the demolition costs and the rezoning plans remained on the shelf through endless negotiations. The building was temporarily occupied anti-squatting, but due to increasing nuisance from vandals and other uninvited visitors, the squatters decided to leave in 2005. In October 2005, a major fire raged in the vacant factory building, burning out part of the building (Alphens.nl, 2005; Remy, 2008)

4.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (see Table C4.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4.

The project leader of the municipality focusses on organisational goals, while the project manager of Green focusses more on the user perspective and the physical goals for the building and surrounding area.

Table C4.2 *Interviews conducted for the Baronie case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
C1 Project leader – Municipality of Alphen aan den Rijn	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
C2 Project manager – Green Real Estate	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population
	Engineer	Physical	▪ XL impact on the environment ▪ XL in size

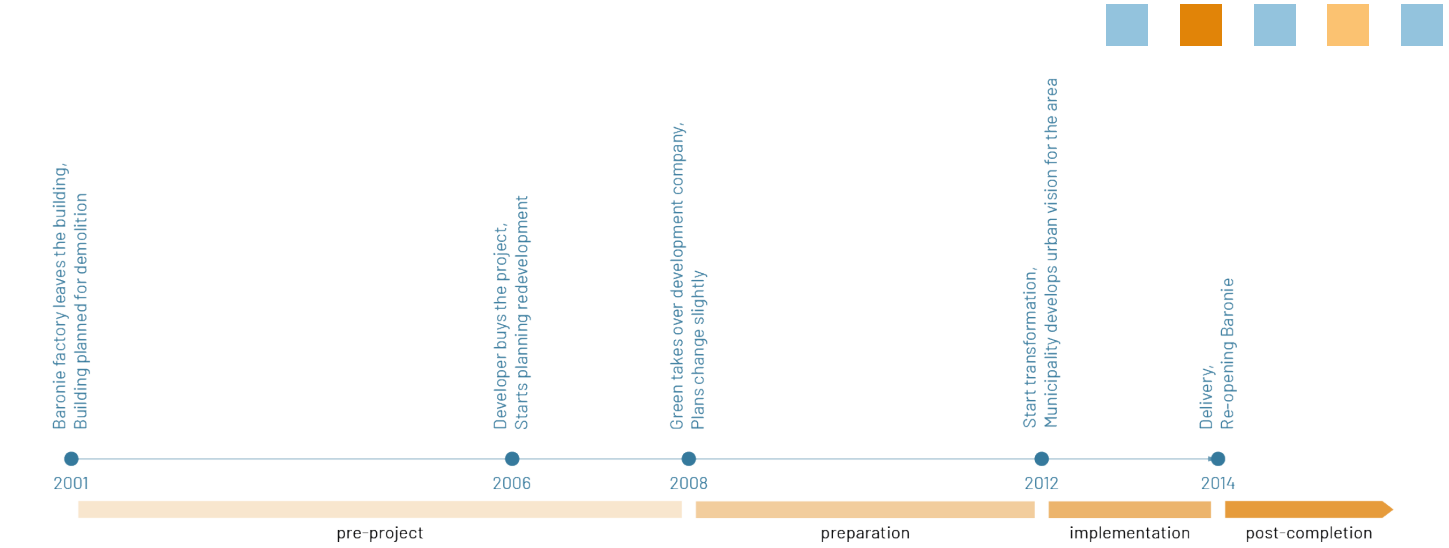


Figure C4.3 *Important moments in the adaptive reuse process of the Baronie (NC)*

4.3 PROCESS

The adaptive reuse process of the Baronie will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C4.3.

4.3.1 PRE-PROJECT PHASE

The building stood vacant for a few years. In 2006, developer Bosman bought the property aiming to redevelop the chocolate factory. Bosman had several discussions with the municipality about the possibilities for the project and the wishes of the municipality. "They [red: Bosman] initiated the conversation, saying 'I want something with the Baronie. What would be conceivable? What could the municipality go along with?'" (interview C1). The developer made (conceptual) plans for a commercial centre, offices and some housing. Two supermarkets (of which one discounter) agreed to come to the Baronie, which was a big wish of the municipality (Studio Alphen, 2006).

4.3.2 PREPARATION PHASE

In 2008, Green Real Estate bought the property from Bosman, building on the plans from developer Bosman. The plans only positioned more housing, since the first plans really focussed on the commercial functions. During these times, several discussions were taken place in the area and within the municipality about the competition between the city centre, the other district-centres and the new development of the Baronie (interview C1). Green Real Estate and the municipality signed an intentional agreement to research the feasibility of the project. This research also included a lot of distribution planning study ('DPO-onderzoek') for the commercial functions.

"If you add commercial functions there, add retail, doesn't that disrupt the amenities that are already in the city?" (interview C1). This research was also needed looking at the office market. Several discussions also included the preferred character of the centre, either extravert or introvert. The latter was chosen and the municipality took the job on themselves to (re)develop the public space, wishing to create a vibrant square (interview C1).

The municipality saw the opportunity for the area and also started to make a vision for the area, which was published in 2012 (interview C1). It also highlighted the Baronie area to contain the commercial functions for the area, being a 'booster' for the development of the rest of the area.

The road structure around the Baronie was changed, being the responsibility of the municipality. However, Green also bought some plots and exchanged land with the municipality to enable a 'ring road' around the Baronie complex. This was all laid down in an antecedent agreement. Due to market circumstances, the arrangement was changed slightly, adding a health-care function and a small change in housing (interview C1).

4.3.3 IMPLEMENTATION PHASE

The implementation phase was divided into different phases. Green chose Ymere, later Woonforte, to be responsible for the housing development. The complex was divided into four building sections; that was agreed upon in the anterior agreement (interview C1). In 2014, the project was delivered (Alphens.nl, 2005), and officially given the historical name.

4.3.4 POST-COMPLETION PHASE

After the project was delivered, it was at first hard to fill the (smaller) office spaces, yet also some commercial spaces. After a while, the demand was higher for bigger offices, leading to the decision to user the bigger floor fields for bigger users (interview C2).

4.4 INVOLVEMENT MUNICIPALITY

The role of the Municipality of Alphen aan den Rijn was initially more reactive and facilitative, "because of the huge investment it required. [...] It was too risky to bet on that." (interview C1). The first developer came up with the ideas and stepped towards the municipality to discuss the possibilities. Green took over those plans (with some small adjustments).

"They did not really have that active role, but later they did with instruments like the environmental plan and such, to be at the wheel." (interview C2). While being in the process of the redevelopment of the Baronie, the municipality developed a vision for the area. "That environmental plan was only adopted later, of course that plays a bigger role now since it has become mandatory for the municipality, but Alphen was kind of a pilot." (interview C2). However, they took several measures to make sure to steer the project in the right direction, and also were more actively involved in the research phase to see if the project was actually feasible. Another involved stakeholder from Green mentions that "the municipality was quite directorial in the further development of the whole area" (personal communication, 4 April 2023).

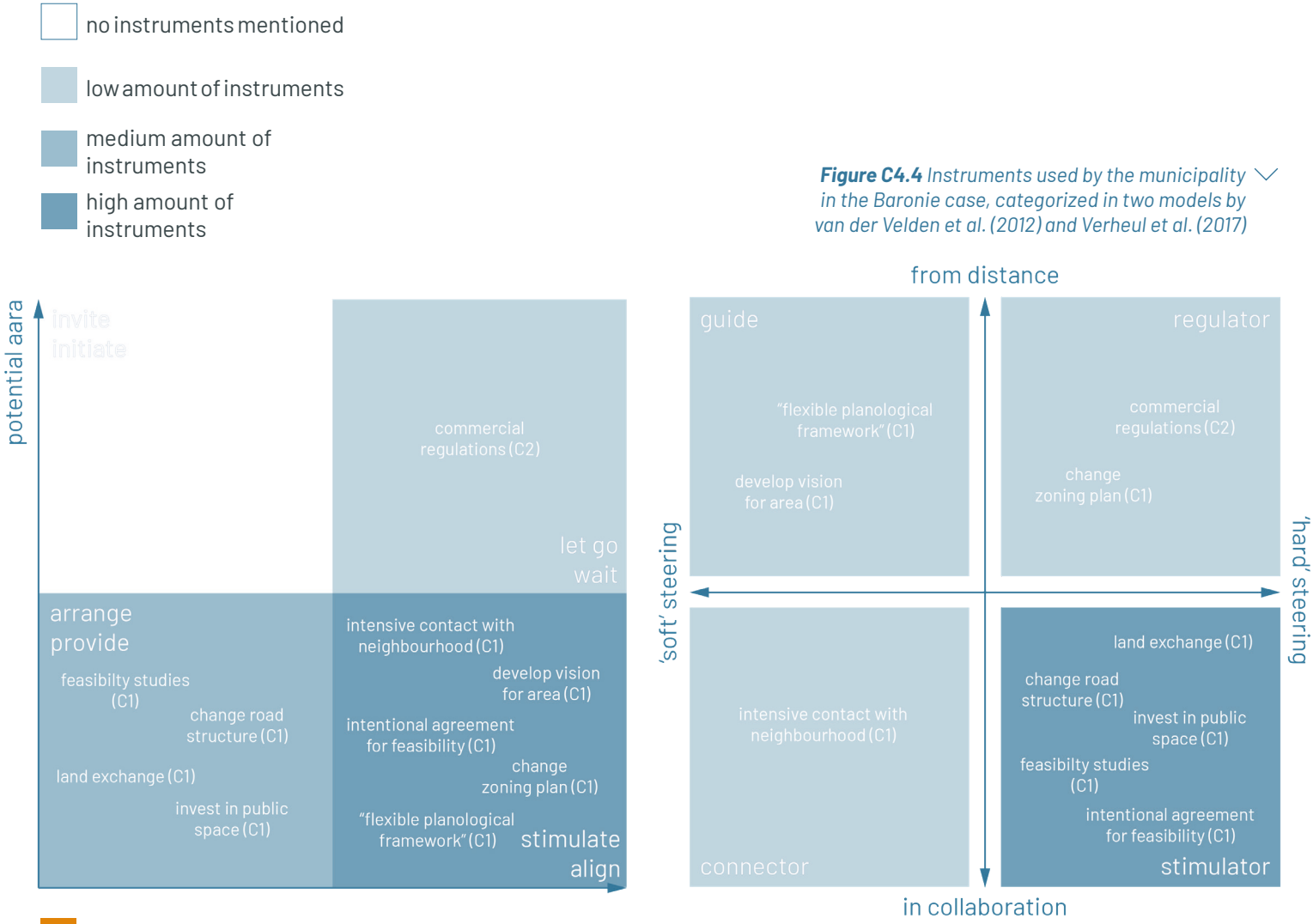


Figure C4.4 *Instruments used by the municipality in the Baronie case, categorized in two models by van der Velden et al. (2012) and Verheul et al. (2017)*

The interviewee of the municipality of Alphen compares their facilitative attitude with a fridge. "We figured out what functions can there be in the area, and some functions are limited, such as hospitality, housing or retail. You put all these functions in a fridge, and if a developer comes along and says, 'I want to develop something'. Then he can look in the fridge to see what's in it, he can take out his ingredients and give it a place. I say it very conceptually, of course it's a little more complicated. The next developer finds a fridge that is a little bit emptier. So that is always from the philosophy, anything that fits in the ambition we look for possibilities to make it possible" (interview C1).

During the process, the municipality also stimulated the process. For instance, they agreed to invest in the public space, enabled land exchange and changed the road structure for the benefit of the Baronie and the area development. In the later phases, they also took a role as connector, having intensive contact with the neighbourhood. Green is happy with the attitude of the municipality, also being not too much involved: "An overly involved municipality isn't everything either" (personal communication, 4 April 2023).

The different instruments used by the municipality are illustrated in Figure C4.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

The municipality was in the first phase more awaiting, being more of a guide. However, to research the feasibility they were more actively involved as stimulator. In the preparation phase, they arranged several things, such as the promise to redevelop the public space and road structure (see Table C4.3).

Table C4.3 *Municipal involvement in the first two phases of the adaptive reuse process of the Baronie, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Stimulate/align	Guide Stimulator
Preparation phase	Stimulate/align Arrange/provide	Stimulator Regulator
General	Stimulate/align Arrange/provide	Stimulator

4.5 PUBLIC VALUES

The values considered mainly focus on the project and the area (see Figure C4.5).

4.5.1 ORGANISATIONAL VALUES

The organisational values mainly highlight the goals for the project itself and as booster for the urban development of Groot Baronie and the Rijnhaven. Several discussions were held concerning the character of the project.

4.5.2 FUNCTIONAL VALUES

Looking at the functional value, it mainly concerns the functions the project should have and their functionality for the neighbourhood. The aimed goal was to make it the centre of the neighbourhood.

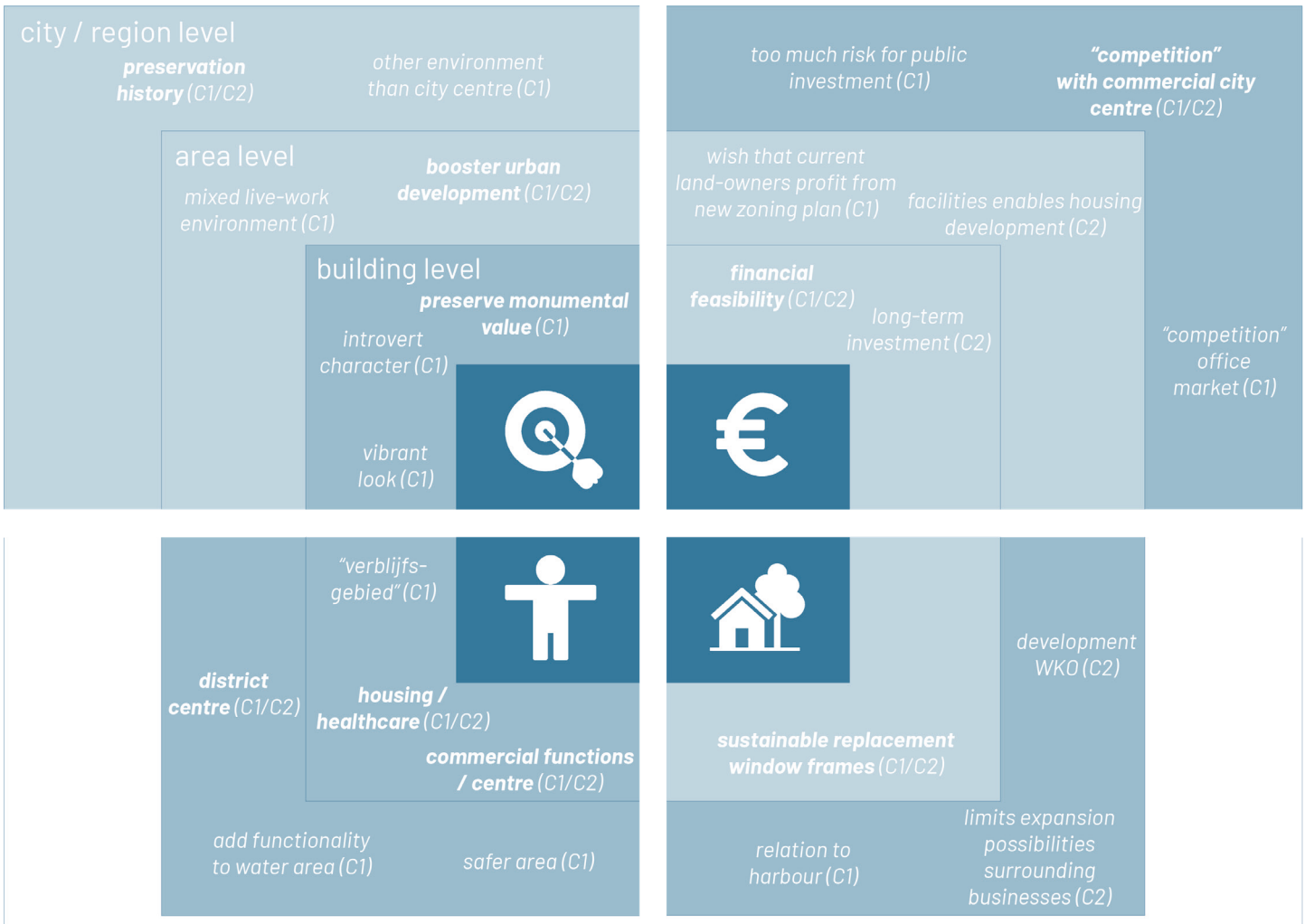
4.5.3 PHYSICAL VALUES

In physical sense, the interviewees mentioned only a few comments regarding the physical value. When spoken about, they mainly talked about its value for the area, having a relation to the harbour yet also disabling other businesses in the area to grow.

4.5.4 FINANCIAL VALUES

Financially speaking, the new neighbourhood centre was highly debated due to its competitional value compared to the city centre and other neighbourhood centres, both looking at it commercial functions, but also the office spaces. The investment in the project was a long-term investment, which was important for the financial business case.

Figure C4.5 *Public values in the Baronie case, in an altered model of the four-perspective model of den Heijer (2021)*

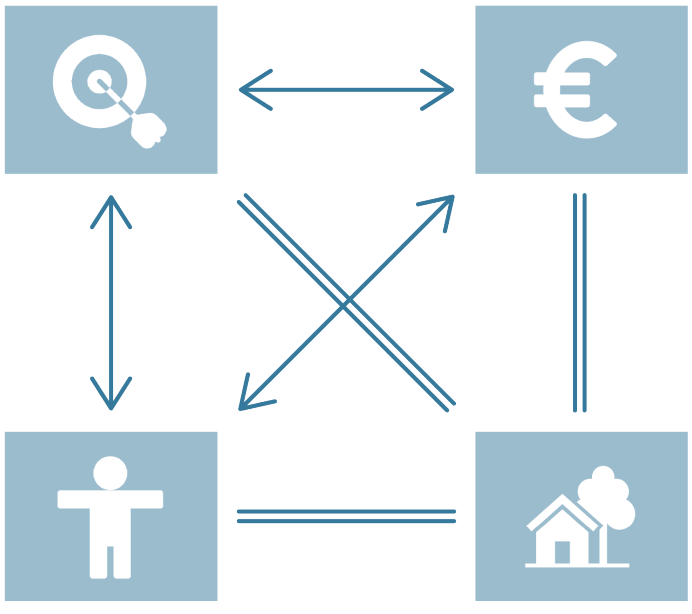


4.5.5 VALUE TENSIONS

The Baronie project encountered tension concerning the organizational objective of constructing a shopping centre, particularly regarding its necessity for the neighbourhood and the potential impact on the city's economy and its central area. Initially, finding feasible users posed a challenge. However, the building displayed favourable adaptability to the new function, and its feasibility was finally possible due to the related developments in the surrounding area.

- no values mentioned
- low amount of values
- medium amount of values
- high amount of values

Figure C4.6 *Tension between the value perspectives in the Baronie case (NC)*



4.6 CONCLUSION

The adaptive reuse of the Baronie has proven to be quite difficult. With the project first on the plan to be demolished and thereafter plans being not financially feasible, the project started up rough. However, now that the Baronie is transformed, it serves as catalysator for the area development of Groot Baronie / Rijnhaven.

The municipality took a more reactive role, with the private developer making up plans and coming to the municipality. After initiative, they took up more responsibility and also helped performing studies and looking for the possibilities. Overall, the municipality mainly served as stimulator and was involved to stimulate/align the different perspectives. For instance, a lot of research was needed into the relation (and competitiveness) of the new district centre with the city centre. Next to this, they also arranged/provided several necessities, for instance by changing the road structure and exchanging land with private developer Green. Recently, they have gained the insight that they want to be more actively involved in the rest of the area development.

The project values are mainly focused on the functional perspective and the functions it provides for the area. Next to this, the financial values on a city level were very relevant, due to its expected competition on both the commercial and office market.

PROJECT DETAILS

Name	Innovation Dock (RDM Campus)
Location	RDM-kade 59, Rotterdam
Urban development	RDM Campus / Stadshavens
Size	34.500 m2
Building year	1914
Status	Municipal monument
Adaptive reuse	2004-2014
Owner	Havenbedrijf (Port Authority) Rotterdam
User(s)	Hogeschool Rotterdam (education), Techniek College Rotterdam (education) Several technical companies
Architect(s)	Ineke van Hulshof, PLUS Architecten, van Heerden & Partners Architecten

5. RDM CAMPUS – ROTTERDAM

A campus for educational and research institutes and their partners from industry and government has been built on the former RDM shipyard: RDM Rotterdam. Project agency RDM Rotterdam is the driving force behind the metamorphosis of the entire RDM site. Heritage has a magnetic function here. The characteristic location is used to attract innovative companies and educational functions (Rijksdienst voor Cultureel Erfgoed, 2019).

5.1 CONTEXT

5.1.1 URBAN CONTEXT

The Innovation Dock is part of the RDM Campus, which is often abbreviated to just 'RDM'. The area is quite far from the rest of the city of Rotterdam. For instance, a walk to the Rotterdam Central Station is 63 minutes, which include a ferry ride over the Nieuwe Maas (without it would be a 121 minute walk). The RDM Campus is located right next to a small city called 'Heijplaat', where the workers of the RDM shipyard lived in the past.

5.1.2 MUNICIPAL CONTEXT

The municipality of Rotterdam is one of the biggest municipalities in the Netherlands, with 655.468 inhabitants (CBS, 2022), see Table C5.1. The city is also part of the 'G4', a collaboration between the four biggest cities of the Netherlands. Furthermore, the municipality is quite experienced with heritage, having over 1000 heritage buildings (RCE, 2022).

The municipality of Rotterdam is in multiple ways involved in the adaptive reuse of the RDM Campus. The municipality is involved as the main stakeholder of the port authority (70%, the other part is owned by the Dutch national government) . Next to this, they are involved from their public perspective. This is also visualised in Figure C5.2.

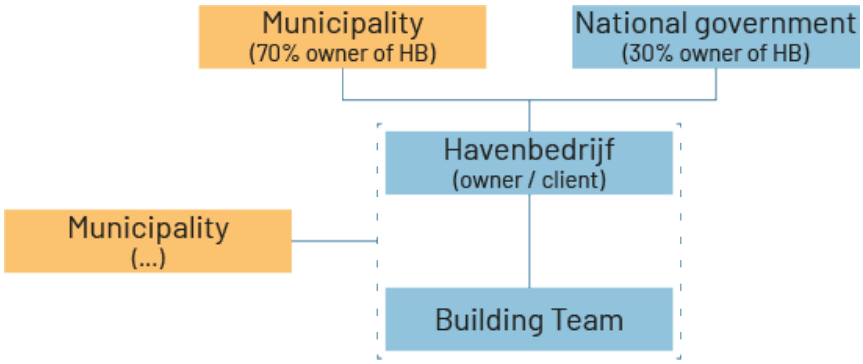


Figure C5.2 *Official role in which the municipality participates in the adaptive reuse process of the RDM Campus (NC)*

Table C5.1 *Amount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)*

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

5.1.3 MARKET CONTEXT

The initiative for the adaptive reuse of RDM started in 2002, when the market was still good, yet started to deteriorate. It took a while before the actual implementation of the first building started (2006), when the market was improving. In 2008 the building was delivered. However, after this, the business spaces turned out hard to fail, also due to the economical crisis around 2008/2009.

5.1.4 HISTORICAL CONTEXT

RDM was founded in 1902 as a continuation of Maatschappij de Maas and settled at the Heijplaat in Rotterdam. First for the purpose of ship maintenance capacity, it later added new construction of ships. Around 1914, the garden village Heijplaat was built for employees of the RDM (Rijksdienst voor Cultureel Erfgoed, 2019).

Until World War II, the RDM site increased in size to around 40 hectares. When shipbuilding ran into trouble in the late 1950s, RDM started to focus more on the defence industry. After mergers, the company merged into the RSV group, which went bankrupt in 1983.

A new company under the name RDM Technology continued, building submarines. In the mid-1990s, the curtain also fell on RDM Technology (Rijksdienst voor Cultureel Erfgoed, 2019).

5.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (see Table C5.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4. The interviewee of the municipality focusses on organisational goals, yet is mainly focused on the heritage (and architectural (physical)) perspective. The programme director of RDM is focused on the user perspective and its finances.

Table C5.2 *Interviews conducted for the RDM Campus case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
D1 Advisor heritage - Municipality of Rotterdam	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
	Engineer	Physical	▪ XL impact on the environment ▪ XL in size
D2 Programme Director – Havenbedrijf / RDM Campus	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy

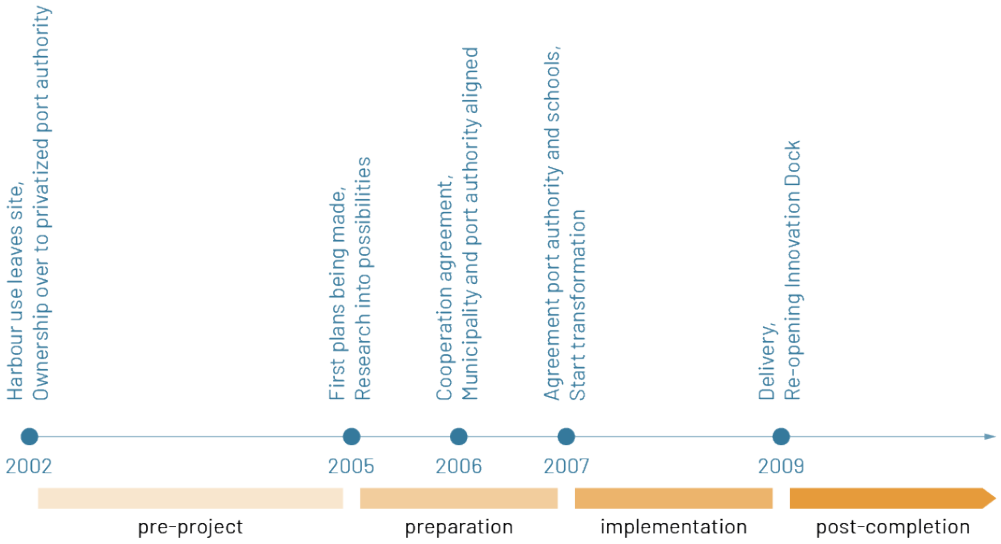


Figure C5.3 *Important moments in the adaptive reuse process of the RDM Campus (NC)*

5.3 PROCESS

The adaptive reuse process of the RDM Campus will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C5.3.

5.3.1 PRE-PROJECT PHASE

In 2002, RDM left the site and the Havenbedrijf (port authority) took over the buildings and become owner of the site. A period of plan development followed, the terrain being part of the ´City Ports´ (Stadshavens) of Rotterdam, a redevelopment area of 1600 ha (Muris, 2015b; Restauratiefonds, n.d.-a).

In 2004, the Ontwikkelingsmaatschappij Stadshavens Rotterdam NV (OMSR) was established by the Port of Rotterdam Authority and the Municipality of Rotterdam, simultaneously with the privatization of the Port Authority (Muris, 2015b; Rijksdienst voor Cultureel Erfgoed, 2019). One of the assignments for the OMSR was spatially shaping the relationship with the city, since the construction of Maasvlakte II offered a big potential for 'freed' port areas. The OSMR used the former Executive Office of RDM as their office, and was thereby the official first booster for the redevelopment of the RDM site. OMSR researched possible uses for the site and actively invited parties to participate in thinking about the future of Stadshavens. Contact was actively sought with Heijplaat, housing corporation Woonbron, and educational institutions.

With these discussions, the first plans for the establishment of education and innovative companies at RDM were in the making (Muris, 2015a). At that time, the Hogeschool Rotterdam and Albeda College were looking for space for engineering education, requiring a lot of space due to the big equipments.

This development was enhanced by the Economic Development Board Rotterdam (EDBR) established in 2004. In this setting, the directors of the educational institutions, businesses municipality, OMSR and Port Authority met (Muris, 2015a).

5.3.2 PREPARATION PHASE

A meeting was then held in 2005 to ascertain support for the concept and idea of Stadshavens Rotterdam, and a cultural-historical survey of the site was published (Restauratiefonds, n.d.-a), initiated by the municipality of Rotterdam and the port authority (interview D1). That document, "that has actually become a kind of common guideline" (interview D1). In December 2005, a letter of intent was signed by the schools, OMSR and Woonbron for the redevelopment of the Machine Hall at RDM and the establishment of the schools (Muris, 2015a).

In 2006, the enthusiastic plans were hard to actually realize. Complex discussions regarding ownership, financing, safety and accessibility first had to be figured out, and as additional setbacks, OSMR NV was dissolved, and Woonbron withdrew after the affair regarding the SS Rotterdam.

Luckily, the RDM terrain now came under control of one party: the Port Authority, being a strong partner for the schools to realize their ambitious plans (Muris, 2015a).

In 2007, Hogeschool Rotterdam and the Port of Rotterdam Authority signed an agreement for the RDM Campus. Rotterdam University became the main tenant for the school section of the hall and Albeda College became a subtenant (Rijksdienst voor Cultureel Erfgoed, 2019).

