Optimizing Contact Moments Between the Public and Private Organizations to Create More Value in DBFM Infrastructure Projects

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Optimizing Contact Moments Between the Public and Private Organizations to Create More Value in DBFM Infrastructure Projects

By

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PREFACE

This report is written for my graduation of the Construction Management & Engineering (CME) master studies at the TU Delft. The thesis has been written in collaboration with Dura Vermeer. They provided the problem statement that led to this research. Dura Vermeer shared their knowledge and documentation on the subject with me and provided a pleasant workspace at their company. The approachable environment at Dura Vermeer made it easy for me to walk up to people to not only collect preliminary or more complex knowledge about the research, but also knowledge on how day-to-day operations work at a big construction company.

I had an overall positive experience writing the thesis, with all its ups and downs. I feel very grateful for all the help and the opportunities that have been offered to me and by pushing me to be better, by my counsellors from the TU Delft Marian Bosch-Rekveldt, Leonie Koops, professor Marleen Hermans and my counsellor at Dura Vermeer, Bram Visser. I would also like to express my gratitude to all the interviewees who have shown great interest and time for me. The interviews have been a very enjoyable part of the thesis. Their time and efforts provided the data for me that was necessary to finish the thesis. I would also like to thank the participants of the expert meetings for their time and efforts. In the expert meetings, open and constructive discussions were held that enabled me to interpret the findings of the research better. The findings of the research would be of lesser quality without these participants. And my final gratitude goes out to my friends and family for supporting me in the processes of writing the thesis, proofreading my English and pushing me to keep going and improve.

Vincent Weber
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MANAGEMENT SUMMARY

Introduction

Public Private Partnerships (PPP) are currently the desired project delivery method for big infrastructure projects in the Netherlands. The Design, Build, Finance & Maintain (DBFM) project delivery method is a PPP that is widely used to realize these projects. The government requires an increasing amount of collaboration between the public and private organization to realize their projects. The collaboration requires contact moments between the project teams of the public and private organization. Values are created inside these contact moments. Value creation and collaboration through contact moments are also stimulated by government initiatives such as the Marktvisie. The research chose the broad definition of value by Robert Park and E. W. Burgess: *Anything capable of being appreciated (wished for) is a value.*

Dura Vermeer did also see an increasing amount of contact moments in their projects. They encounter the problem however, that contact moments were not always perceived as a creation of value, and could even result in a loss of value. There was a gap in current literature on the creation of value in contact moments between the private and public project delivery organization. This research contributed to literature by filling this gap of optimizing contact moments between the private and public project delivery organization to create more value in DBFM infrastructure projects. The research question was:

How can contact moments between the public and the private organizations within the project organization be optimized to create more value in Dutch DBFM infrastructure projects?

Research methodology

This was a qualitative research that first lays the groundwork of the thesis with a literature review. The literature review presented a value set of most important values: accountability, safety, profitability, integrity, transparency, efficiency and quality. After which the case study containing three cases was set up. All three cases were different types of infrastructure projects, which supported a broad answer to the research question. Data was collected by conducting semi-structured interviews with the public and the private organization for every case. Two interviews with the public organization, and two with the private organization were conducted for every case. This allowed the research to look at the situation from both angles.

The interviews were analysed per case first, after which a cross case analysis compared the cases. The value set that was created in the literature review, was also ranked by the interviewees, after which they were cross case analysed. Afterwards, two expert meetings were held. One expert meeting with the public and one with the private organization were held to gain additional insights on the observations that resulted from the cross-case analysis. Both analyses and the expert meetings were subsequently interpreted to find an answer to the research question.

Findings

The single case analysis found 5 different themes from the interview data. These themes all related to different aspects of the combination of value creation and contact moments. The interpretation of all five themes and the value rankings brought the following findings.

1) Hard and soft elements of contact moments contributed to value creation by creating expected value and $\Delta value$. Expected value was created through evaluations; setting a goal for contact moments; being on time; and making clear agreements on the setting of how and when the meeting takes place. Positive $\Delta value$ was created through good preparations; evaluations and reaching the goal of the contact moment.

2) The contact moment structure contributed to value creation with several aspects. The findings suggested that a perfect contact moment structure does not exist, because every project is unique and needs a different set of contact moments. But it was suggested that informal contact moments (ICMs) should have a daily frequency. If project members have limited time available for ICMs, it was suggested to introduce a BOT-meeting (Dutch: Benen-Op-Tafel meeting). This meeting follows a formal contact moment structure but had a very informal setting. The informal setting and the ability to speak without legal consequences in ICMs allowed the creation of value in ICMs. The legitimacy and ability to make formal decisions in formal contact moments (FCMs) allowed for the creation of hard values.

3) The presence of soft and hard values also contributed to value creation. The findings suggested that soft values are more important than hard values, but they were also harder to create and safeguard. They needed to be created as early on in the project as possible. Soft values were also more prerequisite to hard values than the other way around. The findings suggested that soft values are not created enough in current practice and that both the client and contractor would like more soft value creation.

4) There were three external factors identified that influence value creation in contact moments. The first external factor was the undiscussed base value of integrity. The findings suggested that this is a base value that should be held high by every project member. But it rarely went discussed because of historical issues and the personal character of the value. Secondly, the continuous switching of project member in and out of their functions in the project caused a loss of value. Interpersonal values that had been created needed to be re-created with new colleagues or counterparts. The third external factor was the phase that the project is currently in. The findings suggested that different phases require different priorities in values and different values to create.

5) The research found multiple elements on value creation in contact moments. The findings suggested that value creation is inherent to contact moments. Creating positive $\Delta value$ occured more often than negative $\Delta value$. When the latter does occur, it was important to follow-up on this and discuss what happened in ICMs to try to resolve the issues and bend it towards positive $\Delta value$. Discussing values directly with each other had positive contributions to value creation. Lastly, the findings suggested that soft values are stored inside project members and are very personal. Hard values were stored collectively inside legal agreements and documents.

The value rankings and value perceptions showed multiple insights on the exact values that are being created in contact moments. The research found that both organizations have no idea what values are most important for the other organization. Subsequently, trustworthiness was the most important value in a project, while accountability was the least important of the given value set

Conclusion

The research concluded with three suggestions to optimize contact moments to create more value:

1) The first suggestion was to introduce collaboration programs in the contact moment structure. In the earliest phases of a project, these programs ensured soft value creation; value sharing; relationship building; core value discussions; discussions on soft issues, etc. It helped solve multiple current problems in practice, such as: soft values were rarely discussed; the construction industry was leaning too much on hard values; different phases in the project had different value priorities; the leftover scars from the building fraud; the problem that project

teams thought they knew the most important values of the other organization, but in practice they didn't; and the issue that the building industry was often approached from a hard side, while the findings suggest that the soft side approach is better.

2) The second optimization was suggestions on the formal and informal contact moment structure. ICMs acted as a lubricant for a project and should be held with a daily frequency, which improves soft value creation and expected value creation. Having both organizations working in the same building was beneficial for the frequency of ICMs and soft values. FCMs should be used for their decision making power and hard value creation. The frequency of FCMs should be lower, once or twice a month.

3) The third optimization was suggestions on the internal aspects of contact moments to create expected value and $\Delta value$. Contact moments should always have a clear predefined goal; have evaluations at their end; and should be prepared well. ICMs need preparation and a predefined goal to a lesser extent than FCMs. ICMs should always retain their informal character.

Recommendations

Recommendations for practice closely followed the answers to the research question. Collaboration programs should be implemented in DBFM infrastructure project for an overall better project and soft value creation.

Furthermore, small adjustments should be made to contact moments: 1) make sure that everyone comes to every contact moment fully prepared. 2) Try to get both project teams in the same or adjacent building for easy access to ICMs. Subsequently, have daily ICMs between counterparts. 3) Have clear goals and agendas for contact moments and make sure that they are communicated with the other organization. 4) Have short evaluations at the end of every contact moment. These suggestions all contribute to the creation of expected value and positive $\Delta value$.

The research also recommended future research on this topic with a broadened scope. A scope that looks to the tender and maintenance phase, as well as other countries and other project delivery methods than the DBFM.

Another recommendation for future research was to study the perfect contact moment structure and the perfect layout (topics discussed, location, amount of people in the room, etc.) of a single contact moment.

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CHAPTER 1 INTRODUCTION

This thesis explores the optimization of contact moments between the public and private organization in DBFM infrastructure projects in order to create more value. The goal of this chapter is to introduce the readers to this topic. Section 1.1 starts with the background information on the topic of the thesis. The following section 1.2 gives the problem statement and research objective. Subsequently, section 1.3 limits the research by setting the scope. The research question and the sub-questions are stated in section 1.4. The research methodology is explained in section 1.5. Finally, the reading guide is given in section 1.6.

1.1 Background information

With the increasing use of public-private partnerships (PPPs) in construction and the public organization's demand for more integrated solutions, contractors have to work more closely with the public organization and share the risks (Koops, 2017; Brinkman, Bosch-Rekveldt, Hertogh & Rook, 2014). This requires more contact moments and efforts from both organizations to come together and discuss matters. Completing and maintaining a successful collaboration is one of the obstacles in the construction industry (Anvuur, Kumaraswamy, & Fellows, 2012). Verweij (2015b) researched 27 Dutch Design-Build-Finance-Maintain (DBFM) infrastructure projects. He concluded that good collaboration between public and private organizations in complex projects is hard to achieve, but it is proven to give good project results. Even though the objective for the public organization of a DBFM project delivery method is to reduce the burden that they bear, the public organization still has a key role as middleman between (local) actors and the contractor (Verweij, 2015a).

In 2016 the Dutch national government published a new document, the Marktvisie, that was focused on improving relationships and collaboration between the public and private organizations in the construction industry (Schultz van Haegen, 2016). Private organizations could sign the document to show their willingness to improve on these aspects in the future. The necessity and existence of the document emphasizes that there are still a lot of improvements to be made in the collaboration and the contact moments between public and private organizations. It also shows that the government acknowledges the problem of more integrated contracts and complex projects, that require more collaboration between all organizations.

The emphasis of the Marktvisie is on collaboration between public and private organizations, but the Dutch government also encourages to share knowledge and promotes collaboration between private organizations. They propose a foundation of dialogue, risk and uncertainties sharing between organizations. This creates transparency and encourages organizations to learn about, and from each other. Organizations that agree on and sign the Marktvisie, even go as far as to publish their strategy to reach the objectives that are set in the document (Schultz van Haegen, 2016).

Construction companies explained during interviews that the current linear project organization structure that they have, is old fashioned. They are looking into new project organization structures but pilots rarely get off the ground due to the traditional management style that the upper management layers of the companies maintain (Visser & Lindemans, 2018; Weekers, 2018). The project organization structure of a contractor is often mirrored to that of the client for more success (Walker, 2015).

An optimal organizational structure for a construction project leads to successful execution of the project (Petro & Gardiner, 2015; Cheng, Su, & You, 2003). Diversity in projects results in diversity related to the organizational setup, in current practice there is no 'one size fits all' approach for composing a project organization (Burgan & Burgan, 2014; Shenhar, 2001).

The network of relations in PPPs includes many different actors, such as advisors, investors, public departments, end-users, etcetera. It is generally suggested in literature that these networks vary from

alternative inter-organizational relationships and therefore, alternative soft skills are necessary to regulate them. These alternative soft skills are not always readily available, which causes struggles in contact moments (Roehrich, Lewis, & George, 2014). Roehrich et al. (2014) found multiple research studies that conclude with the uncertain impact of different skill sets between public and private managers. Public managers were limited in their abilities to engage in key planning activities with private managers, while private managers were blamed for their exclusively commercial look on PPPs. These differences can cause conflicts during contact moments in the relationship between the public and private organization.

One of the causes of these differences is the different set of values that both organizations hold. Reynaers & Verweij (2014) argue that some public values such as transparency, responsiveness, accountability and quality are under pressure in PPPs. The limited flexibility in long term PPPs is also worrisome according to them. Dura Vermeer experiences this problem, where contact moments are not always generating any sort of value for them. Sometimes, these contact moments are even experienced as a loss of value (Visser & Lindemans, 2018).

The research chose the definition of value by Robert Park and E. W. Burgess: *Anything capable of being appreciated (wished for) is a value* (Meynhardt, 2009, p. 197). Different organizations hold different organizational values. An example of these differences can be found in figure 1 below. Collaboration between public and private organizations can be hard to achieve due to different and sometimes contradictory values that lead to different strategies (Teisman & Klijn, 2002; Van Ham & Koppenjan, 2002). There is a crucial contrast between the values of both organization (Smit & Van Thiel, 2002; Van Ham & Koppenjan, 2002). Jacobs (1992) even goes so far to state that there is a clear distinction of the two different value sets, and they are fundamentally different from each other. Integration of these values, is therefore hard to achieve. The different values that the organizations hold can jeopardize their collaboration and relationship (Bremekamp, Kaats, & Opheij, 2009). But neither of these value sets should be hold superior over the other (Smith & Van Thiel, 2002).

	Government	Firm
1	Accountability	Leadership
2	General interest	Profit
3	Propriety	Efficiency
4	Legality	Effectiveness
5	Diligence	Innovation
6	Mission	Self interest
7	Rules	Results
8	Voice	Exit
9	Anticipation	Adjustment
10	Publicity	Confidentiality

Figure 1 Difference in value between governmental organizations and private organizations. Source: Bovens, 1996. Taken from Koops, 2017. Table 2-2. p. 39.

The public and private organizations take their respective values with them during contact moments with the other organization. Both organizations have their own perception, influenced by their values, on the various aspects of a project. But conflicts can occur due to the contradictory nature of the values. Dura Vermeer experiences this, where contact moments do not contribute to value creation or safeguarding, whereas they should (Visser & Lindemans, 2018). No research has yet been done on how and which public and private values of both organizations are created and/or safeguarded during these contact moments.

A relatively small amount of research has yet been done on the effects of the events that occur during the realization phase of PPP infrastructure projects. The same can be said about the effects of events on project outcomes (Jones & Noble, 2008; Verweij, 2015a). With the increasing amount of DBFMs used in infrastructure projects, there is still poor experience with DBFMs, and little research has been done on this particular project delivery method (Lenferink, Tillema, & Arts, 2013).

No research has yet been done on what the public organizations perceive as conflicting contact moments, but they do generally encounter opportunistic behaviour in contact moments (Roehrich, Lewis, & George, 2014). Private organizations stated that they do encounter conflicting contact moments regarding values, but this has not yet been researched (Visser & Lindemans, 2018; Weekers, 2018). There is also a research gap on the creation and optimization of values within the contact moments between the public and private organizations. Weihe (2008) researched the public value trade-offs inside PPPs and concluded that more research needs to be done on the processes between the public and private organization inside PPPs. He mentions the following aspects that need more research: How does the interaction between both organizations occur? What are the structures of this interaction? And who are the key actors in this process? Reynaers & De Graaf (2014) stated that more empirical research is necessary to be able to say if public value is lost or gained in PPPs.

Dura Vermeer also sees an increase in collaboration between client and contractor in het market due to the increasing use of PPPs and the Marktvisie document, with all its collaboration initiatives. They have acknowledged and signed the Marktvisie document to show their willingness to improve their collaboration with both the client and other private companies. However, they still encounter the problem that contact moments between the public and private project delivery organization are not always perceived as a creation of value, and might even result in a loss of value. Research on this problem helped them to achieve more value for their DBFM projects (Visser & Lindemans, 2018).

1.2 Problem statement & research objective

This section gives the problem statement that follows from the introduction of the topic. The research objective is derived from the problem statement and is given after the problem statement.

Problem Statement

The level of collaboration in current construction practices is not sufficient, and better collaboration and contact moments are desired by most organizations. With the increasing use of project delivery methods that require more collaboration between the public and private organizations in projects, more contact moments between the organizations occurs. The public and private values clash in these contact moments and both organizations try to safeguard their own important values. This might not always be possible, and trade-offs are necessary.

Private organizations have an issue with the fact that some contact moments result in a value loss. They find that the expected value of a contact moment is not always realized in practice. The public party's perception of contact moments and value is still unknown. There is a research gap on this topic. In an ideal situation, every contact moment safeguards and/or creates maximum value for both organizations. This gives the following problem statement:

Contact moments between the public and private organizations in Dutch DBFM infrastructure projects are not always perceived as a creation of value, but as a loss of value.

Research objective

The objective of this research is to:

Optimize contact moments between the public and private organizations of Dutch DBFM infrastructure projects to create more public and private value.

The current state of research is missing the link between value and contact moments within the project organization in PPPs. This research fills that research gap.

1.3 Research scope

The research focusses on Dutch infrastructure PPPs. Within the wider PPP spectrum this research only looks into the Design, Build, Finance & Maintenance (DBFM) contracts. This is done for two reasons: 1) because the duration and long-term commitments of collaboration in infrastructure projects is more prone to innovation and efficiency in construction, processes and results (Volker, Eriksson, Kadefors, & Larsson, 2018). The maintenance (M) part of this contract model ensures this long-term commitment and Dura Vermeer is always looking ahead for innovations and efficiency improvements, and is therefore interested in this topic. 2) The governmental bodies of the Netherlands use and support the use of DBFM project delivery methods for infrastructure projects (Verweij, 2015a). Furthermore, Dura Vermeer currently has multiple DBFM projects in all different phases.

Contact moments between the public and the private organizations within the project organization are looked at. The research examines contact moments between those organizations, and not within the organizations (see figure 2). The research looks for both formal and informal contact moments. It defines formal contact moments as those face-to-face contact moments between the public project delivery organization and the private project organization that are required by contract or project management documents. The research defines informal contact moments as work-related contact moments outside of the formal contact meeting structure. The informal contact moments can include e-mails, calls, coffee breaks, (quick) meetings, lunches, etc. and are not bound by any contract. Informal contact moments are instigated by project members.

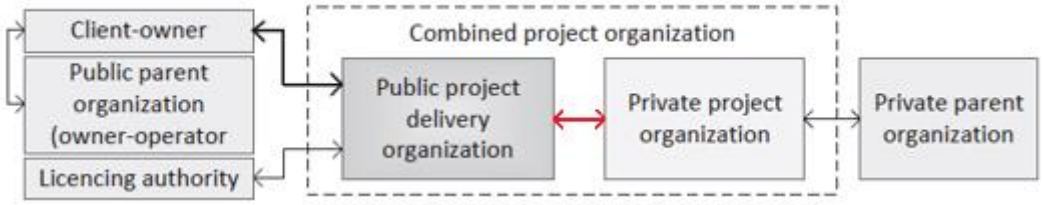

Figure 2 Combined project organization and the parent organizations. The red arrow indicates the contact moments inside the scope. Adapted from Koops (2017). p.202.

The scope is also limited by only examining contact moments that occur in the preparation and realization phase. This is done because these two phases are considered by Dura Vermeer to be the most important phases in terms of contact moments and value in DBFM projects (Loggers, 2018). This means that the (pre-)tender phase and the maintenance phase are outside of the scope of this research.

PPPs contain both the public organization and the private organization. The private organization is a straightforward term in this research, and refers to the organization or the consortium of organizations that is / are the main contractor in the PPP. 'The public organization' is more ambiguous, this research uses this term to refer to the clients of the infrastructure project.

This research does not look into other stakeholders not included in the above-mentioned definitions of public and private organization. Stakeholders such as water boards, municipalities, NGO environmental groups, (local) citizens with issues on the project and (local) commercial companies are not considered to be part of either the public or the private organization for this research. Therefore, they fall outside of the scope. Unless they are acting as a client of a DBFM project.

1.4 Research question

The main question is:

How can contact moments between the public and the private organizations within the project organization be optimized to create more value in Dutch DBFM infrastructure projects?

In order to help to answer the main research question, six sub-questions have been formulated. The research interprets value as both public and private values.

1. *What are the organizational structures used in DBFM infrastructure projects?*

This sub-question is answered by studying the current literature on project organization structures, public-private partnerships and the combination of these two. In order to find all existing contact moments in the organization structure, first the organization structure itself must be known. This knowledge is one of the main building blocks of this research. This sub-question is answered in chapter 2.

2. *What is value for infrastructure projects?*

For this research to be able to find answers on how to create value, the definition of value for infrastructure projects must be researched first. The definition of value is found through a literature study on the subject. Both public values and private values are studied. The research also looks into what values are important in infrastructure PPPs. The answer to this sub-question is given in the literature study in chapter 2.

3. *How is value created in DBFM infrastructure projects?*

In order to know how value can be optimized, the research first has to examine how value is actually created in DBFM infrastructure projects. This sub-question is answered by reviewing literature. How value is created in DBFM infrastructure projects is researched in chapter 2. Chapter 6 also briefly answers this question from a practice point of view, to give a broader answer to this sub-question.

4. *What are the formal contact moments between the public and the private project delivery organizations?*

The formal contact moments are found in documentation of the case studies and in the DBFM contracts of the case studies. This sub-question results in a list of formal contact moments per case. It is necessary to define all the formal and informal contact moments per case in order to see what they are, in which frequency they come about, and who sits at the table of these moments. Chapter 3 provides the answer to this sub-question.

5. *What are the informal contact moments according to practice and what is their function?*

It is important for this research to define not only all the formal contact moments that occurred in the case study, but also the informal contact moments. The informal contact moments and their function are not prescribed by formal project documentation, nor are minutes or agendas available. They can only be found by directly asking project members. The sub-question is answered by interviewing

managers of the case studies and asking them directly what informal contact moments occurred in the project and what their function was. By answering this question, the research has knowledge about all contact moments that occurred between the public and the private organization, and their function. The answer to this question can subsequently help to answer sub-question 6. The answer to this sub question can be found in chapter 5.

6. *How do contact moments contribute to the creation of value?*

The sixth sub-question links contact moments and value creation together. This question is answered by analysing and interpreting the interviews from the cases. The answer to this sub is subsequently used to answer the main research question and can be found in chapter 6, the interpretation of results.

1.5 Research methodology

This research is a qualitative research in the sense that it is concerned with the qualitative aspects of the topics described earlier in this chapter. This research roughly follows the same methodology as Kothari (2004) proposes as standard research processes required for scientific research. It contains a research design, a literature review, data collection, data analysis and data interpretation. The research methodology is elaborated on below, an overview can be found in figure 3.

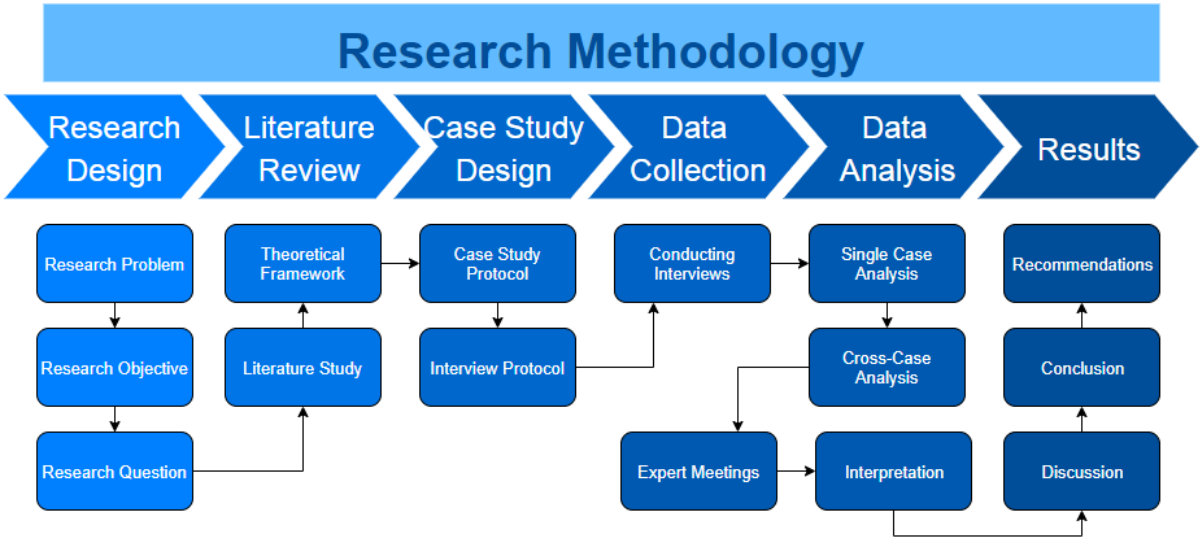

Figure 3 Research methodology of this research. Own figure.

Research design

The research starts with the conceptual design: defining what it wants to achieve, why it wants to achieve this objective and how much is going to be studied (Verschuren & Doorewaard, 2010). This is done by introducing the problem statement, research objective and the research question with its sub-questions. The sub-questions are answered throughout the research and help to answer the main research question.

Literature review

Subsequently, a literature review is done on the topics of the research to create a theoretical framework. The framework provides a background for the case study and for the interview questions that are conducted during the data collection phase. The literature review also answers the first three sub-questions. In order for this research to be meaningful, a list of important public and private values

needs to be extracted from literature. With this list, the research is able to narrow down the research and interviews to the most important public and private values.

Case study Design

A multiple-case study is conducted to see what values were present during the preparation and realization phases and to look at contact moments and value creation from a practical perspective. The case study protocol is written with the theoretical framework and the research design in mind in order to yield multiple theoretical useful cases for the case study (Eisenhardt, 1989). The case study results in a data on values, contact moments, value creation, and list of formal contact moments for every case, which helps to answer the sub-questions.

Data collection

For qualitative research, holding depth interviews is a good form of data collection (Kothari, 2004). Semi-structured open interviews are conducted and digitally recorded face-to-face with selected managers of the case studies. Open-ended questions support the data analysis (Creswell & Poth, 2017). Semi- structured interviews are the heart of qualitative studies (Gioia, Corley, & Hamilton, 2013). Summaries of the interviews are made and validated through e-mail by the interviewees before analysis takes place. The research conducts at least two interviews per case per organization, which means four per case. In this way, multiple sources of data are used for the research for every case. The results are reported for every case.

After the data analysis, two expert meetings are held, one with the public and one with the private organization, which are also used to collect data. The participants of the expert meetings are experienced with DBFM infrastructure projects. The use of these expert meetings is to gain insights on specific observations made from the data analysis. These insights support the research in the interpretation.

Data analysis

A single-case analysis is performed. This allows the researcher to gain familiarity with and become immersed in the cases. The performed analysis is a qualitative data analysis. This is an inductive or deductive analysis that is used to gain knowledge about the content of a problem by categorizing themes and patterns from the collected data of the interviewees (Creswell & Poth, 2017). This study uses the inductive approach, since this is recommended if the knowledge on the topic is limited or fragmented (Elo & Kyngäs, 2008). The summaries of the interviews are a good object for the qualitative inductive data analysis (Mayring, 2000). Excel is used to create the list of concepts of the first order analysis and the themes of the second order analysis. This type of research is sometimes referred to as a subjective analysis (Gioia, Corley, & Hamilton, 2013).

A cross-case analysis is subsequently used to increase the generalizability of the research and to improve the perspectives and explanation of the research (Miles & Huberman, 1994). A cross-case analysis also ensures that the researcher sees more than just the first impressions of a case and looks at the problem from multiple angles (Eisenhardt, 1989). Expert meetings are subsequently held to verify the findings of the cross-case analysis. Two expert meetings are held, one with the public and one with the private organization of a DBFM project. Finally, the results from the expert meetings and the analyses are interpreted. The research is aware that using the interpretation method might raise new questions (Kothari, 2004)

Results

A discussion takes place where possible limitations of the research are looked for and the impact and significance of the research findings is described. The research then answers the research questions in the conclusion with the help of the interpretation. After which recommendations are made for implementations of the findings and suggestions are made for future research.

1.6 Reading Guide

The thesis is structured as follows.

Chapter 1 Introduction
The introduction provides background information to the problem and describes what topics are investigated for this research. The research question, problem statement, research scope and methodology are also introduced here.

Chapter 2 Literature Review
A theoretical framework is created from literature that is used throughout the research. The literature review is also used to answer the sub-questions 1, 2 and 3.

Chapter 3 Case Studies
A case study protocol is written to select multiple cases for this research. The cases are then selected and introduced. Subsequently, all formal contact moments of the cases are defined by looking at the official project documentation. The interview protocol of the research that is applicable to the case study is also given in this chapter. This chapter answers sub-question 4.

Chapter 4 Single case analysis
The qualitative inductive content analysis is performed on the single case studies of the research. The results of the interviews are used in this analysis.

Chapter 5 Cross-case analysis
A cross-case analysis is performed in this chapter. The cases are cross analysed to look for possible similar or contradictory results. This chapter results in multiple observations for every theme that comes out of the single case analysis and in a list and use of informal contact moments. This chapter provides an answer to sub-question 5.

Chapter 6 Interpretation
The outcome of the cross-case analysis is used as input for the expert meetings. This chapter interprets the results of both the cross-case analysis and the expert meetings. It subsequently answers sub-question 6 and sub-question 3 from a practical perspective.

Chapter 7 Discussion
The chapter provides a discussion on the legitimacy and validity of the research. The limitations and significance of the results are discussed.

Chapter 8 Conclusion and Recommendations
The conclusion answers the main and sub research questions. Afterwards, recommendations are made for practice and future research.

CHAPTER 2 LITERATURE REVIEW

The goal of this chapter is to review the current literature on the topics of this research and to use this knowledge as starting points for the research. All topics that were introduced in chapter 1 are elaborated on. The literature review is done by looking into literature made available by the TU Delft, both their online as their physical library, and the use of Google Scholar. Keywords for the literature review were: public-private partnership (PPP); Design, Build, Finance, Maintain (DBFM); Special Purpose Vehicle (SPV); (public and private) value; value creation; project organization structures; interfaces; contact moments; meetings; and (Dutch) infrastructure (PPP) projects.

The chapter starts with a literature review on project organization structures in section 2.1. This is the main building block for the subsequent research on public-private partnerships (PPPs) and DBFMs in section 2.2. Following, the *how, what & why* of contact moments are reviewed in section 2.3. These topics are the main building blocks of this research and are be used to answer sub-question 1: *What are organizational structures used in DBFM infrastructure projects?*

Afterwards, section 2.4 is dedicated to public value. Inside this section, literature is reviewed on how public value is defined; what value is specifically for infrastructure projects; and on public and private values in infrastructure projects. The answers to these questions support the answer to sub-question 2: *What is value for infrastructure projects?*

Section 2.5 is committed to review the literature on how value is created specifically for DBFM infrastructure projects. This helps to answer sub-question 3: *How is value created in DBFM infrastructure projects?* The chapter ends with a conclusion in section 2.6 on the goal and findings of the literature study and to answer sub-questions 1, 2 and 3.

2.1 Project organization structures

Henry Mintzberg (1980) is regarded as the founder of research on project organization structures. He stated that the structure of every organization has five elements: operating core, strategic apex, middle line, support staff and technostructure. Figure 4 shows Mintzberg's organization structure. The technostructure is the internal technical support of an organization and the support staff is the staff that provides services for the organization such as lunch, cleaning services, etc. These two parts of the organization are not in the scope of this thesis, since they have no interaction with the other organizations in a PPP. Their tasks are concerned with the internal functioning of an organization (Mintzberg, 1980).

