Program Management in regional social housing construction programs

An explorative research to the application of Program Management in the 'Bouwstroom' programs

TU Delft

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By

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PREFACE

Before you lies my report about Program Management in regional social housing construction programs. In this research, I had the opportunity to explore two innovative collaborations and report them like it hasn't been done before. With the completion of this, my university time will come to an end. The journey started in 2015 with the bachelor's degree in Civil Engineering at the Delft University of Technology and ends with a master's degree in Construction Management and Engineering at the same university.

During my master's program, I have been interested in innovative contract and collaboration formations. This made me decide to do my graduation research in this direction and brought me eventually to the programmatic cooperation in social housing. However, the forming of this subject was preceded by an inventory of a management concept unknown to many: *ambidexterity*. This concept, in which a balance between innovation and exploitation is discussed, did not find a suitable connection with the aforementioned form of cooperation and after several meetings it was decided to abandon this subject and focus on effective program management.

Writing this thesis came with several ups and downs but I was fortunate to have the support during this time from my committee supervisors. First of all, I would like to thank my daily supervisor Ad Straub for his dedication to my research: you were always approachable to me and provided me with constructive feedback and support at all times. I would also like to thank my second supervisor Yan Lui for his help. Your feedback was critical and above all very instructive in nature, which made it always valuable for me to talk to you. I would also like to express my gratitude to the chairman Hans Wamelink for his contributions in various meetings.

I would also like to thank everyone from Woonpartners, WoonST and Bouwstroom Noord for their cooperation in this research. First, I would like to acknowledge Bas Sievers for the interest he has shown, the informative conversations, his support and his networks to realize this research. I would also like to thank the program managers of WoonST and Bouwstroom Noord for their willingness to enter into discussions with me. I really appreciate this, as your input during this time has made this report possible.

Finally, I would like to thank my family and friends for their moral support. My contact with you has made everything more bearable not only recently, but all my life. I hope you are aware that I will always be there for you too.

I hope you enjoy reading this report.

Talha Güler,

Delft, 2022

EXECUTIVE SUMMARY

The Netherlands currently suffers from a housing shortage, which cannot be solved by the traditional project-based approach of realizing new homes. Under a visible trend of a project-transcending, programmatic approach within the construction sector, various housing associations, municipalities and market parties are united in an inter-organizational collaboration to combat the shortage of social rental housing. These have led to various regional social housing construction programs, the *Bouwstroom* (Dutch translation for construction flow). In these initiatives, program management is used as a tool to ultimately build faster and make homes more affordable. To date there is no previous example of this in the Netherlands.

Since program management requires an appropriate approach for each specific program, there is a need to better understand and further develop the current application of this management concept in the Bouwstroom programs for this context. The aim of this research is therefore to explicitly describe this current application of program management in a Bouwstroom program and to develop it based on theories from the literature on this management concept. The main question of this research is thus:

How should program management be applied in regional social housing construction programs in order to function effectively?

In order to answer this question, the following has been carried out in general terms: first a literature study was performed, then two case programs were analyzed in a case study, findings were then tested in the validation and finally a discussion follows.

The aim of the literature study is to establish a framework to analyze the case programs and focuses on how effective program management is achieved. Program managers should guard against a too one-sided focus on either control management, because this is too robust for a programmatic collaboration, or interaction management, because this leads to too slow progression and expensive ideas. The solution is to complement the two approaches with each other, in which an appropriate ratio of both approaches is context dependent. To counter interaction or control related challenges, the literature suggests different strategies which are divided into the categories below:

Category	Challenge type
1. Alignment (Hertogh & Westerveld, 2010)	**Interaction**
2. Short term prediction (Hertogh & Westerveld, 2010)	**Interaction**
3. Reformulating the challenge (Hertogh & Westerveld, 2010)	**Interaction**
4. Variation (Hertogh & Westerveld, 2010)	**Interaction**
5. Control strategies in interaction (de Bruijn & ten Heuvelhof, 2018)	**Control**
6. Design principles (De Bruijn et al., 2010)	**Control and interaction**
7. Breakdown structures (Hertogh & Westerveld, 2010)	**Control**
8. Management of planning, costs, quality and risks (Hertogh & Westerveld, 2010)	**Control**

Table 0.1 Interaction and control strategies

Furthermore, the literature speaks of six attributes of effective program management: 1) the vision, 2) priority focus, 3) planning framework, 4) governance, 5) coordination and 6) adaption. These attributes must be applied appropriately for each program for program management to function effectively. These two concepts, the interaction-control coherence and the six attributes, have been

taken into account to establish a framework through which programs are analyzed for effective program management. This framework is illustrated in the figure below.
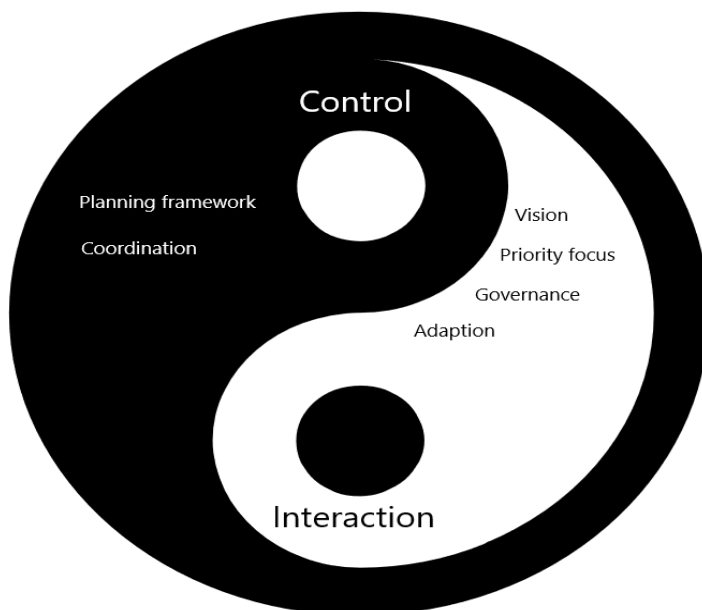
Figure 0.1 Control-interaction framework for program management; adapted from Hertogh & Westerveld (2010)

Subsequently, two programs are analyzed by means of a case study, WoonST and Bouwstroom Noord. By conducting interviews with various program managers and by making use of the program-related documents, both programs are mapped under guidance of the framework. A cross-case study has made it clear that the current application of program management in both cases leads to external interaction challenges in particular. Where the internal parties are aligned and motivated, there is still a hindrance from parties that are not part of the PMO, but still influence the course. This results in the municipalities being limited in their role to speed up the processes. A notable difference in approach between the two programs is the way of collaborating with the market parties. WoonST is based on a client and contractor relationship, while Bouwstroom Noord is based on a collective partnership. The study shows that interaction with market parties, which is also maintained in WoonST despite its type of cooperation, ensures that their extra forces contribute to the process. It also appears that the client and contractor relationship, in contrast to the partnership, leads to negative confrontations between parties. In long-term collaborations, it is likely that the context changes over time. Such a change gives rise to a confrontation between parties and when a cooperation has a long duration it means that it is likely that the parties will face each other several times. Multiple negative confrontations lead to demotivation and alignment. Because motivation and alignment are considered important tools for effective program management, it has been analyzed that a collective partnership is more suitable for a Bouwstroom program.

In order to create more value of the programs, the major challenges need to be mitigated. How this is achieved, has been explored in the validation part. Program managers from both cases are surveyed by testing the strategies found from the literature study. Results thereby show that many proposed strategies potentially contribute to creating more value in both programs. Almost all interaction-type strategies are validated, including the ones that have not been applied before. However, they still need to be balanced with control strategies. Some control strategies have been validated, but the control strategies of de Bruijn & ten Heuvelhof (2018), whose main aim is to complement the interaction, score poorly. This indicates that the need for additional complementary control measures is still present and does not seem to be satisfied by the study's findings.

Finally, a discussion was performed. It was previously explained that the six attributes are used as a framework to describe effective program management. By linking the validated to the strategies, an overview of effective program management in the regional social housing construction programs is formed. A simple schematization is shown below of how the current program management and an additive proposed approach reflect on the value and challenges of the programs.
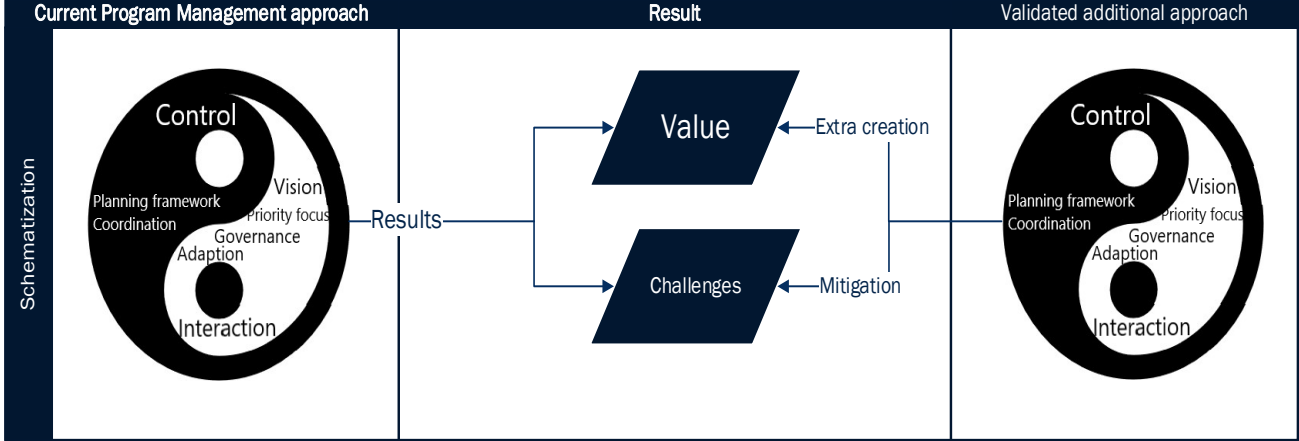

Figure 0.2 Overview effective program management

This study has thus also confirmed for the Bouwstroom context that interaction and control must complement each other in order for a long-term collaboration to run successfully. Program managers should therefore be aware that one should not focus too much on one of the two approaches, despite the short-term detriment of the process. For example, this research shows that breaking the interaction with an unmotivated party has led to a strongly aligned program management system, which is more attractive for external parties to participate and adapt. The (gradual) joining of external forces makes the system all the stronger. On the other hand, program managers should also be aware that changes during the collaboration can lead to different wishes and interests of crucial stakeholders and therefore to a different approach required. By preserving the interaction between these relevant parties and adapting changes in the working method to these new situations, the parties continue to work together to create value for each other. Finally, this research shows that program managers must continue to learn. By analyzing strategies from your own program, programs from other Bouwstroom programs and even programs from different contexts, and reflecting on a specific context, unique challenges can be approached more accurately. New strategies should be learned in order to approach unique challenges more accurately.

This information can be used by the program managers of both case programs to further their efforts to increase program results. It is even useful after the official collaboration has ended since the results of the early phases can be utilized in a future programmatic cooperation if the program managers are ultimately persuaded by the programmatic strategy. In addition, the results of this study can serve as an inspiration for program managers of other Bouwstroom initiatives to improve their own program management.

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1 INTRODUCTION

In this first chapter of the report, the subject of the study is introduced. This is done by first informing the reader about the background of the subject. Furthermore, Section 1.2 clarifies what the research gap is, followed by a description of the research objective in Section 1.3. After these have been made clear, the research questions are shared in section 1.4 and finally the relevance of this research in the context of science, practice and society.

The second part of this chapter, starting from 1.6, focuses on research design. This is made clear by first discussing the scope of this research in section 1.6, then the methodology in section 1.7 and finally the research outline in section 1.8.

1.1 BACKGROUND INFORMATION

New challenges require new methods. The challenges the construction industry is currently facing (think of the nitrogen problem, sustainability, the housing shortage) put pressure on the sector and the parties involved. Many projects are therefore not completed on time or exceed budgets set in advance. Solutions to these joint problems are desirable for all parties within the sector and interorganizational cooperation is important for this. The project-based nature of the construction industry does not encourage this collaboration (Eriksson & Szentes, 2014), but a new approach has been devised for this: the programmatic approach. This should ensure that joint knowledge is developed and standardized (Hermans, 2021). A trend is visible. The Province of North Holland, Rijkswaterstaat with the Bridges Programme and the Municipality of Amsterdam with the Quay Walls and Bridges Program are clients who approach construction in a more programmatic way.

These developments are also visible within the housing sector (Aedes, 2020). At the moment, the Netherlands has a large housing shortage and, moreover, new homes are not being built quickly enough. Within this housing shortage, the demand for more social rental housing continues to increase, but the various challenges related to new construction mean that housing associations have a hard time meeting this demand. This is a reason for several housing associations across the country to work less traditionally in a project-based manner and to focus more on programmatic inter-organizational collaborations. This has led to multiple regional social rental housing construction programs across the country, called the *Bouwstroom* (Dutch translation of 'construction flow'), in which various housing associations across the country enter into regional partnerships with other associations and stakeholders to realize large numbers of new social rental housing in an unorthodox way. The intention of this is that the housing associations will no longer develop individual new-build projects as usual but will purchase housing concepts developed by market parties. By bundling demand regionally, the housing associations guarantee continuity for the market parties, so that they can produce the concepts on a larger scale, and they can reduce the overall costs per new home. Ultimately, this initiative should lead to faster and cheaper realization of social housing. At the moment there are five of these Bouwstroom programs initiated in the regions Drenthe and Groningen, Noord-Brabant, Limburg, Noord-Holland and Zuid-Holland.

This innovative form of collaboration, in which the project-based approach is abandoned in favor of a programmatic approach, means that several parties have to work differently than was usual for them. The program management has therefore been applied in these Bouwstroom programs without there being a previous example from which to learn, so that it is open to development. This, in combination with the social need to realize more homes, gives rise to research into the current application of program management in the Bouwstroom.

1.2 RESEARCH GAP

In view of the situation in the Netherlands with regard to the housing shortage, there is a great social need to realize more new homes and more quickly. Program management is seen by the construction chain as a tool to realize this and is therefore currently applied in the form of a Bouwstroom. In order to organize and implement this optimally, an appeal should be made to the available knowledge that is available on this subject in the literature. Program management is a concept that has been explicitly addressed by several researchers within the literature, but the focus on a program similar to a Bouwstroom program is lacking. However, it is emphasized that each program must be approached specifically to implement program management in an appropriate manner (Hertogh & Westerveld, 2010), which means that this question is also present for the programmatic approach within the Bouwstroom. Because no research has been conducted into the Bouwstroom before, it is not known how the current application of program management manifests itself and can be developed to create more value for the stakeholders than it already does, in other words to make program management more effective. It can be concluded that there is a research gap about how program management should be applied appropriately in the Bouwstroom program.

1.3 RESEARCH OBJECTIVE

The objective of this research, in which the aforementioned gap is taken into account, is to map the current application of program management in the Bouwstroom programs and to develop it further on the basis of the theory about this management concept. This should lead to an overall picture of how effective program management is achieved in the regional social housing construction programs, the Bouwstroom. To achieve this, it will first be investigated what the current theoretical principles of program management are and how they can be used to further develop program management. It then analyses the current application to understand what is currently running successfully and what can be developed further. Finally, the theoretical principles will be reflected on the current program management to find out how it can be further developed. The findings made in this research should support managers in applying program management in Bouwstroom programs.

1.4 RESEARCH QUESTIONS

This section shares the research questions that form the basis of this study. Based on the previously described research gap and objective, the main question of this research is formulated as follows:

How should program management be applied in regional social housing construction programs in order to function effectively?

To answer this main question, several sub-questions have been formulated which will be answered in the course of this study. The four sub-questions are:

1. *What are the principles of program management and how are they applied to enable effectivity?*
2. *How does the interaction and control approach affect program management in regional social housing construction programs?*
3. *How should the major challenges be approached to create more value in regional social housing construction programs?*
4. *How can program management attributes contribute to realize effective program management in regional housing construction programs?*

2

1.5 Research relevance

The relevance of this study is discussed in the next section. It is divided into two types: scientific relevance and practical relevance.

1.5.1 Scientific relevance

First of all, this research is scientifically relevant, because no research has previously been conducted in the field of program management with a focus on the Bouwstroom or a comparable housing program in the Netherlands. The conclusion that each program context requires a unique approach (Hertogh & Westerveld, 2010) thus emphasizes that the current literature may be insufficient to understand this topic and that the absence is a scientific shortcoming. Furthermore, this research is scientifically relevant, because multiple theoretical findings on program management have been utilized to analyze the Bouwstroom programs (Hertogh & Westerveld, 2010; Rijke et al., 2014). But since these theories are based on infrastructure programs it is unknown how these are applicable in contexts that are different then its origin. The application of these theories in the context of this research makes it thereby scientifically relevant.

1.5.2 Practical relevance

Secondly, this research can be regarded as practically relevant. The results in this study provide direct insights into the application of program management in the two programs WoonST and Bouwstroom Noord and how it can be developed. Program managers of both Bouwstroom programs can make use of this by immediately applying the insights that have been obtained in these programs or use them for a new program in the region, when the current one has been terminated and it has been liked to such an extent that parties are open to a new programmatic collaboration. Program managers from other Bouwstroom programs can also be inspired by the findings in this study, because no other study has come so close to their context.

1.5.3 Social relevance

Finally, this research is also of social importance. This study discusses how the current application of program management in Bouwstroom programs can be improved. Because program management is used as a tool to realize more new social rental housing in a faster way, the findings in this study ultimately contribute to combating the housing shortage that is currently present in the Netherlands. The fact that the housing shortage is currently also regarded as a housing crisis (Aedes, 2020) emphasizes the social relevance of this study all the more.

1.6 Research scope

Due to the limited time frame in which this research can be carried out, a realistic, but efficient scope must be established in which the required information is dealt with explicitly enough. Under the supervision of a research committee with participants from TU Delft and housing association Woonpartners, this research analyses in an explorative way the application of program management in an innovative, programmatic collaboration under the umbrella name the *Bouwstroom*.

Program management is a broad concept, which has resulted in multiple studies, analyzed from different perspectives and sectors. However, because there is no literature available that focuses on the context of the Bouwstroom (which motivated this research), it was decided to broaden the scope to the construction sector in general, including infrastructure. In selecting sources, the researcher has taken care to only use articles with a respectable number of citations and books from prestigious project management institutes.

In addition, with regard to effective program management, it was decided to limit the theoretical foundation for this research, in which one source acts as a framework (Rijke et al., 2014). The diversity of analyses about program management risks that several theories do not fit together and that it is therefore not possible to conduct targeted research into a case. The source mentioned earlier was chosen because of its prestige within the subject, but also because of the researchers' attempt to generalize the theory. They have done this by assimilating founding concepts and findings of other respectable studies. Other sources have been used to supplement this framework, provided they form a logical whole that can be used in the rest of this research.

Furthermore, as announced in the introduction of this chapter, several Bouwstroom initiatives have been set up in the Netherlands against, among other things, the rising construction prices and the shortage of housing. For this research, it was decided to limit the focus to two case study Bouwstroom programs, namely WoonST and Bouwstroom Noord. The motivation behind this can be found in the case study methodology in section 1.7.2.

Finally, the last scope relates to the phases of a program. The PMI (2017) distinguishes the life cycle of a program into three phases: the definition phase, delivery phase and the closure phase. This research focuses only on the first two phases of the life cycle and thus leaves the last phase out of consideration.

All in all, these described boundaries can be seen as the scope of this research in which program management is examined.

1.7 METHODOLOGY

To describe the methodology of this study, this section discusses the methodological approach behind answering each sub-question. Because this study has four sub-questions, this section is divided into four parts, namely:

1. Literature study
2. Case study
3. Validation
4. Discussion

1.7.1 Literature study

The aim of the literature review is to collect information that can be used to analyze the problem and identify potential solutions. This should provide insights into what a program and program management is, and what theoretical principles can be used to analyze a case program and develop its appropriate program management. In the first part of the literature review, attention is therefore paid to the theoretical foundations of a program, including the typologies, the contextual factors and its relationship to comparable management concepts. After these have been mapped out, the second part of the study focuses on effective program management. Here the principles of control and interaction management and the six attributes of effective program management are explicitly discussed.

The literature study is therefore divided into two parts, in which the second part answers the first subsidiary question of this research. It reads as follows:

What are the principles of program management and how are they applied to enable effectivity?

Literature related to 'Program Management', 'Program Management effectivity' and 'interaction and control management' in the form of research articles will be studied to obtain the necessary knowledge, using search engines such as the TU Delft Library and Google Scholar.

1.7.2 <u>Case study</u>

The structure of the case study is explained on the basis of design steps by Yin (2018):

1. Case study question;
2. The proposition of these question;
3. The case;
4. Logic of the data;
5. Interpretation criteria for the data.

Case study question

The question that will be answered in the case study is the second sub question of this research, i.e.:

How does the interaction and control approach affect program management in housing programs?

Proposition

For exploratory studies, it is possible that no propositions are adopted, because little knowledge is available (Yin, 2018). Because this research concerns a unique context in the program management literature, strongly founded propositions are not applicable.

Case selection

In this third design step of the case study, the choice for the case is motivated. The literature review shows that the current literature is deficient in instructing program managers from the Bouwstroom programs and the aim of this empirical study is therefore to inform them about an effective method of program management. Since these programs are considered the context of this research, it goes without saying that the case concerns a Bouwstroom program. Several programs are active and are currently in a similar phase, allowing the choice of several of them to be made. The interaction and control focus is the major issue of this research, so it is considered important that the case study captures these well. On the basis of exploratory discussions on this subject with contacts from the Dutch expertise center PIANOo, including a director of the WoonST program, and TU Delft, the first choice was made for the WoonST program, the country's first Bouwstroom initiative. To further understand the effects of both focuses, a double case study was chosen in which two cases, regional Bouwstroom programs that perform interaction and control differently, are analyzed individually and cross-case. The intention of the researcher is that the approaches differ to such an extent that both cases are representative and the approaches of other Bouwstroom programs can therefore be derived from these two cases. In the end, this has led to the choice for Bouwstroom Noord, which focuses more on interaction with the market parties, and WoonST, which focuses more on control compared to the aforementioned.

Logic of the data

For this design step, the logic behind the targeted data has been explained. This was done by discussing the sources and the strategy.

Sources

Yin (2018) identifies six different sources of data for case studies: documents, archives, interviews, direct observations, participant observations, and physical or cultural artifacts. Partly due to

availability and applicability to the research, not all types of sources are used. This research examines the functioning of program management, whereby interaction and control are regarded as core issues and therefore an important role is placed for program managers. The literature review clarified that stakeholder interest and commitment underlie interaction and to resolve this issue, data needs to clarify the perspectives of the program managers. In addition, this research is explorative in nature, which means that there is a need for answers to open questions. Mainly because of this, **semi-structured interviews** were chosen as the source. These generate data that maps the concerns and perceptions of participants and is full and detailed in content (Bryman & Bell, 2019). A semi-structured form is preferred over an unstructured one, because some degree of structure is considered necessary to allow for cross-case comparisons (Bryman & Bell, 2019).

Furthermore, in the literature study, it was explained that two things allow an appropriate complementation of interaction and control, namely the organization and strategies in the program. It is believed that there are **documents**, such as agreements, reports or analyses, that can clarify these two matters. As a result, documents are seen as the second source for the case study.

Strategy

In this section, the strategy with regard to analyzing the data is explained. In contrast to quantitative studies, there are fewer fixed methods for qualitative studies and more appeal is made to the researcher's analytical skills (Yin, 2018). Nevertheless, Yin (2018) mentions some general strategies and techniques that have been used as a guideline for this research. The entire approach is schematically presented below and detailed in the following.
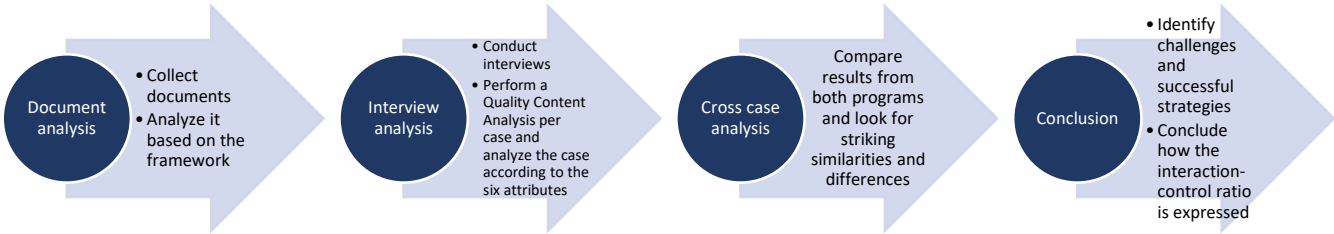
Figure 1.1 Case study outline

The research question is answered on the basis of a framework. This framework was set up in the literature review and consists of the six attributes that are subdivided into the interaction and control focus (see literature review). Based on the framework, the generated data, the documents and interviews, are analyzed and a conclusion is drawn.

First of all, relevant documents are collected. Analyses, reports and established agreements related to the program are considered the relevant documents and in order to obtain these, the networks within the program management team of both cases are used. The documents are studied with the aim of providing information on how the attributes are currently manifested in the case and thus serve as a complement to the interviews that are set up afterwards. These interviews describe how the interaction and control is currently applied and how effective this way of working is from the experience of the participants, thus more explicitly than the documents. Nine participants, each

representing a different stakeholder, in total are interviewed. Five belong to WoonST and four to Bouwstroom Noord:

WoonST	
Organization	**Role**
Woonpartners (housing association)	Program chairman steering committee
Thuis (housing association)	Program manager steering committee
Thuis (housing association)	Program manager coordination team
Municipality Nuenen	Program manager steering committee
Municipality Helmond	Program manager steering committee

Table 1.1 Information about the interview participants of WoonST

Bouwstroom Noord	
Organization	**Role**
Woonservice (housing association)	Program chairman steering committee
Woonservice (housing association)	Program manager coordination team
Trebbe (market party)	Program manager steering committee
Dura Vermeer (market party)	Program manager steering committee

Table 1.2 Information about the interview participants of Bouwstroom Noord

The content of the interviews is further explained in the appendix. After these have been collected, they are processed according to the *Qualitative Content Analysis* method using the coding software ATLAS.ti (Elo & Kyngäs, 2008). After both cases have been analyzed individually, a cross-case analysis follows to map out the answers (Yin, 2018). By studying the application and effects of the six attributes, the analysis of these results should answer the question of how interaction and control influence program management. In addition to this conclusion, there is also a list of challenges and successful strategies per program that will be used in the second part of the empirical research.

Data preperation
- Transcription of interviews
- Sense making of the data

Data organization
- Open coding
- Coding sheets
- Grouping
- Categorization
- Abstraction

Data reporting
- Reporting the analysis and the results
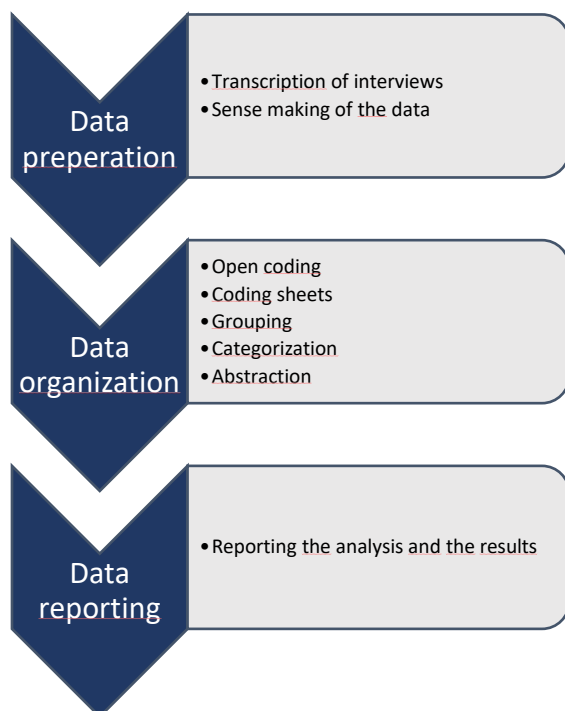
Figure 1.2 Qualitative Content Analysis, adopted from Elo & Kyngäs (2008)

Data interpretation

The final step of the case study concerns the interpretation of the data, asking the question 'what criteria are used to assess the results?' (Yin, 2018). Because this case study is explorative and qualitative, the results should not be judged on the basis of statistics, but on the basis of explanations (Yin, 2018). For this research, the proposition act as the reference statements to assess the final results, meaning that the answers to empirical research question is structured based on its proposition and is mainly descriptive.

In addition to the conclusions, there are also different data, such as the challenges or successful strategies, that need to be assessed. These are classified and analyzed based on the insights of the researcher who interprets them on the basis of the knowledge gained in the literature study. For these data, the findings from the literature, such as Appendix A, will serve as a reference to interpret them.

1.7.3 Validation

The aim of this part of the study is to validate the earlier findings. The structure is explained by four steps derived from the beforementioned design steps:

1. Research question
2. Logic of the data
3. Interpretation criteria for the data

Research question

The question that is answered in the case study is the third sub question of this research, i.e.:

How should the major challenges be approached to create more value in regional social housing construction programs?

Logic of the data

For this step, the logic behind the targeted data has been explained. This was done by discussing only the strategy.

Strategy

This part builds on the results of the case study and is schematized in the figure below.

Challenges review
- Analyze how the challenges should be approached
- Determine which solutions can contribute to this

Survey analysis
- Conduct a survey
- Analyze the results

Conclusion
Conclude how the challenges should be approached
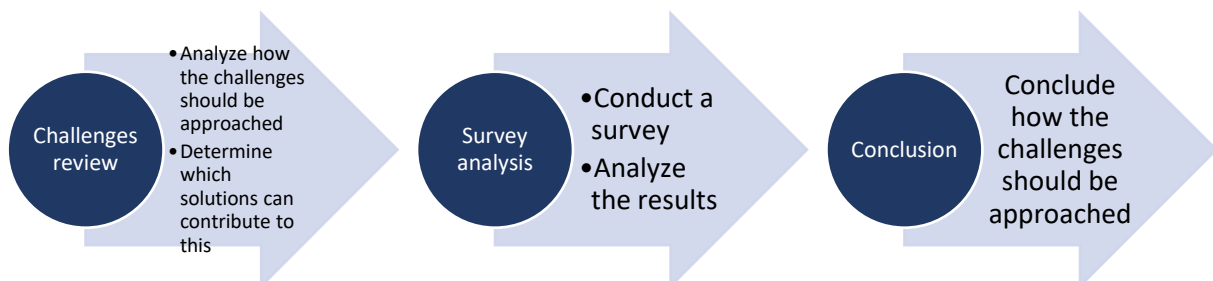
Figure 1.3 Validation outline

The challenges are considered in more detail with the aim of finding an accurate approach to mitigate them. First, using the findings from the literature review, the challenges are specified as to

whether these are interaction or control challenges. Subsequently, these challenges are linked to possible strategies proposed from the literature or the successful strategies from the other case.

After this analysis were performed and possible strategies were proposed, an internal validation followed. The previously interviewed participants were asked by a survey whether they believe the suggested solutions are effective against the challenges. Detailed information on the design of the survey can be found in the relevant section, the survey analysis in 5.2. The responses were studied, after which assumptions were made in the form of the proposition. To validate these findings, the same program managers from both cases were considered the most reliable candidates because they were the only ones who have experienced these unique collaborations to date and can therefore most accurately estimate the potential of these strategies. Although the analysis discussed the relevance for other Bouwstroom programs, these strategies were not validated externally. Since results can be program specific and an external validation, in which the impact of these strategies would also be tested on a third case, required deeper research, it was decided not to do this because of the limited scope of this research. This approach resulted in the answer to the second empirical research question, namely how the major challenges should be approached to create more value.

Data interpretation
In contrast to the analyses in the other chapters, this chapter contained qualitative data and it was therefore possible to assess important statistics and draw conclusions from them. The possible scores and their meanings has been extensively discussed in the survey analysis.

Given the limited participation of program managers from both cases, there was no certainty that the results provide a perfect picture of reality. However, as indicated earlier, given the explorative and qualitative nature of this study, it was also relevant for this chapter to analyze and discuss the results so the findings provided a first picture of the cases that have not been analyzed before.

1.7.4 Discussion
The aim of the discussion was to link all the findings from the research to each other to provide a comprehensive view of how effective program management should be realized. The structure is explained by the same beforementioned steps:

1. Research question
2. Logic of the data
3. Interpretation criteria for the data

Research question
The question that is answered in the case study is the fourth and final sub question of this research, i.e.:

How can program management attributes contribute to realize effective program management in regional housing construction programs?