The Port Authority took on the responsibility for refurbishing the casco and redeveloping and operating the business section of the later called 'Innovation Dock'. The same year, the Port Authority, backed by the municipality and the Hogeschool Rotterdam, signed a contract for a boat connection between Rotterdam centre and the RDM Campus, being an important factor for students of the schools (Muris, 2015a).

In October 2007, the event 'RDM Campus Live' was organized, being the starting point of the joint communications and events to put the RDM area on the map and engage partners in development (Muris, 2015a).

5.3.3 IMPLEMENTATION PHASE

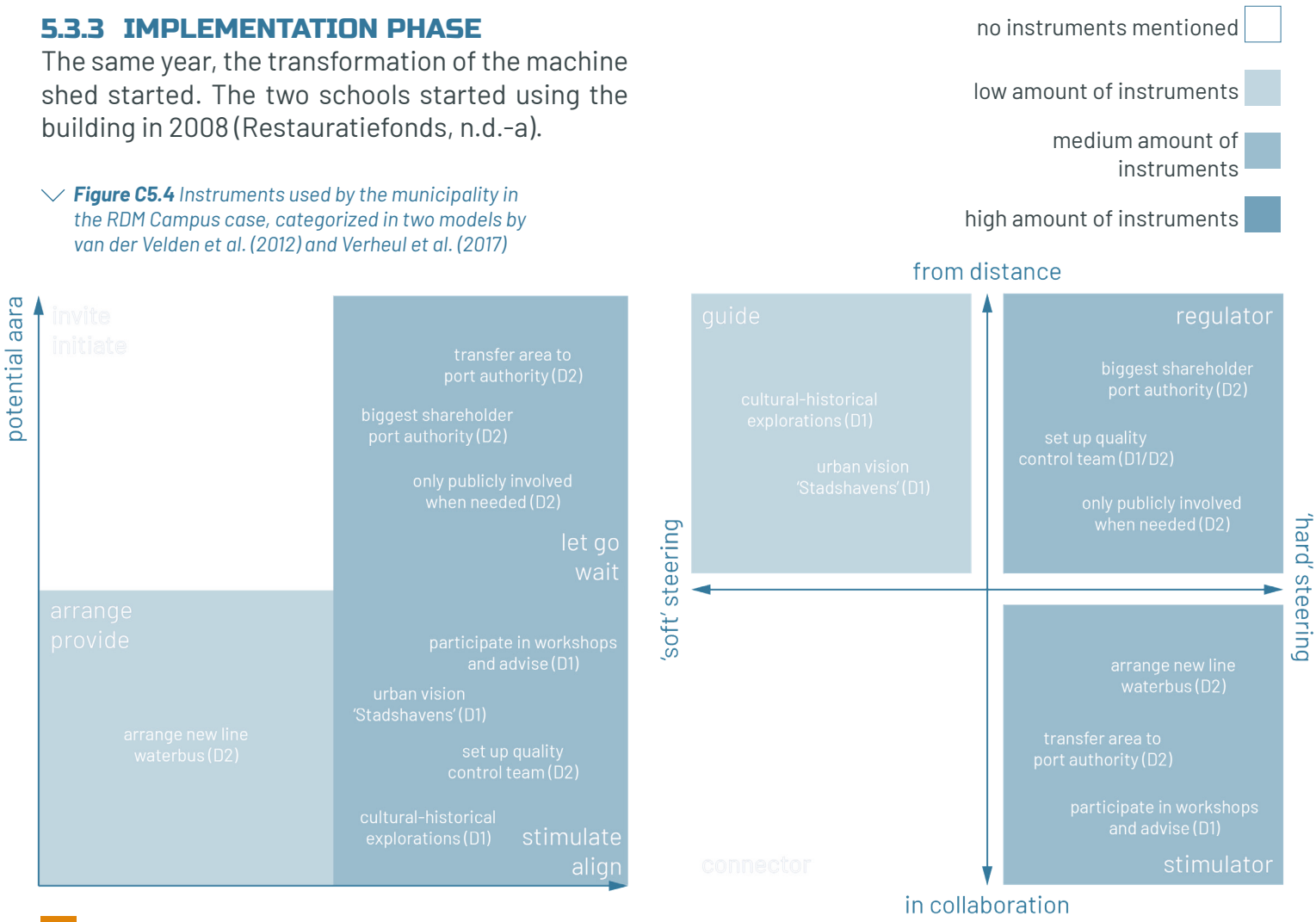
The same year, the transformation of the machine shed started. The two schools started using the building in 2008 (Restauratiefonds, n.d.-a).

Whereas the Port Authority acted mainly as landlord in the early days, the schools took care of the programmatic placemaking. Hogeschool Rotterdam took the lead in developing a programme office and conference centre. In doing so, the schools invested not only in an innovative educational concept, but also in a development environment for innovations in the manufacturing industry and for start-ups (Muris, 2015b).

5.3.4 POST-COMPLETION PHASE

In 2009, the transformation of the Innovation Dock and the former Executive Office were finished, being opened in October 2009, being the first of multiple (re)developments on the RDM Campus. However, the crisis also set in, making it difficult to lease the business spaces in the Innovation Dock. "After the opening, it actually turned out that attracting businesses was still quite difficult. After all, you are selling something that is not quite standard. Would you sit with another company in a hall with no walls?" (interview D2). It took until 2014 to rent out 70% on a permanent basis (Muris, 2015a).

Figure C5.4 *Instruments used by the municipality in the RDM Campus case, categorized in two models by van der Velden et al. (2012) and Verheul et al. (2017)*



5.4 INVOLVEMENT MUNICIPALITY

The involvement of the municipality in the RDM case can be described as very limited. They handed the responsibility to the port authority. "It was just very clear: Port Authority, you guys are responsible for this." (interview D2). Of course, the port authority does everything in perpetual ground lease on behalf of the municipality, so there is also some interest there especially around the Maas, yet the responsibility lied entirely with the port authority (interview D2).

When asked about their position in the background, the interviewee highlights that this was also part of their strategy. "Maybe it sounds a little cautious, but I think that's also kind of a strategy to not force it and also get used to each other a little bit." (interview D1). The interviewee highlights the importance of a more calm approach and focussing on collaboration: "The only way really to come to the table with each other or get progress is not to be 'full on' it all at once." (interview D1). She also explains that also in other cases, the municipality first waits to see if the owner of a building or area takes initiative. "First, it is up to the owner to do something with the land or building." (interview D1). While being more on the background, the lines between the municipality and the port authority were short and trust was built. "There was kind of an unspoken gentleman's agreement for my feeling. Maybe at the time I didn't even experience it very consciously as like, this is kind of a trust-based thing, but in retrospect I think, there actually was." (interview D1). While the municipality's limited involvement might have some downturns, it also has its benefits. The interviewee of the port authority mentions their ability to work very fast. "So the subsidy from Brussels, all the real estate development, area development, etc., we could simply do from the Port Authority and that makes it possible to get on with it very quickly. Such a port, especially in today's competitive situation, cannot afford to not innovate very quickly and, in our case, to become more sustainable." (interview D2).

However, the municipality did play an important role in some factors, for instance the public transport (boat) connection with the north of the Maas (Marconistraat / M4H), yet also for other elements from their public perspective: "Ultimately, of course, we do need the municipality for all kinds of zoning, imaging, welfare and so on." (interview D2). The interviewee of the municipality elaborates on their focus, which was mainly to focus on the preservation of the heritage and its history. "I think that was the most important part of our role, that cultural-historical exploration, keeping that alive." (interview D1).

Looking at welfare / planning board, the municipality and RDM set up a quality team, since in the RDM development the assessment is so structural and so typical in the port that it was useful to set that up. Often, when the quality team approved, the welfare planning board would agree so as well, also due to the overlap of two representatives of the municipality (interview D1). Note that the quality team was set up as an initiative from RDM (interview D2).

The different instruments used by the municipality are illustrated in Figure C5.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

The following Table C5.3 shows that the municipality was involved very limitedly, and focussed on regulations. A few instruments can be considered to be a stimulance for the development.

Looking at the further developments in the area, also in the Merwevierhaven (M4H) area, the interviewee of RDM highlights the different approach of the municipality. In the RDM development, the municipality was mainly involved from their traditional public role. "In the Merwevierhaven area, they absolutely do not. There we really team up together. [...] RDM was simply a matter of role division." (interview D2).

Table C5.3 *Municipal involvement in the first two phases of the adaptive reuse process of the RDM Campus, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Let go/wait	Regulator
Preparation phase	Let go/wait Stimulate/align	Regulator Stimulator
General	Let go/wait	Regulator

5.5 PUBLIC VALUES

Most public values relate to the organisational and functional perspective, see Figure C5.5.

5.5.1 ORGANISATIONAL VALUE

The organisational values for RDM mainly relate to inviting and inspiring young people to study in the engineering or harbour sector, yet also to stimulate innovation in these sectors. Next to this, the area aims to develop itself as an inspiring campus, showing the world of the harbour to residents and opening up the area.

5.5.2 FUNCTIONAL VALUE

The functional value of the building mainly focusses on building a place for a community or ecosystem, combining education and practice where one can learn from another.

For the area, the public transport connection is very important to users, as well as the iconic harbour environment.

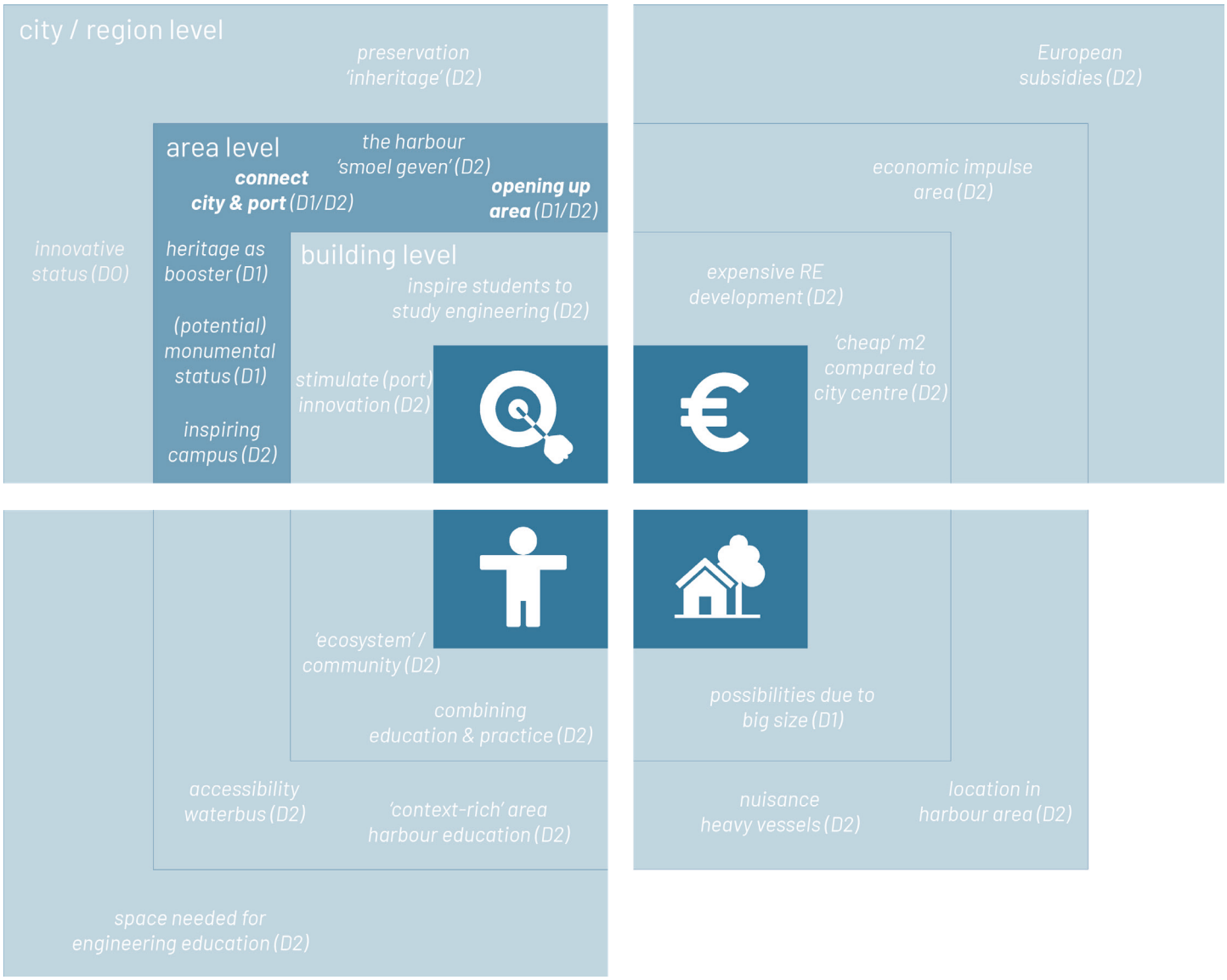
5.5.3 PHYSICAL VALUE

Looking from a physical perspective, the harbour itself is the most relevant, which has its benefits and downturns. For instance, new developments might encounter nuisance from (heavy) vessels in the area.

5.5.4 FINANCIAL VALUE

Financially, the real estate development was quite expensive, yet provides affordable square meters when compared to prices in the city centre. The investment gives the area a great economic impulse, which was also possible due to European subsidies.

Figure C5.5 *Public values in the RDM Campus case, in an altered model of the four-perspective model of den Heijer (2021)*



4.5.5 VALUE TENSIONS

The RDM case project received substantial funding from European sources, aligning with its organizational values. A significant portion of these funds was allocated to enhancing the sustainability and overall quality of the building. The adaptability of the structure to its new function proved to be relatively straightforward, although securing tenants during the initial phase of the project posed challenges. However, the users highly value the project and its objectives, partly attributed to its public utilization.

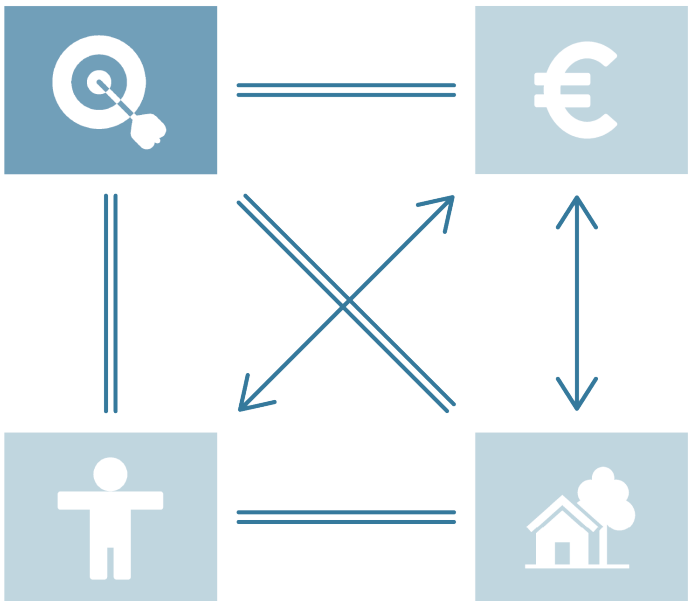
no values mentioned

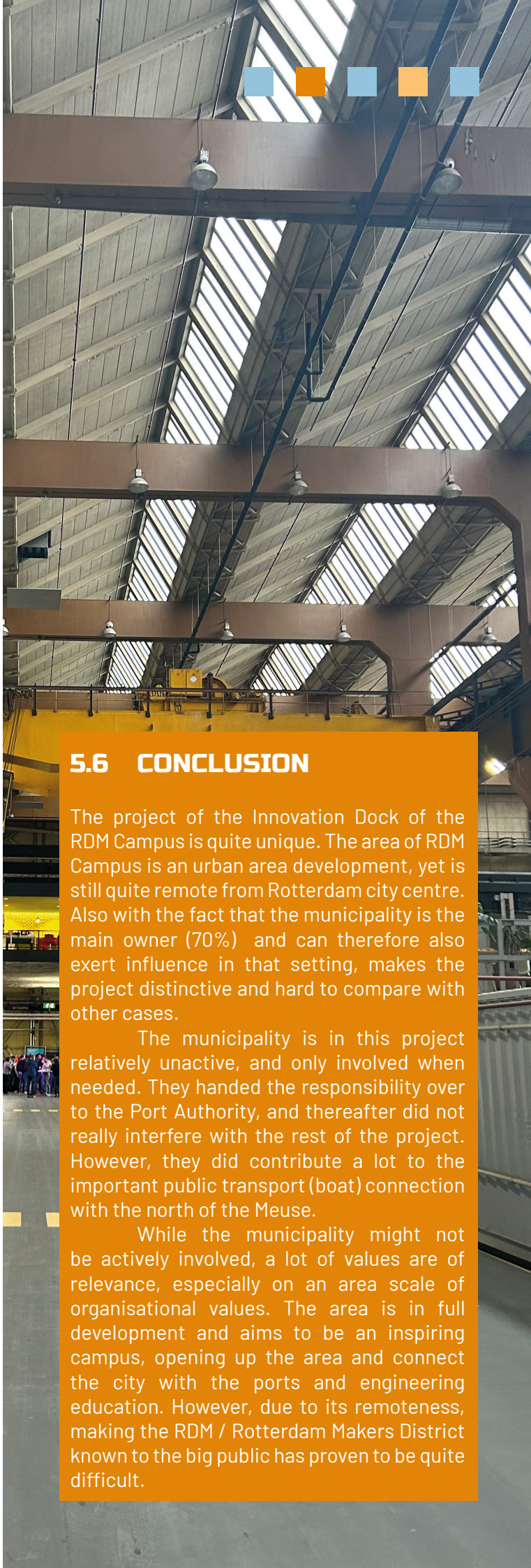
low amount of values

medium amount of values

high amount of values

Figure C5.6 *ension between the value perspectives in the RDM Campus case (NC)*





5.6 CONCLUSION

The project of the Innovation Dock of the RDM Campus is quite unique. The area of RDM Campus is an urban area development, yet is still quite remote from Rotterdam city centre. Also with the fact that the municipality is the main owner (70%) and can therefore also exert influence in that setting, makes the project distinctive and hard to compare with other cases.

The municipality is in this project relatively unactive, and only involved when needed. They handed the responsibility over to the Port Authority, and thereafter did not really interfere with the rest of the project. However, they did contribute a lot to the important public transport (boat) connection with the north of the Meuse.

While the municipality might not be actively involved, a lot of values are of relevance, especially on an area scale of organisational values. The area is in full development and aims to be an inspiring campus, opening up the area and connect the city with the ports and engineering education. However, due to its remoteness, making the RDM / Rotterdam Makers District known to the big public has proven to be quite difficult.

PROJECT DETAILS

Name	(Weverij) de Ploeg
Location	Riethovensedijk 20, Bergeijk
Urban development	N.A.
Size	8.000 m2
Building year	1957-1958
Status	National monument
Adaptive reuse	2014-2017
Owner	Bruns BV
User(s)	Bruns BV (workspace and exhibition space)
Architect(s)	Diederendirrix, Atelier van Assendonk
Project management	Franken & Pouderoyen

6. PLOEG – BERGEIJK

National monument De Ploeg is one of the North Brabant's industrial heritage icons. It was the result of a unique collaboration between two leading Dutch artists, architect and furniture designer Gerrit Rietveld and garden architect Mien Ruys in 1958 (Restauratiefonds, n.d.-b). It is the only industrial building that Rietveld has designed. The project is situated close to the city centre of the small city Bergeijk (interview E2).

Now, almost 60 years later, Bruns has continued this tradition of extraordinary collaborations in the redevelopment of De Ploeg (Restauratiefonds, n.d.-b). Since 2 January 2017, De Ploeg has been the scene of Bruns B.V., an international player when it comes to exhibition development and museum design (Restauratiefonds, n.d.-b).

6.1 CONTEXT

6.1.1 URBAN CONTEXT

De Ploeg is located outside a small city in the south of the Netherlands, Bergeijk. It is therefore also not part of an urban development, yet is surrounded by nature and the monumental Ploeg Park. The city is located under Eindhoven, which also has the closest train station (accessible by bus in around 45 minutes).

6.1.2 MUNICIPAL CONTEXT

The municipality of Bergeijk is quite small, having 18.879 inhabitants (CBS, 2022), see Table C6.1. The municipality has over 100 monuments (RCE, 2022), yet the Ploeg and its park is considered one of the main monuments.

The municipality of Bergeijk is only involved from their public perspective in the project of the Ploeg. This is visualised in Figure C6.2.

6.1.3 MARKET CONTEXT

The first initiative for the building by Wooninc started in 2007/2008, when the market was still good. Yet, they figured that the project was not feasible, which might also be due to the market crisis in 2008/2009. The project 're'started in 2014, when the market started to restrengthen. After this, they moved quickly, starting the implementation in 2015 and delivery in 2016.

6.1.4 HISTORICAL CONTEXT

Between 1956 and 1960, a new factory is built for weaving company 'de Ploeg', based on a design by Gerrit Rietveld and Gerrit Beltman. The factory is used for decades to produce the famous textiles and fabrics 'Ploegstoffen', and is the only factory Rietveld designed in his career.

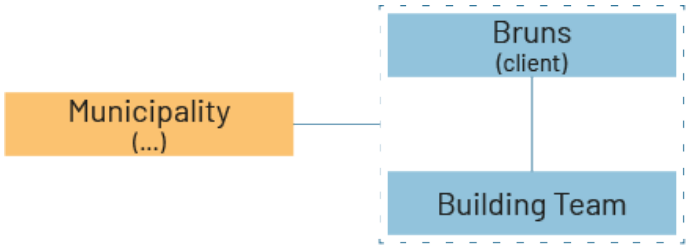


Figure C6.2 *Official roles in which the municipality participates in the adaptive reuse process of the Ploeg (NC)*

Table C6.1 *Amount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)*

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

The management of the Ploeg highly valued a green area around the factory, so the factory workers could work and recreate in greenery, which was part of the socialistic ideals. Therefore, the factory is surrounded by the (currently marked monumental) park, the ´Ploegpark´ (Diederendirrix, 2018).

The socialistic working environment turned into a commercial business and had great success during the seventies and eighties.

In the nineties, the company struggled financially due to the high wages in Europe, leading to a lot of factories leaving to low-wage countries. In 2007, the factory in Bergeijk closed down, leaving the Ploeg empty. The brand is still owned by Artex (located in Aarle-Rixtel) and the fabrics are made by multinational Hunter Douglas (van Oudheusden, 2017; interview E2).

6.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (see Table C6.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4. The policy officer of the municipality focusses on the organisational goals, while the new owner and user (Bruns) focusses more on the functional and financial perspective.

Table C6.2 *Interviews conducted for the Ploeg case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
E1 Policy officer – Municipality of Bergeijk	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
E2 (former) Director - Bruns	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy
	Engineer	Physical	▪ XL impact on the environment ▪ XL in size

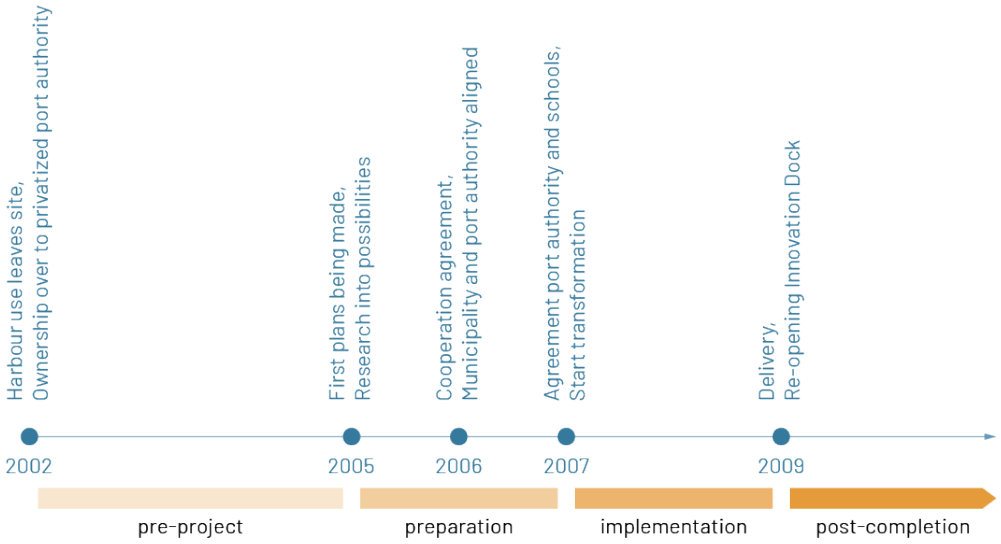


Figure C6.3 *Important moments in the adaptive reuse process of the Ploeg (NC)*

6.3 PROCESS

The adaptive reuse process of the Ploeg will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C6.3.

6.3.1 PRE-PROJECT PHASE

In 2007, the building is sold to housing corporation Wooninc. According to former director of Bruns (interview E2), it was a compulsive purchase. They bought an old textile factory in the centre of Eindhoven, yet in that deal was also negotiated that they had to buy the Ploeg-complex.

Wooninc then performed a redevelopment feasibility study, looking into additional housing development in the Ploeg Park on the nearby event site, and infill of the building for education, culture and a small piece of business (interview E1). They presented their plans to the community of Bergeijk, who were not happy with the plans. The mistrust in the village was mainly caused by the fact that Wooninc was not from the area, and people thought Wooninc would not know what Bergeijk needs (Pallada, 2017).

This led to new studies, yet in the next ten years no new plans arose (interview E2). The main problem was the high investments costs to transform the building into something useful (in the later case of Bruns around € 5.5 million), a big deterrent for most commercial parties. The cultural parts could only be realized for a budget neutral outcome, and could only fill a third of the building (Pallada, 2017).

In 2014, the alderman of Bergeijk approached Bruns, asking if they would like to be part of the project for around 5.000 of the 8.000 m2, next to a library, cultural centre and music school.

Bruns was at that time looking for a new expansion of their growing business, who was at that time located in a building of around 6.500 m2. Looking for an expansion, they came to the conclusion that they would need the whole complex of the Ploeg to be able to make it work. As a reply to the municipality, Bruns showed their interest, yet only if they could be the only user of the Ploeg, using the whole complex.

After a while, the municipality replied positively, as well as the current owner Wooninc, and the province, who were also involved due to the monumental status of the building. Several discussions followed, and the municipality showed cooperation in changing the zoning plan, yet not in financial contributions. The high initial investment of 5.5 million was still a barrier, but Bruns made a deal with the province for a low-rent loan. The municipality did give the opportunity to develop 4 or 5 houses in the area, to make some profits, yet only with the resolutive condition that Bruns had to sell their old building within the year. Because De Ploeg did fit perfectly with Bruns' programme of requirements, the company decided in June 2015 to proceed with the purchase after all through an agreement between the selling party, the municipality of Bergeijk and the province of North Brabant (Restauratiefonds, n.d.-b).

The year past, yet Bruns could not sell their former building, undoing the made deal. Bruns started looking for other room for expansions, and the municipality and Wooninc went back to the 'drawing table'.

6.3.2 PREPARATION PHASE

After a month of three, the mayor of Bergeijk called Bruns, saying that they really believed that Bruns was the best partner for the adaptive reuse of the Ploeg.

"At that point, our mayor, or Bergeijk municipality, took the initiative to put a number of parties together in a booth for a morning and say 'we're not leaving here until we figure this out'" (interview E1).

Since Bruns was really in the urge to find expansion space, they gave the municipality the option to make one offer. Otherwise, they would find a place somewhere else. The municipality made a proposal in which the province made the biggest contribution, giving € 2.5 million subsidy, instead of the loan. The municipality still offered the possibility to build 5 houses (according to interview E2, worth around €2 million), as well as the expansion space on the back side of the Ploeg (according to interview E2, worth €1 million or more). Together, this made it a great deal for Bruns.

Next to the complex, Bruns also became the owner of the Ploegpark, yet they did not want to be the one to maintain the park. Therefore, the municipality offered to invest € 300.000 to repair the park, and also took on the job to maintain it. Important in the process to achieve this, was the "boldness of the then mayor of Bergeijk and financial commitments from the province" (Ticheloven, 2021). Bruns accepted to set up a visiting centre and to engage in events in the park.

6.3.3 IMPLEMENTATION PHASE

After the deal in 2015, they agreed that Bruns wanted to move in December 2016, meaning that the permit had to be approved around February 2016.