For public and private organizations, the strategic apex is the board of directors of the organization. In PPPs, the project leaders (project director and/or project manager) are also part of the strategic apex. The middle line of public and private organizations consists of the managers of the project, such as process managers, environmental managers, control manager, etc. The operating core of an organization is the actual workforce that carries out the tasks. The operating core of the organization does not have a lot of contact moments with the other organization. It is common for a contractor to have their middle line handle most of the contact moments with other organizations and have their workforce only worry about their respective tasks (Shokri, et al., 2012).

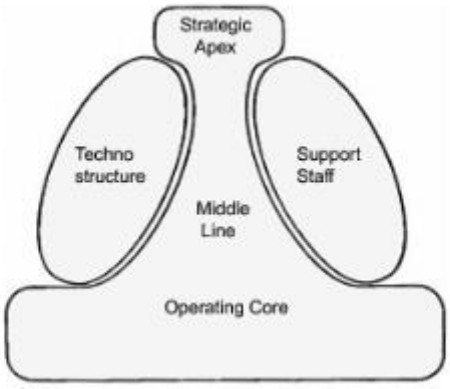

Figure 4 Structure of Organizations. Taken from Mintzberg (1979) p. 324.

Before the research dives deeper into project organization structures, the definition of a project is reviewed. Turner (2009), who is internationally recognized for his works on project-based management, provided multiple definitions of a project over his years as a researcher. The definitions were however always quite similar to each other. In his Handbook of Project-Based Management (2009), Turner wrote that a project is "a temporary organization to which resources are assigned to do work to deliver beneficial change" (p. 2). Cleland & Kerzner (1985) stated in the project management dictionary that a project is "a combination of human and non-human resources pulled together into a temporary organization to achieve a specified purpose." Finally, the PMI (Project Management Institute) (2017) almost fully agreed with these definitions and defines a project as "a temporary endeavour undertaken to create a unique product, service or result" (p.4). These definitions have a lot of similarities, but the definition of a project of the PMI (2017) is used in this research.

After procurement, the organizations of the public and private organizations form a temporary combined project organization (CPO) (Bult-Spiering, 2003; Koops, 2017). Koops created figure 5, that shows the broad interorganizational structure between the public and private organizations in a PPP. The CPO is a combined temporary organization of the public project delivery organization and the private project organization. Client-owner, owner-operator and the licensing authority are considered as the public parent organization (Koops, 2017). During the time scale of the project's existence, the parent organization of the temporary project organization is considered to be stable (Turner & Müller, 2003). Public project managers have to communicate to their public parent organization and to the private project organization within the CPO. Private project managers have to report to the public project delivery organization in the CPO and their private parent organization. The CPO has a purpose, a finite lifespan, its own assets and liabilities, a clear defined financial structure between all parties, and a legal status (Koops, 2017). Both the public project delivery organization and the private project organization, have their own organization structure similar to Mintzberg's organization structure from figure 4 (Mintzberg, 1980).

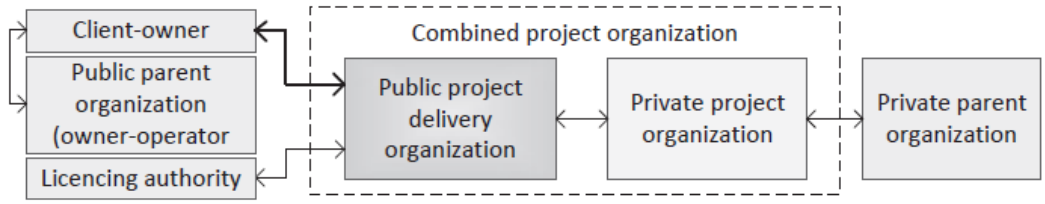

Figure 5 Combined project organization and their parent organizations. Taken from Koops (2017). p. 202.

The public project delivery organization has public project managers that have an ambiguous role in the CPO. On the public organization side, they have to report to their superiors that have political power, who pushed the project to make it happen. To their superiors, the public project manager is

the *contractor*, in the sense that he has the accountability for the project, and translates the political assignments to a feasible decision and outcome. On the other side of the CPO stands the contractor of the private organization, to whom the public project manager is the client (Koppenjan, Steenhuisen, Broekhans, & Cremer, 2012).

Koppenjan et al. (2012) also conducted interviews with Dutch infrastructure project managers from both the client's side as the contractor's side. The interviews demonstrated that the managers from both sides found it more valuable to have a clear and regulated gap between the public project delivery organization and its public parent organization, which holds political power. Interventions from the public parent organization are not desirable. The managers found that good coordination about exchanging information between organizations was missing, as well as process agreements between the organizations on how to cope with relationships and unforeseeable circumstances that bring financial consequences.

In a study on empirical studies about the impact of publicness on organizational milieus, objectives, and values, Boyne (2002) found that most prejudices about public managers are not proven. Only three of his thirteen hypotheses are strongly supported by the empirical studies: "public organizations are more bureaucratic, and public managers are less materialistic and have a weaker organizational commitment than their private sector counterparts" (Boyne, 2002, p. 97). The bureaucratic nature of public organizations that Boyne found, support the remarks of the project managers in the research of Koppenjan et al. (2012). Project managers desire less influence from the higher public organizations and the bureaucratic system, which costs more time and money.

The typical characteristics for a temporary project organization are currently not researched in detail (Anvuur, Kumaraswamy, & Fellows, 2012). Hertogh & Westerveld (2010) stated that a temporary project organization for large infrastructure projects ranges in between a permanent production organization and a pure project organization. Koops' (2017) argues that a characteristic of the temporary CPO is to build new or renew infrastructure.

It is also not possible to give a clear and broadly accepted definition of the project delivery organization for infrastructure projects, because large infrastructure projects are organized in diverse ways (Hertogh & Westerveld, 2010).

Walker (2015) argued in his book Project Management in Construction, that most of the times the organization structure of the client is very big. Because of this, it is easier for the contractor to adapt to the organization structure of the client, than to try to change it. Walker (2015) found that the contractor benefits from mirroring his private project organization structure to the public project delivery organization of the client. These benefits include easier collaboration and exchange of information on the project (Walker, 2015).

It is however dangerous to mirror one's organization structure when the client does not have sufficient knowledge or expertise on the project. A well-designed organization structure does not mean that the project is automatically a success, but it does give extra space for other factors that control project success (Walker, 2015).

Walker identified four internal factors that contribute towards the effectiveness of the project processes: behaviour, techniques and technology, decision-making and the organization structure. Walker also emphasizes the importance of organization structures in construction projects when he argues that the organization structure is at the centre of these four, influencing them all (see figure 6).

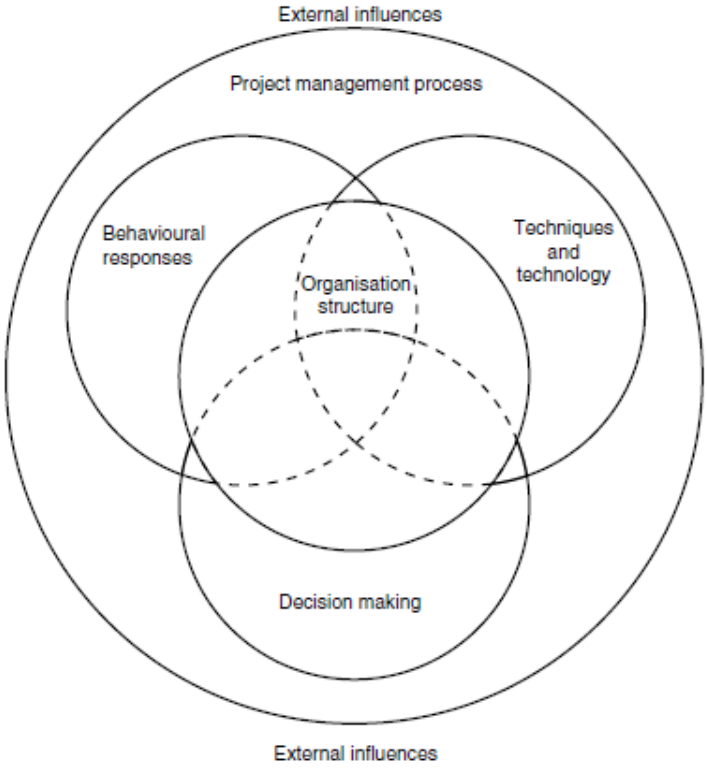

Figure 6 Walker's take on the influence of organization structure in project management processes. Taken from Walker (2015). p. 19. Fig-1.2.

2.2 Public-private partnerships & DBFMs

Public-private partnerships (PPPs) have a multitude of similar definitions in literature. A generic definition for PPP is: a long-term contract between a public and a private organization for providing public services or public goods that are capital-intensive and in which the private organization bears risks and managerial liability (Roehrich, Lewis & George, 2014; Savas, 2000). The PPP is an integrated contract where the contractor does more than only construction works. Integrated contract models have been used in increasing numbers in recent construction projects in the Netherlands (Kuitert, Volker & Hermans, 2018).

Public organizations have increasingly used private organizations for public service delivery (Kuitert, Volker & Hermans, 2018). PPPs are the desired contract model for the public organization of public service delivery and solving complex social problems, including infrastructure projects (Hueskes, Koppenjan, & Verweij, 2016). The government also grants allowances for research and development in PPPs, to further stimulate private organizations to step in this market. The PPPs brings added value in comparison to traditional contracting (Eversdijk & Korsten, 2015).

The special purpose vehicle (SPV), special purpose entity (SPE) or special purpose company (SPC), is a legal joint venture created to fulfil specific objectives or projects and is often used in PPPs (Sainati, Brookes & Locatelli, 2014). The SPC has two main functions: creating a consortium of partners in a megaproject and financing (Sainati, Locatelli & Brookes, 2015). The SPC is at the centre of the organization, is a combination of all partnering companies and is the organization that signs the contract with the client (Sarmento & Renneboog, 2016). Despite their wide use in megaprojects (projects that typically cost more than one billion US dollar (Merrow, 2011)) SPCs do not have a broadly accepted definition nor is there a typical use for it (Sainati, Brookes, & Locatelli, 2017). The SPC consists of two separate organizations, the Engineering, Procurement, Construction & Maintenance Company

(EPCM) and the Maintenance Company (MTC). The EPCM is in charge of the engineering, procurement and maintenance during the preparation and realization phase. After realization, the project is handed over to the MTC, which does maintaince work on the project during the lifespan of the contract. The SPC is also supported by banks with debt, and investors with equity, see figure 7 for the complete picture (Sainati, Brookes, & Locatelli, 2014).

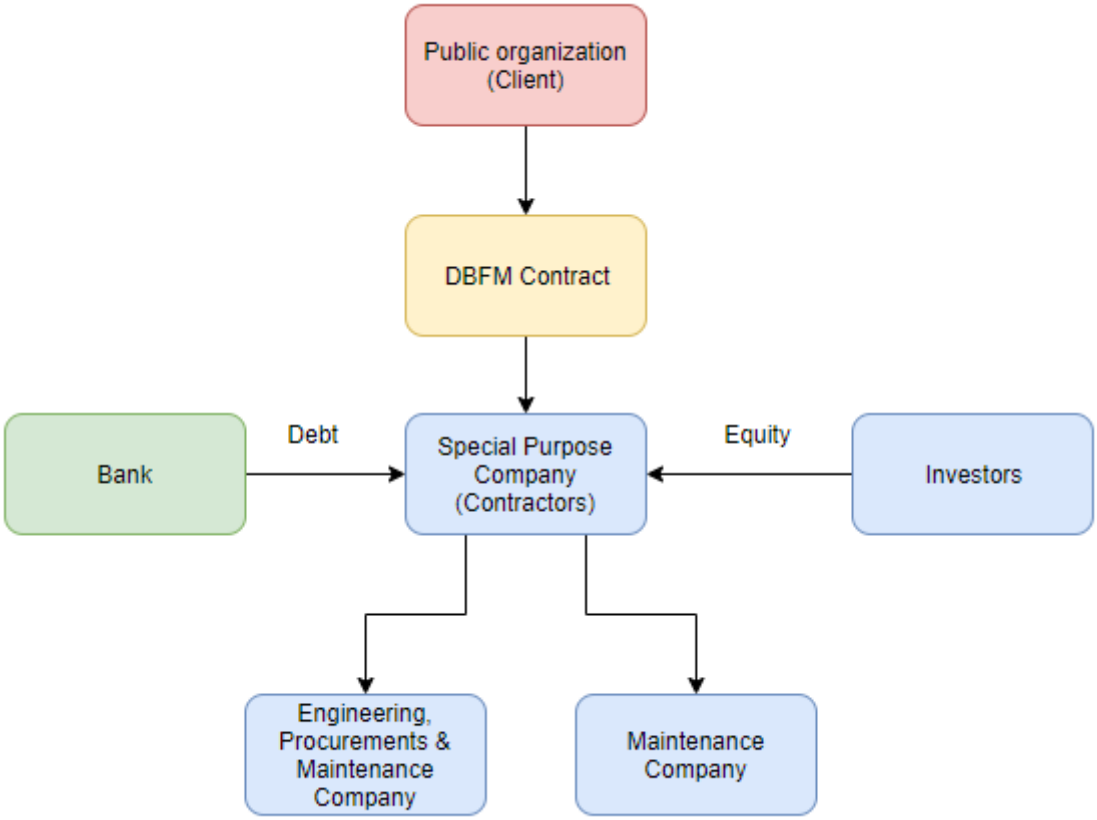

Figure 7 The links between client, contractor, SPC, bank and equity investors. Own figure.

The SPC, EPCM and MTC are projected inside the CPO in figure 8, which combines the knowledge of section 2.1 and 2.2. The public project delivery organization consists of a traditional hierarchical structure that is mirrored by the EPCM. The SPC consists of a few higher ranked managers that also are the head of the EPCM. The MTC only becomes active in the maintenance phase and has a smaller organization structure (Sainati, Brookes, & Locatelli, 2014).

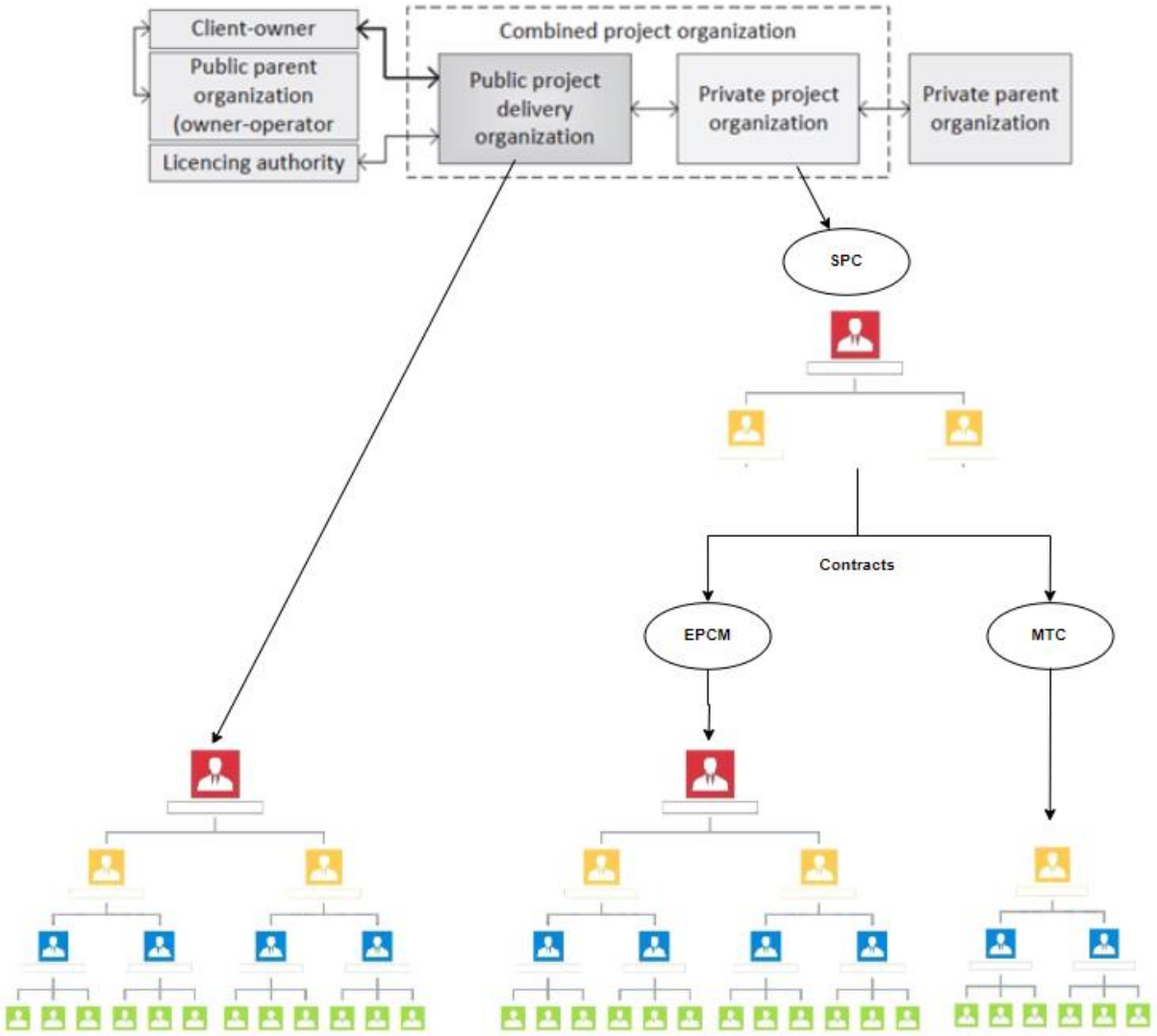

Figure 8 The combined project organization with the organization structure of both the public and the private organization. Figure adapted from Koops (2017). p. 202.

Integrated contract forms of PPPs include Design & Build (D&B); Build & Transfer (B&T); Design, Build, Operate & Transfer (DBOT); and Build, Own, Operate & Transfer (BOOT). The D&B contract is very common in construction projects. It is an integrated approach that delivers both design and building under one contract (Nicholas & Steyn, 2017). It has been increasingly popular because of shorter project completion times; cost certainties from the start of the project for the public party; and one party that is responsible for possible errors in the design and construction (Chen, Jin, Xia, Wu, & Skitmore, 2015). Some state that D&C is the better and improved approach for the older, traditional Design-Bid-Build (DBB) approach, in which the design and the building is in the hands of two different private organizations. This form has seen less traction in recent years (Park, Lee, Kim, & Kim, 2015).

The focus of this research in the wider spectrum of PPP is on the Design, Build, Finance, Maintain (DBFM) project delivery method. In this contract form the client does not buy a new construction, but it pays for the availability of this construction during its lifespan or the lifespan of the contract. The contract is tendered to a private organization or a consortium, consisting of a multiple private organization. The contracts are often between 15 and 30 years, so the consortium has a chance to get their initial investment and a return on investment back (Rekenkamer, 2013; Straub, Prins & Hansen, 2012).

In 2013, the Dutch government claimed to have saved 800 million euros in costs by using the DBFM(O) project delivery method. By that time, they had thirteen running DBFM(O) contracts, six in infrastructure and seven in buildings. Rijkswaterstaat also had nine infrastructure and seven building projects planned in the coming years (Algemene-Rekenkamer, 2013). However, Verweij et al. (2017) found that due to the complexity, the project culture and time constraints that DBFM projects endure, the performances of DBFM contracts are not always on the desired level.

Sharing risks in PPPs also brings advantages for the private organization. Since they are designing, building and maintaining the project over its total lifespan, they construct the design in such a way that it is easy to maintain. The idea is that with PPP, life cycle costs are lower, while durability and sustainability are higher. The integrated contract models that PPPs offer, have been linked to optimizations in lifecycle costing and management (Lenferink, Tillema, & Arts, 2013). The partnership also combines the strengths of private organization in the form of innovation, technical skills, expertise and management (Roehrich, Lewis, & George, 2014). PPPs are often defended on the grounds that they have an optimized design and more efficient work practices (Burke & Demirag, 2017).

PPPs have beneficial characteristics for both the long and the short term. The long-term benefit is the more value for money this project delivery method gives. The short-term benefits are reduction of the time and costs constraints, an overall better-quality project delivery service, less administrative burdens and the division of the risks of the project (Kwak, Chih & Ibbs, 2009; Verweij, 2015a; Walker, 2015).

PPPs create a hybrid form of joint public private risks and responsibilities. This hybrid form establishes a strong collaboration between the public organization, which holds the governmental guidance power, and the private organization, which holds the financial and realization power. This collaboration results in better implementation of the project. The diversity in the new organization structure suits dynamic complexity better than organization structures with purely public or private dominance (Hertogh & Westerveld, 2010). Many of these advantages, and an overall better outcome of a PPP, do require the prerequisite that there is a strong institutional environment present with serious influence (Opara, Elloumi, Okafor, & Warsame, 2017).

Lenferink, Tillema & Arts (2013) concluded that due to the DBFM(O) model, collaboration between the public and private organization has already been improved overall. They argue that the biggest cause for this is the new lifecycle linkage. The DBFM project delivery method theoretically leads to better fine-tuning of different phases in the project, because the contractor is incentivized to think about how he designs the project for a better construction, maintenance (and operating) phase. This gives the market a lot of freedom, and innovative solutions are often found because of this. Another positive effect of the DBFM model is that it ensures a tighter and cleaner financial guidance. The financing party behind the consortium of a DBFM contract wants to see performances in the project. Since the consortium gets revenue if the project is available for the public, there is an extra drive to finish the project on time (Lenferink, Verheij, Leendertse, & Busscher, 2017).

But criticism on DBFMs and others PPP contract models have also been voiced in the Netherlands. Public values such as transparency, responsiveness, accountability and quality are under pressure and the flexibility of the contract is very limited. Critics found that the contractors are only looking at internal stakeholder management, and not external stakeholder management. Output specifications of a project are not always clear, which stimulates opportunistic behaviour of contractors, who interpret the specifications to their own advantage (Reynaers & Verweij, 2014). The constant time pressure that DBFM's endure, due to the incentives of the client and/or the financial model that the contractors have with banks, also has negative influence on the participation of external stakeholders and project culture (Verweij, Teisman, & Gerrits, 2017).

Verhees & Verweij (2016) argued that the profits of using a PPP in the Netherlands are often already praised and booked before the project is even completed, without knowing what the completed project will look like or how it will contribute to problem solving. Verhees & Verweij also stated that the promises that are made beforehand are often hard to realize and don't come naturally

during the execution and maintenance phase. A 2016 study on the increasing amount of Dutch and Flemish doctoral theses on PPP found that the questions on *if* and *how* a PPP works cannot be generalized, but are almost always context dependent (Hueskes, Koppenjan, & Verweij, 2016).

The physical boundaries of DBFM projects are often framed inside the contract, which can lead to difficult situations. Lenferink et al. (2017) criticized the DBFM model for often being aimed inwards, meaning that the DBFM is optimizing everything inside the physical scope boundaries, but neglecting the interfaces with the surrounding area.

The criticism on PPPs is not limited to the Netherlands. In October 2018, the Chancellor of the United Kingdom, Philip Hammond, has announced that their model of DBFM(O), called Private Finance Initiative (PF2), was banned and no longer be used. The PF2 has seen a lot of criticism over the years: it is a fiscal risk to the Government and the contract lacks flexibility for all organizations. The Government of the UK also rarely used their PF2, with only 14% of all PFI (precursor of PF2) & PF2 projects procured after 2010 (UK-Treasury, 2018). Before 2015, the PFI and PF2 were considered the preferred project delivery methods for the UK Government, as they were best in achieving value for money (Walker, 2015).

2.3 Contact moments

The contact moments that this research looks at are a specific type of interface. A clear definition of interfaces comes from Shokri, Safa, Haas, Haas, Maloney & MacGillivray (2012), who stated that they are *"generally considered as the links between different construction elements, stakeholders and project scopes"* (Shokri, et al., 2012, p. 447). This research focusses on the links between contractor and client. It chooses to name these links contact moments. Two different types of contact moment exist, formal and informal contact moments. Formal contact moments (FCMs) are the links between the public project delivery organization and the private project organization that are required by contract or project management documents. The research defines informal contact moments (ICMs) as work-related links outside of the formal contact meeting structure. The informal contact moments can include e-mails, calls, coffee breaks, lunches, (quick) meetings that do not follow a formal structure, etc All informal contact moments are not bound by any contract but are instigated by project members.

Pinto & Winch (2016) and Winch & Leiringer (2016) concluded that researchers have given poor attention to the contact moments between the temporary project organization and different types of permanent (private or public) organization that configure any project. These contact moments outside the CPO however, are outside of the scope of this research. No research has been found that studies the contact moments between the public and private organization inside the CPO.

Contact moments require a certain degree of collaboration or cooperation between both organizations, which leads to mutual benefits. This research follows the definitions of these terms as given by Koops (2017): *collaboration* occurs when different actors work together to reach a mutual objective; *cooperation* occurs when different actors work together to reach their personal, or organizational objectives. Collaboration is a critical process for improving efficiency and innovation (Volker, Eriksson, Kadefors, & Larsson, 2018).

In general, meetings are crucial in every organizational environment (Rogelberg, Scott, & Kello, 2007; Kauffeld & Lehmann-Willenbrock, 2012). Rogelberg et al. (2007) find that organizations need to invest in three aspects of meetings: improving the required skillset that employees need in meetings; improving the skillset that managers need in meetings; and looking for innovative and proven ways of holding the variety of meetings that they have.

Rogelberg et al. (2007) found that the skillset that employees need for more effective meetings are: knowledge on when to meet; how to ensure a quality agenda for the meeting; how to stimulate everyone to join and share the conversation; how to deal with the variety of cultural backgrounds that people have and the issues that arise from this.

In a 2009 empirical study on perceived effectiveness of meetings, it was found that five meeting characteristics have positive influence on perceived effectiveness of a meeting. These characteristics were the use of an agenda; having clear minutes; clear start and end time of the meeting; convenient meeting environment; and the presence of a chairperson or leader (Leach, Rogelberg, Warr, & Burnfield, 2009).

The interorganizational collaboration that contractor and client have in these contact meetings are positively influenced by sharing a common mission and strategy; agreement about the characteristics of their collaboration; sharing power through collective decision making; awareness of the values, goals, services and resources that the other organization has; and trust (Savage, et al., 2010).

2.4 Value

In this section, the definition of value is presented by researching literature in sub-section 2.4.1. The subsequent sub-sections 2.4.2 and 2.4.3 examine what value is for the public and for the private organization (public & private value). After which sub-section 2.4.4 shows how the values of both organizations overlap. Sub-section 2.4.5 determines a shared value set based on the literature review that is further used in the research.

2.4.1 Definition of value

Regardless of the industry, the reasons for doing a certain project is *"to add value to the core business of a client"* (Kelly, Male, & Graham, 2014, p. 170). Historically, value is seen as a very economic ideal and can be expressed as the ratio of costs to benefits (Bell, 1994). The concept of value can still be regarded as the accomplished results relative to the costs that were made. The definition of value and the way how it is measured is still very critical in understanding the achievements of organizations and their developments. The definition should also always be based on the customer of the project, not the supplier (the client of the project) (Porter, 2010).

A common accepted classification of different value perceptions is the model that Allport, Vermon & Lindzey proposed in 1960. They distinguish six different possible perceptions of an individual on value. These six perceptions are (Allport, Vernon, & Lindzey, 1960; Kelly, Male, & Graham, 2014):

- Theoretical perception – The theoretical perception is focused on truth, science, rationality, critical opinions and solving issues.
- Economic perception – A perception of value based on usefulness of the product. The focus of this perception is on money and finances.
- Aesthetic perception – Aesthetic value perception means placing high value on form and harmony of a project.
- Social perception – The social individual will give value to philanthropic ends, improving social issues and kindness.
- Political perception – The political perception is based on interests in political (or personal) power, influences and fame.
- Religious perception – This perception will make an individual award value to unity, the supernatural and morality.

Meynhardt (2009) stated that "'Values' is one of those ambiguous container terms with enormous promise of insight but no widespread consensus" (Meynhardt, 2009, p. 196). The multiple definitions give an ambiguous character, where value means different things to different people. How an individual perceives value comes from education, societal context or religious believes (Allport, Vernon, & Lindzey, 1960). These ambiguities come back in the chosen definition of value for this research: *anything capable of being appreciated (wished for).*

2.4.2 Value for the public organization

Mark Moore laid the foundation for *Public Value*, a widely used and accepted term, in 1995. He found three elements that together create public value: 1) The organization that wants to create public value has a clear and defined mission that is framed and measurable; 2) The organization is legally entitled to pursue their defined mission; and 3) the organization meets to the organizational and financial conditions to optimize their defined mission (Moore, 1995). Public value is the creation or redevelopment of public sector projects in ways that boost their value towards society for in the current situation as well as in the future (Moore, 1995). For a value to be considered public, it needs to serve a commonly shared use or be a commonly shared interest. Concrete examples for this are equality and transparency (Van der Wal, 2008). Securing one public value, automatically means a trade-off for loss of another public value (De Graaf, Van Doeveren, Reynaers, & Van der Wal, 2011). These trade-offs are often a daily aspect of life for public managers, as public values compete with each other (Kuitert, Volker & Hermans, 2018). Furthermore, values are always interconnected with other values, which means that normative considerations between different values are required (De Graaf, 2011; Bozeman, 2007).

Public value is an important issue right now in governmental bodies and in research (Bryson, Crosby, & Bloomberg, 2014). Reynaers & De Graaf (2014) connect public values and PPPs. They narrowly followed Bozeman's (2007) definition of public values: "Those [values] providing normative consensus about (a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (b) the obligations of citizens to society, the state and one another; and (c) the principles of which governments and policies should be based" (Bozeman, 2007, p. 17) Meynhardt (2009) stated that public organizational actions *"cannot but influence public values"* (Meynhardt, 2009, p. 193) due to the nature of society, continuous feedback to and from it and its pluralist character.

The definition of public values given above is very broad and can be perceived in multiple ways. Reynaers & De Graaf (2014) stated four ambiguities that exist within the concept of public values. Two of these ambiguities are relevant for this research. The first one is the suggestive nature of the word *public* value. This implies that there is a difference between public and private values (public sector vs private sector). These values are often stereotyping and researchers have concluded that these values do not empirically hold in society (Reynaers & De Graaf, 2014).

The second ambiguity is the phenomenon that public values are very subjective and do not have a universally agreed upon definition. This means that it is hard to define the concept of public value, and how these values should be shaped. The abstract character of values does also not help with this issue. It is concluded that these values are shaped by society and context (Reynaers & De Graaf, 2014).

When looking at Mintzberg's (1980) organizational levels for public organizations, the public value is added in the *middle line*. This is the tactical level of public organizations, who's core activities are drafting documentation which amplifies the public value (Koops, 2017).

Koops (2017) also linked PPPs and value together and stated that PPPs do not have the objective to complete a project with the lowest amount of costs, but are steered more towards the value that the public obtains from the project. Value "is a complex trade-off between cost, risk and performance" (Koops, 2017, p. 34).

Internal factors of the public organization that have influence on the public values in the construction industry were studied by Kuitert et al. (2018). She found through interviews that three factors have this internal influence: 1) the current developments and situation within an organization; 2) the public organizations' current fit in society and the perspective that the public sees the organization; 3) the view of the public organization on the position in the partnership between public and private organization (Kuitert, Volker, & Hermans, 2018).