Logic of the data
The explanation behind the logic of the data is guided by the figure below.
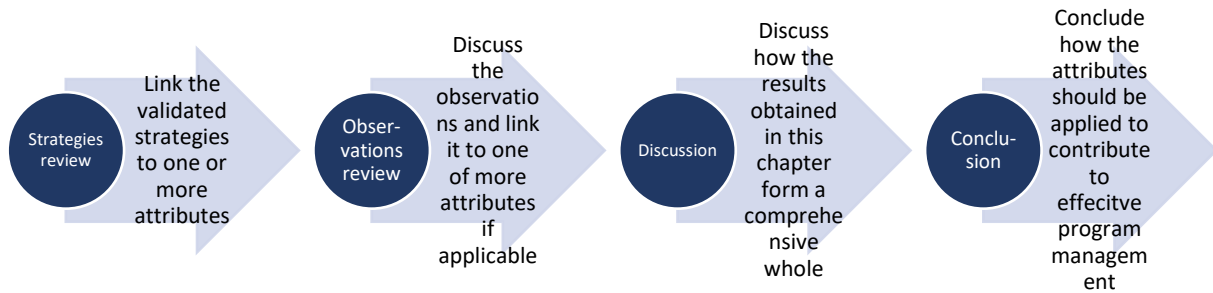
Figure 1.4 Discussion outline

First, all validated strategies were reviewed and linked to one or more attributes of effective program management. By analyzing the strategies in more detail in this context, the researcher argued which attributes were used when the strategy in question is applied. Ultimately, this meant that all validated strategies, if the link can be made, fell under one or more of the six attributes of effective program management. Second, a similar approach was used in revising the observations. These observations were made by the researcher while discussing the results of the previous chapters and thus provide general insights about program management of the cases. These observations were also studied in more detail and, if possible, linked to one or more attributes. After these analyses have been performed, there was sufficient information to form a whole of all findings. The third section discussed how this information is put together to ultimately create a comprehensive figure that provides an overview of this research. What this meant and how it answered the research question is finally described in the conclusion.

Data interpretation
The interpretation of the data is mainly discussed when re-analyzing the strategies and observations, because this is where the links to the attributes are made. As explained above, there is considered a link when an attribute is used when applying a strategy. Based on the knowledge about the attributes, as described in the literature study, the researcher reasoned for each strategy whether this is the case.

1.8 RESEARCH OUTLINE
An overview of the different chapters of the research report and its outline is provided in the figure below.
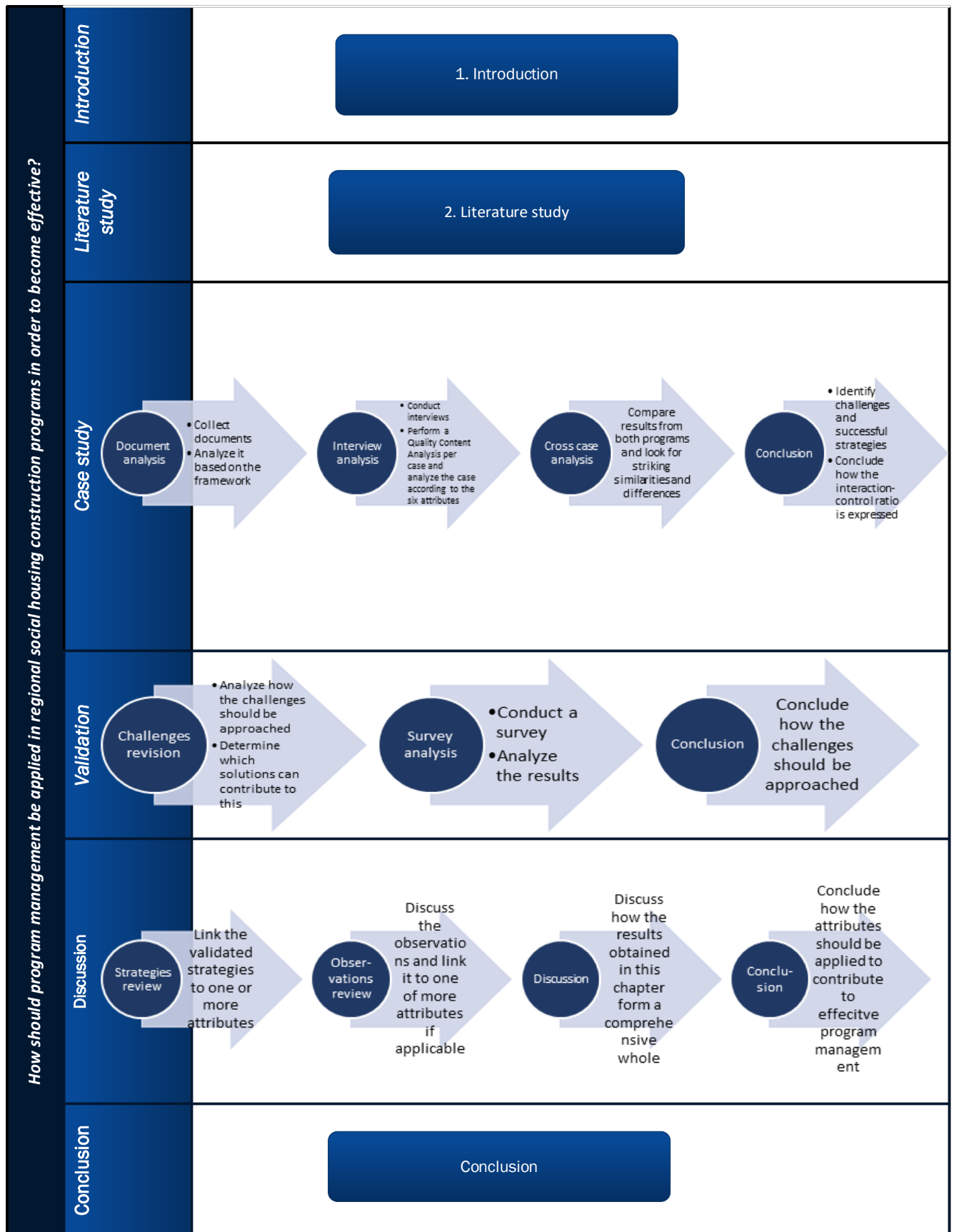
Figure 1.5 Research outline

2 LITERATURE STUDY

The following chapter answers the first of the sub-questions:

- ***What are the principles of program management and how are they applied to enable effectivity?***

Answering this question has led to the theoretical framework, with which two case programs are analyzed and empirical data is obtained in the next chapter of this research. Before explaining an effective way of management, it is considered important to clearly map out the theory about a program. This resulted in the following parts for the first chapter of the literature study: the definition, program typology, program context, the differences with multi-project and portfolio and finally the program success.

An important caveat of the literature review is that most sources are often theoretically grounded and empirical evidence regarding program management theory is limited (Miterev, Engwall, & Jerbrant, 2016). Since this research is explorative in nature and the literature review has been used as a framework for an empirical study, it is considered justifiable to refer to these sources.

2.1 PROGRAM DEFINITION

Over the years, a program has been defined and interpreted in different ways in the literature. For example, programs have been referred to as large complex projects (Graham, 2000), a collection of change actions to achieve strategic goals (Thiry, 2002) and a framework of grouped projects to achieve benefits that are not realized if the projects are managed independently (Pellegrinelli, 1997). Furthermore, several articles use definitions that are comparable. These different definitions indicate that there are several types of programs, which are explained later. The ISO and PMI use definitions that have common ground with the aforementioned and are shown in the table below (NEN, 2018; PMI, 2017).

Source	Definition
ISO (NEN, 2018)	"Temporary structure of interconnected, jointly managed program components that provides benefits, contributes to the achievement of strategic and operational objectives, and realizes benefits."
PMI (2017)	"A program is defined as related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually."

Table 2.1 Program definitions

The definition of the PMI is very similar to that of Pellegrinelli (1997), but one difference stands out. This difference is also recognized in the definition of the ISO. Both include activities outside the scope of projects in its definition, in contrast to Pellegrinelli who is limited to the grouping of projects. Nevertheless, Pellegrinelli also agrees that activities related to the program, but which fall outside the scope of the projects, are part of the program (Pellegrinelli, 1997). An inventory of gathered articles shows that a large number of articles define a program in a similar way as PMI does (de Groot, Leendertse, & Arts, 2021; Lycett, Rassau, & Danson, 2004; Miterev, Mancini, & Turner, 2017; Pellegrinelli, 1997; Pellegrinelli, Partington, Hemingway, Mohdzain, & Shah, 2007; Petro, 2017; Shehu & Akintoye, 2009a). As a result, this definition is used in this study.

The structure of a program can be approached on the basis of the previously mentioned information. Despite the fact that a program can take different forms, which will be further elaborated in the remainder of this literature study, Figure 2.1 shows a general sketch.
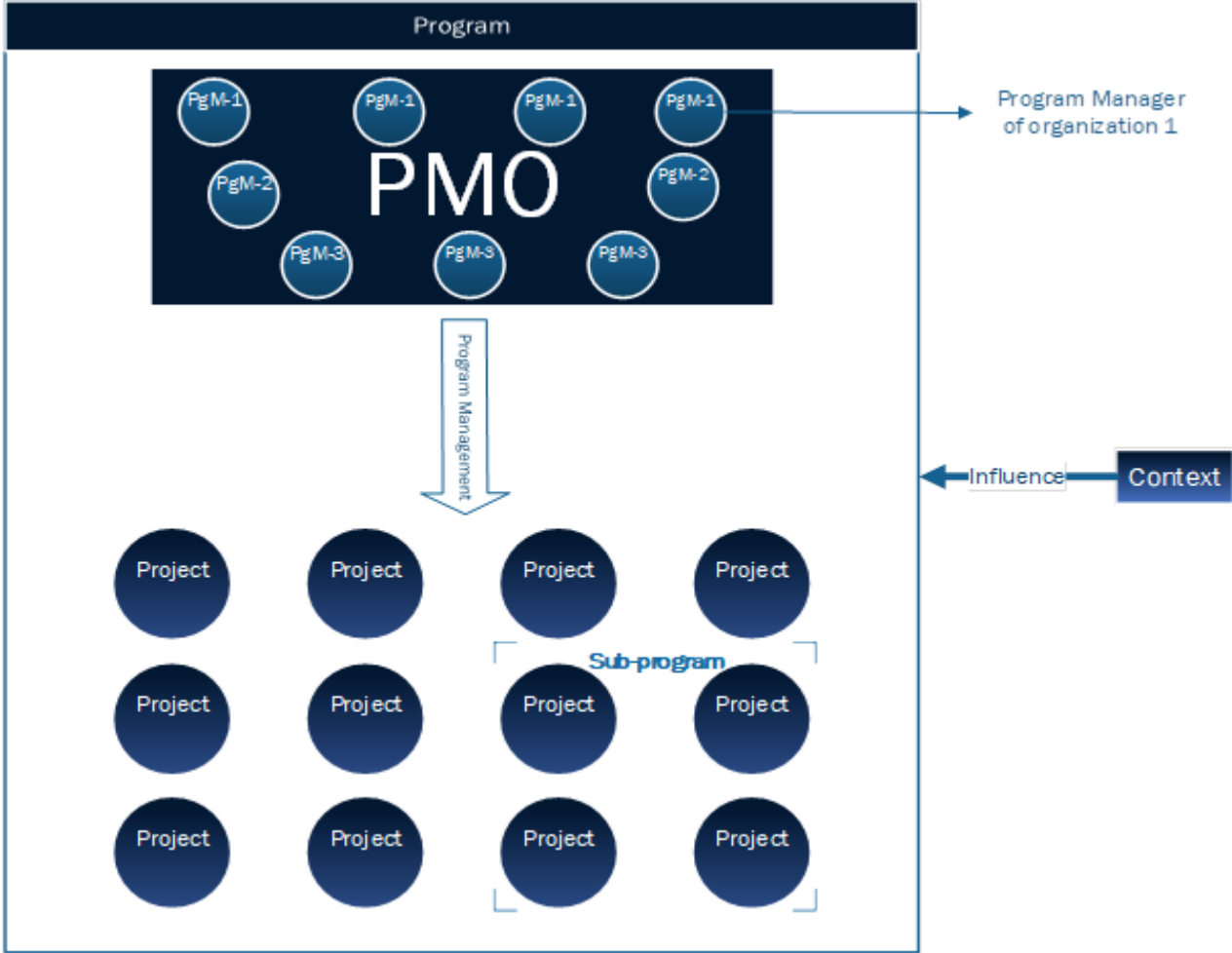
Figure 2.1 Schematization of a program structure

The definition assumes that the program consists of integrally managed projects, subordinate programs and other activities for the benefit of the program. These are managed by an organization of program managers who together form a Program Management Office (PMO; Rijke et al. 2014). It also happens that a program is jointly set up by different independent parties and so this can lead to a PMO consisting of program managers who represent different organizations (NEN, 2018). Chapter 3 focuses on the functioning of these program managers. Furthermore, the figure illustrates the context external to the program, because it is not managed internally, but still does influence the program. What this context and its influence means will be made clear later in this section.

2.2 PROGRAM TYPOLOGY

Various studies have attempted to divide programs into different types. This section will provide an overview in chronological order of these different types of classifications that are reflected on.

Ferns was one of the first to observe three different types of programs: the strategic, business cycle, and single-objective ones (Ferns, 1991). The strategic program consists of a group of projects that arise from a major revision in the organization and affect different parts of this organization. The business-cycle program groups projects with time- and cost-related business goals and thus resemble

portfolios (Miterev et al., 2016). The single-objective program is the latter type and is characterized by a large project of great value consisting of smaller projects and is also called a macro project.

The second distinction is based on control and hierarchy and divides programs into strong, loose and open ones (Roderic J. Gray, 1997). In the strong programs there is a clear hierarchy and projects fall under the authority of the program management. In loose programs this hierarchy is less present, and the projects operate very independently. The grouped projects, which were mainly already active, report for an overview at a higher level. The open program is seen as a middle ground between the two and provides a connection between projects, in which project managers have easier access to information from other projects. The projects are more coordinated than in the loose program, but direct influence of program managers is limited.

Pellegrinelli also distinguishes three different types of programs in his leading research, namely the portfolio, goal-oriented and heartbeat programs (Pellegrinelli, 1997). The first type, the portfolio, connects projects that are largely independent, but fall under a common theme. The second type, the goal-oriented program, is characterized by the ambition to realize a new system or infrastructure within an organization. The heartbeat programs, the last type, focus on improving and developing existing processes and systems within the organization.

Furthermore, a third subdivision can be found based on two functions: delivery programs and platform programs (R. J. Gray & Bamford, 1999). In delivery programs, the results are business-related and will be immediately recorded as revenue for the organization. Platform programs aim to structurally improve the organization and to stimulate their operations.

The fifth division of programs arises from two independent dimensions (Vereecke, Pandelaere, Deschoolmeester, & Stevens, 2003). Initially, programs can be classified according to Vereecke et al. (2003) based on the high or low number of projects that already existed before the program started. The second dimension, which is derived from the goal-oriented and heartbeat programs of Pellegrinelli (1997), distinguishes programs that improve existing systems and processes or implement new systems or processes. Based on these dimensions with two classifications each, programs according to Vereecke et al. (2003) can be divided into four types of programs.

An overview of the typologies can be found in Table 2.2. The distinctions made in the various articles show mutual differences as well as similarities. It can often be seen that the distinctions are made on the basis of different objectives (Ferns, 1991; R. J. Gray & Bamford, 1999; Pellegrinelli, 1997; Vereecke et al., 2003). Within these goals, a clear distinction can be made between internal goals, in which one strives for organizational changes, also referred to as a change program in the literature (Lehtonen & Martinsuo, 2008), and external goals, where program output only functions as a revenue model. Beyond this, a classification can be seen based on management (Gray, 1997) and the novelty the program brought with it (Vereecke et al., 2003). This has shown through literature that programs can be present in different types. Nevertheless, it should be noted that practice shows us that in most cases a program is a combination of different typologies (Pellegrinelli et al., 2007).

Source	Typology	Classification based on:
Ferns (1991)	Strategic, business cycle and single objective	Program objective
Gray (1997)	Strong, loose and open	Program control
Pellegrinelli (1997)	Portfolio, goal-oriented and heartbeat	Program objective
Gray & Bamford (1999)	Delivery and platform	Program objective
Vereecke et al. (2003)	Existing and non-existing projects, and existing and new systems	Novelty

Table 2.2 Overview of program typologies

2.3 PROGRAM CONTEXT

In addition to the fact that programs themselves can be diverse in terms of types, programs can also deal with diverse environments to which it is subject. The importance of knowing this context is emphasized in many studies (Lycett et al., 2004; Pellegrinelli et al., 2007; Shao & Müller, 2011), but is interpreted in different ways. For example, Pellegrinelli refers to this as the dynamic cultural, political, and business environment of the program (Pellegrinelli et al., 2007). In an attempt to further develop the context concept, Shao and Müller (2011) divided the context into three factors, each with a number of sub-factors. Table 2.3 provides an overview of these factors and thus illustrates the variety of influences. The role of the context and its various factors thus reinforce the view that every program is unique and therefore the context has a great influence on its course (Lycett et al., 2004; Pellegrinelli et al., 2007; Shao & Müller, 2011).

Factors	Sub-factors
1. **Program characteristics**	a. Industry b. Configuration c. Change d. Size e. Existence in time f. Life cycle stage
2. **Context characteristics**	g. Stability h. Support i. Harmony j. Interaction
3. **Scope**	k. Within parent organisation l. Outside parent organisation

Table 2.3 Overview of context factors (Shao & Müller, 2011)

2.4 DIFFERENCE WITH MULTI-PROJECT AND PORTFOLIO

Although the context of a program is distinct and specific, it can interface with other parts of an organization and two in particular: the multi-project and the portfolio context. The difference lies in the fact that programs focus on delivering planned benefits or strategic objectives (Lycett et al., 2004), whilst multi-projects and portfolios are initiated to optimize outcomes for individual projects according to some authors (Shao, Müller, & Turner, 2012).

The PMI approaches the latter slightly differently. It distinguishes projects, portfolios and programs as three different parts of an organization, whereby a portfolio is defined as a collection of operations, projects, programs and subordinate portfolios (PMI, 2017). This means that a program is related to a portfolio by being a part of its system. A similar insight can be obtained when the context of multi-project is studied. The multi-project context can be described as one in which different parties within the organization are engaged in multiple interdependent projects and can occur in various forms, including programs and portfolios (Hedborg, Eriksson, & Gustavsson, 2020). However, the current understanding is that a program should not be approached and managed as a multi-project (Martinsuo & Lehtonen, 2007). Although there are differences between these three organizational units, they also have common ground and even similarities in the management of them (Hedborg et al., 2020). The fact that one part can belong to another is also confirmed by ISO (NEN, 2018). The figure below shows the relationship according to the ISO between the various components.

Figure 2.2 Coherence of components within an organization (NEN, 2018)

What is notable about this figure is that these relationships are shown for just one organization. As indicated above, however, it is also possible that a program has been set up by several organizations.

2.5 PROGRAM SUCCESS

Several studies have been conducted on factors and attributes that lead to program success. Before discussing these, it should be made clear what program success entails. According to the PMI (2017), program success is achieved when benefits have been realized. These benefits can be tangible, intangible, financial or non-financial and upon outcome are perceived as beneficial by a stakeholder (Hertogh, Baker, Staal-Ong, & Westerveld, 2008; Shao et al., 2012). These benefits must be realized during the life cycle of a program, with early benefits having a stimulating effect on the further achievement of benefits during a program (Shao et al., 2012).

In recent years there has been a visible shift in how this success is measured. Occasionally, in addition to conventional measures, time, costs and performance, the satisfaction of stakeholders within the program was looked at. Today, however, the literature takes a more strategic approach to program management and therefore increasingly emphasizes the ability to change organizations (Shao et al., 2012). These findings have led to different measures of program success. Shao et al. (2012) ranks these on the basis of importance as follows: 1) delivery capability, 2) organizational capability, 3) marketing capability and 4) innovation capability.

The delivery capability, by far the most important of the four, focuses on the output of the program and approaches success under the lens of how the program has delivered in terms of its objectives and the satisfaction of the stakeholders involved. The organizational capability measures the benefits realized on the capabilities of the parent organization, what is the organization from which the program is set up. These can be improved processes, but also a changed company culture. The marketing capability measures the extent to which the program contributes to the marketing strategy of the parent organization. The innovation capability measures success based on technological innovations within the program that the parent organization can use in the future (Shao et al., 2012). This research shows that these measures are not dependent on the context of the program and can therefore be accepted as general program success measures (Shao et al., 2012). Nevertheless, this does not alter the fact that the context actually influences these factors and ultimately program success. For example, changes in the economy can result in a program costing more or less money than estimated in advance (Rijke et al. 2014).

Since the context does not distinguish between private and public organizations, it is not known whether the same results would be obtained if a distinction were made between the two. Compared

to private clients, public and semi-public clients have more social responsibilities and are expected, for example, to contribute to the development of the construction sector (van Zoest, Volker, & Hermans, 2020). All in all, it can be concluded that program success nowadays means more than the traditional 'iron triangle', which comes from project management (Koops, Van Loenhout, Bosch-Rekveldt, Hertogh, & Bakker, 2017).

2.6 PROGRAM MANAGEMENT DEFINITION

In the previous parts it was made clear that a program is defined in different ways. Logically it follows from this fact that program management is also interpreted in different ways. In line with the definition that has been used, this study concerns the activities that must realize additional benefits than if the projects operate independently (PMI, 2017). What these activities are and how this should lead to the effective management of programs is an issue that has been discussed several times in the literature. In the previous chapter, the context of a program was discussed and that it is influenced by a large number of factors. The effective application of program management is context dependent (Pellegrinelli, 2011; Shao & Müller, 2011; Turkulainen, Ruuska, Brady, & Artto, 2015) and taking this into account, it is very important to know that no one method is suitable for every program (Lycett et al., 2004).

2.7 CONTROL AND INTERACTION

Within the literature there is an issue that focuses on control and interaction in macro projects, which is one of the program typologies (Hertogh & Westerveld, 2010). According to the authors, control involves coordinating activities and aims to achieve fixed objectives within a set time and budget. It is therefore characterized as deterministic: the result follows from predetermined challenges[1] that are solved through processes that run linearly over time. These processes monitor costs, planning, risks and quality. One strategy[1] to focus on control is to apply breakdown structures in the areas of time, product and organization (Hertogh & Westerveld, 2010). This strategy approaches the challenge by dividing it into parts so that a clear structure is created. Within the stakeholder organisation, for example, this has been experienced as effective, because more transparency and accountability is created between stakeholders (Hertogh & Westerveld, 2010).

A shortcoming of the control focus, however, is that it assumes a challenge that is unambiguous, fixed over time and unaffected by stakeholders (Hertogh & Westerveld, 2010). If this is not the case, there is a risk that the project or program will stall because the control strategies do not respond to challenges that have not been taken into account in advance. In this case, an interaction focus is desirable (Hertogh & Westerveld, 2010). The authors describe interaction as managing uncertainties and unsteady influences of the environment by implementing flexibility and considering stakeholder interests. A high degree of uncertainty during the life cycle requires flexibility to overcome new or unknown challenges. In this situation, it is not productive to engage in linear processes, as an already decided approach may not suffice when the context changes over time. As a result, an iterative approach is more beneficial (Hertogh & Westerveld, 2010). Two strategies to realize interaction according to Hertogh and Westerveld (2010) are the alignment of stakeholders and the reformulation of the challenge. Furthermore, de Bruijn, Heuvelhof and Veld (2010) recommend 16 design principles when designing the interaction. In this way, the literature seems to provide an answer to the challenges that the control focus cannot solve. Although interaction seems to be this

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[1] Appendix A further explains the challenges and strategies related to control and interaction.

successful answer, this focus also has a downside: too much focus on interaction can lead to slow progress and expensive ideas (de Bruijn & ten Heuvelhof, 2018; Hertogh & Westerveld, 2010).

Table 2.4 shows an overview of both focuses and their applications. It has been made clear above that a one-sided focus on either control or interaction, when both are required, can lead to failure. The solution proposed is therefore also to focus both by approaching it not as a dualism, but as a duality (de Bruijn & ten Heuvelhof, 2018; Hertogh & Westerveld, 2010; Pellegrinelli, Murray-Webster, & Turner, 2015). Given the conflicting challenges and solutions, it is not obvious that the two can be combined, but strategies can be applied in such a way that this is possible. This can be done, for example, by complementing a control strategy with an interaction strategy or vice versa (Hertogh & Westerveld, 2010; Rijke et al., 2014). Practical examples of this are shared in section 2.8. So, the solution is to focus on both, so that, despite apparently contradictory, they complement each other. The degree of control and interaction depends on the context, so that no single method can be linked to it (Hertogh & Westerveld, 2010; Rijke et al., 2014). This is consistent with the statement that there is no comprehensive method for program management (Lycett et al., 2004).

	Control	Interaction
Applicable when:	- components within the challenge are interrelated; - there is consensus between stakeholders with regard to the intended result; - interpretations of information are equal between stakeholders; - hierarchy is clear (Hertogh, Westerveld, 2010). - interaction is not sufficient (de Bruijn & ten Heuvelhof, 2018; Hertogh & Westerveld, 2010; Pellegrinelli et al., 2015; Rijke et al., 2014).	- challenges can change over time; - challenges are moderately predictable and understandable; - multiple stakeholders with diverse interests participate; - stakeholders are mutually dependent on each other (Hertogh & Westerveld, 2010). - there is no clear hierarchy. - control is not sufficient (de Bruijn & ten Heuvelhof, 2018; Hertogh & Westerveld, 2010; Pellegrinelli et al., 2015; Rijke et al., 2014).
Strategy:	- Monitoring planning, costs, quality and risks; - Breakdown structures (Hertogh & Westerveld, 2010). - 8 control strategies in interaction (de Bruijn & ten Heuvelhof, 2018)	- Stakeholder alignment; - Reformulating the challenge (Hertogh & Westerveld, 2010). - 16 design principals of interaction (De Bruijn, Heuvelhof, & Veld, 2010)

Table 2.4 Control and interaction applications

Although the study by Hertogh and Westerveld (2010) focused on macro projects, this theory is also relevant for program management in general, which will be explained further. Within a program there is not only a role for program managers, as projects and parent organizations to which program managers belong also exert influence. Program management acts as the bridge connecting the two and does so through integration (Shao & Müller, 2011), which is considered a crucial issue within program management (Chen, Wang, He, & Li, 2013; Ferns, 1991; Pellegrinelli, 2011; Turkulainen et al., 2015). Integration is defined as unifying project processes and establishing alignment between the interest of the parent organization and the program (Vuorinen & Martinsuo, 2018).

The integration becomes more complicated when program managers do not belong to one, but to different parent organizations and therefore multiple interests need to be aligned with the program. Furthermore, for a program, its ambiguous character and long duration allow for the evolution of interests during the life cycle (Thiry, 2004). These reasons mean that a management approach that is

fully focused on control is ineffective and must therefore be supplemented with an interaction focus. However, the role that program managers should play in this is a point of discussion in the literature. On the one hand, it is proposed that program managers should focus heavily on the interaction, so that project managers can complement them with a control focus (Pellegrinelli et al., 2015). In fact, other research shows that both focuses are desirable for program managers (Rijke et al., 2014). Since each program is considered unique, the question arises as to which focus strategy is effective for program managers in a specific program.

2.8   THE SIX ATTRIBUTES

Several attributes have been identified in the literature as effective program management enablers: program vision, priority focus, planning framework, governance, coordination and adaption (Rijke et al., 2014; Shehu & Akintoye, 2009). These attributes are attributes for program managers but can be applied in different ways for different programs. The correct application of these attributes for a specific context can be traced back to the necessary control and interaction (Rijke et al., 2014). This will be further clarified in the remainder of this chapter, together with an explanation of the attributes, on the basis of an example from practice. This example, the *Room for the River* program and the explanation of the application, come from the study by Rijke et al. (2014).

A distinction within the attributes concerns the phase in which they are applied. This research distinguishes the life cycle into three phases: definition phase, delivery phase and closure phase (PMI, 2017). The definition phase is considered to be the phase in which all activities for the purpose of the program take place before contracts are in force. This is followed by the delivery phase, in which the parties are contractually bound to each other, and the program is carried out. This research focuses on the role of the program managers, but does not take into account the closure phase, the phase in which the program is brought to an end in a controlled manner. Although the program managers are only officially active from the delivery phase, activities that take place before that affect their effectiveness (Rijke et al., 2014; Shao et al., 2012). The attributes can therefore be divided into these two phases.

2.8.1   Definition phase
In this phase, the foundation is laid for program success (Rijke et al., 2014). This is achieved through these three attributes:

1. ***Program vision***

   The program vision establishes the aimed end manifestation or goals of the program (Christenson & Walker, 2004; Rijke et al., 2014). It is important for the vision that it should be clear to the stakeholders, while abstract formulations should be avoided. If the vision is not concrete enough or if a (physical) artefact is missing from it, there is a high chance that the program will fail (Christenson & Walker, 2004; Hertogh et al., 2008). In addition, it is of great importance that this is drawn up in collaboration. In these collaborations, the goals, roles and responsibilities must be mutually coordinated, so that the program vision, and thus also the program goals arising from the vision, are widely supported. Because input from relevant stakeholders is processed early, stakeholders are prevented from hindering the program at a later stage. In this case, all stakeholders can benefit from the projects during the program and thus increase the degree of program success (Rijke et al., 2014). This example shows that a clear vision formed from a collaboration as an interaction strategy contributes to effective program management.

2. ***Priority focus***

The priority focus is defined by the objectives to realize the program vision (Rijke et al., 2014; Shehu & Akintoye, 2009b). A strategic priority focus is the second means to obtain broad support from stakeholders (Liu, van Marrewijk, Houwing, & Hertogh, 2019; Rijke et al., 2014). In addition to involving stakeholders early, adding an extra objective turned out to be a successful strategy in the Room for the River. Spatial quality was added as the second goal of the program, in addition to primary flood protection. Without this objective, possible friction would arise between different disciplines. However, this solution ensured that additional value was created in the program and that more stakeholders supported the projects. Because parties were motivated at a local level with the spatial quality, they showed initiative and involvement through their resources to lead projects to a successful conclusion (Rijke et al., 2014). A second valuable point with regard to the priority focus is to set goals that guarantee benefits in early phases. This is a second strategy to keep stakeholders engaged and to get their support during the program (de Bruijn & ten Heuvelhof, 2018; Liu et al., 2019). This shows that a strategic priority focus as an interaction strategy contributes to successful program management. In addition to this strategy, the focus on procurement and supply chain strategies is also relevant to the priority focus (Rijke et al., 2014). However, there are no practical examples of this in the literature related to a program.

3. Planning framework

The planning framework concerns the documentation of the plans and clarifies the goals, roles and responsibilities within the program (Rijke et al., 2014). By keeping these transparent and clear, mistrust and ambiguity among stakeholders will be prevented. This increases the efficiency of the projects (Jonas, 2010; Rijke et al., 2014). After the definition phase, the planning framework, signed by program participants, functions as a reference point for agreements and vision of the program. This ensures that activities that go against the vision of the program can be blocked later, as was also shown in the Room for the River (Rijke et al., 2014). This shows that a clear planning framework contributes to effective program management as a control strategy.

2.8.2 Delivery phase

For the realization of program management success, the presence of a program management office is considered necessary (Davies & Mackenzie, 2014; Unger, Gemünden, & Aubry, 2012). This guarantees the effectiveness by means of the three attributes, following the three attributes in the definition phase (Rijke et al. 2014): program governance, program coordination, and program adaptation.

4. Program governance

Program governance is considered as the alignment of internal and management of external stakeholders in order to optimize the efficiency of program management (Rijke et al., 2014). In doing so, it embodies the interaction focus of program management. It has been explained above that a program requires an interaction focus, but that if it is too large, it can be at the expense of the progression. The challenge is therefore to implement flexible governance that is agile to change, but does not hinder the process. To deal with this challenge, de Bruijn et al. (2010) provide insight into the design and implementation of process management, Dutch for interaction management (Hertogh & Westerveld, 2010). Here, sixteen principles are recommended to implement in a setting where interaction is required, which are collected in appendix A.

In the Room for the River, as a governance strategy, a decentralized approach has been chosen, in which a lot of responsibility is given to participants at project level. The PMO facilitated the projects through knowledge sharing, training, network events and took on the task of entering into dialogue with national authorities when laws and policies hindered progress. The decentralized management ensured that local stakeholders could manage the project according to their context, provided it remained within the program frameworks. These frameworks were formed from agreements in the definition phase and thus acted as a control attribute to supplement the interaction of the governance. However, the PMO had an open attitude and made it negotiable if one wanted to deviate from this. This approach has resulted in an effective course of the program and is thus made possible by monitoring the governance interaction focus with a control attribute. All in all, it appears that program governance contributes to effective program management by a PMO that functions appropriately in terms of interaction and supplemented with control.