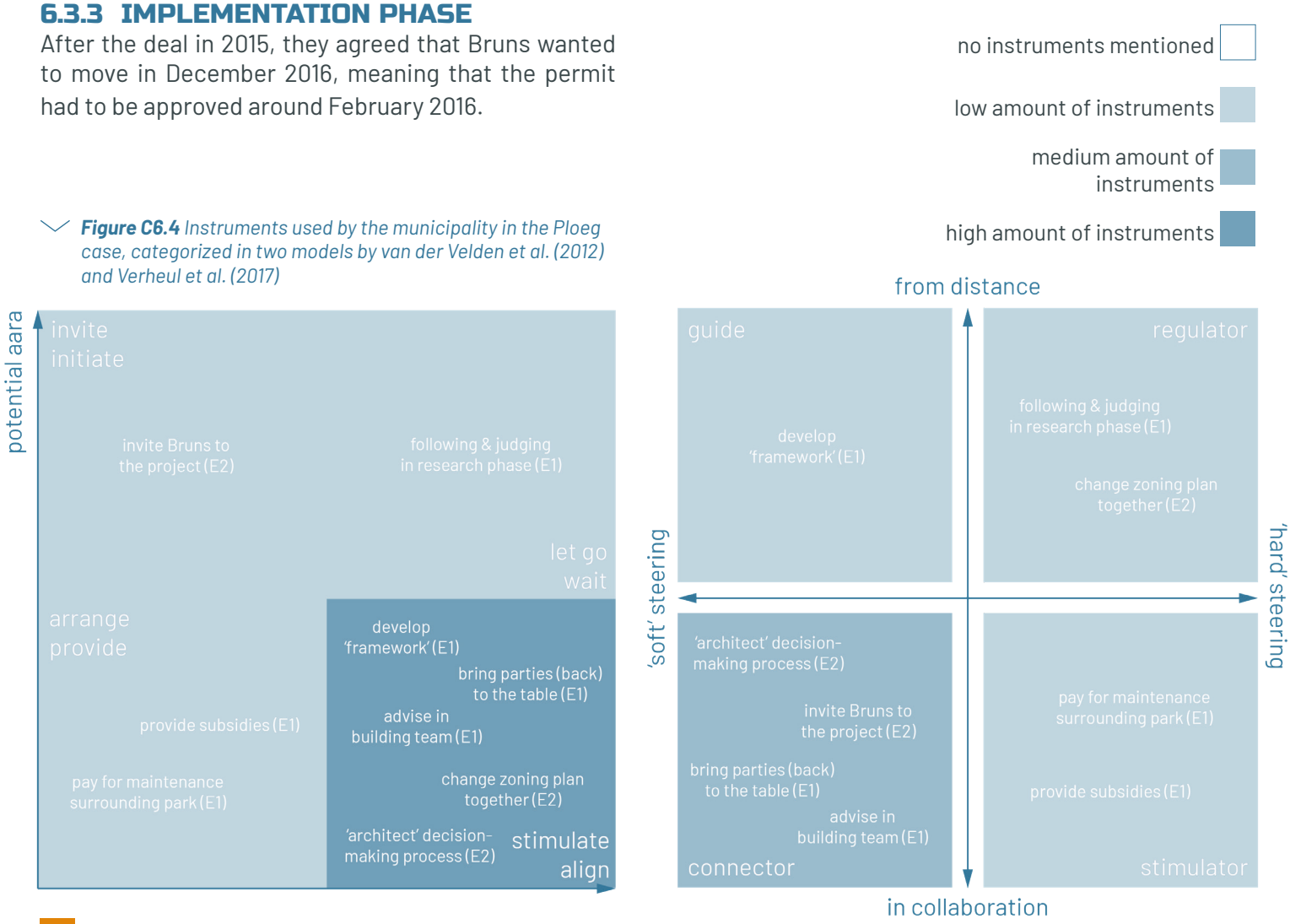
The construction team, responsible for the renovation, could be called a pretty much 'Brabants' union'. Starting in September 2015, the design process was completed in just over six months to arrive at an environmental permit application for the restoration of De Ploeg. A procurement and realisation model was chosen, in which the project they acted as main contractor themselves. While this meant they took on the risk, it also meant the offers of sub-contractors were much cheaper (interview E2). The technical elaboration was assigned to various specialist contractors and suppliers, exactly as had been done 60 years ago when De Ploeg Bergeijk was built (Restauratiefonds, n.d.-b).

Special attention was given to the preservation of the historical details. Therefore, Bruns hired architect Diederendirrix and Franken Projectmanagement, who are experienced in these type of transformations and could help Bruns to stay within budget.

6.3.4 POST-COMPLETION PHASE

The building is still used and maintained by Bruns. This year (2023), Bruns celebrated their 60th birthday together with the 100th birthday of the Ploeg (brand).

Figure C6.4 Instruments used by the municipality in the Ploeg case, categorized in two models by van der Velden et al. (2012) and Verheul et al. (2017)



6.4 INVOLVEMENT MUNICIPALITY

The municipality was generally reactive, except sometimes when their active attitude was needed. For instance, when Wooninc was still doing a feasibility study, "the municipality was not involved as a leader or active party at the time, but more following and judging" (interview E1). In the first discussions, "the municipality and the province gave a lot of cooperation in making the zoning plan applicable, but not really in financing it yet." (interview E2).

However, the municipality was important into bringing the different parties back to the table when this was needed, leading to a positive decision to allocate Bruns in the Ploeg building. "The municipality did act as the architect in that decision-making around that deal." (interview E2). Yet, after the 'famous' morning, the municipality was more reactive than active: "When it was resolved, we again were mainly reactive and facilitative" (interview E1).

The municipality and province did come over the bridge to get Bruns to the project. "That value that we attach to the Ploeg Park as a public park, for that we put a little lubricant in the machine by saying, we are going to maintain that Ploeg Park in the future." (interview E1).

Next to this, the municipality agreed to partly pay for the 'renovation' of the park, which required some attention, and gave permission to build some housing in the area, to help close the business case. Nevertheless, the province made the biggest contribution. "They wanted to give 2.5 million euros in subsidies, instead of their previous offer as a loan." (interview E2).

According to the interviewee of Bruns, the municipality had a different approach than in other projects. "Two people from the municipality sat there continuously: a technical man and a policy official. We just let them think along in the whole process. So we didn't treat them as civil servants, but really as co-thinkers in the process." (interview E2).

The different instruments used by the municipality are illustrated in Figure C6.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

The analysis shows the more reactive attitude of the municipality in the beginning, yet focussing on connecting the parties. In the preparation phase, they take more initiative and provide and stimulate the (re) development more (see Table C6.3).

Table C6.3 *Municipal involvement in the first two phases of the adaptive reuse process of the Ploeg, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Stimulate/align	Connector
Preparation phase	Arrange/provide Stimulate/align	Connector Stimulator
General	Stimulate/align	Connector

6.5 PUBLIC VALUES

The interviews actually highlight the importance of a lot of various public values (see Figure C6.5). What stands out, comparing to other cases, is the importance of the physical perspective. It might relate to the state of decay the adaptive reuse saved the building from.

6.5.1 ORGANISATIONAL VALUE

The organisational values relate both to the building level, yet also on a city level. On a building level, the building is like a business card for Bruns, and the building use being close to the original function. On a city level, the Ploeg is important to put the city on the map, and strengthen their identity as Rietveld town.

6.5.2 FUNCTIONAL VALUE

The functional value mainly relies on the use of the building as workshop for Bruns.

However, on a bigger level, the public park is used by visitors and inhabitants of Bergeijk, also being part of the 'Rietveld route' through the area. The public showroom of Bruns and Rietveld is a big user value for the city.

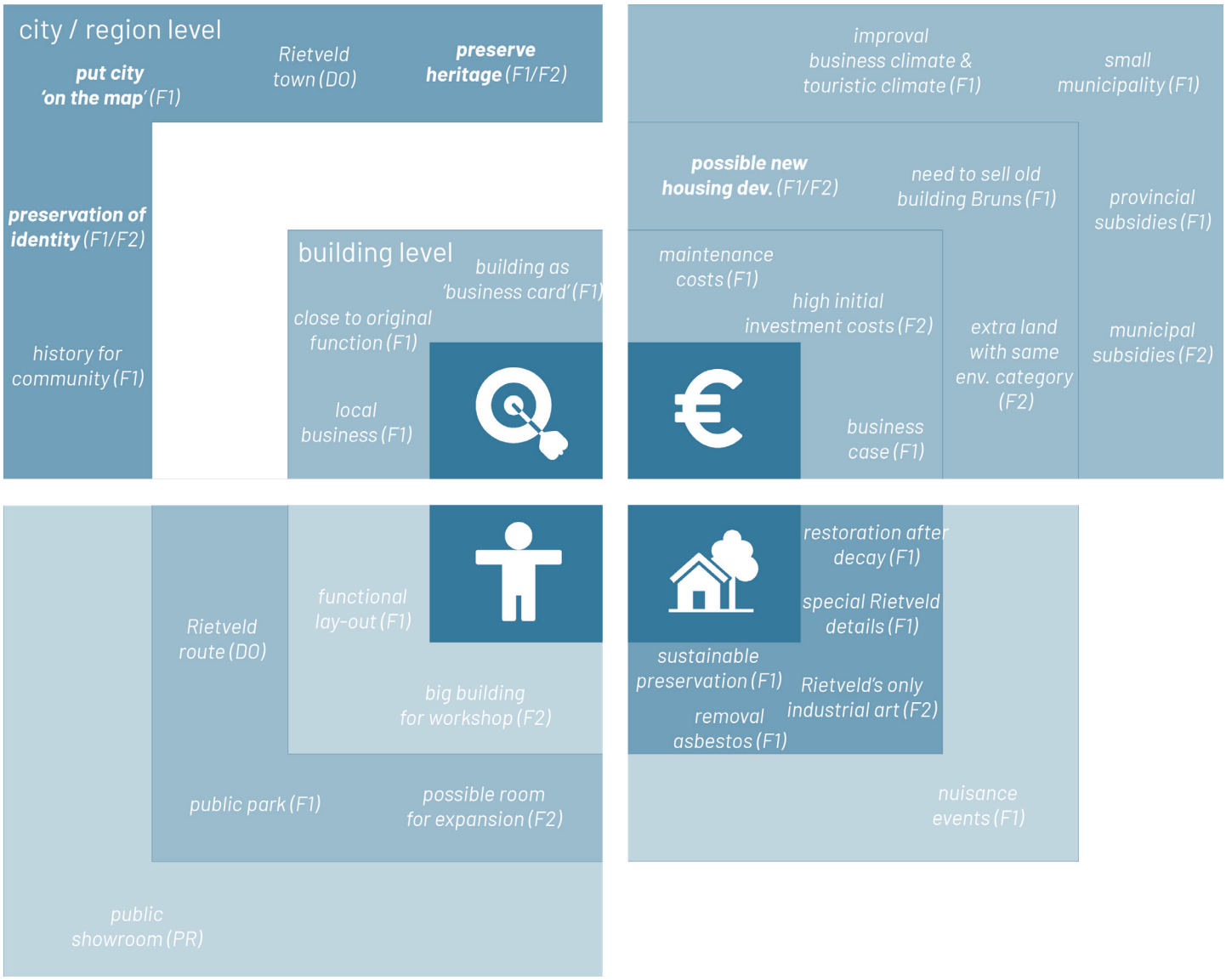
6.5.3 PHYSICAL VALUE

A lot of physical values are important on a building level, also due its status of decay after being vacant for quite some years. A lot of restoration was needed to preserve the quite iconic and special art and craftmanship of Rietveld's design.

6.5.4 FINANCIAL VALUE

Looking at the financial value, on different scales different values apply. Due to the small size of the municipality, the project was also highly dependent on provincial subsidies.

Figure C6.5 *Public values in the Ploeg case, in an altered model of the four-perspective model of den Heijer (2021)*



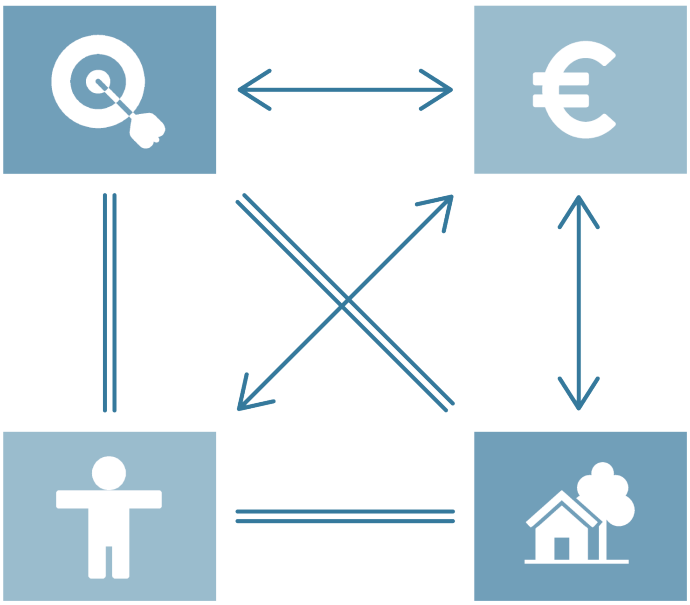
For the city, the project improved the business and touristic climate. In the area, Bruns wanted to build some housing and wanted the possibility to expand their workshop, to be able to close their business case for the adaptive reuse.

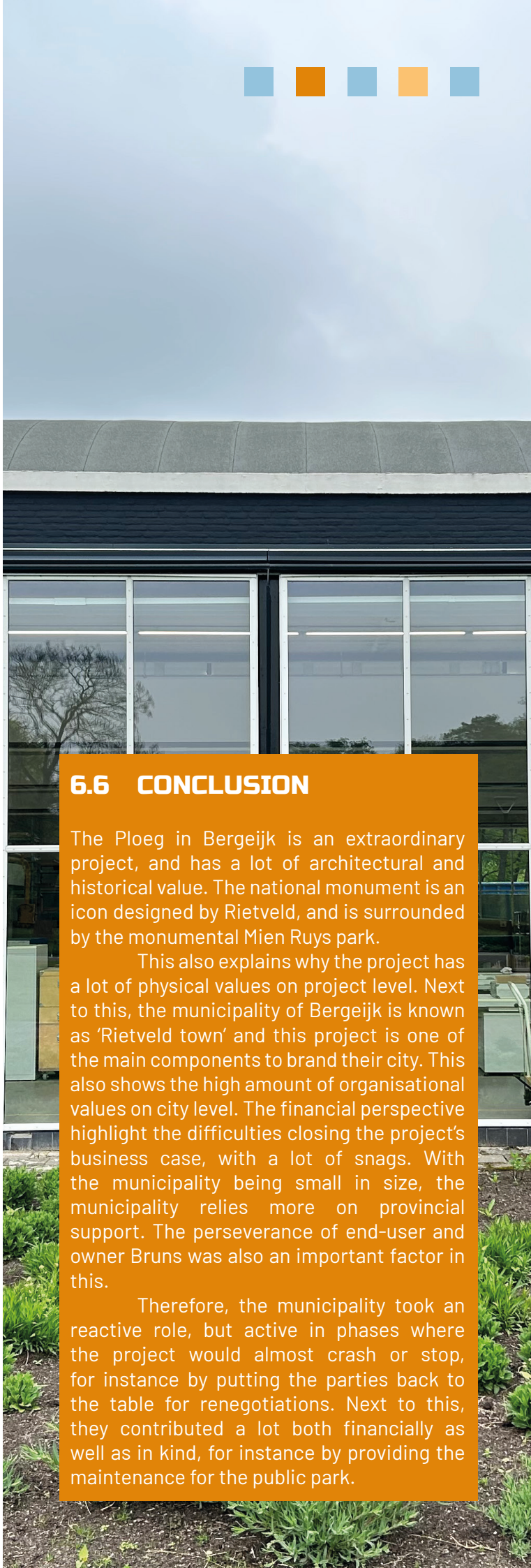
6.5.5 VALUE TENSIONS

The Ploeg project exemplified a strong alignment between the municipal objectives for the building and the aspirations of the new user. The new users found significant value in the building, as it closely matched their functional requirements. However, the transformation of the building entailed substantial costs due to its deteriorated condition. Consequently, securing ample subsidies was imperative to render the new plans of the user and the organizational goals viable.

- no values mentioned
- low amount of values
- medium amount of values
- high amount of values

Figure C6.6 *ension between the value perspectives in the Ploeg case (NC)*





6.6 CONCLUSION

The Ploeg in Bergeijk is an extraordinary project, and has a lot of architectural and historical value. The national monument is an icon designed by Rietveld, and is surrounded by the monumental Mien Ruys park.

This also explains why the project has a lot of physical values on project level. Next to this, the municipality of Bergeijk is known as 'Rietveld town' and this project is one of the main components to brand their city. This also shows the high amount of organisational values on city level. The financial perspective highlight the difficulties closing the project's business case, with a lot of snags. With the municipality being small in size, the municipality relies more on provincial support. The perseverance of end-user and owner Bruns was also an important factor in this.

Therefore, the municipality took an reactive role, but active in phases where the project would almost crash or stop, for instance by putting the parties back to the table for renegotiations. Next to this, they contributed a lot both financially as well as in kind, for instance by providing the maintenance for the public park.

PROJECT DETAILS

Name	Greswarenfabriek (de Greswaren)
Location	Keulseweg 36, Reuver
Urban development	Oppe Brik
Size	5.600 m2
Building year	1880-1901
Status	Municipal monument
Adaptive reuse	2012-2019
Owner	Municipality of Beesel
User(s)	Stichting Onderwijs Midden-Limburg / Greswarencollege (education), Gresbuus (restaurant), several cultural organisations
Architect(s)	Janssen Wuts Architecten
Contractor(s)	MBB-KW VOF (Maasveste Berben Bouw & Koninklijke Woudenberg), Van Heur Bouw & Onderhoud
Project management	HEVO, BOEi

7. GRESWARENFABRIEK - REUVER

In Reuver, an old factory for vitrified clay pipes, the Greswarenfabriek, has been redeveloped into a school and other functions. The Grescollege has located themselves in the building since 2019, being part of the educational foundation called Stichting Onderwijs Midden Limburg (SOML). Next to this biggest user, the building houses some commercial and social functions, such as a social restaurant with day care and local clubs and associations (HEVO, n.d.; van Hout, 2021). The Grescollege aims to work together with the businesses in the building, for instance enabling students to do an internship at one of the businesses (van Hout, 2021).

7.1 CONTEXT

7.1.1 URBAN CONTEXT

The project is located in Reuver, part of the small municipality of Beesel, which consists of several smaller villages. Reuver is located between the larger cities of Venlo and Roermond, and is close to both the river the Meuse (Maas) and the border of Germany. The area is known for its production of 'gres', a type of clay (van Hout, 2021).

The Greswarenfabriek is part of the former industrial site 'Oppe Brik' in the city of Reuver, which is being redeveloped as sustainable living area, with several housing developments, yet also keeping the park-like environment intact (interview F1). The urban area of six hectares is located close to the small city centre of Reuver and the train station of Reuver, accessible by a 8 minute walk.

7.1.2 MUNICIPAL CONTEXT

The municipality of Beesel is small, having a little over 13.000 inhabitants (CBS, 2022), see Table C7.1. As a small municipality, they also do not have a lot of monuments, having under 100 projects (RCE, 2022).

The municipality of Beesel is in multiple ways involved in the adaptive reuse of the Greswarenfabrierk. The municipality is the owner of the building and responsible for the accommodation of the school (SOML), who acts as client. Next to this, they are of course involved from their public perspective. This is visualised in Figure C7.2.

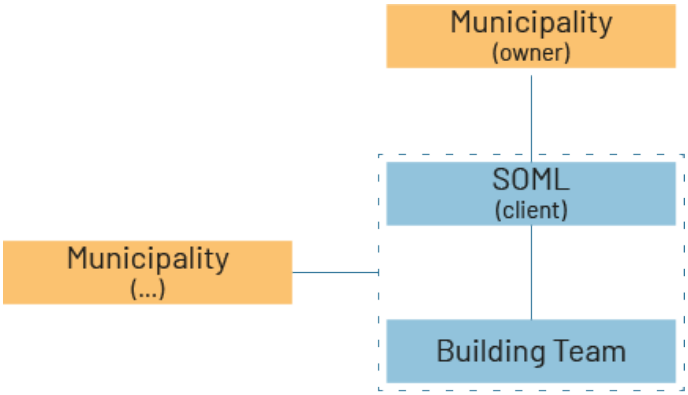


Figure C7.2 *Official role in which the municipality participates in the adaptive reuse process of the Greswarenfabriek (NC)*

Table C7.1 *Amount of inhabitants and heritage buildings in each of the studied municipalities (own table, based on CBS, 2022; RCE, 2022)*

AMOUNT	TILBURG	EINDHOVEN	ALPHEN A/D RIJN	ROTTERDAM	BERGEIJK	REUVER
Inhabitants	224.459	238.326	112.926	655.468	18.879	13.408
Heritage buildings	657	560	267	1.078	108	98

7.1.3 MARKET CONTEXT

The initiative for the Greswaren started in poor market conditions(2012/2013), therefore it took long to develop a feasible redevelopment plan. It took until 2017 before the implementation could start, with a delivery in 2019 (under better market conditions).

7.1.4 HISTORICAL CONTEXT

In 1890, Louis Timmermans starts a brick and mortar bakery in Reuver. After 9 years, a tile factory is added. After the success, the construction of a vitrified clay factory ('Greswarenfabriek') follows in 1901. The factory makes among others, vitrified clay pipes. In 1905, the factories are taken over by Paul and Joseph Teeuwen, who changed the name to 'Gebr. Teeuwen Kleiwarenindustrie' in 1925. In 1940, it became the 'NV Greswaren Industrie Teeuwen (GIT)' (De Greswaren, n.d.; HEVO, n.d.; Open Monumenten Dag, n.d.).

Until 2007, the factory was operated by the brothers Teeuwen, yet also under different owners such as Redland and DSM. In 2007, production was moved to Panningen (Limburg). Over the years, a few building(s) part(s) have been lost, yet the oldest parts of the factory, dating from 1899-1940 has been preserved, being one of the last buildings with larger factory halls from the heyday of the ceramic industry in northern Limburg (De Greswaren, n.d.; HEVO, n.d.; Open Monumenten Dag, n.d.).

7.2 DATA COLLECTION

As part of this case study, two interviews are conducted, which have a certain perspective on the case project (see Table C7.2). The interviewees are categorized in the types of stakeholders according to den Heijer (2021), as also described in Chapter B4. The project leader speaks from the organisational and financial perspectives, while the representative of SOML talks more about the functional and financial perspective.

Table C7.2 *Interviews conducted for the Greswarenfabriek case (NC)*

INTERVIEWEE	STAKEHOLDER	(MAIN TYPE OF) GOALS	IMPACT
F1 Project leader – Municipality of Beesel	Policy-maker	Organisational	▪ XL impact on cities ▪ XL impact on the identity of the organisation
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy
F2 Head of Housing and Facilities – Stichting Onderwijs Midden-Limburg	User	Functional	▪ XL impact on employees and regular users ▪ XL impact on the population
	Controller	Financial	▪ XL impact on project and operating costs ▪ XL impact on the local/regional economy

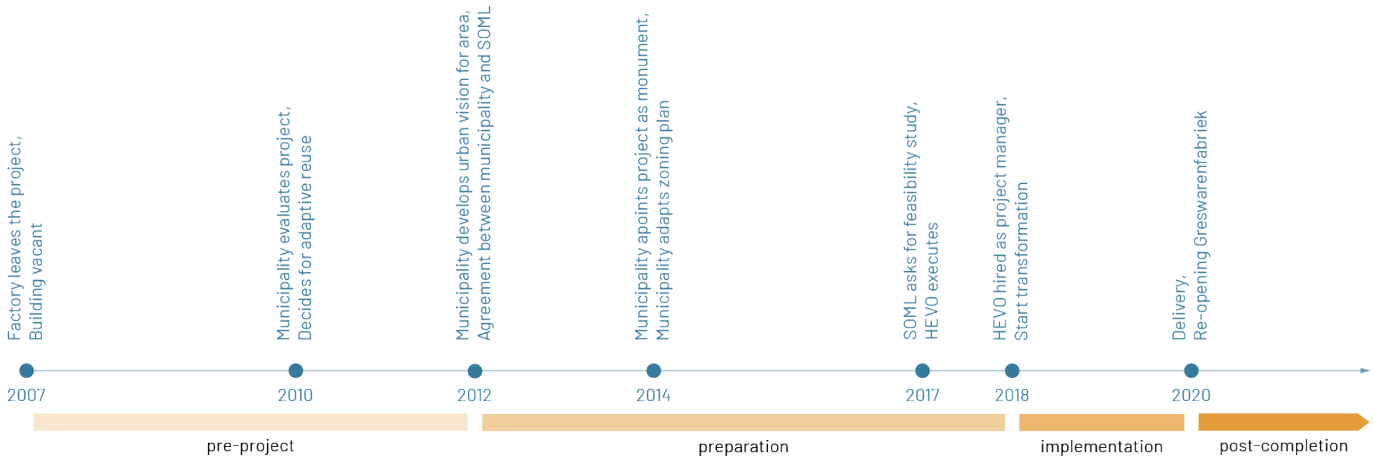


Figure C7.3 *Important moments in the adaptive reuse process of the Greswarenfabriek (NC)*

7.3 PROCESS

The adaptive reuse process of the Greswarenfabriek will now be elaborated upon, using the four phases coming from theory (Arfa et al., 2022), as described in Chapter B2. The most important milestones are shown in Figure C7.3.

7.3.1 PRE-PROJECT PHASE

Until the actual adaptive reuse project started in 2017, the building became very dilapidated. BOEi performed a cultural-historic value assessment, yet did not see the possibility to transform the building. However, this assessment was later used as a guide to respect value elements in the transformation (NRP Academie, 2021).

In 2012, an urban vision for the area was made to redevelop the area to housing, work and education. In 2013, the municipality bought the area to make a gas-free Oppe Brik neighbourhood with 150 zero-to-the-meter homes, 75% of which are in the social rental sector, being very innovative for that time according to Luc Drost, former project leader from the municipality of Beesel (HEVO, 2019).

Several initiatives follow for the Greswarenfabriek, for instance to establish a daycare-like construction with a similar organization behind it in the building.

At this time, SOML was looking for a building to fuse two different schools and a new building where their new vision on education could be put to practice (interview F2). The only other option would be to stop providing high school education in the municipality, forcing students to go to schools in neighbouring municipalities (van Hout, 2021). After conversations with the municipality, the Greswarenfabriek comes up as an option (interview F2).

7.3.2 PREPARATION PHASE

In the same year (2012), the municipality signs an intentional agreement with SOML, to accomodate them in the Greswarenfabriek (interview F2). However, the council of the municipality first has doubts. With a similar project in the area in Roermond (ECI Cultuurfabriek) being a financial disaster for the board of the municipality, Beesel its council is hesitant (van Hout, 2021). However, over the years, the municipal approach changes.

The zoning plan was changed in 2014, without any objection from the community. The municipality carries the risk for the land exploitation, as well as the risk on the sale of the houses for sale. According to alderman Debbie Heesakkers, they chose for this approach since the development brings a lot for the municipality (HEVO, 2019). In May 2014, the building was also marked as municipal monument by the Municipality of Beesel (De Greswaren, n.d.; HEVO, n.d.; Open Monumenten Dag, n.d.).

SOML asks HEVO to perform an elaborate feasibility study, after other studies are disapproved by the municipal council.

After a positive outcome, the project was put on the market, including risks. HEVO, after performing the feasibility study, is chosen to do the actual adaptive reuse project, based on a risk-based project management agreement (HEVO, 2019). They started in the definition phase by drawing up a spatial plan of requirements, a technical plan of requirements, and spatial framework. That led to them also doing the architect selection and then they also built it for an amount that HEVO and SOML agreed on together (interview F2). It was decided to tender the restoration of the shell separately from the built-in package (NRP Academie, 2021).

To get it financially feasible, the province of Limburg had to contribute financially. The stakeholders also realized that a new-build school would cost less, but the adaptive reuse of the factory also enables the application for multiple subsidies (van Hout, 2021). SOML paid for 1.8 million of the adaptive reuse, yet mainly relied on public contributions. The municipality has paid for 5.8 million, the province for 1.8 million. As 'counterpart', SOML agreed to use the building for at least 30 years. After 30 years, SOML becomes the owner (HEVO, 2019).

7.3.3 IMPLEMENTATION PHASE

The implementation was somewhat more difficult than expected, due to some difficulties with the structure of the building that was worse than anticipated. This resulted in the construction works taking three months longer than planned. After the first contractor was done, the built-in package was constructed in three months (van Hout, 2021).

7.3.4 POST-COMPLETION PHASE

After completion, it turns out to be hard to rent out the commercial spaces, also due to the financial and corona crisis. Now (2023), after the corona crisis, SOML is working on filling the last few spaces (interview F2).

7.4 INVOLVEMENT MUNICIPALITY

The municipality of Beesel won the BNG Bank Heritage Prize in 2016. According to the jury, the "entire community is involved in heritage" (Kunsten '92, 2016), and there is a lot of attention for adaptive reuse, monuments and archaeology. Also according to alderman Heesakkers, this is the case (HEVO, 2019). "With our efforts for heritage in our municipality, the obvious choice was to designate the Greswarenfabriek as a municipal monument." (HEVO, 2019).