Kuitert et al. (2018) found four external factors in the same interviews. They found them to be: 1) new or changes in construction laws; 2) advancements and improvements in the underlying supply chain of construction projects; 3) the bureaucratic system (external factors such as governmental interferences); and 4) societal issues (such as an increase in environmental awareness) (Kuitert, Volker & Hermans, 2018).

Due to the shift towards a more integrated contract, the public organizations are more dependent than ever on the private organizations to realize the public value (Kuitert et al., 2016; Kuitert et al., 2017). The creation and safeguarding of public values are therefore a crucial task for the public organization in construction projects. The public organization needs to be clear towards the contractor on which values need to be safeguarded. They are still accountable, politically and socially, for the value standards of the public (Kuitert, Volker, & Hermans, 2016). Reynaers (2014) found that only the public organization is fully responsible for safeguarding the public values in PPPs.

De Graaf and Paanakker (2014) distinguished three different types of public values. They distinguished performance values such as efficiency and effectiveness; procedural values such as lawfulness and reliability; and product values, such as functionality and aesthetics. Kuitert et al. (2017 & 2018) find that currently, public organizations are shifting their view on public values, from a more procedural value orientation towards a product value orientation.

Kuitert et al. (2018) also looked for public values that were of highest interest of public organizations when dealing with cooperation with the contractor in construction projects. They found 25 public values through a literature review. Afterwards, they interviewed public managers to find out that out of 25 values, the five highest public values were collaboration, reliability, quality, integrity and transparency. Six values to safeguard were collaboration, quality, accountability, integrity, reliability and transparency. They concluded that the basic values of time, money and quality still have a significant influence on the way that public organizations act in construction projects. To pursue other values than these three, room to manoeuvre is required. The extra room can only be created if other procedural values correlating with the public character of the clients and other quality assurance measures are well arranged (Kuitert, Volker & Hermans, 2018).

2.4.3 Value for the private organization

The private value is a value that an individual strives for out of personal interest or beliefs (Van der Wal, 2008). A study on the goals of business leaders in 15 countries showed that growth and continuity of the business were rank 1 and 2. After which ‘this year’s profits’ , personal wealth and power ranked 3, 4 and 5 respectively (Hofstede, Van Deusen, Mueller, & Charles, 2002). These goals are the basis of what determines value for an organization.

The underlying goal of value for private organizations seems to come close to profitability. From an economic standpoint, the goal of a company is to have profits (Kelly, Male, & Graham, 2014). Profitability is the skill of a company to earn a profit. Profits are the leftovers when all expenses are deducted from all generated revenue. Making profits secures continuity and growth of the company, as well as achieving personal wealth and power, all five of Hofstede et al. (2002) highest ranking goals. Profitability does not hold up for the public organization (Van der Wal, 2008).

A well-known figure in project management can be found in figure 9 below. In the earlier phases of a project, the private project organization still has heavy influences on costs and outcome of the project. Over time in a project, the private organization gradually loses their influence over these factors. The direction of the project is then already set, and there is little room for changes. These early phases of a project (preparation phase – start of the realization phase) are therefore the phases that are most important for a private organization in terms of private value creation (Kelly et al. 2014).

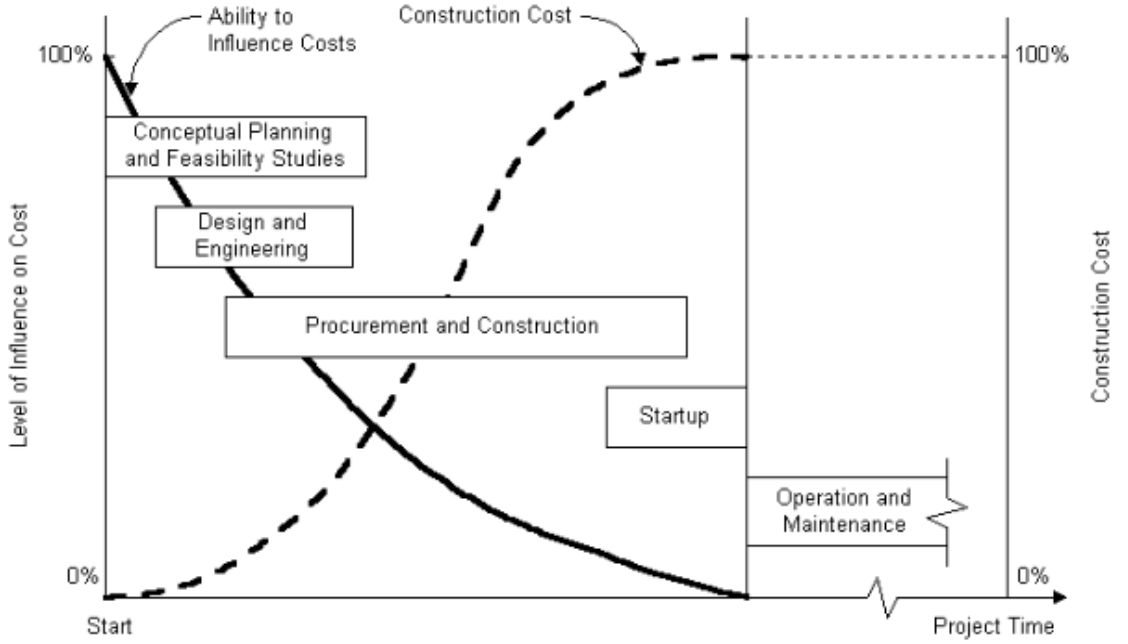

Figure 9 Level of influence on costs versus time. Taken from Hendrickson (2008). Fig. 3.1.

2.4.4 Where public and private values meet

Value management is used by both the public and private organizations in projects. *"Value Management is the name given to a process in which the functional benefits of a project are made explicit and appraised consistent with a value system determined by the client*" (Kelly, Male, & Graham, 2014, p. 1). Kelly et al. (2014) started their book on value management with this definition and comment that this definition is applicable to all projects, regardless of which industry they come from. They also stated that value management is used in almost all construction projects and positively contributes towards a better project outcome.

There is not only contrast between the values of public and private organizations, there are also similarities. Public values are also ranked highly by private organizations, and vice versa (De Graaf, Van Doeveren, Reynaers, & Van der Wal, 2011; Van der Wal, 2009). Table 1 shows the highest ranked values of Van der Wal's (2009) studies next to their respective organization. The overlapping values are plotted in the middle, these are values that both organizations found important. The study was on differences in values between the public and private organizations in the Dutch construction industry. Van der Wal (2009) interviewed managers from both the public and the private organizations to research and find these values. Van der Wal (2009) also found, after a second round of interviews with top managers, that accountability, efficiency and effectiveness are always important, and are rated the highest for organizations that are situated on the border of the public and private organizations (Van der Wal, 2009).

Table 1 Van der Wal's most important values for the public and private organizations. The middle values show the overlapping values. Adapted from Van der Wal (2009). p. 87. fig. 1.

Public value
Legitimacy
Integrity
Impartiality
Accountability
Expertise
Trustworthiness
Effectiveness
Efficiency
Honesty
Innovation
Profitability
Private value

The difference in values between the organizations can also cause discomfort in the relationship and weaken the results of collaboration between both organizations (Bremekamp, Kaats, & Opheij, 2009). The contrasting values can also cause conflicts between the project managers of both organizations (Klijn, Edelenbos, Kort, & Van Twist, 2006). The unmeasurable characteristic of public and private values, makes it even harder to solve them (Kuitert, Volker, & Hermans, 2018).

When conflicts arise in the relationship between the public and private organization, the soft values often deteriorate more than the hard values in a construction project. Within these conflicts, managers often return to the value of honesty and the 'original' values of time, cost and quality (Kuitert, Volker, & Hermans, 2018).

When the values of the client are not correctly perceived by the contractor, the outcome of the construction project is more likely to not meet the expectations and satisfaction of the client or more subject to changes in the project. Both of these may result in extra costs for the contractor and irritation between the stakeholders of the project (Thyssen, Emmitt, Bonoke, & Kirk-Christoffersen, 2010).

Because of the complex collaborative relationship that the public and private organization have with each other in PPPs, the public goals and values are not always served. This complex relationship stems from the conflicting values between both organizations. In the project organization of a PPP, both organizations create a shared value set. The shared value set consists of values from both organizations' value sets, which causes the loss of public value and goals in the project (Kuitert et al., 2018; De Graaf & Paanakker, 2014). Following this reasoning, the same can be said about the private organization and their loss of private goals and values when creating a shared value set.

Smit & van Thiel (2002) followed Jacobs' (1992) reasoning that there are two fundamental different ethical systems in play between both organizations. The private organizations followed commercial ethics, that Jacobs calls Commercial Moral Syndrome. This syndrome encompassed all values that go hand-in-hand with commerce, production and services. Jacobs called the opposing ethical system the

Guardian Moral Syndrome. This syndrome encompassed all values that follow from protecting, managing and exploiting land (Jacobs, 1992). A list of values that connected to these two syndromes can be found in table 2. Neither of the lists of values should be considered superior over the other (Smith & Van Thiel, 2002).

Table 2 Difference in value between governmental organizations and private organizations. Source: Bovens, 1996. Adapted from Koops, 2017. Table 2-2. p. 39

	Governments	Firms
1	Accountability	Leadership
2	General interest	Profit
3	Propriety	Efficiency
4	Legality	Effectiveness
5	Diligence	Innovation
6	Mission	Self interest
7	Rules	Results
8	Voice	Exit
9	Anticipation	Adjustment
10	Publicity	Confidentiality

Table 2 also shows contradictory values according to Bovens (1996). Three important take-aways from fundamental differences in this table are: general interest vs profit. This value difference is the most imaginable and is described as collective interest of the public vs individual interest of the private organizations. The collective interest and the individual interest are often not the same for public and private organizations (Smith & Van Thiel, 2002).

A related value conflict can be found at number 6: mission vs self-interest. The strongest level of this value difference is found at the operational level or middle line of Mintzberg' (1980) organization structure in figure 1. The public organization offers historically speaking a more permanent job, but with less pay than a non-civil servant has. The civil servant however might not mind this wage gap because of the calling he feels inside that satisfies him to serve the public interest. He chooses the mission over his own self-interest of money (Smith & Van Thiel, 2002).

Another big value difference is number 10: publicity vs confidentiality. Within private organizations, secrecy, confidentiality and being discrete is important to maintain one's position in the market. Competitors must not be able to follow every step; they might obtain huge advantages over each other because of that. In the Netherlands, the government must comply to the law of publicity of governance (Dutch: Wet van Openbaarheid van Bestuur), amongst others accountability demands. These laws and demands require them to be transparent towards the public. In a collaboration between the public and private organizations, this value difference might cause issues when the government for example, wants to public details and information on an infrastructure project (Smith & Van Thiel, 2002).

Jacobs (1992) concluded that the government and the private organization will never be able to agree on a value set. The government will never be a commercial organization (and hold those values), because it always has its tasks of legislation, jurisdiction and taxation of its residents.

2.4.5 Creating a shared value set

The research examines literature to create a shared value set. The shared value set has the function to focus the data collection phase of the research on the most important values according to literature. This ensures that the research can optimize contact moments in order to create the most important values according to literature. It is important for the shared value set to contain public and private values from both the public and private organization, since this does also occur inside a CPO.

Similar studies on public and private values in (Dutch DBFM) infrastructure projects have been reviewed in order to create the shared value set. For literature to be reviewed for this purpose, the literature needed at least one of the following aspects: published in a well-cited journal (e.g. International Journal of Project Management); come from a well-cited author; published recently (2008-now); or the article is relevant for the research in terms of similar problem or scope. This research counts the amount of times a value is claimed to be important in the reviewed literature. This results in a matrix of values against articles. In the matrix, every value that is found important in every article receives an X to count the amount of times it is named. See table 4 on page 24 for the full table of values and articles.

To look for articles on public values for the value matrix of table 4, the research especially looked into the study of Kuitert et al. (20018). This research holds the study of Kuitert et al. (2018) in high regard on public value in Dutch PPPs. They researched the public value interests of construction clients in the changing Dutch construction industry. Kuitert et al. (2018) created a framework consisting of public values that are of high-ranking importance. The framework is based on a literature review consisting of 9 articles written between 2003 and 2012, and based on the Dutch policies. All articles from the study of Kuitert et al. (2018) have been used for the literature review in this research. The Dutch policies that Kuitert et al. included in their studies have not been included in table 4, since it is unclear which policies have been studied. The study of Kuitert et al. (2018) has also been added to this literature review, since the values that they found important were based on their own empirical research. Van der Wal and De Graaf also appear twice in this list, both of these articles have values based on their own empirical data.

The research found few articles on private values that fitted the criteria for the value matrix of table 4. The articles of Van der Wal reflect on the values that are important for private organizations. Furthermore, the private values of Bovens (1996) have been added, who looked into the commercial side of the government. Hofstede et al. (2002) researched what goals business leaders pursue. Growth of the business came in as first, and profits came in third (out of 15 goals). This research combines these two goals under the same denominator: profitability.

Table 4 shows that the values with the most counts in literature were integrity, transparency & efficiency (7); accountability & quality (6). These five values were the values with at least six counts and the highest of all values. The research choses to limit itself to these top 5 values. But because of the low amount of literature on private values, the research would like to add two private values that are highly regarded according to literature on private construction organizations.

The research choses to add profitability (3 counts) to the value set. This is done because profitability is often named as one of the key performance values for private organizations [Hofstede et al., 2002; Kelly et al., 2014; Van der Wal, 2009].

Lastly, the research also includes safety in the value set. This is done because safety is considered the number one priority in construction projects for the contractor (Choudhry, 2014; Zhang et al., 2013). Oddly enough, this value is not named in empirical literature studies. In an exploratory interview, Louwerse (2019), an experienced project manager at BESIX, argues that the public organizations find safety very important, but they often hold the private organizations responsible. The private organization deals with safety related issues on a daily basis, and the public organization does not. This value is added because of its crucial importance for the construction industry and for the client.

Table 3 alphabetically shows the values that were named most frequently in the literature. This value set is hereafter used as the list of most important values in infrastructure projects.

Table 3 Value set of values that were most frequently named important in the literature review. Safety and profitability have been added to this set.

Value Set
Accountability
Efficiency
Integrity
Profitability
Quality
Safety
Transparency

Table 4 Literature Review of public and private values. The x marks if a value is found important in the corresponding article.

Authors / Values	Van der Wal (2008a)	Van der Wal (2008b)	Jorgensen & Bozeman (2007)	Kuitert et al. (2018)	De Graaf et al. (2013)	Hofstede et al. (2002)	Meynhardt (2009)	Ogunlana (2010)	Hendriks & Drosterij (2012)	Bovens (1996)	Gann et al. (2003)	Talbot (2008)
Procedural Values												
Honesty	x											x
Social justice	x											
Impartiality	x											
Transparency	x	x	x	x	x		x		x			x
Integrity	x	x	x	x	x		x		x			
Obedience	x											
Reliability	x	x	x	x			x					
Responsibility	x											
Expertise	x											
Accountability	x	x	x		x				x			x
Collaboration				x								
Courage	x											
Legality		x	x		x				x			x
Trustworthiness												
Participation			x		x		x		x			x
Equality		x	x				x					x
Openness												
Collegiality								x				
Leadership										x		
Profitability		x				x				x		
Safety												
Performance Values												
Efficiency	x	x			x			x	x	x		x
Effectiveness					x				x	x		
Product Values												
Sustainability			x				x				x	
Quality		x		x			x	x			x	x
Innovation							x			x	x	
Character							x				x	
Beauty							x				x	
Functionality											x	

2.5 Creating and safeguarding value in DBFM infrastructure projects

This section looks into how value is created and safeguarded inside DBFM infrastructure projects. With this knowledge, sub-question 3: *How is value created in DBFM infrastructure projects?* is answered in the following section 2.6. Questions are often raised on how PPPs actually benefit public value, due to the increased interference of private organizations with their own set of values (Maesschalck, 2004; Reynaers, 2014).

Bryson et al. (2014) argued that the creation of public value is getting more and more attention. One of the reasons behind this is the worldwide financial crisis that the world endured in 2007. Especially financial companies were put in a bad daylight, but across multiple industries public value has seen a rise of interest and knowledge. Across industries, both companies and (local) governments want to learn how they can actively contribute towards society (Meynhardt, 2015). Meynhardt (2009) defined public value creation as "any impact on shared experience about the quality of the relationship between the individual and society" (Meynhardt, 2009, p. 212). Bryson, Crosby & Bloomberg (2018) defined the same term in more detail as "producing what is either valued by the public, is good for the public, including adding to the public spfere or both, as assessed against various public value criteria" (Bryson, Crosby, & Bloomberg, 2014, p. 449). This second definition is used in this research and can also be applied to private values and private value creation.

In the recent years where integrated contracts, such as the DBFM, have become more of a standard, private organizations also have become more accountable for the creation of public values. They are working on the day-to-day operation of the project, essentially building and safeguarding the public product (e.g. quality & beauty), performance (efficiency & effectiveness) and procedural values (e.g. safety). The public organization is managing and governing the project from afar (safeguarding procedural values such as transparency & integrity, but also product values such as beauty) (Eversdijk, 2013; Van der Steen et al., 2013).

The private organization creates both public value, and private values. Porter and Kramer (2011) dubbed this concept shared value: the practices of an organization that improves both their own organization, as well as societal issues and overall economy. The constant innovation of the construction industry and the focus on the sustainable building future of the Marktvisie (2016) document support this idea of helping society with their issues. Organizations look past the older definitions of value as revenue vs costs and look into other values that can be solved, such as sustainability and honesty (Porter & Kramer, 2011).

Kuitert et al. (2018) argued that there are certain challenges for a client for the creation of public value in infrastructure projects. In the multiple phases leading up to construction of a project and the phases during and after construction is completed different values need to be considered. when the client starts the tender process, he must decide which tender process creates and safeguards his values best and what values he ranks and scores highest in the bidding process. When drafting the contract, the client must decide which and how he incorporates values in the contract to bind them legally. During the construction phase, the client needs to manage the contract and inspect the project to see if the correct values are created and safeguarded (Kuitert, Volker, & Hermans, 2018).

The different types of values (procedural, product and performance) are expected to clash when value is created in the lifespan of the project. Some values need to be reduced in order to safeguard or create others, and vice versa. The (shared) public value creation performance is watched by the public, they hold the client accountable for the results before, during and after completion of the infrastructure project (Kuitert, Volker, & Hermans, 2018). Moore (2000) argued that the client of the project should be held accountable for all the processes along the way of value creation.

Material value (e.g. costs, time) are the opposite of procedural value on a balance scale. Safeguarding, creating or optimizing procedural values is difficult when one also wants to optimize these material values, increasing value one side brings the other side down (Weihe, 2008).

Public value creation for the individual, or end-user, is context related, Meynhardt (2009) argued. Its creation is established in the relationships between society and the individual, and cannot be expressed in numbers. Individuals have their personal and biased look on the properties of the infrastructure project (e.g. its quality and the cost of the project) and can decide subjectively if it created public value (Meynhardt, 2009). Meynhardt (2009) stated that subjectivity is at the core of value and public value and that this value only exists within the relationship between a valuable object and a subject that is capable of valuing that object (Meynhardt, 2015). Meynhardt (2009) also explained that financial or economic values such as profitability and even shareholder value are not opposite to public values. He argued that these financial values are used for value creation.

Meynhardt (2009) put these arguments in a proposition: "Public value creation is a process which is measured against psychological evaluation on individual and group level. (…) If a value is not in peoples' minds, it is not "real"." (Meynhardt, 2009, p. 211). The psychological evaluation on which an individual process a public value stems from four different inductive evaluation perspectives: Political-social, moral-ethical, hedonistic-aesthetic and utilitarian-instrumental (Meynhardt, 2009). On a final note, Meynhardt added that there are still big gaps in literature on this subject and especially on the processes that enable the creation of value. A critique to Meynhardt's approach of the creation of public value is that his approach is a very psychological one, which is quite different than many others (Bryson, Crosby, & Bloomberg, 2014).

At the centre of value creation in PPPs are value trade-offs. Increasing one value might lead to a decrease of another opposing value (De Bruijn & Dicke, 2006; De Graaf et al., 2011; Koops, 2017; Kuitert et al., 2018). Complex trade-offs between the different procedural, product and efficiency values exist at multiple hierarchical levels in the public organization structure in long-term PPPs. This gives the public organization complex challenges on multiple levels inside their organization (Zheng, Roehrich, & Lewis, 2008). Kuitert et al. (2018) add to this that the public organization has a hard time judging the opposing values in PPPs. They especially find it hard to identify which of the public values to strive for during which phase of the project.

Reynaers & De Graaf (2014) studied two perspectives on Public values in PPPs: 1) public values are lost in PPPs; and 2) public values are safeguarded or improved in PPPs. Both are linked with creation of public value. They found that for both perspectives, current literature offers controversial answers with little empirical evidence. They argued that the current impact of PPPs on public values remains unknown. Reynaers & De Graaf found that as of now, public values inside PPPs are already assessed and criticized before it is known how they practically behave. They suggested to do more empirical research on the subject of PPPs and its relation to public value, and not on the normative side of the subject, which has already been done many times (Reynaers & De Graaf, 2014).

In another study, Reynaers (2014) concluded on the basis of 4 case studies that the creation of public values in DBFM(O) projects are context related: "depending on the project, project phase, and the specific (facet of the) public value under scrutiny" (Reynaers, 2014, p. 167). She gave an example for accountability: accountability is created in the early phases of a DBFM(O) by the contract and the output specifications of the client. This ensures the correct and complete project scope. However, if a project is not audited well and as frequent enough, accountability can lose value. Reynaers concluded that values can be threatened, improved or safeguarded in DBFM(O) projects depending on the project's specific aspects. These aspects are divided under three columns: the DBFM(O) related aspects (long-term maintenance (and operate) phases); the working environment of the project members (capability, collaboration); and project related aspects (reputation, budget) (Reynaers, 2014).

Lenferink, Leendertse & Arts (2017) argued that in order to create public value, it is necessary to have an environment available for a private organization to create private values. Public values cannot be created without private values such as profitability and expertise that private companies possess. This is especially true for DBFM contracts, where the contractor bears even more risks than in non-PPP contracts. The contractor wants more profits for the higher risk that they bear by doing the project. By combining infrastructure development with area development, the public organization creates such an environment for the private organizations to gain higher profit margins while bearing more risk (Lenferink, Leendertse, & Arts, 2017). Another way of doing this is by adding the O (operate) component to DBFM infrastructure projects, which stimulates profits for companies (Lenferink, Verheij, Leendertse, & Busscher, 2017).

Weihe concluded in 2008 that material [product values] value is almost never created with the use of PPPs because collaboration between the private and public organization is limited. But if the collaborative characteristics of the PPP are enabled, they threaten the procedural values. Material value and procedural value require trade-offs as they seem to contradict: more collaboration leads to more material value, but also leads to less procedural values (Weihe, 2008).

2.6 Conclusion

Chapter 2 reviewed the literature on the topics of this research. The literature review can now be used to answer sub-questions 1, 2 and 3. The answers to these sub-questions are the base building blocks of the case study and of the interviews in the next chapter. More specifically, the knowledge on organization structures, the most important value set and how value is created can be used to set up the interviews for data collection for the case study.

Sub-question 1 reads: *What are the organizational structures used in DBFM infrastructure projects?* In a DBFM project, both the public and private organization use a hierarchical traditional divisional organization structure and have their own project organization structure and project members. Having the same organizational structures provides multiple advantages for both organizations. Both organizations form the combined project organization (CPO) together. The private project organization is led by the Special Purpose Company (SPC). The SPC is a legal entity that is created by a consortium to sign the DBFM contract, ensure a financial structure for the project and isolate the participating companies from financial risks or failures. The SPC is led by a few high ranked managers of a or multiple private companies. The SPC then contracts another self-created organisation to engineer the project: the Engineering, Procurement, Construction & Maintenance company (EPCM).

Project organization structures come in different shapes and forms. For almost every organization, including DBFM project organizations, Mintzberg's (1979) organizational structure is found. This hierarchal structure contains the strategic apex (the top), the middle line (managers) and the operating core (workforce). These three levels work together with the organization's support staff and technocracy. The biggest and most important level during the preparation and realization phase is the middle line. The middle line managers smoothen the process of project preparation and realization.

Sub-questions 2 reads: *What is value for infrastructure projects?*
"Anything capable of being appreciated (wished for) is a value", drafted by Robert Park and E. W. Burgess. Public value are "Those [values] providing normative consensus about (a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (b) the obligations of citizens to society, the state and one another; and (c) the principles of which governments and policies should be based" (Bozeman, 2007, p. 17). The most important values in infrastructure projects are efficiency, integrity, profitability, accountability, safety, transparency and quality.

Value is an ambiguous concept in literature. Countless (similar) definitions are found on the subject. There is also the value perception problem that Allport et al. (1960) found almost 60 years ago, and is still cited today. Their theory is that there are six different perception to value. The shape of one's perception comes from the context of a value-problem or context of one's own life.

Due to the ambiguity of value, an ambiguous definition of value is chosen. This ambiguous character however, is not necessarily a bad thing, since this research demands a subjective (and context related) value perception from its interviewees.

Value for infrastructure projects is two-sided. The public organization has a different perception on value for infrastructure projects than the private organization. The public leans towards public values, whilst the private organization wants private values. They work together in the CPO, where a shared value list exists that endures trade-offs between the different values that the organizations hold high.

Public and private values are nowadays a hot topic for researchers and governmental bodies. Empirical literature studies do not find consensus over what values are most important for managers in the infrastructure industry. A value framework was created of values that were reoccurring in relevant articles. By counting the frequency all values that were named important in these articles, the research was able to make a shared value set of values that were most frequently named important. Two additional values were added to the shared value set to also reflect the private values better, since they did not occur in literature.

Sub-question 3 reads: *How is public and private value created in DBFM projects?*
Literature shows that value is created by both the public and private organizations in a DBFM project. The private organization creates values by their day-to-day operations, while the public organization creates values by choosing the right tender methods, scope, awarding criteria, contract models and performance measurements.

There are ambiguities and a wide variety of opinions on the topic of public value creation. But a consensus is also found: researchers believed that public value is created by the private organization [Lenferink et al., 2017; Eversdijk, 2013; Van Der Steen et al, 2013; Porter & Kramer, 2011]. Kuitert et al. (2018) believed that the public value is first embedded in the contract by the public organization by choosing the right tender methods, contract models and performance measurements during construction. They found that the public organization choses how and which public values should be created and safeguarded in the project. Reynears (2014) found that the creation of public value is context related, and that further empirical evidence is needed [Reynears & De Graaf, 2014].

CHAPTER 3 CASE STUDIES

The goal of this chapter is to introduce the case study approach, the cases and their formal contact moments. This information is used to answer sub-question 4: *What are the formal contact moments between the public and the private project delivery organizations?*

Section 3.1 explains the case study approach of the research. The case study approach consists of the case study protocol, the case selection the interview protocol and further explains how the research tries to find the formal contact moments (FCMs) of the cases. Sections 3.2, 3.3 and 3.4 elaborate on the cases of the research, including the list of formal contact moments that they have. The chapter is concluded in section 3.5.

3.1 Case study approach

This section describes the case selection, case study protocol and how the research collected the formal contact moments.

3.1.1 Case selection

For this research, the cases are necessary to answer sub-questions 4, 5 and 6. The criteria to select the cases in this research are: contract model (DBFM); type of infrastructure project; the age and phase of the project. The research elaborates on these criteria below. A final criterion in the case selection is that Dura Vermeer needs to be a contractor in the cases. This criterion ensures the availability and accessibility of documents of the cases.

Size and budget of the project are not specific selection criteria for the cases. These are left out because the research wants to include all sorts of DBFM infrastructure projects, not only large or small ones.

The scope of the research encompasses only the DBFM contract within the broader PPP spectrum. Therefore, only projects using this type of contract are within the scope of the case study. Having different sorts of infrastructure cases within this scope is desirable, since this gives a more generic answer to the research question and does not focus too much on a single type of project.

The current phase of the cases is also of importance. In order for enough documents to be available and accessible, the cases must already be in the realization phase. This ensures that enough information on contact moments is available for the research. Cases that are already into the maintenance phase for up to 8 years are also considered good cases for this research. Older projects are discarded because of multiple reasons: information or documents might not be accessible; employees that worked on the project might already be long gone; interviewees of these older projects might not recollect everything correctly; and DBFM projects older than 10 years, are considered the very first PPP projects in the business. Therefore, these older projects suffered from inexperience and lack of knowledge.

The cases are subsequently comparable to each other because they all have DBFM contracts and are infrastructure projects, which meets the scope of the research. The research specifically chose not to select the same type of infrastructure project multiple times, because the findings of the research might then be to specific.

Three cases were selected for the case study. This number was selected for practical reasons. The findings of the research would be too limited if there were only two cases in the case study, therefore a minimum of three cases was selected. The research has limited time to perform a case study on more than four cases, so the maximum was selected at four. Ultimately, three cases were selected, since no 4th case was found at Dura Vermeer that satisfied all other selection criteria.

3.1.2 Case study protocol

The goal of the cases is to collect data through interviews that can help to answer sub-question 3, 4, 5 and 6. Interviewees are chosen on the property of being present in multiple contact moments, according to the official project documentation. The research tries to interview multiple hierarchical layers of the project organization structure for every case. This is done so multiple viewpoints from different hierarchical layers in the case are considered. As a starting point, four interviews are conducted for every case: two with the public and two with the private organization. The research prefers to conduct interviews on project members from both organizations that are direct counterparts of each other. This helps to give a more objective view on problems and solutions in the cases.

The interview is a semi-structured, or also called a general interview guide approach. This means that there is a set of questions that will be asked to every interviewee. But follow-up questions due to the responses of the interviewees are also possible. This flexibility supports the research to obtain answers and data from all necessary areas from the interviewee (Turner III, 2010). Using this depth interview is good for collecting data for a qualitative research (Kothari, 2004).

All interviews are held in Dutch and are recorded by a device. This is done to make sure the interviewer can remain eye-contact with the interviewee and give his undivided attention to the interviewee. Before an interview takes place, the interviewee is sent a short summary of the topics that will be discussed. The interviewee will not receive the questions before the interview takes place. The interviews take place at locations set by the interviewees for practical purposes. The setting of the room is quiet and private, to keep the background noises off the recordings and for better concentration of both the interviewee and the interviewer (Jacob & Furgerson, 2012). Conducting interviews in an environment that is relaxed and convenient helps to give the interviewees a safe feeling, where they are able to share all information and not hold anything back (Turner III, 2010).

To stimulate interview results, the purpose of the interview will be explained. The interviewees are also asked if they understand the interview format; if they give their consent to the interview; and if they have any questions before it is started (Turner III, 2010).

The interviews are then summarized in Dutch and the interviewee is asked if he agrees with the summary through e-mail. This is an extra validation step in the process of data collection. Appendices C, D and E hold the Dutch validated summaries of the interviewees per case, respectively increasing highway capacity, the construction of a tunnel and the airport runway extension.