5. *Program coordination*

Program coordination refers to the control and monitoring of tasks and performance (Rijke et al., 2014) and thus embodies, in contrast to governance, the control focus of the program. The goal is to guarantee deliveries within the established targets. The coordinating role of the PMO in *Room for the River program* consisted of monitoring the progress of projects, but at the same time the PMO had to account for itself to parliament. The PMO had access to a great deal of knowledge and expertise, which meant that they not only monitored the progress over time, but also checked the quality of the products. Through regular evaluations, challenges are recognized in time and solved partly with the support of the PMO. It has been explained above that an overly emphatic focus on control can be counterproductive, however. Thus, the program coordination should be implemented in such a way that the control focus is complemented by an interaction focus, so that changed challenges that cannot be solved due to fixed decisions become solvable. The program managers achieved this by striving for a balance between project management, technical knowledge management and stakeholder management across the entire program at an organizational level. The PMO consisted of three departments, each representing one of the three and preventing only one department from having the most influence in decision-making. Because the technical managers and the project managers as control managers and the stakeholder managers as interaction managers made decisions together during the program, this resulted in realistic objectives that were supported by the stakeholders (Rijke et al., 2014). A similar organization was also seen in the later phase of the macro project Betuweroute, in which interaction managers and control managers were linked at an organizational level to resolve the tension between interaction and control together (Hertogh & Westerveld, 2010). Figure 2.3 depicts this organizational solution. All in all, it appears that program coordination contributes to effective program management, by a PMO that functions appropriately in terms of control and supplemented with interaction in the organizational structure.
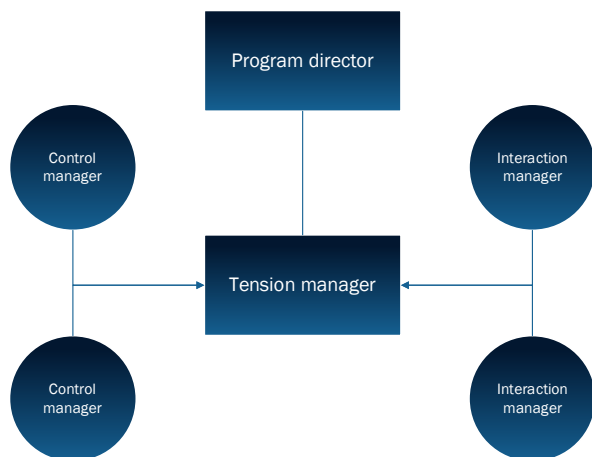
Figure 2.3 Organizational solution for supplementing control with interaction; adapted from Hertogh & Westerveld (2010)

6. *Program adaptation*

Program adaptation concerns the ability to respond to contextual changes and is enabled by flexibility (Rijke et al., 2014). As mentioned before, a control attributes is needed that prevents the program from being too flexible and adapting to any change. In the program *Room for the River*, the other attributes laid a foundation for this balance, by combining an interaction focus on the attributes with control focus. This program was therefore robust enough not to deviate from its objectives, but at the same time flexible enough to respond to a change. Besides making it possible to deal with local challenges more easily, it also ensured that lessons were learned from these divergent approaches and solutions. This increased the learning process that could benefit the entire program as the PMO facilitated knowledge sharing. The fact that the six attributes are not independent but interrelated is not only apparent from program adaptation. For example, the agreements from the definition phase functioned as a foothold for the later phase and the additional objective turned out to be a successful strategy for both the vision (by getting support from stakeholders instead of obstacles) and the priority focus (by guaranteeing resources) (Rich et al., 2014). All in all, it can be concluded that program adaptation is the result of the other attributes and that it contributes to effective program management, provided the interaction is appropriate.

The manifestation of these six attributes in the program *Room for the River* shows how successful program management is contributed by applying interaction and control strategies in combination. Supplementing the interaction focus with a control focus prevented it from gaining the upper hand and vice versa. The attributes formed the basis for a correct balance of interaction and control and thus ensured that the program could move in a 'controlled' way with the context under the support of stakeholders (Rijke et al., 2014). An important caveat here is that the attributes should not be seen as static, but strategies can also change over time depending on the need for interaction or control (Hertogh & Westerveld, 2010). Furthermore, it was seen that in addition to applying the strategies, the structure of the organization can also contribute to managing the control interaction issue. By linking interaction bodies and control bodies with each other at different levels, balanced decisions are made possible. All in all, it's all about an appropriate level of interaction and control, which is seen as one of the biggest challenges in program management (Davies & Mackenzie, 2014; Sanderson, 2012) and made possible by: 1) applying mixed strategies over time and 2) the right structure in the organization (Hertogh & Westerveld, 2010).

2.9 DISCUSSION

Despite the fact that the attributes can turn out so differently in practice, this makes them suitable to serve as a framework for active programs to analyze program management. This framework, adapted from Hertogh et al. (2008), is illustrated in Figure 2.4. First of all, the attributes can be used to identify the challenges of a program as a result of its current applications. By mapping these challenges and analyzing the characters, it is possible to investigate where control and interaction is needed for a specific program. Subsequently, it can be analyzed how different strategies for these attributes can be applied to fulfill the need for control and interaction and thereby realize effective program management. Because successful strategies can be program specific, they can therefore serve as examples, but do not guarantee success in other programs.
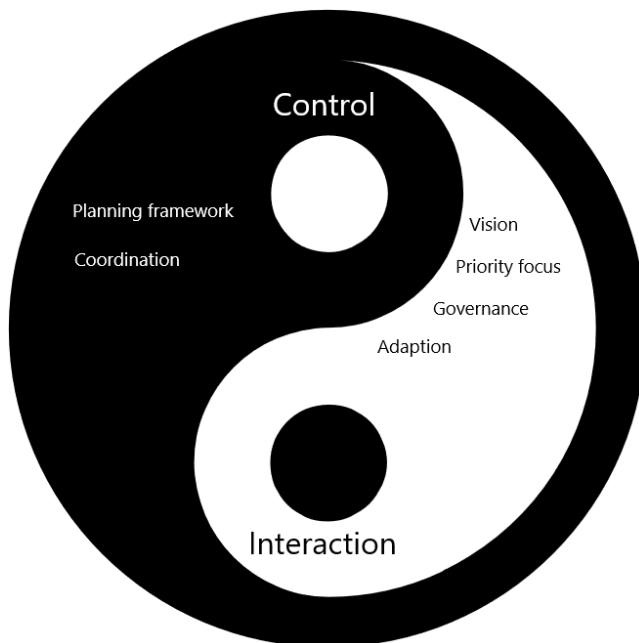
Figure 2.4 Control-interaction framework for program management; adapted from Hertogh & Westerveld (2010)

This literature review thus shows that there are shortcomings in the current literature to provide specific programs with effective program management methods. This is also the case for the *Bouwstroom* program in the Eindhoven region (WoonST) and the comparable programs in social housing construction that are still in their early phases. These programs are characterized by the multiple stakeholders who initiated them, each with their own expectations and wishes. These undoubtedly pose challenges in terms of interaction and control tension, but these have not been mapped out. It is therefore also unknown how the six attributes should be applied to maintain interaction and control, even though the question is. Because the literature study does not provide an answer to this, they must be answered in an empirical study, which will be done in the remainder of this research.

2.10 CONCLUSION

The research question for this chapter is as follows:

- ***What are the principles of program management and how are they applied to enable effectivity?***

This literature study has shown that a program can take different forms and can deal with various circumstances, so that each program has a unique character. Furthermore, the literature seems to

agree that there is no comprehensive way of program management and that each program should therefore be analyzed specifically. Nevertheless, attempts have been made to generalize the theory more, which has led to the six attributes of effective program management, among other things. However, these six attributes are broad concepts and their correct application may manifest differently in different programs, depending on the required control and interaction. On the question of how program management should be applied effectively, this literature review therefore shows that an appropriate degree of control and interaction should be monitored by means of the six attributes. Although, in addition to these attributes, several factors may underlie the success of program management, such as, for example, the competencies or leadership style of managers (Miterev et al., 2016; Shao, Müller, & Turner, 2010), this research is limited to the six attributes and control-interaction issue as scope. Ultimately, this led to the six attributes, as illustrated in Figure 2.4, being used as a framework for the rest of this research.

3 CASE STUDY

Before discussing how to approach this appropriate way for the Bouwstroom programs, the current application of program management must first be analyzed by means of a case study. Thereby, the following Chapters 3 and 4 answer the second sub-questions:

How does the interaction and control approach affect program management in regional social housing construction programs?

This is achieved by conducting interviews with various program managers from WoonST and Bouwstroom Noord and analyzing documents that provide information about the case programs. The data obtained from this was used to describe the case based on the theory of effective program management. After both cases have been analyzed separately, these findings are discussed in a cross-case analysis in Chapter 4, which is followed by the conclusion with an answer to the research question.

3.1 CASE 1: WOONST

3.1.1 Background information
In the first case analysis, the WoonST program is studied. The sources used for this are:

- Interviews
- Plan of approach (WoonST, 2021)
- Webinar Proces and Organization (Brink, f2021)

The organization is formed by a total of 13 housing associations, nine municipalities and two construction companies and is shown schematically in Figure 3.1. For this research, these parties are considered as the internal parties, whereas all other organizations are considered as external. Furthermore, the departments or employees of the internal parties that are not active in the PMO are also considered to be external. The Program Management Office (PMO) is divided into several groups, each with their own responsibilities, some of which have been shared for clarification in Table C.1.
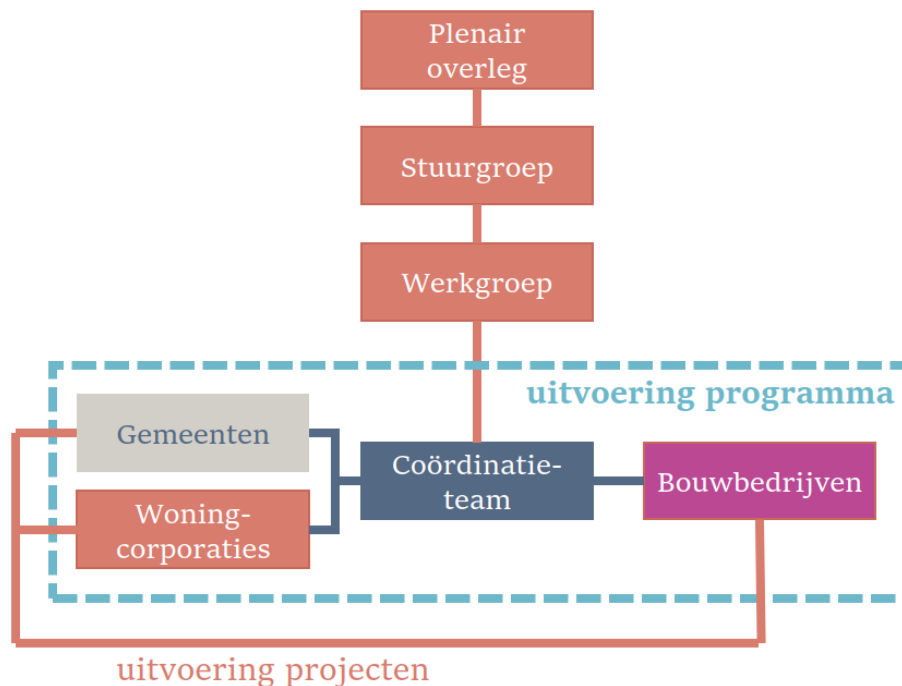
Figure 3.1 Organization WoonST, taken from Brink (2021)

3.1.2 Results

As a result of the analysis of the interviews, the following coding groups were formed:

- Vision, priority focus, planning framework, governance, coordination, adaption, interaction-control, challenges and strategies.

These groups are similar to the main topics that have been asked by the interviewer during the interviews. It has been decided to explain all the results, including the data from both the interviews and the documents, in a descriptive way on the basis of the groups mentioned above. This means that all information described in the topics below can be derived from the data of the relevant coding group or the documents that supplement it. For this and further extensive information about the interviews and the coding, see Appendix D.

Vision

There is a national shortage of affordable social housing. As a result of this, initiatives, 'construction streams', named Bouwstroom, have been set up in various regions by various housing associations in collaboration with other parties to build more efficiently and cheaper. WoonST, active in the Eindhoven Urban Area (SGE), was one of the first to set up this.

Nationally, there is a large number of housing shortages (BZK, 2021). In connection with these developments, the national government is pushing the local areas to find solutions to this problem. This has led to the need for a new approach in several municipalities that are organized in the SGE. Because the housing associations experienced bottlenecks by realizing houses that can be rented out for social costs, they subsequently met together with the SGE in response to these challenges to form an inter-organizational collaboration. This has led to a joint organization, the WoonST, which has been previously schematized. Among other things, in the interviews are discussed what the vision is and how the organization want to realize it. The market parties were not involved in the formation of this vision, but they later entered into a contractual relationship.

This has led to the following vision:

Improving the affordability of social rental housing and increasing the speed at which housing is realised.

Although the interviewees verified this vision, one aspect was also missed: the realization of the homes. This seems to correspond with the fact that a concrete artefact is desirable in that vision of a program, as is explained in the literature study. However, a concrete artifact can be seen in the priority focus that will be explained later. Furthermore, the vision seems clear to all parties, but the following is apparent about the perceptions among the various parties. All parties indicate that they consider the vision important and attach great importance to it. However, where it is considered a top priority for housing associations, it is seen as one of the important points of attention and even as one of the construction flows among the municipalities. In addition to the Bouwstroom in the field of new social housing, they are also working on a general construction flow, which is broader than just social rental housing. This, in combination with the other areas in which the municipality is active, has ensured that WoonST is regarded as part of an integral problem. This was not reflected in the representatives of the housing associations, who previously gave it top priority.

Priority focus

Together with the vision, it was also discussed how this vision is to be realized, in other words the priority focus. This means that the priority focus can also be regarded as co-created, with the exception of the market parties, just like the vision. Validated by the interviewees, the priority focus is as follows:

- *The annual realization (delivery) of a minimum of 200 and a maximum of 500 social rental homes for both ground-based and stacked homes under the agreed conditions from the framework agreement(s) during a period of 4 to 5 years from 2021.*
- *More control over spatial planning and permitting procedures, which shortens lead times* (WoonST, 2021).

It can be seen that there is a concrete priority focus, the realization of a number of new homes. Furthermore, the reactions with regard to the clarity of the priority focus stand out. Where the representatives of the housing associations indicate that this is clear and cannot be interpreted differently, the representatives of the municipality say that this is the case, whether or not to a limited extent. This is partly due to the jargon used by housing associations and municipalities, which can lead to differences in interpretation. One interviewee from the municipality noted that when people from their organization were talking to people from the housing associations, certain words can have slightly different meanings. According to her, this has even led to difficulties in the alignment between the parties in the past.

Furthermore, the interviewees indicate that all internal parties are aligned with regard to the priority focus, but that some organizations are opposed by their parent organizations. The parent organizations of the municipalities in particular are seen as a hindering party. It is also stated that external stakeholders who are not in the PMO of the Bouwstroom have a say and in their view have a negative influence on the program. The following is noticeable, however: despite the fact that the interviewees have indicated that the parties are united in the priority focus mentioned above, the concrete target of 200 to 250 homes does not appear to be reflected in the parties' experience. The quotes below show this clearly:

Q.1 "Yes, that's a good question (whether we're on schedule), because that also means we had explicit expectations about the time, and we don't have that."

The interviewee indicates here that there were no explicit expectations about time. Nevertheless, it was found in the action plan in the form of an annual calendar.

In the field of early profits, it can be said that the annual realization of homes is such an early profit, but it is noticeable that it is not recognized as such. What is seen as early profit is the fact that it was already visible in the short term that the dwellings could be built cheaper compared to the traditional process of building. In the continuation of the program, however, this profit was disappointing and construction prices were higher than had been agreed in advance. Since there is still cheaper construction, this can still be considered an early profit, despite the fact that this profit was ultimately disappointing.

Planning framework

Three types of agreements have been established within this program: the framework agreement, the contracting agreement and an approved plan of approach.

Type of agreement	Explanation	Involved parties
Framework agreement	This agreement, with a term of three years, gives a purchase right, but not an obligation.	• Thirteen associations • Construction companies
Contracting Agreement	This agreement is based on the D&B agreement model of Aedes (Aedes, 2014)	• Housing association • Construction companies
Plan of action	This document explains the roles and responsibilities of the coordination team and the steering committee. This document was drafted by the coordination team and approved by the steering committee.	• PMO

Table 3.1 Planning framework WoonST

The municipality, despite being part of the PMO, is not a contracting party to the first two agreements. Furthermore, no contractual cooperation agreement has been signed between all internal parties of the PMO, which means that an overall planning framework within the PMO is missing. Although this was confirmed by most of the interviewees, it was apparent that despite this absence, a representative of a municipality indicated that a good planning framework is in place and recognizes its importance. The general opinion about how the agreements made manifest themselves is that the parties generally adhere to them, with which the aforementioned seems to be correct. However, this does not always appear to be the case. According to a participant of a housing association for example, it has happened more than once that, despite agreements have been made, several parties have not acted in accordance with these agreements. These events show that the agreements are not always powerful enough. This view is also reinforced by the previously mentioned fact that it is not the concrete target of 200 to 250 homes per year that is recognized as a measure of progress, but the weekly progress.

Governance

Alignment plays a major role in this collaboration. Although the steering committee has the greatest responsibility for this and is seen as the embodiment of interaction, the coordination team also strives for coordination between all parties involved and evaluates this cooperation, among other

things. The interviewees indicate that the internal parties within the PMO are aligned, but this alignment seems to differ per party. It has already been indicated in the vision analysis that the municipalities regard this program, whether or not necessarily, as one of the priorities, while it is seen as a top priority among housing associations. This is expressed, among other things, in the realization when, in the eyes of the housing association, the housing association is not allocated a pre-agreed land. Despite these moments of disagreement, the parties still feel aligned towards each other.

The alignment of market parties is based on a contractual basis. Despite the fact that they do not belong to one of the working groups, they are charged as part of the PMO for this research, because they are jointly responsible for realizing interconnected projects. Nevertheless, the collaboration also takes place through interaction, for example the market parties are regularly invited to the steering committee to ask about their satisfaction and insights. The views of the interviewees about this interaction with the market parties differ: while one interviewee indicates that they show understanding and flexibility when something is not right, another interviewee regrets that they have fallen short during an important development. Because not enough homes could be supplied by a housing association to this market party, it increased the price for construction. The representative of this housing association then indicated that this event had a negative impact on the relationship between the parties.

There are also relevant external parties that are not aligned. First of all, in contrast to the program managers, the parent organizations are experienced as hindering parties. For example, a program manager from a housing association indicates that it has happened in practice that aldermen can align themselves and agree on something within the PMO, but his organization behind it either does not implement this or does not give the alderman room to comply with this agreement. In addition, external parties that influence the decision-making of the municipal parent organizations are experienced as counter-intuitive. The municipalities must take these parties into account when granting environmental permits and land, which are not specifically mentioned, but in practice they are not always aligned with the parties from WoonST.

In addition, there is an open and negotiable attitude in the collaboration. This is confirmed by one of the interviewers, but can also be obtained from the action plan. The cooperation is evaluated annually and proposals for contract changes can be made from this, which can be implemented in agreement with the market parties.

Finally, the empirical data also provides insight into the four core values of interaction. As is explained in the literature study, the following four core principles must be present to effectively realize interaction: openness, core value protection, progress incentive and content incentive. The table below explains how these four principles have been expressed in WoonST.

Core principle	Manifestation
Openness	There is no party that takes uniliteral decisions, all parties have equal say. The PMO has an open and transparent attitude.
Core value protection	All parties feel safe with regard to their own core values.
Progress incentive	In general, people are satisfied with the speed, but they have the ambition to accelerate it even more. Especially in speeding up municipal procedures, people feel powerless.
Content incentive	The expertise is guaranteed in the coordination team by means of various expertises and Brinck is engaged as an external advisor for the design of the process.

Coordination

In the PMO, the coordination team is recognized as the body coordinating the projects in the program. The responsibilities of the coordination team are broadly to coordinate, identify, advise and implement the projects, with the most important tasks being shown in Table 3.3. Where table C.1 in the Appendix shows several tasks to clarify its role, these tasks have been supplemented in this table for completeness.

Tasks coordination team
Setting up and executing contract management at framework agreement level, including contract mutations/changes, etc.;
Periodic indexing of the agreed prices;
Tracking performance at program level based on the information provided;
Managing the current joint project list;
Supporting project teams of housing associations with regard to (accelerating) the procedures surrounding spatial planning and the permit process at municipalities
A source of information regarding all contract agreements with the cooperation partners
First point of contact for the cooperation partners, periodic progress meetings and the annual evaluation of the cooperation at program level - purchasing cooperation
Identifying bottlenecks in the process and coordinating cross-project issues (program level) in order to arrive at useful solutions/improvements
Reporting progress at program level to the Steering Committee "Vision on affordable housing. Schedule and report meetings
Organizing meetings for and by the organizations involved
Facilitating a 'stamp decision' after testing the 1st building plan;
Calculates the annual volume discount.

Table 3.3 Tasks coordination team WoonST

The coordination team has broad specialization and expertise, which contributes to the learning capacity. This is made possible by the knowledge sharing that takes place and the fact that the coordination team aims to stimulate innovation. Although the coordination team is seen as the embodiment of program coordination, the working group and steering committee also have important coordinating tasks. The working group is responsible for monitoring the technical standard and can also determine adjustments to the product, while the steering committee is responsible for decision-making. Because the coordination team does not have decision-making power, the steering committee has the task of making decisions when the process does not move forward. Such a decision can be, for example, changing agreements because these are no longer realistic according to new circumstances or expelling a party because it no longer acts in accordance with the agreements.

Adaption

At the time of research, the WoonST program was in the early stages of a long-term collaboration, so that insights into adaptive capacity may be insufficient. However, two important developments are underway with which an attempt can be made to visualize these: the municipal elections and the general increase in costs. The municipal elections will lead to a new composition, as a result of which the municipal tasks will be entrusted to new participants.

When asked how this change will affect progress, some interviewees answer that progress is guaranteed by the planning framework and the training of the new aldermen by the outgoing. This should mitigate the risk of process delay. Although the representative of a municipality indicates that he is convinced that a negative impact as a result of a change will be limited, this conviction is less

true for a housing association director. Prioritizing this issue has been recognized as an important factor for process progress and with new members it is questionable whether WoonST will be given this priority. However, given the national urgency with regard to the vision, it is realistic that they also consider the vision important.

The construction costs have risen alarmingly over the past year and a half (Duijverman, 2022) and this has led to a change in the planning framework. Because a housing association has not been able to award enough projects to a market party, the latter has increased the costs for realization, considering the general increase of construction costs. These developments pitted the parties against each other and ultimately had a negative impact on its relationships. The fact that the change in the context, in the form of a cost increase, has not been resolved in an aligned manner can be seen as a sign of ineffective adaptation.

In addition, the adaptation can be visualized via the planning framework. As mentioned earlier, an interviewee indicated that the agreements provide room for their own wishes for the product, without this being at the expense of the program. This makes it possible to adjust details if the context, which may differ locally, demands it. The plan of approach also states that the agreements can be updated during the annual evaluations in coordination with the market parties. This also makes the PMO adaptive, because it can respond to contextual changes over time.

Interaction – control

The literature review clarified that interaction and control, although apparently contradictory, should complement each other to ensure that neither one of the two approaches is overemphasized ineffectively. How the interaction between these two manifests itself in this program is made clear through the functioning of the steering committee and coordination team. It has been mentioned earlier that the steering committee is considered the embodiment of interaction and coordination team of control. Yet both teams are also working on the opposite approach: the coordination team strives for mutual alignment for the execution of its control-related activities. When one gets stuck in this, the steering committee has the responsibility to make decisions and thus to apply control. The decisions, as a control activity, that the steering committee takes, are made in mutual coordination and thus interaction. In addition, an organizational management of interaction and control can be seen: the steering committee, the interaction group, is hierarchically leading over the coordination team, the control group. In these roles, the experience is that both parties do not hinder each other and are pleased with the input of the other team. Furthermore, the role of the market parties is notable here. First of all, they have a control-based relationship with some members of the steering committee, as a framework agreement has been signed between the thirteen housing associations and market parties. However, this agreement is not the only relationship that keeps the parties together, as the market parties are regularly invited to participate and contribute to steering committee and coordination team meetings. These initiatives ensure that interaction between the various parties is made possible.

An overview of the interaction and control in this program is shown schematically below.
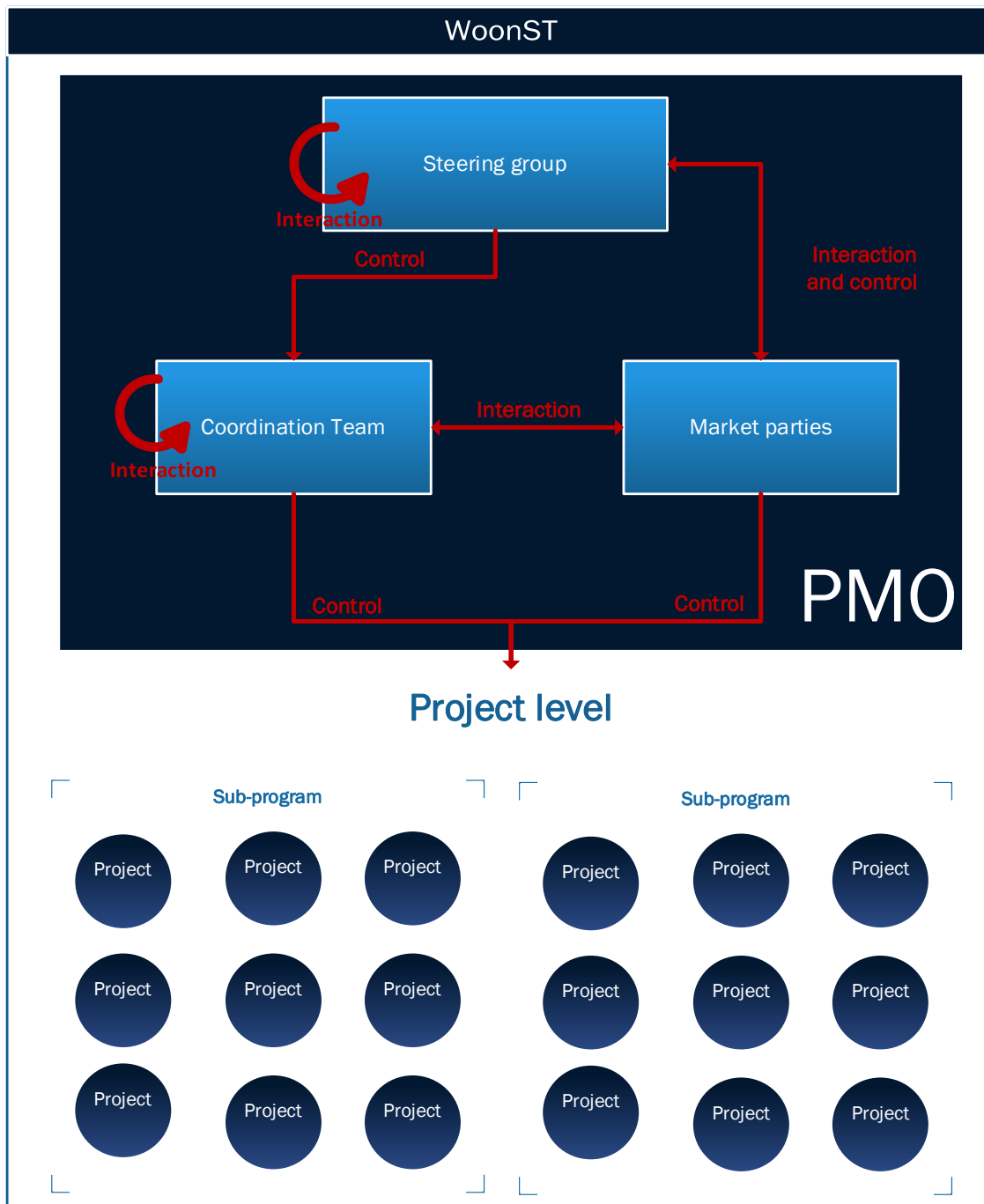
Figure 3.2 Interaction and control relations in WoonST

Challenges

The main challenges facing this program according to the empirical data are listed below. It can be seen that, comprehensively, the biggest challenge of this program is to speed up the procedures at the municipalities.

Challenge	Description
Process for obtaining permits from the municipalities	The challenge lies mainly in accelerating and making these processes more efficient.
Getting locations available	As a result of, among others, social developments, the disagreement between different parties about what should go where and previous agreements, the challenge is to find sufficient locations.
The Government policy	Central government policy has a great deal of influence on the path that the local municipalities should take. The question is whether this will meet the needs of the Bouwstroom in the coming period.

Table 3.4 Main challenges WoonST

Strategies

Furthermore, in the interviews, questions were asked about successful strategies for this program. According to the interviewees, the strategies used contributed to the progression. However, some of these strategies have not been implemented but are suggested as possible solutions to the current challenges. A collection of all the main strategies discussed in the interviews is presented below.

Strategy	Applied/suggested
Cooperative attitude instead of separate.	Applied
Invest in inter-organizational relationships to develop trust. This will help to compensate for municipal capacity shortages.	Applied
Start with motivated parties to put together a well-functioning system and then involve other parties.	Suggested
Involve urban planners early in the process.	Suggested
Set up a regional or more central management to speed up the construction process.	Suggested

Table 3.5 Strategies WoonST

3.1.3   Discussion case 1

The literature search showed that the six attributes represent either an interaction or a control attribute. The points elaborated above are therefore evaluated to discuss how interaction and control present themselves in Bouwstroom WoonST. Starting with the interaction, the question arises whether all relevant parties are aligned in this program. The interviews show that this is the case internally, despite some moments of disagreement between some parties. This view is also reinforced by the current manifestation of those four core principles of interaction, in which all four principles seem to be safeguarded. Furthermore, the vision and priority focus have been co-created by the housing associations and municipalities, while the market parties are contractually included. In addition, however, there are also external parties that are not aligned, including the parent organizations of the municipalities and stakeholders that influence the decision-making of these municipalities. This means that a number of key stakeholders are not involved or aligned in the program, and therefore the governance, alignment of internal and external stakeholders, and thus the embodiment of interaction, are not functioning as well as they could. Given the short duration of this program, it is not effective to assess adaptive capacity, but based on two events, there was room for improvement on this point too. The conclusion is that some relevant parties are not involved and aligned in the program, so interaction is not yet optimal. How do you get them aligned and become more adaptive?

In order to evaluate the control management, the question must be asked whether the goals and agreements made have been complied with and thus whether the program is running on schedule. The interviewees indicate that they are satisfied with the progress, despite the fact that they all have

the ambition to go faster. Remarkably, however, they do not refer to the objectives set. Extra notable was the fact that these were not even recognized, so that it can be said that the planning framework is not used as a reference point. Furthermore, it also doesn't appear powerful enough, because agreements made can be circumvented. Whether the objectives set from the planning framework have been achieved is unknown, but the fact that people are satisfied with the progress indicates that the coordination system, under the leadership of the coordination team in particular, is functioning effectively.

The biggest challenges mentioned by the interviewees have to do with the alignment of external parties, the parent organisations, and this reinforces the previous view of the interaction. Obviously, no friction is recognized between the interaction and control, so that the current organizational solution for managing these two approaches appears to be effective.

3.2 CASE 2: BOUWSTROOM NOORD

3.2.1 Background information

The second case being studied concerns the Bouwstroom Noord program. The sources consulted for this analysis are:

- Interviews
- Cooperation agreement (Bouwstroom Noord, 2021b)

The organization consists of seven parties, including 5 housing associations and 2 market parties. In addition to these parties, another housing association participated in the initial phase, but later withdrew in agreement with the rest. In this research, the aforementioned parties are considered the internal parties, where all other organizations are considered as external.