Next to this, the municipality took quite an active and risk-taking role. The initiative came from the municipality in a conversation with SOML, yet "in the end, the municipality took the biggest position and pulled the development." (interview F1). Especially regarding the land exploitation, the municipality took the risk.

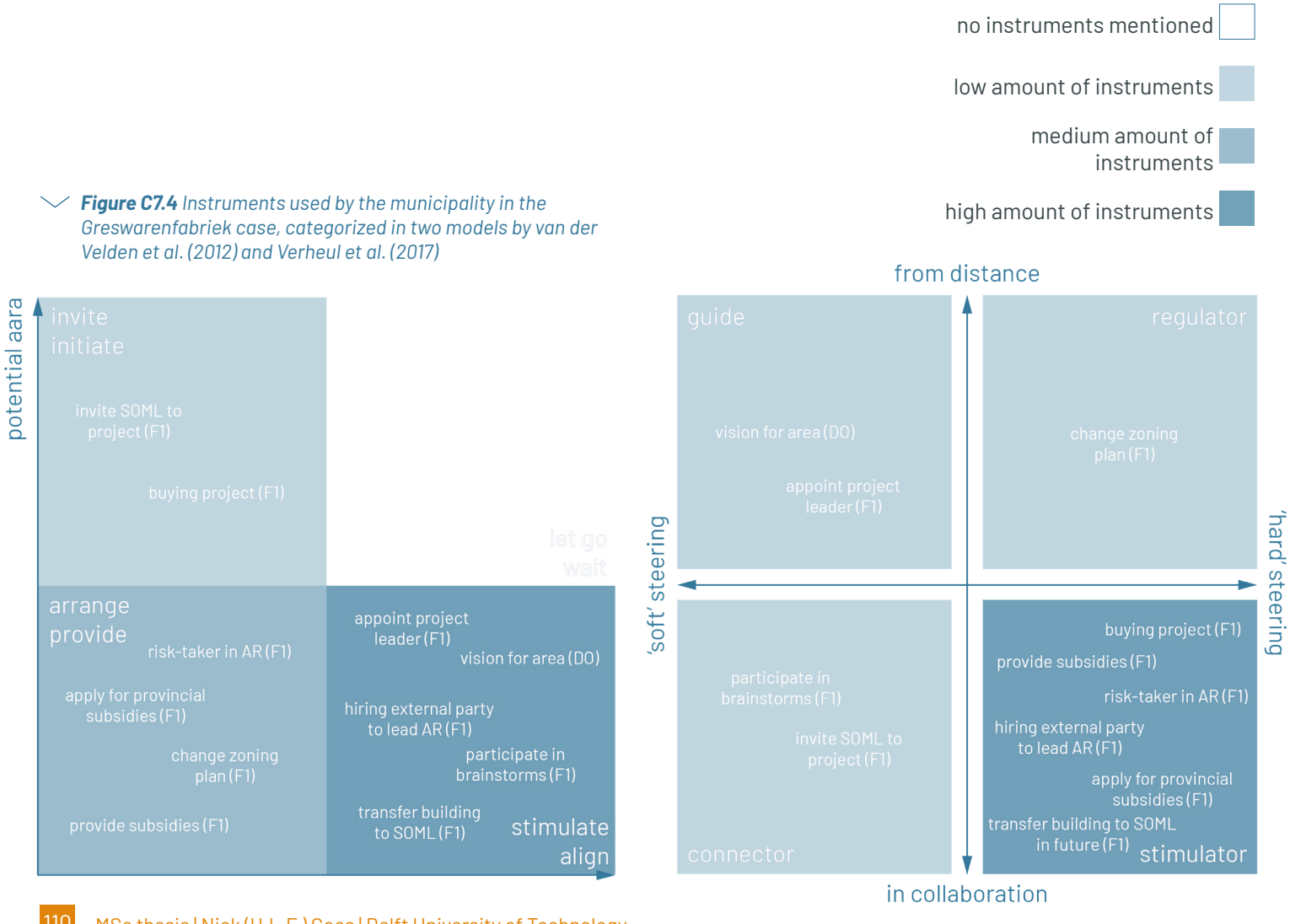


Figure C7.4 Instruments used by the municipality in the Greswarenfabriek case, categorized in two models by van der Velden et al. (2012) and Verheul et al. (2017)

Regarding the transformation itself, "we put it on the market on a risk basis and HEVO supervised the entire construction process from A to Z." (interview F2).

Within the municipality, the project did not go very smoothly. However, "that is not very surprising for such a large project within this small municipality" (interview F1). This mainly relates to the financial side of the project. When talking about the most important stumbling blocks, the interviewee (interview F1) mentions: "That is that it was going to cost money; there was a financial shortfall on the entire operating plan that the municipality did not want to close. Eventually the provincial subsidies were used to rectify the situation. [...] Especially the risk and financial feasibility was difficult."

Due to the small size of the municipality, the project leader representing the municipality was also hired externally. "So basically the whole project was externally outsourced, you can put it that way." (interview F1). However, SOML highlights the great cooperation of the municipality, also having a positive effect on the speed of the process: "The municipality has provided very good cooperation. The civil service has also provided good cooperation, enabling going through the processes quickly." (interview F2).

The municipality also made a good plan beforehand, having a clear vision. "In other municipalities you notice that this process is much more difficult. Those municipalities do not have a good environmental vision and have a different attitude, looking at the developer to show what they want. This was absolutely not the case with the municipality of Beesel." (interview F2).

The different instruments used by the municipality are illustrated in Figure C7.4, categorized in the two models described in the theoretical background (see paragraph B3.4).

Looking at the two first phases, the municipality was initallly more invitating and initiating, with role of guide and connector. After SOML joined the project, they mainly stimulated the project and/or arranged or provided the necessary contributions (see Table C7.3).

Table C7.3 *Municipal involvement in the first two phases of the adaptive reuse process of the Greswarenfabriek, based on the categorization by van der Velden et al. (2012) and Verheul et al. (2017)*

ROLE MOST USED IN	APPROACH	STEERING ROLE
Pre-project phase	Invite/initiate Stimulate/align	Guide Connector
Preparation phase	Stimulate/align Arrange/provide	Stimulator
General	Stimulate/align Arrange/provide	Stimulator Connector

7.5 PUBLIC VALUES

Most values relate to the organisational and financial perspective, also mainly on the city level (see Figure C7.5).

7.5.1 ORGANISATIONAL VALUE

The (re)development of the Greswarenfabriek into a school and cultural functions, is an important booster for the sustainable living area that is being developed in the area. The building is very well known in the city, so preserving the heritage and its identity in the city was of high importance.

7.5.2 FUNCTIONAL VALUE

The user values mainly relate to the requirements for the school function and other functions. The school also has a focus on working together with businesses from practice, which they also aim to bring to the building.

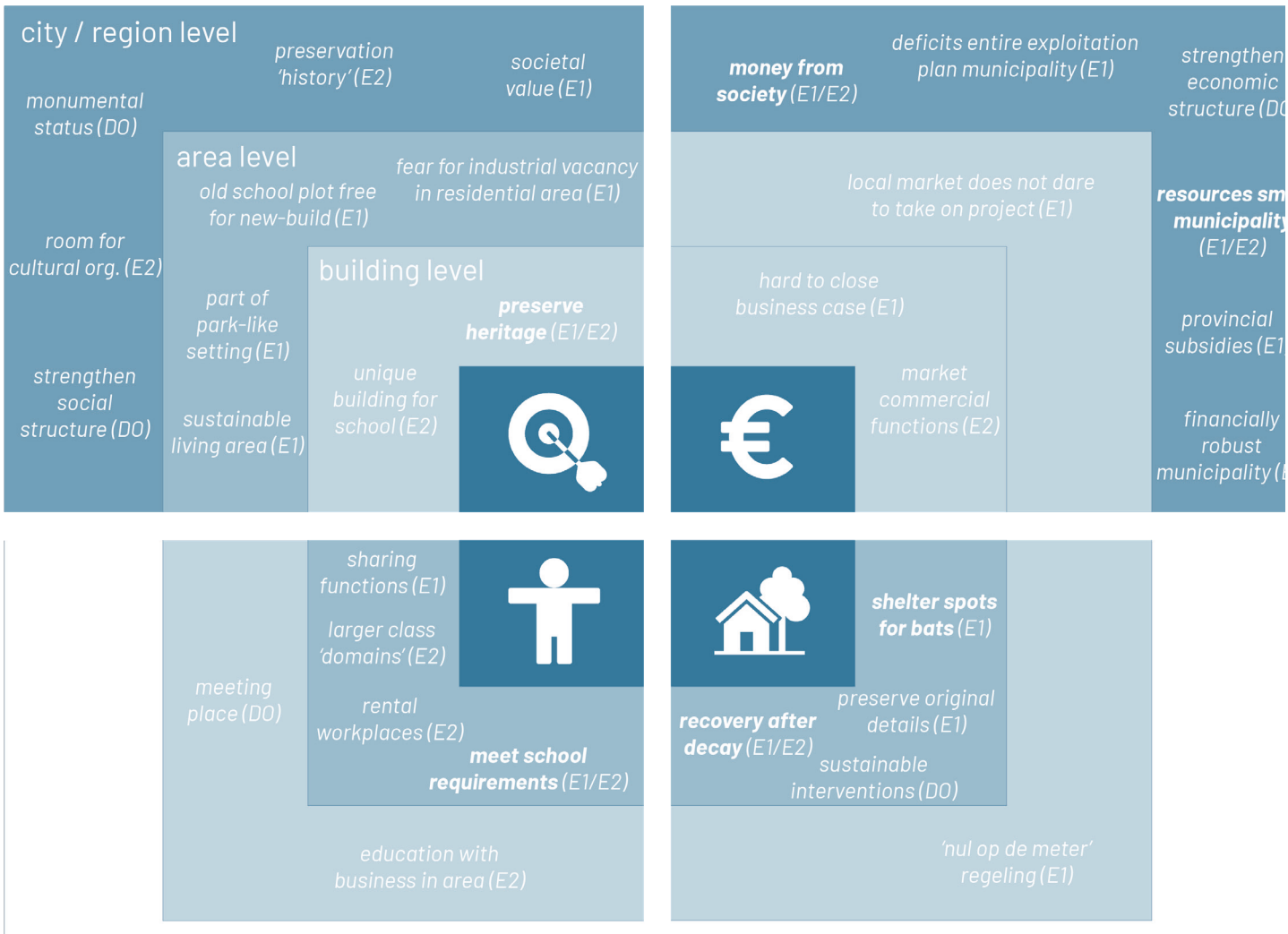
7.5.3 PHYSICAL VALUE

Looking at physical values, the decayed building had to be renovated and sustainable interventions had to be performed. Next to this, a special bat species was found on the site, which required the renovated building to accommodate a bat shelter spot.

7.5.4 FINANCIAL VALUE

The financial values focus on the business case, which was hard to close. Due to the small size of the municipality and their smaller amount of resources, led to the need for provincial subsidies.

Figure C7.5 *Public values in the Greswarenfabriek case, in an altered model of the four-perspective model of den Heijer (2021)*



However, the municipality still made great losses. The building itself strengthens the economic structure.

7.5.5 VALUE TENSIONS

The Greswarenfabriek project encountered notable financial and physical tensions primarily relating to the challenges associated with feasibility in meeting the substantial organizational goals and implementing significant interventions in the building. The physical condition of the structure was severely deteriorated, necessitating extensive interventions to make it suitable for new functions. These factors contributed to the complexity and required careful consideration during the project's planning and execution.

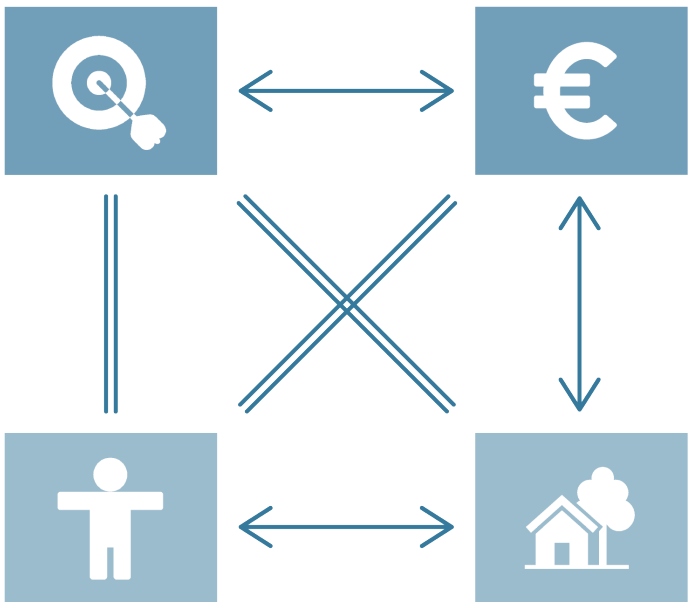
no values mentioned

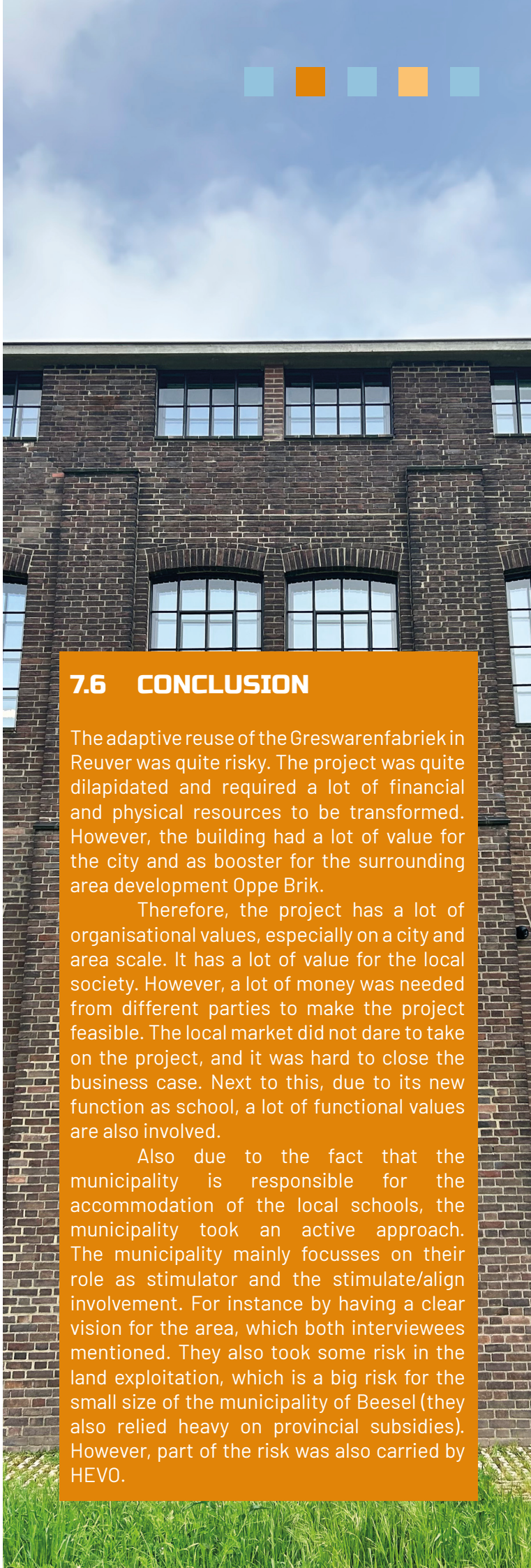
low amount of values

medium amount of values

high amount of values

Figure C7.6 *Tension between the value perspectives in the Gresewarenfabriek case (NC)*





7.6 CONCLUSION

The adaptive reuse of the Greswarenfabriek in Reuver was quite risky. The project was quite dilapidated and required a lot of financial and physical resources to be transformed. However, the building had a lot of value for the city and as booster for the surrounding area development Oppe Brik.

Therefore, the project has a lot of organisational values, especially on a city and area scale. It has a lot of value for the local society. However, a lot of money was needed from different parties to make the project feasible. The local market did not dare to take on the project, and it was hard to close the business case. Next to this, due to its new function as school, a lot of functional values are also involved.

Also due to the fact that the municipality is responsible for the accommodation of the local schools, the municipality took an active approach. The municipality mainly focusses on their role as stimulator and the stimulate/align involvement. For instance by having a clear vision for the area, which both interviewees mentioned. They also took some risk in the land exploitation, which is a big risk for the small size of the municipality of Beesel (they also relied heavy on provincial subsidies). However, part of the risk was also carried by HEVO.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8. CROSS-CASE ANALYSIS

The different cases studies show the complexity of the adaptive reuse of industrial heritage. Comparing the various projects illustrate the large variety of governmental involvement, the wide range of values to be considered and the diverse contexts such a project can take place in. This chapter aims to systematically study the various involvements, influencing factors and elaborate on potential connections.

In this cross-case analysis, the six cases, as elaborated on in chapter 2 until 7, will be compared with each other, looking at their significance and main characteristics, phasing, governmental involvement and relevant public values. Analysing the different types of local government involvement, two different models were used to see if other relevancies could be noted.

Please note that this cross-case analysis often refers to the different cases in abbreviations, to keep this analysis concise. The following abbreviations are used: LH (LocHal), KG (Klokgebouw), BA (Baronie), RDM (Innovation Dock RDM), PL (Ploeg), and GR (Greswarenfabriek). A full overview of the cross-case analysis, can be found in Table C8.9 at the end of this chapter.

Table C8.1 *Overview situation cases if not transformed, according to conducted interviews (NC)*

CASE	EXPECTED SITUATION
LocHal (LH)	Parking garage (A1), housing (A1)
Klokgebouw (KG)	Parking garage (B2), demolition (B1)
Baronie (BA)	Deterioration (C2), eventually reused (C2)
RDM Campus (RDM)	*(not asked during interviews)*
Ploeg (PL)	Deterioration (E1; E2), eventually reused (E1; E2)
Greswaren-fabriek (GR)	Deterioration (F1)

8.1 SIGNIFICANCE

First of all, if the adaptive reuse of these buildings would not have taken place, the buildings would not be used in the ways currently done. Table C8.1 shows what would have happened if the buildings were not reused in the current way, according to some of the interviewees. Luckily, in the studied cases the initiative was taken to actually transform the buildings. As described in the previous chapters, the projects have a lot of significance, not only for the project and its users.

The interviewees and case documents often highlight the importance of the project for the (re)development and identity of the area, putting the city as a whole on the map and giving it an impulse, and the value of preserving the heritage for the cities inhabitants and history.

All projects have high significance for the project's users, of course. Most projects are public buildings with a lot of different types of users, and are therefore significant for a lot of users (see Table C8.2).

Table C8.2 *Significance of the different projects on different scales (NC)*

SIGNIFICANCE	LH	KG	BA	RDM	PL	GR
Project user	Yes	Yes	Yes	Yes	Yes	Yes
Identity area	Yes	Yes	Yes	Yes	No	Yes
Identity city	Yes	Yes	No	No	Yes	No
Society/history	Yes	Yes	Yes	Yes	Yes	Yes

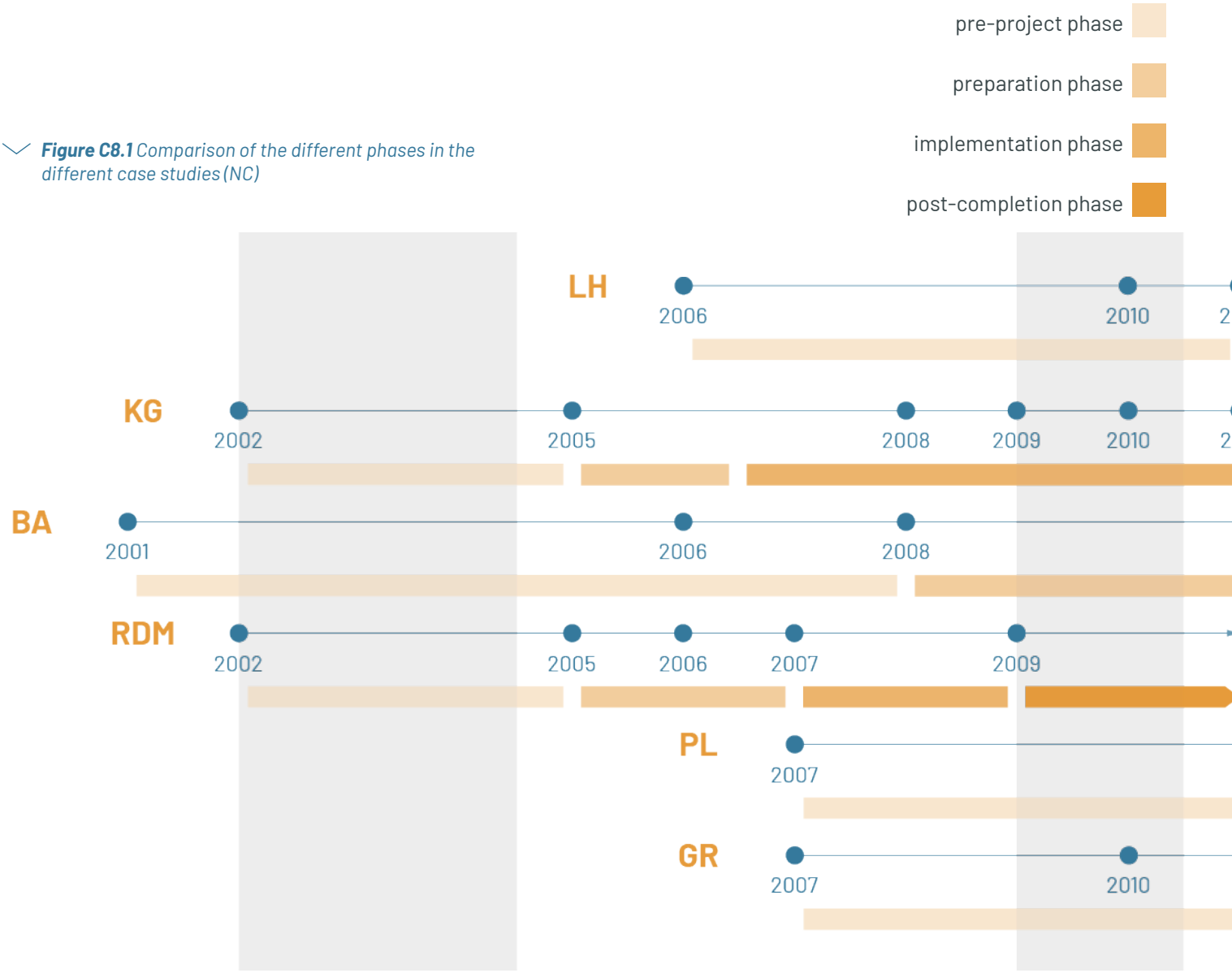
Most projects are also part of an urban development (5/6): Spoorzone (LH), Strijp-S (KG), Groot Baronie/ Rijnhaven (BA), RDM Campus (RDM), and Oppe Brik (GR). The projects are often the first (re)development in the area, being very defining for the area's identity as well as being a booster for the urban development and attracting a lot of people to the area. Especially in the cases of LH, KG, and RDM, this is the case.

Next to this, the projects are often closely intertwined with the municipalities aim to put their municipality on the proverbial map. For instance, in the case of LH, KG and PL, the buildings are one of the most famous buildings of the city, and therefore very important of how the city represents itself. KG and PL are also national monuments, attracting a lot of attention.

Lastly, a lot of the interviewees highlight the importance of the historical value and identity of the city. In a lot of the cases, the factory played an important role in people's lifes, for instance due to the fact that a lot of inhabitants had a family member working at these factories. It is therefore a significant building to preserve, to preserve its history.

While these significances mainly focus on the organisational perspective, the projects also have a lot of impact on the other perspectives (financial, physical and functional). These will be elaborated more upon in paragraph C8.4, where the public values are analysed and compared.

Figure C8.1 *Comparison of the different phases in the different case studies (NC)*



8.2 PROCESS

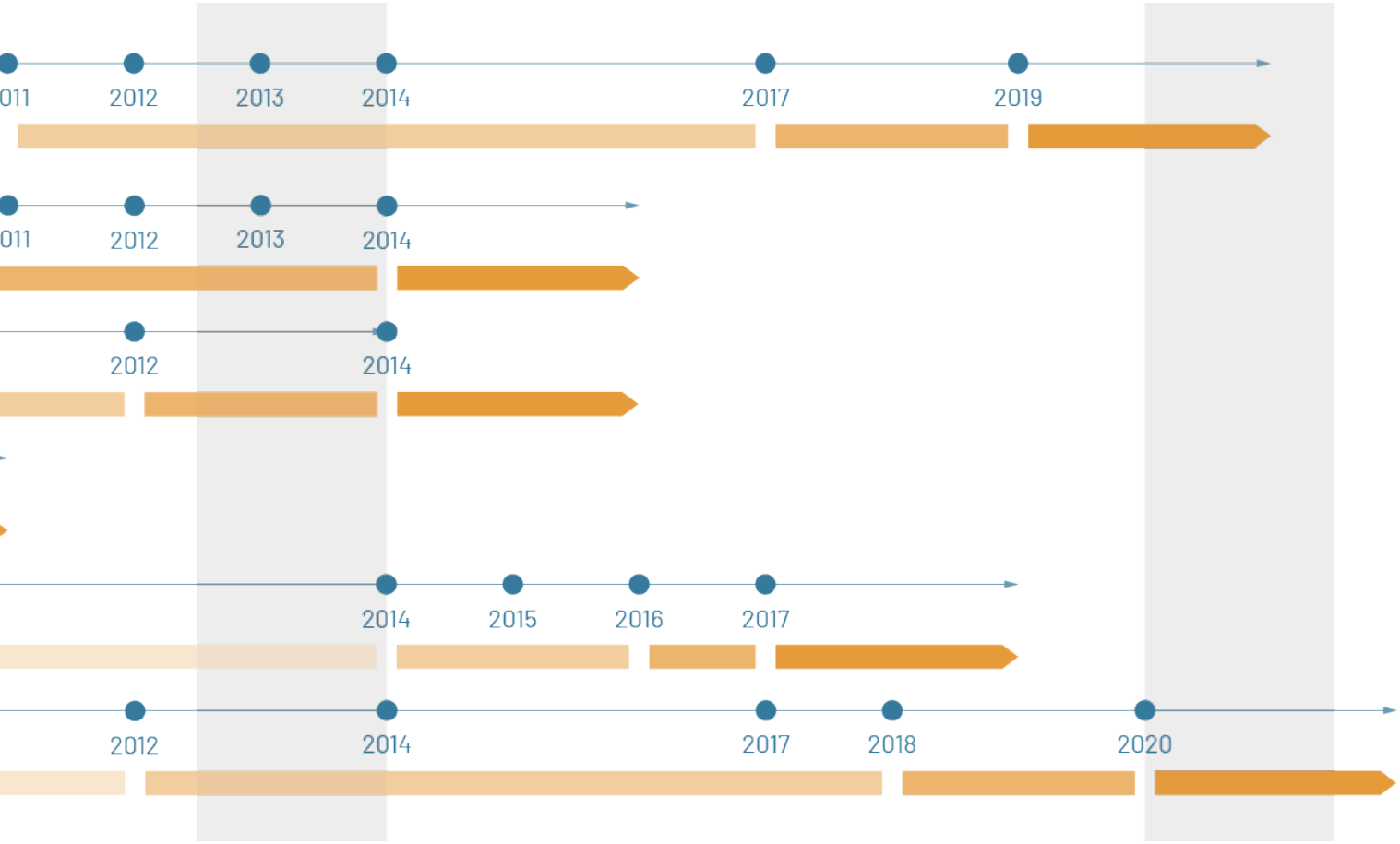
The processes of the different projects are quite diverse, with the one process being a lot more smooth than the other, yet all having a similar structure. The structure that is followed is described in Chapter B2: pre-project phase, preparation phase, implementation phase and post-completion phase. The role of the municipality is mainly focussed on the first two phases.

A concise version of the timelines of the different projects area illustrated in Figure C8.1, considering the four different phases. In general, it takes a long time before a vacant building is transformed and reused, in the studied cases around 11-12 years on average. Especially the pre-project phase takes a while, meaning it takes long before a fruitful plan is made for a vacant building. In general, when the project is initiated and the preparation is done, the implementation is done very quickly (except for the case of the KG, which is transformed in different phases).

It is also important to highlight the occurrence and importance of temporary use in this context. In the cases of LH, KG and RDM (which are part of bigger urban developments) temporary functions were used to make the area more attractable and put the area on the map in the city and region. It often enabled the further development of the project and/or area.

The grey areas in the illustration represent periods of poor market conditions. It highlights the importance of the market context, since projects make little or no progress in these time periods. The poor market conditions are part of different phases of the projects, and therefore have different impacts. Yet, in all cases a market crisis was part of the pre-project phase, which might have formed a barrier to actually initiate the project and move to the preparation phase.