3.1.3 Formal and informal contact moments

Contact moments are defined as a meeting between members of the private project organization and members of the public project delivery organization. A contact moment is regarded formal if it is written down in the legal documents or the project management plans of the case. Informal contact moments are defined as deliberate meetings between members of the public project delivery organization and the private project organization that are not required by any contract or project management documents. This definition encompasses e-mails, phone calls, coffee breaks, etc. but not accidental run-ins.

Information about informal contact moments cannot be extracted from any project documentation. Also, there are no minutes available from these contact moments, making it even harder to track them. The research has therefore decided to ask about these informal contact moments (ICMs) in the interviews with the managers of the cases. They can inform the research from first-hand experience which informal contact moments occurred to their knowledge. This knowledge is made available in the following chapter 4 and is used to answer sub-question 5: *what are the informal contact moments according to practice and what is their function?*

The formal contact moments however are described in the official project documentation. The following documents of all cases have been researched to look for their formal contact moments:

- The official DBFM contract;
- (EPCM) project management plan;
- (4-) weekly meeting structure;
- EPC project management plan;
- Quality management;
- Contract management;
- Scope management;
- Sub management plan Project Control;
- Risk management;
- Planning management;
- Requirements plan;
- Project information management;
- Area management plan;
- Communication management;
- Traffic management;

The EMVI-plan (Most Economically Advantageous Tender) is deliberately left out of this list, even though it could have contributions to it. This has been done because the EMVI-plans are sensitive documents and almost never is easily accessible for third party readers. This is because the contractor's winning strategy for the execution of the project is stated in this document. But the research makes the assumption that most, if not all, formal contact moments as stated in the EMVI-plan, are also written in one of the documents listed above. Therefore, the research believes that no formal contact moments are missed by not including the EMVI-plan in this list.

3.2 Case 1: Increasing capacity of a highway

The first case is a project that increased the capacity of a highway in the Randstad. The DBFM-contract for this project encompassed broadening the highway from 2 x 2 lanes to 4 x 2 lanes, construction of several new overpasses and broadening a few existing overpasses. There were also minor improvements of underlying road network in the contract. The maintenance period of the contract is 20 years. The DBFM-contract was won for around a quarter of a billion euro.

The highway connects the Randstad internally and externally. But due to the growth of the region, the capacity of the highway was not sufficient. With this project, the new capacity was made future proof. The winning consortium had a pure project organization structure and consisted of multiple contractors and investor groups. This project organization structure was mirrored from the client's pure project organization. The consortium also had a special purpose company (SPC), engineering, procurement, construction & maintenance (EPCM) and maintenance company (MTC) for the realization and maintenance of the project. The project is currently in hands of the EPCM and is still in construction. The EPCM was created with a mirrored organization structure to the organization structure of Rijkswaterstaat, the client of the project.

According to the official project documentation, the values of the consortium that were most important were collaboration, expertise, safety, profitability, innovation and efficiency. The values of the client were quite similar: collaboration, safety, innovation, trustworthiness and profitability.

Table 5 below shows all formal contact moments according to the project documentation. The table also shows the description of the meeting and the representatives at this contact moment from both

the client's and the contractor's side. If a question mark is noted, this information was not available in the documents.

Table 5 The formal contact moments for case 1, increasing highway capacity.

Contact moments	*Description*	*Representative(s) Contractor*	*Representative(s) Client*	*Freq.*
Contract Meeting (CM-Overleg)	Meeting on contractual aspects.	Management Team	Management team	Monthly
BOT-meeting (Legs-on-table-meeting)	'Informal' meeting for thought sharing and open discussions.	Project Director	Contract Manager	Bi-weekly
Changes Meeting (WZO)	Meeting on changes that occurred in the work.	Discipline Leader Ground & Water, contract manager	Contract Manager	Bi-weekly
Issue Meeting (OM TM)	Meeting on the issues that arise.	Contract Manager, project director	Contract Manager	Bi-weekly
Short comings Meeting (TKO)	Meeting on the short comings of the project.	Contract Manager	Contract Manager	Bi-weekly
Quality Meeting (KWO)	Meeting on the quality of the project and all quality criteria.	Manager Project Control, Quality Coordinator	Manager Project Control, Quality Coordinator	Bi-weekly
Certificates Meeting (CEO)	Meeting on the certificates necessary for the project.	Manager project control, SE Coordinator, project director	Manager project control, Project Manager, SE Coordinator	Monthly
Periodic task meeting (POO)	?	Contract manager, Control manager	Contract manager, Control manager	Monthly
Progress meeting Safety (VOV)	Meeting on safety.	Discipline leader Ground & Water, Discipline Leader DVM, Integral Safety Manager, project director, Discipline Leader Civil Engineering	Safety Manager, project manager	Monthly
Legs-on-table-Safety (BOT-V)	'Informal' meeting for thought sharing with the focus on safety.	Integral safety manager & QHSE Coordinator	Integral safety manager	Monthly
Traffic team Meeting (VTO)	Meeting on the traffic situation.	Technical Manager, Traffic Manager, Control manager, Environmental manager, Project Leader Phasing	Technical manager, Control manager	Bi-weekly
Communication-area meeting (CO-OM)	Meeting on the communication of project aspects to the area.	Advisor Communication, environmental manager	Advisor communication, environmental manager	Monthly

Coordination meeting SAA-One - Parkway6 -RWS (CO-SPR)	Meeting between the project directors and technical managers on coordination of the project.	Project director, technical manager	Project manager, technical manager	Monthly
Incident Management & Maintenance Meeting (IM)	Meeting on incident management and maintenance.	Control manager	Control manager	Bi-weekly
Specialist Meeting maintenance & SSI (SOS)	?	Operator PMS	Operator PMS	Bi-weekly
Escalation issues	Meeting on escalated issues.	All levels	All levels	-
Discussions about stakeholders	Discussing different stakeholders	Environmental manager	Environmental manager	?

3.3 Case 2: Tunnel construction

The second case is a tunnel construction project in the Randstad in the Netherlands. Due to increasing growth of the Randstad, the old infrastructure network needed upgrades all around. This tunnel was newly constructed to increase capacity on the network. Another existing adjacent tunnel was renovated in the same DBFM contract to increase the capacity as well. The new tunnel has 5 lanes, 2 of which can be open to both directions, depending on which direction needs more capacity. The project suffered from new tunnel laws that were introduced during the construction phase of the project. The DBFM contract model was still a relatively new contract model at the start of the project, which hurt the project as well.

The contract was won by a consortium for around half a billion euro and has a maintenance part of 25 years. The consortium created an SPC, EPCM and MTC for this case. The MTC currently holds this project. The client of the project is Rijkswaterstaat.

In this project, the project organization structures of the client and contractor did not mirror each other. Multiple high-ranking managers had different tasks and competences than the other organization expected. The client had a traditional linear project organization structure, while the contractor had a matrix organization structure.

The client had their values based on the Dutch VIDMID term. Which stands for Safety, Control, Sustainability, Manufacturability, Image and Traffic Flow (Dutch: Veiligheid, Instandhouding, Duurzaamheid, Maakbaarheid, Imago & Doorstroming). The research was unable to find the values that were held high by the contractor for this project.

Table 6 shows the formal contact moments that the official project documentation offered. Sometimes a question mark is noted because of the inability to find any details about these meetings inside the documentation. Because of the age of this project, documentation was harder to collect. The research was unable to find details on the frequency of the formal contact moments.

Table 6 The formal contact moments for case 2: the tunnel construction.

Contact moment	Description	Representative(s) Contractor	Representative(s) Client	Freq.
Contract Meeting	Meeting on contractual aspects.	Contract manager, Director execution	Contract manager	?
Technical interface meeting	Meeting on the technical interfaces that different technical aspects of the project have with each other.	Director design, coordinator design PO, design leader PO, coordinator design SD	Technical Team	?
Area meeting	Meeting on the communication of project aspects to the area.	Director of work preparation, project director, head area management, team leader work preparation	Environmental manager, Area advisor	?
Progression meeting	Meeting on the overall progression of the project.	Project director, contract manager, director of work preparation, director execution	Technical Team	?
Big triangle meeting	Big meeting with the contractor, the client and the authorized supervisor of the road.	Contract manager, director execution, Control manager	Contract team	?
Small triangle meeting	Small meeting with the contractor, the client and the authorized supervisor of the road.	Manager upkeep	Environmental manager, road owner	?
Building meeting & independent checker	?	Director of design, project leader, coordinator of design, coordinator of design PO, design leader PO, team leader design	Technical Team	?
BLVC-meeting	Traffic meeting for underlying road network	Environmental manager, work preparator	Area advisor	?
Traffic team meeting	Traffic meeting for the road network	Environmental manager, phasing manager, work preparator	Area advisor	?
Startup meeting	One time: get to know each other and discussion about starting the construction activities.	Project team	Project team	1 time

3.4 Case 3: Airport runway extension

The third case is the extension of an airport runway in the Netherlands. This project was executed because it would bring more growth to the area. By extending the runway to a length where all

different sizes of airplanes are able to land, more charters would use this airport. The DBFM contract encompassed the extension of this runway, minor improvements to other infrastructure on the airport and electrical engineering for the airport. This project was not only bound by the contract and Dutch or European laws, but also by international aviation laws and requirements.

The tender was for a DBFM contract worth around 10 million euro, with a 10-year maintenance part. The client hired an external project management company to manage the project, since they did not have enough expertise themselves. During construction, the airport had to be closed for a short period of time. These two weeks were the most important in terms of construction activities. Closing the airport any longer would bring serious costs and consequences to both organizations.

The consortium created an SPC, EPC and MTC to realize the project. Currently, the project is in hands of the MTC. The client in this project was not Rijkswaterstaat, but the airport company, which is in the hands of multiple shareholders. These shareholders are all regional or local governments.

Both organizations used a pure project organization for this DBFM contract. The organization of the client contained multiple persons from an external project management company that they hired.

The project documentation shows that the value that was most important for both the contractor and the client was safety. Other highly regarded values were: quality, transparency, effectiveness, sustainability and profitability. Table 7 shows the formal contact moments of case 3 and their frequency. Most contact moments were held by the high-ranking managers of the case: the project managers and directors.

Table 7 The formal contact moments for case 3: the runway extension.

Contact moment	Description	Representative(s) Contractor	Representative(s) Client	Freq.
Progress Meeting	Walkthrough through the progress report, done every four weeks.	Project manager	Project manager, Airport manager	Monthly
Start-up meeting	One time: get to know each other and discussion about starting the construction activities.	Project team	Project team	1 time
Daily meeting	Meeting on the construction activities for that day and possible operational issues.	Project manager	Airport manager	Daily
Operational meeting	Fine tuning operational activities on the airport.	Project manager, project leader	Airport manager, contract manager, military police	Weekly
Risk meeting	Meeting on maintenance and control of the risks and measures	Project manager, risk manager	Contract manager, project control member	Monthly
Communication meeting	Meeting on communication to the surrounding area.	Environmental manager	Manager marketing & sales, members of the Area and communication team	Monthly
Quality Meeting	Meeting on quality aspects of the project	Project manager	Quality Manager	Weekly

3.5 Conclusion

The case study protocol requires case studies to be DBFM contracts, have different scopes, to have been constructed recently or currently be in the execution phase. The research has met this requirement by having three cases, all with different scopes: 1) increasing the capacity of a highway; 2) the construction of a tunnel; and 3) the extension of an airport runway. Table 8 below provides a quick overview of these cases and their properties. By drafting the case study protocol, data can be collected and analysed in the following chapter.

Table 8 Case study overview.

Case	Rough cost (in mil €)	Maintenance period (in years)
1. Increasing highway capacity	250	20
2. Tunnel Construction	500	25
3. Airport runway extension	10	10

All formal contact moments of the cases have been collected from the official project documentation. Table 5, 6 & 7 therefore answer sub-question 4: *What are the formal contact moments between the public and the private project delivery organizations?* These tables show that there are a lot of different types of meetings with different functions and uses. Case 1 has by far the most formal contact moments (seventeen), to the eleven of the tunnel construction project and the six of the runway extension project. The frequency of all formal contact moments is once or twice a month.

Case 3 is significantly smaller than the other two cases in terms of organization size, scope, budget and duration. But the research believes that this case will give relevant data that contributes to the research objective. Even though this project is significantly smaller, the amount of formal contact moments (6) is not far off from case 2 (11). Case 1 had the most formal contact moments (17) but was roughly half the size of case 2. This does imply that bigger projects require more formal contact moments, but also that this relationship is not linear.

Another argument for case 3 is that the descriptions of the formal contact moments are very similar to those of contact moments of the other two cases. This means that the same project related aspects and values are discussed in these contact moments across all cases.

For these reasons of the amount of contact moments does not scale linear with project size and the fact that the same topics are discussed in the contact moments of all three cases, data from case 3 is still relevant for this research.

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CHAPTER 4 SINGLE-CASE ANALYSIS

The goal of this chapter is to analyse the 12 interviews that have been conducted. A data structure is created in section 4.1 following the methodology of Gioia et al. (2013). The data is analysed per case in sections 4.2, 4,3 and 4.4. The informal contact moments from the cases have also been described per case. The results of this chapter are used as input for the cross-case analysis in chapter 5.

The used analysis is an inductive qualitative content analysis. Content analysis is used on either quantitative or qualitative content (Elo & Kyngäs, 2008). Gioia et al. (2013) prescribe a first order and a second order analysis for a qualitative content analysis. The first order analysis results in huge numbers of smaller coding. It is the task of the researcher to bring this huge number of concepts to a workable amount. The second order analysis is more theoretical and uncovers the underlying themes of the data. All themes are overarching on the concepts of the first order analysis (Gioia, Corley & Hamilton, 2013; Miles & Huberman, 1994). This way of analysis gives a clear visual overview in the form of a data structure (Gioia, Corley, & Hamilton, 2013).

The analysis categorizes the big amount of data into significantly smaller concepts and has three phases. The preparation phase is necessary to determine and define what content or material is going to be analysed. This phase is also used to make sense of the data, which is done by critically and thoughtfully reading the contents multiple times. The second phase is the organization of content, which includes open coding, the creation of different categories and abstraction. These categories are later grouped under new headings, in order to lower the amount. The final phase consists of reporting the processes and results (Elo & Kyngäs, 2008).

The inductive nature of the analysis has three main purposes: 1) to shorten the vast amount of data into a better and smaller format; 2) to find relations between the objectives of this research and the smaller, condensed data; and 3) to find new theories or a new model on the topic of research that stem from the collected and condensed data and the found relations (Thomas, 2003).

Before each qualitative analysis in sections 4.2, 4.3 and 4.4, an overview is given on how the interviewees ranked the value set. The overview also shows how they perceive each other's values. In an ideal situation, the values of on one organization are reflected in the perception of the other organization. It is important to note that every top 10 ranking shows the 7 values from the literature review, and three values that were added by the interviewee. All value overviews have a colour scheme, which helps to recognize patterns or the absence of patterns. Soft values have a lighter colour, while hard values have a darker colour. The three values that all interviewees added themselves are only highlighted with colours if at least three interviewees per case have picked that value. This is done because a fewer amount than three will not make them comparable.

Table 9 provides an overview of all interviewees and their references codes used in this chapter. Every reference code consists of 6 letters or figures. The first two indicate the case number, the second two describe if the reference is from the client or contractor (cl or co) and the last two describe the role that the reference had in the project.

Table 9 Reference codes for the interviewees.

Case		Interviewee	Reference code
Increasing highway capacity	Client	Project director	*C1clpd*
		Contract manager	*C1clcm*
	Contractor	Project director	*C1copd*
		Environmental manager	*C1coem*
Tunnel construction	Client	Technical manager	*C2cltm*
		Control manager	*C2clco*
	Contractor	Director work prep.	*C2cowp*
		Environmental manager	*C2coam*
Runway extension	Client	Project director	*C3clpd*
		Airport manager	*C3clai*
	Contractor	Project director	*C3copd*
		Project manager	*C3copm*

4.1 Data structure

This section elaborates on the data structure, its concepts and its second order themes. All these concepts and themes come back in the single case analysis, which is afterwards compared in the cross-case analysis in chapter 5. Figure 10 shows the data structure that is constructed from the data from the interviews. The data structure is fully created by following the steps of Gioia et al. (2013). All second order themes are related to the contact moments that the research wants to improve.

To get to this data structure, first all summaries of the interviews were read thoroughly multiple times. This first step is to get to know the data that one is working with. After a read-through of everything, the research can start coding observations that stated anything meaningful for the research. Coding is done by writing down codes for certain observations in the summaries. Coding that is similar to another is subsequently grouped together in an Excel sheet. These groups can then be given a name that encompasses the coding that is in it. This group is called the first order concept. The coding of the data resulted in 14 different first order concepts.

The next step of the analysis is to create second order themes. These second order themes encompass multiple first order concepts and all relate to the objective of the research. This step is done by grouping the different first order concepts that have an overarching theme. The name of the theme is subsequently given by the researcher. For this research, the 14 different first order concepts made 5 different themes. All 5 themes shine a different light on public value, contact moments, or both.

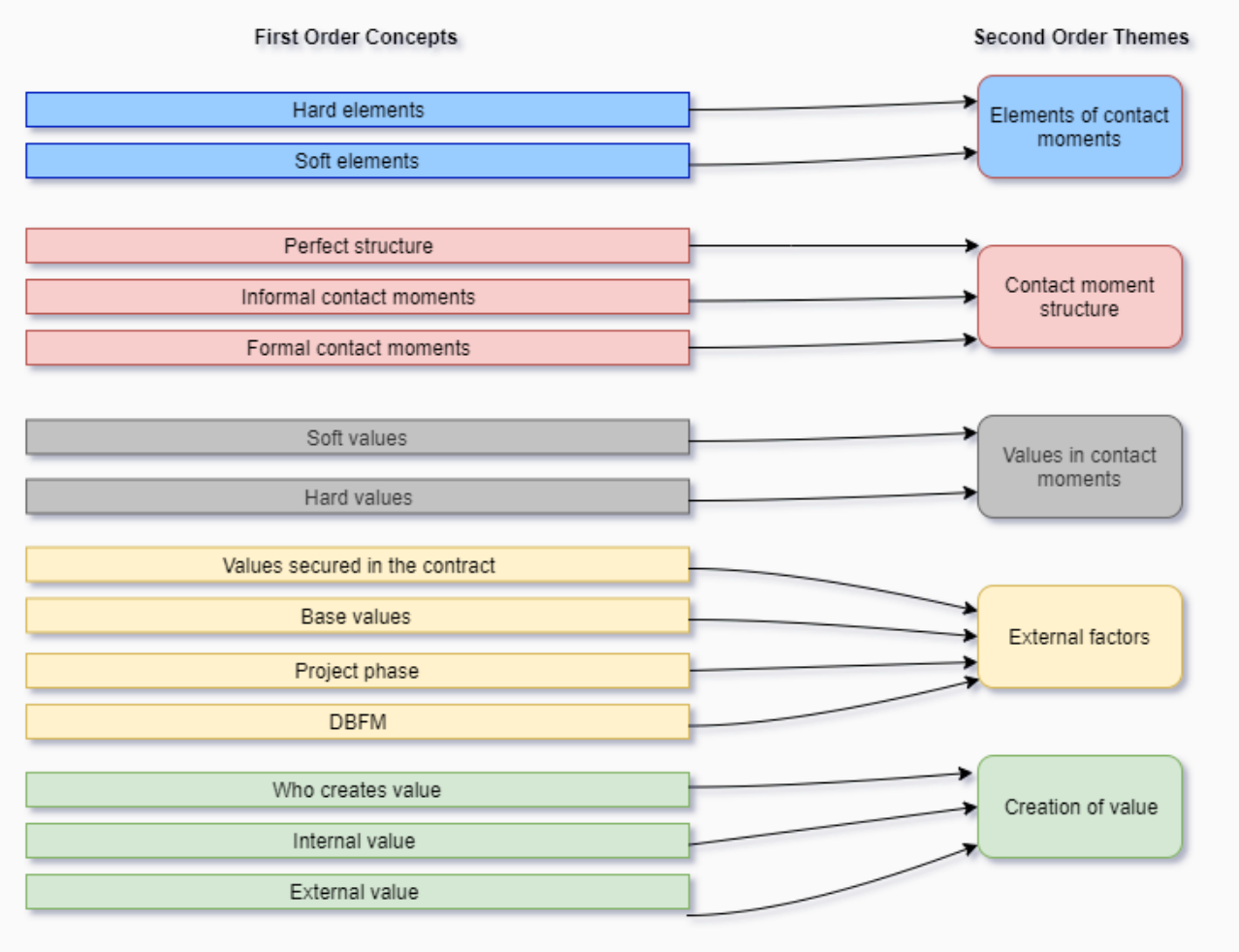


Figure 10 Data structure created from the coding of the interview data. Own figure.

Elements of contact moments

This theme encompasses the hard and soft elements of a contact moment. These have been earlier described in the literature review in section 2.4.2. This theme looks into single contact moments to see what aspects in contact moments positively or negatively contribute towards value creation and the contact moment itself.

Hard elements of a contact moment are all the physical aspects that are present in and influence a contact moment. A few examples of these are: an agenda, clear minutes, everybody is present, there is coffee, everybody is on time, etc. Soft elements of contact moments are the all the non-physical aspects influencing the contact moment. Examples of soft elements are: having the same goal, being goal-orientated, knowing and discussing each other's core values, the willingness to understand each other, etc.

Contact moment structure

The contact moment structure holds all concepts on the structure and the contents of contact moments. It contains the first order concepts of formal contact moments (FCM), informal contact moments (ICM) and the perfect structure. This theme zooms out compared to the first theme and looks to the broader overall structure of contact moments, and not to single contact moments.

Values in contact moments

The contact moments hold multiple different values. This theme holds all the data on the values that were discussed in the interviews. It is subdivided into two first order concepts: the soft values; and the

hard values. Soft values are more non-physical and social values, such as integrity, trustworthiness, and openness. While hard values are the more physical and non-social values, such as safety, efficiency, innovation and accountability.

External factors

The coding of the data gave multiple external factors that influence contact moments. This theme is subdivided into four different concepts: values secured in the contract, base values, DBFM related aspects, and project phase related aspects. These four concepts are all external factors of contact moments.

The first external factor is values secured in the contract. The interviewees indicated that some values do not need to be created in contact moments, since they are bound to the contract. It is important to note that these are not specifically related to DBFM-contracts, but to contracts in general. The second external factor that is found is base values. Base values are best described as the underlying values of human interaction. A good example of a base value is integrity. The fact that the project has a DBFM-contract, also brings certain aspects to the table that influence the contact moments, this is the third external factor. Lastly, there are project phase related issues and aspects that influence the contact moments from the outside.

Creation of value

The last theme of creation of value looks into the concepts of the creator of value; internal value creation; and external value creation. Who creates value is the concept that contains coding on who is the actual creator of value inside contact moments? Internal value creation relates to data that says something about the creation of value directly between the public and private organizations in general, and not about specific value. External value creation is the concept of value creation by the public and private organizations for third parties.

4.2 Case 1: Increasing highway capacity

In this case, the project director and the environmental manager of the contractor were interviewed. The project director was leading the management team, the environmental manager was not in this team. Interviews were also conducted with the project director and the contract manager of the client, both part of the management team. See table 10 for a quick overview.

Table 10 Interviewees overview of case 1.

Increasing highway capacity	
Client interviewees	**Contractor interviewees**
Project director	Project director
Contract manager	Environmental manager

In this case, it is noteworthy that only five different values were added by the interviewees. Three of them chose the exact same values (trustworthiness, openness & collaboration) for their top 10 value set. One interviewee added only one of those three.

Table 11 shows the rankings of the client's values, as well as how the contractor feels these values are ranked. The soft values have lighter colours, while the hard values have darker colours. Internally, the client does have different value rankings, such as accountability (5–10), integrity (3-8) and safety (9-5). Some of their values, however, are ranked similar. These values include trustworthiness (2-2), transparency (5-4), and quality (8-7). Both value sets are tending towards the soft values more than they do towards hard values. Both interviewees have picked trustworthiness as a top 10 value for the project, but this was the only value they both picked.

According to the official project documentation, the client valued collaboration, safety, innovation, trustworthiness and profitability most. Of these values, safety and profitability are ranked relatively low, while trustworthiness is ranked accordingly.

The contractor's perception of the client's values is also one of soft values, which after safety they score highest. The perception is relatively correct for the values of trustworthiness, quality, collaboration and integrity, but other values do not show a distinct similarity. There is a huge difference for the safety value, where the contractor feels that the client has this as his number one priority, while it actually isn't (9-5). The contractor's perception does show that the client ranks soft values higher than hard values, but only a few values are perceived good.

Table 11 The client's ranking of the values and the perception of the contractor of these values for case 1.

Rank	Client's ranking		Contractor's perception of the client	
1	Openness	Equality	Safety	Safety
2	Trustworthiness	Trustworthiness	Trustworthiness	Collaboration
3	Integrity	Leadership	Openness	Accountability
4	Collaboration	Transparency	Collaboration	Trustworthiness
5	Transparency	Safety	Efficiency	Openness
6	Accountability	Profitability	Quality	Profitability
7	Efficiency	Quality	Transparency	Transparency
8	Quality	Integrity	Integrity	Integrity
9	Safety	Efficiency	Profitability	Efficiency
10	Profitability	Accountability	Accountability	Quality

Table 12 shows the contractor's ranking of the values and the perception of the client of these values. The differences between the contractors' rankings are biggest for safety (1-9), integrity (8-4), transparency (7-1) and accountability (10-5). The similarities are trustworthiness (2-2), openness (3-3), quality (6-6) and profitability (9-10). Both interviewees show a tendency towards the soft values and have both chosen trustworthiness and openness as a value for their top 10. The values of the contractor are considered quite similar, except for safety and transparency.

The values that were most important according to the official project documentation were collaboration, expertise, safety, profitability, innovation and efficiency. It is noteworthy that efficiency scores relatively low, innovation and expertise are not even on the list and that profitability scores relatively low.

Looking at the client's perception of the contractor, it shows that they know the importance of trustworthiness for the contractor. For other values, the variety of both clients is high. One of the clients feels that the contractor ranks the soft values higher, and the other client feels the opposite.

Table 12 The contractor's ranking of the values and the perception of the client of these values for case 1.

Rank	Contractor's ranking		Client's perception of the contractor	
1	Safety	Transparency	Openness	Safety
2	Trustworthiness	Trustworthiness	Trustworthiness	Leadership
3	Openness	Openness	Integrity	Quality
4	Collaboration	Integrity	Collaboration	Profitability
5	Efficiency	Accountability	Transparency	Equality
6	Quality	Quality	Accountability	Trustworthiness
7	Transparency	Collaboration	Efficiency	Efficiency
8	Integrity	Efficiency	Quality	Transparency
9	Profitability	Safety	Safety	Integrity
10	Accountability	Profitability	Profitability	Accountability

Elements of contact moments

An overview of the data retrieved from the interviews from this theme is found in table 13. All four interviewees agreed that the goal of a contact moment is not always reached but that this is not necessarily a bad thing. They believed that value can still be added even if a goal is not reached and that it all depends on how one handles the situation. Three interviewees indicated that evaluations after contact moments significantly help to part ways after a contact moment in a good manner, even if no goal was reached. One interviewee stated that evaluations do not happen as often as he would like. The interviewees also agreed on the fact that the contact moments between the organizations were goal orientated. All interviewees also stated that the preparation of a contact moment is the key deciding factor for the result of it. Other positive hard elements of contact moments that were given are: presence of a good chairmen; good minutes and summary of the meeting; efficient meetings; proactive stances; no overcrowded meetings; and creating and realizing action points. One person stated that the hard elements of contact moments are unimportant for the outcome of the contact moment.

The interviewees all indicated different soft elements important for their contact moments. The soft elements that they stated vary from: creating win-win situations; willingness to listen to each other; and do not surprise each other with new claims, problems, etc. All four interviewees did state that they had pleasant contact moments with each other.

Table 13 Data from the interviews from case 1 for the theme of elements of contact moments.

Elements of contact moments	
Client	**Contractor**
The goal of contact moments is not always achieved, but this is not a bad thing. If people can show their thoughts and intentions, it can still be a good contact moment. *[C1clpd]*	Goals are not always met in contact moments, but this is not worrisome. As long as there is a good discussion, where everybody can say what they want to. *[C1copd]*
Evaluations is the most important part of a contact moment to see if it added value. *[C1clcm]*	Evaluations did not take place often enough in the project. *[C1clam]*
The preparation of a contact moment can make or break it. *[C1clpd]*	Meetings with the client are always fully prepared, this also ensures efficiency, which is required for a contact moment to be good. *[C1copd]*
Being to the point matters, don't back down for a heated discussion. *[C1clpd]*	A contact moment will lose value if you surprise each other at the table with new claims, lawsuits, problems, etc. *[C1coem]*

Contact moment structure

An overview of the data retrieved from the interviews from this theme is found in table 14. The managers indicated that a perfect structure is hard to describe, and forms itself by looking at the context of a project. Three interviewees found that the perfect structure is context related, while one doesn't. They indicated that it is hard or sometimes impossible to remove FCMs because they are legally binding. There also has to be a good balance of ICMs and FCMs. The managers agreed that the perfect balance contains many, almost daily ICMs and bi-weekly or monthly FCMs. One manager argued that the client and contractor should be in the same building, where knocking on each other's door is easy and quick to do. Two managers agreed that in a perfect structure, ICMs are used a few days before FCMs meetings, to prepare for it. The managers do emphasize again that preparation and evaluation are very important for a perfect structure.

Informal contact moments (ICMs) did occur in this project. According to the interviewees, ICMs included phone calls, texts or drinking coffee together to discuss matters. All interviewees agreed that ICMs are extremely valuable. Two of them thought they are more important than the FCMs, the other two think they are equally important. The interviewees agreed that the ICMs are used to look at future and past FCMs without consequences about what they say. They believe that ICMs creates soft values between the organizations. All interviewees argued that the BOT-meeting, an informal meeting following the formal contact meeting structure, was one of the most useful contact meetings of the project.

Two interviewees stated that the contract meeting was one of the most important FCM for value creation, because people can be hard and direct towards each other. The other two interviewees however, felt that the contract meeting is not important, because everybody already knows what is going to be said in those meetings and that they are for legitimacy. The interesting part of this contradiction is that both sides are supported by one interviewee of the public organization and one of the private organizations. Another important FCM was the BOT-meeting (Dutch: Benen-op-Tafel gesprek). This meeting allowed for informal discussion following a formal contact moment structure at the highest level of managers. Both project managers informally discussed matters with each other without consequences. This helped to relieve pressure from issues. Other FCMs that are named important are the issue meeting; the project start-ups and follow-ups; and the under-the-hood meeting (Dutch: 'onder-de-motorkap-overleg'). Only one interviewee indicated that FCMs are more goal orientated than ICMs, while three disagreed.

Table 14 Data from the interviews from case 1 for the theme of contact moment structure.