Party	Type of organization
Dura Vermeer	Market party
Trebbe	Market party
Lefier	Housing association
Woonservice	Housing association
Actium	Housing association
Wold & Waard	Housing association
Woonconcept	Housing association

Table 3.6 Internal parties Bouwstroom Noord

Figure 3.3 shows a schematic overview of Bouwstroom Noord, which is formed from an organization of 5 housing associations and 2 market parties. The PMO consists of two teams: the steering committee and the Vijver Management Team. The PMO is responsible for managing a large number of projects, which can be divided into sub-programs, depending on which construction company is realizing this. These sub-programs should ultimately lead to the realization of 1000 new homes in five years.
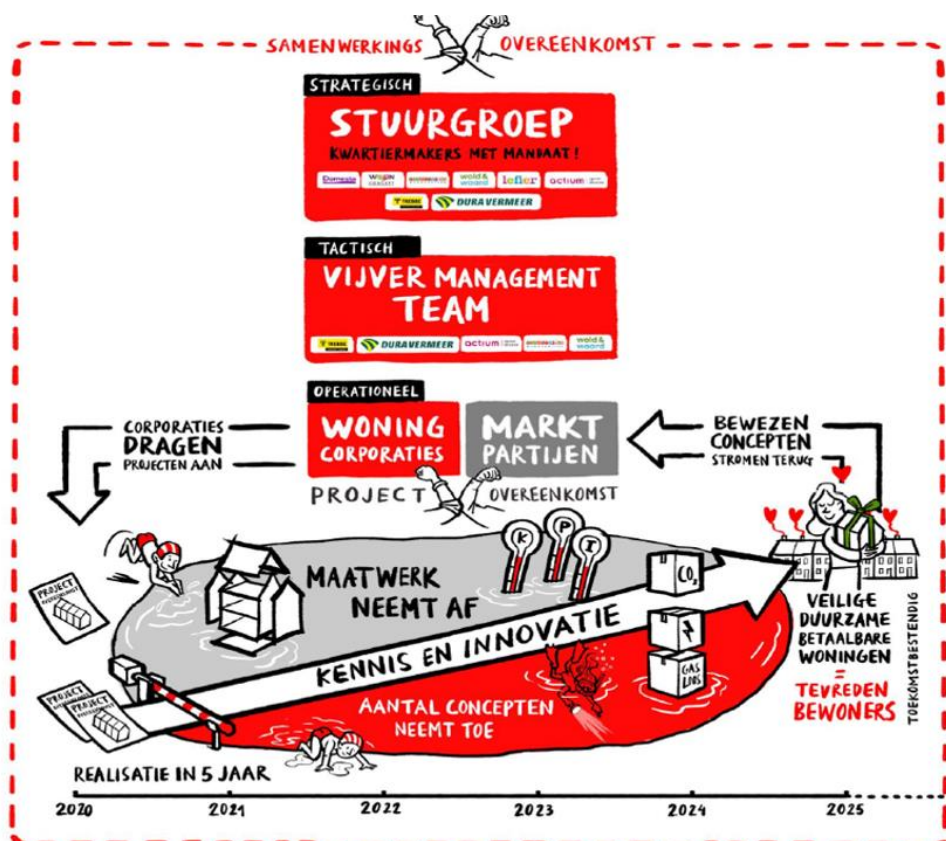
Figure 3.3 Organization Bouwstroom Noord, taken from Bouwstroom Noord (2021a)

Steering group

The steering committee consists of seven members, who all represent a party. This team strives to improve cooperation and decides on topics that are not covered by the Vijver Management Team. Furthermore, they are characterized as the strategic layer. The role of the steering committee in the interaction and monitoring of this program will be made clear in the following.

Vijver Management team

The Vijver Management Team consists of a maximum of nine members, five of whom are representatives from the housing associations and two representatives from each market party. The composition and number of representatives of this team can be changed by the steering committee. The team strives for continuity of the projects and initiates and evaluates savings with regard to the projects, whereby, unlike the steering committee, it is in direct contact with the project level. Furthermore, they are characterized as the tactical layer and as a coordination team. Its influence on the interaction and control will also be made clear in the future for the Vijver Management Team.

3.2.2 Results

The same coding groups were formed from the analysis of the interviews as in the first case analysis. These were also supplemented for this analysis with separate documents that were obtained. Further information can be found in Appendix D.

Vision

In the analysis of the first case, the development of the Bouwstroom was introduced. In line with these developments, Bouwstroom Noord has also been set up.

Before it came to the Bouwstroom organization, the housing associations had already been organized about other issues, including purchasing. Due to the situation with regard to the shortage of social housing, it has been decided to also cooperate inter-organizational for the issue of new construction. The housing associations had mutually reached the conclusion that they would collaborate with the market parties and make them part of the PMO. Because they needed motivated parties who were willing to monitor the interaction, the alignment, it was decided to use a selection procedure in which a high value was given to 'soft' elements, such as positively interacting with each other. This has resulted in a collaboration between the housing associations and two market parties, Dura Vermeer and Trebbe. After these parties have come together, the goals, roles and responsibilities have been drawn up. Although it started with the housing associations, the formation process of this vision shows that it has been co-created with all the internal parties of the PMO. Furthermore, it appears from the interviews that the parties all attach great value to it and that ultimately the feeling prevails that all internal parties are intrinsically motivated.

"The aim of the parties is to keep suitable new social housing affordable and to realize sufficient new-build production." (Bouwstroom Noord, 2021b)

What is noticeable about the vision is that a specific artifact is missing, but abstract terms such as 'affordable' and 'sufficient' have been chosen. However, these are made specific in the priority focus, which will be explained in the following. Furthermore, it emerged in the interviews that there is consensus among the internal parties about this vision, but that there is a feeling that the vision and priority focus are not clear enough for the parent organizations.

All in all, based on the interviews, it can be concluded that the vision is highly respected by the internal parties, these parties are aligned about this, but the challenge is to get this alignment from the parent organizations as well.

Priority focus

In line with the vision, it appears from the interviews that the priority focus, how the vision will be realized, has also been determined in collaboration with the internal parties and signed in the cooperation agreement:

"The parties aim to realize one thousand (1,000) New-Build Homes within five (5) years and have the ambition to reduce the total process and product costs of New-Build Homes within five (5) years by 25% compared to the Zero Measurement by:

- the bundling of new construction projects of the Housing associations into a continuous and predictable flow;
- standardize, match and plan product-market combinations and housing concepts into a construction flow;
- a continuous learning and improvement process in favor of the savings ambition." (Bouwstroom Noord, 2021b)

In contrast to the vision, the priority foci are more concrete, whose importance has also been recognized by an interviewee. Although they are mostly experienced as clear internally, they can possibly be interpreted differently. According to the program manager of the coordination team, this lack of clarity arised from the fact that an objective has been adjusted during the process: the 25% reduction in product and process costs has been changed to fall within the framework of the foundation costs. Although all internal parties are aligned on this change, the new role of the initial ambition to reduce costs by 25% is not clear to all parties.

Just like the vision, the priority foci are also co-created by the internal parties, which are currently all aligned about these goals. However, this was not always the case. In the early phase of the program, one of the internal parties did not agree to the responsibilities regarding the priority focus that were assigned to them, despite believing in the vision. This process was also experienced as hindering. Ultimately, this party, a housing association, resigned from the Bouwstroom in consultation with the steering committee, so that all internal parties were aligned again. In addition to this housing association, two other parties were also experienced as hindering, namely the municipalities and the parent organizations. Both are important players in this process, as they facilitate the progress of the process. For both, however, this has decreased over time, because a lot has been invested in informing them about the Bouwstroom and explaining the mindset of the program approach.

Furthermore, the presence of early profits can be analysed. Each year, the agreement guarantees at least 200 homes in total for the region, which can be seen as an early profit. It is apparent, however, that this was not recognized as early profit by the interviewees. What has been designated as early profit are the insights that have been obtained about the process and product and the realization of price-fixed projects, despite the current situation of the market. It is possible that these early profits were not attractive enough for the withdrawing party. The other housing associations still had enough projects in circulation, so the risks of this program were acceptable. However, the association that withdrew did not have a good idea of how great the risk of the Bouwstroom was for them, so that ultimately it was discussed in consultation not to participate in the Bouwstroom further.

Planning framework

As explained above, the goals, responsibilities and roles within this program have been established. On the one hand, this was done mutually with the PMO by means of a cooperation agreement, and secondly, contracts are also concluded at project level between a client, a housing association, and a contractor, a market party.

In general, one does not deviate from the agreements made, so there is no need to often refer to the planning framework during the process. According to one of the interviewees, this has to do with the intrinsic motivation of all parties to do things according to the agreements. Yet the agreements are not seen as sacred, but the result. This ensures that the agreements made can be discussed and adjusted in line with the vision. An example of such a development was given earlier, in which the predetermined cost reduction was adjusted. Although the priority focus, established in the planning framework, is perceived as clear, this was not always the case with this change, which shows the vulnerability of this flexibility. There are also situations when reference should be made to the planning framework. When disagreements threaten to arise among themselves, a program manager experienced that people behave according to their traditional roles of client and contractor. This shows that the new form of collaboration still looks unfamiliar to the parties and that a planning framework can serve as a foothold.

Governance

All interviews confirm that there is alignment between the internal parties in the PMO, both in the steering committee and in the Vijver Management Team. In addition, this is measured internally by means of surveys, in which the same has been shown, among other things. The fact that all internal parties attach great value to the co-created vision and priority focus, means that they are intrinsically motivated and therefore aligned. However, this does not apply to everyone involved. As indicated earlier, the municipalities and most parent organizations are designated as hindering parties. Given their role in the Bouwstroom, it is important that these parties are aligned. For example, the

municipalities are responsible for granting permits and locations for the projects and the parent organizations are responsible for facilitating the construction of projects in the form of project resources. The reason for the hindering from the municipality is partly due to limited capacity and land. In addition, the municipalities and housing associations are not the only stakeholders in this regard, several parties have influence on these matters, which complicates the process. Nevertheless, the parties accuse the municipalities of taking insufficient steps with the Bouwstroom, despite the fact that they promise that they also attach value to the vision. It is thought that the vision and priority focus are not clear enough for the opposing parent organizations. This is in contrast to the parent organization that is aligned, which is stated to be so because the entire organization is included in the thinking of the Bouwstroom. This suggests that informing and including the opposing parties brings them in line with the Bouwstroom. This is confirmed by the interviewees who indicated that the resistance during the process has become less due to the time invested in involving and informing the parent organizations. In addition, a hindering party was experienced in the earlier phase of the program, a housing association that had withdrawn. As indicated earlier, this party valued the vision, but was not aligned about the priority focus. The reason for their opposition and ultimately their departure was indicated in the interviews that this was because it was unclear to them how great the risks of the Bouwstroom were for the organization. The other parties were more aware of how great the risks were for them and accepted them.

In addition, there is an open and negotiable attitude in the collaboration. This is confirmed by one of the interviewers, among other things, but can also partly be obtained from the cooperation agreement. It has been contractually established that changes can be made to members of the Vijver Management Team, the intake form, which includes conditions for participation of a project in the program and the standard project agreement for all projects in the program. An amendment of the entire agreement is also possible, provided it has been established in writing and signed by all participating parties. This makes an open and negotiable attitude possible.

The alignment of the parties also plays a major role in the PMO, because the basic principle in both the steering committee and the Vijver Management Team is that every decision is decided unanimously. Alignment is therefore emphatically embedded in the functioning of both groups. However, the steering committee has a greater responsibility in this area compared to the Vijver Management Team. The agreement states that they work in a strategic area, strive to improve cooperation and are also seen as the link to the parent organizations. This shows that they are assigned an important role in aligning all organizations. This, while the Vijver Management Team is active at a tactical level, relying more on coordinating tasks.

Finally, the empirical data also provides insight into the four core values of interaction in relation to this program. The table below explains how these four principles have been expressed in Bouwstroom Noord.

Core principles	Manifestation
Openness	There is no party that takes uniliteral decisions, all parties have equal say. The PMO has an open and transparent attitude.
Core value protection	All parties feel safe with regard to their own core values.
Progress incentive	In general, people are satisfied with the speed, but they have the ambition to accelerate it even more.
Content incentive	The expertise is guaranteed in the Vijver Management Team by means of various expertises.

Table 3.7 Core principles of interaction in Bouwstroom Noord

Coordination

In the PMO, the Vijver Management Team is recognized as the body involved in coordinating the projects in the program. For example, it strives for continuity of projects and initiates and evaluates savings with regard to these projects. The monitoring of progress is reported to the steering committee on the basis of, among other things, Quality Performance Indicators (KPIs). However, the steering committee also relies on coordinating tasks vis-à-vis the Vijver Management Team. For example, it can issue orders to the Vijver Management Team and, as explained earlier, make decisions if a situation arises in which the Vijver Management Team gets stuck. The steering committee also monitors the vision, priority focus and mutual cooperation between the parties.

Since the PMO consists of two different types of parties, market parties and housing associations, its obligations with regard to the Vijver Management Team and steering committee are also different. These obligations are collected in Table C.2.

In addition to the functions mentioned above, there are other aspects to which coordination contributes. For example, the Vijver Management Team has a wide range of expertise at its disposal from the various parties. The interviewees indicate that the Vijver Management Team contributes to learning and improving the process through its tasks. This all results in more insight into each other and ultimately more understanding for each other.

Adaption

Since this program is also short-lived at the moment, the context has not changed much from the beginning. Therefore, it is not easy to conclude whether this organization has adaptive capacity. The adaptive capacity will nevertheless be analyzed on the basis of an influential, contextual development in the process, the price increase in construction costs. In the WoonST case, the cost increase was discussed, which this case also has to contend with. This was jointly anticipated by changing the objective of 25% cost savings into a new objective that was accepted by all parties. This has had no visible negative consequences for the cooperation between the parties, while the parties all still look very aligned. Because of this, it can be assumed that the PMO was adaptive to this important change. The reason for this was stated that the willingness to look for solutions together is high among all parties. It was also mentioned earlier that thanks to the Vijver Management Team people are able to gain more insight into each other and to show understanding for each other. Because they know each other and each other's processes better, they can make changes more easily and there is also more understanding for this change.

Interaction – control

The interaction between interaction and control in this program can be described via the functioning of the Vijver Management Team and the steering committee. The Vijver Management Team carries

out coordinating tasks about the projects, but only takes decisions unanimously, which are realized through interaction. However, the risk is that it may take time before these parties are aligned. In order to monitor progress in the Vijver Management Team, the steering committee is responsible for making decisions by means of control. If a unanimous decision is not reached in the Vijver Management Team, the steering committee is referred to, where the point of discussion is presented for decision-making. This controlling influence on the Vijver Management Team is also reflected in the situation of the withdrawn party: at the Vijver Management Team level, the party that wished to meet its expectations could not be reached, after which the steering committee was consulted. Here, this party was called to account, and it was decided in consultation not to continue with each other. In the same scenario within the steering committee, an external mediator has the role of achieving unanimity. If this does not lead to the desired result with the help of the mediator, a decision is ultimately made on the basis of a four-fifths majority.

This shows how interaction and control relate to each other and how this manifests itself in the functioning of both the steering committee, as the embodiment of interaction management, and the Vijver Management Team, as the embodiment of control management. The fact that the cooperation between the steering committee and Vijver Management Team is characterized as smooth and that both teams have confidence in each other, which has been confirmed by polls within the PMO, shows that interaction management and control management do not oppose each other organizationally. In order to mitigate the risk of too much interaction in the steering committee and the Vijver Management Team, there are powers that can supplement the interaction by means of agreed control mechanisms. Conversely, the control tasks do not have the upper hand, because the aim is to achieve unanimity. An overview of this interaction is outlined below.
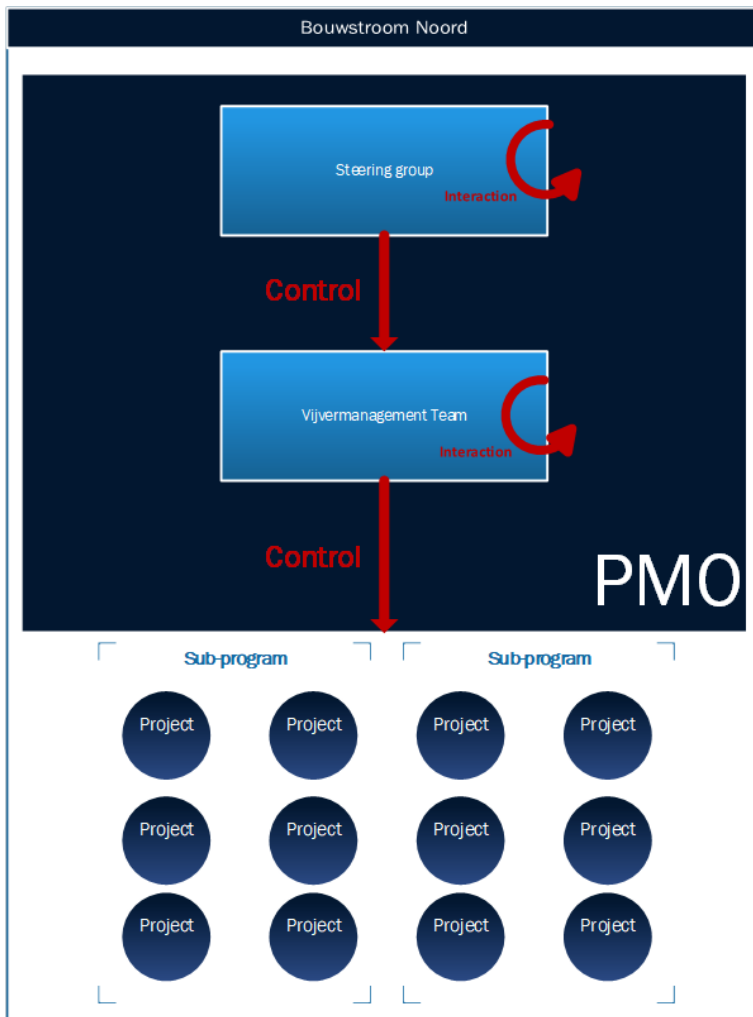
Figure 3.4 Interaction and control relations in Bouwstroom Noord

Challenges

The main challenges facing this program according to the empirical data are listed below.

Challenge
The alignment of parent organizations.
Alignment of the municipalities.
Deal with the lack of municipal capacity.
Deal with the lack of building land.
Keeping yields high enough against rising costs.

Table 3.8 Main challenges in Bouwstroom Noord

Strategies

Furthermore, in the interviews, questions were asked about successful strategies for this program. Some of these strategies have not been implemented but are suggested as possible solutions to the current challenges. A collection of these strategies is presented below.

Strategy	Applied/suggested
Invite aldermen of Eindhoven to take away fear from their own aldermen.	Applied
Align municipalities by compensating each other's deficits.	Suggested
Current way of working together to learn	Applied
Align parent organizations by including them in the whole thinking of the program.	Applied
Get rid of hindering parties, like the withdrawn housing association, if that's possible	Applied
Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program.	Applied

Table 3.9 Strategies in Bouwstroom Noord

The latter strategy in particular requires further explanation, as this actually seems self-evident in a programmatic collaboration. In practice, however, this turned out not to be the case. The interviews showed that one of the market parties, despite the fact that they were more developed in terms of production in conceptual construction than the second market party, still supplied the product more expensively than the second market party. According to the interviewees, this had to do with the general costs, which were higher because the company approached production more in projects. This shows that not only does a programmatic production have a major role to play, but that the process must also be programmatically tuned across the entire timeline if one wants to work more efficiently. This change is also in development in this program. It is expected that higher costs will currently be incurred for the realization of the homes than in the future, because some fixed costs will be lower in the future as a result of a programmatic approach to these projects.

3.2.3 Discussion case 2

In order to discuss how interaction and control manifest themselves in Bouwstroom Noord, the points mentioned above will be examined. In the literature review it was made clear that the six attributes embody either an interaction or a control attribute. First of all, the aim of the vision is that it is supported by all relevant stakeholders (Rijke et al., 2014). Although this appears to be the case internally, this cannot be stated with certainty externally. In the interviews, for example, it emerged that the municipalities appreciate the vision, but in the opinion of a candidate they do not act on it. This means that the priority focus, the objectives to realize the vision, is not supported by all relevant parties. The priority focus is a means of involving parties, including the potentially hindering ones, in the program to jointly resolve the issue. At the moment this is not working towards this, because the municipalities are not involved. In addition, they are not the only relevant external stakeholder, as there are even more parties that influence the functioning of the municipalities, such as area developers, for example. This means that several relevant stakeholders are not involved and aligned in the program and therefore the governance, alignment of internal and external stakeholders and thus the embodiment of interaction does not function optimally towards the external parties. However, this is at odds with the interaction between internal parties. The interviews show that the four core principles of interaction (De Bruijn et al., 2010) in this case referring to the interaction between the internal parties, are protected, indicating that the interaction is functioning. This means that the interaction for the internal parties appears to be in order, but there is room for improvement for the interaction with external parties. This is confirmed by the fact that the alignment of two external parties is recognized as two of the biggest challenges of the program. Furthermore, based on an impactful development, it can be seen that the PMO can be adaptive. The alignment between the parties was indicated as what made this possible. However, it is difficult to conclude whether the PMO is adaptive, as the program is not yet long-term.

On the other hand, the control attributes both seem to function properly. Control must enable the collaboration to realize established agreements. Although the first milestones still have to be achieved according to the schedule, the parties are all satisfied with the result that has been achieved so far. For example, there is a clear planning framework in the form of a cooperation agreement (which has partly become multi-interpretable due to an amendment) and mutual contracts, and there are clear coordinating roles that are performed.

Since the parties indicate that they are on schedule, it can be said that extra value is created compared to project-based work. This value can be derived from the vision and priority focus, but the perception about this can of course differ per organization. Since, for example, the housing associations do not make a monetary profit, unlike the market participants, it is logical that they ultimately attach less value to making a profit. Yet this factor is important to them, since the houses have to be built financially responsibly in order to realize high numbers of new houses for social tenants and this is only possible if the current cost increases do not lead to too expensive houses. In the end, the vision and priority foci are co-created, so in general it can be assumed that achieving these goals is valuable for all parties. Because the parties indicate that they are on schedule, it can also be assumed that the co-created program goals are in sight and that there is therefore effective program management. Nevertheless, all parties have the ambition to work faster. The empirical data show that two of the biggest challenges, the alignment of parent organizations and the municipalities, are in the interaction with the external parties. The three other challenges require interaction by responding to changes, and control by making fixed agreements about complex matters and managing them. It is striking that the interaction-control dilemma is not recognized as a challenge. This seems to indicate that the current mutual relationship is correctly controlled through the organizational solution.

4 CROSS-CASE ANALYSIS

4.1 CASE STUDY DISCUSSION

First, by means of the interaction and control manifestations of both case programs, the results of the cross-case analysis have been discussed. Secondly, a conclusion is drawn, in which an answer is given to the second sub question of this research.

4.1.1 Interaction

For overview, the table below provides a summary of the interaction analyses of both programs.

Interaction	WoonST	Noord
Starting year	2020	2021
Organization	• Multiple working groups • Interaction with municipalities • Contractual relationship with market parties	• Steering group and Vijver Management Team • Municipalities not involved • Interaction with market parties
Performed by	• Steering group • Coordination team (partly)	• Steering group • Vijver Management Team (partly)
Vision	• "Improving the affordability of social rental housing and increasing the speed at which housing is realised." • Abstract • Co-created with the internal parties with the exception of the market parties. • Supported by internal parties (in varying degrees)	• "The parties aim to keep suitable new social housing affordable and to realize sufficient new-build production." • Abstract • Set up by housing associations and elaborated with market parties that are affiliated on the basis of a selection procedure • Supported by internal parties
Priority focus	• See paragraph 2.2.2 for content • Co-created with the exception of the market parties • Early profits in value are present, but the reality is below expectations. • Counteracted by external parties • Different perceptions about clarity	• See paragraph 3.2.2 for content • Co-created with the internal parties • Early profits in value are present, but the impact is unclear • Counteracted by external parties • Possible nuance differences in perception
Governance	• Internally aligned, externally not aligned • Generally satisfied with the speed of the progress, but people feel powerless towards speeding up municipal procedures	• Internally aligned, externally not aligned

Adaptive	• Positive towards new elections • Struggles towards cost increase	• Unknown to new elections • Positive towards cost increase

Table 4.1 Cross-case interaction overview

When the interaction within both programs is compared, the following can be noted about the result:

1) The differently designed governance of the two programs leads to similar results. The internal parties are aligned but have difficulty aligning external parties.

However, it is important to state how the parties are aligned and, in particular, the role of the municipalities and the market parties in this. For example, the municipalities are involved in the PMO of WoonST, which makes its representatives as internal stakeholders, in contrast to Noord. The fact that the municipalities in WoonST are more aligned seems to be the result of this. The market parties are also involved in different ways. While at WoonST they act as contractors through a framework agreement, at Noord they form a joint part of the steering committee and the Vijver Management Team. In general, this does not seem to cause any major damage to the interaction, since both programs indicate that they are aligned. It can also be seen at WoonST that the market parties do not limit themselves to the role of contractor, but actively contribute to the process by regularly joining the steering committee and coordination team. However, the following stands out when the two functions are compared:

2) A collaboration that is only based on a contractual (client and contractor) agreement has the potential to damage the interaction.

In the case analysis it was explained that a conflict arose between a housing association and a market party on the basis of its agreement, which had a negative influence on the interaction. Since a comparable development has not been observed at Noord, the client and contractor relationship seems to be the reason for this. Although this did not ultimately lead to a break-up or anything like that, it can be considered a risk, as the cooperation lasts for a long time and several such conflicts can eventually have a greater impact.

Finally, the adaptability of both programs can be compared. In the case analyses, however, it has already been made clear that it is difficult to measure the capacity, since the collaboration has not yet been active for a long period of time. Nevertheless, these have been analyzed on the basis of two developments, namely the elections and the cost increase. This provides the following insights:

3) A strong planning framework and alignment contribute to the adaptability of a PMO.

Due to the new elections, it was possible that the staff of the municipality, consisting of the aldermen and the participants of the parent organization, could be replaced, so it is not known whether they will show the same involvement as their predecessors. However, the analysis at WoonST showed that the agreements made with the municipalities have ensured that municipalities are obliged to remain involved. Since this is not present in Noord, it is not the case and the elections pose a greater risk to the alignment of the municipalities. The role of alignment emerges in the second development, the cost increases. The aforementioned conflict at WoonST was partly caused by this increase and resulted in a deterioration of the interaction between internal parties. In Noord, however, no such conflict has emerged. Here it only led to adjusting the priority focus, but the interaction was not damaged here.

4.1.2 Control

A similar overview is given below for the control analyses.

Control	WoonST	Noord
Planning framework type	• Plan of action • Framework agreements • Local two-party agreements	• Cooperation agreement • Local two-party agreements
Planning framework as a reference	• In general, the parties do not want to deviate from it • Not powerful enough at all times	• Generally, not deviated due to intrinsic motivation • Flexible, changed in the meantime • Not always clear due to adjustment
Organization	• Figure C.1	• Figure C.2
Performed by	• Coordination team • Steering group (partly)	• Vijver Management Team • Steering group (partly)
Achieving fixed appointments	• Clear numbers are missing, but program managers are satisfied with the progress. Still, they have the ambition to go faster.	• Clear numbers are missing, but program managers are satisfied with the progress. Still, they have the ambition to go faster.

Table 4.2 Cross-case control overview

Control concerns the achievement of agreements made in advance. A comparison of preliminary results of both programs leads to the following conclusion:

4) The differently designed control of both programs leads to similar results. People are satisfied with the progress made, but they have the ambition to go faster.

It is striking that, despite having an annual target, no concrete results were discussed by the interviewees. Within both programs it is indicated that people are on schedule, but this was not linked to figures. In Noord, the possible explanation for this is that the collaboration has not been going on longer than a year, so that the current results cannot be directly linked to the annual objectives. However, this is the case for WoonST. One interviewee even indicated that, despite the presence of objectives, there were no explicit expectations.

Both programs work with a different planning framework. Where a cooperation agreement has been signed at Noord in which the entire PMO has been established, at WoonST this was not done by means of one, but several agreements. Both WoonST and Noord indicate that the agreements made are generally complied with, which, according to Noord's analysis, is partly made possible by the intrinsic motivation of the parties. It was explained in the literature review that this motivation is enabled by early involvement and for both programs it can be seen in the interaction analysis that early involvement was applied. Although the presence of intrinsic motivation has not been explicitly stated in WoonST, it is expected that this will also be the case here, given the alignment of the parties. This gives the following observation:

5) The intrinsic motivation of parties, enabled by early participation, gives strength to the planning framework.

However, several incidents have occurred in WoonST that show that the planning framework is not always strong enough, because parties were unilaterally unable to fulfill agreements. Similar incidents did not emerge in Noord's analysis, which may be the result of a different design of control management. The main difference of the planning framework seems to be the presence or absence,

at Noord and WoonST, respectively, of a comprehensive planning framework of the PMO. In Bouwstroom Noord, this function is fulfilled by the cooperation agreement, which contains all information about the functioning of the entire PMO. In WoonST there is no such agreement, and the planning framework consists of separate agreements that together form the PMO. Although the plan of action comes closest to this, it was set up later in the process by the coordination team and approved by the steering committee. This is in contrast to Bouwstroom Noord's cooperation agreement, in which this contractual agreement was set up from the outset by the chief executives. This gives the following observation:

6) A comprehensive PMO planning framework seems stronger than no comprehensive planning framework.

When the organizational structure is compared, it is noticeable that it is structured in a similar way. The Figures 3.2 and 3.4 further illustrates how the interaction is organizationally safeguarded in control management. In both programs there is a main group responsible for interaction between the parties, the steering group, and controlling the projects, the coordination team. Despite their main roles, however, the groups are expected to apply the other approach as well but to a lesser extent. The difference of both programs is mainly the role of the market parties. In contrast to Bouwstroom Noord, in WoonST they are considered as a different team with multiple control and interaction-based relations. In both programs however, participants stated that no hindrance is experienced with the current influence of the interaction management by the steering group upon the control management of the coordination teams. Besides, the steering group members are pleased with the input they receive from the coordination teams. This makes it clear that the interaction-control issue in both programs is controlled in a comparable organizational structure, where interaction and control complement each other without resulting in friction.

7) The current structure of both organizations ensures that interaction and control complement each other without experiencing hindrance.

4.1.3 Challenges
Below are all the challenges as emerged in the case analyses.

	WoonST	Bouwstroom Noord
Corresponding challenges	1. The alignment of parent organizations. 2. Deal with the lack of municipal capacity. 3. Deal with the lack of building land.	
Singular challenges	4. National government policy. 5. Speed up the process of obtaining permits from the municipalities.	6. Keeping yields high enough against rising costs. 7. Alignment of the municipalities.

Table 4.3 Cross-case main challenges

When the challenges of both programs are compared, it becomes clear that they can be divided into two categories: corresponding challenges and singular challenges. The first category refers to the challenges that emerged as major challenges in both cases, while in the second challenges are collected per case. Whether a challenge should be approached with interaction or control depends on the nature of the challenge. For example, interaction is desirable when it is ambiguous, subject to change or dependent on stakeholders. Control applies if, on the other hand, the challenge is non-ambiguous, not subject to change or independent of stakeholders (Hertogh & Westerveld, 2010). The

corresponding challenges are formulated in a table below and it is explained whether it requires an interaction or a control approach.

	Challenge	Interaction/Control
Corresponding	The alignment of parent organizations.	The dependence on stakeholders means that this requires an **interaction** approach**.**
	Deal with the lack of municipal capacity.	On the one hand, this requires an **interaction** approach, since one is dependent on an important stakeholder, the parent organization of the municipality, who in turn is related to various external parties. In addition, **control** is also necessary, since the shortcomings can be approached as a fixed fact. However, as the current circumstances allow (external) parties to exert a lot of influence, **interaction** management seems to be the biggest challenge here.
	Deal with the lack of building land.	On the one hand, this requires a **control** approach, since the shortcomings, the lack of building land in this case, can be approached as a fixed fact based on the current availability. In addition, **interaction** is also necessary, since one is dependent on multiple stakeholders, who either own the land or have the power to appeal against using a specific land to be build. Because of their power to block the process of building, the PMO benefits from these stakeholders being aligned.
Singular	National government policy	The dependence on stakeholders and the unpredictability of the future makes an **interaction** approach desirable.
	Speed up the process of obtaining permits from the municipalities.	On the one hand, this requires an **interaction** approach, since one is dependent on an important stakeholder, who in turn is related to various external parties. In addition, **control** is also necessary, since the legal obstacles can be approached as a fixed fact.
	Keeping yields high enough against rising costs.	The unpredictability of the market makes an **interaction** approach desirable.
	Alignment of the municipalities.	The dependence on stakeholders means that this requires an **interaction** approach.

Table 4.4 Cross-case challenge approach

This analysis leads to the following observation:

8) The biggest challenges of both programs lie in the interaction management with external parties.

Although these are not explicitly named as such, given that these challenges will also affect both programs, there is a good chance that the singular challenges will also apply to both programs. For example, the most major challenges identified in Bouwstroom Noord were also recognized as a problem by the WoonST interviewees. Because the municipality is not an internal party in Bouwstroom Noord, this is considered a separate challenge, while in WoonST it is considered an

internal parent organization. However, a difference in involvement emerges here: where WoonST has the impression that they are internally aligned with the representatives from the municipalities, no alignment with the municipalities is recognized at all in Noord. However, when these additional challenges are also considered in more detail, it can be seen that they are also in line with the eighth observation.