The case of BA also had a period of poor market conditions in the preparation phase, therefore requiring more studies into feasibility and an extended phase. Lastly, the case of GR had difficulties finding tenants after delivery (post-completion phase), which might also relate to the period of poor market conditions.



8.3 MUNICIPAL INVOLVEMENT

The cases show a broad range of governmental involvement and instruments they use (see Table C8.4). This paragraph focusses on describing these involvements, while in paragraph C8.5 some possible explanations will be attempted to find, mainly focussing on the relevant public values, which analysis will be described in paragraph C8.4.

The municipal involvement is studied using two different models, as described in the theoretical part of this research and the methodology. The municipal involvement will therefore be described using these two different models, referred to as municipal approaches (model 1) and municipal steering roles (model 2).

8.3.1 MUNICIPAL APPROACH

Looking at the first model globally (an overview is given in Table C8.3), you see a big contrast between the role of the municipality in the RDM case and the other cases. In RDM, the municipality mainly uses the let go/ wait involvement, while all the other cases the focus is on stimulate/align and arrange/provide.

In the pre-project phase, the municipalities in the cases of the LH and GR focus on invite/initiate involvement, while in the cases of the KG, BA, and PL, the municipalities focus on stimulate/align.

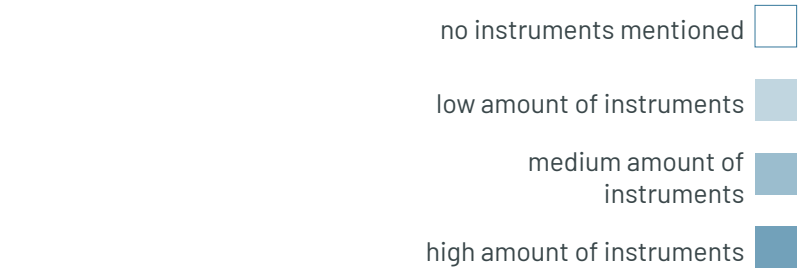
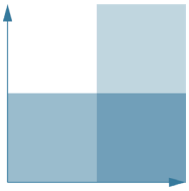
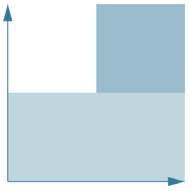
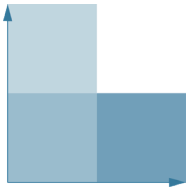


Table C8.3 Municipal approach in the different cases (NC)

PROJECT	LH	KG	BA	RDM	PL	GR
Municipal approach						
Pre-project phase	Invite/ initiate	Stimulate/ align	Stimulate/ align	Let go/ wait	Stimulate/ align	Invite/ initiate Stimulate/ align
Preparation phase	Stimulate/ align Arrange/ provide	Arrange/ provide Stimulate/ align	Stimulate/ align Arrange/ provide	Let go/ wait Stimulate/ align	Arrange/ provide Stimulate/ align	Stimulate/ align Arrange/ provide
Preparation phase	Stimulate/ align Arrange/ provide	Stimulate/ align Arrange/ provide	Stimulate/ align Arrange/ provide	Let go/ wait	Stimulate/ align	Stimulate/ align Arrange/ provide

This might have something to do with the ownership of the municipality in the LH and GR case and/or the significance it has for the cities the projects are located in. In the other projects, the projects are not owned by the municipality.

Generally, the municipalities in the project barely used the invite/initiate and let go/wait approaches, mainly the two types on the bottom of the graph were used (arrange/provide and stimulate/align). According to the theoretical model, this refers to a lower potential in the area.

In the pre-project phase, the initiative/align type is used in a few cases. In the preparation phase, the arrange/provide and stimulate/align types are mostly used.

Table C8.4 *Municipal approaches and its instruments (NC)*

MUNICIPAL APPROACH	INSTRUMENTS
Invite/initiate	▪ Invite user to be part of steering group (LH) ▪ Invite temporary users / functions (LH) ▪ Initiative for adaptive reuse (LH) ▪ Invite end-users to the project (PL) ▪ Buy project and initiation (GR)
Let go/wait	▪ Regulations commercial functions (BA) ▪ Control owner via being shareholder (RDM) ▪ Other public involvements (RDM) ▪ Judge feasibility (or other) studies (PL)
Stimulate/align	▪ Development PoR (LH) ▪ Hear locals opinions (LH) ▪ Function as intermediary (LH) ▪ Provide political backing (KL) ▪ (Flexible) planological framework (BA) ▪ Intentional agreement for feasibility studies (BA) ▪ Intensive contact with neighbourhood (BA) ▪ Quality control team for specific project (RDM) ▪ Project-specific framework (PL) ▪ Bring involved parties (back) to the table (PL) ▪ Advise in building team and other brainstorms (PL) ▪ Assign municipal project leader (GR) ▪ Hire external project manager to manage project (GR)
Arrange/provide	▪ Designation as monument (LH) ▪ Monumental commission (KL) ▪ Conduct pre-project studies (KL) ▪ Financial contributions (KL) ▪ Construction ATES (KL) ▪ Removal of asbestos / toxins (KL) ▪ Change surrounding road structure (BA) ▪ Invest in public space (BA) ▪ Allow or take part in land exchange (BA) ▪ Arrange OV-connection / waterbus line (RDM) ▪ Pay for maintenance surrounding area / park (PL) ▪ Provide (and/or apply) for subsidies (PL)

8.3.2 MUNICIPAL STEERING ROLE

Considering the second model globally (an overview is given in Table C8.5), it shows that the roles of connector and stimulator are most commonly used. The steering role of regulator is used quite limitedly. All cases, except RDM, have a focus on the steering role of both stimulator and/or connector. RDM focussed on their steering role as regulator.

In the pre-project phase, the role as connector and guide are frequently used, while in the preparation phase, the role as stimulator (and connector) is more common. It shows that in the pre-project phase, the focus is more on 'soft steering' (left side of the model), either from a distance or in collaboration. In the preparation phase, municipalities focus on working in collaboration (lower part of the model). An overview of used instruments is illustrated in Table C8.6.

Table C8.6 *Municipal steering roles and its instruments (partly adapted from Heurkens et al., 2014)*

STEERING ROLE	INSTRUMENTS THEORY	INSTRUMENTS CASE STUDIES
Guide	▪ Urban policy ▪ Vision documents ▪ Convenants ▪ Area prioritizing ▪ Spatial principles ▪ Master plans ▪ Image quality plan	▪ (Flexible) planological framework (BA) ▪ Project-specific framework (PL) ▪ Assign municipal project leader (GR) ▪ Designation as monument (LH) ▪ Initiative for adaptive reuse (LH) ▪ Development PoR (LH)
Regulator	▪ Structural visions ▪ Zoning plans ▪ Ordinances ▪ Environmental permits ▪ Building permits ▪ Tender (procedures) ▪ Development agreements	▪ Regulate budget requirements (LH) ▪ Monumental commission (KL) ▪ Judge feasibility (or other) studies (PL) ▪ Quality control team for specific project (RDM) ▪ Control owner via being shareholder (RDM) ▪ Other public involvements (RDM) ▪ Regulations commercial functions (BA)
Stimulator	▪ Subsidies ▪ Premiums ▪ Tax schemes ▪ Financial contributions ▪ Acquisitions ▪ Expropriations ▪ Investments ▪ Maintenance ▪ Public real estate	▪ Arrange OV-connection / waterbus line (RDM) ▪ Change surrounding road structure (BA) ▪ Invest in public space (BA) ▪ Allow or take part in land exchange (BA) ▪ Intentional agreement for feasibility studies (BA) ▪ Pay for maintenance surrounding area / park (PL) ▪ Provide (and/or apply) for subsidies (PL) ▪ Take some of the financial risk (GR) ▪ Buy project and initiation (GR) ▪ Hire external project manager to manage project (GR) ▪ Conduct pre-project studies (KL) ▪ Financial contributions (KL) ▪ Provide political backing (KL) ▪ Construction ATES (KL) ▪ Removal of asbestos / toxins (KL)
Connector	▪ Partnership forms ▪ Networks ▪ Process management ▪ Area managers ▪ Municipal offices	▪ Intensive contact with neighbourhood (BA) ▪ Be the 'architect' of the decision-making process (PL) ▪ Invite end-users to the project (PL) ▪ Bring involved parties (back) to the table (PL) ▪ Advise in building team and other brainstorms (PL) ▪ Start conversation about area development (KL) ▪ Help find tenants (KL) ▪ Intensive collaboration (KL) ▪ Hear locals opinions (LH) ▪ Invite temporary users / functions (LH) ▪ Invite user to be part of steering group (LH) ▪ Function as intermediary (LH)

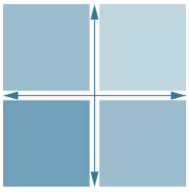
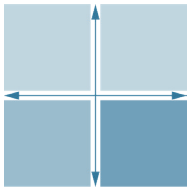
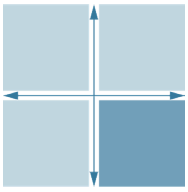
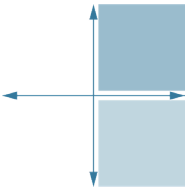
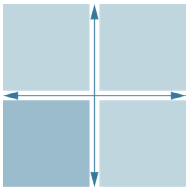
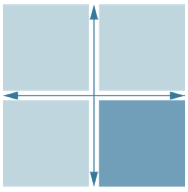
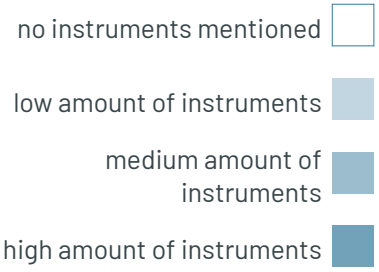
PROJECT	LH	KG	BA	RDM	PL	GR
Municipal steering role						
Pre-project phase	Guide Connector	Connector	Guide Stimulator	Regulator	Connector	Guide Connector
Preparation phase	Connector	Stimulator Connector	Stimulator Regulator	Regulator Connector	Connector Stimulator	Stimulator Connector
Preparation phase	Connector	Stimulator Connector	Stimulator	Regulator	Connector	Stimulator Connector

Table C8.5 Municipal steering role in the different cases (NC)



8.3.3 AMOUNT OF INSTRUMENTS

Next to the categorization of the instruments in the different approaches and steering roles, the amount of instruments is also inventoried. It shows that in some cases, more instruments are used to be involved in the process, see Table C8.7.

In cases where the municipality uses a low amount (7 or less) instruments (RDM), the municipality focusses on let go/wait involvement. In cases where the municipality uses a high amount (8 or more) instruments (LH, KG, BA, PL, GR), municipalities focus on stimulate/align involvement.

In cases where the municipality uses a very high amount (12 or more) instruments (LH, KG), municipalities focus (next to stimulate/align involvement) on arrange/provide involvement.

This might indicate that municipalities that want to have less involvement focus on let/go, to be 'medium' involved integrate stimulate/align instruments, and if they want to be intensively involved integrate arrange/provide instruments.

A similar division can be identified in the second model. In cases where the municipality uses a low amount (7 or less) instruments (RDM), the municipality focusses on the role of regulator. In cases where the municipality uses a high amount (8 or more) instruments (LH, KG, BA, PL, GR), municipalities focus on the roles more focussed on collaboration (connector and stimulator). This might indicate that municipalities that want to have less involvement focus on a steering

Table C8.7 Amount of instruments used in the different cases (NC)

PROJECT	LH	KG	BA	RDM	PL	GR
Amount of instruments used	17	13	10	5	9	11

8.4 PUBLIC VALUES

Next to the governmental involvement being studied, relevant public values are also inventoried (see Table C8.8). The inventory shows the broad range of values involved in these processes, making it complex at various scales or levels.

In most cases, organisational values are mainly mentioned, showing the amount of goals stakeholders have for projects relating to industrial heritage. Often, more values are mentioned on a area or city scale, instead of project scale. This shows that the project is often used in a broader context, for instance to put an area or city on the map. This is further elaborated upon in paragraph C8.1.

Looking from a financial perspective, a lot of values are inventoried that have an impact on the business case of the project, such as subsidies, competition or financial contributions. It shows how important the financial (city) context is for the feasibility of these projects.

Zooming in on the physical perspective, the project physical values are most frequently mentioned. It often refers to either the state of dilapidation and/or the architectural value of the project. On area level, it mainly concerns values such as nuisance or major interventions for the area.

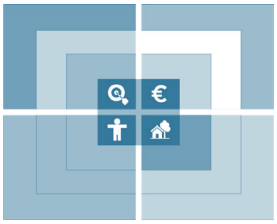
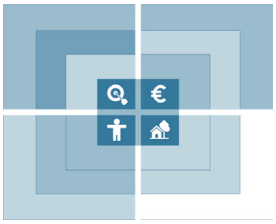
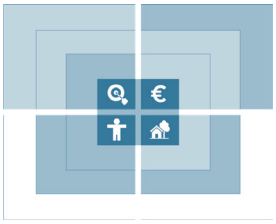
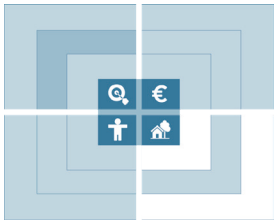
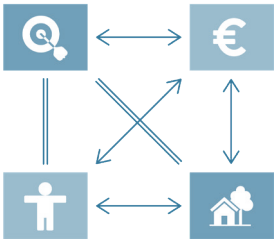
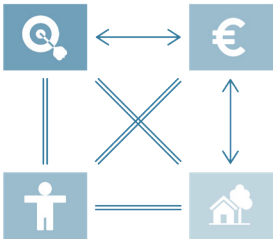
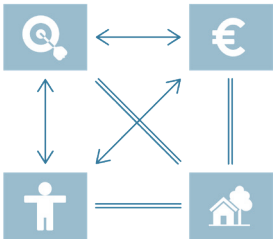
Lastly, concerning the functional values, it all relates to the user values. The values are mentioned on different scales, but often focus on the project level. The values mentioned often deal with the project's function, atmosphere, lay-out or user requirements.

8.4.1 TENSION BETWEEN VALUE PERSPECTIVES

The degree of financial tension varied across the cases. The Greswarenfabriek and Baronie projects faced notable financial challenges due to the feasibility of achieving organizational goals and the need for significant investments. In contrast, the RDM case benefited from substantial European funding, aligning with its organizational values.

The physical condition of the buildings differed among the cases. The Greswarenfabriek and Ploeg projects encountered significant physical tensions due to the severely deteriorated state of the structures, requiring extensive interventions for new functions. Conversely, the Klokgebouw and RDM case experienced relative ease in adapting the buildings to new functions.

Table C8.8 *Public value overview of the different cases (NC)*

PROJECT	LH	KG	BA	RDM
Four-perspective model				
Most mentioned perspective	Organisational Functional	Organisational	Organisational Financial	Organisational
Most mentioned scale	City Project	Area City	Area Project	Area
Most mentioned persp. + scale	Organisational City	Organisational Area	Functional Project/area	Organisational Area
Value tensions				

The degree of alignment between user values and organizational goals varied across the cases. The Klokgebouw and RDM case demonstrated strong alignment, which facilitated the feasibility of the projects. In contrast, the Baronie case initially faced challenges in finding feasible users, while the Ploeg case showcased a strong bond between municipal goals and user wishes.

8.5 SYNTHESIS

In the next few paragraphs, some connections are portrayed, that might explain why municipalities take an approach in the different cases. In order to find these connections, a big overview is illustrated in Table C8.9. It is important to note that several of the relations mentioned are overlapping, yet, it is important to show which patterns can be recognized. The relations are uncertain, since it can not be designated which factor influenced the municipality to have a certain type of involvement, therefore no conclusion can be based on these patterns.

8.5.1 MUNICIPAL INVOLVEMENT & PROJECT CHARACTERISTICS

Urban context

In cases in an urban context (LH, KG, BA, RDM), municipalities focus on stimulate/align involvement as well as arrange/provide involvement, with one exception (RDM, yet also located quite far from the city). In cases in a rural context (PL, GR), municipalities mainly focus on stimulate/align involvement.

Pattern: This might indicate a relation between urban contexts and the arrange/provide involvement.

Discussion: This relation could be caused by the need to change things in the urban context or other instruments to make it happen, since urban context are often more complex.

Size of the municipality

In cases in a big municipality (LH, KG, BA, RDM) and also more experience with heritage, municipalities focus on stimulate/align involvement as well as arrange/provide involvement, with one exception (RDM). In cases in a small municipality (PL, GR), municipalities mainly focus on stimulate/align involvement.

Pattern: This might indicate a relation between a bigger size of the municipality and the arrange/provide involvement.

Discussion: This relation could be caused by the higher capacity and higher amount of possibilities to be involved in these processes. They have more options and possibly also more financial strength to play a bigger role to arrange/provide things for the adaptive reuse process.

Size of the project

Pattern: Between size of the project and type of municipal involvement, no deliberate relations can be identified.

Discussion: This lack of relation can also be caused by the fact that all industrial heritage projects studied are XL in size. While the projects still vary greatly in size, all projects can be considered extra-large. This could explain that there is no direct relation.

Period of adaptive reuse

In cases earlier in time (KG, BA, RDM), municipalities do not focus on invite/initiate involvement in the pre-project phase. In cases later in time (LH, PL, GR), municipalities focus more on invite/initiate involvement in the pre-project phase (2/3 cases).

Pattern: This might indicate a relation between more recent projects and invite/initiate involvement.

Discussion: Theory already shows a shift of municipalities being more market-organising and less being involved in the market itself. This might explain this relationship.

Project ownership

In cases being owned by a private party (BA, PL), municipalities do not focus on invite/initiate involvement. In cases being owned by a public or semi-public party (LH, KG, RDM, GR), municipalities do sometimes focus on invite/initiate involvement.

Pattern: This might indicate a relation between private ownership and a reduced use of invite/initiate involvement.

Discussion: When municipalities have no ownership of the heritage, it is harder to initiate a project and invite other parties to join. The initiative then often lays with the (private) owner. This would explain this relationship.

Monumental status

In cases with a national monument (KG, PL), municipalities do not focus on let/go involvement. In cases not involving a national monument (LH, BA, RDM, GR), municipalities sometimes focus on let/go involvement.

Pattern: This might indicate a relation between (national) monumental status and a lesser use of let go/wait involvement.

Discussion: A national monument gets more attention and therefore is a bigger trigger for municipalities to get actively involved in, also since it represents the municipality in a sense. This would also explain why they would take a more active approach.

Organisational structures

In cases in which the municipality is involved in multiple ways, for instance as area developer and from a public perspective (LH, KG), more instruments are used.

Pattern: This might indicate a relation between intensive organisational involvement and a more active municipal involvement.

Discussion: When municipalities have more than one official role in a project, it has more instruments at its disposal, yet are often projects in which municipalities have more benefit if the project would be transformed. This would explain their more active involvement.

8.5.2 MUNICIPAL INVOLVEMENT & PUBLIC VALUES

Organisational value

In cases with a lot of area and/or city organisational value (LH, KG, PL, GR), municipalities focus on stimulate/align involvement (and sometimes arrange/provide involvement).

Pattern: This might indicate a relation between area/city organisational value and the stimulate/align involvement.

Discussion: Organisational values often relate to goals of the municipality for a project, area or city. If a project has more or bigger goals, it can be expected that municipalites want to do more to stimulate such a project. This explains this relationship.

Financial value

In cases with a focus on financial values on a city scale (BA, GR), municipalities focus on stimulate/align involvement and the stimulator role. In cases with a focus on financial values as a whole (LH, KG, BA, PL, GR), municipalities focus on stimulate/align involvement. In cases with less city financial values (RDM), the municipality focuses less on stimulate/align involvement.

Pattern: This might indicate a relation between (city) financial value and the stimulate/align involvement.

Discussion: If the financial value is more important or can give an economic impulse to an area or city, it can be expected that municipalities want to be more active to stimulate/align a project. This could explain this relationship.

Physical value

Pattern: Between physical value and type of municipal involvement, no deliberate relations can be identified.

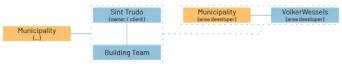
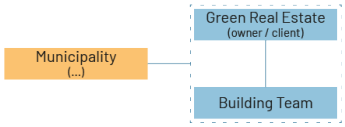
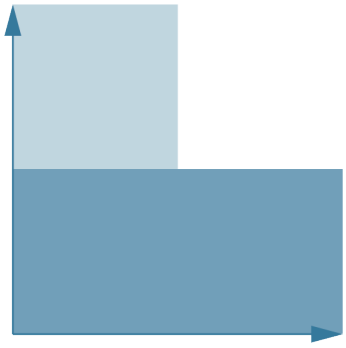
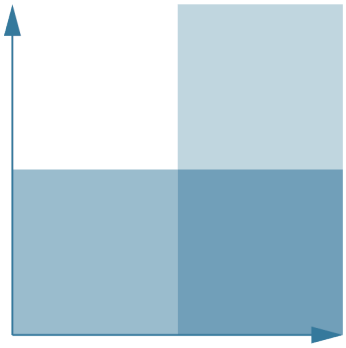
Discussion: Physical values are also the least mentioned values, especially on area and city scale. This might therefore also have a smaller influence on the approach of local governments, leading to this lack of relationship.

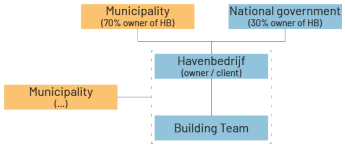
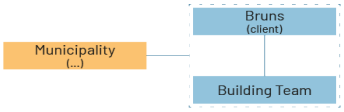
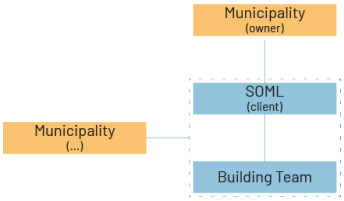
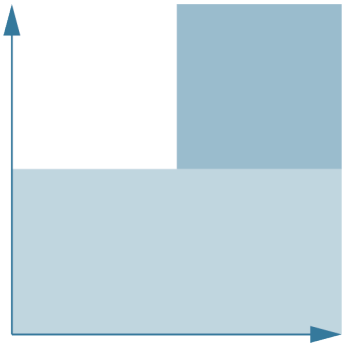
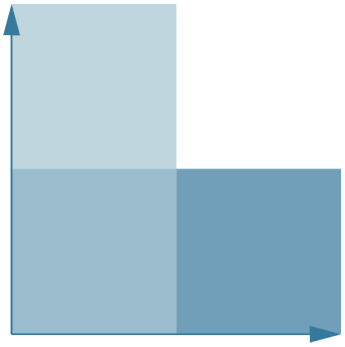
Functional value

In cases with a lot of project functional value (KG, BA, GR), municipalities focus on their role of stimulator. All projects with a focus on functional value on one of the scales have a focus on the municipal approach of stimulate/align.

Pattern: This might indicate a relation between functional value and the stimulate/align approach and the stimulator steering role.

Discussion: When a building has more user value, the municipality can be expected to have a more active approach, especially since these buildings are mainly public buildings, having more impact on the inhabitants of their municipality. This would explain their role of stimulator.

ANALYSIS OF	LOCHAL	KLOKGEBOUW	BARONIE
Project characteristics			
Urban context	Inner-city	Suburban	Inner-city
Size municipality	Large	Large	Large
Experience with heritage	High	High	Medium
Size	11.000 m^2	45.000 m^2	19.000 m^2
Adaptive reuse period	2011-2018	2002-2014	2008-2014
Owner	Public	Semi-public	Private
Monumental status	Municipal	National	None
Use	Public + private	Public + private	Public
Role(s) municipality			
Municipal involvement			
Amount of instruments	17	13	10
Municipal approach			
Pre-project phase	Invite/initiate	Stimulate/align	Stimulate/align
Preparation phase	Stimulate/align Arrange/provide	Arrange/provide Stimulate/align	Stimulate/align Arrange/provide
General	Stimulate/align Arrange/provide	Stimulate/align Arrange/provide	Stimulate/align Arrange/provide

RDM CAMPUS	PLOEG	GRESWAREN
Suburban	Rural	Rural
Large	Small	Small
High	Low	Low
34.500 m^2	8.000 m^2	5.600 m^2
2004-2014	2014-2017	2012-2019
Semi-public	Private	Public
Municipal	National	Municipal
Public + private	Public + private	Public + private
		
5	9	11
		
Let go/wait	Stimulate/align	Invite/initiate Stimulate/align
Let go/wait Stimulate/align	Arrange/provide Stimulate/align	Stimulate/align Arrange/provide
Let go/wait	Stimulate/align	Stimulate/align Arrange/provide

role municipality

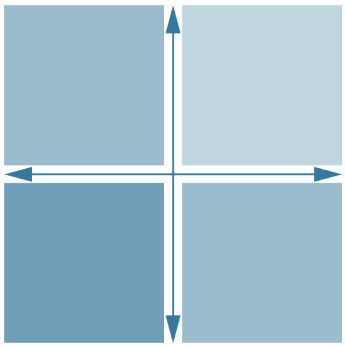
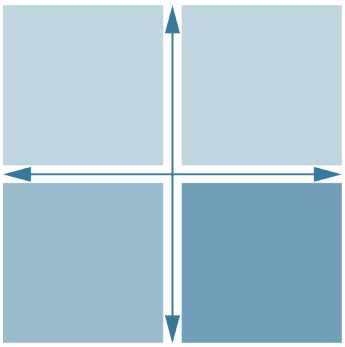
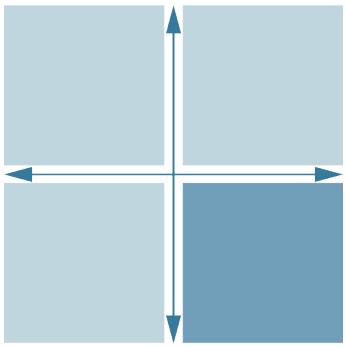
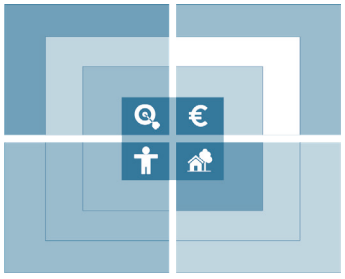
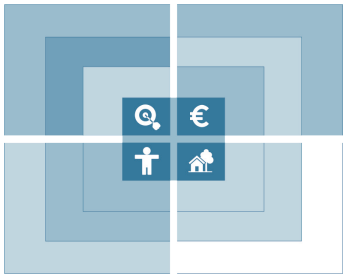
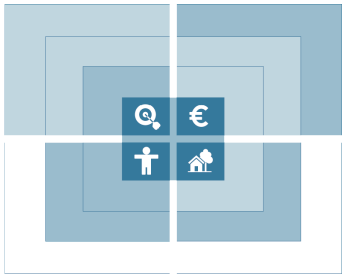
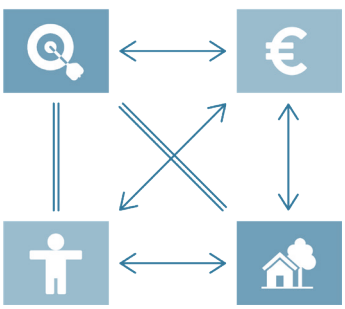
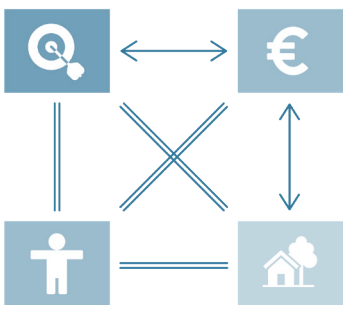
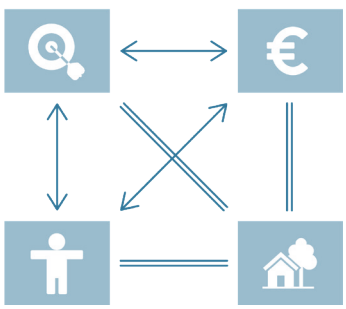
other stakeholders