Contact moment structure	
Client	**Contractor**
It is not possible to remove FCM from the official meeting structure, but you can reduce the amount of ICM by creating good FCMs where soft values are important. *[C1clpd]*	In a perfect contact moment structure, everything is perfectly prepared, and a clear hierarchical escalation structure exists. *[C1copd]*
As long as you can learn from a contact moment, it is good. This means that you need a structure that gives proper preparation and evaluation. *[C1clcm]*	The perfect structure consists of a lot of ICM, and especially a few days prior to FCM, to prepare for it. *[C1coem]*
ICM are more important than FCM. It is used for preparing and evaluating FCM, and is in this sense pure value creation. *[C1clcm]*	ICM are indispensable because you can create a good relationship and trust. *[C1copd]*
The BOT-meeting is the most important meeting, where we can discuss matters informal and without consequences. *[C1clcm]*	The BOT-meeting is actually an informal meeting following the formal structure. It is also the most crucial contact moment of the project. *[C1copd]*
Soft values come back in softer FCM, such as openness in the project start & follow-ups. *[C1clpd]*	The contract meeting is of lesser importance, since everybody already knows what will happen and what is going to be said. *[C1coem]*

Values in contact moments

All four interviewees agreed that soft values are more important than hard values. They not only stated this, but this is also visible in their value rankings. They believed that one creates more value by

approaching the other organization with soft values. The soft values subsequently gave better project results. The interviewees also found that some of the soft values are prerequisites for other soft and hard values. Examples for these are trustworthiness, integrity and honesty, that help to create collaboration, accountability and quality.

Not all soft values are as outspoken as others: one interviewee found it hard to talk about trust, while others stated that trust needs to be discussed because it creates so many other values. Not discussing those soft values, does not mean that they are non-existent, as can be read later on in the external factor section, but it also doesn't mean that they are created by themselves.

Two interviewees, both from a different organization, stated that they find it hard to know which values are most important for the other organization. The other two interviewees, who are counterparts of each other, had a lot of confidence in their knowledge of the other organization's values. The latter two even believed that they had the exact same value set (which the value rankings show that they did not).

Hard values are not as often discussed as the soft values, examples are accountability and efficiency. One reason for this is because interviewees believed that certain hard values are only for the contractor, such as efficiency, safety and quality. The interviewees did add that the client is understanding on the client's values and is willing to cooperate on these values. Another reason that hard values, such as quality, were not discussed is because they are contract bound, which the external factor section elaborates on. The interviewees also found for some of the hard values that they are prerequisites for other values. As examples they indicated that profitability and better knowledge of accountability gives a better collaboration; and efficiency ensure more profitability. Table 15 shows data from the interviews on this theme.

Table 15 Data from the interviews from case 1 for the theme of values in contact moments.

Values in contact moments	
Client	**Contractor**
The soft, social and personal values are more important to create and have than hard values. *[C1clpd]*	The soft values are the most important to use and to create in contact moments. *[C1copd]*
It is hard to find out what values are most important for the other organization. *[C1clcm]*	It is difficult to rank the values for the other organization. *[C1coem]*
Integrity is part of the personal and social values that make a project successful. *[C1clpd]*	Soft values, such as collaboration, trust and openness are continuously discussed. Without these soft values, there is no project. *[C1copd]*
Trust needs to be discussed continuously, because it is capable of creating so many other values such as collaboration and transparency. *[C1clcm]*	Trust is essential to make a project successful, but it is a difficult value to discuss because of the different interests. *[C1coem]*
The contractor is busier with the physical and hard values of the project than the client, because they are realizing the project. *[C1clcm]*	Quality may never be an issue; it may never be up to discussion. Only the *how* and the road to quality are therefore discussed. *[C1copd]*
The client helps the contractor with their profits by working together and offering solutions. *[C1clcm]*	The client knows that the contractor needs to make a profit. They think along with us to improve efficiency, which will help profitability. *[C1coem]*

External factors

Table 16 shows an overview of data from the interviews that is linked to this theme. The interviewees believed that there are certain external factors that influence what happens inside contact moments. Three interviewees believe that quality is secured inside the contract.

The interviewees believed that there are also values that stand at the base of social interaction. Three interviewees name integrity as such as value. This value was barely discussed in contact moments because it should be always present between the organizations. Other base values that the interviewees gave were accountability, safety and equality. The two interviewees of the contractor specifically named safety as a base value, the other two did not.

The two interviewees of the client stated that they would probably have ranked the values differently if they had to rank them in another phase of the project. This is the external factor of project phase. No DBFM related external factors has been named for this project. One interviewee indicated that the constant rotation of people and functions inside projects is harmful, while another disagreed with this, saying everyone is replaceable and values can simply be recreated. The other two did not make any statements about this.

Table 16 Data from the interviews from case 1 for the theme of external factors.

External factors	
Client	**Contractor**
The quality is secured in the contract and multiple values have already been discussed and put in the contract with the stakeholders before the project started. *[C1clcm] [C1clpd]* Safety is secured in the contract and is for the contractor to realize. *[C1clpd]* The values can be ranked differently in the different phases of the project. *[C1clcm] [C1clpd]*	Quality is secured in the contract. *[C1copd]* When there is a discussion about integrity, something is really wrong. *[C1copd]* Safety is something that you cannot touch or alter. *[C1coem]*

Creation of value

Three interviewees agreed that value is created on every level of the project organization and that everyone contributes to value creation in their own contact moments. Two of them believed that the project directors of the organizations subsequently bind all value together to create more value than the sum of its parts. The interviewees believed that the type of meeting decides which values are dominant and discussed and which not. The most obvious example that was given is that the safety meeting is almost exclusively about the safety value.

The interviewees believed that value is first created internally, before it is created externally. The environmental manager of the contractor found that this is especially true for his role. He first has to discuss values such as quality, openness and safety with his counterpart of the public organization, before he can go outside to create those values physically, or for other people. One interviewee stated that every ICM is pure value creation. Another found that value creation depends on the role and function a person has in the organization. Table 17 shows an overview of the data from the interviews relating to this theme.

Table 17 Data from the interviews from case 1 for the theme of external factors.

Creation of value	
Client	**Contractor**
The creation of value happens on every organizational level and by everyone in every project. *[C1clcm] [C1clpd]* A contact moment contributes a whole lot to value creation. ICM are pure internal value creation moments. *[C1clcm]* If the basis of values has been discussed internally, external value can be created. *[C1clpd]*	Every discipline creates value for the project. The project directors then bind all this value together. *[C1coem]* The function of people and the type of meeting determines if internal or external value is created. *[C1copd]* First you can create internal value between the client and contractor, before you can create it for the stakeholders, the area and end-users. *[C1coem]*

Informal contact moments

Both project directors stated that there were few ICMs. One of the reasons for this was the good use of the BOT-meeting, a formal contact meeting that was regarded as an informal contact meeting. Both indicated that the directors had ICMs once or twice a week, depending on the phase of the project. They used these ICMs to clear the air on issues or ask each other things that they heard from within their organization. The ICMs were often by telephone, but if this wasn't possible, e-mails or texts were used.

The other two interviewees also stated that ICMs occurred in the project. These two however, were not counterparts of each other. They specifically named calling their respective counterpart up to twice a week, and ICMs outside of work times, to go to a bar to get to know the person behind the function.

4.3 Case 2: Tunnel construction

For case 2, the technical manager and the control manager were interviewed, both are high ranked managers. From the contractor's side, the area & communication manager and the director of work preparations were interviewed. The latter was part of the management team of the project. See table 18 for a quick overview of the interviewees.

Table 18 Interviewees overview of case 2.

Tunnel construction	
Client interviewees	**Contractor interviewees**
Technical manager	Director of work preparations
Control manager	Area & communication manager

The four interviewees of case 2 added a total of 6 different values to their value sets. The interviewees all added collaboration to their value set and three of them did so with reliability, while only two added trustworthiness.

Table 19 shows the client's ranking of the value set, and the perception of the contractor of these values. The soft values have lighter colours, while the hard values have darker colours. Both interviewees have chosen soft values for their highest ranks. They also both chose for the values of trustworthiness (1-1) and collaboration (3-2), and ranked them high. Safety (6-5) and accountability (10-9) are also ranked relatively similar. A difference in values is noted for transparency (7-3) and quality (4-8). Overall, these lists are quite similar.

According to official project documentation, the client holds the values of safety, sustainability and innovation high. The first has been ranked relatively low (6-5) and the latter two have not been added to the list.

The contractor's perception of these values is far off, there is next to no correct perception of the values of the client. The contractor believed that the client holds the hard values higher than soft values, which does not correspondent with the rankings of the client.

Table 19 The client's ranking of the values and the perception of the contractor of these values for case 2.

Rank	Client's ranking		Contractor's perception of the client	
1	Trustworthiness	Trustworthiness	Safety	Safety
2	Integrity	Collaboration	Accountability	Efficiency
3	Collaboration	Transparency	Integrity	Profitability
4	Quality	Integrity	Collaboration	Collaboration
5	Expertise	Safety	Quality	Quality
6	Safety	Reliability	Reliability	Integrity
7	Transparency	Efficiency	Transparency	Transparency
8	Profitability	Quality	Leadership	Reliability
9	Efficiency	Accountability	Efficiency	Accountability
10	Accountability	Profitability	Profitability	Social justice

Table 20 shows the contractor's ranking of the value set and the perception of the client of these values. Both interviewees show a tendency towards the harder values instead of soft values. The only similar values they have are quality (4-4) and accountability (8-9). The rest of the value set is scored different with extremes at efficiency (6-1), safety (1-5) and profitability (7-2). It seems that both interviewees did not have the same or a similar value set for this project. This raises the question if there was focus on the organization's value set. Noteworthy is that both interviewees have chosen reliability and collaboration as two of their added values. Unfortunately, no project documentation was found that showed any important values for the contractor to compare this to.

The client indicates that harder values are more important for the contractor in this project. No clear patterns are found between the actual ranking and the perception. One of the reasons for this is that the contractor had such a wide variety in rankings that it is hard to compare anything to.

Table 20 The contractor's ranking of the values and the perception of the client of these values for case 2.

Rank	Contractor's ranking		Client's perception of the contractor	
1	Safety	Efficiency	Safety	Efficiency
2	Reliability	Profitability	Collaboration	Safety
3	Integrity	Collaboration	Trustworthiness	Reliability
4	Quality	Quality	Profitability	Accountability
5	Collaboration	Safety	Integrity	Profitability
6	Efficiency	Integrity	Quality	Integrity
7	Profitability	Transparency	Expertise	Collaboration
8	Accountability	Reliability	Transparency	Trustworthiness
9	Transparency	Accountability	Efficiency	Quality
10	Leadership	Social justice	Accountability	Transparency

Elements of contact moments

The interviewees have different opinions on the hard elements of contact moments. Three interviewees indicated that the goal of a contact moment is not always reached, but that this is not a problem. One interviewee argued that there is a Dutch culture of having too much meetings, which is bad for business, as there is not enough time left to actually create something and steer the organization. Another argued that the hard elements are not important for the outcome of the

meeting. A third one suggested that the contact meetings are goal orientated. Other hard elements that were named that help to create value in contact moments are a decisive chairman; good preparation and evaluations of the meeting; high efficiency; and a good agenda.

Three interviewees agreed that the client was leaning back to much at the start of the project, which made it much more difficult to collaborate with each other. They did so because the DBFM-project delivery method was still new then, and they did not always know how to act. Three interviewees also stated that a contact moment is good when people try to understand each other's background and corresponding interests. Other positively contributing elements of contact moments in the project were: approaching the contact moments with humour; celebrate milestones together; having substantive discussions; and evaluation. Three interviewees indicated that the contact moments were goal orientated. Table 21 shows data from the interviews.

Table 21 Data from the interviews of case 2 on the theme of elements of contact moments.

Elements of contact moments	
Client	**Contractor**
The goal of a contact moment is not always reached, but that is part of human interactions. *[C2cltm]*	Too much meetings means that there is not enough time left to steer your people. *[C2cowp]*
A contact moment is good when you learn about each other's interests and position and evaluate the meetings. *[C2clco]*	Some would like to be guided by values, and some by soft values. Getting to know each other and their interests is then crucial for collaboration and getting along. *[C2cowp]*
Celebrating your milestones positively contributes in contact moments for the ambiance and collaboration. Preparation and evaluation are also important tools. *[C2cltm]*	Contact moments have been good if you know you have made steps in the right direction. Evaluation is crucial in this. Celebrating milestones together also contributes. *[C2coam]*

Contact moment structure

Table 22 shows excerpts from the interviews for this theme. Two interviewees indicated that the perfect contact moment structure is context related and different for all projects. The four interviewees believed that in a perfect structure, the contractor and client are geographically very close to each other, so that they have easy access to informal meetings by knocking on each other's door. Three of them agreed that this is achieved by sitting in the same building, but one disagreed and feels that this is not beneficial for the project. He would rather have that both organizations sit in different, but adjacent buildings. The perfect contact meeting structure also contained a lot of informal contact meetings, that start at the earliest phases of the project. This would create a good relationship at the earliest stages of the project. The perfect structure further ensures good preparation and evaluation moments and celebrations of milestones. Three interviewees argued that the perfect structure has a perfect balance of ICMs and FCMs, while one of them tended more towards only having ICMs. The perfect balance is when there are daily ICMs and bi-weekly or monthly FCMs.

The interviewees indicated that there were a lot of informal meetings in the project, ranging from coffee moments to phone calls. The frequency of these ICMs depended on the phase of the project. All interviewees agreed that ICMs are necessary for project success. All interviewees agreed that ICMs have a preparatory and evaluating function for FCMs. Everything that is discussed in FCMs should already have been discussed in ICMs before, so that nobody gets surprised by any claims or problems in FCMs. Three interviewees indicated that ICMs are necessary to get to the decision making in FCMs.

This doesn't mean that ICMs are more useful, or better than FCMs, all interviewees agreed. One interviewee explained that the ICMs act as a lubricant for the whole project. All interviewees indicated that ICMs and FCMs cannot exist without each other, and that they both have their own usefulness and necessity. ICMs also created more soft than hard values, the two interviewees of the client agreed. The contractor's interviewees did not state anything on this topic.

Three interviewees stated that the main use of FCMs is the ability to formally decide on matters. These matters are often already discussed beforehand in ICMs. The necessity of these FCMs is to create legitimacy, the interviewees believed. Three interviewees indicated that the project start-ups and follow-ups (PSUs and PFUs) are the most important FCMs in the project. These two FCMs are the basis of building values together. Other FCMs that were named important were the area meeting, the technical interface meeting, the progress meeting, the small-triangle meeting and the contract meeting. Three interviewees believed that contact moments create and dissolve automatically, when there is or isn't a need for them. They all indicated that FCMs are equally important as ICMs, but three interviewees think that FCMs are more goal orientated than ICMs. Only one interviewee stated that FCMs are for hard value creation, while three did not make any statements on this observation.

Table 22 Data from the interviews for case 2 on the theme of contact moment structure.

Contact moment structure	
Client	**Contractor**
Easy access to informal contact moments can really help a project. Non-physical communication tools such as e-mails are often misread. But organizations should not be in the same office as each other. *[C2clco]* A perfect structure is a balanced combination of ICM and FCM where everybody fully understands the contract and the goal. *[C2cltm]* ICM and FCM are equally important. But ICM have a preparatory and evaluating function for FCM and are used to get to know each other and create soft values. *[C2clco]* FCMs are more focused on legitimacy, and focus on the project, and consists more of hard values than soft values. ICMs are a soft of lubricant for the project. *[C2cltm]*	A perfect structure ensures the celebration of milestones and being able to constantly knock on each other's door. *[C2cowp]* Physical contact moments are preferred over non-physical ones. E-mails often miss context that leads to misinterpretation. Easy access to ICMs would therefore be very beneficial. *[C2coam]* ICMs are crucial to build relationships in a project. They also have a preparatory function and are used to get to decisions in FCM. *[C2cowp]* FCMs and ICMs need to co-exist, where FCMs are necessary for legitimacy and ICMs have a preparatory function. *[C2cowp] [C2coam]*

Values in contact moments

Table 23 shows data from the interviews on this theme. Three interviewees indicated that it is hard to estimate which values are important for the other organization. All interviewees valued the soft values more than the harder values of the project. The two interviewees of the client found trustworthiness the most important value in a project. The interviewees of the contractor however, have chosen hard values as their top-ranking values, but later both state that they think soft values are more important.

The soft values are prerequisites for a lot of other values, the interviewees stated. For example, the interviewees agreed that being transparent towards each other creates better collaboration, builds trust and improves overall integrity. Collaboration is a big prerequisite for hard values such as efficiency, quality and is used as a basis for the project, three interviewees indicated.

Not all values are as outspoken as others. Three interviewees agreed that integrity has never been a topic, even though they all valued it highly and find it important. The other interviewee found that trust is gained drop by drop, but lost by the bucketful. Transparency is another value that is hard to discuss, three managers indicated. Again, all four managers agreed on the importance of transparency, but it is difficult in practice to be transparent. Opening up on finances, troubles and issues is often hard, they found, because it is dependent on the project, trust and personal feelings and can cause problems. Most other values were openly discussed.

Hard values are often discussed in this project, but not as often as soft values, all interviewees found. There was a lot of focus on quality, safety and efficiency, three of the four interviewees agreed. One stated that accountability and quality were not outspoken, but efficiency and safety were. However, the two interviewees of the client stated that efficiency is a value that is for the contractor to create and safeguard, and not for the client. The interviewees of the contractor believed that efficiency is a shared value that they should try to achieve together. Accountability was a difficult issue in this project, and was therefore not always as easy to talk about, three interviewees stated. The new tunnel laws and the use of the relatively new DBFM-project delivery method gave this project a lot of issues and law suits, three managers stated. Profitability is a value for the contractor, all interviewees agreed. While the interviewees of the client did state that they always try to help the contractor out with thinking about profitability, the interviewees of the contractor did not mention this at all. Safety was the number one value for one of the client's and one of the contractor's interviewees. They found this the most important value. No value trade-offs have been indicated.

Table 23 Data from the interviews from case 2 on the theme of values in contact moments.

Values in contact moments	
Client	**Contractor**
Soft values are prerequisites to hard values. Soft values are the basis of a project, hard values follow from them. *[C2cltm]*	The soft values are more important in contact moments and have more meaning than you would initially give them. *[C2cowp]*
Trustworthiness is essential for a good project. It is necessary to know each other's qualities, capacities and interests and supports collaboration. It is project-universal and not only for DBFM. *[C2clco]*	Transparency is very important, but hard to discuss. Being transparent shows understanding towards the clients, but can be a major pitfall. *[C2coam]*
It doesn't matter for the client if the contractor is very efficient in his works, as long as he delivers. This value is more for the contractor than for the client. *[C2clco]*	Accountability was hard to talk about with each other, there have been multiple law suits. One of the reasons is the new form of project delivery method and the new tunnel laws. The organizations couldn't figure them out amongst themselves. *[C2cowp]*
Profitability is a value for the contractor. We are always willing to help them out, but not by giving them money. We can help with problem solving. *[C2cltm]*	Profitability is always in the mind of a contractor, but it is also only his issue. It is therefore not discussed often. Profitability is very adjacent to efficiency for a contractor. *[C2coam]*

External factors

Table 24 shows an overview of the interview data from this theme. Two of the interviewees stated that quality is secured in the contract. One of them stated that safety is also secured in the contract as a hard requirement. Three interviewees indicated that integrity is a base value of social interaction

within the contact moments, one stated that it was noticeable present and another argued that it is the base building block of a relationship between client and contractor.

Two interviewees stated that because of the use of a DBFM-contract, issues arose because of a lack of expertise. This influenced contact meetings as well as values, such as accountability, profitability and efficiency. Two interviewees indicated that quality is extra important for the contractor to realize because he has to maintain the quality for the duration of the maintenance contract, 25 years. One interviewee expressed that in the end, a DBFM-contract is the same as a D&C for example. The collaboration and values are the same. He was however, alone in this statement.

Two interviewees agreed that in the realization phase, there is little thought for the coming maintenance phase, project members purely looking to realize the project. This is enhanced because of the constant rotation of people in their functions in the project during all phases. Having new people every phase of the project harms the project since values and relationships need to be rebuild and information and expertise has to be shared again. Three managers indicated that this constant change in project phases is bad for the project result, while one sees both positive and negative sides to it. Two interviewees stated that the realization of the project became extremely difficult because of the new tunnel laws introduced during that phase. Two interviewees indicated that the values that he would rank as the most important are phase dependent.

Table 24 Data from the interviews from case 2 on the theme of external factors.

External factors	
Client	**Contractor**
Quality is secured inside the contract, the contractor will want to achieve this because of the maintenance phase. *[C2cltm]*	Quality is a value secured in the contract just like safety is a hard requirement. *[C2coam]*
People want different things after a few years or they want to build a career, this makes it acceptable for them to change roles and functions in or between projects. *[C2clco]*	The underlying value of everything is integrity towards each other. It is a basic concept that should always exist between contractor and client. *[C2coam]*
Because the DBFM project delivery method was so new for everyone, the collaboration was seriously harmed at the start of the project. This model required to trust the contractor more than usual. *[C2cltm]*	DBFM contracts were hard because there was so little experience. Everybody was still looking for how to act in this contract model. *[C2cowp]*
The most important values are phase dependent. *[C2clco]*	The new tunnel laws introduced in the realization phase made it very hard to deliver quality and cost us a lot of money. *[C2cowp]*

Creation of value

Table 25 shows data from the interviews on this theme. Three interviewees indicated that the value that is created is dependent on the type of the contact moment. Three interviewees also stated that all employees from both organizations create value in the project. All four interviewees agreed that value is first created internally, between the organizations, after which external values are created. Internal values are a prerequisite for external values. One of them stated that these internal values are created on a soft value basis, while the others found it hard to answer that.

Table 25 Data from the interviews from case 2 on the theme of creation of value.

Creation of value	
Client	**Contractor**
The interaction with each other is the thing that creates value. Every contact moment yields experience which will feed values like trust and collaboration. *[C2cltm]* Once internal value is created, external value can be created. Having the wrong people on the wrong positions in a project, can seriously hurt values like trust, expertise and collaboration. *[C2clco]*	A contact moment creates value because it secures decisions and you can get to know what is happening in the project at the other organizations and stakeholders. *[C2coam]* Everyone in the project creates value, where the type of contact moment decides what value is created. Value creation takes place inside ICMs. First you create internal and soft values, from where you can create external values. *[C2cowp]*

Informal contact moments

The technical manager of the client indicated that he had ICMs on a daily basis, but this was phase dependent. Most ICMs occurred by phone, he stated. The contractor also had a designated space for the client available in their building, where some members of the client's technical department were situated. The technical manager indicated that this was good for relationship building, because of the many ICMs these members had by knocking on each other's door when they needed each other. Other ICMs were via e-mail, texts, by drinking coffee together or eat a sandwich before a meeting, the control manager of the client indicated.

The interviewees of the contractor also indicated that ICMs are phase dependent. The ICMs were held with the counterpart of the other organization in a bilateral, 1-on-1 meeting. They indicated that the ICMs can be anything ranging from e-mails and phone calls to coffee or lunch meetings. The environmental manager also stated that his team and the environmental team of the public organization went out for dinner and a few drinks every half year.

4.4 Case 3: The runway extension

For this case, the project director and the airport manager of the airport were interviewed, they were part of the project delivery team of the client. The airport manager was very involved in the project, since he was directing day-to-day operations on the airport. From the contractor's project management team, the research has interviewed the project manager and the project director. The airport manager and the project manager were direct counterparts of each other, as well as both project directors. See table 26 for a quick overview.

Table 26 Interviewees overview of case 3.

Airport runway extension	
Client interviewees	**Contractor interviewees**
Project director	Project director
Airport manager	Project manager

The four interviewees chose 9 different values for their top 10 value set. This is the highest number of different values for all cases. Because of the variety of added values, no pattern was found between these self-added values.

Table 27 shows the client's ranking of the value set and the perception of the contractor of these values. The soft values have lighter colours, while the hard values have darker colours. The first interviewee shows a mix of hard and soft values, while the second interviewee clearly values hard values most and has picked three hard values for his top 10. Both interviewees rank quality on 2,

profitability on 6, and accountability and innovation low, (10-9 & 9-10). Disparities were found at the values of safety (5-1) and transparency (4-8).

The project documentation showed us that safety was the highest ranked value, amongst other hard values, such as quality, sustainability, effectiveness and profitability. Most of these latter values were not picked but hard values were more dominant in these value sets over the soft values.

The contractor's perception is quite similar, where the first interviewee of the contractor felt that there is a mix of soft and hard values that are important. The second interviewee of the contractor showed that hard values are definitely higher up the ranking than soft values. This roughly mirrors the value sets of the client. The contractor showed a correct perception of the client's values for safety, quality, while all other values were off. So even when one interviewee of the contractor knows which values are ranked number 1 and 2 at the client, the rest is still not perceived well at all.

Table 27 The client's ranking of the values and the perception of the contractor of these values for case 3.

Rank	Client's ranking		Contractor's perception of the client	
1	End-user Satisfaction	Safety	Trustworthiness	Safety
2	Quality	Quality	Safety	Quality
3	Trustworthiness	Integrity	Quality	Accountability
4	Transparency	Reliability	Transparency	Transparency
5	Safety	Efficiency	Accountability	Efficiency
6	Profitability	Profitability	Integrity	Openness
7	Integrity	Responsibility	Leadership	Expertise
8	Efficiency	Transparency	Collaboration	Collaboration
9	Innovation	Accountability	Efficiency	Integrity
10	Accountability	Innovation	Profitability	Profitability

The contractor's ranking of the value set and the perception of the client of these values is shown in table 28. The first interviewee has chosen more soft values, while the second interviewee ranked harder values as more important. By comparing them, the disparities become even more visible: quality (2-9), accountability (9-3), integrity (4-10), efficiency (10-4), profitability (8-2) and safety (7-1). These two value sets are scored differently, almost opposingly. Value coordination between the project director and project manager of the contractor seems low, or even non-existent.

Comparing these value sets to values found in the official project documentation is therefore difficult, and the values do not match the ones in the project documentation. The project documentation however, does show that hard values are more important for this project than soft values.

Because of the big disparities that the contractor shows in ranking, it is hard to compare the client's perception to it. The first interviewee of the client perceives soft values as more important, and the second interviewee perceives the opposite. This is correctly perceived from their direct counterparts in the project. There are multiple values that are perceived the same by the first interviewee, while the second one has does not have a good perception of the value rankings of the contractor.

Table 28 The contractor's ranking of the values and the perception of the client of these values for case 3.

Rank	Contractor's ranking		Client's perception of the contractor	
1	Trustworthiness	Safety	End-user Satisfaction	Accountability
2	Quality	Profitability	Trustworthiness	Safety
3	Transparency	Accountability	Integrity	Quality
4	Integrity	Efficiency	Quality	Profitability
5	Collaboration	Expertise	Innovation	Efficiency
6	Leadership	Transparency	Safety	Reliability
7	Safety	Openness	Transparency	Transparency
8	Profitability	Collaboration	Profitability	Integrity
9	Accountability	Quality	Accountability	Responsibility
10	Efficiency	Integrity	Efficiency	Innovation

Elements of contact moments

Two interviewees stated that every contact moment requires a good preparation for it to be good, and that this happened during the project. Two other interviewees stated that the quality of the report and agenda need to be on point for a good contact moment, and that this was also the case in the project. Other hard elements that had positive influence on contact moments in the project were good minutes; efficient meetings that don't take up too much time; goal orientated meetings; and not too much people at the table during meetings. The managers agreed that the goal of a meeting is not always reached, but that this is not necessarily a bad thing. Those meetings still have good discussions, or share their (personal) issues in the project. Two interviewees stated that the client was leaning back to much at the start of the project. They believed this to be a bad thing, because counterparts need each other for a successful project.

Soft elements of contact moments that positively contributed to the project were: making sure that everyone had the same goals; ensuring that everyone has the same values and act to these values; and to continuously discuss the important values with each other so that everyone is constantly reminded of them. One interviewee of the client indicated that he had seen opportunistic behaviour from the contractor. Two interviewees indicated that the client was leaning back at the start of the project, which harmed the initial project start. They did believe that this was quickly solved. Table 29 shows excerpts from the interviews on this theme.

Table 29 Data from the interviews from case 3 on the theme of elements of contact moments.

Elements of contact moments	
Client	**Contractor**
Contact moments are good if both organizations share the same value set and act to this set. These values then need to be continuously discussed to remind everyone of their importance. *[C3clpd]*	If a contact moment is not goal orientated, it is less valuable. You also can't involve everyone in every meeting. *[C3clpd]*
A contact moment is good if there is a clear agenda and good minutes and everybody is fully prepared for it. This happened in this project. *[C3clai]*	A contact moment is good if everyone is prepared well and if they are decisive. The most important thing is to have the same goal, but this goal is not always reached. *[C3copm]*

Contact moment structure

Table 30 gives insights from the interview data on this theme. The interviewees agreed that the perfect contact moment structure was present in this project. Three of them indicated that the perfect structure is context and project related. One interviewee indicated that contact moments create and

dissolve automatically when there is need and necessity for it, while the others did not make any statements on this. A perfect structure also contains both informal and formal contact moments that coexist together, the four interviewees found. Three of the interviewees believed that working in the same building would be beneficial for the project and for both organizations. This was however not the case, the buildings of both organizations were around 500 meters apart from each other, which was still good, they all agreed. One interviewee found that in a perfect structure, there is lesser need for contact moments when a project is almost finished.

The interviewees of the client both stated that there were not a lot of ICMs, but both the project director and manager of the contractor state there were a lot of ICMs. Most of those were either phone calls or coffee moments. Only the interviewees of the contractor believed that ICMs are more important than FCMs, while one of the clients disagrees, and the other did not make a statement. The ICMs have high necessity and usefulness to create soft values internally in the project, values such as trust, integrity and collaboration, two interviewees found. The other interviewee approached the ICMs with hard value. He states that in the ICMs, quality and efficiency were most discussed and stimulated. One of the reasons of high necessity and usefulness of these ICMs is the ability to speak freely and be honest about everything without consequences, two interviewees stated. The interviewees of the contractor both indicated that the ICMs have both a preparatory and an evaluating function for FCMs. They indicated that ICMs are used to search for a strategy to achieve goals. The contractor's interviewees stated that ICMs are in the end more important than FCMs to create value. One interviewee disagreed to this observation, and one did not provide statements for this observation.

Three interviewees indicate that FCMs are necessary for the legitimacy of the project. All interviewees found that the PSUs and PFUs of the project were the most important contact moments of the project. In these FCMs, the organizations get to know each other well, create a shared value set that are important for the project and create soft values together. The PSUs and PFUs are considered informal contact moments, they found. Most values that were discussed and created in FCMs were hard values, one interviewee stated. When asked what other FCMs were important in the project, the interviewees all gave different answers. FCMs that were named as important for the project were: the daily meetings (two times stated as important); and the progress meetings. One interviewee named the communication meeting as a less interesting, but still necessary.

Table 30 Data from the interviews from case 3 on the theme of contact moment structure.