4.1.4 Strategies

This section discusses the strategies that have emerged from the analyses. These are collected in a table below.

Strategy WoonST	Applied/suggested	Strategy Bouwstroom Noord	Applied/suggested
Cooperative attitude instead of separate.	Applied	Invite aldermen of Eindhoven to take away fear from their own aldermen.	Applied
Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages.	Applied	Align municipalities by compensating each other's deficits.	Suggested
Start with motivated parties to put together a well-functioning system and then involve other parties.	Suggested	Current way of working together to improve learning.	Applied
Involve urban planners early in the process.	Suggested	Align parent organizations by including them in the whole thinking of the program.	Applied
Set up a regional or more central management to speed up the construction process.	Suggested	Get rid of hindering parties if that's possible.	Applied
		Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program.	Applied

Table 4.5 Cross-case strategies

When the strategies are compared, it is noticeable that there are some similar and additional ones that can be mentioned. However, not all strategies have been applied in practice, but have only been suggested based on the experiences of the interviewees. The corresponding and singular strategies are collected in a table below.

(Non-) common	Strategy and intended result	Applied/suggested
Corresponding	1. Cooperative attitude instead of separate to improve learning.	Applied

	2.	Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages.	Applied and suggested
	3.	Start with motivated parties and, if possible, get rid of hindering ones to put together a well-functioning system and then involve other interested parties. This will improve the progress of the program.	Applied and suggested
Singular	4.	Involve urban planners early in the process to avoid hindrances later.	Suggested
	5.	Set up a regional or more central management to speed up the construction process.	Suggested
	6.	Invite a guest from another program to talk about a specific proposal that the own stakeholder is anxious about but has been successfully implemented in the other program. The guest, who comes from an actor with the same role as the own reluctant stakeholder, has to relieve this fear. (This strategy has been generalized so that it is not limited to just aldermen.)	Applied
	7.	Align parent organization by including them in the whole thinking of the program.	Applied
	8.	Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program.	Applied

Table 4.6 Corresponding and singular strategies

One strategy that stands out in particular when it comes to program management is strategy nine. The case analysis of Bouwstroom Noord mentioned that a project-based approach leads to more costs compared to a program approach. However, this does not only apply to the product, by offering conceptual homes, but also to the process, by approaching the general costs programmatically instead of project-based. All in all, this shows that a program saves more costs than individual projects. Both Bouwstroom Noord and WoonST confirm this fact, as homes were purchased in both programs that would be more expensive if they were purchased as seperate projects. However, considering both visions and priority foci, the value of the programs is not limited to monetary profit alone. Since participants of both programs indicate that they are satisfied with the progress, it is assumed that extra value for these parties is created. Because this program management has resulted in more valuable alternative than the limitation to project management, this leads to the following statement:

9) The current application of program management in both programs is effective.

The majority of these strategies are involved in interaction or control management. The literature study discussed that interaction and control need each other to mitigate their risks. However, some challenges show that these are also interrelated in another way: good alignment ensures that a control-related challenge can be better solved as is clearly visible in strategies 2 and 3. Here there is a direct link between an interaction approach and a result which leads to the facilitation of the control approach. As the interaction is enhanced, more resources will be available, reducing the complexity of the challenge. This leads to the following observation:

10) Better interaction leads to more effective control management.

4.1.5 Cross-case overview

In the cross-case analysis ten observations were made regarding the current application of the interaction – control management. These observations show how this approach manifests itself in regional social housing construction programs. To provide an overview of all observations, these have been collected in the table below.

#	Observation
1	The differently designed governance of the two programs leads to similar results. The internal parties are aligned but have difficulty aligning external parties.
2	A collaboration that is only based on a contractual (client and contractor) agreement has the potential to damage the interaction.
3	A strong planning framework and alignment contribute to the adaptability of a PMO.
4	The differently designed control of both programs leads to similar results. People are satisfied with the progress made, but they have the ambition to go faster.
5	The intrinsic motivation of parties, enabled by early participation, gives strength to the planning framework.
6	A comprehensive PMO planning framework seems stronger than no comprehensive planning framework.
7	The current structure of both organizations ensures that interaction and control complement each other without experiencing hindrance.
8	The biggest challenges of both programs lie in the interaction management with external parties.
9	The current application of program management is effective.
10	Better interaction leads to more effective control management.

Table 4.7 Cross-case observations

4.2 CONCLUSION

The literature review has shown that programs should be approached specifically for the implementation of effective program management. It has been made clear that the interaction - control issue plays an important role in this and that it can be managed using the six effective program management attributes. Given the recent emergence of the Bouwstroom programs, or social housing construction programs, there is a need to also approach these programs according to this theory in order to find out how program management can be applied effectively. To this end, the current manifestation of the interaction and control within these programs will first have to be examined and an attempt has been made in this chapter. The research question is:

How does the current interaction and control approach affect program management in housing programs?

By means of a case study, two Bouwstroom programs were analyzed separately and then cross-case. Based on interviews and available documents, various observations have been made that provide clarity about how the interaction and control approach is designed. These are collected in Table 4.7.

It can be seen that the To understand whether control management is applied successfully, one must look at the achievement of objectives. The interviewees are satisfied with the results delivered, but they do aspire to deliver more results. Although better control management can contribute to solving the challenges, they do not outweigh the aforementioned interaction challenges. Nevertheless, the whole setup is effective. This conclusion was drawn because the parties in this program are satisfied with the value that has been created. This value consists of the vision, the end goal, and the priority focus, the main objectives, of the program. For example, the vision includes the

affordability of houses, which is possible if the houses are built more cheaply. And thanks to the programs, construction became cheaper compared to a project-based approach.

In response to the question of how the current interaction - control approach affects program management: The current application leads to effective program management, but there is a need for a more effective approach. This can be achieved by solving challenges that mainly require external interaction management but can also be supplemented with control management.

The question that arises for the remainder of this research is how more effective program management can be achieved. To this end, the results from the case analyses were examined and it was asked what role the six mechanisms play in this.

5 VALIDATION

In the case study, research was done on how the current application of interaction and control manifests itself in the two case programs. This showed that the biggest challenges in both cases lie in the interaction with external parties. While stakeholders are satisfied with the value being created, there is a need to increase it. What this value is can be derived from the vision and priority focus of both cases. By means of the findings made in the literature review and the case study, this part validates the earlier findings and so explores how the challenges should be approached to create more value. This was done by finding the answer to the following research question:

How should the major challenges be approached to create more value in regional social housing construction programs?

To achieve this, the previously examined challenges and strategies are analyzed and a survey validated which strategies are effective in the context of the cases. The results show the potential of the strategies and whether or not they have been applied before. This ultimately provides a picture of which strategies can potentially contribute to the creation of extra value and which are already contributing to this value.

5.1 CHALLENGES REVIEW

To answer the question of how the programs can be managed more effectively, we will first repeat the challenges that emerged in the previous chapter. These are shown for repetition.

Corresponding/ Non common	Challenge	Interaction/Control
Corresponding	The alignment of parent organizations.	The dependence on stakeholders, in this specific case the parent organizations, means that this requires an **interaction** approach to align them**.**
	Deal with the lack of municipal capacity.	On the one hand, this requires a **control** approach, since the shortcomings, the lack of personnel in this case, can be approached as a fixed fact based on their current availability. In addition, **interaction** is also necessary, since one is dependent on a powerful stakeholder, the parent organization of the municipality, who in turn is related to various external parties. Since these parent organizations and thus indirectly other external parties, for example area planners, have the power to control the availability of personnel, the PMO benefits from these stakeholders being aligned.
	Deal with the lack of building land.	On the one hand, this requires a **control** approach, since the shortcomings, the lack of building land in this case, can be approached as a fixed fact based on the current availability. In addition, **interaction** is also necessary, since one is dependent on multiple stakeholders, who either own the land or have the power to appeal against using a specific land to be build. Because of their power to block the process of building, the PMO benefits from these stakeholders being aligned.
Singular	National government policy	The dependence on stakeholders, in this case the national government, and the unpredictability of their future

		behaviour makes an **interaction** approach desirable to deal with this uncertainty.
	Speed up the process of obtaining permits from the municipalities.	On the one hand, this requires an **interaction** approach, since the PMO is dependent on the municipalities and their parent organizations, who in turn are related to various external parties. In addition, **control** is also necessary, since the legal obstacles can be approached as a fixed fact.
	Keeping yields high enough against rising costs.	The unpredictability of the market makes an **interaction** approach desirable to stay adaptive.
	Alignment of the municipalities.	The dependence on the municipalities means that this requires an **interaction** approach to align them and benefit from their power.

Table 5.1 Major program challenges

This analysis shows that the challenges require both an interaction and a control approach to be mastered. However, care must be taken to ensure that the focus is not too much on one of the two approaches. Several strategies have been collected in the literature review that either aim to mitigate these interaction challenges or mitigate the control challenges. These have been collected in Appendix A with an explanation but are presented in the explanation of the survey later in this chapter for overview. Although these strategies are proposed by the literature for interaction or control-type challenges, it is not yet known whether they will also be of value in the context of the Bouwstroom programs and whether they can be applied therein at all. In addition to the list above, several strategies have also emerged in the case study, which are collected in Table 4.6 of the previous chapter. These are repeated in the table below.

Strategy and intended result	(Non-) common	Applied/suggested
Cooperative attitude instead of separate to improve learning.	**Corresponding**	Applied
Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages.		Applied and suggested
Start with motivated parties and, if possible, get rid of blocking ones to put together a well-functioning system and then involve other interested parties. This will improve the progress of the program.		Applied and suggested
Involve urban planners early in the process to avoid hindrances later.	**Singular**	
Set up a regional or more central management to speed up the construction process.		Suggested
Invite a guest from another program to talk about a specific proposal that the own stakeholder is anxious about but has been successfully implemented in the other program. The guest, an actor with the same role as the own reluctant stakeholder, has to relieve this fear.		Suggested
Align parent organization by including them in the whole thinking of the program.		Applied
Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program.		Applied

Table 5.2 Succesful program strategies

These strategies are divided into these two categories: 1) corresponding or singular and 2) applied (in a program) or suggested (by an interviewee based on their experience). The first type of distinction is important because it is unknown that a successful strategy of one program will also be successful in the other program. The second strategy is also relevant, because the suggestion has not been tested and therefore it is not validated whether it will also be applicable in both programs. Thanks to the literature and the interviews, several potential strategies are therefore available that should contribute to mitigating the challenges and thus create more value for the programs. The question that arises here, however, is whether all these strategies are actually effective in the context of the Bouwstroom. The results in the follow-up survey should elaborate on the answer to the question.

5.2 SURVEY ANALYSIS

As indicated in the introduction to this chapter, the aim of the survey is to validate strategies collected in the course of this research. The set-up is explained below, after which the results are shared and discussed.

5.2.1 Strategies

For this survey, all potential strategies, which are a combination of Appendix A and Table 5.2, were collected for review by the participants. This has resulted in a total of 32 to 34 strategies being nominated, depending on the program to which the participant belongs. The strategies collected from the literature are all the same for the participants of both programs, in contrast to the strategies that emerged from the interviews. This is because the participants were asked to assess only the strategies that have been applied in the other program or have been suggested (regardless of which program). A decision was made not to have the participants assess strategies that the interview analysis discussed that they had already been successfully applied in their own program. This was done to avoid double testing and to keep the survey as short as possible to increase the chance of participation from the possible participants. The complete list of strategies is shown below.

Type	Strategy category	Strategy (#)
Interaction	1. **Alignment** (Hertogh & Westerveld, 2010)	9. Agree on how to deal with ambiguity. 10. Stimulate interaction and be open for suggestions. 11. Only pay attention to the exchange of ideas and arguments. 12. Reflect the program activities to your own identity and ask their meaning for yourself. 13. Try to align stakeholders in the front end and aware the operators and maintainers they work for the same goal. 14. Adopt an open, honest and direct attitude in communication with stakeholders. Share both positive and negative information with them so that there are no surprises. 15. Be aware of the fact that people are only aware of the benefits when products are delivered.

	2. **Short term prediction** (Hertogh & Westerveld, 2010)	16. Make an overview of the challenges and prioritize them.
		17. Determine the criteria for successful strategies and participants. Detailed criteria for the short term are preferable to less detailed criteria for the long term;
		18. Learn from successful strategies in your own program or other programs by understanding:
		    a. Why it was applied under which situation
		    b. b) Under which context it has been applied and to compare it with one's own context

	3. **Reformulating the challenge** (Hertogh & Westerveld, 2010)	19. Do not approach change as an obstacle, but as a new opportunity.

	4. **Variation** (Hertogh & Westerveld, 2010)	20. Design different (technical) alternatives and apply various strategies to achieve goals. However, try to do this as early as possible, as these turn out to be much more expensive in later stages.
		21. Take advantage of the qualities of both public and private organizations by working together instead of limiting yourself to one.
		22. Diversify the staff on the basis of competencies, expertise and backgrounds.
		23. With a range of possible scenarios:
		    a. Only work out a limited number that best represents the entire range of possible outcomes.
		    b. b) Don't work out scenarios without unique outcomes.

Control	5. **Control strategies in interaction** (de Bruijn & ten Heuvelhof, 2018)	24. Threatening control actions to influence profit perception. 25. Apply a control action to change interdependencies. 26. Apply a control action to enable the decision-making process. 27. Apply a control action after collaborative initiatives have failed. 28. Apply a control action for procedures. 29. Apply a control action while providing opportunities. 30. Apply control action when critical parties win. 31. Reflect control action to the public.
	6. **Design principles** (De Bruijn et al., 2010)	32. Encourage early participation. 33. Include top level staff from each involved party. 34. Don't build on a conflict, rather move it to the outside of the interaction.
	7. **Breakdown structures** (Hertogh & Westerveld, 2010)	35. Map out the available personnel (as resources) using a Resource Breakdown structure. 36. Map the land (as resources) through a Resource Breakdown structure.
	8. **Management of planning, costs, quality and risks** (Hertogh & Westerveld, 2010)	37. Apply traditional management processes (risks, planning, costs and quality) at program level as well.
Interaction/control	9. **Case study strategies**	38. Involve urban planners early in the process to avoid hindrances later. 39. Set up a regional or more central management to speed up the construction process. **WoonST participants specific** 40. Start with motivated parties and, if possible, get rid of blocking ones to put together a well-functioning system and then involve other interested parties. This will improve the progress of the program. 41. Align parent organization by including them in the whole thinking of the program. 42. Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program. **Bouwstroom Noord participants specific** 43. Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages.

Table 5.3 Strategy list survey

Comments

For information purposes, some comments will be made about this list. First, four strategies found in literature or interviews are not included in the list. The reason is explained below for all.

Strategy	Motivation for exclusion
Don't be too tied down to the wishes of governments, as programs are in many cases longer in duration.	This strategy has been deliberately left out of the list, because the need for public actors is already being assessed in strategy 13.
Use control strategies to stimulate the progress.	The control strategies are tested with the category of de Bruijn & ten Heuvelhof (2018) and therefore an additional question about the application of control strategies is considered superfluous by the researcher.
(36) Cooperative attitude instead of separate to improve learning.	This strategy was suggested in the interviews by participants from both cases, so it has already been considered validated for this reason. This will be numbered for the remainder of this research with number 36.
(37) Invite a guest from another program to talk about a specific proposal that the own stakeholder is anxious about but has been successfully implemented in the other program. The guest, an actor with the same role as the own reluctant stakeholder, has to relieve this fear.	This strategy was wrongly excluded from the list due to a transfer error. Because it came from the interviews, and thus marked as validated for one program, it is numbered 37.

Table 5.4 Excluded strategies

Furthermore, the two strategies 27 and 28, in contrast to the others, are specified, because for both cases these two complex resources have been identified as major challenges for both programs. The remaining strategies focus on stakeholders that are diverse throughout the collaboration for both programs. In the case study it was discussed that the internal stakeholders are aligned and that the challenge mainly concerns the external stakeholders. The following stakeholders are mentioned here as not aligned:

- Parent organizations
- External parties that also influence the decision-making of municipalities, including area planners, architects, or residents.
- The municipalities (only for Bouwstroom Noord).

Finally, as is explained before, a distinction in the strategies of category 9 has been made between participants of WoonST and Bouwstroom Noord. First of all, this was done, because it can differ whether a strategy has been applied to one of the two programs.

5.2.2 Methodology

In this section, the potential strategies are analyzed based on a survey. Because these srategies are based on studies that do not have the same context as the Bouwstroom programs, its effectiveness and applicability for the cases is uncertain. The researcher is aware that the effectiveness of a strategy (to what extent does it contribute to program management?) and its applicability (to what extent is it possible to apply it?) are essentially two separate issues. Due to the scope of this research, however, the focus is limited to effectiveness, because its applicability is only relevant if it

proves to be valuable. The aim of this survey is therefore to find out how effective these strategies are in the context of the case programs. For this, all strategies were collected, and the following two questions were asked for each strategy:

1. Based on your own experiences in the program, to what extent do you think this is an effective strategy for cooperation (present and/or future)?
2. Has the strategy so far been applied at managerial level (i.e., have concrete action points resulted)?

For the first question, the participants were asked to answer on a Likert scale from 1 to 5, where a 1 indicates that the strategy is ineffective and a 5 indicates very effective. To the second question, the interviewees indicated whether the strategy has already been applied in the program in which they are active or not, where 'applied' means that an administrative action point has also emerged. Since the aim of the first question is to find out to what extent a strategy is effective, it has been decided to express these scores in percentages. These scores are obtained by the following formula:

$$Effectivity\ (E)\ =\ \frac{\sum w*100\%}{A*N},$$

where 'w' is the score rating of a participant, A the highest mark (5 in this survey) and N the total number of participants. A percentage has been calculated for each strategy, which indicates the degree of effectiveness. For this study, the 50% is considered as a neutral value. The percentages below this value imply that a strategy is ineffective with a minimum possible contribution of 0% and percentages above it that it is effective with a maximum contribution of 100%. The purpose of the second question is to give extra meaning to the results of the first question. When a strategy has been applied before, the values of the interviewees are more reliable, because they have experienced the effect. It is expected that participants of the same program will give the same answer on the second question for all strategies, since they are all program managers of the same collaboration. If not, it is assumed that this strategy has not been applied at the program level, as the other program manager should be aware of it.

In the end, this gives all strategies five different types of final scores:

1. '++', when strategies score effectively and have also been applied in practice.
2. '+', when strategies score effectively, but have not yet been applied.
3. '+-', when strategies score neutrally.
4. '-', when strategies do not score effectively, but have not yet been applied.
5. '--', when strategies do not score effectively and have also been applied in practice.

The strategies identified as the most successful from the case analysis are marked with a '++' in the program of origin, because they have already been applied in practice.

5.2.3   Explanation of participants

For this survey, the interviewees of the case study were approached again, because only participants of the programs are seen to be able to assess the effect of the strategies on the programs accurately. Managers outside these programs may not be equally aware of the context and dynamics involved in these innovative partnerships. Furthermore, the interviewees were previously informed about this research and therefore seem to be the most suitable for making the link of theory to practice.

A total of four responses were received, two of which were participants from the WoonST program and two from Bouwstroom Noord. This means that the strategies have been verified for both programs, the results of which have been shared below.

5.2.4 Discussion

All results can be viewed in conjunction with the survey data in Appendix E and the total list of strategies in Appendix F. In order to make the results clearer, three tables are shown below: WoonST's validated strategies (5.5), the validated strategies of Bouwstroom Noord (5.6) and shared ++-strategies (5.7).

Tables 5.5 and 5.6 show the validated strategies of the two cases, which are distinguished in both tables into ++ and +. Furthermore, overview 3 is a collection of strategies that have been applied in both programs and that have been characterized as effective.

WoonST validated strategies			
++/+	Category	Strategy (#)	E(%)
++	1	2	100%
		6	100%
		3	90%
		4	90%
		5	90%
	2	11	90%
	3	13	100%
		14	100%
	6	24	100%
		25	90%
	9	33	100%
		34	100%
		32	90%
		35	Interview*
		36	Interview
+	1	1	90%
		7	70%
	2	8	90%
		10	90%
	4	12	70%
		15	60%
	5	20	60%
	6	26	80%
	8	29	60%
	9	30	100%

Table 5.5 WoonST validated strategies
*The strategies labeled with 'interview' are conducted from the interviews in the case study

Bouwstroom Noord validated strategies			
++/+	**Category**	**Strategy (#)**	**E(%)**
++	1	2	80%
	1	4	80%
	2	8	100%
	5	20	80%
	6	24	100%
	6	25	80%
	6	26	80%
	9	35	100%
	9	30	90%
	9	32	*Interview**
	9	33	*Interview*
	9	34	*Interview*
	9	36	*Interview*
	9	37	*Interview*
	9	37	*Interview*
+	1	5	90%
	1	6	80%

		1	70%
		7	70%
		3	60%
	2	9	70%
	2	10	70%
	3	11	80%
	4	13	90%
	4	14	90%
	4	15	70%
	4	12	60%
	5	18	60%
	5	21	60%
	5	22	60%
	7	27	90%
	7	28	80%
	8	29	80%
	9	31	80%

Table 5.6 Bouwstroom Noord validated strategies
*The strategies labeled with 'interview' are conducted from the interviews in the case study

++-Strategies WoonST and Bouwstroom Noord				
Category	**Strategy**	**WoonST E(%)**	**Bouwstroom Noord E(%)**	**Average**
1	2	100%	80%	90%
	4	90%	80%	85%
2	24	100%	100%	100%
	25	90%	80%	95%
9	**32**	90%	*Interview**	N/a
	33	100%	*Interview**	N/a
	34	100%	*Interview**	N/a
	35	*Interview*	100%	N/a
	36	*Interview*	*Interview**	N/a

Table 5.7 ++ Strategies WoonST and Bouwstroom Noord
*The strategies labeled with 'interview' are conducted from the interviews in the case study

As mentioned earlier, the surveys in this study were used to validate the strategies from the literature in order to conclude which of these can contribute to create more value in the case programs. It should be noted, however, that only four participants, two per program, completed the surveys, which means that no robust conclusions can be drawn. The conclusions that have been made are, nonetheless, a reason for a follow-up study and are in keeping with the explorative nature of this study into two unique, previously unexplored collaborations. When looking at the results, in both programs most strategies are validated and thus recognized as successful strategies. Tables 5.5 and 5.6 provide an overview for which strategies this applies per case. The following can be said about the distinction between ++ and +: the strategies of the first category, ++, have been applied before and can therefore be interpreted as strategies that have contributed to the gains achieved so

far per case. An overview of the second category, +, shows which new strategies the case in question can apply based on the results. Because these have not yet been applied, these strategies can therefore be characterized as new strategies that must create extra value in the relevant program by adding them to the current (++) list. It should be noted that strategy number 37, derived from Bouwstroom Noord's case analysis, has not been assessed by WoonST and it is therefore not known whether it is also effective there. This gives the following observations:

1) *Table 5.5 shows which strategies have contributed to the value delivered so far and which can potentially create more value for WoonST.*
2) *Table 5.6 shows which strategies have contributed to the value delivered so far and which can potentially create more value for Bouwstroom Noord.*

The results also show that the category 5 strategies do not score highly in either program: where Bouwstroom Noord usually scores neutral, these strategies score negatively at WoonST. These types of control strategies are important in order not to let the interaction take over in the process and serve as a basis for complementing the interaction and control. Although some are still characterized as effective, with the disappearance of the category 5 strategies, there are only a limited number of control strategies. New control strategies will therefore have to be sought to fulfill this important role. This leads to the following observation:

3) *New control strategies must be found to complement the interaction.*

However, what is notable about the strategies that have been considered ineffective is that none of them have been implemented. Because a possible effect of such a strategy has not been experienced, it cannot be said with certainty that it is ineffective. However, given the participants' role as program managers in this unique collaboration and not being more reliable outsiders to validate these results, the collaboration still benefits from finding new control strategies.

In contrast to most control strategies, most interaction and some control strategies are characterized as effective within both programs. The conclusion can be drawn that these strategies potentially contribute to effective program management. This gives the following observation:

4) *Most of the interaction and some control strategies suggested from the literature contribute to effective program management.*

Furthermore, the other strategies, the strategies that emerged from the interviews, were also experienced positively in both programs. These are included in the aforementioned Tables 5.5 and 5.6. This means that the strategies that have been suggested and not applied in both programs are characterized as effective and the strategies that have been applied in only one of the programs are also considered effective in the other programs. This gives the following observation:

5) *The strategies that emerged in the interviews are characterized as effective for both programs.*

Finally, the scores of each strategy were also compared with the score of the other program. This was done to gain more insight into the different contexts in which both programs are located. When the differences are large, this means that the same strategies have different influences per program and the contextual factors must therefore be different. However, the results show something different: on average, the scores differ per strategy by only 15%. Although this is not a conclusion that the contextual factors are the same, since the strategies can be equally effective for different contextual factors, the results indicate that they could have the same effect on different contexts such as WoonST and Bouwstroom Noord. This suggests that managers from other Bouwstroom

initiatives can be inspired by these results and the impact of the strategies. Table 5.7 in particular, in which the strategies both score positively and are applied in both cases, serves as a strong reference, as the ++-strategies have been considered more reliable (as explained earlier, because their effect has been experienced by the program managers). The two cases have been deliberately selected in such a way that they have divergent approaches, so that the other Bouwstroom programs are not totally unique in approach and can be derived from the two cases. This gives the following observation:

6) *The results emphasize that this information is relevant for the other Bouwstroom initiatives.*

All in all, the analysis of the results led to six observations by the researcher. These observations, collected below, provide insights about what the results mean for this study.

Observations based on results
1) Table 5.5 shows which strategies have contributed to the value delivered so far and which can potentially create more value for WoonST.
2) Table 5.6 shows which strategies have contributed to the value delivered so far and which can potentially create more value for Bouwstroom Noord.
3) New control strategies must be found to complement the interaction.
4) Most of the interaction and some control strategies suggested from the literature contribute to effective program management.
5) The strategies that emerged in the interviews are characterized as effective for both programs.
6) The results emphasize that this information is relevant for the other Bouwstroom initiatives.

Table 5.8 Observations

5.3 CONCLUSION

In the case study it emerged that the current application of program management leads to several challenges, which mainly concern the interaction with external parties. While value is currently being created for the involved program managers, there is still a need to make program management more effective in order to ultimately create more value. An attempt has been made in this chapter to find out how this can be achieved. By first mapping out the challenges of both programs, reflecting on strategies collected from the literature and the previous interviews and then validating them, this chapter proposes several strategies that should contribute to the program management of both cases. The research question is:

> **How should the major challenges be approached to create more value in regional social housing construction programs?**

Results show us that many strategies collected in advance can potentially contribute to creating more value in both programs. For example, many strategies can be traced that apply to the interaction issues, where the greatest challenges lie for the programs. However, these results reveal a new problem, which does not seem to be solved by the suggestions from the literature. While most interaction-type strategies are valued and the greatest challenges relate to the interaction, they still need to be balanced with control strategies. Some control strategies have been validated, but the control strategies of de Bruijn & ten Heuvelhof (2018), whose main aim is to complement the interaction, score poorly. This means that the demand for new complementary control strategies remains and does not appear to be resolved with the findings of this study. All in all, managers of WoonST, Bouwstroom Noord and other Bouwstroom initiatives, as they are represented in this study by the two cases, can be inspired by many validated strategies in realizing effective program management.

6 DISCUSSION

In the literature study, the six attributes for effective program management were explained, followed by a description of both cases. Several major challenges have emerged from the analyses of these cases, which have been approached with various strategies. So far, these attributes and strategies have been approached separately and have only been distinguished into interaction and control types. In order to provide comprehensive insights into how the six attributes can play a meaningful role for effective program management of the programs, this part of the study has attempted to link these strategies to the six attributes. The research question that will be answered is as follows:

How can program management attributes contribute to realize effective program management in regional housing construction programs?

The purpose of this link is to demonstrate which strategies program managers should be aware of when applying the six attributes in order to realize effective program management. As was made clear earlier in the study, effective program management occurs when value is created that would not be possible with a project-based approach. The choices are made on the basis of the researcher's insights and are in most cases explained per category, but if necessary, per strategy. A comparable approach has been applied to the observations made in the research up to this point, so that more information is gained about the attributes through this analysis as well. These insights are then used in Section 6.3 for an overall overview of effective program management.

6.1 REVIEW OF STRATEGIES

In this section the strategies are reviewed by discussing which strategy can be linked to which of the six attributes of effective program management. These are only discussed if they have been validated by at least one case and are treated per category (nine in total).

Category 1: Alignment (Hertogh & Westerveld, 2010)

First, the alignment strategies are discussed. The literature study explained that governance is the attribute that relates to the alignment of parties during the delivery phase. As a result, all strategies of this category, the alignment strategies, have been interpreted as governance strategies. However, in this list, there is one strategy, 5, that emphasizes the application in the front-end as well. Given the impact of the definition phase (which includes the vision and priority focus), and the fact that the parties are already sitting around the table in this phase, this phase is considered part of the front-end. As a result, this strategy is interpreted as one that should also be applied in the vision and priority focus.

Strategy	Attribute
1. Agree on how to deal with ambiguity.	**Governance**
2. Stimulate interaction and be open for suggestions.	**Governance**
3. Only pay attention to the exchange of ideas and arguments.	**Governance**
4. Reflect the program activities to your own identity and ask their meaning for yourself.	**Governance**
5. Try to align stakeholders in the front end and aware the operators and maintainers they work for the same goal.	**Vision, priority focus** and **governance.**

6.	Adopt an open, honest and direct attitude in communication with stakeholders. Share both positive and negative information with them so that there are no surprises.	**Governance**
7.	Be aware of the fact that people are only aware of the benefits when products are delivered.	**Governance**

Table 6.1 Category 1 strategies - attributes link

Category 2: Short term prediction (Hertogh & Westerveld, 2010)

Secondly, the short term prediction strategies have been examined. Since the aim of these strategies is to be able to take measures in a timely manner and thus not be burdened by contextual changes, this category is interpreted as strategies that relate to the adaptation attribute.

Strategy	Attribute
8. Make an overview of the challenges and prioritize them (Hertogh & Westerveld, 2010).	**Adaption**
9. Determine the criteria for successful strategies and participants. Detailed criteria for the short term are preferable to less detailed criteria for the long term;	**Adaption**
10. Learn from successful strategies in your own program or other programs by understanding: a) Why it was applied under which situation b) Under which context it has been applied and to compare it with one's own context (Hertogh & Westerveld, 2010)	**Adaption**

Table 6.2 Category 2 strategies – attributes link

Category 3: Reformulating the challenge (Hertogh & Westerveld, 2010)

The third category, the reformulation strategy, is also a strategy that applies when there are changes during the process. This category is therefore also characterized under the adaptation attribute.

Strategy	Attribute
11. Do not approach change as an obstacle, but as a new opportunity (Hertogh & Westerveld, 2010; Rijke et al., 2014).	**Adaption**

Table 6.3 Category 3 strategies - attributes link

Category 4: Variation (Hertogh & Westerveld, 2010)

Subsequently, the variation strategies are considered in more detail. According to the literature, this category is important for mitigating the impact of unknowns the program. For that reason, these are all classified under the attribute adaptation by the researcher. However, Strategy 13 is not limited to this. Since it also emphasizes the importance of a specific collaboration, it is also grouped under that vision and priority focus (where investment is first made in this collaboration) and governance.

Strategy	Attribute
12. Design different (technical) alternatives and apply various strategies to achieve goals. However, try to do this as early as possible, as these turn out to be much more expensive in later stages.	**Adaption**
13. Take advantage of the qualities of both public and private organizations by working together instead of limiting yourself to one.	**Vision, priority focus, governance** and **adaption**
14. Diversify the staff on the basis of competencies, expertise and backgrounds (Hertogh & Westerveld, 2010).	**Adaption**
15. With a range of possible scenarios: a) Only work out a limited number that best represents the entire range of possible outcomes.	**Adaption**

b) Don't work out scenarios without unique outcomes.	

Table 6.4 Category 4 strategies - attributes link

Category 5: Control strategies in interaction (de Bruijn & ten Heuvelhof, 2018)

The category that will now be discussed concerns the control strategies of category 5. The goal of these strategies is to complement interaction with control, so that there is not too much focus on the interaction and thus the progression is jeopardized. In the second part of the case study, however, a problem came to light: namely that too many of these strategies have not been recognized as effective. In addition, the validated strategies do not score high compared to the other strategies. Some strategies, which have been validated by the participants of at least one case, are listed and explained below. Since these strategies are all control-type and applicable to the delivery phase, they are interpreted by the researcher under the coordination attribute. In the table below, the strategies from this list are shared and explained in more detail to make them more understandable for the reader.