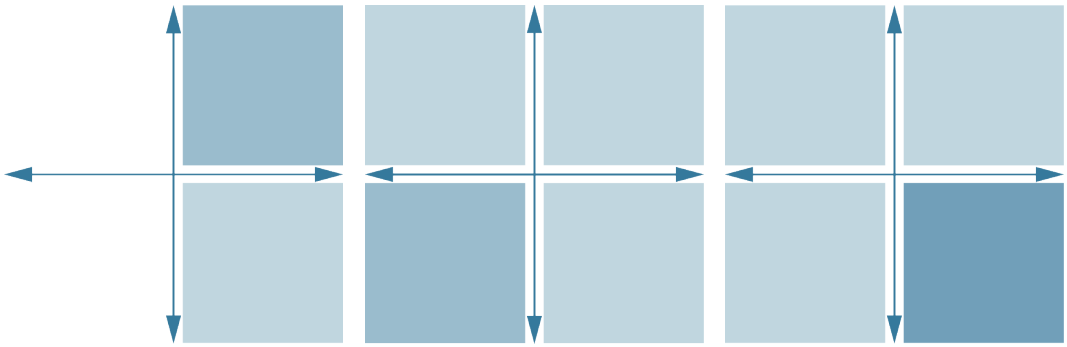
no instruments mentioned

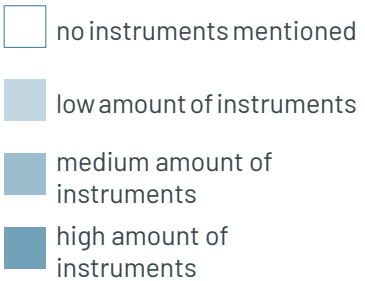
low amount of instruments

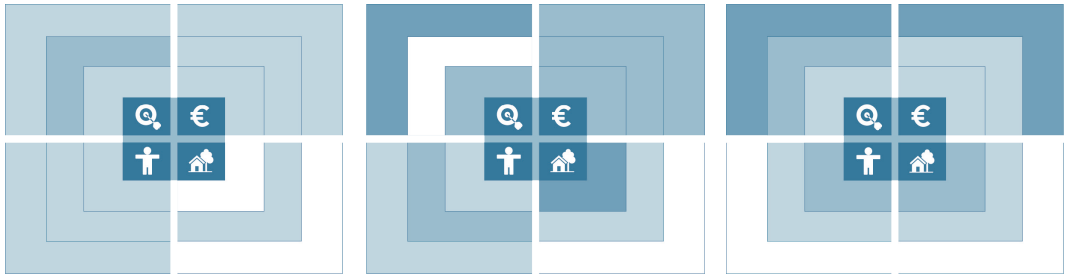
medium amount of instruments

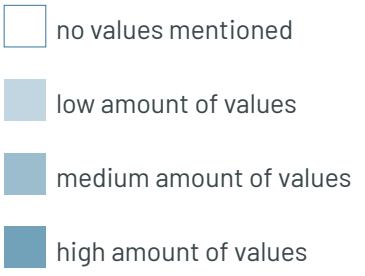
high amount of instruments

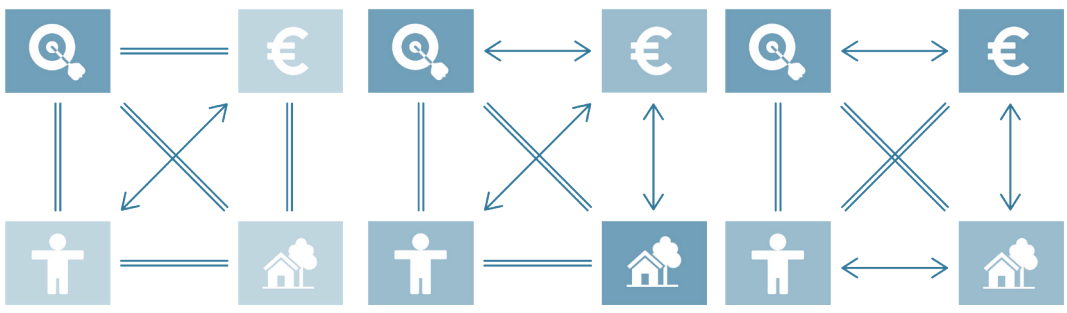
ANALYSIS OF	LOCHAL	KLOKGEBOUW	BARONIE
Municipal involvement (continuation)			
Municipal steering role			
Pre-project phase	Guide Connector	Connector	Guide Stimulator
Preparation phase	Connector	Stimulator Connector	Stimulator Regulator
General	Connector	Stimulator Connector	Stimulator
Public values			
Four perspective model			
Type of value most mentioned	Organisational Functional	Organisational	Organisational Financial
Scale level most mentioned	City Project	Area City	Area Project
Type + scale most mentioned	Organisational City	Organisational Area	Functional Project/area
Value tensions			

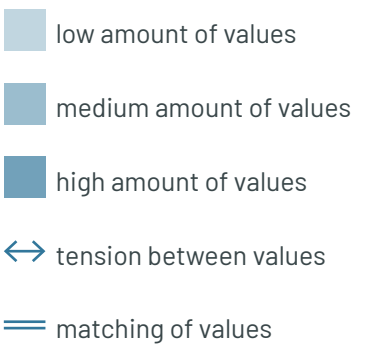
RDM CAMPUS	PLOEG	GRESWAREN
		
Regulator	Connector	Guide Connector
Regulator Stimulator	Connector Stimulator	Stimulator Connector
Regulator	Connector	Stimulator Connector



		
Organisational	Financial Organisational	Organisational Financial
Area	Project	Project City
Organisational Area	Organisational City	Financial City







CLOSING SECTION

1. DISCUSSION

1.1 KEY FINDINGS

The theoretical and empirical research of this thesis focussed on how municipalities (can) enable the adaptive reuse process of industrial heritage. The market review and case studies provided new insights how this is currently approached in practice.

When looking into the significance and public values at play in these processes, it can be observed that industrial heritage really makes an extra-large impact. While a lot of values were named on the project level, even more were mentioned on the (higher) levels of area and city/region level. This shows the extra-large impact of these buildings, and again highlights the need to preserve these buildings. The market review also showed that in a lot of industrial heritage cases, industrial heritage is part of an urban (re) development, in which it can serve as catalyst. Looking at the various perspectives, the cases show the multi-dimensional nature of industrial heritage. While the organisational goals are most frequently mentioned, a lot of interviewees also highlight the essentiality of the financial perspective, yet also on the physical and user perspectives a lot of values apply. This also highlights the 'extra-large' complexity of these processes.

Diving into these processes, it shows that the processes are often very extensive, which can partly be explained due to poor market conditions. Especially the pre-project phase is long, resulting from lack of interest, difficult ownership situation, unfeasibility etc. Yet, in the pre-project and preparation phase, temporary use is considered to be very important to put the project and area on the map.

When zooming into the involvement of the municipality in these processes, its shows that the municipality in general is very active, using a diverse set of instruments. It is important to note that this relates to a combination of approaches and steering roles. Yet, the municipal approach in these cases mainly focus on stimulate/align and arrange/provide, the municipal steering role on being a stimulator, connector and guide.

While the specific combination of types differs per project, it shows that municipalities are (almost) never not involved. Some interviewees also mentioned that more roles / approaches / instruments are integrated in their involvement when the circumstances become more complex.

1.2 INTERPRETATIONS

The research provides good insight in instruments and involvement of municipalities in the adaptive reuse processes of industrial heritage. It gives a broad overview of the possibilities that municipalities can use, and also succeeds to concretize those in instruments and activities. However, due to the complexity of the project and the high amount of different characteristics, contexts and values, it is hard to define for what type of municipal involvement is needed for different 'types' of project, let alone provide a handbook for municipalities on how they should always handle such cases. One approach does definitely not fit for all cases, so municipalities will always have to adapt their strategy and approach to a specific project. As Verheul et al. (2017) describes, governments should act more from a multiple role perception. This, and the other theoretical frameworks, provided a good foundation for the rest of the research, yet required some modifications to make them more fitting for better use in this thesis.

1.2.1 THEORETICAL CONTEXT

The four-perspective model by den Heijer (2021), used to identify the public values and impact, was adjusted to make a division in types of goals. The tool proved very useful, helping to structure all the different values involved, and was well applicable since the cases often concern (semi-)public real estate. During the case analyses, it stood out that a lot of values mentioned do not only apply to the project, but also to the area and/or city, also relating on the different levels the building can be significant on. This led to the division of the model in different scales, yet this was not the first time that the model is adapted and divided into scales.

For instance, research by Curvelo Magdaniel (2012) uses different scales to illustrate types of stakeholders on different scales, using neighbourhood, area and city/region. A similar approach is used in this research. It could be useful to try to use this division in other research as well, as public real estate (which the model is focussed on), also has a big influence on its environment, both in the scale of area as well as city/region.

Next to this modification, an extra type of value is applied to identify an organisational impact or perspective: branding. A lot of goals of the owner/developer/municipality relate to the objective to brand the project, area or city and/or create awareness.

Therefore, this type of value was added. While this typology was very fitting for the context of industrial heritage, it should not necessarily be part of the general model. The context of the researched cases often concern 'abandoned' areas that needed an impulse to give it a new character or brand. In normal public real estate cases, this is less relevant.

The four perspectives also served to exemplify the inherent tensions that arise among the various value perspectives. The findings revealed that the primary source of tension predominantly comes from the conflict between the financial perspective and the other perspectives. Notably, organizational goals frequently align with the physical values, as the overarching objective typically revolves around preserving and enhancing the architectural and sustainability aspects of the building.

The phasing model proposed by Arfa et al. (2022) has proven to be a highly practical tool for organizing the various activities that occur within each case. Numerous similar studies have also corroborated the efficacy of this model. This research did not identify any need to modify the model. However, it is essential to emphasize the complexity inherent in both this particular model and other theoretical frameworks pertaining to process phasing. Several theories attempt to simplify the process but fall short in addressing the practical barriers and complexities involved. For instance, the model under consideration assumes a linear progression of the process, which often does not align with reality. In cases such as the Baronie case study, one or more initiatives proved unfeasible, necessitating significant setbacks in the planning.

Additionally, although the model categorizes activities into four phases, practical implementation does not always adhere to such a systematic framework.

The model for identifying the municipal approach, adapted from the framework developed by van der Velden et al. (2012), is contingent upon the potential of the area and the stakeholders involved. Originally conceived within the context of urban developments, the model effectively delineates the general role of a municipality. However, it lacks specific tools or concretization for categorizing individual instruments. Moreover, municipalities often employ a combination of approaches, making it challenging to establish a definitive relationship between their approach and the potential of the area and parties involved. In this research, the aforementioned model was utilized to examine municipal approaches within a smaller and more specific context, focusing on industrial heritage rather than urban development. Consequently, this study offers insights into the practical implementation of such a "general" approach for municipalities. While the listed instruments provide a starting point, it should be noted that they do not constitute an exhaustive compilation, and further research is required to expand and enhance their applicability to different cases. Likewise, additional research is necessary to develop a similar concrete list tailored specifically to urban development.

The model proposed by Verheul et al. (2017) for identifying municipal steering roles served as the second framework utilized to examine municipal involvement in this research. This model offers a more specific framework and provides a comprehensive description of the concrete instruments that can be employed when assuming a particular role. As a result, this model proved to be more straightforward in the implementation of this study. However, it is essential to acknowledge that the aforementioned model was primarily developed within the context of urban development, focusing on corresponding instruments. In this research, the aim was to identify instruments relevant to the processes of industrial heritage. While a list of instruments was compiled, it should be noted that it is not exhaustive, and further research is required to expand and refine this inventory of instruments. To comprehensively elaborate on and validate the list of instruments, additional research is warranted. This will contribute to enhancing its applicability and effectiveness in capturing the diverse range of instruments utilized in the realm of industrial heritage.

Upon reflection, it is apparent that the models employed in this study are not ideally suited for directly addressing the sub-questions posed. Nevertheless, they have proven valuable in providing significant insights into the processes and values inherent to the examined contexts. This understanding is essential in comprehending the origins and contexts from which these questions arise.

Moreover, through the comparative analysis of the various cases, additional insights have been garnered, enabling a more informed response to the research questions. While the models may not directly answer these questions, they have facilitated a deeper understanding of the subject matter and have offered valuable perspectives for further exploration.

1.2.2 RESEARCH CONTEXT

The case analyses have demonstrated that municipalities employ a wide array of instruments, approaches, and steering roles in their involvement. Previous research, such as that conducted by van Laar (2013), has characterized the evolution of municipal involvement as taking on a more framing and directional function. While this research identifies specific instruments that can be associated with these functions, it is worth noting that municipalities utilize a diverse range of instruments, including being more active, providing, and stimulating. Furthermore, the same research highlights the recognition by municipalities of the challenges involved in steering the various stakeholders and the project itself. This acknowledgment may explain the more proactive approach adopted by municipalities. It also signifies that municipalities possess a substantial repertoire of instruments at their disposal for steering projects and engaging stakeholders effectively. Additionally, research by Loos (2014) emphasizes the significance of communicative instruments throughout all phases of cultural heritage (re)development.

This finding aligns with the observations made in this research, as nearly every case study underscores the importance of the municipal connector steering role or the stimulating and aligning approach. These insights collectively emphasize the multifaceted and active nature of municipal involvement and highlight the diverse instruments and approaches utilized by municipalities in their efforts to steer projects and engage stakeholders successfully.

The theoretical framework proposed by van der Velden et al. (2012) posits a link between the high potential of an area, the level of interest displayed by private parties, and the role assumed by the municipality in the development process. However, this research has been unable to substantiate this relationship. While the primary focus of this study was not to analyse the potential of the parties involved or the areas in question, it has revealed that the municipal approach cannot be rigidly categorized into one of the four defined approaches. This suggests that the choice of instruments and approach employed by municipalities does not always align with the potential of the area or the parties involved.

Similarly, the aforementioned research by Loos (2014), which concentrated on the context of urban development, also concluded that the pursuit of a particular interest or value does not necessarily correspond to one of the four municipal approaches. This research has likewise failed to establish a compelling connection between the significance of specific public values and a specific type of municipal involvement. These findings underscore the complexity and nuances associated with the relationship between potential, interests, values, and municipal involvements. The research indicates that additional factors and considerations come into play when determining the specific approach adopted by municipalities in their involvement in development processes.

A study conducted by Daamen et al. (2012), which also focused on the context of urban development, presented ten areas in which municipalities should consider making changes to their approach. Among these recommendations is the promotion of effective horizontal and vertical communication.

In line with this, the current research highlights the significance of communication, specifically through the role of the municipal connector. Various interviewees emphasized the importance of effective communication by the municipality and other stakeholders in ensuring the success of the project.

It is important to exercise caution when drawing conclusions based on the findings of this research. This master thesis primarily emphasizes the methodology employed in conducting the research and analyzing the results. Given the complex nature of the subject matter, additional research and evidence are necessary to arrive at definitive conclusions. Nonetheless, this research can serve as a starting point for further investigations and inquiries into the topic.

1.2.3 DEVELOPMENT NEW MODEL

Comprehending the municipality's involvement in these processes holds paramount importance for further research and practitioners in the field. Consequently, a proposed model is presented, which integrates both the complexity of these processes and the various forms of municipal involvement. The model posits that the level of municipality's involvement, particularly in its active capacity, is contingent upon the complexity of the process at hand.

Numerous factors contribute to the complexity of these processes, including their large-scale nature, the presence of conflicting public values, challenging project characteristics, and market uncertainties. As evidenced by the case studies, municipalities tend to augment their approaches and employ additional instruments as the complexity of a process intensifies.

This results in an active municipality that employs diverse approaches and instruments when confronted with highly complex processes, while adopting a more reactive and regulative stance in relatively less complex situations.

Given the inherent extra-large scale and impact of adaptive reuse projects involving industrial heritage, the involvement of municipalities often encompasses multiple types of engagement. This correlation is also evident within the proposed model, which takes into account the complexity of these processes.

It is worth noting that other researchers, such as Alexander et al. (2012) and Cozzolino & Moroni (2021), emphasize the significance of regulative instruments, as opposed to the more active forms of involvement depicted in the proposed model. According to Alexander et al. (2012), "Nomocracy is the preferred social-spatial ordering approach for regulating complex self-organizing systems – societies and cities." Nomocracy primarily focuses on framing and governing the complex and spontaneous order that already exists. This model highligts the importance of regulating as well, since this is the instrument used in all process, independent on its complexity. However, it does illustrate more active involvements when the process is more complex. Yet, the model presented in this research aims to illustrate the current effective practices in the complex context of industrial heritage, while the other researchers focus on a more theoretical approach.

1.3 PRACTICAL IMPLICATIONS

First and foremost, it is crucial for both academia and municipalities to recognize the intrinsic value of industrial heritage and acknowledge that industrial heritage buildings present significant opportunities for implementation in various strategies. This research shows that it can be essential to conduct a comprehensive assessment of the diverse public values and perspectives involved. This can be achieved, for example, by utilizing the framework developed in this research, prior to determining a specific type of municipal involvement.

Moreover, municipalities should develop a bigger knowledge of the different instruments that can be used in these projects. Currently, municipalities are isolated from each other reinventing the wheel. This research provides both academics and municipalities in practice of the different types of approaches and roles that municipalities can take on to enable the adaptive reuse of industrial heritage. Especially the list of instruments for the different approaches and roles could be useful for municipalities, yet also the elaboration of the different case studies could provide them with new insights for their working methods. If municipalities do not learn more about the complex process and the potential of their involvement, they might keep re-inventing the wheel or fail to enable the adaptive reuse of industrial heritage. Reading this thesis and learning from other cases, would be a great first step. Another way to do this; municipalities should increasingly cooperate with other municipalities, to come up with new concepts to enable the adaptive reuse process of industrial heritage, yet also to develop practical skills on which instruments they can use.

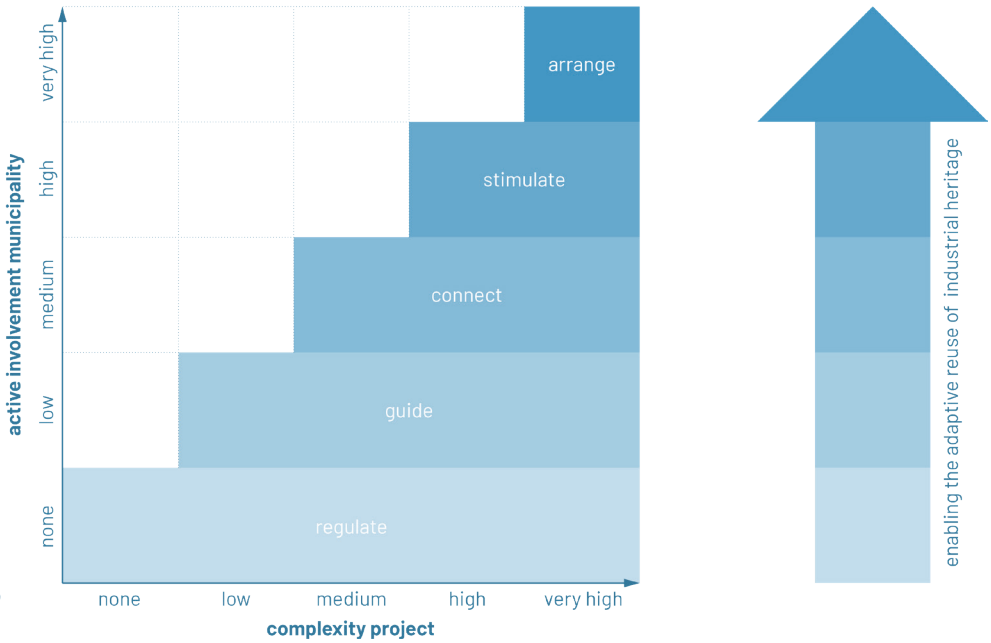


Figure D1.1 *New model proposed to understand the municipal involvement in the complex process of the adaptive reuse of industrial heritage (NC)*

The research highlights the lack of speed in the pre-project phase. Therefore, municipalities are encouraged to take up the initiative to start up these projects, to save these buildings from deterioration. In this process, they should work closely together with market parties to see what they need, yet also give them room to develop their own ideas. They should act like a chameleon, adapting to what the project and involved stakeholders need.

1.4 LIMITATIONS

This research primarily examines the municipal involvement in the adaptive reuse process of industrial heritage. The narrow focus of this study presents challenges when attempting to transfer the findings to other contexts, such as cultural heritage and urban development, or when considering the involvement of other governmental institutions like provinces. Nevertheless, this focused approach is essential due to the inherent complexities associated with the adaptive reuse process of industrial heritage, which necessitates a distinct approach compared to other contexts.

Although the original research purpose was to examine municipal methods that actually enable the adaptive reuse process, the focus of the study shifted towards providing a descriptive account of municipal involvement and attempting to describe the factors influencing this involvement. Consequently, the research does not delve into how the instruments employed actually enable the adaptive reuse process. It merely establishes that the instruments were utilized to intervene in the process. The assessment of whether these interventions effectively enabled or hindered the process was not undertaken. However, as stated in the introduction, there is a lack of research with a descriptive and explanatory nature, and this study serves to address that research gap.

The research employed market research and case studies to gain insights into the complex process of adaptive reuse and the involvement of municipalities. The analysis of two interviews and relevant documentation was deemed sufficient for the purpose of this research. However, it is important to acknowledge that this approach may result in a biased perspective, with the municipality primarily focused on the organizational perspective and the broader impact on the area and city, rather than the project-level and other perspectives. Conducting additional interviews for each case study would offer a more comprehensive understanding and potentially provide explanations for the selection of specific types of governmental involvement. Alternatively, a narrower focus on fewer cases with greater depth could have been pursued. Initially, this was the plan for the research, but proved challenging to execute due to limited stakeholder availability within each case and the time constraints imposed on the research.

Given the scarcity of existing research on this topic, reaching definitive conclusions in this study is challenging. Furthermore, the case studies examined in this research do not point to a singular approach that can effectively enhance adaptive reuse. Consequently, formulating a single approach for municipalities to follow could not be developed.

Nevertheless, the research does provide a comprehensive inventory of various instruments that municipalities can employ, contingent upon the specific context and their chosen approach.
Two different types of empirical research are conducted for this thesis: a market review and six case-studies. For each case study, project documentation were studied and two interviews were conducted. The case studies successfully provide information about how municipalities are involved in these processes and the identification of relevant public values. Using different forms of sources makes sure that the needed information could be collected, and in a lot of cases be checked or compared with the other sources. These sources provided enough information to perform the case studies, yet more interviews could have provided new insights, for instance by interviewing a stakeholder from a different perspective.

1.4.1 METHODOLOGY

While the phenomena of municipal involvement has not been researched in the context of industrial heritage, research in other contexts, such as urban development or cultural heritage, show that case studies and interviews are a good method to get a grip on this subject (e.g. Loos, 2014; van Laar, 2013). Next to this, the market analysis gives more insight in the complexity, diversity and characteristics of industrial heritage projects and their adaptive reuse processes. In this research, it was an important tool to get an understanding of the subject, yet can do the same for other academic researchers or municipalities.

The interviews were conducted a few years later after the projects were finished. This enabled the interviewees to look back with a more neutral perspective than when the interviewees might still be overwhelmed by a (relative) small barrier or success in the project. However, this also led to some lack of memory, yet in all cases, the collection of resources together provided a full overview of each case.

This full overview also gave insight in the complexity of the process. While the type of involvement and the instruments that municipalities use are more factual, the explanations for these type of involvements are hard to specify, making it difficult to find a causal connection. While this research does provide insights in potential factors that have an influence on their type of involvement, it can not establish a clear relationship between a characteristic or important value that explains a type of municipal involvement.

While a relationship is still expected to exist, the complexity (mainly due to the high amount of inputs that have an influence on the type of municipal involvement) makes it difficult to distinguish a specific connection. More research, focussed on only the question of why a municipality takes a certain involvement, is needed to be able to make this more concrete.

In this research, trustworthiness was achieved by using the same interview protocol for each of the interviews. This helped giving the interviewees the same structure, but using the semi-structured type also gave room for questions for elaboration or clarification. The results are analysed using the same methodology, and checked multiple times, for instance if the same categorizations are made for similar values or activities.

1.4.2 COMPARISON SIMILAR RESEARCH

Since there is few similar research focussed on the municipal involvement in the context of industrial heritage, the results of this research can not be directly compared with other studies. While this research is carefully executed, the outcomes can not be ´checked´, making follow-up research a must for this research area to strengthen and grow. Other researchers should also be careful placing the outcomes and conclusions in other contexts, since the projects are quite particular and dependent on its context and conditions.

However, since the research does involve projects delivered over a time span of over 10 years, that have similar outcomes (e.g. municipal involvements), it can be expected that the results apply in other times as well. Yet, it is important that the newly studied context are similar, since these have a big impact on adaptive reuse processes.

1.5 RECOMMENDATIONS

1.5.1 FOLLOW-UP RESEARCH

For the academic field, it is recommended to perform more research into the involvement of local governments in general, but more specifically in the field of (industrial) heritage. Currently, there is insufficient research to understand why local government choose for a specific type of involvement, or when which type of involvement is more suitable. Follow-up research is advised to close this research gap, for instance by focussing more on the reasons for a specific type of involvement. This helps the understanding of these processes, yet also is valuable information for other municipalities facing similar projects and/or problems.

1.5.2 KNOWLEDGE DEVELOPMENT AND SHARING

For the practical field, it is recommended to do more research into the different instruments and types of involvements that municipalities can take. Several interviewees highlighted that they do not actively work together with other municipalities on these topics and processes. Reading this research and its inventoried instruments would be a good start.

It is also advised to share knowledge with other municipalities, and get more information about their involvement in their projects. The market analysis of this research is a good overview to search for projects similar to a project a municipality is working on.

It would also be helpful to discuss these subjects in inter-municipal organisations, such as in the Vereniging van Nederlandse Gemeenten (VNG, association of Dutch municipalities). While this intermunicipal organisation does provide databases, fora and a knowledge hub for other subjects, this should also be developed for working on adapting (industrial) heritage. Building a digital platform with projects, the municipal involvement and a contact person would be a great start, and platforms like herbestemming.nu can also play a big role in this.

Next to this, it is important that regular meetings are held (with employees involved in adaptive reuse processes of (industrial) heritage) to discuss the options and opportunities, also building trust and better relationships. However, either the VNG or one of the municipalities has to start this initiative and take on the responsibility to organize these things, and participants have to invest time and money in this collaboration. Another option would be to use the G40 (platform for municipalities with over 100.000 inhabitants) or M50 (platform for municipalities with 30.000-80.000 inhabitants), especially looking at problems that are more characteristic for a specific size of municipality. Other interesting networks for municipalities to develop and share their knowledge are 'Centrum voor Gebiedsontwikkeling' (Centre for Urban Development), 'het Opdrachtgeversforum in de bouw' (the client forum in construction) or BOEi.

Since finding a good methodology and network to share knowledge between municipalities can be considered a separate research in itself, this is beyond the scope of this research.

A similar obstruction can be identified between academic research(ers) and practice and its practitioners. While academic research might improve the current methods, people from practice often do not even know about or recognize these findings.

1.5.3 CHOOSING A TYPE OF INVOLVEMENT

While it is not part of this research, it is fundamental to integrate this exchange of knowledge in the process towards the choice of a municipal involvement. This can be done by comparing the project with other projects, for instance using a project database. It is important that municipalities can contact each other if a project is comparable, enabling knowledge exchange that can be an important input for the choice for a certain type of involvement.

Figure D1.3 *Step-by-step approach for municipalities to choose their type of municipal involvement (NC)*

Figure D1.2 *Recommendations for knowledge development and exchange (NC)*

Next to this, it is crucial that municipalities understand the complexity of these processes. Therefore, they should take some time to analyse the projects, for instance looking into the project characteristics and the public values at play. When the complexity is analysed, municipalities should identify the different stakeholders and their perspectives. Connecting with these stakeholders and inventorying what they need or want from the municipality to enable the process, can be another important strategy to figure out how the municipality should be involved in these processes.

Lastly, municipalities should always adapt to the (changing) circumstances. The process towards the choice for a municipal approach can, based on these three improvements, be structured as illustrated in Figure D1.3.

2. CONCLUSIONS

This research aims to give insight in the involvement of municipalities in the adaptive reuse process of industrial heritage. By performing empirical research, in the form of a market review and six case studies, this subject has been studied, in order to answer the main research question:

How can the involvement of the municipality enable the adaptive reuse (process) of industrial heritage in the Netherlands? (see Figure D2.1). In order to systematically answer this main research question, four sub-questions were developed, which will be answered first.

SQ 1
What is the significance and impact of (the adaptive reuse of) industrial heritage for its context?

Industrial heritage has proven to be very significant for its context. After all, if the building would not be transformed, most projects would deteriorate, demolished or reused in a less impactful manner. All case studies show the impact of the projects, on different scales. "There are great advantages to such projects, not just the story and historical value, but also advantages to the size, the place, the scale." (interview D1).