Contact moment structure	
Client	**Contractor**
It would be very beneficial for the project if client and contractor are in the same building as each other. *[C3clpd]*	If you feel that a contact moment is missing, and that there is need for it, then you will automatically go look for it. *[C3copm]*
The project did not have a lot of ICMs. They are however very useful and necessary to build trust and discuss issues without the formality and consequences of an FCM. *[C3clpd]*	ICMs create more value than FCMs and are more important. They are the trigger for everything you can accomplish in an FCM and have both a preparatory and evaluating function. *[C3clpd]*
The PSUs have been great to create soft values between the organizations. *[C3clai]*	The PSUs have been really helpful to create collaboration between both organizations. This was the most important contact moment. *[C3copm]*
FCMs give legitimacy to the project and its decision-making processes. *[C3clpd] [C3clai]*	FCMs give legitimacy to the project and its decision-making processes. *[C3copm] [C3clpd]*

Values in contact moments

Table 31 shows data from the interviews for this theme. Three of the four interviewees indicated that soft values are more important than hard values. One of these interviewees is the project manager of the contractor, he however ranked his hard values much higher than his soft values. One of the reasons that they found soft values more important is that soft values create a good relationship, and this is necessary for a good project result. Three of them named trustworthiness in their top 3 values, often behind safety. The same three interviewees also indicated that collaboration is a value that is of the utmost importance. Two of them said that trustworthiness is a base value in the client-contractor relationship. A lot of these values are also prerequisites for other values, the interviewees indicated. Again, the values of trustworthiness and collaboration are named as the prerequisite of many other values as transparency, quality, safety and openness.

Most of the soft values were outspoken between the organizations. Transparency, trustworthiness, and openness were all openly discussed with each other. Only integrity was not openly discussed, even though it is named as an important value, three interviewees stated. One interviewee even described integrity as the base building block for his most important value, trustworthiness. One of the reasons it was not discussed is because it is a base value of interaction between persons. Two interviewees found it hard to rank the values of the other organization, while two others did not have any problems with that.

Only one of the four interviewees valued hard values more than soft ones. He believed that this is because he, as airport manager, is always busy with the hard values in the day-to-day operations on the airport. Three interviewees indicated that efficiency was an important hard value to discuss with each other. The reason for this was the closing of the airport for two weeks to complete the construction. Efficiency was therefore a value for both the client and the contractor. The profitability was also often discussed, and was for both organizations important. The contractor indicated that profitability is for them an obvious endeavour, while the client wants profitability for their organization, and with the least possible costs. Two interviewees chose safety as their most important value, this was noticeable in a lot of contact moments, according to them. Two interviewees stated that accountability was not discussed, while the other two indicated that it was. Efficiency is a prerequisite for profitability, one interviewee stated. Other relationships between values have also been indicated, such as poor profitability results in a poor collaboration; and innovation brings sustainability. No value trade-offs have been named. The hard values were as often discussed as the soft values, as certain hard values like safety were extremely important on the airport.

Table 31 Data from the interviews from case 3 on the theme of values in contact moments.

Values in contact moments	
Client	**Contractor**
Creating a shared value list together is the basis of a good relationship and a collaboration. *[C3clpd]*	Soft values are more important than hard values. *[C3copm] [C3clpd]*
Trustworthiness is the basis of every relationship and a successful project. Without it, an ambiance of suspicion is created. *[C3clpd]*	It is not always about the end-product, but also about the road that leads there. Trustworthiness is the most important value on that road. *[C3clpd]*
Safety is always the first thing to think about on the airport. It is therefore the main talking point of the contact moments. *[C3clai]*	Safety is the number one priority on an airport and in every project. Therefore, it needs to be properly discussed at all times. *[C3copm]*

External factors

All four interviewees indicated that safety is secured inside the contract. While only three said that safety is also integrated in the contract. One interviewee stated that the accountability is also contract bound. Integrity is thrice named as a base and underlying value of the relationships between contractor and client. Both interviewees from the contractor also stated that quality is also a base value, but the client does not agree. Two interviewees indicated that at the time of the start of the project, there was a lot of inexperience with DBFM contracts. This knowledge gap led to uncertainties and the need for more expertise. One interviewee also indicated that because of the long run of a DBFM contract, values like transparency and integrity are extra important. Only one interviewee stated that he would have ranked the values differently in another phase of the project.

Table 32 Data from the interviews from case 3 on the theme of external factors.

External factors	
Client	**Contractor**
Safety is integrated in the contract. *[C3clpd] [C3clai]*	Safety of the end-product was secured in the contract and in protocols *[C3clpd] [C3copm]*, but also in European airport laws. *[C3copm]*
There was a lot of inexperience with DBFM contracts and quality reviews from the client's side. *[C3clpd]*	You have to be transparent in a DBFM contract because of the long duration of the contract. This is also true for integrity. *[C3clpd]*

Creation of value

Table 33 shows data from the interviews for this theme. All interviewees argued that all employers of both organizations create value, not only the top managers. The interviewees all have different opinions on the creation of internal and external values in the project. The contractor's interviewees found that internal and external value is both created at the same time. The client's interviewees did not make a statement on this observation. Three interviewees indicated that all contact moments are essentially the creation of value, while one found that not all contact moments contribute to value creation. One interviewee indicated that the type of contact moment decides which values are discussed and are eventually created.

Table 33 Data from the interviews from case 3 on the theme of creation of value.

Creation of value	
Client	**Contractor**
A contact moment is essential for the execution of the contract and therefore the creation of value. *[C3clai]*	A contact moment is the constant creation of value. *[C3copm]*
Informal contact moments have a certain personal aspect to them that creates soft values like trust, honesty and transparency between the organizations. *[C3clpd]*	Value is created both internally and externally at the same time. *[C3copm]*
The type of contact moment decides which values will be discussed. *[C3clpd]*	Soft values bring added value to the project and are more important in a project. Hard values are in the toolbox of the contractor and are created for society, the client and the stakeholders. *[C3clpd]*

Informal contact moments

The project director of the client indicated that he thought that there were limited ICMs in the project. He stated that this was the case because of the good formal contact moment structure that existed. He indicated that there were phone calls between him and his counterpart, maybe once a month. The airport manager stated that he saw the project manager of the contractor multiple times every week in ICMs to go through plans and talk about issues, either in physical meetings or by calling each other.

The project director of the contractor stated that he called the project director of the client on a regular basis. He also had coffee moments with him, but not as much as the phone calls. These phone calls were also project phase related. At the start of the project there was maybe one phone call every two weeks, in later stages of the project that went down to once a month. The project manager of the contractor stated that he had daily informal contact moments with the airport manager, either physical or by phone. The daily ICMs were necessary because there was always so much to discuss, and it took too long to wait for an FCM to occur.

4.5 Conclusion of the single case analysis

This chapter introduced the data structure that was retrieved by doing an inductive qualitative content analysis following the method of Gioia et al. (2013). An overview of collected data that has been analysed is found in figure 11. The results of the single case analysis are subsequently used as input for the multiple case analysis in chapter 5.

Figure 11 All five theme's and the value rankings that have been analysed. Own figure.

Sub-question 5 can also be answered with the information of the single case analysis. The overview of ICMs per case can be found in table 34. The frequency is dependent on the phase of the project, most interviewees stated. This table provides an answer to sub-question 5: *what are all the informal contact moments according to practice and what is their function?* Most informal contact moments are by phone call or by visiting each other, either fully work related, or to talk informal over coffee or lunch. ICMs also have two main functions, a preparatory and evaluating function for FCMs and a soft value creation function.

ICMs are also far more used than FCMs in projects. As ICMs are held daily, the frequency of FCMs is around once a month. One of the aspects that the interviewees liked about ICMs is the informal and no consequence character that they have. Project members are able to speak more freely without legal consequences or hurting the project. They can offer their support on difficult issues for the other organization or can help with problem solving without any official documentation or action points that registers these things.

Table 34 Informal contact moments per case.

Case	Informal contact moments
1	- Phone calls - E-mails - Texts - Coffee / lunch breaks - Work related ICMs - Dinner & drinks
2	- Phone calls - E-mails - Coffee / lunch breaks - Dinner & drinks - Knocking on each other's door - Work related ICMs
3	- Phone calls - Work related ICMs - Texts - Coffee / lunch breaks

CHAPTER 5 CROSS CASE ANALYSIS

All single cases have been analysed in the previous chapter. This chapter focusses on giving a more integral view of the practices by cross case analysing the three cases for every theme and the value rankings, see figure 12. This chapter also provides an answer to sub-question 5, by cross case analysing the informal contact moments of all cases. Sub-question 5 reads: W*hat are the informal contact moments according to practice and what is their function?*

The integral picture that this chapter creates is subsequently interpreted in the following chapter 6. Section 5.1 compares the single case studies on all five different themes that came from the data of the single case analysis. Section 5.2 compares and discuss the value rankings of the cases. In section 5.3, the informal contact moments of all three cases are analysed, which answers sub-question 5. The chapter presents a conclusion in section 5.4.

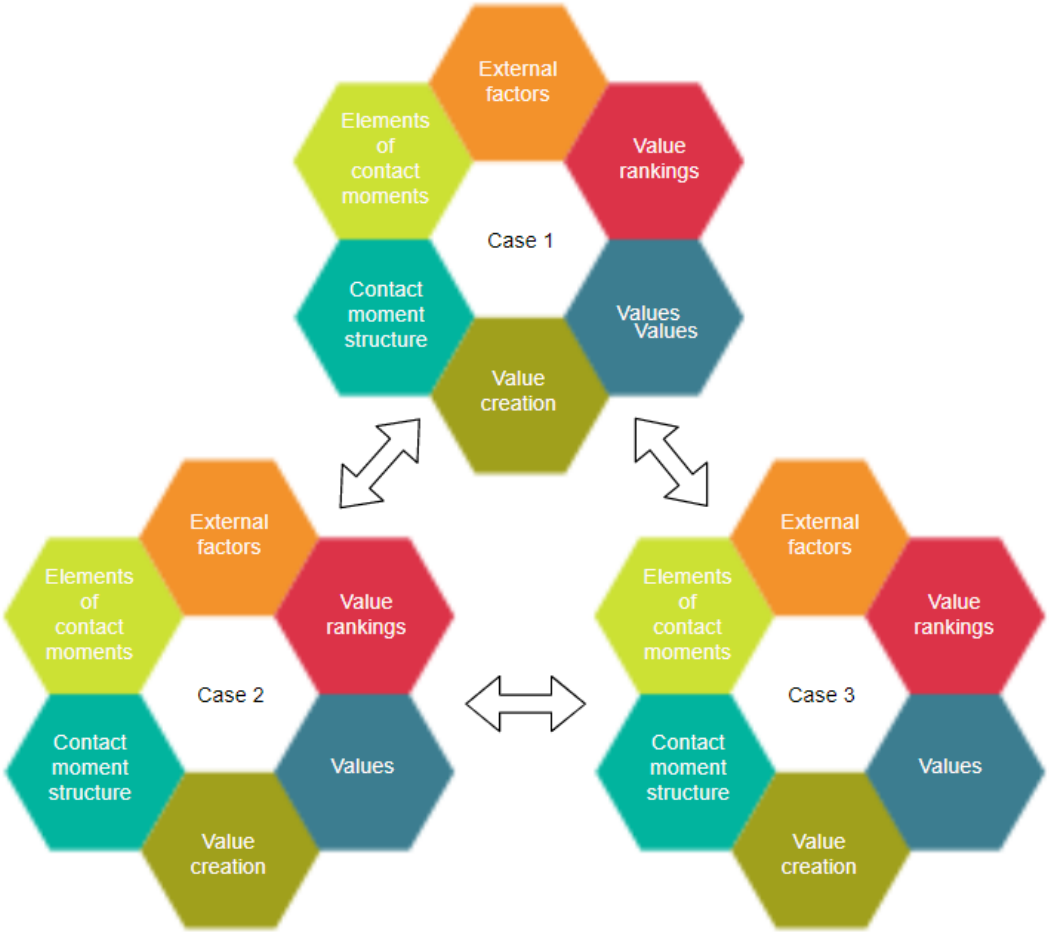


Figure 12 Cross case analysis overview of all cases and their themes and value ranking. Own figure.

5.1 Cross-case comparison per theme

This section compares all single cases on the themes that came from the data structure as shown in figure 12. All themes have a table that contains observations from the cases with colours indicating which client or contractor agreed on this. Green means they agreed; red means disagreed and white indicates that the interviewee made no statement or did not answer the observation positive or negative. If the interviewees of the client or contractor do not have the same opinion, the cell is split. The value rankings of the interviewees are elaborated on and compared in the following section 5.2.

Elements of contact moments

All but one interviewee indicated that the goal of a contact moment is not always reached. They believed that this is not necessarily a bad thing, for multiple reasons: because one can't always get what one wants; not reaching a goal is part of human interaction; and good discussions on contents are always good even if one does not reach one's goal, the interviewees find. Five out of twelve interviewees indicated that evaluations are an important part of contact moments and that they are key for successful contact moments. The other seven interviewees did not state anything about evaluations. Another common element that was found is that the preparation of a contact moment is crucial for its success. This was observed at nine of the twelve interviews, where the other three did not make any statements about it. Furthermore, eight out of the twelve indicated that contact moments are indeed goal orientated, with an agenda, minutes and a chairman to lead to the process. Again, four interviewees abstained of statements on this observation.

According to the interviewees of cases 2 & 3, the client was initially leaning back at the start of both projects. Interviewees from both the client and the contractor found that this was not helping the project, because the organizations need each other for a successful completion of a DBFM-project. The interviewees of case 1 did not discuss this subject, as this situation did not occur there. An overview of the comparison of observations for this theme is found in table 35.

Table 35 Comparison of observations of all case studies on the elements of contact moments theme. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.

Case	1		2		3	
	Client	Contractor	Client	Contractor	Client	Contractor
'The goal of a contact moment is not always reached, but this is not a bad thing'						
'Evaluations are key in contact moments'						
'Good preparations are crucial for good contact moments'						
'Contact moments are goal orientated'						
'If the client is leaning back in contact moments, this will harm the project'						

Contact moment structure

Table 36 below shows the comparison of observations of all three case studies. Eight interviewees indicated that a perfect contact moment structure is context and project related. Only one interviewee stated that there is a certain structure that is regarded as perfect for all projects. Three interviewees did not make clear statements about this observation. Furthermore, seven interviewees found that contact moments create and dissolve themselves if there is a need or respectively no need for them. This means that if a project member feels like he needs to talk or discuss project matters, he finds a way to create a contact moment with his counterpart. Eight interviewees stated that they would like easy access to informal contact moments, for example by knocking on someone's door. Three

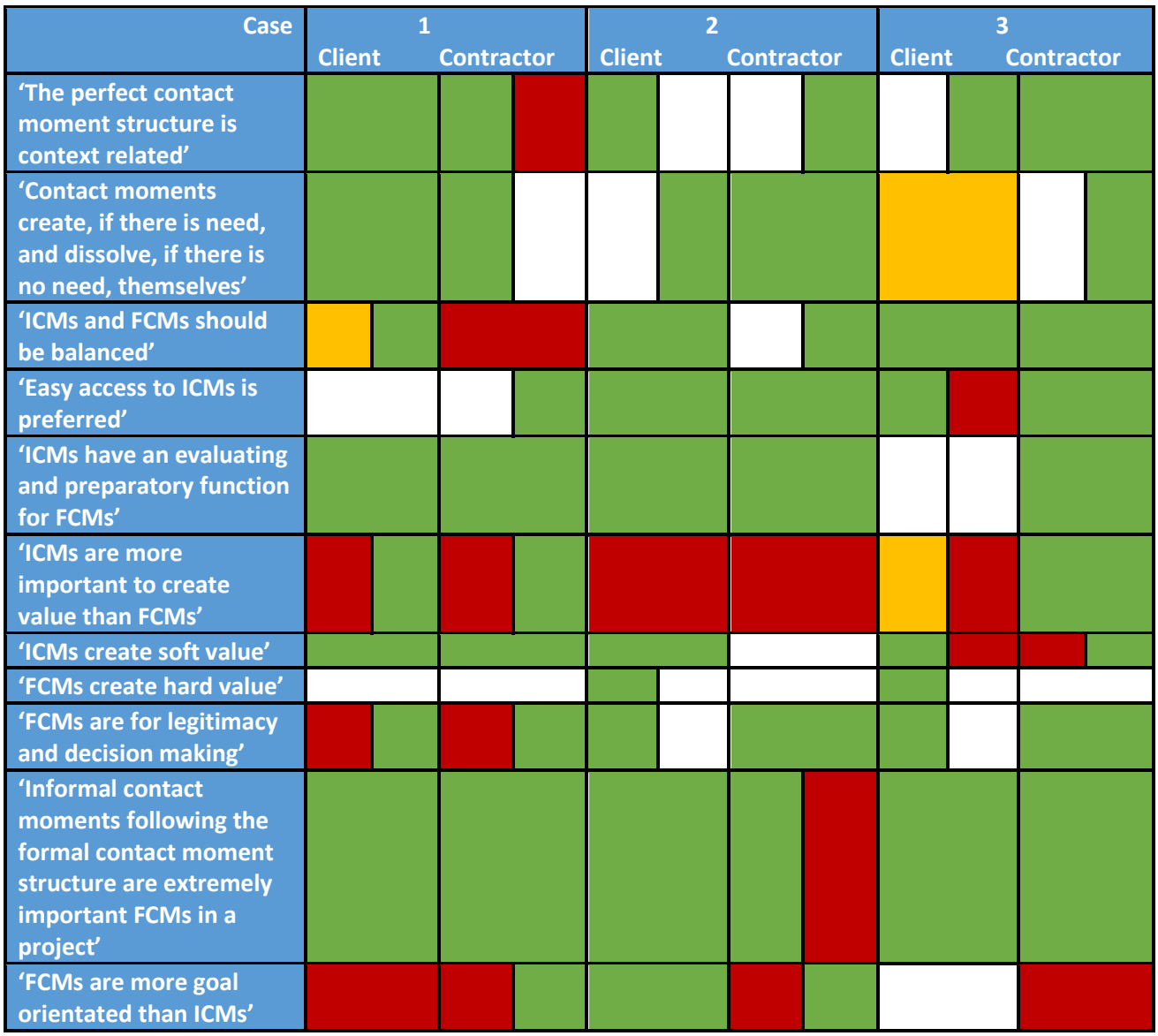
interviewees did not specify if they would want it, and one was firmly against. Most notable for this observation is that of the four interviewees that did not agree, three of them come from the client.

Eight interviewees stated that informal contact moments (ICMs) and formal contact moments (FCMs) should be perfectly balanced in a project. This is a balance that has more ICMs than FCMs, but both are used for their respective functions. An exact ratio of ICMs/FCMs was not asked from the interviewees. Only two interviewees indicated that they prefer to have a contact moment structure that leans on ICMs. Two other interviewees did not make a statement on this observation. Furthermore, ICMs have both an evaluating and preparatory function, ten interviewees found, while two interviewees from the client's side didn't say anything related. Only four interviewees agreed with the statement that ICMs are more important than FCMs, while one abstained and seven disagreed. Some of the nay-sayers indicated that both are equally important for value creation, and a few find that FCMs are more important to create more value. Eight interviewees also indicated that FCMs are for legitimacy in the project and for decision making. Two interviewees abstained while two others disagreed with this statement. They found that FCMs are used for a wide variety of things. No consensus was reached when the interviewees were asked if FCMs are more goal orientated than ICMs. Only four interviewees agreed on this statement, while two abstained and six disagreed.

Only two people found that FCMs create hard values, while the rest did not say something about this observation. Eight interviewees agreed that ICMs create soft values, while two did not say something about this observation and two disagreed.

Eleven interviewees found that FCMs with an informal nature are extremely important for the project. Only one interviewee disagreed on this. In those contact moments, everything was discussed without consequences to the project. Examples of these are the project start-ups (PSUs), project follow-ups (PFUs) and the BOT-meeting (legs on the table-meeting) of case 1. These contact moments follow the formal contact moment structure, whilst having an informal nature.

Table 36 Comparison of observations of all case studies on the contact moment structure theme. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.



Values in contact moments

Table 37 below shows the comparison of observations on values in contact moments from the case studies. Eleven interviewees found that soft values are more important than hard values for project success. All interviewees stated that some values often stay undiscussed, such as integrity. More than the half of the interviewees also indicated that hard values are not as often discussed as soft values, while the rest disagreed. Values that often stay undiscussed, according to the interviewees, are quality, efficiency, accountability and integrity. Furthermore, seven interviewees found that it is hard to rank, and know, the values of the other organization, while five did not have any trouble. This means roughly half of the people in a project do not know each other's goals and priorities in terms of values. Seven interviewees subsequently found that some hard values (e.g. safety & profitability) are purely for the contractor to create and that they did not discuss these with each other. Five interviewees disagreed, and found that all values are for both organizations, since it is a collaboration between the organizations. All interviewees did agree that values are prerequisites for other values. They stated that this goes both ways for both soft and hard values.

Table 37 Comparison of observations of all case studies on the values in contact moments theme. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.

Case	1		2		3	
	Client	Contractor	Client	Contractor	Client	Contractor
'Soft values are more important than hard values'						
'It is hard to rank the values of the other organization'						
'Hard values are not as often discussed as soft values'						
'Values are often prerequisites for other values'						
'Some hard values are only for the contractor'						
'Some values stay undiscussed'						

External factors

Table 38 contains the comparison of observations of the case studies on this theme. Ten interviewees indicated that some values are secured inside the contract and that this acts as an external factor. The most frequently named values are quality and safety. There is also a majority of interviewees who stated that some values are base values and omnipresent, in contact moments. The most important one here for this observation is integrity. Quality was also named a few times as base value. Nearly half of the interviewees found that there is have a different value set for different phases of the project, which is another external factor. The other half of the interviewees did not state anything about this observation. Furthermore, three interviewees believed that the nature of a DBFM contract ensures that certain values are held high all through the maintenance phase. Two disagreed and found that there is no relation between these values and the nature of the DBFM contract, while seven did not indicate this as an external factor. Oddly enough, none of the interviewees of case 1 said anything on this observation. Also, constantly switching and rotating people and functions in the project harms the project's values, four interviewees believed. Two however found that every person in a project is replaceable, while six interviewees abstained. For this observation, the interviewees from case 3 did not say anything. This is because the client indicated during the project that they would like to have the same people on the same functions for the duration of the contract, which is wat happened.

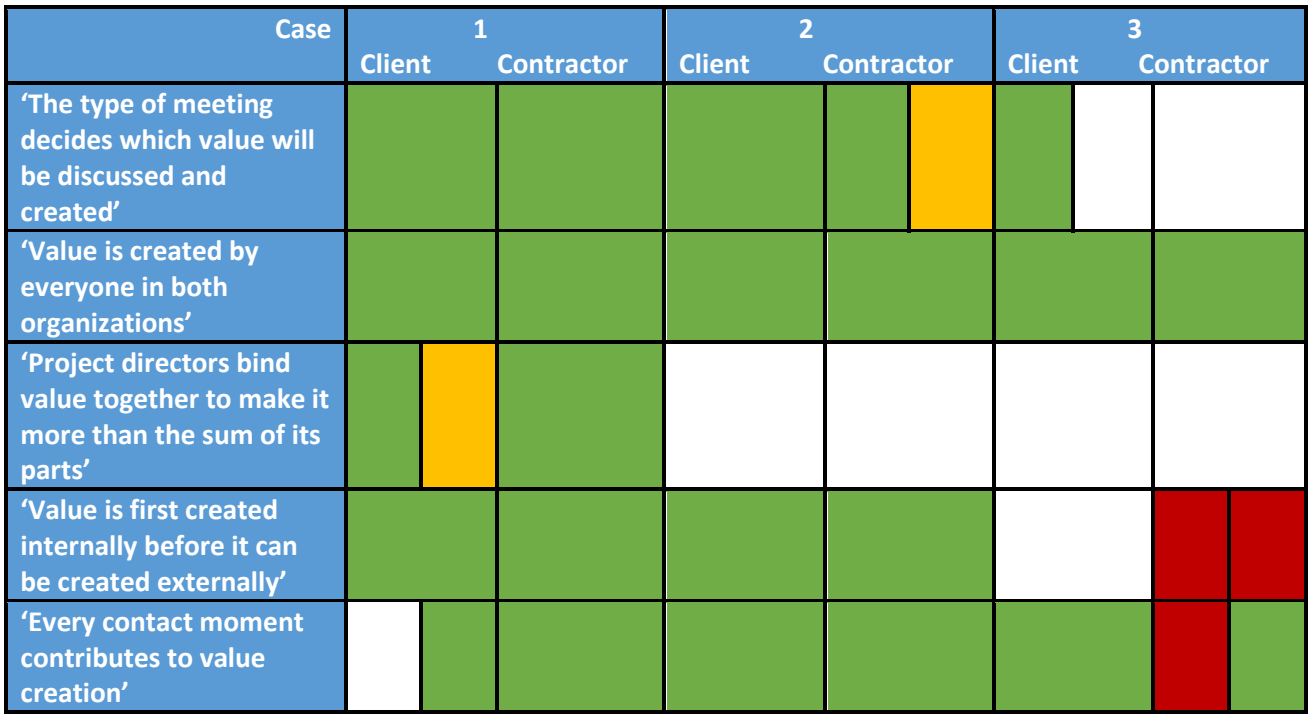
Table 38 Comparison of observations of all case studies on the external factors theme. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.

Case	1		2		3	
	Client	Contractor	Client	Contractor	Client	Contractor
'Some values are secured inside the contract'						
'Some values are base values, and need to be omnipresent'						
'Different phases of the project have different values as most important'						
'The DBFM contract ensures that some values will be held high all through the maintenance phase'						
'Constantly switching and rotating people and functions does harm to the values in a project'						

Creation of value

Table 39 shows the comparison of observations of all case studies for the final theme of creation of value. Eight interviewees indicated that the type of meeting decides which values are discussed and created, while four interviewees abstained from saying anything related. All interviewees stated that value is created by everyone in both organizations. No single person is responsible for all value creation, and all people working on the project are creating value together. Three of them find that project directors bind value together to create more value than the sum of its parts, while nine did not state anything about this. Furthermore, eight interviewees found that value is created internally first, after which it is created externally. Only two interviewees disagreed and stated that value is created internally and externally at the same time, while two other interviewees did not make any statements on this topic. Finally, ten interviewees believed that not only every person, but also every contact moment contributes to the creation of value. Only one person believed that some contact moments are so neutral that they do not contribute to positive or negative value creation.

Table 39 Comparison of observations of all case studies on the creation of value theme. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.



5.2 Value rankings comparison

This section compares the qualitative analysis of the ranking of values of the three cases. Table 40 shows a small overview of the observations from the comparison.

Seven interviewees ranked soft values over hard values for in their projects, while four did the opposite and one had a mixed ranking. Table 37 shows the observation that eleven out of twelve interviewees verbally indicated that soft values are more important than hard values, while only one stated the opposite. This implies that there are four interviewees that rank their values differently than how they actually think or talk about them.

Another observation is that eight interviewees did not follow the values that were set up by the official project documentation of their projects. Only two interviewees did, while the correct documentation for two others is missing.

Furthermore, the values that interviewees of the organizations have, often do not match internally. In all three cases, the contractor's interviewees have shown that they have a vastly different set of rankings of their values, while this only occurs at one client. The interviewees of the client of case 2 do show overlap in their rankings, while the client's interviewees of case 3 shows neither overlap nor big differences. So not only do the interviewees' rankings differ from the project documentation, that often prescribes the desired values for the project, they also often differ from each other. The values between the organizations do also not match, as was also found in the literature review.

The perception of each other's values is very poor. Only one out of the twelve interviewees perceived the values of the other organization somewhat correctly. Most of the other eleven did not even come close to a correct perception.

Table 40 Comparison of observations from the value rankings. The green box indicates a positive answer, a red box indicates a negative answer, the white boxes indicate that no statement was made on that observation, and the orange boxes indicate that that interviewee made a statement on the observation that was neither a yes or a no.

Case	1		2		3	
	Client	Contractor	Client	Contractor	Client	Contractor
Soft values are ranked highest						
Hard values are ranked highest						
The ranked values reflect the values from the project documentation						
The values of an organization match internally						
The values between organizations match						
The organization has a good perception of the other organization's value priorities						

Table 41 shows all the value sets as ranked by the interviewees. The soft values have lighter colours, while the hard values have darker colours. Five of the six interviewees chose trustworthiness as a value for their top 10. All of those five put them in their top 3 values. No other value is as much represented in the top 3 as trustworthiness. Other notable rankings are accountability, which is ranked in the bottom 2 five times; efficiency, which is ranked in the bottom 4 five times; profitability, also ranked in the bottom 5 all six times. Some values, such as quality and integrity are all over the rankings, and show no real patterns. Transparency and integrity are more in the middle of the rankings. Overall, soft values are chosen before hard values, and most values are found in a pattern.

Table 41 Comparison of the value sets of all clients across all cases.

#	Client's rankings					
	Case 1		Case 2		Case 3	
1	Openness	Equality	Trustworthiness	Trustworthiness	End-user Satisfaction	Safety
2	Trustworthiness	Trustworthiness	Integrity	Collaboration	Quality	Quality
3	Integrity	Leadership	Collaboration	Transparency	Trustworthiness	Integrity
4	Collaboration	Transparency	Quality	Integrity	Transparency	Reliability
5	Transparency	Safety	Expertise	Safety	Safety	Efficiency
6	Accountability	Profitability	Safety	Reliability	Profitability	Profitability
7	Efficiency	Quality	Transparency	Efficiency	Integrity	Responsibility
8	Quality	Integrity	Profitability	Quality	Efficiency	Transparency
9	Safety	Efficiency	Efficiency	Accountability	Innovation	Accountability
10	Profitability	Accountability	Accountability	Profitability	Accountability	Innovation

Table 42 shows the value sets of the contractors across all cases. Again, trustworthiness is a top 2 value, but only three interviewees added this value. All interviewees however, did add collaboration, which they all ranked between rank 3 and 8. Safety ranks first three times, but is also listed as 5th, 7th

and 9th. Profitability is found at the 2nd spot twice, but also at the 9th and 10th place. These disparities are found in table 42 for almost every value, except trustworthiness. No other patterns are found.

Comparing table 41 and 42 shows that trustworthiness is added to the value set by 8 interviewees and is always put in one of the first three spots by managers from both organizations. No other value comes close to this score, because they all show huge disparities. Trustworthiness is therefore seen as one of the most important values. This supports a quote of multiple interviewees: "without thrust, there is no project".

On the other side, the least important value seems to be accountability. 5 of the 6 managers of the public organization put this value on the 9th or 10th spot. 4 of the 6 managers of the private organization put this value on the 8th, 9th or 10th place. This shows that most managers do not find this value important. This is also supported by some interviewees who stated that they would rather not talk about accountability, and have that all clear in the contract. They found that there is a negative ambiance around this value, which should rather be avoided.

Table 42 Comparison of the value sets of all contractors across all cases.

#	Contractor's rankings					
	Case 1		Case 2		Case 3	
1	Safety	Transparency	Safety	Efficiency	Trustworthiness	Safety
2	Trustworthiness	Trustworthiness	Reliability	Profitability	Quality	Profitability
3	Openness	Openness	Integrity	Collaboration	Transparency	Accountability
4	Collaboration	Integrity	Quality	Quality	Integrity	Efficiency
5	Efficiency	Accountability	Collaboration	Safety	Collaboration	Expertise
6	Quality	Quality	Efficiency	Integrity	Leadership	Transparency
7	Transparency	Collaboration	Profitability	Transparency	Safety	Openness
8	Integrity	Efficiency	Accountability	Reliability	Profitability	Collaboration
9	Profitability	Safety	Transparency	Accountability	Accountability	Quality
10	Accountability	Profitability	Leadership	Social justice	Efficiency	Integrity

Table 43 shows the client's perception of the contractor's values for all cases. The table shows that the client perceives the contractor with a mix of hard and soft values as their highest rankings. The highest perceived value is safety, which is perceived on the first and second place both two times. Efficiency is perceived on the first place once, but all the other interviewees do not find this a high-ranking value for the contractor. The same goes for accountability, it is ranked first place once, but the other interviewees place it low. Another pattern that is found is that transparency is ranked relatively low, with no higher rankings than 5th place. No other patterns were found in this table. Most values are perceived precarious.