Strategy	Explanation	Attribute
16. N/a	Not validated.	-
17. N/a	Not validated.	-
18. Apply a control action to enable the decision-making process.	This strategy can be applied when the process stalls because the parties cannot coordinate with each other. By taking a unilateral hierarchical action, other parties can be startled and thus proactively involve themselves in the process.	**Coordination**
19. N/a	Not validated.	-
20. Apply a control action for procedures.	This strategy entails imposing a procedure on stakeholders that they must follow in order to reach a decision. Procedures are attractive for stakeholders to participate in because they create structure and provide greater transparency. This ensures less resistance in a decision-making process.	**Coordination**
21. Apply a control action while providing opportunities.	This strategy means that after a unilateral hierarchical decision, opportunities are offered to the other parties. This decision can be a setback for a stakeholder, causing them to resist. However, due to possibilities behind this decision that could benefit this stakeholder, it can abide by this decision. **Example**: It is unilaterally decided that all catering establishments are obliged to prohibit the sale of drinks from 23:00. Because this (consciously) offers the possibility to consume drinks after this time, and the catering industry remains open, they will acquiesce to this decision, since there is still something to gain.	**Coordination**
22. Apply control action when critical parties win.	This strategy means that a unilateral hierarchical decision is taken after the critical stakeholders are satisfied (about a decision to be made or the like). In this case, the support to continue is great. However, stakeholders who have "lost" can pose a risk by hindering the process in the future. On the other hand, they can also assume that they can be compensated for this loss in the remainder of the process.	**Coordination**
23. N/a	Not validated.	-

Table 6.5 Category 5 strategies – attributes link

Category 6: Design principles (De Bruijn et al., 2010)

The next one to be analyzed is the category focusing on the design principles. These strategies aim to keep the progress of the process going. Although it has previously been argued that control strategies in particular fulfill this function, these strategies relate to the interaction between parties. The strategies therefore apply to various attributes which are explained in the table below.

Strategy	Attribute explanation
24. Encourage early participation.	Early collaboration starts with the definition phase and is enabled in the **vision** and **priority focus**.
25. Include top level staff from each involved party.	Organizations formally and informally are already at the table from the definition phase and continue this to the delivery phase. This is expressed in the **vision**, **priority focus** and **governance**.
26. Don't build on a conflict, rather move it to the outside of the interaction.	For the same reason as the strategy above, this strategy applies to the **vision**, **priority focus** and **governance**.

Table 6.6 Category 6 strategies - attributes link

Category 7: Breakdown structures (Hertogh & Westerveld, 2010)

The next category concerns the application of breakdown structures. This category aims to subdivide large, complex structures into manageable, controllable parts and is therefore characterized as a control type. The case study showed that the shortage of resources, the land and personnel, was experienced as major challenges. The use of breakdown structures for these resources is only relevant in the delivery phase. As a result, these strategies are grouped by the researcher under the coordination attribute.

Strategy	Attribute
27. Map out the available personnel (as resources) using a Resource Breakdown structure.	**Coordination**
28. Map the land (as resources) through a Resource Breakdown structure.	**Coordination**

Table 6.7 Category 7 strategies - attributes link

Category 8: Management of planning, costs, quality and risks (Hertogh & Westerveld, 2010)

The next category, the application of traditional management processes, also aims to keep important values (time, money and quality) under control. However, the application does not have to be limited to the delivery phase, as these processes are also applied in a different way in the definition phase and shared in the planning framework. As a result, the researcher classifies this strategy as the planning framework and coordination attributes.

Strategy	Attribute
29. Apply traditional management processes (risks, planning, costs and quality) at program level as well.	**Planning framework** and **coordination**

Table 6.8 Category 8 strategies - attributes link

Category 9: Case study strategies

Finally, the strategies of the last category, derived from the interviews, are also linked to various attributes. Because these are diverse, the applicable attribute per strategy is explained.

Strategy	Attribute
30. Involve urban planners early in the process to avoid hindrances later.	Early collaboration starts with the definition phase and is enabled in the **vision** and **priority focus.**
31. Set up a regional or more central management to speed up the construction process.	This strategy must be approached in combination with strategy 32 (the next one), because such a more central organization only comes in handy when they are aligned. The formation of such an organization applies to the same attributes, namely the **vision**, **priority focus** and the **governance**.
32. Start with motivated parties and, if possible, get rid of blocking ones to put together a well-functioning system and then involve other interested parties. This will improve the progress of the program.	The collaborations are formed in the definition phase under the attributes **vision** and **priority focus**, and then maintained in the delivery phase with **governance**.
33. Align parent organization by including them in the whole thinking of the program.	The content of the programmatic work is designed in the definition phase and updated during the delivery phase. In order to understand these as well as possible, the parent organizations should be included in both phases through the interaction attributes **vision**, **priority focus**, **governance** and **adaptation**.
34. Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program.	This strategy involves awareness and is relevant throughout all processes throughout the program. As a result, it is grouped by the researcher under all attributes: **vision**, **priority focus**, **planning framework**, **governance**, **coordination** and **adaptation**.
35. Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages.	The relationships are shaped and developed through the following three attributes: **vision**, **priority focus** and **governance**. Because the goal of this strategy is related to a control-type challenge, it is also classified under the **coordination** attribute.
36. Take a cooperative attitude instead of separate to improve learning.	A cooperative attitude is relevant when people sit at the table with each other. This happens both in the definition phase when the **vision** and **priority focus** are formed, in the delivery phase when the alignment is kept intact and the **coordination** when control management is applied.
37. Invite a guest from another program to talk about a specific proposal that the own stakeholder is anxious about but has been successfully implemented in the other program. The guest, an actor with the same role as the own reluctant stakeholder, has to relieve this fear.	Fear is considered a reason not to cooperate with a group, as the interviews explained. This collaboration is relevant in the formation of the collaboration during the definition phase, but also during the collaboration in the delivery phase. Because in this phase new situations can arise, in which fear arises. Eliminating this fear ensures that a change is managed. This leads the researcher to the conclusion that the strategy applies to the following attributes: **vision**, **priority focus** and **adaptation**.

Table 6.9 Category 9 strategies - attributes link

In this section, all strategies are linked to the attributes of effective program management. After the observations are analyzed in the next section, they are discussed again later in this chapter in order to form a comprehensive whole.

6.2   REVIEW OF OBSERVATIONS

Furthermore, various observations were made during the case study based on analyses. However, unlike the strategies, these observations have not been validated and are based only on the researcher's insights. In this section, the observations are considered one by one in the context of the theory and what this means for the program management of the Bouwstroom initiatives. When applicable, these observations are also linked to an attribute.

> 1.   *The differently designed governance of the two programs leads to similar results. The internal parties are aligned but have difficulty aligning external parties.*

This observation concerns an insight about the current application. As this observation indicates, looking at the involvement of internal and external parties, we see similar relationships. This is despite the fact that the governance takes a different form in both cases. This difference shows in the different parties involved in different ways and the way in which the collaboration is built, contractual or confidential. The alignment of internal parties can be regarded as a success, in contrast to relationships with external parties. These relationships underlie the program's greatest challenges. Furthermore, it is no guarantee for the later phases in the program that the internal parties currently feel aligned. This is covered in the following observation.

> 2.   *A collaboration that is only based on a contractual (client and contractor) agreement has the potential to damage the interaction.*

This observation refers to the risk of a collaboration that is based on a client and contractor agreement in a Bouwstroom programme. The analysis revealed that such a relationship leads to clashes when the context changes, which can have greater consequences over a longer period of time than has been the case until now. In contrast, in both cases it can be seen that all internal parties are involved, albeit in different ways, in the steering group and coordination team and all parties ultimately feel aligned. In order to avoid such a contractual client and contractor relationship, this must be addressed in the definition phase. That makes this observation relevant to the **vision**, **priority focus** and **planning framework.**

> 3.   *A strong planning framework and alignment contribute to the adaptability of a PMO.*

This observation shows that the attributes are not isolated but are also interrelated to each other. In this case it is even a control attribute that complements the interaction. As discussed in the case study, firm agreements ensure that people are less dependent on the changing wishes of stakeholders, because they cannot escape it. If these are not available, uncertainty arises and the risk that a stakeholder will unilaterally take a different path is therefore greater. This observation is therefore relevant for the **planning framework** and **adaptation**.

> 4.   *The differently designed control of both programs leads to similar results. People are satisfied with the progress made, but they have the ambition to go faster.*

The fact that two different approaches in two different regions in the country lead to similar results implies that the other Bouwstroom programs that work in a similar way can also expect similar results. Although they are satisfied with these results, the participants of both cases indicated that they have the ambition to create even more value.

5. *The intrinsic motivation of parties, enabled by early participation, gives strength to the planning framework.*

In the interviews, participants in both cases indicated that most parties acted in accordance with the agreements and were also satisfied with each other's commitment to comply with these. The intrinsic motivation of the parties has emerged as the reason for this success. It was explained in the literature review that this motivation is made possible by early involvement. In order to ensure that parties act in accordance with agreements made and thus a strong **planning framework** is created, parties must already be involved in the **vision** and **priority focus**.

6. *A comprehensive PMO planning framework seems stronger than no comprehensive planning framework.*

In the case study, the role of a comprehensive PMO planning framework, in which the functioning of the entire PMO is established, is explained. This has been deemed necessary to further increase compliance with the **planning framework**.

7. *The structure of both organizations ensures that interaction and control complement each other without experiencing hindrance.*

The case analysis has shown that the organizational structures of both programs are able to avoid conflict between the interaction management of the steering committee and the control management of the coordination team. These structures, which are shown in Figures 3.2 and 3.4, are therefore seen as organizational-structural means to complement interaction and control. Since the structure of the organization is formed in the early phases and is fixed there, and it manifests in how interaction groups and control groups function in relation to each other in the delivery phase, this observation is classified by the researcher under the attributes **planning framework**, **governance** and **coordination**.

8. *The biggest challenges of both programs lie in the interaction management with external parties.*

The challenges have been addressed several times. Since no association with an attribute applies here, no further comment is considered necessary.

9. *The current application of program management in both programs is effective.*

In the case study it has been made clear that the fact that stakeholders are satisfied with the value that has been created till now, justified the general statement that the current application of program management is considered as effective.

10. *Better interaction leads to more effective control management.*

The literature study explains why strong interaction not only complements so that the control approach stays in the spirit of the time/context, but also facilitates the managers to enable more control power.

11. *Table 5.5 shows which strategies have contributed to the value delivered so far and which can potentially create more value for WoonST.*

Using the analyses for this in this chapter, it is possible to find out how the six attributes should be filled in for the WoonST program.

12. *Table 5.6 shows which strategies have contributed to the value delivered so far and which can potentially create more value for Bouwstroom Noord.*

Using the analyses for this in this chapter, it is possible to find out how the six attributes should be filled in for Bouwstroom Noord.

13. New control strategies must be found to complement the interaction.

Unfortunately, the case study showed that the control strategies from the literature, which aim to balance the interaction, are not applicable to both programs. With the challenges that the programs face with regard to the interaction and the possible strategies that have been proposed, the need for these control strategies is high. Creating new strategies is therefore important and this has already been suggested in the literature.

The researchers behind the category 2, short term prediction (Hertogh & Westerveld, 2010), strategies explain with strategy 10 that by learning from their own program or similar programs, successful strategies can be found. To do this, it must first be defined when a strategy is successful depending on the challenge. Next, managers need to understand:

- why it was applied in which situation;
- in which context it has been applied and to compare it with its own context.

For this research, two Bouwstroom programs were analyzed and inspiration was drawn for strategies to be applied. In addition, from the literature on other types of programs, namely macro-projects, it has been investigated which successful strategies have been applied there. Unfortunately, these have not provided a solution for the necessary control strategies, which means that program managers have to look outside this research. This is possible first of all with the cases themselves, since they are still in an early stage and can therefore continue to learn from their own programs during the collaboration. There are also other Bouwstroom initiatives in the Netherlands, where strategies can also be sought. Finally, it is possible to use the literature, for which this research has focused on the construction industry, by targeting other sectors. All in all, new control strategies should be sought, with the learning strategy 10 (Hertogh & Westerveld, 2010) being a guideline for this search. This learning strategy 10 is therefore classified under the attribute **coordination**.

14. Most of the interaction and some control strategies suggested from the literature contribute to effective program management.

The strategies involved can be read in the case study. These strategies can be applied to mitigate the challenges.

15. The results emphasize that this information is relevant for the other Bouwstroom initiatives.

Observations 1 and 4 showed how similar the results of both cases were. Taking into account their differences and based on the fact that the other Bouwstroom programs can therefore be traced back to these two cases in terms of structure and context, the researcher has arrived at this observation. How the program managers of the other Bouwstroom initiatives in the Netherlands can learn from these cases can be derived from the learning strategy 10 (Hertogh & Westerveld, 2010), as explained in more detail in observation 13.

6.3 FINAL DISCUSSION

Thanks to the analyses of the strategies and observations in this chapter, there is now more insight into how all findings from this research translate into the theory on which this research is built, and it is possible to indicate for each attribute which strategies can be applied to create (more) value in the programs, and thus realize effective program management. An overall overview in which all

information in this study comes together was lacking, because not all information matched each other. But now that this has been discussed through a final discussion, such an overview of this research has been made possible. Figure 6.1 on the next page thus illustrates all findings on how effective program management is achieved in regional social housing programs.

The figure shows two approaches: the current application of program management, shaped by the six attributes, and an additive application of strategies that enhances the aforementioned to create extra value, the 'validated additional approach'. The schematization shows that the current application of program management in the Bouwstroom programs has resulted in the creation of sufficient value according to the program managers, but that this is also accompanied by several major challenges that have not been solved. As the schematization illustrates, these challenges are mitigated by the additional approach, which thereby simultaneously ensures that more value is created. Below the schematization is an extensive description of the different columns. Under the 'current program management approach' it is stated per case which effective strategies have been applied under which attribute and which observations have been made by the researcher. These are all numbered according to the numbering from Appendix F. Under the right-most column, the 'validated additional approach', all effective strategies are shared per case that have not been applied, thus making program management even more effective. This information is also numbered according to the numbering from Appendix F. Finally, the middle column describes what the value and challenges entail. Earlier in this study it was indicated that the value is best characterized by the vision and priority focus of a program and therefore these are shared here per case. Subsequently, the challenges are subdivided and shared, as was done in the analyzes of this study. With this information, the figure summarizes how effective program management is realized on the basis of the findings from this research.

This makes this research relevant for program managers of WoonST, Bouwstroom Noord and the other Bouwstroom programs in the Netherlands. The latter program managers can be inspired by the findings of this study and learn from the results by taking the learning strategy 10 (Hertogh & Westerveld, 2010), into account. For program managers of the cases, these findings provide a basis for the continuation of this multi-year collaboration. However, it is worth noting that both programs are currently working on several projects, which means that some findings that apply to the definition phase are no longer feasible. Nevertheless, these findings also remain important to them, because they are useful when setting up new programs. Both cases are set up for a period of several years, but formally ends after this period as well. However, if this form of cooperation is satisfactory, this is a reason to continue in this way of working and to set up a new program. This intention is particularly clear in the Eindhoven urban area, as the current WoonST program has been designated as a pilot. This makes it understandable that the findings from the early phases are also valuable for program managers in WoonST and Bouwstroom Noord.

NB. The figure is rotated.

Figure 6.1 Effective program management in regional social housing construction programs

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Effective Program Management in regional social housing construction programs

Current Program Management approach

Extensive description

Vision

	P. focus
Observations	
2, 5	2, 5

P. framework

	Observations	**Governance** *Strategies*
WoonST	6, 13, 24, 25, 32, 33, 34, 35, 36	6, 13, 24, 25, 32, 33, 34, 35, 36
BS Noord	24, 25, 26, 30, 32, 33, 34, 35, 36, 37	24, 25, 26, 30, 32, 33, 34, 35, 36, 37

Coordination

	Observations	**Adaption**
	2, 3, 5, 6, 7	7
WoonST *Strategies*	2, 3, 4, 5, 6, 13, 25, 33, 34, 35, 36	2, 4, 25, 26, 33, 34, 35, 36
BS Noord	34	36

The numbers in these tables refer to the numbered observations and strategies in Appendix F.

Schematization

(Yin-yang diagram) — **Control**, **Interaction**, **Vision**, **Governance**, **Adaption**, **Priority focus**, **Planning framework**, **Coordination**

Result

Value

	Vision
WoonST	Improving the affordability of social rental housing and increasing the speed at which housing is realized.
BS Noord	Keep suitable new social housing affordable and realize sufficient new-build production

	Priority focus
WoonST	The annual realization of a minimum of 200 and a macimum of 500 social rental homes during a period of 5 years.
BS Noord	The realization of 1000 homes within five years. Reduction of the total process and product costs.

Challenges

	Corresponding
	More control over spatial planning and permitting procedures, which shortens lead times.
	The alignment of parent organizations.

	Singular
	Deal with the lack of municipal capacity.
	Deal with the lack of building land.
WoonST	National government policy. Speed up the process of obtaining permits from the municipalities
BS Noord	Alignment of the municipalities. Keeping yields high enough against rising costs.

Results → **Value** (Extra creation) → **Challenges** (Mitigation)

Validated additional approach

Vision

	P. focus
Observations	
2, 5	2, 5

P. framework

	Observations	**Governance** *Strategies*
WoonST	26, 30, 31	26, 30, 31
BS Noord	13, 16, 37	13, 16, 37

Coordination

	Observations	**Adaption**
	2, 3, 5, 6, 7	7
WoonST *Strategies*	20, 29	1, 7, 26, 31	8, 10, 12, 15
BS Noord	10, 18, 21, 22, 27, 28, 29	1, 3, 5, 6, 7, 13, 31	9, 10, 11, 12, 13, 14, 15

The numbers in these tables refer to the numbered observations and strategies in Appendix F.

(Yin-yang diagram) — **Control**, **Interaction**, **Vision**, **Governance**, **Adaption**, **Priority focus**, **Planning framework**, **Coordination**

7 CONCLUSION

This final chapter concludes the research into effective program management in regional social housing programs. The conclusions, limitations and recommendations have been discussed in succession.

7.1 LIMITATIONS

In this study, two case programs have been analyzed that have a unique form of cooperation for the Netherlands. However, this was accompanied by some limitations which are discussed one by one below.

7.1.1 Theoretic limitation

The first limitation discussed concerns the theory on which this research is based.

The framework of this research is formed by the six attributes of program management. Although this theory is based on studies on the programmatic approach in the construction industry, the programs studied in these studies are of a different type than the case programs. A study into the applicability of these attributes in Bouwstroom programs can clarify whether all six attributes are also suitable or whether it needs to be provided with some changes. The lack of such a study, which ultimately led to the choice of the six attributes, is therefore regarded as a shortcoming.

7.1.2 Data limitations

The other shortcomings concern the data within this study.

Firstly, various insights were gained through a cross-case analysis and ultimately conclusions were drawn based on their differences and similarities. A comparison analysis with a third case program might have led to more insights. Another motive for this research is that program managers from other Bouwstroom initiatives are also inspired by these findings. It has been explained that these two cases have been selected because they are representative of the other Bouwstroom programs as two extremes in terms of the collaborative approach. However, every program has its own context and appropriate program management must be specifically designed for this context. A study into a third case would therefore have provided more and perhaps unique insights and thus provided a more accurate overall picture to all Bouwstroom program managers. The focus on only two case programs is therefore seen as a limitation.

Another limitation concerns the limited participants in this study. Both cases were analyzed on the basis of the interviews, but these were conducted with a limited number of program managers. More interviews with multiple managers would have contributed to a more complete picture of the cases. The same applies to the surveys that were completed by only four people. A higher participation would have made the results of the validation and thus ultimately the discussions and conclusions more reliable.

Finally, the absence of concrete figures on the progress of the programs is considered a limitation. During the research no figures were used on, for example, how many projects were in size across the entire programs and how much costs were incurred (and thus saved), so that this research was only based on the information obtained from the interviews and the supplemented documents. This is seen as a limitation, because concrete figures provide a more reliable picture of reality.

7.2 CONCLUSIONS

The aim of this exploratory study was to better understand the current application of program management in the Bouwstroom programs and to make it even more effective in the context of the six attributes of effective program management. The main question of this research is as follows:

How should program management be applied in regional social housing construction programs in order to function effectively?

To answer this question, four sub-questions were posed, whose answers form a whole for the answer to the main question. All four are discussed below.

7.2.1 Research question 1

What are the principles of program management and how are they applied to enable effectivity?

To understand the theory of program management, it is first necessary to zoom in on what a program actually entails. This is defined as a set of related projects and activities in favor of this that are managed in a coordinated way to generate additional profits compared to separately managed projects. There can be different types of this, which can be distinguished in the objective of the program, but also, for example, the degree of control management. In addition, there are three main factors that emphasize the various environments in which programs can operate: the program characteristics, context characteristics and the scope. This information shows how unique each program can be and that it can operate in different environments.

Because of this diversity, several researchers agree that there is no comprehensive way of program management and that each program must be approached uniquely in order to find an appropriate way. Nevertheless, an attempt has been made to generalize program management theory among the six attributes of program management. These six attributes consist of the vision, priority focus, planning framework, governance, coordination and adaption and can be divided into two phases: the first three in the definition phase and the other three in the delivery phase. To enable effectiveness, it is important that the attributes are applied appropriately for the specific program, and it is important that one pays attention to the interaction and control management need, which can be fulfilled through multiple strategies.

These attributes can be used as a framework to find an appropriate way of program management and thus enable effectiveness. Care must be taken here that there is not too much focus on either interaction management or control management, but that these are complementary to each other, since both are necessary for a program to function effectively.

7.2.2 Research question 2

How does the interaction and control approach affect program management in housing programs?

Both cases were analyzed on the basis of the interaction-oriented attributes, the vision, priority focus, governance and adaption, and the control-oriented attributes, the planning framework and coordination. These analyses showed for both parties that with the current application of program management, on the one hand the internal parties, parties within the PMO, are aligned, but on the other hand the stakeholders who do not function in the PMO, the external parties, are not. This unalignment with external parties results in the fact that the strengths of the municipalities are not used to improve the process. Despite this, the program managers from both programs are satisfied with the results that are delivered, which would not have been possible if these projects were approached not programmatically but project-wise. The extra values that are created as a result, which can be traced from the vision and priority focus of the programs, satisfy these managers,

which shows that there is effective program management. Yet there is a need to create even more value and thus make program management even more effective.

7.2.3   Research question 3
How should the major challenges be approached to create more value in regional social housing construction programs?

To create more value compared to the current situation, it is important to know which challenges are hindering this. Considering the biggest challenges of both programs, it is clear that strategies that stimulate interaction are especially needed. In this study, several strategies have been collected from the literature, which have also been supplemented with strategies from the case analyses themselves, which can also support the other programs. To find out whether these strategies are also useful for the case programs, they were presented in surveys to the program managers, who were able to indicate how useful they are for their program. From this, all interaction-oriented strategies appeared to score positively, in contrast to the control strategies that score low in comparison. This contrast raises a new problem, namely that new control strategies must be found to complement the interaction.

7.2.4   Research question 4
How can program management attributes contribute to an appropriate complementation of interaction and control in housing programs?

So far, several strategies have been validated that should contribute to the creation of more value in the regional social housing programs. Because this study focuses on program management and it was decided to use the six attributes as a framework, it is desirable to translate the validated strategies and the observations into the attributes to find out what these findings mean for effective program management. This translation has been incorporated in figure 6.1 in which all the findings from this research come together and it is schematically presented what the current program management looks like and how it can be improved to create even more value and thus realize more effective program management. The program managers of both case programs can use the information in this figure for the remainder of the programs to achieve more results, but also after this collaboration has formally ended. If the program managers are ultimately convinced of the programmatic approach, new programmatic collaborations can be set up in the future, in which the findings of the early phases can also be used. Furthermore, the program managers from other Bouwstroom programs can also be inspired by the findings from this research to make their own program management more effective.

7.3   SCIENTIFIC CONTRIBUTION
The scientific relevance of this research has been clarified earlier in section 1.5.1. It has been explained here that no studies have been conducted into the Bouwstroom programs before, which means that all information found about the application of program management in the cases, as described on the basis of the six attributes, can be regarded as a contribution to the literature. Furthermore, it was also indicated that the application of various theories makes this research scientifically relevant, because these theories have only been applied in infrastructure programs to date (Hertogh & Westerveld, 2010; Rijke et al., 2014). The application of six mechanisms and the interaction-control issue in this report are complementary to the literature, as it has been shown that they can also be used in the context of the Bouwstroom programs. In addition, the theories are uniquely integrated into a whole under the framework of six attributes of effective program management. Because these principles have not been approached jointly before, this study can be

regarded as a scientific addition, because it provides insight into how these principles approach program management integrally.

In the literature review, several findings have been taken into account for the purpose of this study. This section examines some of these findings in more detail and reflects on how these findings manifest themselves in the cases of this study. First of all, it was stated that interaction and control management must complement each other in order to realize effective program management (Hertogh & Westerveld, 2010). Based on this finding, it was concluded that new control strategies need to be found in both programs to create more value here. Furthermore, a concrete example emerged from the case study, which confirms this finding for the scope of this study. In Bouwstroom Noord, a party was expelled from the organization due to the intervention of the steering committee. In retrospect this turned out to be a correct move, because the organization could continue to work unilaterally, without experiencing any hindrance from an internal party. This is an example of how control management, through the intervention of the steering committee, supplements the interaction management between the parties, the internal and the external parties of the PMO.

About this interaction and control complementation it is stated that this tension is effectively controlled by a tension manager who connects the interaction and control managers to each other (Hertogh & Westerveld, 2010). This is implemented differently in both Bouwstroom programs, but is nevertheless experienced as effective by the program managers involved. In both programs, the role of the tension manager is fulfilled by the steering committee, which embodies the interaction management of the programs itself. This means that the interaction and control management is not governed by a hierarchically more highly regarded manager, the tension manager, as the literature suggests, but the interaction management team is hierarchically more highly regarded than the control team. The cooperation between the two teams is experienced as positive and there have been no conflicts or disagreements between them.

In addition, the literature study proposed that collaboration in the initial phase leads to broad support from the parties involved (Rijke et al., 2014). This support is reflected in both programs, where most internal parties are motivated to achieve the goals. These parties came together at an early stage and ultimately jointly formed the structure of the program management. However, this study also showed that one should be careful with the involvement of parties. Unmotivated and unaligned parties cause hindrance in the progress and therefore ultimately less value from the programs. A balance is found here by first involving relevant stakeholders in the formation of the collaboration and thus building on their motivation, and then continuously assessing this motivation and the interests of the parties. If it appears that a party is not (or no longer) aligned with the other parties, it must be made possible that such a party is no longer part of the PMO in consultation.

Furthermore, it was explained that the planning framework must be transparent and clear to avoid mistrust and ambiguity among the parties, so that the program management becomes more effective. There is no recognizable distrust between the parties in the two Bouwstroom programmes. At Bouwstroom Noord there has been ambiguity in the understanding of one of the priority focuses. After a change has taken place in one of these objectives, namely the reduction of the intended 25% cost reduction, there has been ambiguity and ambiguity about the role of this objective in the later phases. Although agreements have been made in advance about how the changes will be dealt with, this case shows that an unclear planning framework leads to ambiguity among stakeholders.

7.4 RECOMMENDATIONS

Based on the findings of the study, several recommendations can be made. These recommendations are divided into: 1) practical recommendations and 2) recommendations for future research.

7.4.1 Practical recommendations

This study offers several strategies that can be applied in both case programs, all of which can be considered a recommendation for the program managers. These can be found in figure 6.1. However, some general recommendations will be discussed below.

Interaction and Control

In the programmatic approach, it is important that attention is paid to interaction management, by aligning parties, and control management, by establishing agreements and coordinating the execution in order to achieve them. However, program managers should be careful not to focus too much on one of the two management approaches.

Firstly, this means that not all parties need to be aligned at all costs. For example, if this means that parties have to be excluded because they hinder the united other parties in the process, then it is wise to break off interaction with them. The exclusion of a party can initially be noticed as a loss, because one can no longer use its powers. However, a united system makes it stronger and makes it more attractive for external parties to join this system, so that ultimately even more forces can be added. Second, program managers must be aware that one should not commit at all costs to agreements set up in the early stages. During such a long-term collaboration, contextual factors can change and they can respond to the needs of multiple stakeholders. The agreements made in the beginning may no longer comply with this and when this is the case, this may affect the motivation of active parties, which is necessary to achieve results. Cooperation that is only based on control (for example by only having mutual performance agreements) can also lead to friction. When multiple frictions take place between parties, they can ultimately be destructive in a long-term collaboration, because it demotivates the parties. Interaction management is a tool to prevent this friction.

In addition, it may also be the case that the early agreements can no longer contribute to achieving the ultimate goal for which the program was ultimately set up. In this case too, it is important to remain adaptive as an organization by continuing to maintain interaction. Both case programs set a good example for this by demonstrating its adaptive capacity to changes in market prices or personnel. Figure 6.1 can be consulted to find out which strategies have contributed to this.

Learning

Because each program has to deal with a unique context, it is important that the program managers of all Bouwstroom programs continue to learn during the process. During the collaboration, various strategies will have to be applied over time to overcome the different challenges. In some cases, these can be so unique that known strategies do not offer a solution and therefore new ones must be sought. To learn such a new strategy, it is important to first define when it is successful and to link criteria to it. After this has been done, you can search within your own program, in which, for example, one project has been applied for a situation that can also be useful in another project, or the other Bouwstroom programs that all have a similar structure to each other. However, every situation requires an appropriate measure, so that successful strategies do not have to be applied everywhere without change. It is important that the program manager analyses where and when this strategy was applied and the contextual factors in which it operated, and then compares it with the contextual factors of its own situation.

7.4.2 Future research

Since this is a first, exploratory study into the program management of Bouwstroom programs, more research on this topic is desirable. Several recommendations are made below for this.

Firstly, the findings made in this study are based on data from a certain period in the programs. And follow-up research later in the programs can provide more useful information. In this way, interviews can provide a better and updated picture of the application of the attributes and new challenges and successful strategies can be found. In addition, the validated strategies and the non-validated observations from this study can be tested here to conclude whether they are still relevant. Furthermore, this study did not take into account the last phase of the program life cycle, the closure phase, so that this phase can be regarded as a research gap. In such a follow-up study, two more things can be considered compared to the current study. First, a select few program managers participated in this study, but involving more program managers can paint a more accurate picture of the reality about the programs. In addition, the researcher of this study relied on data from the interviews to make statements about the result obtained. In a follow-up study, concrete data about the delivery of the program can also be studied, such as the homes delivered or the costs incurred.

Secondly, this research has discussed that these findings are also relevant for the program managers of other Bouwstroom programs and that they can be inspired by them. Although the two case programs were deliberately chosen to be representative of the others, each program is unique and these findings are not comprehensive for program managers of all Bouwstroom programs. Taking this into account, it is possible that a follow-up study will be devoted to other Bouwstroom programs in which these are mapped and the findings from this study are reflected on them.

Finally, the analyses of the two case programs revealed a shortcoming in control strategies. In the future, research could be done on such strategies, focusing on control strategies that address the major challenges of the programs. This research can be carried out internally in the case programs or in other Bouwstroom programs, but also externally in other programs within the construction sector or even outside the construction industry.

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APPENDICES

A. CONTROL AND INTERACTION APPLICATION

Challenges
Section 2.7 of this study provides an explanation of the interaction and control tension within program management. It has been explained that challenges based on their character are best tackled with an interaction or control strategy. However, the characteristics of these challenges do not provide a complete picture of the actual problems within a program. In an attempt to clarify these challenges, they have been made concrete in Table A.1, originating from the research of Hertogh and Westerveld (2010), and divided into different types and demands for control or interaction.

Challenge type	Need for control	Need for interaction
Technical	- When a lot of elements of the product are interrelated. - When the scope of the project is unusually large (e.g., in programs).	- When technology is not tested yet. - When the technology is not predictable enough.
Social	- When there are many stakeholders involved. - When there many relationships within the involved stakeholders.	- When information has no uniform understanding within the stakeholders. - When stakeholders' interests change during the process. - When relationships change during the process.
Financial	- When it is hard to calculate the costs of the many elements in detail.	- When the market changes. - When information has no uniform understanding within the stakeholders. - When applying incorrect strategies.
Legal	- When the bureaucracy is too big in terms of permits.	- When laws are conflicting, nonexistent or changing during the process. - When many decisions and solutions are proposed, but there is no obvious best.
Organisational	- When many organisations are involved. - When many processes during the program interfere. - When many contracts are signed which include numerous interfaces.	- When researchers are included.
Time	- When activities need to be planned effectively, considering	- When the cooperation is of long duration and this is

	their role and relationships in the program	involves constant developments. - When processes are not sequential. - When activities need to be planned effectively, considering unpredictable events and processes.

Table A.1 Challenges regarding control and interaction (Hertogh & Westerveld, 2010)

Strategies

In the overview of table 2.4 some strategies are mentioned that can be applied for control or interaction. In order to provide a better picture of these strategies by Hertogh and Westerveld (2010), they are explained in more detail below.