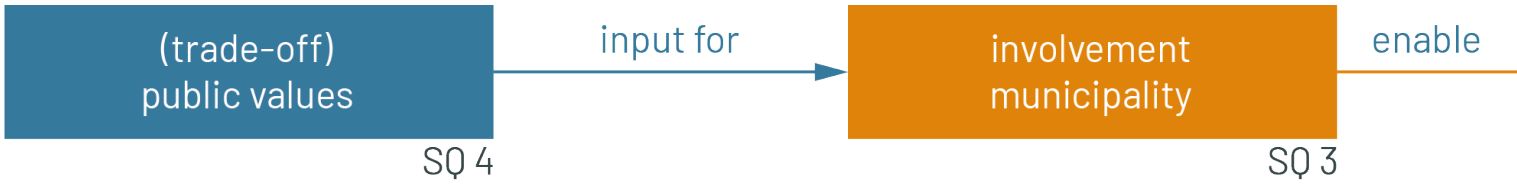
The adaptive reuse of the building has, naturally, a big impact on the project that is being transformed. It gives the building a new function, enabling new organisations and users to use the building. Next to this, such a project can be very significant for the surrounding area (development). Industrial heritage buildings often serve as catalyst for urban developments, attracting new people to the area and putting the area on the map. Lastly, industrial heritage projects are significant on the city scale, often being flagships to brand the city and boosting the economic or touristic city climate.

The impact studied in the case studies, often mainly related to the organisational perspective. However, financial, functional, and physical perspectives are certainly not insignificant. Industrial heritage buildings is significant from all perspectives.

SQ 2
What are the different steps in the adaptive reuse process of (industrial) heritage?

The general steps taken in the adaptive reuse process of industrial heritage are focussed on the pre-project phase, preparation phase, implementation phase, and post-completion phase. This research focused on the first two phases, since municipalities are mainly involved in these phases, and can make the biggest impact. This beginning of the process has also proven itself to be the most complex.

The first phase, the pre-project phase, describes the process path to the initiative of the project. In most cases, this takes a very long time, leading to the worsening of the deterioration of the building. It also often relates to poor market conditions, in which most private parties (yet also municipal organizations) do not dare to get on with a project. When the project is actually initiated, the project goes relatively fast. Yet, a more active approach of municipalities might help shorten these phases.



SQ 3

How are municipalities involved in the adaptive reuse process of industrial heritage buildings?

Theory describes the various ways municipalities can be involved in these processes. Different models were studied. One of the models used elaborates on the municipal approach being dependent of the potential of the involved parties and the potential of the area. Other models categorize the municipal steering role in hard vs. soft steering and working from a distance or in collaboration.

When looking at how this works in practice, its first important to note that local governments are in fact involved in these processes, yet the case studies show the very diverse ways municipalities choose to do so. Generally, municipalities take an active role in the adaptive reuse of industrial heritage and choose an stimulate/align approach and occasionally also the arrange/provide approach. They also focus on their steering role of stimulator or connector. The approach of let go/wait or steering role as regulator is rarely used. The municipalities are mainly involved in the preparation phase.

Zooming in on the pre-project phase, municipalities are often more passively involved, yet if instruments are used they focus on the invite/initiate approach or stimulate/align approach and the connector or guide steering roles ('soft' steering). Based on this research, municipalities are encouraged to be more active in this pre-project phase, since it might speed up the process significantly. In the preparation phase, municipalities generally actively focus on steering in collaboration.

SQ 4

Which (trade-off between public) values do municipalities take into consideration for their style of involvement in the adaptive reuse process of industrial heritage?

Industrial heritage have proven itself to be quite complex, also due to the high amount and broad range of values involved. Theory describes the four different perspectives and its values, looking at organisational, financial, physical, and functional values.

The different case studies show the different perspectives, makes them concrete for industrial heritage buildings, and how these play a different role. In most cases the organisational values have the upper hand, but in various cases, also financial values play an important role. While the values are very diverse, most stakeholders often agree on the need for adaptive reuse, making a real 'trade-off' between values or perspectives not needed.

Figure D2.1 *Complete conceptual model of this research (NC)*

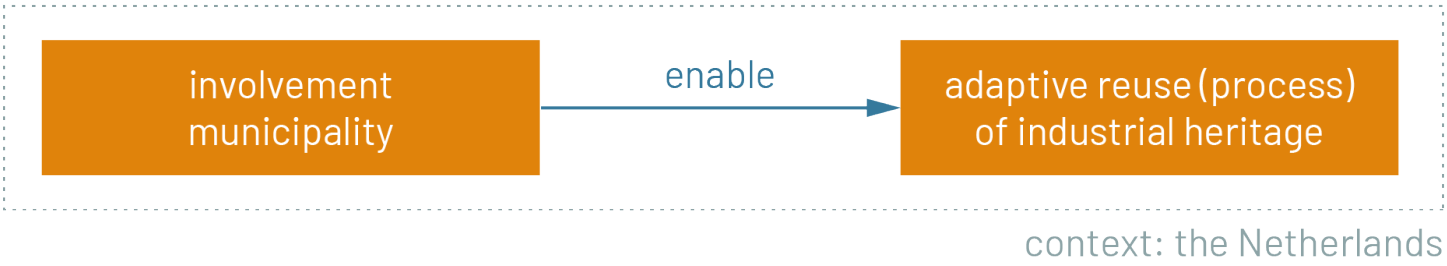


Figure D2.2 *Conceptual model at the core of this research (NC)*

MRQ

How can the involvement of the local government enable the adaptive reuse (process) of industrial heritage buildings in the Netherlands?

Municipalities have a lot of different ways to enable the adaptive reuse process of industrial heritage. Successful projects highlight the importance of an active municipality, that have a stimulate/align and/or arrange/provide approach, taking a steering role of connector and/or stimulator. This active role is often taken in the preparation phase, but not in the pre-project phase, while this is often the longest and slowest phase.

Yet the best type of involvement is dependent on its context, which is quite complex and therefore it is not possible to give municipalities one method to enable adaptive reuse. The research does, however, show that an active approach focussed on collaboration works well in practice, yet, as one of the interviewees said, municipalities should "be a chameleon" (interview C1).

3. REFLECTION

3.1 CONTEXT TOPIC

This thesis is the first possibility in my university career to pursue a topic that you can fully shape yourself. Being both charmed by industrial heritage and fascinated by the process of adaptive reuse, took shape during the first weeks of this extensive project. In my ambition to enable more of such (in my opinion) cool projects, I looked at this subject from the stakeholder that might have the most influence on these processes: the municipality.

Therefore, this thesis explores the adaptive reuse process of industrial heritage, with a focus on the role of the municipality and the different values that are of importance in these processes. Yet, it also elaborates on the other different perspectives, to get a better insight in the adaptive reuse processes and how values might be traded off against each other, including the user perspective.

This academic year marked the first year that theses are being written in 'graduation labs', providing the opportunity to work more closely together with students researching a similar topic. This research is being written as part of the graduation lab 'User Perspectives', led by ir. H.J.M. Vande Putte. "The user of the built environment, as an individual, organisation, society or the world's population, is the ultimate reference for all management practices in the built environment." (Theme description). Being part of this graduation lab sparked my effort to elaborate on the different kinds of users / perspectives and their values, yet focussing on the way municipalities choose to deal with them.

This thesis marks my last year being part of the master track Management in the Built Environment of the MSc Architecture, Urbanism and Building Sciences. Looking back at two educational and exciting years, I now see what I learned about doing research, real estate management, building (or adaptive reuse) processes and the different responsibilities in these processes. This thesis provided the opportunity to apply this knowledge, yet also showed where I still lack(ed) knowledge. For instance, understanding the complexity and multiplicity of the involvement of the municipality took some effort.

Next to this, this thesis also has a strong connection with the general master and the department of Management in the Built Environment by my two mentors, representing the chair Public Real Estate (section Real Estate Management) and also Public Commissioning (section Design and Construction Management).

3.2 SCIENTIFIC RELEVANCE

The scientific relevance of this building is clear and apparent. It explores the municipal involvement in the adaptive reuse of industrial heritage buildings specifically, something that has not been done before. Other research focus on a broader context, and are often not very applicable anymore due to the changed attitude of governments in the Netherlands. This thesis also includes more recently delivered projects. However, more research is also needed in more broader contexts (and also in this more narrow context), to be able to come to more general conclusions and make other comparisons. This might also provide more insight in the reasons why municipalities choose for a specific type of involvement.

Furthermore, previous research often rationalizes the process structure, not taking the practical complexity in to account. This research focusses on this complexity and the way the process works out in practice, based on empirical research.

Next to this, this thesis also aims to describe the value trade-off that happens during adaptive reuse processes of industrial heritage. Public values are inventoried and their use is studied in practice. This is more common in the scientific field, yet not particularly for industrial heritage and its adaptive reuse. However, in practice, it is hard to find and/or describe this value trade-off, since often stakeholders are not consciously engaging in this value trade-off. This also requires more additional research.

The methodology has changed during my graduation process. Where I started wanting to conduct three in-depth case-studies, this changed into more 'trivial' case studies, due to the hard task to find enough interviewees in the first three case studies. This change might not have been the best for the most qualitative result and insight in value trade-offs, yet does provide the opportunity to compare more cases and come to more general conclusions. This decision is also mainly based on the possibilities at hand.

3.3 DATA COLLECTION

Overall, the data collection for this research went well, having a clear structure for both the market review and case studies. However, as mentioned, first focussing on three case-studies caused a lack of interviewees, leading to the broadening of this research to six cases. It was hard to find enough interviewees, experiencing a lot of people being (too) busy, not available (e.g. due to holiday or not working for the involved party anymore, and/or just not interested in participation. While this was demotivating and hard to deal with in the beginning, after the switch to more case studies I found more internal motivation and people wanting to participate in my research.

Conducting the interviews went quite decently, yet interviewees often found it difficult to indicate which values they took into account. It often helped to give them some direction in what they could think of, yet this might also steer them towards a certain direction. Next to this, some interviewees did not have all the needed information at hand, requiring some follow-up contacts. Most interviewees also struggled giving the municipal involvement a 'name' or categorizing it as a certain type. Interviewees often spoke about active/passive involvement, yet did not focus on a specific approach or steering role. This also shows the difference between theoretical models and experience in practice.

Next to this, for the market review and case studies, external documentation was collected about the projects. While some project are elaborately documented, other projects almost have no description of the project or process publicly accessible.
This complicated the execution of this project, yet also disables other researchers or stakeholders in these processes to learn from similar projects.

3.4 PLACEMENT IN FRAMEWORKS AND TRANSFERABILITY

While this research adds a lot to the academic field and fills a part of a clear knowledge gap, I wonder if the research will systematically change the academic field or practice. I hope it can give other researchers an insight in how these processes work and the different types of involvements municipalities can take, since few research elaborate on this. I hope it sparks others interest, pursuing more research in this academic field.

Next to its worth to the academic system, I believe it has added value to municipalities as well. It can provide them with new insights about their own approach, get inspired by other approaches or learn about new instruments. The concrete list of instruments could be used by municipalities in their search for their approach to a new (adaptive reuse of industrial heritage) project. Currently, municipalities often do not look at theoretical models, also mentioned by an interviewee (E1): "We never look at (theoretical) models, nor do we know them.". It shows the gap between the academic world and practice, which also lead to the encouragement to list specific instruments that municipalities can use in practice as part of this research.

3.5 ETHICAL ISSUES AND CONSIDERATIONS

Conducting this research did not cause the experience of many ethical issues or dilemma´s. Most interviewees were very open and honest, giving a real insight in their activities in the process and their thinking process. However, some also tried to ´sell´ their project, being proud of their achievement and dodging the serious evaluation of faults on their side or the municipality´s side. In such conversations, direct questions were asked about barriers, disadvantages of a certain approach or conflicts. This gave room to also evaluate some more negative aspects of the process.

The research gave two stakeholders in each case the opportunity to speak about their experiences. This might give an one-sided view, disabling other stakeholders to speak their mind and being in a position where they might be talked about, yet do not have the opportunity to give a reaction or talk about the experience from their perspective. This method was chosen due to the experience that in some cases more stakeholders were not available, therefore focussing on the perspective of the municipality and the perspective of the owner or main user.

Next to this, all interviewees signed the informed consent form, giving permission to use their information in this research. They also gave a second consent during the interview itself. Other information illustrated is drawn from other (mainly academic) sources. The analysis is for the major part based on theoretical models, forcing the researcher to look at the cases from multiple perspectives. The research was conducted carefully and with precision, yet also transparent to the involved interviewees and other stakeholders.

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APPENDIXES

I Interview protocol

This interview protocol is formed to support the interviews that will be conducted for the master thesis research performed by H.L.F. Coes, called ' Enabling the adaptive reuse of industrial heritage: A municipal perspective'. The research aims to describe different types of local government involvement in the adaptive reuse of industrial heritage, and the strengths and weaknesses of these different types in the adaptive reuse process. Therefore, the main research question of this research is as follows: How can the involvement of the local government enhance the adaptive reuse (process) of industrial heritage? This interview protocol guides the researcher through conducting the interview. However, since the interviews will have a semi-structured character, the interviews also require an adequate adjustment of questions and follow-up questions, dependent on the course of the interview.

The interviews will be conducted either in a physical meeting or online meeting, dependent on the interviewee's preference. In both cases, the interview will be recorded using Microsoft Teams (after written informed consent), as well as a recording on the researcher's phone.

Two different interview formats are developed, one for interviewees representing the municipality, and one for other types of stakeholders in the case studies. The first type also entails questions about the process around and reasons for choosing their type of involvement. The formats will be described hereafter, and will be described in Dutch language, since it is expected that the interviews will be conducted in Dutch.

Municipality

Opening
Vanaf nu zal het gesprek worden opgenomen. Welkom 'naam participant' en fijn dat u deel wilt nemen aan dit interview en mijn afstudeeronderzoek. Ik ben Nick Coes en zoals u weet doe ik onderzoek naar de rol van publieke organisaties in de herbestemming van industrieel erfgoed. In dit onderzoek bekijk ik verschillende case studies, waar project 'naam project' er één van is. Daarom ben ik erg blij met uw deelname!

Voordat we beginnen met het interview, wil ik u nogmaals vragen om toestemming om dit interview op te nemen en of u officieel deel wilt nemen aan dit interview. De informatie die u in dit interview verstrekt, wordt alleen gebruikt voor het onderzoek zoals ik deze aan u heb beschreven, en focust zich dus met name op uw ervaringen binnen project 'naam project'. Gaat u daarmee akkoord? (afwachten antwoord ja/nee) Fijn, dan gaan we nu over naar de vragen van het interview!

Introductie
Ik zou graag beginnen met wat vragen over uw rol en uw werkzaamheden binnen de gemeente.
- Kunt u uw rol binnen de 'naam gemeente' beschrijven?
- Kunt u kort wat vertellen over met wat voor projecten u vaak bezig bent?

Project en impact
U was betrokken bij de herbestemming van 'naam project'.
- Zou u 'naam project' kunnen omschrijven?
- Wat was het doel van het project? Welke impact wilden jullie maken met de herbestemming van 'naam project'? U kunt hierbij denken aan doelen vanuit het organisatorische, functionele, financiële of fysieke perspectief.
- Wat denkt u dat er zou gebeuren als dit project niet was uitgevoerd?

Proces
Ik zou nu graag inzoomen op het herbestemmingsproces van 'naam project' en de verschillende belangen die hebben gespeeld.
- Hoe zag het proces eruit rondom de herbestemming van dit project? Welke stappen zijn er doorlopen?
- Welke belangen speelden er in dit project?
- Waren er conflicterende belangen? Zo ja, hoe is dit conflict aangepakt en/of opgelost?

Betrokkenheid gemeente
Zoals u weet gaat mijn onderzoek over de rol van de gemeente in de herbestemming van industrieel erfgoed.
- Wat was de rol van de gemeente in dit proces?
- Heeft u deze rol afgestemd op de potentie van het gebied en betrokken partijen? Zou u bij andere omstandigheden een andere rol aannemen?
- Kunt u beschrijven wat de voor- en nadelen waren voor u als gemeente om deze rol in te nemen?
- Kunt u beschrijven wat de voor- en nadelen waren voor het project door deze rol in te nemen?

Publieke belangen
De gemeente wordt vaak als verantwoordelijke geacht om de publieke belangen te vertegenwoordigen.
- Waarom heeft de gemeente gekozen voor dit type betrokkenheid?
- Denken jullie bewust na over hoe jullie je opstellen in deze projecten, en zo ja, hoe pakken jullie dat denkproces aan?
- Welke (conflicterende) belangen nemen jullie in overweging bij het kiezen van jullie type betrokkenheid?

Afsluiting
Dit waren de inhoudelijke vragen van mijn kant.
- Is er nog iets wat u wil toevoegen of kwijt wil qua informatie voor dit interview?

Dan was dit de laatste vraag voor het interview. Ik wil u nogmaals bedanken voor uw tijd en deelname aan dit onderzoek, dit helpt enorm! Ik zal u de transcripts van dit interview toesturen zodat u deze kan accorderen, en ook zal ik aan het einde van mijn onderzoek u de resultaten toesturen. Mocht u geen vragen meer hebben, wil ik dit interview graag afsluiten. Mocht u op een later moment nog vragen of opmerkingen hebben, neem dan gerust contact met me op. Dank nogmaals voor uw deelname!

Other stakeholders

Opening
Vanaf nu zal het gesprek worden opgenomen. Welkom 'naam participant' en fijn dat u deel wilt nemen aan dit interview en mijn afstudeeronderzoek. Ik ben Nick Coes en zoals u weet doe ik onderzoek naar de rol van publieke organisaties in de herbestemming van industrieel erfgoed. In dit onderzoek bekijk ik verschillende case studies, waar project 'naam project' er één van is. Daarom ben ik erg blij met uw deelname!

Voordat we beginnen met het interview, wil ik u nogmaals vragen om toestemming om dit interview op te nemen en of u officieel deel wilt nemen aan dit interview. De informatie die u in dit interview verstrekt, wordt alleen gebruikt voor het onderzoek zoals ik deze aan u heb beschreven, en focust zich dus met name op uw ervaringen binnen project 'naam project'. Gaat u daarmee akkoord? (afwachten antwoord ja/nee) Fijn, dan gaan we nu over naar de vragen van het interview!

Introductie
Ik zou graag beginnen met wat vragen over uw rol en uw werkzaamheden binnen de gemeente.
- Kunt u uw rol binnen de 'organisatie X' beschrijven?
- Kunt u kort wat vertellen over met wat voor projecten u vaak bezig bent?

Project en impact
U was betrokken bij de herbestemming van 'naam project'.
- Zou u 'naam project' kunnen omschrijven?
- Wat was het doel van het project? Welke impact wilden jullie maken met de herbestemming van 'naam project'? U kunt hierbij denken aan doelen vanuit het organisatorische, functionele, financiële of fysieke perspectief.
- Wat denkt u dat er zou gebeuren als dit project niet was uitgevoerd?

Proces
Ik zou nu graag inzoomen op het herbestemmingsproces van 'naam project' en de verschillende belangen die hebben gespeeld.
- Hoe zag het proces eruit rondom de herbestemming van dit project? Welke stappen zijn er doorlopen?
- Welke belangen speelden er in dit project?
- Waren er conflicterende belangen? Zo ja, hoe is dit conflict aangepakt en/of opgelost?

Betrokkenheid organisatie
We gaan nu over naar uw eigen ervaringen binnen dit proces.
- Wat was uw rol binnen dit proces?
- Wat voor variabelen of waardes waren voor u belangrijk in dit proces?

Betrokkenheid gemeente
Zoals u weet gaat mijn onderzoek over de rol van de gemeente in de herbestemming van industrieel erfgoed.
- Wat was de rol van de gemeente in dit proces?
- Vindt u deze rol goed afgestemd op de potentie van het gebied en betrokken partijen? Zou u bij andere omstandigheden een andere rol voor de gemeente hebben voorgesteld?
- Kunt u beschrijven wat de voor- en nadelen waren voor u als gemeente om deze rol in te nemen?
- Kunt u beschrijven wat de voor- en nadelen waren voor het project door deze rol in te nemen?

Publieke belangen
De gemeente wordt vaak als verantwoordelijke geacht om de publieke belangen te vertegenwoordigen.
- Waarom denkt u dat de gemeente kiest voor deze rol in dit project?
- Welke (conflicterende) belangen vindt je dat de gemeente in overweging moet nemen bij het kiezen van hun rol in dit soort projecten?

Afsluiting
Dit waren de inhoudelijke vragen van mijn kant.
- Is er nog iets wat u wil toevoegen of kwijt wil qua informatie voor dit interview?

Dan was dit de laatste vraag voor het interview. Ik wil u nogmaals bedanken voor uw tijd en deelname aan dit onderzoek, dit helpt enorm! Ik zal u de transcripts van dit interview toesturen zodat u deze kan accorderen, en ook zal ik aan het einde van mijn onderzoek u de resultaten toesturen. Mocht u geen vragen meer hebben, wil ik dit interview graag afsluiten. Mocht u op een later moment nog vragen of opmerkingen hebben, neem dan gerust contact met me op. Dank nogmaals voor uw deelname!

II Informed consent form

Delft, [date] 2023

Betreft: Geïnformeerde toestemming deelname onderzoek naar [case]

Geachte heer/mevrouw,

De herbestemming van industrieel erfgoed is een grote kans, maar ook een grote uitdaging. Bij het proces rondom de herbestemming van industrieel erfgoed zijn vaak veel verschillende partijen en belangen betrokken, naast dat het ook een technische uitdaging kan zijn. De gemeente kan in dit proces verschillende rollen aannemen, wat een grote invloed kan hebben op de haalbaarheid en succes van het herbestemmingsproces. Wat precies de invloed is van deze verschillende rollen (van de gemeente) is tot dusver nog niet precies gedefinieerd. Dit onderzoek richt zich daarom op de hoe de rol van de gemeente de herbestemming van industrieel erfgoed kan stimuleren.

Daarom hoor ik graag over uw ervaringen in dit herbestemmingsproces en de rol die de gemeente in dit proces heeft gespeeld. De verschillende ervaringen die in dit onderzoek worden verzameld vormen een overzicht van verschillende rollen, en de voor- en nadelen hiervan voor de herbestemming van industrieel erfgoed.

Dit onderzoek wordt uitgevoerd door Nick (H.L.F.) Coes, als afstudeeronderzoek voor de mastertrack Management in the Built Environment bij de Faculteit Bouwkunde aan de Technische Universiteit Delft. Prof.dr.ir. Alexandra (A.C.) den Heijer (Technische Universiteit Delft) en dr. Daan (D.M.) Bossuyt (Universiteit Utrecht) begeleiden dit onderzoek.

Het interview wordt afgenomen door Nick Coes en duurt ongeveer 60 minuten. Graag zou ik het interview op willen nemen om het achteraf uit te kunnen werken. De resultaten van het onderzoek worden gepubliceerd in de openbare TU Delft repository.

Vanuit de universiteit is het beleid om nog eens apart te vragen of u mee wilt doen aan het onderzoek en of u het goed vindt om dit interview op te nemen. U mag ook nu zeggen dat u liever niet meedoet. U kunt u ook later nog bedenken en uw deelname intrekken zonder opgave van reden. U mag ook iedere vraag die wordt gesteld weigeren te beantwoorden.

Als u meedoet, wil ik u vragen om uw handtekening onderaan deze brief te zetten en een pdf aan mij te retourneren. Ik zet dan ook mijn handtekening, zodat u zeker weet dat er vertrouwelijk wordt omgegaan met uw gegevens en antwoorden. Uw naam zal in het onderzoek worden geanonimiseerd, maar graag vraag ik toestemming om uw functie en organisatie wel te publiceren, zodat het duidelijk is wat de ervaringen waren van welk type stakeholder in het proces. Ik zal uw naam- en contactgegevens meteen na afloop van het onderzoek vernietigen.

Als u vragen heeft over dit onderzoek, kunt u contact met me opnemen via e-mail (h.l.f.coes@student.tudelft.nl) of telefoon (+31 (0)6 22601567).

Als u mee wilt doen aan dit interview, wilt u dan de onderstaande verklaring invullen en ondertekenen?

Met vriendelijke groet,

Nick Coes

In te vullen door deelnemer interview

1. Ik verklaar op een voor mij duidelijke wijze te zijn ingelicht over de aard, methode, doel en belasting van het onderzoek.

2. Mijn eventuele vragen vooraf zijn naar tevredenheid beantwoord.

3. Ik geef vrijwillig toestemming om deelnemer te zijn aan dit onderzoek en begrijp dat ik het recht heb om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen of vragen weigeren te beantwoorden.

4. Ik begrijp dat het geluids- en/of beeldmateriaal (of de bewerking daarvan) en de overige verzamelde gegevens uitsluitend voor analyse en wetenschappelijke presentatie en publicaties zal worden gebruikt.

5. Ik begrijp dat er persoonlijke data wordt verzameld bij dit onderzoek en dat deze aan het einde van het onderzoek zal worden vernietigd.
6. Ik geef toestemming voor het gebruik van quotes in de publicatie van het onderzoek, gekoppeld aan mijn functietype en organisatie, welke ook zal worden opgenomen in de TU Delft repository.

7. Ik heb dit formulier gelezen (of het formulier is mij voorgelezen) en ik stem in met deelname aan het onderzoek.

Graag ontvang ik aan het eind van het onderzoek een korte samenvatting van de resultaten van het onderzoek. Om deze reden verleen ik toestemming om mijn naam- en adresgegevens tot het eind van het onderzoek te bewaren. (JA / NEE)

Handtekeningen:

Plaats:
Datum:

_ _
(volledige naam, in blokletters)

_ _
(handtekening deelnemer)

'Ik heb toelichting gegeven op het onderzoek en waarvoor de deelnemer vrijwillig toestemming verleend. Ik verklaar me bereid nog opkomende vragen over het onderzoek naar vermogen te beantwoorden.'

II Transcript analysis

The following three tables show which labels (in AtlasTI called 'codes') are used if certain characteristics are mentioned in the transcript of the interviews. These codes are generated based on theories that will are discussed in Part B of this thesis or the context of the interview. Next to the codes described in the tables, some are used for categorization:

- Type of stakeholder: Controller (SH_controller), Engineer (SH_engineer), Policy-maker (SH_policy-maker), User (SH_user) and Municipality (SH_municipality)
- The scale on which the public value applies: City/region (SC_3_city-region), Area (SC_2_area), and project (SC_1_project)
- Important quotes (!_quotes) or preliminary conclusions (!_conclusions)

Involvement municipality

Type of government involvement	Coded when municipality...
Let go / wait (GI_let-go_wait) High potential parties, high potential area	▪ does not take action themselves, or gives other parties the assignment to take the responsibility. ▪ takes a reactive approach, only taking part when asked or needed.
Stimulate / align (GI_stimulate_align) High potential parties, low potential area	▪ uses instruments to align various perspectives or users (e.g. develop vision) ▪ takes part in an intensive collaboration form ▪ is actively involved and stimulates others to persist
Invite / initiate (GI_invite_initiate) Low potential parties, high potential area	▪ is owner of the building and/or invites other parties to join the project ▪ invites other parties to come up with ideas or take charge
Arrange / provide (GI_arrange_provide) Low potential parties, low potential area	▪ makes specific contributions, either financial or in kind ▪ provides subsidies (also on higher levels)
Guide (ST_guide) From distance, soft steering	▪ provides documents or plans that highlight their vision or priorities
Regulator (ST_regulator) From distance, hard steering	▪ uses instruments to control certain developments ▪ has the authority to accept/reject options, e.g. via budget, commissions and/or regulations
Stimulator (ST_stimulator) In collaboration, hard steering	▪ makes contributions, either financial or in kind ▪ allow or arrange changes in the area to strengthen the project
Connector (ST_connector) In collaboration, soft steering	▪ work together and/or take part in a partnership ▪ align various perspectives, e.g. end-users or other inhabitants of the city ▪ connect different stakeholders for the project's benefit

Public values

Type of perspective	Type of value	Coded when spoken about...
Organisational perspective (IM_ organisational)	**Societal** value (PV_societal)	▪ impact on the way a big group of people can use the building ▪ meaning for the city or big area ▪ being open for everyone person in society
	Cultural value (PV_cultural)	▪ monumental status ▪ attracting cultural institutions or projects
	Branding value (PV_branding)	▪ the way the project puts the area or city on the map ▪ attracting new types of people ▪ the character or atmoshphere of the building and area
Functional perspective (IM_functional)	**User** value (PV_user)	▪ added value for people using the project ▪ being a great environment for certain users ▪ barriers for good use of the building (e.g. acoustics) ▪ logical / logistical lay-out ▪ possibilities to use the building
Financial perspective (IM_financial)	**Property** value (PV_property)	not coded
	Financial value (PV_financial)	▪ financial agreements ▪ stimulating the local/regional economy ▪ importance of the budget
Physical perspective (IM_physical)	**Environmental** value (PV_environmental)	▪ presence of projects that impact the AR project ▪ sustainability / climate interventions ▪ nuisance (e.g. noise/waste)
	Architectural value (PV_architectural)	▪ changing existing structures ▪ changing interior to create a good atmosphere ▪ uniqueness of the architecture (style)

Phasing process

Type of phase	Coded when talked about...
Pre-project phase (AR_1_pre-project)	▪ situation before intervention ▪ initiative ▪ first conversations about AR project ▪ collaboration agreement ▪ buying the plot/building
Preparation phase (AR_2_preparation)	▪ preparing vision ▪ regulations to prepare AR (e.g. change zoning plan) ▪ design ▪ temporary use of buildings ▪ finding tenants ▪ finding financial resources ▪ bigger (area) projects to make project possible ▪ selection architect / other building parties
Implementation phase (AR_3_implementation)	▪ execution of transformation itself ▪ dividing the project in sub-projects
Post-completion phase (AR_4_post-completion)	▪ impact after completion ▪ maintenance ▪ evaluation ▪ other interventions after completion ▪ future of the project

IV Data management plan

This Data Management Plan is made using the DMP Online tool of Delft University of Technology. This plan, together with the HREC (Human Research Ethics) Checklist, has been approved by the TU Delft Ethics Committee.

Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.
My faculty data steward, Diana Popa, will review this DMP.

2. Date of consultation with support staff.
N.A.

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	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
Qualitative information from external project documents for case studies	.pdf .docx	Online	Description of case studies	TU Delft OneDrive	Research team
Qualitative information from internal project documents for case studies	.pdf .docx	Participants	Description of case studies	TU Delft OneDrive	Research team
Email adresses / phone numbers for digital communication of interviewees	.xslx	Online or via other participants	Communication about planning and content of interviews	TU Delft OneDrive	Principal investigator
Occupation and representing organisation of interviewees	.xslx	Participants	Categorization of type of interviewees	TU Delft OneDrive	Everyone, published in report (asked for consent)
Transcripts of interviews	.docx	Interviews with participants	Description case studies and role of local government	TU Delft OneDrive	Only main researcher

4. How much data storage will you require during the project lifetime?
- < 250 GB

Documentation and data quality

5. What documentation will accompany data?
   - README file or other documentation explaining how data is organised
   - Data dictionary explaining the variables used
   - Methodology of data collection

Storage and backup during research process

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

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, ask your Faculty Data Steward for advice. You can also check with the privacy website or contact the privacy team: privacy-tud@tudelft.nl
Yes

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.
Yes, confidential data received from commercial, or other external partners.

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 datasets underlying the published papers will be publicly released following the TU Delft Research Data Framework Policy. During the active phase of research, the project leader from TU Delft will oversee the access rights to data (and other outputs), as well as any requests for access from external parties. They will be released publicly no later than at the time of publication of corresponding research papers.

10. Which personal data will you process? Tick all that apply
   - Data collected in Informed Consent form (names and email addresses)
   - Signed consent forms
   - Photographs, video materials, performance appraisals or student results
   - Email addresses and/or other addresses for digital communication
   - Telephone numbers
   - Names and addresses

11. Please list the categories of data subjects
Stakeholders part of the case study projects: Employees of municipalities in the Netherlands, and other stakeholders involved in these projects (either representative of an organisation or personally), researchers at TU Delft or other academic institutions.

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:
All study participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview.

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 you have any additional comments, please add them in the box below.
Sensitive personal data

19. Did the privacy team advise you to perform a DPIA?
No

22. What will happen with personal research data after the end of the research project?
Anonymised or aggregated data will be shared with others
Personal research data will be destroyed after the end of the research project

23. How long will (pseudonymised) personal data be stored for?
10 years or more, in accordance with the TU Delft Research Data Framework Policy

24. What is the purpose of sharing personal data?
For research purposes, which are in-line with the original research purpose for which data have been collected

25. Will your study participants be asked for their consent for data sharing?
Yes, in consent form

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

29. How will you share research data (and code), including the one mentioned in question 22?
All anonymised or aggregated data, and/or all other non-personal data will be uploaded to 4TU.ResearchData with public access

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

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

Data responsibility and resources

33. Is TU Delft the lead institution for this project?
Yes, the only institution involved
My second mentor (dr. D.M. Bossuyt) is working at Utrecht University since the second half of this graduation project (yet worked at the TU Delft from September - February).

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

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)?
4TU.ResearchData is able to archive 1TB of data per researcher per year free of charge for all TU Delft researchers. We do not expect to exceed this and therefore there are no additional costs of long term preservation.

Project name	Location	Source(s)	Year	Urban development	Original use	New use	Size	Original owner(s)	New owner(s)	Users	Architect	Developer / contractor
Stoomweverij	Aalten	Herbestemming.nl	2017	N.A.	Steam weaving	Company building & healthcare	2.900	N.A.	TPN Groep	Various organizations	Architektengroep Gelderland, Arnoo Holleman	TPN Groep
Ringers Chocoladefabriek	Alkmaar	Knol (2013)	2020	N.A.	Factory	Shopping centre & housing	N.A.	Ringers	MAB Development	Various organizations	Hurenkamp architecten & adviseurs	Ten Brinke
Indië - de Sterkerij & Spoelerij	Almelo	Loos (2014)	2016	Indië	Factory	Housing & other mixed functions	N.A.	Ten Cate	Ter Steege Vastgoed	Housing & various organizations	N.A.	N.A.
De Baronie	Alphen aan den Rijn	ArchitectuurNL	2014	Rijnhavengebied	Factory	Shopping centre & offices	19.000	N.A.	Green Real Estate	Various organizations	S2 Architecten	N.A.
Rohm & Haas	Amersfoort	Hermans (2012), herbestemming.nl & van den Berg (2012)	2011	Oliemolenkwartier / Eemkwartier / Centraal Stadsgebied	Factory	Culture cluster & offices	2.320	Municipality of Amersfoort	BOEi	Various organizations	ZEEP Architecten	Jurriens Bouw
Veerensmederij	Amersfoort	Van den Berg (2012)	2010	Wagenwerkplaats	Forge	Music	1.300	Municipality of Amersfoort	Municipality of Amersfoort	Holland Opera	Han van Zwieten Architecten	N.A.
Wagenwerkplaats	Amersfoort	Herbestemming.nl	2000	Wagenwerkplaats	Warehouse & workshop	Creative industry & event location	N.A.	N.A.	NS Poort	Various organizations	WVAU-Architecten, Van Zwieten Architecten	N.A.
De Hallen	Amsterdam	Hermans (2012) & Bos (2016)	2019	Hallen Noord	Depot & workshop	Shops, entertainment, culture, horeca	15.000	Municipality of Amsterdam	Stichting TROM (foundation)	Various organizations	Buro van Stigt	De Nijs
Centrale Markthal	Amsterdam	BOEi	Not delivered yet	Marktkwartier / Food Center	Market hall	Foodhall, event location	6.000	N.A.	BOEi	Various organizations	Civic Architects	Ontwikkelingsbedrijf Gemeente Amsterdam, Ballast Nedam, VolkerWessels
Graansilo's	Amsterdam	Herbestemming.nl	2000	Silodam	Silo	Housing	20.000	N.A.	Rabo Vastgoed / Buurt Ontwikkeling Maatschappij Graansilo's / De Principaal	Housing	Buro van Stigt	De NIjs
Kauwgom ballenfabriek	Amsterdam	Scheltens et al. (2008)	2008	Kauwgomballenkwartier	Factory	Offices & meeting centre	22.000	Maple Leaf	Lingotto	Various organizations	NEXT Architecten, Mei Architecten	KBK Bouwgroep
A-Factorij	Amsterdam	Scheltens et al. (2008)	2002	de Schinkel	Factory & storage	Company building & offices	12.700	Brocacef	A-Factorij BV	Various organizations	Neutelink Riedijks Architects	N.A.

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Timmerij - Mediawharf	Amsterdam	Scheltens et al. (2008)	2007	NDSM	Workshop	Offices	6.500	Municipality of Amsterdam	RedConcepts	Various organizations	Max van Aerschot Architecten	RedConcepts
CREA	Amsterdam	Herbestem-ming.nl	2012	Roeterseiland	Factory	Cultural clustre	5.660	N.A.	Universiteit van Amsterdam	CREA / Uni-versiteit van Amsterdam & Hogeschool van Amsterdam	Joost Glisse-naar, Architec-ten van Mourik	BK Bouw
Valscherm	Amsterdam	Van den Berg (2012)	2009	Schinkel	Workshop	Offices	970	N.A.	Paul de Ruiter Architects	Paul de Ruiter Architects	Paul de Ruiter Architects	De Nijs
Westergas-fabriek	Amsterdam	Herbestem-ming.nl, Knol (2013) & Cerutti (2011)	2008	Westerpark	Factory	Event location	3.000	Municipality of Amsterdam	Meijer-Berg-mans NV	Westergas & various organi-zations	Braaksma & Roos	Jurriens Bouw
Arnhems Buiten	Arnhem	Simons (2011)	Not deliv-ered yet	Anrnhems Buiten / KEMA-terrein	Place of in-novation	Company buildings & offices	37.000	DNV-GL / CESI	City Devel-oper-S, Per-spectieffonds Gelderland, Propertize	Various organizations	N.A.	N.A.
Coberco Melkfabriek	Arnhem	BOEi	Not deliv-ered yet	N.A.	Factory	Multiple functions	N.A.	N.A.	BOEi	De Melkfabriek	Studionine-dots	N.A.
Oude Remise Bad Nieuweschans	Bad Nieu-weschans	herbestem-ming.nl	2004	N.A.	Silo & remise	Cultural centre, event location	1.300	N.A.	Stichting DBF	Various organi-zations	Timmer Architecten & Adviseurs	Friso Bouwgroep
Weverij de Ploeg	Bergeijk	Online	2016	N.A.	Weaving	Visiting centre	8.000	De Ploeg	Bruns	Bruns	Dierendirrix, Atelier van Assendonk	Bruns
Steenfabriek de Bunswaard	Beuningen	BOEi	2016	N.A.	Factory	Housing	N.A.	Burgers	BOEi	Housing	Ontwerp-buro Roza, Hurenkamp Architecten + Adviseurs	Claus
Het Ketelhuis De Bleekerij	Boekelo	Herbestem-ming.nl	2009	N.A.	Kettle house & warehouse	Offices, retail & housing	N.A.	N.A.	VVE Ketelhuis	Various organizations	Beltman Architecten	Ter Steege
Bierbrouwerij De Drie Hoefijzers	Breda	Lelie (2012)	2010	Drie Hoefijzers	Brewery	Offices	2.800	AM	Kaavee Monumenten	Various organizations	W3 Archi-tecten	N.A.
Eemlandia-Melkfabriek	Bunschoten	Herbestem-ming.nl	2022	N.A.	Factory	Housing & offices	800	N.A.	HMV	Various organizations	Bureau Bos	Koelewijn Bouw

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Gelderland-fabriek	Culemborg	Herbestem-ming.nl	2016	N.A.	Factory & storage	Company building & creative industry	1.900	N.A.	De Waal Utrecht	De Gelderland-fabriek	Menno Slijboom	Dijkhof Bouw
Grote Kantoor DSM	Delft	BOEi	2021	N.A.	Factory	Offices	N.A.	DSM	BOEi	Various organizations	N.A.	N.A.
Zwarte Silo	Deventer	BOEi	2021	N.A.	Silo	Foodhall	N.A.	Municipality of Deventer	BOEi	De Zwarte Silo	Wenink Holtman Architecten	Hanzebouw, Bouwbedrijf Hoffman
Villa Augustus	Dordrecht	Herbestem-ming.nl	2007	N.A.	Water tower	Horeca & hotel	850	N.A.	New York Vastgoed	Hotel Villa Augustus	New York Vastgoed	van Milt & Slotboom
ENKA Kantinegebouw	Ede	RCE & BOEi	2020	ENKA	Canteen of factory	Education & meeting place	4.000	N.A.	BOEi	De Ontdekking	N.A.	Koninklijke Woudenberg
Kastanjefabriek	Eibergen	Herbestem-ming.nl	2018	N.A.	Factory	Hotel	1.500	N.A.	Heinen & Stellinga	De Kastanjefabriek	Ketelaar	Heinen
Fifth	Eindhoven	Herbestem-ming.nl	2019	NRE-terrein	Factory	Club	1.700	N.A.	Avenue NRE BV	Fifth	De Bever Architecten	Van Rijswijck
Gasfabriek NRE	Eindhoven	Herbestem-ming.nl	2018	NRE-terrein	Factory	Horeca	3.000	Endinet	Stiphout, Wil-lems & Willems or OKKO Project	Various organizations	De Bever Architecten	N.A.
Klokgebouw	Eindhoven	Cerutti (2011)	Partly deliv-ered	Strijp-S	Industrial estate / factory	Company building & event location	45.000	Philips	Sint Trudo (housing corporation)	PopEi, Blue Collar, Veem, various organizations	FAAM Architecs, van Helmond Architecten	Stam + de Koning
De Witte Dame	Eindhoven	Herbestem-ming.nl	1998	Binnenstad	Factory	Cultural clustre, eduction & healthcare	37.000	Philips	Municipality of Eindhoven & Design Academy	Design Academy, Gemeentelijke Openbare Bibliotheek, several cultural organizations	Dierendirrix Architecten	De Witte Dame VOF
De Hangar	Eindhoven	Van den Berg (2012) & herbe-stemming.nl	2009	Meerrijk / Meerhoven	Hangar	Education & cultural centre	8.600	N.A.	Woonveste Vastgoed	De Hangar	Diederendirrix Architecten	Woonveste Bouw
Ketelhuis Ceres	Eindhoven	Herbestem-ming.nl	2012	TU/e Campus	Kettle house	Education & offices	2.200	TU Eindhoven	TU Eindhoven	ICMS	Dierendirrix Architecten	Hurks Bouw
NJ Menko	Enschede	Herbestem-ming.nl	2008	N.A.	Factory	Housing, retail & education	4.840	N.A.	De Woonplaats	Basisschool Menkotoren, various organizations	Architecten-forum	N.A.
Zeepfabriek De Ster	Etten-Leur	BOEi	2014	N.A.	Factory	Offices & horeca	N.A.	Municipality of Etten-Leur	BOEi	N.A.	N.A.	N.A.

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Melkfabriek De Eendracht	Garyp	Online	2014	N.A.	Factory	Housing	N.A.	N.A.	Timmermans	Various organizations	N.A.	Timmermants-joender
Dongecentrale	Geertruiden-berg	BOEi	2019	N.A.	Powerplant	Offices & event location	N.A.	N.A.	BOEi & Province of Noord-Brabant	Various organizations	N.A.	N.A.
Mediacentrale	Groningen	Scheltens et al. (2008)	2005	N.A.	Powerplant	Offices	18.330	Municipality of Groningen	SIG Real Estate	Various organizations	De Zwarte Hond	N.A.
Pakhuis Waterborg	Groningen	Herbestem-ming.nl	2010	N.A.	Warehouse	Housing	N.A.	Municipality of Groningen	De Huismeesters	Various organizations	KAW Architecten en adviseurs	N.A.
Puddingfabriek	Groningen	Herbestem-ming.nl	2003	N.A.	Factory	Company building	N.A.	Municipality of Groningen	SIG Real Estate / TCN	Various organizations	N.A.	N.A.
Hazemeijer	Hengelo	BOEi	2013	N.A.	Factory	Offices, housing, event loca-tion	N.A.	N.A.	Roelofs & Haase	Various organizations	N.A.	Roelofs & Haase
Koninklijke Machinefabriek Stork	Hengelo	Loos (2014)	Not deliv-ered yet	Hart van Zuid	Factory	TBD	N.A.	Municipality of Hengelo	N.A.	N.A.	N.A.	N.A.
ROC Twente	Hengelo	Van den Berg (2012)	2008	Hart van Zuid	Iron foundry	Education	56.500	Stork	ROC Twente	ROC Twente	IAA Archi-tecten, Archi-tectenbureau Fritz	N.A.
Pakhuis Hartenlust	Leeuwarden	Herbestem-ming.nl	2011	Tulpenberg	Iron foundry & warehouse	Company building & housing	N.A.	N.A.	LontPlan	Various organizations	Jelle de Jong Architecten	Bouwbedrijf Lont
Meelfabriek	Leiden	Herbestem-ming.nl	2022	N.A.	Factory	Creative industry, offices & housing	55.000	N.A.	Ab van der Wiel	Various organizations	Studio Akkerhuis	N.A.
Nieuwe Energie	Leiden	Cerutti (2011) & herbestem-ming.nl	2008	N.A.	Factory	Offices	8.000	Clos & Leembruggen	Portaal	Various organizations	Architecten-bureau J. van Stigt	N.A.
Gemaal de Lynden	Lijnden	BOEi	2015	N.A.	Pumping station	Restaurant & confer-ence centre	N.A.	Hoogheem-raadschap van Rijnland	BOEi	Bij Qunis	kerssens de ruiter Architecten	N.A.
Steenfabriek De Werklust	Losser	BOEi	2017	N.A.	Factory	Museum & event l ocation	N.A.	N.A.	Municipality of Losser / BOEi	Stichting Steenfabriek De Werklust	N.A.	N.A.
Timmerfabriek Sphinxkwartier	Maastricht	van Hout (2021) & herbestem-ming.nl	2019	Sphinxkwartier	Factory	Music venue, museum & offices	4.200	Koninklijke Sphinx	Municipality of Maastricht	Bureau Europa & Muziekgieterij	Maurer United Architects	BAM

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ENCI / AINSI Cementfabriek	Maastricht	BOEi & herbestemming.nl	Not delivered yet	N.A.	Packaging building	Multiple functions	6.740	ENCI	ENCI	Various organizations	Hoen Archicten	BOEi
Gasfabriek	Meppel	Van den Berg (2012)	2018	N.A.	Factory	Offices & creative industry	3.540	N.A.	Arnoud Olie	Various organizations	B+O Architecten	N.A.
Tinfabriek	Naarden	Herbestemming.nl	2018	N.A.	Factory	Offices, company building, car dealer	6.400	N.A.	Mr. Van der Burg	Volvo, other organizations	Vocus Architecten	N.A.
De Vasim	Nijmegen	Online	Not delivered yet	NYMA-terrein	Factory	Creative industry & event location	N.A.	N.A.	Developer Lingotto	Various organizations	Zecc Architecten	Klok Bouwgroep
Honigcomplex	Nijmegen	Online	Not delivered yet	Waalfront	Factory	Multiple functions	11.000	Honig	Lingotto	N.A.	Boeijenjong Architecten, Office Winhov	Lingotto
Hoofdgebouw Koninklijke Verenigde Leder B.V. (KVL)	Oisterwijk	Lelie (2012)	2009	KVL-terrein	Factory	Housing	26.000	N.A.	BOEi / Nico de Bont	Housing	Wenink Holtman Architecten	Nico de Bont
Damastfabriek	Ootmarsum	Herbestemming.nl	2008	N.A.	Factory & warehouse	Fire station	4.400	N.A.	Municipality of Dinkelland	Fire department	Henk de Velde Architecten	Plegt Bouwgroep
Bergoss-complex	Oss	Online	2019	N.A.	Factory	Hotel, housing, offices & horeca	N.A.	Bergoss	Sheddaken Oss BV	Various organizations	Hein Koppens	N.A.
Greswaren-fabriek	Reuver	van Hout (2021) & HEVO	2019	Oppe Brik	Factory	Education & offices	5.600	N.A.	Municipality of Reuver / Educational institution	Grescollege, various organizations	Janssen Wuts Architecten	VOF Maasves-te-Berben-Koninklijke Woudenberg
ECI Cultuurfabriek	Roermond	BOEi	2012	Roerdelta	Powerplant	Culture cluster	7.500	ECI	Municipality of Roermond	Various organizations	Ton Kleinjans	SDK Vastgoed
St. Jobsveem	Rotterdam	Stuiver	2007	N.A.	Warehouse	Housing	20.000	N.A.	BAM / Volker Bouw-maatschappij	Various organizations	Mei architecten, Wessel de Jonge architecten	BAM / Volker Bouw-maatschappij
Innovation Dock RDM Campus	Rotterdam	RCE, HEVO, herbestemming.nl & Cerutti (2011)	2015	RDM Campus / Heijplaat / Stadshavens	Yard	Campus, education, workshops	34.500	RDM	Havenbedrijf Rotterdam	Hogeschool Rotterdam, Techniek College Rotterdam, various organizations	Ineke van Hulshof, PLUS Architecten, van Heerden & Partners Architecten	N.A.

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Vertrekhal Oranjelijn	Rotterdam	Cerutti (2011)	2007	Merwevier-havens	Departure hall	Company building	4.000	Havenbedrijf Rotterdam	Kooij	Various organizations	Made Architecten & Ter Veer Architecten	N.A.
Central Post	Rotterdam	Van den Berg (2012)	2009	N.A.	Distribution centre	Offices	58.600	N.A.	LSI, Fortress	Various organizations	Kraaijvanger Architecten, Claus & Kaan Architecten	N.A.
Van Nelle Ontwerpfabriek	Rotterdam	Scheltens et al. (2008) & van den Berg (2012)	2005	N.A.	Factory	Offices & creative industry	60.000	User (Sara Lee DE Utrecht)	CV van Nelle Ontwerpfabriek	Various organizations	Wessel de Jonge Archi-tecten	N.A.
Strokarton-fabriek de Toekomst	Scheemda	Knol (2013)	Not deliv-ered yet	N.A.	Factory	Horeca & event location	N.A.	N.A.	Meijer	N.A.	N.A.	N.A.
Pompstation	Schiedam	BOEi	2020	N.A.	Pumping station	Gym	N.A.	N.A.	BOEi	Pompstation Gym	BERNS architectuur, Bureau Polderman	Burgy Bouwbedrijf
Sodafabriek	Schiedam	Architec-tuurNL	Not deliv-ered yet	N.A.	Factory	Multiple functions	N.A.	Municipality of Schiedam	Vereniging De Sodafabriek	N.A.	N.A.	N.A.
De Gruyter-fabriek	's-Hertogen-bosch	Herbestem-ming.nl	2012	N.A.	Factory	Creative industry / Company building	55.000	N.A.	Investor Bossche NV / NV BIM	Various organizations	Tarra architectuur & stedenbouw	N.A.
Verkadefabriek	's-Hertogen-bosch	Online	2009	N.A.	Factory	Cultural centre	N.A.	Verkade	Gemeente Den Bosch	Stichting 'de Verkadefabriek'	Bierman Henket	BDW Bouwgroep
Gashouder	Sneek	Online	2013	N.A.	Gasholder	Office	N.A.	N.A.	Snakeware	Snakeware	Kat Archi-tecten	N.A.
Caballerofabriek	The Hague	Scheltens et al. (2008), van den Berg (2012) & Cerutti (2011)	2008	Binckhorst	Factory	Offices creative industry	14.000	Municipality of The Hague	Municipality of The Hague	Various organizations	Group A	Koninklijke Woudenberg, Homij Techni-sche Installaties
Luchthaven Ypenburg	The Hague	BOEi	2016	N.A.	Airport, station	Offices & horeca	N.A.	Projectbureau Ypenburg	BOEi	Various organizations	BERNS architectuur, HVE Archi-tecten	Heembouw
Fokker Terminal	The Hague	Van den Berg (2012)	2009	Binckhorst	Terminal	Event location	2.800	Municipality of The Hague	Municipality of The Hague	Fokker Terminal	M3H	N.A.

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RAC-hallen	The Hague	Scheltens et al. (2008)	2009	Maakhaven	Garage & parking garage	Sport, offices & meeting centre	5.600	Municipality of The Hague	Municipality of The Hague	Haagse Sport Centrale	Queeste, MIXD	N.A.
Houtloods	Tilburg	Loos (2014)	2015	Spoorzone	Storage	Horeca & offices	N.A.	Municipality of Tilburg	Stichting Houtloods	Magneds & other organizations	Bedaux de Brouwer Architecten	VolkerWessels
LocHal	Tilburg	RCE & Hermans (2012)	2019	Spoorzone	Workshop	Library, meeting centre, cultural centre	11.000	NS	Municipality of Tilburg	Library Midden-Brabant, Seats2Meet, KunstLoc Brabant	Civic Architects, Braaksma & Roos, Inside Outside, Mecanoo Architects	Binx
Deprez	Tilburg	Simons (2011)	2010	De Werkplaats / Spoorzone	Factory	Education & meeting centre	N.A.	Deprez	TBV Wonen or Municipality of Tilburg	Various organizations	Architecten-bureau J. van Stigt, BBM Architecten	Nico de Bont
Duvelhok	Tilburg	RCE & her-bestemming.nl	2016	N.A.	Factory	Cultural centre	3.000	Municipality of Tilburg	Karin Bruers	Various organizations	Bedaux De Brouwer Architecten	Nico de Bont, Bouwbureau Vitruvius
DRU Badkuipen-fabriek	Ulft	Hermans (2012) & Cerutti (2011)	2013	DRU Industriepark	Iron foundry	Multiple (public and private) functions	N.A.	DRU	Wonion	Wonion (housing)	N.A.	BOEi, Klaassen Vastgoed Ontwikkeling
Pastoefabriek	Utrecht	Herbestem-ming.nl	2016	Rotsoord	Factory	Company building & education	10.500	Pastoe	Dutch Design Fabriek	HKU, various organizations	Dutch Design Fabriek	Hendriks Bouw & Ontwikkeling
Werkspoor-kathedraal	Utrecht	Herbestem-ming.nl	2015	Zuilen	Factory	Cultural centre & event location	12.000	Werkspoor	Overvecht Vastgoed	Werkspoor-kathedraal	MONK Architecten	N.A.
Cereolfabriek	Utrecht	Bos (2016), BOEi & her-bestemming.nl	2014	Merwedekanaal	Factory	Education, cultural cluster	N.A.	SOL	BOEi	BSO Oog in AL, St. Dominicus-school, several organizations	1meter98	Blauwhoed, Hei-jmans
Fabrieksgebouw	Utrecht	Herbestem-ming.nl	2006	N.A.	Factory	Housing	N.A.	N.A.	Private	Private	Zecc Architecten	Heijmerink
CHV-terrein	Veghel	Pas (2009)	Not deliv-ered yet	Binnenhavenge-bied	Industrial site	Cultuur/ food cluster	58.960	Bouwbedrijf van de Ven	Noordkade Ontwikkeling, Province of Noord-Brabant	Various organizations	Architekten Cie	N.A.
Nedinsco	Venlo	Architec-tuurNL & her-bestemming.nl	2013	Plan Maaswaard	Factory	Housing & offices	7.000	N.A.	WoonWenz	WoonWenz	Diederendirrix Architecten	BAM

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Frederik Hendrik Kazerne	Vught	Lelie (2012)	N.A.	Stadhouders-park	Fire station	Health centre & housing	900	N.A.	Municipality of Vught	N.A.	N.A.	N.A.
Zuivelfabriek Olde Fabriek	Wapserveen	Online	2010	N.A.	Factory	Horeca	1.400	N.A.	Private	N.A.	N.A.	N.A.
Graansilo Wehl	Wehl	Architec-tuurNL & BOEi	Not deliv-ered yet	N.A.	Silo	Workunits	N.A.	N.A.	BOEi	Various organizations	Hurenkamp architecten & adviseurs	N.A.
Mandenmakerij	Wilhelmi-naoord	Herbestem-ming.nl	2010	N.A.	Factory	Housing & healthcare	600	Maatschappij van Weldadigheid	Maatschappij van Weldadig-heid	Various organizations	B+O Architecten	Broekman
Tramwerkplaats	Winschoten	Van den Berg (2012)	2008	Renselkadege-bied	Workshop	Theater	680	Municipality of Winschoten	Municipality of Winschoten	Theater de Tramwerkplaats	KAW A rchitecten en adviseurs	Stijkel Bouw
Tricot	Winterswijk	Herbestem-ming.nl	2008	N.A.	Factory	Cultural cluster & housing	N.A.	N.A.	De Woonplaats	Housing	ArchitectenCie	DuraVermeer, WBC, WAM& VanDurenBouw
Pakhuis Het Bassein	Wormer	Herbestem-ming.nl	2020	N.A.	Warehouse	Housing	1.440	N.A.	Stichting Bassein	N.A.	SARCH Architecten	MASA Bouw
Hembrugterrein	Zaandam	Herbestem-ming.nl	2014	N.A.	Industry park	Company building & event location	18.000	N.A.	Rijksvastgoed-bedrijf	Various organizations	N.A.	N.A.
Zaanse Chocolade-fabriek	Zaanstad	Cerutt (2011) & herbestem-ming.nl	2009	Verkadebuurt	Factory	Company building	18.000	Verkade	Cocon Vastgoed	Various organizations	Carree Architecten	Paauw
Het Koelhuis	Zutphen	Herbestem-ming.nl	2017	N.A.	Coldstore	Event location & offices	2.400	Municipality of Zutphen	van Tilburg & Hoogeveen	Het Koelhuis	ZILT Architecten	van Tilburg & Hoogeveen
De IJsselstroom	Zutphen	Herbestem-ming.nl	2016	N.A.	Steam weaving	Housing, cultural centre	350	N.A.	Private owners	Various organizations	Veldhoven Architecten	Christaans Bouwbedrijf
Ijsselcentrale	Zwolle	BOEi	Not deliv-ered yet	N.A.	Powerplant	Housing	N.A.	N.A.	BOEi / Engie	N.A.	N.A.	N.A.