Table 43 Comparison of the client's perception of the contractor across all cases.

#	Client's perception of the contractor					
	Case 1		Case 2		Case 3	
1	Openness	Safety	Safety	Efficiency	End-user Satisfaction	Accountability
2	Trustworthiness	Leadership	Collaboration	Safety	Trustworthiness	Safety
3	Integrity	Quality	Trustworthiness	Reliability	Integrity	Quality
4	Collaboration	Profitability	Profitability	Accountability	Quality	Profitability
5	Transparency	Equality	Integrity	Profitability	Innovation	Efficiency
6	Accountability	Trustworthiness	Quality	Integrity	Safety	Reliability
7	Efficiency	Efficiency	Expertise	Collaboration	Transparency	Transparency
8	Quality	Transparency	Transparency	Trustworthiness	Profitability	Integrity
9	Safety	Integrity	Efficiency	Quality	Accountability	Responsibility
10	Profitability	Accountability	Accountability	Transparency	Efficiency	Innovation

Table 44 shows the contractor's perception of the client from all the interviewees. Five interviewees perceived that safety was the number one priority of the client, while one gave it a 2nd place. Profitability was perceived low by the contractors; it was ranked last three times. Transparency is ranked 7th four times, and 4th two times, which shows that it is perceived somewhere in the middle and about the same by the contractors. Again, a lot of the values show disparities in rankings. No other patterns are therefore visible in the data. This means that most contractors perceive most of the values differently.

Comparing tables 43 and 44 shows that 10 interviewees find that the other organization ranks safety extremely high (1st or 2nd place). Apparently, the working environment is stimulating towards safety creation or attention to safety, since both organizations think this is the most important value of the other organization. In reality however, as tables 41 and 42 show, safety is only one time in the top 3 for the public organization and three times in the top 3 for the private organization. This description supports the observations made in table 40, where it is shown that the organizations have no idea what values are most important for each other.

A comparison of table 43 and 44 shows that the highest ranked value trustworthiness of tables 41 and 42 is not always perceived as high by the other organizations.

Table 44 Comparison of the contractor's perception of the client across all cases.

#	Contractor's perception of the client					
	Case 1		Case 2		Case 3	
1	Safety	Safety	Safety	Safety	Trustworthiness	Safety
2	Trustworthiness	Collaboration	Accountability	Efficiency	Safety	Quality
3	Openness	Accountability	Integrity	Profitability	Quality	Accountability
4	Collaboration	Trustworthiness	Collaboration	Collaboration	Transparency	Transparency
5	Efficiency	Openness	Quality	Quality	Accountability	Efficiency
6	Quality	Profitability	Reliability	Integrity	Integrity	Openness
7	Transparency	Transparency	Transparency	Transparency	Leadership	Expertise
8	Integrity	Integrity	Leadership	Reliability	Collaboration	Collaboration
9	Profitability	Efficiency	Efficiency	Accountability	Efficiency	Integrity
10	Accountability	Quality	Profitability	Social justice	Profitability	Profitability

5.3 The function and use of informal contact moments

The research is now able to answer sub-question 5: *What are the informal contact moments according to practice and what is their function?* An overview of the functions of ICMs, FCMs and their functions and relationships can be found in figure 13.

Across all three cases it is seen that informal contact moments have two functions. Its first function is as a preparatory and evaluating moment before, or after a formal contact moment. Matters are discussed that are coming up in the next formal contact meetings, or matters are talked through again after a formal contact moment. This function ensures that both organizations are on the same page with each other and do not surprise each other at the formal contact meetings with new issues or opportunities.

The second function is to create soft values with the counterpart of the other organization. The soft values are regarded as prerequisites for a lot of other values. By building trust and integrity between counterparts, other values such as collaboration are created. This has a positive effect on the formal contact moments as well.

Almost all cases had the same informal contact moments: phone calls; e-mails; texts; coffee or lunch breaks; getting dinner & drinks; and work related ICMs. Work related ICMs are contact moments that are scheduled to discuss project matters and do not fall inside the formal contact moment structure. Most ICMs fall in this last category of work related ICMs.

ICMs are also far more used than FCMs in projects. As ICMs are held daily, the frequency of FCMs is around once a month. One of the aspects that the interviewees liked about ICMs is the informal and no consequence character that they have. Project members are able to speak more freely without legal consequences or hurting the project. They can offer their support on difficult issues for the other organization or can help with problem solving without any official documentation or action points that registers these things. The overview of ICMs per case is found in table 34 in chapter 4. The frequency is dependent on the phase of the project.

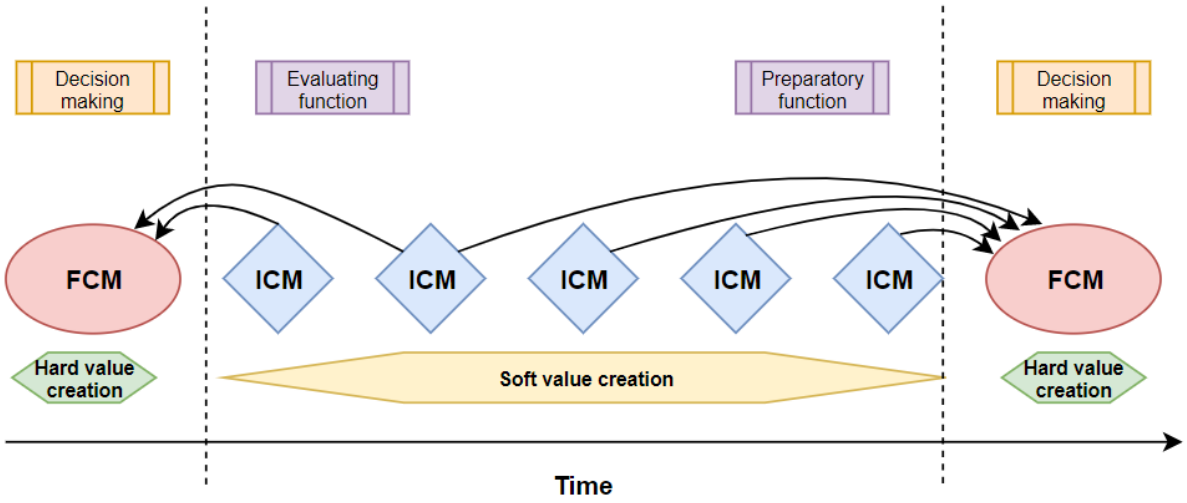


Figure 13 Overview of ICMs, FCMs, their functions and relationships. Own figure.

5.4 Conclusion of the cross-case analysis

This chapter presented a cross case comparison of all themes and of all value rankings and perceptions of the three cases in chapter 4. Multiple observations arose from every theme and the value rankings.

Two underlying concepts on contact moments are found in this cross-case comparison. These concepts are *expected value* and $\Delta value$ of contact moments. Every contact moment has an expected value and a $\Delta value$. These two concepts are used in the expert meetings and the interpretation in the following chapter.

The expected value of a contact moment is the value that is expected to be created at the upcoming contact moment. Expected value can be one or multiple public values at once. To create expected value, communication between the public and private organizations is necessary before a contact moment occurs. A good opportunity to create expected value is by preparing FCMs during ICMs. Both organizations need to know what topics and values are going to be discussed and what the goal of the contact moment is. If these are both missing, it is difficult to know what the expected value is of a contact moment before it takes place. In this situation, the contact moment might have negative expected value. Realizing one's expected values should be the goal of every contact moment. If the expected value of a contact moment is realized, all attendees are content with the contact moment.

The $\Delta value$ of a contact moment is the value that is actually realized by having the contact moment. This value can be any or multiple of the public values. The 'hard value creation' and 'soft value creation' boxes in figure 13 are both examples of $\Delta value$. In an ideal situation, all expected value of a contact moment is also realized when having the contact moment. However, $\Delta value$ is not limited to expected value only. $\Delta value$ also encompasses values that were not expected or negative values. Creating positive $\Delta value$ is extremely important for contact moments, since it ensures progress in the project.

CHAPTER 6 INTERPRETATION

The goal of this chapter is to answer sub-question 6: *How do contact moments contribute to the creation of value?* To get to an answer, expert meetings were held with both organizations. The data from the interviewees, the analyses and both expert meetings are interpreted per theme and the value rankings throughout sections 6.2 to 6.7. The data from the expert meetings is found in appendix F & G. All five themes that are present in the data structure of section 4.1 are discussed and interpreted, as well as the value rankings. Section 6.8 then concludes on the chapter and answers sub-question 6.

6.1 Expert meeting

Two expert meetings were held after the cross-case analysis was finished. One expert meeting was held with four project members from the private project organization of a DBFM project. The second expert meeting was held with three project members from the public project delivery organization of the same DBFM-project. All participants are considered experts on the area of DBFMs and infrastructure projects with multiple years of experience.

The goal of the expert meetings was to discuss the observations of the cross-case analysis in order to improve the interpretation. By discussing the observations, the experts explained problems, offer solutions and insights related to them. By holding an expert meeting with both organizations, the findings of the research can be enriched, because issues, solutions and new insights are now elaborated on from both sides.

Both sessions took 1.5 hours and started with a brief presentation to get everybody up to speed on the research. Subsequently, a discussion was held on the five themes and the value rankings, all presented in this chapter. The experts were asked to participate in the discussion from a general DBFM-expert point of view, and not from the point of view from the current DBFM-project they were working on. The Dutch summaries of the expert meetings are found in appendix F (expert meeting with the contractors) and G (expert meeting with the clients).

See table 45 below for all statements that were discussed in both expert meetings. These statements are either directly derived from the observations or are put in a way that they are more controversial, in order to provoke a reaction. Only 12 observations from the analysis were discussed because of time constraints. All five themes and the comparison of the value rankings were discussed. A selection criterion for these statements was the ability to contribute to the answer of sub-question 6.

Table 45 Statements that were discussed in the expert meetings.

Theme	Statement
Elements of contact moments	*A good preparation and evaluation at the end of a contact moment are necessary to create value.*
	The goal of a contact moment is not always reached.
Contact moment Structure	*Informal contact moments create more value than formal contact moments.*
	What is the balance between informal and formal contact moments?
Values in contact moments	*Soft values are more important than hard values in contact moments.*
External factors	*Different values are important in different phases of the project.*
	Integrity and quality are never discussed with the other organization because they are base values.
Creation of value	*Every value needs their own contact moment.*
	All formal and informal contact moments create value.
Value rankings	*The values in the project documentation are almost always deviated from.*
	There are a lot of different values regarded most important within the organizations.
	The organization has no clue what values are most important for the other organization.

6.2 Elements of contact moments

A lot of different soft and hard elements of contact moments contribute to a positive outcome. Good contact moments are more likely to create positive $\Delta value$ than poor contact moments. Both the interviewees and the expert support the ideas that evaluations and good preparations directly create value. The experts however, stated in both expert meetings that contact moments are not always well prepared, especially in the earlier phases of a project. The responsibility for this problem lays in the hands of the contractor, the experts of the client believed. The experts of the contractor however, felt that this is a joint responsibility. Discussing this responsibility between both organizations should be done to create more $\Delta value$.

The biggest reason of poor preparation is the time constraint. The contractor has to set up a whole project organisation, build and maintain relationships, and plan and execute the project. This does leave little time for good preparation for the numerous informal contact moments (ICMs) and the low frequency formal contact moments (FCMs). Contact moments that have been prepared well, do create more value, the experts and the interviewees found. While contact moments that are not prepared well, often directly deteriorate value. ICMs however, do not require as much preparation as FCMs. ICMs must retain their informal character, extreme preparations might make the meeting to formal.

Evaluations at the end of a contact moment would also be beneficial for expected value and $\Delta value$. The evaluations help to gain insights on what the actual $\Delta value$ was of the contact moment, since all attendees are reminded what values were discussed and created. The experts also indicated that evaluations will benefit against deterioration of value, because the evaluation ensures that all attendees know what was said during the contact moment; who is responsible for what actions in the coming weeks; what agreements or disagreements were made; and what need fine-tuning in informal contact moments. Without evaluations, agreements might be misinterpreted or forgotten; action points might not be executed and information is forgotten, which results in a loss of value.

Another deterioration of value related to hard elements that is often named is being on time for meetings. Being late deteriorates the values that counterparts have created with each other. Expected values of the contact moment are then already lowered before the actual meeting takes place. The findings suggested that some people are always ten minutes early or late, and others are always exactly

on time. This issue seems obvious but is often still neglected in practice, the experts felt. Clear communication on what it means to be on time is important and should be discussed at the very start of a project.

The goal of a contact moment is often not reached. This is a statement that all the interviewees made and that the experts also agreed on. While the interviewees stated that this is not necessarily a bad thing, the experts believed it is. Not reaching the goal occurs more often in earlier stages of the project, when everybody is still finding their spot and looking for the right things to do. The experts believed that this problem occurs because the goal of contact moments is often not clearly discussed and aligned between the organizations. Expected value of a contact moment is hard to define when there is no mutual goal to achieve. Both organizations then come with different goals to the contact moment and both might not create their expected values. The $\Delta value$ of these contact moments are often very low, or negative. Inefficiency during the contact moment is another reason named for not meeting the goal of a contact moment.

The problem can be avoided by discussing and sharing goals before the contact moment takes place. This is a joint preparation of future contact moments. Joint preparation creates expected value for the next time contact moment, which makes it easier to realize expected values. For FCMs it is suggested to share all your goals and provide an agenda for the upcoming contact moment. For ICMs it is suggested to only share your main goals beforehand.

Concluding, the hard and soft elements of contact moments contribute to value creation by creating expected value and $\Delta value$. Expected value is created through evaluations; setting a goal for contact moments; and joint preparation of contact moments. Positive $\Delta value$ is created through good preparations; being on time; evaluations and reaching the goal of the contact moment. These elements have all been identified by both the client and the contractor and should be applied to both sides. Figure 14 below shows what elements of single contact moments contribute to expected value and

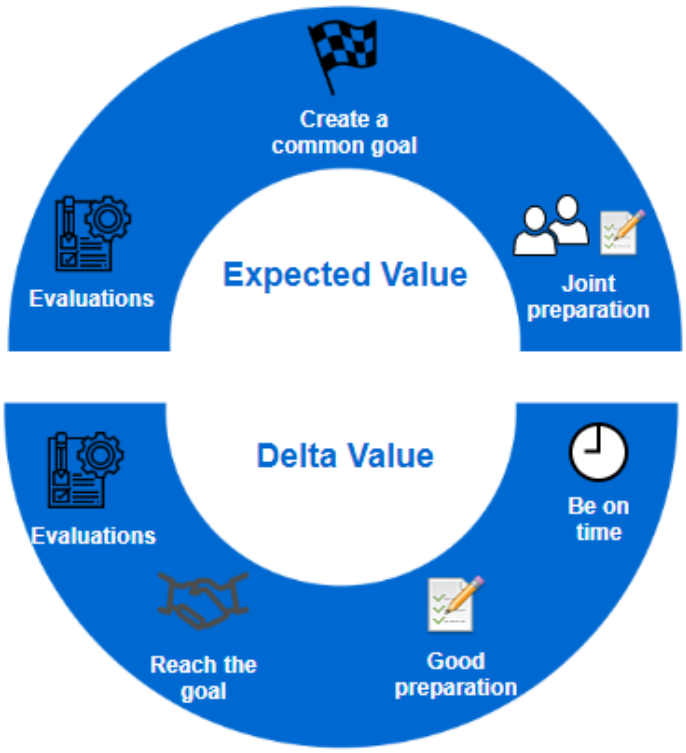


Figure 14 All elements that contribute to value creation, sorted at expected and delta value. Own figure.

6.3 Contact moment structure

The perfect contact moment structure is highly debated. The interviewees believed that there is no such thing as a perfect contact moment structure, because every project is unique and needs a different structure. The findings of this research do not prescribe a set of contact moments that should be used in a perfect structure, but do make suggestions on what elements of ICMs and FCMs should be woven into a perfect contact moment structure. These elements are found below.

The findings suggest to have a perfect balance between ICMs and FCMs. This balance is an almost daily use of ICMs and a bi-weekly or monthly use of FCMs. The expected value of ICMs is often lower and vaguer than that of FCMs because of its informal character. There is often no real difference in $\Delta value$ between FCMs and ICMs, both contribute equally positive or negative to it. This is also supported by half of the interviewees and all the experts, who indicated that ICMs and FCMs equally create value, but different ones. The ICMs are used to create soft values, while the harder values are created in FCMs. Since ICMs have no legal consequences, project members are able to speak more freely and open, without directly harming the project. Project members find this helpful as they can be more direct and honest too each other about their issues.

In a perfect contact moment structure, the contents of an FCM have already been discussed multiple times in an ICM. Therefore, no new issues, legal claims or topics should be raised during FCMs. The interviewees also indicated that surprising each other during an FCM was the number one thing that would make an FCM turn poor, and would result in negative $\Delta value$.

The participants in the expert meeting with the client indicated that they also encountered different behaviour from the contractor in FCMs than in ICMs. The client stated that they feel like the contractor is often holding back in the FCMs. They believed that this is due to the formality of FCMs, where everything is stricter and has legal consequences. In ICMs the flow of the conversations is often easier going and more open. The contractor does not know that this is an issue for the client, nor are they self-aware that they are behaving differently. This topic should also be discussed openly.

Almost all interviewees and all experts indicated that working in the same building as the other organization is good for the creation of value, because ICMs are much easier to attend and to create. When working in the same building, counterparts can easily discuss matters by visiting each other informally or talking over coffee or lunch. Having easy access to informal contact moments contributes positively to the project, since ICMs act as a lubricant for values, value creation and formal contact moments.

Lastly, the findings suggest to have multiple formal contact moments with an informal character, such as project start-ups (PSUs), project follow-ups (PFUs) and the BOT-meeting (Dutch: Benen-op-tafel gesprek). 11 interviewees agreed on the observation that ‘Informal contact moments following the formal contact moment structure are extremely important FCMs in a project’. Case 1 showed a unique successful contact moment that the other two cases did not have, the BOT-meeting. This meeting had high ranked managers discussing project matters in an informal way without consequences. One of the success factors was that high ranked managers normally have little time for informal contact moments. The regularly scheduled BOT-meeting ensured discussions in an informal setting. The experts of both expert meetings indicated however that the BOT-meeting is already often utilized in (DBFM) projects, but the BOT-meeting was only found as a formal contact moment in case 1.

To conclude this theme, the contact moment structure contributes to value creation with several aspects. The findings suggest that a perfect contact moment structure does not exist, because every project is unique and needs a different set of contact moments. But the findings do suggest that ICMs should be used extensively, with a daily frequency. If project members have limited time available for

ICMs, it is suggested to introduce a BOT-meeting. This meeting follows a formal contact moment structure but has an informal setting. The informal setting and the ability to speak without legal consequences in ICMs allow the creation of soft value in ICMs. FCMs should be held bi-weekly or monthly. The ability to make legal decisions in FCMs allows for the creation of hard value. These insights on the contact moment structure are helpful for both the client and the contractor. Figure 15 shows all elements that the contact moment structure should contain to optimize value creation.

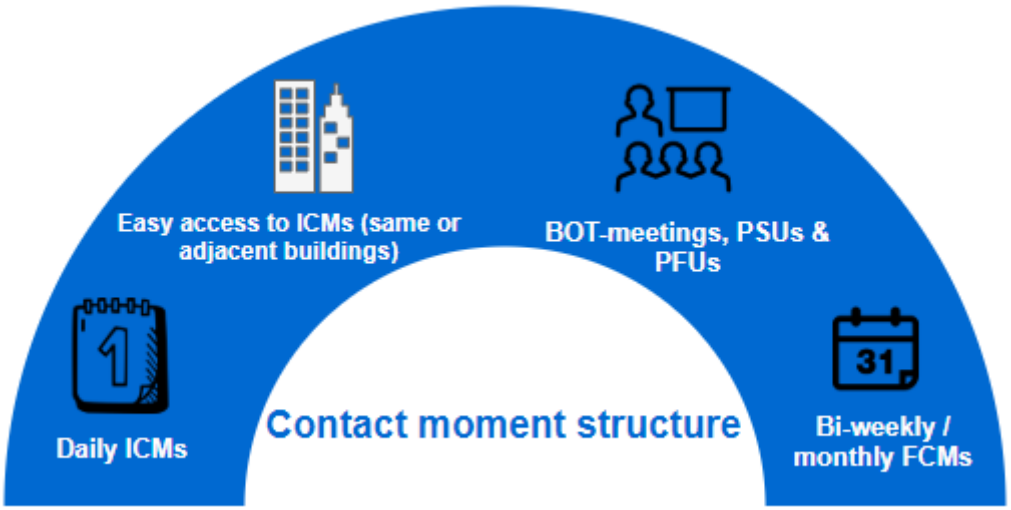


Figure 15 Findings for the contact moment structures to optimize value creation. Own figure.

6.4 Values in contact moments

The soft values are more important in a project than the hard values. This statement is supported by almost all interviewees and all experts of both meetings. Big DBFM infrastructure project require a lot of human interaction between both organizations. The human interaction and relationships are built on soft values. Multiple participants of the expert meetings and some interviewees however stated that discussing soft values is often difficult because they are so personal. It is even harder to discuss soft values in the earlier phases of the project, since people don't know their colleagues or counterparts yet. Without a base relationship between two people, discussing soft values can exceed personal boundaries.

Soft values are also more prerequisite for hard values than the other way around. Building and maintaining a good relationship on soft values between counterpart improves the hard values as well. The findings suggest that the soft value that is perquisite for other values the most is trustworthiness.

In both expert meetings, the experts indicated that the building industry suffers from too much hard values and too few soft values. While the soft values are more about the people and social interaction between them, the hard values are more about the contents of the project. The industry is a hard business based on hard values, the findings suggest. This is another reason why soft values often go undiscussed, it is the nature of the industry. The experts stated that they regret this, and would like to have a bigger stage for soft values.

Soft values are the basis of a project and the relationship between project members. They should be created as soon as possible in every project. ICMs help to create soft values between two people. Specific ICMs such as PSUs, PFUs and BOT-meetings are even more helpful to build soft values and relationships. It is advised to go even a step further, as the experts also desired. PSUs and PFUs

are only once or twice a year. This frequency is to low, especially at the start of a project, the experts indicated. This is why it is suggested to start a collaboration program between both organizations at the very start of the preparation phase of every DBFM infrastructure project. The experts in both expert meetings found that this was extremely helpful in their current DBFM project, where a pilot collaboration program is running. A collaboration program has attendees from both organizations and is once a month to discuss soft values; the soft side of the project; to build relationships; do workshops; integrate both organizations; etc. The collaboration program has an informal setting to promote soft value creation and sharing.

Lastly, all interviewees and all experts agreed that soft values are difficult to create but very easy to lose. They are therefore to be handled with extreme caution. The collaboration program helps to solve this problem.

Most interviewees and the experts in the clients expert meeting indicated that it is difficult to get to know the values of the other organization. They indicated that it is hard to know because of the closed personalities and organizations they encounter in practice. They also felt like this is a problem and deteriorates values in relationships. They indicated that a solution for this was to keep the discussion on this topic on the table, keep sharing information and really get to know each other with a soft value approach.

The participants of the expert meeting with the contractors however, stated that they fully know the values and value priorities of the other organization. They stated that through discussions in ICMs counterparts get to learn each other's values and value priorities. They also felt that learning each other's values and value priorities is important in a project.

Despite their differences in opinions, both organizations state the same solution: be open and discuss these matters. This solution is easily incorporated in the collaboration program described in the paragraph above.

To conclude this theme, the presence of soft and hard values also contributes to value creation. The findings suggest that soft values are more important than hard values, but they are also harder to create. They need to be created as early on in the project as possible. Soft values are also more prerequisite to hard values than the other way around. Even though soft values are regarded more important, the findings suggest that discussions and the creation of soft values is still not at the level that project members want. The findings suggest that this is true because the construction industry is regarded as a 'hard' industry and because of the personal characteristics of soft values. The findings suggest to introduce a collaboration program at the very start of the preparation phase. The collaboration program focusses on creating and sharing soft values and jump starts the process of value creation. This solution would be beneficial for both the contractor and the client and solves multiple issues.

6.5 External factors

Three external factors were identified in this research. The first one is the integrity value that influences contact moments. The findings suggest that integrity is something everyone should have as a person and that it should not have to be created. This is the observation made from both the interviews and the expert meetings. Integrity is a value that is rarely discussed and often approached from the negative side. The contractor's interviewees and the experts from the contractor's expert meeting both felt that integrity is still disputed and an issue because of the afterpains of the building fraud in the early 00s. This has left scars in practice that have not healed yet. They felt that the contractor is not always as open or as inviting because of these older integrity issues. The contractors however did indicate that these things are getting better every year, with the use of a better and a closer collaboration and initiatives such as the Marktvisie.

The client's interviewees and the experts of the clients however felt that this is not true. They indicated that integrity is never an issue until somebody crosses the boundary, which happens once or twice every project.

Another reason why integrity is not often discussed is because it is considered a base value. It touches the core of soft values that are inherent to every person. This core is hard to discuss and be open about towards colleges and counterparts, especially in the first phases of the project.

Both organizations marked integrity as an important value and that discussing it would be beneficial for the project. The solution for the named issues would be to discuss this value between the organizations in a comfortable setting. The goal would then be to create awareness on this value and how it expresses in practice.

A second observation from the interviewees was that the constant switching and rotating of project members to different functions or different projects is not beneficial for the project. When people rotate out of their function and are replaced by someone new, the values and relationship between the new project member and his counterpart need to be rebuild from scratch. This causes issues related to values and slow down certain processes in the project. The interviewees did indicate that this problem is however insurmountable, as people want to build their careers. A solution for this problem is to put the new project members into the collaboration program as soon as possible to accelerate value creation.

A third external factor that works on contact moments from outside is the phase (tender, preparation, execution or maintenance phase) that the project is currently in. The interviewees and the experts all agreed on this statement. All experts indicated that the earlier phases are more about creating soft values than hard values. They did not believe that this observation is an issue. They felt that if one creates understanding for the values that one prioritizes in the current phase and the phases that are to come, issues related to this are avoided. Again, discussions on personal values are very important, which are addressed and discussed in the collaboration program.

Concluding, there are three external factors identified that have influence on value creation in contact moments. The first external factor that works on value creation and contact moments is the undiscussed base value of integrity. The findings suggest that this is a base value that should be applicable for every project member. It rarely goes discussed because of historical issues and the personal character of the value. Secondly, the continuous switching of project member in and out of their functions in the project causes a loss of value. Interpersonal values that have been created need to be created with new colleagues or counterparts. The third factor is the phase that the project is currently in. Different phases require different priorities in values. This influences the values that need to be created in contact moments. All three factors influence $\Delta value$. Both the client and contractor have indicated these external factors. An overview is given in figure 16.

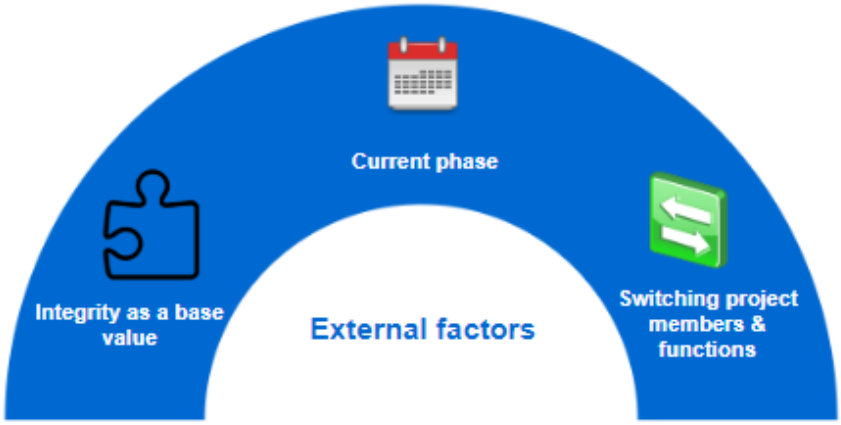


Figure 16 An overview of the external factors working on contact moments and value creation. Own figure.

6.6 Value creation

All formal and informal contact moments create $\Delta value$. The $\Delta value$ is either positive or negative value. This is an observation made from the analyses, which was later confirmed in the expert meetings. The findings suggest that all contact moments contribute to value creation, because value is created by meeting and discussing with each other. Discussing the issues that one has with certain aspects; walking through processes with each other; discussing the progress of the project phase; and talking about each other's personal lives all contribute to value creation. Value creation is inherent to contact moments.

Creating negative $\Delta value$ occurs often, but not as much as creating positive $\Delta value$. Almost all interviewees indicated that creating negative $\Delta value$ is not necessarily a bad thing. They found that not always having one's way, or having deep constructive discussions without any positive outcomes just happens in every project. They felt that it is how project members react to negative value that defines the outcome and value creation of those value losses. One solution to value loss is to go back to ICMs, where project members are able to discuss more open and freely what happened, what went wrong and how to improve.

All experts however, stated that creating negative $\Delta value$ harms the project, because it harms both the realized value for that contact moment, but also the expected value of the coming contact moments. ICMs are the solution for contact moments with negative $\Delta value$, but values are lost very easily and created much harder and slower.

These findings contradict each other. The research interprets the statements of the interviewees and the experts to both hold small truths. It is indeed not a good thing to create negative $\Delta value$ in a contact moment, because it harms the project. But since it still occurs often in projects, it is all about how one reacts to the negative $\Delta value$ in the following steps one takes in the project. Discussing the issue of negative $\Delta value$ in ICMs is the common answer that everyone gives and is advice that should be followed. This topic is addressed in the collaboration programs.

$\Delta value$ is not only created or lost by discussing matters inside the contact moments. More value is also created by preparing well before and evaluating a contact moment, as stated in the section 6.2 on elements of contact moments above. Other ways to stimulate positive $\Delta value$ are not surprising each other during FCMs with new claims, legal issues or problems; having a clear agenda; and being on time. Another way to stop values from deteriorating is by sharing personal and soft values between counterpart. The experts believed that by being open and honest one creates understanding, even if big issues arise.

Discussing project matters is the most important and contributing factor to the creation of value. Value creation can be accelerated by discussing values directly, instead of project matters. If

one talks about honesty, transparency, integrity, etc. one finds out how other project members and the other organization look at those values. By doing so, values are created more easily. The next step is then to also act on those values. Not only talk about being transparent, be also act transparent. The collaboration program, as described in section 6.4, is again a good solution to accelerate the process of value creation. It is however important to not only discuss these values; all project members should also act accordingly to these values. This should be emphasized in the collaboration program.