Management of planning, costs, quality and risks

In section 2.5 it is explained that the delivery capability is the biggest success factor of a program. The delivery capability depends on the planning, costs and quality of the products and to guarantee these within expectations, these processes must be monitored through traditional management processes. Because risks have the potential to negatively influence the delivery capability, risk management is also part of the list of management processes.

Breakdown structures

The second strategy to maintain control is the use of breakdown structures. This concerns dividing the end product, time and organization into manageable parts, so that the whole can be better controlled. This is primarily because parts can be assigned to parties that are held accountable. In addition, a breakdown structure makes it possible to make decisions about specific parts, while the other parts are minimally hindered (Turner, 1997). An overview of the types of breakdown structures according to the PMI (2017) can be found below.

Breakdown structure	Representation
Work Breakdown Structure	Hierachical representation of the work to be executed.
Organization Breakdown Structure	Hierarchical representation of the organization.
Product Breakdown Structure	Hierarchical representation of the end product(s).
Risk Breakdown Structure	Hierarchical representation of the systems within the program that potentially include risks.
Resource Breakdown Structure	Hierachical representation of the likely resources.

Table A.2 Breakdown structures according to the PMI (2017)

Alignment

Stakeholder alignment revolves around creating a shared vision and goals of the program. Ways to realize this, like the rest of the program management theories, do not offer guarantees for all programs. However, based on a few cases, recommendations can be made, which are collected as follows in the following table.

Recommended tactics for alignment (Hertogh & Westerveld, 2010)
1. Agree on how to deal with ambiguity.
2. Stimulate interaction and be open for suggestions.
3. Only pay attention to the exchange of ideas and arguments.
4. Reflect the program activities to your own identity and ask their meaning for yourself.
5. Try to align stakeholders in the front end and aware the operators and maintainers they work for the same goal.

6.	Adopt an open, honest and direct attitude in communication with stakeholders. Share both positive and negative information with them so that there are no surprises.
7.	Don't be too tied down to the wishes of governments, as programs are in many cases longer in duration.
8.	Be aware of the fact that people are only aware of the benefits when products are delivered.

Table A.3 Recommended tactics for alignment

Reformulating the challenge

In section 2.7 it was explained that interaction strategies are necessary when problems are not stable but change over time. Challenges can change because new insights are gained and the wishes of stakeholders change as a result or because of other contextual changes. If this is the case, the problem will also have to be redefined to embrace the new situation.

Recommended tactic for reformulation
1. Do not approach change as an obstacle, but as a new opportunity (Hertogh & Westerveld, 2010; Rijke et al., 2014).

Table A.4 Recommended tactic for reformulation

The application of this recommendation was reflected in the Room for the River, in which a foreseen friction was prevented by adding an extra goal, the spatial quality. Section 2.8 shows how this additional objective has contributed to the successful implementation of program management. Other practical examples where this proved to be a success are the Gotthard and Lötschberg tunnel program in Switzerland and the A73-South in the Netherlands (Hertogh & Westerveld, 2010).

Short term prediction

Since it has been shown that challenges can change over time, it is necessary to apply effective strategies based on short-term expectations. The intention is that the challenges are regularly monitored, so that appropriate measures can be taken on time. Two strategies for this are: 1) systematic evaluation and 2) strategies selection. Systematic evaluation is first and foremost necessary to monitor the challenges that can be changed. Besides the fact that the new challenges must be identified, it is also important to map out which different parts of the program are interrelated to these challenges. For example, it is possible that a decision for a specific project could affect other projects, both positively and negatively. After a challenge has been analyzed, an effective strategy must be chosen to deal with it. Recommendations to facilitate this choice are collected in Table A.5.

Strategy	Recommended tactics for short term prediction
Systematic evaluation	1. Make an overview of the challenges and prioritize them (Hertogh & Westerveld, 2010).
Strategy selection	2. Determine the criteria for successful strategies and participants. Detailed criteria for the short term are preferable to less detailed criteria for the long term; 3. Learn from successful strategies in your own program or other programs by understanding: a) Why it was applied under which situation b) Under which context it has been applied and to compare it with one's own context (Hertogh & Westerveld, 2010).

Table A.5 Recommended tactics for short term prediction

Finally, variation is proposed as a strategy to deal with uncertainty. Two tactics apply: 1) diversity in strategies, organization and personnel and 2) scenario analysis. Recommendations for using these tactics are presented in the table below.

Strategy	Recommended tactics for variation
Diversity	1. Design different (technical) alternatives and apply various strategies to achieve goals. However, try to do this as early as possible, as these turn out to be much more expensive in later stages. 2. Take advantage of the qualities of both public and private organizations by working together instead of limiting yourself to one. 3. Diversify the staff on the basis of competencies, expertise and backgrounds (Hertogh & Westerveld, 2010).
Scenario analysis	4. With a range of possible scenarios: a) Only work out a limited number that best represents the entire range of possible outcomes. b) Don't work out scenarios without unique outcomes.

Table A.6 Recommended tactics for variation

The four strategies of Hertogh and Westerveld (2010) are applications in macro projects and offer recommendations on how to maintain interaction when the situation demands it. Furthermore, de Bruijn et al. (2010) provide more insight into the design and implementation of process management, Dutch for interaction management (Hertogh & Westerveld, 2010). Several similarities can be found in these with the aforementioned recommendations. An overview of these insights has been collected and shared below, but the relevant sources can be consulted for further explanation.

Design principles

According to the authors, four core values are important in designing interaction, each with a few design principles. An overview of these core values and a total of 16 design principles are presented below (De Bruijn et al., 2010).

Core value	Design principle
Openess	1. Involvement of all relevant parties 2. Establishment of suggested solutions as interaction agreements. 3. Transparency of the interaction and processes.
Core value protection	4. Protection of involved parties' core values. 5. Commitment of the involved parties to the process rather than the result. 6. Provide the opportunity to postpone a party's commitment. 7. Include rules to exit.
Progress incentive	8. Encourage early participation. 9. Ensure that involved parties can look forward to profit. 10. Ensure quick profits. 11. Include top level staff from each involved party. 12. Don't build on a conflict, rather move it to the outside of the interaction. 13. Tolerate ambiguity. 14. Use control strategies to stimulate the progress.
Content incentive	15. Integrate expertise by balancing the inclusion and exclusion of experts from the interaction. 16. Enable a variety of content insights and ideas in the begin to select among them.

Table A.7 Design principles for interaction

Control strategies in interaction

In addition to design principle 14, the authors recommend several strategies to realize this principle, which are collected in the table below (de Bruijn & ten Heuvelhof, 2018).

Control strategies in interaction (de Bruijn & ten Heuvelhof, 2018)
1. Threatening control actions to influence profit perception.
2. Apply a control action to change interdependencies.
3. Apply a control action to enable the decision-making process.
4. Apply a control action after collaborative initiatives have failed.
5. Apply a control action for procedures.
6. Apply a control action while providing opportunities.
7. Apply control action when critical parties win.
8. Reflect control action to the public.

Table A.8 Control strategies in interaction

B. INTERVIEW GUIDE

This appendix explains the conduct of the 9 interviews with the participants. First of all, information about the participants and their role in the program was shared. Subsequently, the document that was shared with the participants in preparation for the interview was shared. Finally, the content of the interviews was discussed. Before the interviews took place, a test interview was conducted in preparation, which resulted in some adjustments to the final structure.

Information participants

WoonST	
Organization	**Role**
Woonpartners (housing association)	Program chairman steering committee
Thuis (housing association)	Program manager steering committee
Thuis (housing association)	Program manager coordination team
Municipality Nuenen	Program manager steering committee
Municipality Helmond	Program manager stereing group

Table B.1 Information about the interview participants of WoonST

Bouwstroom Noord	
Organization	**Role**
Woonservice (housing association)	Program chairman steering committee
Woonservice (housing association)	Program manager coordination team
Trebbe (market party)	Program manager steering committee
Dura Vermeer (market party)	Program manager steering committee

Table B.2 Information about the interview participants of Bouwstroom Noord

Preparation document

See attached document.

Contents

The participants are considered to be representatives of his/her organization, so when asked about his/her opinion, an answer is requested on behalf of the organization. This will be made clear in advance. Furthermore, the interviews are not all identical: based on their role in the program, questions from certain participants may differ from the rest. Finally, the following points were taken into account when preparing the interviews:

- The questions are formulated in such a way that the answer must contribute to my research questions.
- The language is clear to the participants.
- The questions are asked neutrally, so that it is avoided that the participants are steered in one direction (Bryman & Bell, 2019).

This has led to the following interviews (with the motivation behind the question in red):

Woningcorporaties en Gemeenten Bouwstroom SGE		
Introduction	**Question**	
Ethics	1.	Your data will be treated confidentially. Do you agree if I record this conversation and then transcribe it? The recording is removed after the examination.
Personal information	2.	Could you briefly introduce yourself? What is your background and do you have a position outside of this program?
Mechanism	**Question**	

Vision	3.	Is the vision I shared correct? Would you like to add anything to it? Since I do not have any confirmatory documents, I need to confirm this among the participants.
	4.	How did this vision come about? Were all internal parties involved in this process? I want to know if the vision was made in collaboration with all parties. This is a recommendation from the literature.
	5.	Do you have any other motives for participating in this program? For an extra priority focus.
Priority focus	6.	Is the priority focus I shared correct? Would you like to add anything to it? Confirmation.
	7.	Are there parties that are working against this and are currently hindering progress? To find out who these parties are and there may be strategies to align them.
	8.	Do you think the vision and other goals are clear or could parties interpret them differently? I want to know if the vision is clear. This is a recommendation from the literature.
Planning framework	9.	Your collaboration is based on mutual trust and partly because of this there are no documented agreements. Do you deviate from what was agreed in advance during the program? I want to know if a bond based on trust can be as effective as a planning framework.
Governance	10.	Could you tell me about the hierarchy within the collaboration? Does everyone have (equal) say? Core value (Core value) 1
	11.	As an organization, do you feel comfortable with this collaboration, looking at your own values and principles? Core value2
	12.	What about the speed/progress of the program? What do you think is the reason for your answer? If the answer is positive, I want to know what the successful strategy is. If the answer is negative, I want to know whether the cause is related to process management and thus to Core value3
		Specific for the housing associations.
	13.	Why do you need the congregation to realize the ultimate goal? I want to know what the strengths and opportunities of the municipality are.
	14.	Is the congregation currently able to fully embrace the ultimate goal? I want to know what the congregation's weaknesses and threats are.
		Specific for the municipalities.
	15.	What is your role in this collaboration? How do you contribute to the ultimate goal? I want to know what the strengths and opportunities of the municipality are.
	16.	Are you as an organization currently able to fully embrace the end goal? If so, why? I want to know what the congregation's weaknesses and threats are.
		If the answer to question 12 is positive.
	17.	Was it also at the expense of something or is there nothing to complain about? Core value4
		If the answer to question 12 is negative.
	18.	It can happen that a program sometimes runs slowly or even freezes completely. How do you deal with this and how does it develop? Core value4
Coordination	19.	What tasks does the coordination team perform? What challenges do they experience in this? I want to know what the impact of the control focus is on the program.
	20.	How can the market parties contribute to your ultimate goal? Are you currently satisfied with the collaboration? I want to know what the strengths, opportunities, weaknesses and threats are of the market participants.
	21.	Are the market parties currently able to fully embrace the ultimate goal? I want to know what the weaknesses and threats are of the market participants.
Adaption	22.	Has anything changed during the program that was not previously assumed? If so, how have you dealt with this? If not, what impact would it make if a housing association took a different course? Or if the composition of the aldermen changes after the elections? I want to know if there is anything to say about the adaptability of the PMO at this stage.
Challenges	23.	What are the biggest challenges of this program? Can you possibly come up with a solution for that? I want to map out the main challenges and analyze them further in the research.
Effectiveness	24.	What is the Bouwstroom currently doing well? Are expectations generally met within this program? I want to know how the PMO performs and if any successful strategies have been applied that are unknown.
Remark	*1.*	*The participants represent organizations that are part of the PMO. Characteristics of this program are the interaction with the municipality and the control-based cooperation with the market parties.*
	2.	*Since there are no official documents that can confirm the design of the attributes, it was decided to validate this internally among the participants.*

	Marktpartijen SGE
Introduction	**Question**

Ethics	1. Your data will be treated confidentially. Do you agree if I record this conversation and then transcribe it? The recording will be deleted after the examination.
Personal information	2. Could you briefly introduce yourself? What is your background and do you have a position outside of this program?
Vision	3. What is your motivation to participate? Do you also value the vision of the program? I want to know to what extent they value the vision of this program.
Governance Coordination	4. What is your role in this collaboration? How do you currently contribute to the end goal? I want to know what the strengths of the market parties are. 5. What do you think are the biggest challenges to the end goal and why is this a challenge? Are these challenges that the municipality and housing associations have to solve among themselves or is the input of the market parties also important? I want to map out the challenges and also know the strengths and opportunities of the market parties. 6. How can you realize X[1]? I want to know if they can achieve this better with interaction or control ratio. By initially not saying anything about the PMO, I want to know if this can be found out directly from their answer. If this does not become clear, I will ask whether this can be better achieved in the PMO or with agreements. 7. How can you potentially contribute even more to the end goal? I want to know whether the market parties have additional strengths or opportunities. 8. Are you as an organization currently struggling to embrace the ultimate goal? If so, why? I want to know what the weaknesses and threats are of the market participants.
Remark	*1. X is a description of the answer to question 19 from interview 1* *2. Market participants in the SGE are not part of the PMO.*

Woningcorporaties en marktpartijen Bouwstroom Noord	
Introduction	**Question**
Ethics	1. Your data will be treated confidentially. Do you agree if I record this conversation and then transcribe it? The recording will be deleted after the examination.
Personal information	2. Could you briefly introduce yourself? What is your background and do you have a position outside of this program?
Mechanism	**Question**
Vision	3. Is the vision I shared correct? Would you like to complete this? Not necessary. 4. How did the vision come about? Were all internal parties involved in this process? I want to know whether the vision was created in collaboration with all parties. This is a recommendation from the literature. 5. Do you have any other motives for participating in this program? For any additional priority focus.
Priority focus	6. Are there parties that oppose these strategies (priority focus; I have to bring them separately) and are currently hindering progress? To find out who these parties are and if there are strategies to align them. 7. Do you think the vision and other goals are clear or could the parties interpret them differently? I want to know if the vision is clear. This is a recommendation from the literature.
Planning framework	8. Have you so far deviated from the cooperation document? Did you have to refer to it during the collaboration? I want to know how the planning framework functions.
Governance	9. Could you tell me about the hierarchy within the collaboration? Does everyone have (equal) say? Core value (Core value) 1 10. As an organization, do you feel comfortable with this collaboration, looking at your own values and principles? Core value2 11. What about the speed/progress of the program? What do you think is the reason for your answer? If the answer is positive, I want to know what the successful strategy is. If the answer is negative, I want to know whether the cause is related to process management and thus to Core value3 ***Specific for housing associations.*** 12. Why do you need the market parties to achieve the ultimate goal? I want to know what the strengths and opportunities of the municipality are. 13. 14. Are the market parties currently able to fully embrace the ultimate goal? I want to know what the market parties' weaknesses and threats are. ***Specifically for the market parties.*** 14. What is your role in this collaboration? How do you contribute to the ultimate goal? I want to know what the strengths and opportunities of the market parties are. 15. Are you as an organization currently able to fully embrace the ultimate goal? If so, why? I want to know what the market parties' weaknesses and threats are. ***If the answer to question 12 is positive.*** 16. Was it also at the expense of something or is there nothing to complain about? Core value4 ***If the answer to question 12 is negative.***

	17.	It is possible that a program sometimes runs slowly or even freezes completely. How do you deal with this and how does it develop? Core value4
Coordination	18.	Is it true that the steering committee is more active in the strategic field and that the Pond Management Team relies more on coordinating tasks? What challenges does the Pond Management Team experience and what does it facilitate? I want to know what the impact of the control focus is on the program.
	19.	How can the market parties contribute to your ultimate goal? Are you currently satisfied with the collaboration? I want to know what the strengths, opportunities, weaknesses and threats are of the market participants.
	20.	Are the market parties currently able to fully embrace the ultimate goal? I want to know what the weaknesses and threats are of the market participants
Adaption	21.	Has anything changed during the program that was not previously assumed? If so, how have you dealt with this? If not, what impact would it make if a housing association took a different course? Or if the composition of the aldermen changes after the elections? I want to know if there is anything to say about the adaptability of the PMO at this stage.
Challenges	22.	What are the biggest challenges of this program? Can you possibly come up with a solution for that? I want to map out the main challenges and analyze them further in the research.
Effectiveness	23.	What is the Bouwstroom currently doing well? Are expectations generally met within this program? I want to know how the PMO performs and if any successful strategies have been applied that are unknown.
Remark	*The participants represent organizations that are part of the PMO. Characteristic of this program is the interaction with the market parties.*	

Preparation document

Problem analysis

For my master thesis I am researching the programmatic approach in housing construction. This is an alternative to the usual project-based approach and differs from this by managing not one, but several projects integrally in order to create extra value.

This research started by studying the scientific literature. These sources state that an effective method of program management can differ per program and that there is therefore no standard method. Nevertheless, attempts have been made to generalize the theory more, which has led, among other things, to the six attributes of effective program management (see next section). When asked how program management should be applied effectively, the literature states that an appropriate degree of control and process management should be monitored by means of these six attributes. However, these two concepts seem contradictory: on the one hand the pre-planned wishes and requirements are monitored, but on the other hand changes (of the wishes, scope, context, etc.) during the program are taken into account.

What this degree is exactly and how the six attributes contribute can therefore differ per program, the literature suggests. However, this falls short of providing specific programs with effective program management methods. This is also the case for the various Bouwstroom programs, which are characterized by different organizations that are part of a collaboration, each with its own wishes and expectations. This collaboration undoubtedly brings challenges with regard to the control and process management relationship. However, as this relationship has not yet been mapped, it is currently unknown how these attributes affect the Bouwstroom programs and how best to apply them. Because the literature review does not provide an answer to this, they will be investigated in an empirical study via a double case study. Two programs, Bouwstroom SGE and Bouwstroom Noord, approach control and process management differently and therefore these two are considered suitable cases.

Explanations of terms

|	
Vision	The intended final manifestation of the program. These can be concrete or abstract goals.
Priority focus	Strategic goals to realize the vision.
Planning framework	The documents that describe the goals, roles and responsibilities within the program.
Governance	Coordination of the internal and management of external stakeholders.
Coordination	The control and monitoring of tasks and performance.
Adaption	The ability to respond to contextual changes.
Programma Management Office (PMO)	The organization of program managers. Figure 1 shows schematically what place it occupies in the program.
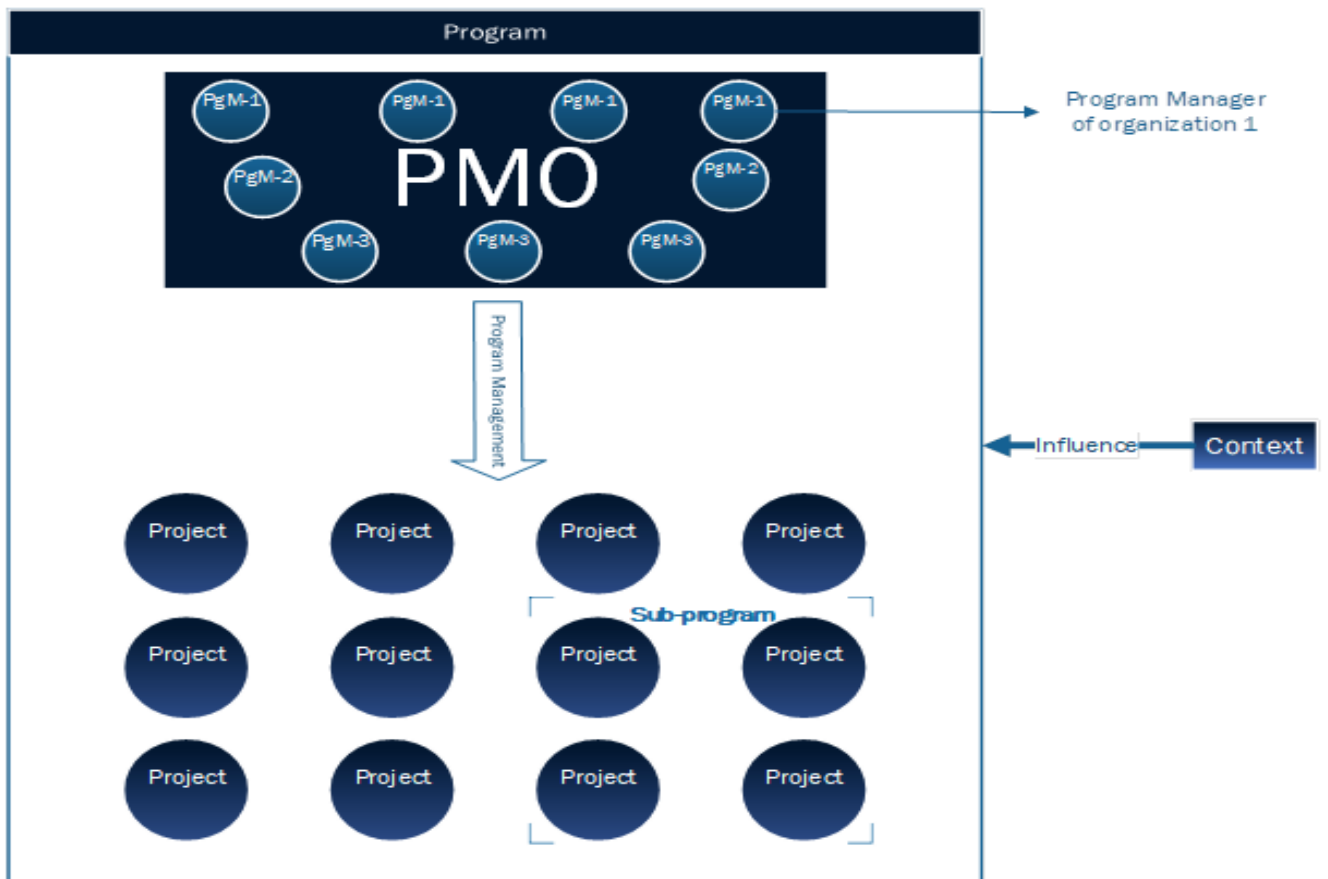
Figure B.1 Schematic representation of a program
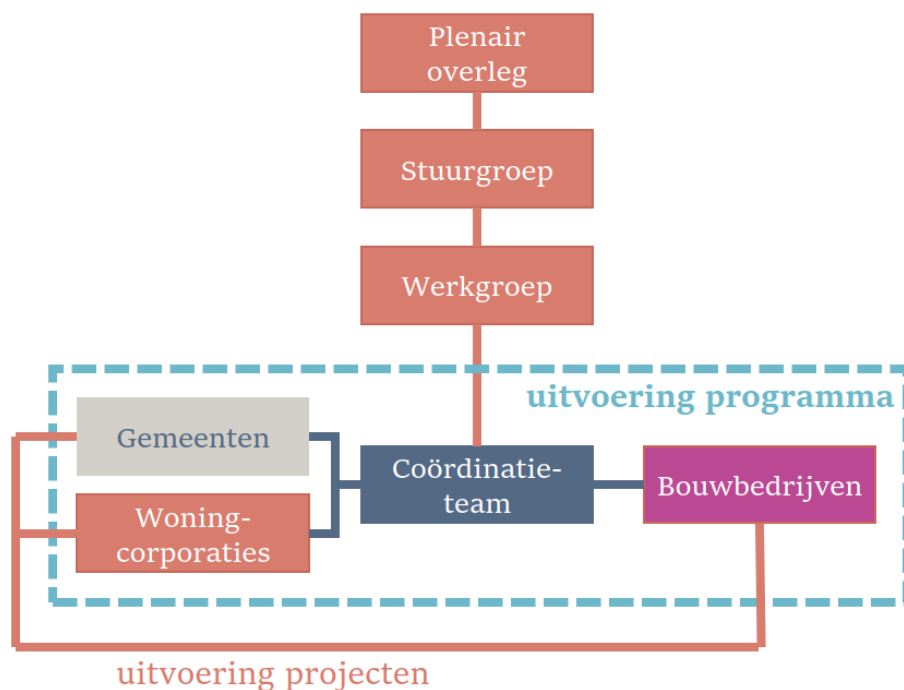
C. Organizational schemes

Figure C.1 Organization WoonST, taken from Brink (2021)

Group	Responsibilities
Steering Committee	• Responsible for the program • Escalation line to involved participants; • Reports to plenary consultation
Working group	• Monitoring the technical standard; • Determining changes/adjustments to the product.
Coordination team	• Setting up and executing contract management at framework agreement level, including contract mutations/changes, etc.; • Tracking performance at program level based on the information provided; • Managing the current joint project list; • Coordination and streamlining of annual planning with cooperation partners and housing associations; • Supporting project teams of housing associations with regard to (accelerating) the procedures surrounding spatial planning and the permit process at municipalities; • First point of contact for the cooperation partners, periodic progress meetings and the annual evaluation of the cooperation at program level - purchasing cooperation; • Identifying bottlenecks in the process and coordinating cross-project issues (program level) in order to arrive at useful solutions/improvements; • Reporting progress at program level to the Steering Committee
Municipalities	• Proactively propose (possibly) suitable locations to the coordination team;

	• Timely permitting of locations (planning procedures - environmental permits) in collaboration with the housing associations and other stakeholders involved; • Signaling bottlenecks and providing feedback to the coordination team
Housing associations	• Proactively propose (possibly) suitable locations – projects to coordination team; • Contract management at project level (in accordance with framework contract agreements); • Realization of new construction projects; • Signaling bottlenecks for improvement to the coordination team;
Construction companies	• Preparation and realization of new-build homes according to framework contract • Signaling bottlenecks for improvement to the coordination team;

Table C.1 Team tasks PMO of WoonST, adapted from WoonST (2021)
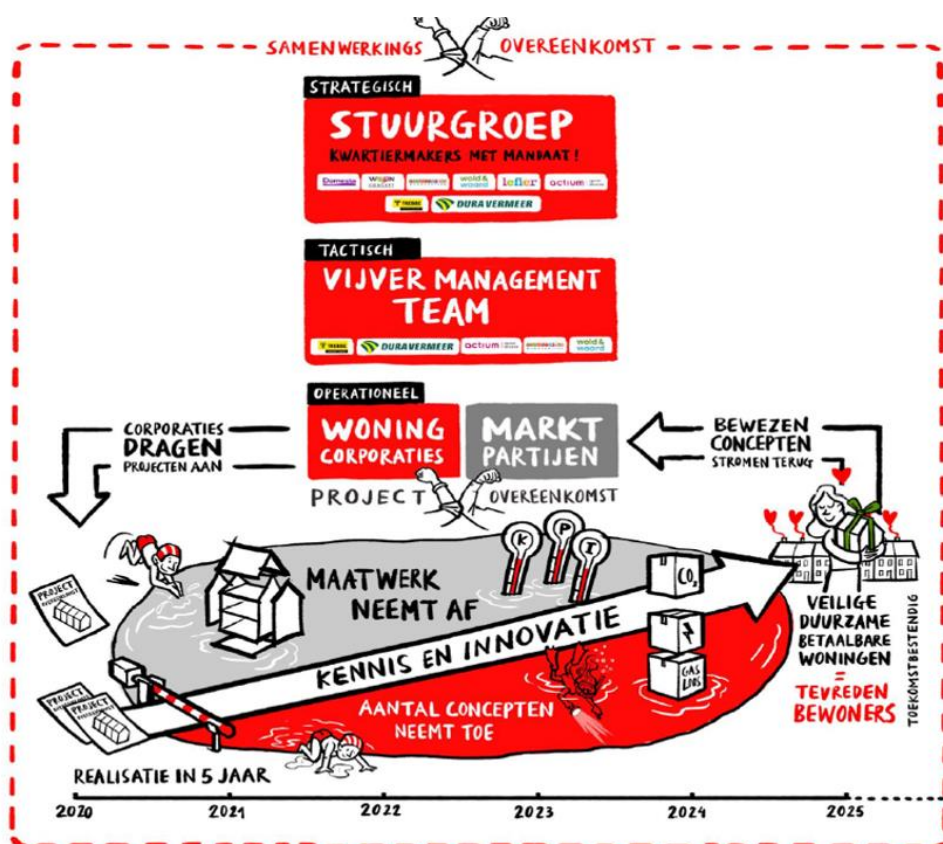
Figure C.2 Organization Bouwstroom Noord, taken from Bouwstroom Noord (2021a)

Obligations of housing associations	**Obligations of market parties**
1. Each housing association submits at least the number of new-build homes per year, as determined for the housing association in the partnership agreement. The steering committee can redetermine this input lighting in the interim.	1. Each Market Party makes an active contribution to the collaboration, including but not limited to participation in the Steering Committee and the Vijver Management Team.
2. At the request of a Housing association, the Steering Committee may adjust the Contribution Obligation for that Housing association in the interim, provided that the	2. If the collaboration leads to a continuous Construction Flow, the Market Parties can achieve economies of scale. Savings in the construction costs of New Homes allow the

total Contribution Obligations of all housing associations remains at least 260.	Market Parties, after deduction of a profit margin of 3% (based on market prices), to benefit future Projects of the Housing associations. The Steering Committee may determine a different percentage for the profit margin.
3. The parties will evaluate annually to what extent the Housing associations have complied with the Contribution Obligation. If a Housing association does not comply with the Contribution Obligation, this will be discussed within the Steering Committee. The Housing association has the opportunity to explain why the Contribution Obligation has not been met. If a Housing association has not complied with the Contribution Obligation for two years in a row, the Steering Committee (without the representative of the relevant Housing association) will consider the steps to be taken. In that situation, the Steering Committee can send a notice of default to the Housing association to still comply with the Contribution Obligation within a reasonable period of time.	4. One of the Market Parties is secretary of the Pond Management Team and one of the Market parties are secretary of the Steering Committee. One of the Market Parties is responsible for the design and maintenance of a simple digital environment, accessible to each Party, in which the progress of the KPIs can be seen. The reports of the Steering Committee and the Pond management team archived in this digital environment. The Market Parties can rotate the process management.
4. A Housing association may not withdraw without good reason a project once selected by the Vijver Management Team that fits within the Housing association's investment frameworks. Whether there is a valid reason will be assessed and decided by the Steering Committee. If the Steering Committee decides that there is no valid reason, the Housing association must continue with the project or pay an amount in compensation to be determined by the Steering Committee to the other Parties.	3. In each Project, the relevant Housing association and Market Party make agreements about the justification of the costs. The starting point is 'open book accounting' for both the Housing association and the Market Party.
5. Each Housing association makes an active contribution to the collaboration by making available setting personnel, whereby the Housing associations strive for an equal contribution in terms of hours per Housing association.	

Table C.2 Obligations of housing associations and market parties in Bouwstroom Noord, taken from (Bouwstroom Noord, 2021b)

D. CODING ATLAS.TI

Atlas.ti software was used to code the interviews. This appendix shows the different codes that have been generated and the coding groups to which they belong. The two cases were coded separately through the following steps:

1. The transcripts of all interviews have been uploaded in software Atlas.ti.
2. Quotations have been made from these transcripts, which contain relevant information about the case analysis.
3. The quotations containing substantive information on the same subject are formed together into a code.
4. Codes that are related to each other together form a coding group.

This has led to the formation of nine identical coding groups per case. These are as follows:

- o Vision
- o Priority focus
- o Planning framework
- o Governance
- o Coordination
- o Adaption
- o Interaction-control
- o Challenges
- o Strategies

Shared from the next are the reports obtained through Atlas.ti. There are two reports in total, one per case. Finally, the transcripts of all interviews are also presented in this Appendix.

E. SURVEY DATA

In this Appendix, the data from the survey from Chapter 5 is shared. First, the total results are presented per case program. The strategies are sorted by category according to the highest percentage of effectiveness. All results can be viewed in conjunction with the list in Appendix F.

WoonST survey results				
Category	Strategy (#)	Applied/not applied	E (%)	|Δ| E of Bouwstroom Noord (%)	Endscore
1	2	Applied	100%	20%	++
	6	Applied	100%	20%	++
	1	Not applied	90%	20%	+
	3	Applied	90%	30%	++
	4	Applied	90%	10%	++
	5	Applied	90%	0%	++
	7	Not applied	70%	0%	+
2	8	Not applied	90%	10%	+
	10	Not applied	90%	20%	+
	9*	N/a	0%	N/a	-
3	11	Applied	90%	10%	++
4	13	Applied	100%	10%	++
	14	Applied	100%	10%	++
	12	Not applied	70%	10%	+
	15	Not applied	60%	10%	+
5	20	Not applied	60%	20%	+
	21	Not applied	50%	10%	+-
	18	Not applied	40%	20%	-
	19	Not applied	40%	10%	-
	16	Not applied	30%	20%	-
	22	Not applied	30%	30%	-
	17	Not applied	20%	30%	-
	23	Not applied	20%	30%	-
6	24	Applied	100%	0%	++
	25	Applied	90%	10%	++
	26	Not applied	80%	0%	+
7	27	Not applied	50%	40%	+-
	28	Not applied	50%	30%	+-
8	29	Not applied	60%	20%	+
9	30	Not applied	100%	10%	+
	33	Applied	100%	N/a	++
	34	Applied	100%	N/a	++
	32	Applied	90%	N/a	++
	31	Not applied	80%	0%	+
	35	Applied	*Interview*	N/a	++
	36	Applied	*Interview*	N/a	++
Average |Δ|			15%		

Table E.1 Survey results WoonST
* Strategy 9 was not completed by both participants of WoonST and a score of 0% has therefore been assigned.

Bouwstroom Noord survey results					
Category	Strategy (#)	Applied/not applied	E (%)	|Δ| E of WoonST (%)	Endscore
1	5	Not applied	90%	0%	+
	2	Applied	80%	20%	++
	4	Applied	80%	10%	++
	6	Not applied	80%	20%	+
	1	Not applied	70%	20%	+
	7	Not applied	70%	0%	+
	3	Not applied	60%	30%	+
2	8	Applied	100%	10%	++
	9	Not applied	70%	N/a	+
	10	Not applied	70%	20%	+
3	11	Not applied	80%	10%	+
4	13	Not applied	90%	10%	+
	14	Not applied	90%	10%	+
	15	Not applied	70%	10%	+
	12	Not applied	60%	10%	+
5	20	Applied	80%	20%	++
	18	Not applied	60%	20%	+
	21	Not applied	60%	10%	+
	22	Not applied	60%	30%	+
	16	Not applied	50%	20%	+-
	17	Not applied	50%	30%	+-
	19	Not applied	50%	10%	+-
	23	Not applied	50%	30%	+-
6	24	Applied	100%	0%	++
	25	Applied	80%	10%	++
	26	Applied	80%	0%	++
7	27	Not applied	90%	40%	+
	28	Not applied	80%	30%	+
8	29	Not applied	80%	20%	+
9	35	Applied	100%	N/a	++
	30	Applied	90%	10%	++
	31	Not applied	80%	0%	+
	32	Applied	Interview	N/a	++
	33	Applied	Interview	N/a	++
	34	Applied	Interview	N/a	++
	36	Applied	Interview	N/a	++
Average |Δ|				15	

Table E.2 Survey results Bouwstroom Noord

From the next page, first the questions and then the answers are shared from this questionnaire that was set up on Google Forms. Where the first page are screenshots of the surveys from Google Forms, the results come from the excel file in which these are processed.

Theoretische strategieën

In deze enquête staan verschillende strategieën die vanuit de theorie worden voorgedragen als mogelijke effectieve strategieën in een programmatische samenwerking. In totaal staan er 35 strategieën (33 voor participanten van Bouwstroom Noord) onderverdeeld in 10 secties.

Voor alle strategieën worden de volgende twee deelvragen gesteld:

A. In hoeverre is dit, denkt u op basis van uw eigen ervaringen in het programma, een effectieve strategie voor de samenwerking (in het heden en/of de toekomst)?

B. Is de strategie tot heden toegepast op bestuurlijk niveau (d.w.z.: zijn er concreet actiepunten uit voortgekomen)?

Participanten van Bouwstroom Noord kunnen sectie 9 overslaan, de participanten van WoonST kunnen sectie 10 overslaan.

Wanneer vragen onduidelijk zijn kunt u mij benaderen of in het uiterst geval de vraag overslaan.

Mijn contactgegevens zijn:

06-38506145

talha96g@gmail.com

Hartstikke bedankt voor uw deelname!

Alignment strategieën

Hieronder staan 8 theoretische 'alignment' strategieën genoteerd. Alignment betreft de afstemming tussen stakeholders die momenteel niet op één lijn zitten met de huidige partijen binnen de samenwerking. Deze strategieën zouden hieraan kunnen bijdragen en zijn van toepassing op stakeholders die: 1) potentieel een bijdrage kunnen leveren, maar dit niet doen 2) of een hinderende invloed hebben op de voortgang van WoonST/BS Noord.

1. 1A. Maak afspraken over hoe om te gaan met ambigue (multi-interpretabele) zaken.

   Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

2. 1B. Maak afspraken over hoe om te gaan met ambigue (multi-interpretabele) zaken.

   Markeer slechts één ovaal.

   ◯ Wel toegepast
   ◯ Niet toegepast

3. 2A. Stimuleer interactie en sta open voor suggesties.

   Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

4. 2B. Stimuleer interactie en sta open voor suggesties.

   Markeer slechts één ovaal.

   ◯ Wel toegepast
   ◯ Niet toegepast

5. 3A. Focus op het uitwisselen van ideeën en argumenten en niet op randzaken.

   Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

6. 3B. Focus op het uitwisselen van ideeën en argumenten.

   Markeer slechts één ovaal.

   ◯ Wel toegepast
   ◯ Niet toegepast

7. 4A. Reflecteer de gezamenlijke programma-activiteiten op de identiteit van je eigen organisatie en vraag naar de betekenis ervan voor jezelf.

   Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

8. 4B. Reflecteer de gezamenlijke programma-activiteiten op de identiteit van je eigen organisatie en vraag naar de betekenis ervan voor jezelf.

   Markeer slechts één ovaal.

   ◯ Wel toegepast
   ◯ Niet toegepast

9. 5A. Probeer stakeholders aan de voorkant van de samenwerking op één lijn te brengen en de operators en beheerders te beseffen dat ze voor hetzelfde doel werken.

   Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

10. 5B. Probeer stakeholders aan de voorkant van de samenwerking op één lijn te brengen en de operators en beheerders te beseffen dat ze voor hetzelfde doel werken.

    Markeer slechts één ovaal.

    ◯ Wel toegepast
    ◯ Niet toegepast

11. 6A. Neem een open, eerlijke en directe houding aan in de communicatie met stakeholders. Deel zowel positieve als negatieve informatie zodat men niet voor verrassingen komt te staan.

    Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

12. 6B. Neem een open, eerlijke en directe houding aan in de communicatie met stakeholders. Deel zowel positieve als negatieve informatie zodat men niet voor verrassingen komt te staan.

    Markeer slechts één ovaal.

    ◯ Wel toegepast
    ◯ Niet toegepast

13. 7A. Wees je ervan bewust dat mensen pas de voordelen merken als producten worden geleverd.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

14. 7B. Wees je ervan bewust dat mensen pas de voordelen merken als producten worden geleverd.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

Korte termijn strategieën (Hertogh & Westerveld, 2010).

Hieronder staan de 3 theoretische 'short term preditction' strategieën genoteerd. Deze hebben als doel om de korte termijn regelmatig in de gaten te houden om tijdig gepaste maatregelen te kunnen nemen. Dit om nadelige effecten van een onzekere toekomst te verminderen.

15. 8A. Maak een overzicht van de uitdagingen en prioriteer ze.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

16. 8B. Maak een overzicht van de uitdagingen en prioriteer ze.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

17. 9A. Bepaal de criteria voor succesvolle strategieën en deelnemers. Gedetailleerde criteria voor de korte termijn hebben de voorkeur boven minder gedetailleerde criteria voor de lange termijn;

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

18. 9B. Bepaal de criteria voor succesvolle strategieën en deelnemers. Gedetailleerde criteria voor de korte termijn hebben de voorkeur boven minder gedetailleerde criteria voor de lange termijn;

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

19. 10A. Leer van succesvolle strategieën in uw eigen programma of andere programma's door inzicht te krijgen in:
a) Waarom het werd toegepast in welke situatie;
b) In welke context het is toegepast en om het te vergelijken met de eigen context.

Markeer slechts één ovaal.

	1	2	3	4	5	
Combinatie niet effectief	○	○	○	○	○	Combinatie zeer effectief

20. 10B. Leer van succesvolle strategieën in uw eigen programma of andere programma's door inzicht te krijgen in:
a) Waarom het werd toegepast in welke situatie;
b) In welke context het is toegepast en om het te vergelijken met de eigen context.

Markeer slechts één ovaal.

○ Combinatie toegepast
○ Combinatie niet toegepast

Herformuleren (Hertogh & Westerveld, 2010).

Hieronder staat 1 theoretische strategie met betrekking tot het herformuleren van de uitdagingen. Uitdagingen kunnen veranderen doordat er nieuwe inzichten worden opgedaan en daardoor, of door andere contextuele veranderingen, de wensen van stakeholders veranderen. Als dit het geval is, zal het probleem ook opnieuw moeten worden gedefinieerd om de nieuwe situatie te omarmen. Herformuleren van de uitdagingen kan daarnaast een middel zijn om relevante stakeholders, die bij voorbaat geen interesse toonden in de originele uitdagingen, te betrekken door hun eigen interesses te integreren.

21. 11A. Benader verandering niet als een obstakel, maar als een nieuwe mogelijkheid bij het herformuleren van de uitdaging.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

22. 11B. Benader verandering niet als een obstakel, maar als een nieuwe mogelijkheid bij het herformuleren van de uitdaging.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

Variatie (Hertogh & Westerveld, 2010).

Hieronder staan 4 theoretische 'variatie' strategieën die betrekking hebben op de variaties en diversiteit binnen de samenwerking.

23. 12A. Ontwerp verschillende (technische) alternatieven en pas verschillende strategieën toe om doelen te bereiken. Probeer dit echter zo vroeg mogelijk te doen, want deze blijken in latere stadia veel duurder te zijn.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

24. 12B. Ontwerp verschillende (technische) alternatieven en pas verschillende strategieën toe om doelen te bereiken. Probeer dit echter zo vroeg mogelijk te doen, want deze blijken in latere stadia veel duurder te zijn.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

25. 13A. Benut de kwaliteiten van zowel publieke als private organisaties door samen te werken in plaats van je te beperken tot één.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

26. 13B. Benut de kwaliteiten van zowel publieke als private organisaties door samen te werken in plaats van je te beperken tot één.

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

27. 14A. Diversifieer het personeel op basis van competenties, expertise en achtergronden

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

28. 14B. Diversifieer het personeel op basis van competenties, expertise en achtergronden

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

29. 15A. Bij het onderzoeken van diverse mogelijke scenario's:
a) Bereken slechts een beperkt aantal dat het beste de hele scala aan mogelijke uitkomsten weergeeft.
b) Werk geen scenario's uit zonder unieke uitkomsten.

Markeer slechts één ovaal.

	1	2	3	4	5	
Combinatie niet effectief	◯	◯	◯	◯	◯	Combinatie zeer effectief

30. 15B. Met diverse mogelijke scenario's:
a) Bereken slechts een beperkt aantal dat het beste de hele scala aan mogelijke uitkomsten weergeeft.
b) Werk geen scenario's uit zonder unieke uitkomsten.

Markeer slechts één ovaal.

◯ Combinatie toegepast

◯ Combinatie niet toegepast

Controle strategieën (de Bruijn & ten Heuvelhof, 2018)

De volgende 8 controle strategieën kunnen toegepast worden wanneer de afstemming tussen partijen de overhand neemt en hierdoor (doordat bijvoorbeeld alle partijen tevreden gehouden moeten worden) geen voortgang wordt gemaakt in het proces. Belangrijk is dat de partij die deze strategieën onderneemt een sterke, impactvolle positie bekleedt. Gezien de organisatie van WoonST/BS Noord ligt het meest voor de hand dat de stuurgroep de verantwoordelijkheid voor het uitvoeren van deze strategieën op zich neemt.

De strategie wordt ingeleid met een korte uitleg.

31. *Dreig met controlemaatregelen om de winstperceptie te beïnvloeden.*

Deze strategie houdt in dat wordt 'gedreigd' met een eenzijdig hiërarchisch besluit of actie met als doel om de perceptie van winst bij stakeholders te veranderen. Voorbeeld: Een nationale regering is van plan om landelijke belastingverhogingen door te voeren. Een groot multinational communiceert dat het overweegt om naar het buitenland te verhuizen, onder andere door deze verhogingen. De regering en deze multinational sluiten een akkoord dat deze verhoging niet voor hen geldt. Wat eerst als een verlies leek (minder belasting betalen) lijkt nu een winst voor de regering (doordat de multinational blijft).

16A. Dreig met controlemaatregelen om de winstperceptie te beïnvloeden.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

32. 16B. Dreig met controlemaatregelen om de winstperceptie te beïnvloeden.

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

33. *Pas controlemaatregelen toe om onderlinge afhankelijkheden te veranderen.*

Deze strategie kan toegepast worden wanneer het proces vastloopt doordat meerdere storende stakeholders op één lijn zitten. Door een eenzijdig hiërarchisch actie te ondernemen kunnen deze partijen uit elkaar gespeeld worden. Dat kan bijvoorbeeld door een besluit te nemen dat de ene partij voordelig uitkomt (meestal de belangrijkere stakeholder) en de ander nadelig (de minder belangrijke).

17A. Pas controlemaatregelen toe om onderlinge afhankelijkheden te veranderen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

34. 17B. Pas controlemaatregelen toe om onderlinge afhankelijkheden te veranderen.

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

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35. *Pas controlemaatregelen toe om het besluitvormingsproces mogelijk te maken.*

Deze strategie kan toegepast worden wanneer het proces vastloopt doordat de partijen niet met elkaar kunnen afstemmen. Door eenzijdig hiërarchisch actie te ondernemen kunnen andere partijen opgeschrikt worden doordat er bijvoorbeeld niet in hun belang wordt gehandeld. Dit kan ervoor zorgen dat stakeholders zich proactief inzetten voor een oplossing.

18A. Pas controlemaatregelen toe om het besluitvormingsproces mogelijk te maken.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

36. 18B. Pas controlemaatregelen toe om het besluitvormingsproces mogelijk te maken.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

37. *Pas controlemaatregelen toe nadat samenwerkingsinitiatieven zijn mislukt.*

Deze strategie kan toegepast worden wanneer het proces vastloopt doordat de partijen niet met elkaar kunnen afstemmen. Door eerst coöperatieve initiatieven tussen (botsende) partijen op te zetten, kunnen zij een poging wagen om tot een oplossing te komen. Wanneer dit niet is gelukt kan een eenzijdig hiërarchisch actie worden ondernomen om het proces te versnellen. Doordat eerder coöperatieve initiatieven zijn voorgesteld is de bereidheid om deze eenzijdige acties te accepteren groter.

19A. Pas controlemaatregelen toe nadat samenwerkingsinitiatieven zijn mislukt.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

38. 19B. Pas controlemaatregelen toe nadat samenwerkingsinitiatieven zijn mislukt.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast
○ Anders: _____

39. *Pas controlemaatregelen toe voor procedures.*

Deze strategie houdt in dat aan stakeholders een procedure wordt opgelegd die zij moeten volgen om tot een besluit te komen. Procedures zijn aantrekkelijk voor stakeholders om aan deel te nemen, omdat deze structuur creëren en voor meer transparantie zorgen. Dit zorgt voor minder weerstand in een besluitvorming-proces.

20A. Pas controlemaatregelen toe voor procedures.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	○	○	○	○	○	Zeer effectief

40. 20B. Pas controlemaatregelen toe voor procedures.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

41. *Pas controlemaatregelen toe en bied tegelijkertijd kansen.*

Deze strategie houdt in dat na een eenzijdig hiërarchisch besluit mogelijkheden worden geboden voor de overige partijen. Het besluit kan een tegenvaller zijn voor een stakeholder, waardoor deze zich zal verzetten. Door mogelijkheden te bieden achter dit besluit waar deze stakeholder baat bij kan hebben, kan deze zich bij dit besluit leggen. Voorbeeld: Eenzijdig wordt er besloten dat alle horeca verboden wordt om drank te verkopen vanaf 23:00. Omdat dit (bewust) de mogelijkheid biedt om drank wel na dit tijdstip te consumeren , en de horeca daarmee openblijft, zullen ze zich bij dit besluit neerleggen, aangezien er toch nog iets te winnen valt.

21A. Pas controlemaatregelen toe en bied tegelijkertijd kansen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Wel effectief	○	○	○	○	○	Niet effectief

42. 21B. Pas controlemaatregelen toe en bied tegelijkertijd kansen.

Markeer slechts één ovaal.

○ Wel toegepast
○ Niet toegepast

43. *Pas controlemaatregelen toe wanneer kritieke partijen winnen.*

Deze strategie houdt in dat een eenzijdig hiërarchisch besluit wordt genomen, nadat de kritische stakeholders tevreden zijn (over bijvoorbeeld een te vormen besluit). De steun om verder te gaan is in dit geval groot. Stakeholders die hebben 'verloren' kunnen echter een risico vormen door het proces in het vervolg te hinderen. Aan de andere kant kunnen zij er ook van uitgaan dat zij in het vervolg van het proces gecompenseerd kunnen worden voor dit verlies.

22A. Pas controlemaatregelen toe wanneer kritieke partijen winnen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

44. 22B. Pas controlemaatregelen toe wanneer kritieke partijen winnen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

45. *Reflecteer de controlemaatregelen op het publiek.*

Deze strategie houdt in dat besluiten/acties naar buiten worden gecommuniceerd als een eenzijdig hiërarchisch besluit, terwijl deze niet zo tot stand zijn gekomen. Dit draagt bij aan de reputatie als een besluitvaardige en moedige organisatie en wekt daarmee de indruk van externe partijen.

23A. Reflecteer de controlemaatregelen op het publiek.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

46. 23B. Reflecteer de controlemaatregelen op het publiek.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

Controle strategieën	Hieronder staan 3 'progressie'-strategieën genoteerd die de progressie binnen de samenwerking handhaven indien deze dreigt stil te staan. Deze kunnen als aanvullend beschouwd worden op de vorige controle strategieën.

47. 24A. Stimuleer vroege deelname van partijen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

48. 24B. Stimuleer vroege deelname van partijen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

49. 25A. Betrek het toppersoneel van de betrokken partijen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

50. 25B. Betrek het toppersoneel van de betrokken partijen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

51. 26A. Bouw niet voort op een conflict, maar verplaats het naar de buitenkant van de interactie.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

52. 26B. Bouw niet voort op een conflict, maar verplaats het naar de buitenkant van de interactie.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

Breakdown structures	De volgende 2 strategieën betreft het gebruik van breakdown structures. Het gaat hierbij om het opdelen van het eindproduct, tijd en organisatie in overzichtelijke delen, zodat het geheel beter te beheersen is.

53. 27A. Breng het beschikbare personeel (als resources) in kaart middels een Resource Breakdown Structure.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

54. 27B. Breng het beschikbare personeel (als resources) in kaart middels een Resource Breakdown Structure.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

55. 28A. Breng de grond (als resources) in kaart middels een Resource Breakdown Structure.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

56. 28B. Breng de grond (als resources) in kaart middels een Resource Breakdown Structure.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

Traditionele managementprocessen	De volgende strategie betreft het gebruik van traditionele managementprocessen op programma niveau.

57. **29A.** Pas traditionele managementprocessen (voor risico's, planning, kosten en kwaliteit) ook toe op programma-niveau.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Wel effectief

58. **29B.** Pas traditionele managementprocessen (voor risico's, planning, kosten en kwaliteit) ook toe op programma-niveau.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

Overige strategieën (excl. voor WoonST-participanten; Bouwstroom Noord participanten: zie sectie 10)

Deze overige strategieën zijn verzameld uit de gesprekken met diverse betrokkenen binnen programma WoonST en Bouwstroom Noord.

59. **30A.** Betrek stedenbouwkundigen vroeg in het proces om hinder later te voorkomen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

60. **30B.** Betrek stedenbouwkundigen vroeg in het proces om hinder later te voorkomen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

61. **31A.** Stel een regionale of meer centrale aansturing aan om het bouwproces te versnellen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

62. **31B.** Stel een regionale of meer centrale aansturing aan om het bouwproces te versnellen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

63. **32A.** Begin met gemotiveerde partijen en sluit zo mogelijk hinderende partijen uit om een goed werkend systeem in elkaar te zetten. Betrek vervolgens externe geïnteresseerden in het opgezette systeem.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

Theoretische strategieën

Theoretische strategieën

64. **32B.** Begin met gemotiveerde partijen en sluit zo mogelijk hinderende partijen uit om een goed werkend systeem in elkaar te zetten. Betrek vervolgens externe geïnteresseerden in het opgezette systeem.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

65. **33A.** Breng moederorganisaties op één lijn met de interne partijen door ze te betrekken bij de opzet van het programma.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

66. **33B.** Breng de moederorganisaties op één lijn met de interne partijen door ze te betrekken bij de opzet van het programma.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

67. **34A.** Laat de project-mindset los en werk meer in de programma-mindset. Accepteer hierbij dat programmatisch werken in de beginfase minder winstgevend is dan later in het programma.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

68. **34B.** Laat de project-mindset los en werk meer in de programma-mindset. Accepteer hierbij dat programmatisch werken in de beginfase minder winstgevend is dan later in het programma.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

Overige strategieën (excl. voor Bouwstroom Noord-participanten)

Deze overige strategieën zijn verzameld uit de gesprekken met diverse betrokkenen binnen programma WoonST en Bouwstroom Noord.

69. **30A.** Betrek stedenbouwkundigen vroeg in het proces om hinder later te voorkomen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

70. **30B.** Betrek stedenbouwkundigen vroeg in het proces om hinder later te voorkomen.

Markeer slechts één ovaal.

◯ Wel toegepast
◯ Niet toegepast

71. 31A. Stel een regionale of meer centrale aansturing aan om het bouwproces te versnellen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

72. 31B. Stel een regionale of meer centrale aansturing aan om het bouwproces te versnellen.

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

73. 35A. Investeer in relaties om vertrouwen te ontwikkelen. Hiermee kunnen gemeentelijke capaciteitstekorten worden opgevangen.

Markeer slechts één ovaal.

	1	2	3	4	5	
Niet effectief	◯	◯	◯	◯	◯	Zeer effectief

74. 35B. Investeer in relaties om vertrouwen te ontwikkelen. Hiermee kunnen gemeentelijke capaciteitstekorten worden opgevangen.

Markeer slechts één ovaal.

◯ Wel toegepast

◯ Niet toegepast

Vraag	Deelnemer 1 (BN)	Deelnemer 2 (BN)	Deelnemer 3 (WoonST)	Deelnemer 4 (WoonST)
1A. Maak afs	4	3	5	4
1B. Maak af	Wel toegepast	Niet toegepast	Wel toegepast	Niet toegepast
2A. Stimulee	4	4	5	5
2B. Stimulee	Wel toegepast	Wel toegepast	Wel toegepast	Wel toegepast
3A. Focus op	4	2	4	5
3B. Focus op	Wel toegepast	Niet toegepast	Wel toegepast	Wel toegepast
4A. Reflectee	4	4	4	5
4B. Reflecte	Wel toegepast	Wel toegepast	Wel toegepast	Wel toegepast
5A. Probeer	4	5	4	5
5B. Probeer	Wel toegepast	Niet toegepast	Wel toegepast	Wel toegepast
6A. Neem ee	4	4	5	5
6B. Neem ee	Wel toegepast	Niet toegepast	Wel toegepast	Wel toegepast
7A. Wees je	3	4	3	4
7B. Wees je	Niet toegepast	Wel toegepast	Niet toegepast	Niet toegepast
8A. Maak ee	5	5	4	5
8B. Maak ee	Wel toegepast	Wel toegepast	Niet toegepast	Wel toegepast
9A. Bepaal d	4	3		
9B. Bepaal d	Wel toegepast	Niet toegepast		
10A. Leer va	4	3	5	4
10B. Leer va	Combinatie toegepast	Combinatie niet toegepast	Combinatie toegepast	Combinatie niet toegepast
11A. Benade	4	4	4	5
11B. Benade	Niet toegepast	Wel toegepast	Wel toegepast	Wel toegepast
12A. Ontwer	4	2	3	4
12B. Ontwer	Wel toegepast	Niet toegepast	Niet toegepast	Niet toegepast
13A. Benut d	4	5	5	5
13B. Benut d	Niet toegepast	Wel toegepast	Wel toegepast	Wel toegepast
14A. Diversif	4	5	5	5
14B. Diversif	Niet toegepast	Wel toegepast	Wel toegepast	Wel toegepast
15A. Bij het c	4	3	3	3
15B. Met div	Combinatie toegepast	Combinatie niet toegepast	Combinatie niet toegepast	Combinatie niet toegepast
Dreig met co	3	2	2	1
16B. Dreig m	Niet toegepast	Niet toegepast	Niet toegepast	Niet toegepast
Pas controle	2	3	1	1
17B. Pas cor	Niet toegepast	Niet toegepast	Niet toegepast	Niet toegepast
Pas controle	2	4	1	3
18B. Pas cor	Niet toegepast	Wel toegepast	Niet toegepast	Wel toegepast
Pas controle	2	3	1	3
19B. Pas controlemaa tregelen toe nadat samenwerki ngsinitiatiev en zijn	Niet toegepast	Niet toegepast	Nog niet aan de orde geweest. En niet passend binnen de samenwerking: we hebben dezelfde belangen/doelen. We dragen bij aan het succes van de ander.	Wel toegepast
Pas controle	4	4	2	4
20B. Pas cor	Wel toegepast	Wel toegepast	Niet toegepast	Wel toegepast
Pas controle	3	3	1	4
21B. Pas cor	Niet toegepast	Niet toegepast	Niet toegepast	Wel toegepast
Pas controle	3	3	1	2
22B. Pas cor	Niet toegepast	Niet toegepast	Niet toegepast	Niet toegepast
Reflecteer de	2	3	1	1
23B. Reflecte	Niet toegepast	Niet toegepast	Niet toegepast	Niet toegepast
24A. Stimule	5	5	5	5
24B. Stimule	Wel toegepast	Wel toegepast	Wel toegepast	Wel toegepast
25A. Betrek l	4	4	4	5
25B. Betrek l	Wel toegepast	Wel toegepast	Wel toegepast	Wel toegepast
26A. Bouw n	4	4	3	5
26B. Bouw n	Wel toegepast	Wel toegepast	Niet toegepast	Niet toegepast
27A. Breng h	4	5	3	2
27B. Breng h	Niet toegepast	Wel toegepast	Niet toegepast	Niet toegepast
28A. Breng c	4	4	3	2
28B. Breng c	Niet toegepast	Deel toegepast	Niet toegepast	Niet toegepast
29A. Pas trac	3	5	2	4
29B. Pas trac	Niet toegepast	Wel toegepast	Niet toegepast	Wel toegepast

30A. Begin met gemotiveerde partijen en sluit zo mogelijk hindere	5		4
30B. Begin met gemotiveerde partijen en sluit zo mogelijk hinder	Wel toegepast		Wel toegepast
31A. Betrek stedenbouwkundigen vroeg in het proces om hinder l	5		5
31B. Betrek stedenbouwkundigen vroeg in het proces om hinder l	Niet toegepast		Niet toegepast
32A. Stel een regionale of meer centrale aansturing aan om het b	4		4
32B. Stel een regionale of meer centrale aansturing aan om het b	Niet toegepast		Wel toegepast
33A. Breng moederorganisaties op één lijn met de interne partijer	5		5
33B. Breng de moederorganisaties op één lijn met de interne part	Wel toegepast		Wel toegepast
34A. Laat de project-mindset los en werk meer in de programma-	5		5
34B. Laat de project-mindset los en werk meer in de programma-	Wel toegepast		Wel toegepast
30A. Investe	5	5	5
30B. Investe	Wel toegepast	Wel toegepast	Wel toegepast
31A. Betrek :	5	4	5
31B. Betrek :	Wel toegepast	Wel toegepast	Niet toegepast
32A. Stel eer	3	5	3
32B. Stel eer	Niet toegepast	Niet toegepast	Niet toegepast

F. Strategy and Observation list

In this Appendix, all strategies and observations are listed according to their numbering in this study. The numbers from figure 6.1, which summarizes effective program management, can be directly derived from this list.

Strategy and observation list	
Strategies	
Category	**Strategy #**
Alignment (Hertogh & Westerveld, 2010)	1. Agree on how to deal with ambiguity. 2. Stimulate interaction and be open for suggestions. 3. Only pay attention to the exchange of ideas and arguments. 4. Reflect the program activities to your own identity and ask their meaning for yourself. 5. Try to align stakeholders in the front end and aware the operators and maintainers they work for the same goal. 6. Adopt an open, honest and direct attitude in communication with stakeholders. Share both positive and negative information with them so that there are no surprises. 7. Be aware of the fact that people are only aware of the benefits when products are delivered.

Short term prediction (Hertogh & Westerveld, 2010)	8. Make an overview of the challenges and prioritize them.
	9. Determine the criteria for successful strategies and participants. Detailed criteria for the short term are preferable to less detailed criteria for the long term;
	10. Learn from successful strategies in your own program or other programs by understanding:
	    a. Why it was applied under which situation
	    b. b) Under which context it has been applied and to compare it with one's own context

Reformulating the challenge (Hertogh & Westerveld, 2010)	11. Do not approach change as an obstacle, but as a new opportunity.

Variation (Hertogh & Westerveld, 2010)	12. Design different (technical) alternatives and apply various strategies to achieve goals. However, try to do this as early as possible, as these turn out to be much more expensive in later stages.
	13. Take advantage of the qualities of both public and private organizations by working together instead of limiting yourself to one.
	14. Diversify the staff on the basis of competencies, expertise and backgrounds.
	15. With a range of possible scenarios:
	    a. Only work out a limited number that best represents the entire range of possible outcomes.
	    b. b) Don't work out scenarios without unique outcomes.

Control strategies in interaction (de Bruijn & ten Heuvelhof, 2018)	16. Threatening control actions to influence profit perception. 17. Apply a control action to change interdependencies. 18. Apply a control action to enable the decision-making process. 19. Apply a control action after collaborative initiatives have failed.

		20. Apply a control action for procedures. 21. Apply a control action while providing opportunities. 22. Apply control action when critical parties win. 23. Reflect control action to the public.
	Design principles (De Bruijn et al., 2010)	24. Encourage early participation. 25. Include top level staff from each involved party. 26. Don't build on a conflict, rather move it to the outside of the interaction.
	Breakdown structures (Hertogh & Westerveld, 2010)	27. Map out the available personnel (as resources) using a Resource Breakdown structure. 28. Map the land (as resources) through a Resource Breakdown structure.
	Management of planning, costs, quality and risks (Hertogh & Westerveld, 2010)	29. Apply traditional management processes (risks, planning, costs and quality) at program level as well.
	Case study strategies	30. Involve urban planners early in the process to avoid hindrances later. 31. Set up a regional or more central management to speed up the construction process. **WoonST participants specific** 32. Start with motivated parties and, if possible, get rid of blocking ones to put together a well-functioning system and then involve other interested parties. This will improve the progress of the program. 33. Align parent organization by including them in the whole thinking of the program. 34. Let go of project mindset and work more in program mindset. Accept that working programmatically in the initial phase is less profitable than later in the program. **Bouwstroom Noord participants specific** 35. Invest in relationships to develop trust. This will help to compensate for municipal capacity shortages. **Excluded from survey** 36. Take a cooperative attitude instead of separate to improve learning. 37. Invite a guest from another program to talk about a specific proposal that the own stakeholder is anxious about but has been successfully implemented in the other program. The guest, an actor with the same role as the own reluctant stakeholder, has to relieve this fear.

Observations
1) The differently designed governance of the two programs leads to similar results. The internal parties are aligned but have difficulty aligning external parties.
2) A collaboration that is only based on a contractual (client and contractor) agreement has the potential to damage the interaction.
3) A strong planning framework and alignment contribute to the adaptability of a PMO.
4) The differently designed control of both programs leads to similar results. People are satisfied with the progress made, but they have the ambition to go faster.

5)	The intrinsic motivation of parties, enabled by early participation, gives strength to the planning framework.
6)	A comprehensive PMO planning framework seems stronger than no comprehensive planning framework.
7)	The structure of both organizations ensures that interaction and control complement each other without experiencing hindrance.
8)	The biggest challenges of both programs lie in the interaction management with external parties.
9)	The current application of program management in both programs is effective.
10)	Better interaction leads to more effective control management.
11)	Table 5.5 shows which strategies have contributed to the value delivered so far and which can potentially create more value for WoonST.
12)	Table 5.6 shows which strategies have contributed to the value delivered so far and which can potentially create more value for Bouwstroom Noord.
13)	New control strategies must be found to complement the interaction.
14)	Most of the interaction and some control strategies suggested from the literature contribute to effective program management.
15)	The results emphasize that this information is relevant for the other Bouwstroom initiatives.

Table F.1 Strategy and observation list