The findings suggest that after value is created, it is subsequently stored within project members or in legal or formal agreements. The value stored in project members are the soft values. For example, two counterparts can create trust, integrity and honesty between them. How much value there is created is stored inside them. Legal or formal agreements are decided on in FCMs, they contain statements about actions on safety or actions on efficiency for example.

The findings suggest that the storage of value inside project members is therefore personal created value. A project member might trust his counterpart, but his colleagues do not.

Value stored in legal or formal agreements is collective value, value created for everyone. Harder values are easier to create collectively, since they are often more physical values and easier to write down in a formal or legal agreement. It is difficult to create collective soft values, as honesty, integrity, trustworthiness, etc. are abstract and difficult to make agreements on.

To conclude, the research finds multiple elements on value creation in contact moments. The findings suggest that value creation is inherent to contact moments. Creating positive $\Delta value$ occurs more often than negative $\Delta value$. When the latter does occur, it is important to follow-up on this and discuss what happened in ICMs to try to resolve the issues and bend it towards positive $\Delta value$. Discussing values directly with each other has good contributions to value creation. The collaboration program supports this process. Lastly, the findings suggest that soft values are stored inside project members and they are very personal. Hard values however, are created collectively and stored inside formal agreements and legal documents.

6.7 Value rankings

The values described as important in the official project documentation are almost always neglected. This observation came from the value rankings of the interviewees. All experts also agreed on this statement. The experts of the contractor indicated that this is true because one never knows beforehand what is going to happen in a project. The listed values in the project documentation are therefore more an indication for what is important and a guideline on what to watch out for. However, they felt like this is not a problem, because by being flexible with values and by knowing that projects are subject to change one can anticipate this. By discussing these possible changes and the values listed in the project documentation one prevents any problems coming from this observation.

Setting up this list of values in the project documentation is simply the culture of this industry, the experts of the clients believed. There is often not enough time to put these values to practice, and no energy is put into these values after a project has started. They compared these values to the good intentions that people have at the start of a new year. Those intentions are also not always put to practice, but can still be main drivers in the back of everyone's mind.

Both organizations do not feel that this observation hurts their day-to-day practice. This finding suggest that the list is just a façade for the project and may be helpful during the tender phase to show good intentions, but is quite useless in the preparation and realization phase.

The findings suggest there are a lot of different value priorities inside single organizations. The analysis from the value rankings showed that few similarities were found between the rankings of all interviewees of a single organization. The experts stated that this is probably undoubtedly so, but that this is not an issue. They believed that these differences are just nuances for the same seven or eight

core values that everyone holds high. The experts also indicated that having project members with the same core values, but different priorities are beneficial for a project team. These nuances are a strength to the versatility of a team.

The client's experts also indicated that there are a lot of different departments inside their project organization structure. All those departments might have a slightly different value priority, but again these are nuances and should not be a problem. Even though there might be situations where there are conflicting interests between the departments, the goal of the project is the same. When issues do arise within the organization, the project manager has the final say over it.

The research also suggests that the organizations both have no idea what values are important for the other organization. This observation was found due to the low similarities in the value perception rankings that both organizations did for each other. Some interviewees did indicate that they feel like they know what values are important for the other organization, but their value perception rankings show differently.

The experts discussed this observation in the expert meetings. The experts of the contractor found this observation to be false. They believed that they are fully aware of the values that are most important for the client. They stated that they have this knowledge by discussing this problem with the client and directly asking them what values are important for them. The experts stated that this was not always the case, as soft values are nowadays more a hot topic than before. The Marktvisie initiative of 2016 as really helped for this. They concluded that knowing the values of the other organization is important, since this smoothens the processes in a project and creates more positive $\Delta value$.

The client's expert however, agreed with the observation, because there is often a consortium consisting of multiple different companies behind the private project organization. They have poor insight into the values, the goals and motives of both the private project organization and the organizations in the consortium. Therefore, they indicated that it is difficult to observe and predict the value set and motives of the other organization.

It is odd that the private organization experiences transparency in values, while the public organization does not. This could be because the private organization overestimates their capabilities to understand what values are most important for the public organization. Another possibility is that the public organization is a more transparent, honest and open organization than the private organization. Therefore, the contractor has an easier time getting to know the important values of the public organization.

A solution for this problem is value sharing, for example in the collaboration program as mentioned above. Sharing important values helps to create more understanding and $\Delta value$.

Furthermore, the findings suggest that trustworthiness is the most consistent important value across all projects. The value was first added to the value set by most interviewees, after which it was consistently put in the top 3 of most important values. This value should therefore be central in collaboration programs, where it is created at the very beginning of every project.

The findings also suggest that accountability is the least important value of the value set of this research. This value should have lesser priority to be created, but should not be discarded easily. This is because this research only looked at the top 10 values. Out of all available values, accountability could still be important.

Lastly, the findings suggest that both organizations perceive safety as the most important value for the other organization. But in their own value rankings, they do not rank safety high. This could imply two things: 1) that towards each other, both organizations constantly press the highest need for safety and discuss it, while internally the organizations have other value priorities, and 2) that both organizations care more for safety than they show in the value rankings.

To conclude, the value rankings and value perceptions have shown multiple insights on the exact values that are being created in contact moments. First, the official project documentation prescribes a value set that is almost always neglected by project members. The usefulness of this list is therefore questioned during the preparation and realization phase. Furthermore, there are a lot of different value priorities inside both organizations. This is however considered useful, because these priorities are caused by nuances or different departments in the organization. The research also found that both organizations have no idea what values are most important for the other organization, which can cause serious problems. This issue is resolved with the collaboration program, where values and value priorities are shared. Subsequently, trustworthiness has been found to be the most important value in a project, while accountability was the least important of the given value set. Lastly, the findings suggest that safety is perceived as the most important value for both organizations. This indicates that both organizations strive for the highest level of safety and also act on it. Figure 17 shows an overview of the findings of the value rankings.

Figure 17 Overview of the findings on the value rankings. Own figure.

6.8 Conclusion

Before going into sub-question 6, sub-question 3 is reviewed. This sub-question was answered from a literature point of view in chapter, and is now also looked at from a practice point of view. The data from the interviews and expert meetings show a different answer than literature to sub-question 3: *how is value created in DBFM infrastructure projects?* The interpretation shows that value is created in contact moments when the project teams of both organizations discuss the project. These discussions are pure value creation (positive $\Delta value$) according to the interviewees and experts. Value cannot be created without the public and private organization working together and discussing project matters in contact moments. This practical answer is an addition to the answer of sub-question 3 from the literature perspective. Figure 18 shows an overview of the answer to sub-question 3 from the literature and the practical perspective.

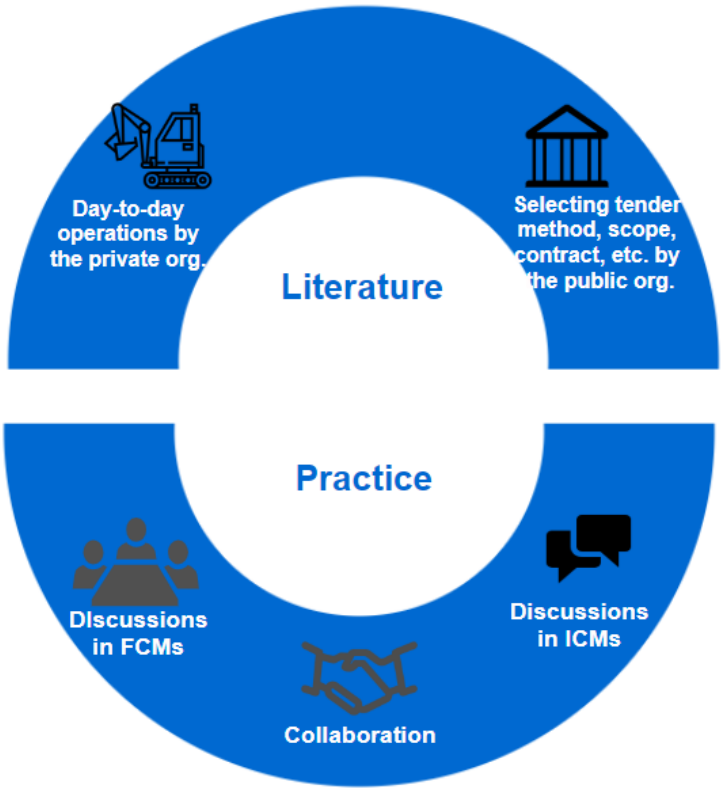


Figure 18 Sub-question 3 answered from both literature and practice. Own figure.

With both the analyses and the supportive expert meetings interpreted, the research answers sub-question 6: *How do contact moments contribute to the creation of value?* FCMs contribute to value creation with their legitimate nature and decision-making power. ICMs contribute to value creation with their evaluating and preparatory function, as well as their no consequence nature. It is however still vague how single contact moments contribute to value creation for the overall project. But the findings do suggest that contact moments are the building blocks for overall project value and smoothen the processes of a project.

Two different contact moments have been defined, the ICMs and the FCMs. The data supports the theory that every contact moment contributes either positively or negatively to value creation. Interviewees even stated that having contact moments is pure value creation. Figure 19 shows an overview of how ICMs and FCMs contribute to value creation.

The FCMs are used for their legitimacy and decision-making power. Inside these meetings, project related aspects are decided on and made official. These meetings therefore have a more formal setting and need to be well prepared. The decisions that are being made are about the contents of the project, which contain hard values. Therefore, the FCMs create hard values. For example, decisions are made on which processes are used for constructing the infrastructure; safety protocols for the workforce are discussed and secured in the contract; or the definitive design of the infrastructure project is made official. Soft values are harder to make formal decisions on. Values such as honesty and integrity cannot be put on paper easily. These personal values are more interpersonal between two project members. The FCMs create the collective values, which are created for everyone.

ICMs contribute to value creation by building relationships between the project teams of both organizations. All project team members are the ones who create value. By having a good relationship with each other, there is smoother and more value creation. Since ICMs have no legal consequences, project members speak more freely and open, without compromising the project. Project members find this refreshing as they can be more direct and honest too each other about their issues. The ICMs

therefore act as a lubricant for the whole project. By constantly having ICMs and discussing project matters, the project progresses and values are created. ICMs create soft values, but because of their preparatory and evaluating character for FCMs, they also create hard values. In ICMs, discussions about the upcoming FCMs take place. These discussions are on contents of the project and therefore also create hard values.

Projects need both FCMs and ICMs equally because of their different nature and the different values they create. But a perfect contact moment structure cannot simply be defined because every project is unique and needs a different structure. Having easy access to ICMs however, is recommended, as they allow for easy information sharing and building strong relationships between the project teams. Having both organizations in the same building allows for easy access to ICMs. The collaboration program is also successful for value creation.

Figure 19 Features how formal and informal contact moments contribute to value creation. Own figure.

This chapter gave opposing views of the client and contractor in relation to value creation in contact moments. But the findings suggested that they both ran into the same problems and solved these with the same solutions. In the paragraph below, the most notable differences between both organizations are indicated, as well as the aspects that the organizations would like to see changes in at each other's organization. The organizations can improve on these aspects.

The contractor believes that they have a correct perception of the values of the client. The findings of the research however, state otherwise. They are able to learn more about this in a collaboration program. They are found to be behaving differently in ICMs than in FCMs. The client would like to see the same open behaviour at all times. Another aspect that the client would like to see improvements on is the preparation of contact moments. The client finds that the contractor is too often not prepared enough in their ICMs and FCMs, which can result in a loss of $\Delta value$. While the client believes this is the responsibility of the contractor, the contractor sees the preparation of contact moments as a joint responsibility.

CHAPTER 7 DISCUSSION

The goal of this chapter is to discuss the contribution of the findings to current literature and to show the limitations of the research. Section 7.1 shows how the findings of this research compare to current literature. Section 7.2 subsequently discusses the limitations that the research has.

7.1 Contribution of findings

The research studied the problem at Dura Vermeer that some contact moments between the public and private organizations in DBFM infrastructure projects do not contribute towards value creation, and sometimes cause a loss of value. Current literature did not study this topic, but scholars did study the adjacent topic of public values in public-private partnerships (PPPs). This research jumped into the research gap of value creation inside contact moments between the public and private organizations in Design-Build-Finance-Maintain (DBFM) infrastructure projects. In an ideal situation, the findings of this research contribute to more value creation in contact moments between both organizations in future projects. This section discusses the relevancy and significance of this research and its findings.

Current literature on how public value is created is divergent. Kuitert et al. (2018) state that public value is first embedded in the contract by the public organisation by choosing the right tender methods, contract models and performance measurements during construction. They stated that the public organization chooses how and which public values should be created and safeguarded in the project. Other researchers found that the private organization is responsible for the creation of public value [Lenferink et al., 2017; Eversdijk, 2013; Van Der Steen et al., 2013; Porter & Kramer, 2011]. The findings of this research do not contradict the literature, but show an addition. This research finds that public value is created interpersonal, by continuously discussing project matters between the public and private organization. This statement was made by all interviews and verified later in the expert meetings. The differences in findings between literature and this research are appointed to the fact that this research specifically looks into the contact moments that the organizations have with each other, while literature hasn't studied this topic yet.

Other findings were that a collaboration program would be beneficial in the issues that arise in contact moments and value creation. This finding nor any other forms of interorganisational collaboration programs have not been researched in the literature review.

The hard and soft elements that contribute to contact moments have been reviewed in the literature study. It was found that having a clear mission and strategy, ensuring a quality agenda, stimulating everybody in the meeting process, having definitive start and ending times goals and awareness of each other's values were important in contact moments [Leach et al., 2009; Savage et al., 2010; Rogelberg et al. 2007). Most of these soft and hard elements have also been found as findings in this research for value creation in contact moments. The most important ones were preparation, evaluation and having a clear goal. The findings of this research act as a verification for the findings in the literature, as well as an addition: the evaluations.

Lastly, safety was added to the value set in chapter 2 without occurring in literature. The findings of the research suggest that this value is important, as multiple interviewees ranked the value high on their lists. Safety was also perceived the highest value at each other's organization. These findings contradict current literature, that does not find safety an important value.

7.2 Limitations of the research

The literature review in chapter 2 proposes a value set. This research limits itself by choosing a value set that is based on the framework that Kuitert et al. (2018) introduced in their research. Furthermore,

in the value set of this research, two extra values were added that were not considered important following the value framework in section 2.4. The values of profitability and safety were manually and subjectively added. These values had little support from literature, but did have support from practice. These two values are subjected to the conversations the researcher had and the articles the researcher read. This is a serious limitation because the research chose its own values instead of following the literature. The findings of the research showed that safety was indeed considered important, but profitability was not as much.

Not all interviewees in the cases were direct counterparts of each other. Some of the interviewees in the same case were operating on different levels within the project and did not have contact moments with each other. They might have encountered different situations and issues than other interviewees. The interviewees of case 3 only had matching counterparts; case 1 had 2 interviewees that were counterparts; and case 2 had 0 interviewees that were also counterparts. However, the comparisons in chapter 5 show that there are not more or less similarities in the value rankings because of this limitation. Both counterparts and non-counterparts show the same issues and have different rankings.

The data structure was constructed following the method of Gioia et al. (2013). They described a technique to analyse a lot of data by coding and organising it first in 'first order concepts'. Afterwards, these concepts are further grouped and analysed into 'second order themes'. This research found 14 first order concepts which resulted in 5 different overarching second order themes. The first order concepts were grouped in the second order themes subjectively. There are multiple ways to group all the first order concepts in second order themes, which could all lead to different results of the interpretation. Good examples of first order concepts that could be placed under multiple second order themes are: 'values secured in the contract' and 'base values'. Both could be placed under the 'values in contact moments' theme.

The chosen method of analysis of Gioia et al. (2013) allowed the research to effectively analyse a lot of interview data. But it limited the view of the research to the 5 themes that were constructed out of the data. Other analysis methods could have resulted in either a broader or a more detailed

The research also failed to identify the connection of how value that is created inside contact moments contributes to overall project value. The research stated that the contact moments between both organizations create value internally (between organizations and people) and externally (towards stakeholders, end-users, etc.). But it didn't connect these two concepts of internal and external value creation to overall project value creation.

Lastly, the cases in the research are picked from the pool of DBFM infrastructure projects that Dura Vermeer has. This is a limitation because the findings might only apply to Dura Vermeer, and not to other construction companies. The pool of DBFM infrastructure projects was also limited in its size.

CHAPTER 8 CONCLUSION & RECOMMENDATIONS

The goal of this chapter is to answer the research question and to give recommendations. The research question is:

How can contact moments between the public and the private organizations within the project organization be optimized to create more value in Dutch DBFM infrastructure projects?

Chapter 8 starts with answering all six sub-question in section 8.1. After which the research question will be answered in section 8.2. The research gives recommendations for future research and for practice based on its findings in section 8.3. Finally, section 8.4 provides a personal reflection on the research.

8.1 Answers to the sub-questions

To answer the research question and tackle the problem statement, six different sub-questions were drafted that are a step-by-step guidance towards the main research question.

This research studied the contact moments between the public and private organizations in DBFM infrastructure projects. In order to do so, it must first be known how these organizations are structured. This led to the first sub-question.

1. *What are the organizational structures used in DBFM infrastructure projects?*

In a DBFM project, both the public and private organization use a hierarchical traditional divisional organization structure and have their own project organization structure and project members. Having the same organizational structures provides multiple advantages for both organizations. Both organizations form the combined project organization (CPO) together. The private project organization is led by the Special Purpose Company (SPC). The SPC is a legal entity that is created by a consortium to sign the DBFM contract, ensure a financial structure for the project and isolate the participating companies from financial risks or failures. The SPC is led by a few high ranked managers of a or multiple private companies. The SPC then contracts another self-created organisation to engineer the project: the Engineering, Procurement, Construction & Maintenance company (EPCM).

Project organization structures come in different shapes and forms. For almost every organization, including DBFM project organizations, Mintzberg's (1979) organizational structure is found. This hierarchal structure contains the strategic apex (the top), the middle line (managers) and the operating core (workforce). These three levels work together with the organization's support staff and technocracy. The biggest and most important level during the preparation and realization phase is the middle line. The middle line managers smoothen the process of project preparation and realization.

2. *What is value for infrastructure projects?*

"Anything capable of being appreciated (wished for) is a value", drafted by Robert Park and E. W. Burgess. Public value are "Those [values] providing normative consensus about (a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (b) the obligations of citizens to society, the state and one another; and (c) the principles of which governments and policies should be based" (Bozeman, 2007, p. 17). The most important values in infrastructure projects are efficiency, integrity, profitability, accountability, safety, transparency and quality.

Value is an ambiguous concept in literature. Countless (similar) definitions are found on the subject. There is also the value perception problem that Allport et al. (1960) found almost 60 years ago, and is

still cited today. Their theory is that there are six different perception to value. The shape of one's perception comes from the context of a value-problem or context of one's own life.

Due to the ambiguity of value, an ambiguous definition of value is chosen. This ambiguous character however, is not necessarily a bad thing, since this research demands a subjective (and context related) value perception from its interviewees.

Value for infrastructure projects is two-sided. The public organization has a different perception on value for infrastructure projects than the private organization. The public leans towards public values, whilst the private organization wants private values. They work together in the CPO, where a shared value list exists that endures trade-offs between the different values that the organizations hold high.

Public and private values are nowadays a hot topic for researchers and governmental bodies. Empirical literature studies do not find consensus over what values are most important for managers in the infrastructure industry. A value framework was created of values that were reoccurring in relevant articles. By counting the frequency all values that were named important in these articles, the research was able to make a shared value set of values that were most frequently named important. Two additional values were added to the shared value set to also reflect the private values better, since they did not occur in literature.

3. *How is value created in DBFM projects?*

Literature shows that value is created by both the public and private organizations in a DBFM project. The private organization creates values by their day-to-day operations, while the public organization creates values by choosing the right tender methods, scope, awarding criteria, contract models and performance measurements. The interpretation of the data of this research shows that value is created through discussions in informal and formal contact moments between both organizations.

There are ambiguities and a wide variety of opinions on the topic of public value creation. But a consensus is also found: researchers believe that public value is created by the private organization [Lenferink et al., 2017; Eversdijk, 2013; Van Der Steen et al, 2013; Porter & Kramer, 2011]. Kuitert et al. (2018) believe that the public value is first embedded in the contract by the public organization by choosing the right tender methods, scope, awarding criteria, contract models and performance measurements. They believe that the public organization chooses how and which public values should be created and safeguarded in the project. Reynears (2014) finds that the creation of public value is context related, and that further empirical evidence is needed [Reynears & De Graaf, 2014].

The interpretation shows that value is created when the project teams of both organizations discuss the project. These discussions are pure value creation according to the interviewees and experts. Value cannot be created without the public and private organization working together and discussing it in the preparation and realization phases. These discussions can take place in both ICMs or FCMs.

Values are also prerequisites to other values. This implies that creating one value supports the creation of other values as well. Soft values are the basis for this. Softer values are more often prerequisites for other soft and hard values than hard values are.

The interpretation also suggests that formal contact moments (FCMs) create hard and external values while informal contact moments (ICMs) create soft and internal values. All findings of the interpretation are additions to the findings of the literature study on this sub-question.

4. *What are the formal contact moments between the public and the private project delivery organizations?*

All formal contact moments of the cases have been collected from the official project documentation in chapter 3, which are shown in tables 5, 6 & 7. These tables show that there are a lot of different types of meetings with different functions and uses. Case 1 has the most formal contact moments

(seventeen), to the eleven of case 2 and the six of case 3. The findings suggest that projects with higher costs also have more formal contact moments. The frequency of all formal contact moments is once or twice a month.

5. *What are the informal contact moments according to practice and what is their function?*

Almost all cases had the same informal contact moments: phone calls; e-mails; texts; coffee or lunch breaks; getting dinner & drinks; and work related ICMs. ICMs have two functions: as preparatory and evaluating moment and to create soft values.

Across all three cases it is seen that informal contact moments have two functions. Its first function is as a preparatory and evaluating moment before, or after a formal contact moment. Matters are discussed that are coming up in the next formal contact meetings, or matters are talked through again after a formal contact moment. This function ensures that both organizations are on the same page with each other and do not surprise each other at the formal contact meetings with new issues or opportunities.

The second function is to create soft values with the counterpart of the other organization. The soft values are regarded as prerequisites for a lot of other values. By building trust and integrity between counterparts, other values such as collaboration are created. This has a positive effect on the formal contact moments as well.

ICMs are also far more used than FCMs in projects. As ICMs are held daily, the frequency of FCMs is around once a month. One of the aspects that the interviewees liked about ICMs is the informal and no consequence character that they have. Project members are able to speak more freely without legal consequences or hurting the project. They can offer their support on difficult issues for the other organization or can help with problem solving without any official documentation or action points that registers these things. The overview of ICMs per case is found in table 34 in chapter 4. The frequency is dependent on the phase of the project.

6. *How do contact moments contribute to the creation of value?*

FCMs contribute to value creation with their legitimate nature and decision-making power. ICMs contribute to value creation with their evaluating and preparatory function, as well as their no consequence nature.

Two different contact moments have been defined, the ICMs and the FCMs. The data supports the theory that every contact moment contributes either positively or negatively to value creation. Interviewees even stated that having contact moments is pure value creation.

The FCMs are used for their legitimacy and decision-making power. Inside these meetings, project related aspects are decided on and made official. These meetings therefore have a more formal setting and need to be well prepared. The decisions that are being made are about the contents of the project, which contain hard values. Therefore, the FCMs create hard values. For example, decisions are made on which processes are used for constructing the infrastructure; safety protocols for the workforce are discussed and secured in the contract; or the definitive design of the infrastructure project is made official. Soft values are harder to make formal decisions on, since actions on values such as honesty and integrity cannot be easily put on paper. These personal values are more interpersonal between two project members (e.g. trustworthiness, honesty). The FCMs create the collective values, which are created for everyone (e.g. safety, accountability).

The ICMs have a preparatory and evaluating function, as the answer to sub-question 4 describes. ICMs contribute to value creation by building relationships between the project teams of both organizations. All project team members are the ones who create value. By having a good relationship with each other, there is smoother and more value creation. The ICMs therefore act as a

lubricant for the whole project. By constantly having ICMs and discussing project matters, the project progresses and values are created. ICMs create soft values (e.g. honesty and trustworthiness). And when preparing or evaluating FCMs in an ICM, discussions take place on physical contents of the project and therefore also create hard values (e.g. safety and accountability). The no consequence nature of ICMs also contributes to the value creation.

Projects need both FCMs and ICMs equally because of their different nature and the different values they create. But a perfect contact moment structure cannot simply be defined because every project is unique and needs a different structure. Having easy access to ICMs however, is recommended, as they allow for easy information sharing and building strong relationships between the project teams. Easy access to ICMs is achieved by housing both organizations in the same building. The collaboration program is also successful for value creation.

8.2 Answer to the research question

This section answers the research question and thereby reaches the objective of the research. The research question reads:

How can contact moments between the public and the private organizations within the project organization be optimized to create more value in Dutch DBFM infrastructure projects?

The research question is answered with a set of three optimizations for contact moments and value creation that will benefit both the client and the contractor in DBFM infrastructure projects. The first is the introduction of collaboration programs. The second are suggestions for the contact moment structure. The third optimization are suggestions that improve single contact moments. Both client and contractor benefit from these suggestions in DBFM contracts.

1) The findings suggest to introduce collaboration programs in DBFM projects. For maximum effect, these programs should start at the very beginning of a project, when the preparation phase begins. The program is meant to bring the project teams of both the public and the private organization together. If this is done in the early phases of a project, soft values are created internally between and within the project teams at the very start of the project. Following this program with a high frequency is suggested, as soft value creation is extremely desired between both organizations at the start of the project.

   The contents of the collaboration program are discussions and workshops with both project teams to discuss soft sides of the project. The themes of these discussions and workshops include topics such as soft value priorities; value alignment; finding common interests; building relationships; and core value discussions.

   The collaboration programs solves the followings issues that were found in this research: soft sides of a project are often rarely and hard to discuss with each other; discussions on base values; the problem that different phases in the project hold different values; the issue that there are still scars from the integrity loss due to the building fraud in the 00s; the problem that project teams think they know the most important values of the other organization, but in practice they don't; the issue that the building industry is often approached from a hard side, while the findings suggest that the soft side approach is better; and the value misalignment issue that project members, the organizations and possibly the consortium currently have. This subsequently increases the expected value and $\Delta value$ of contact moments. Figure 20 below gives a quick overview of the features of a collaboration program.

   Collaboration programs also help to solve unique problems for the contractor and the client. For the contractors, the collaboration helps to the problem that they have with integrity issues

that they sometimes encounter. The collaboration program helps the client with the problem that they encounter different behaviour from the contractor in FCMs than in ICMs.

Figure 20 Features of the suggested collaboration program. Own figure.

2) Secondly, the research has suggestions for the contact moment structure of DBFM infrastructure projects. Figure 21 below shows a quick overview of the suggestions. A perfect contact moment structure is still unknown, the findings suggests that every project needs a unique structure. But the findings do suggest that the perfect balance between ICMs and FCMs requires more ICMs than FCMs. ICMs are the lubricant for a project and should be held daily. This is supported by having both project teams working in the same building. This greatly increases the amount of ICMs, and thereby also the overall quality of life and work for the project teams. FCMs need to be held bi-weekly or monthly. Both are equally necessary and important. The goal of every ICM and FCM should be to realize the expected value into $\Delta value$.

   Furthermore, the functions and uses of ICMs and FCMs should be known to everyone. The findings suggest that the function and use of ICMs is twofold: to create soft values and to prepare and evaluate FCMs. With these latter functions, expected value is created for other upcoming ICMs and FCMs, which in turn help to create $\Delta value$. The function of soft value creation of ICMs is used if one finds that soft values need to be created. One should turn to ICMs where there is a more informal setting which allows easier soft value creation. Soft values are then created between project members of different organizations, and not essentially for the whole project. The soft values are stored within the project members themselves, as they cannot be easily transcribed to paper or put in agreements.

The function and use of FCMs is creating hard values by making formal or legal decisions or discussing project related topics. Hard values are created in FCMs when decisions are made on the design of the project; safety measures; or deciding on risks that have fired. These hard values are created collectively.

The BOT-meeting (Dutch: benen-op-tafel gesprek) should be implemented if 'normal' ICMs have a low frequency (for example for high ranked managers with time constraints). The BOT-meeting allows an informal setting following the formal contact moment structure. It is an FCM that feels like an ICM. The informal character allows for open sharing of problems and issues with anything project related without consequences. The BOT-meeting is already often implemented in current practice, it was however found in only one of the three cases in the case study. Other formal contact moments with an informal character are also suggested, such as the PSUs and PFUs. The BOT-meetings, PSUs and PFUs are considered formal contact moments because they follow the formal contact moment structure.

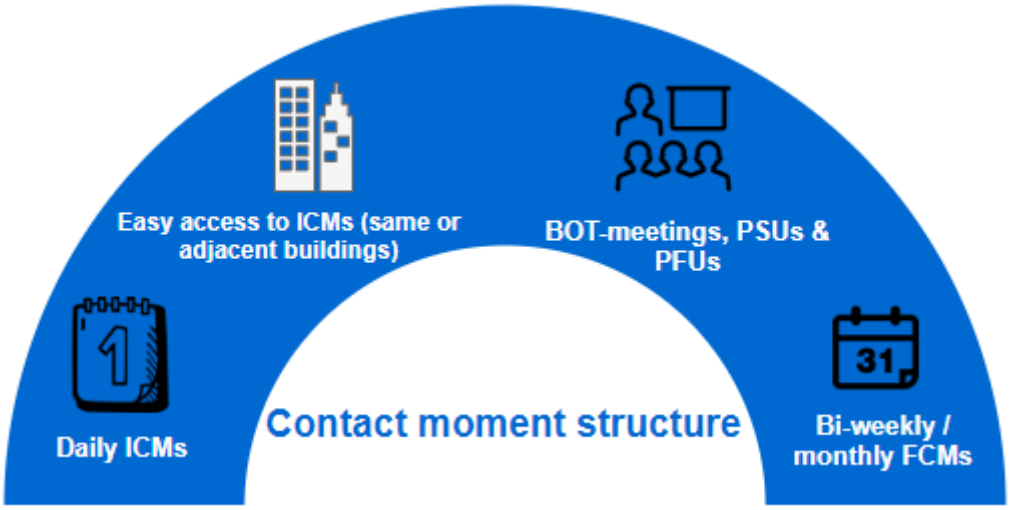


Figure 21 Suggestions on the contact moment structure. Own figure.

3) Lastly, the research has suggestions about the hard and soft elements that single contact moments have. An overview is found in figure 22. These suggestions are generic for all contact moments and should be applied to create expected value and $\Delta value$. Contact moments should always have a clear goal, and this goal should be communicated beforehand. For ICMs, it is suggested to communicate some of your goals beforehand, so both sides know what to expect out of the contact moment. No agenda or minutes are necessary for ICMs. For FCMs, this goal should already be discussed in ICMs, and also be communicated before the FCM takes place (for example with an agenda). This ensures that no one is surprised by new information that comes up during FCMs.

   Another suggestion is to have short evaluations at the end of contact moments. Evaluations ensure that everybody is reminded of what was said by who; what agreements and decisions were made; and what the actions points are for the next meeting. This creates expected value for the next contact moment, as well as positive $\Delta value$ for the current contact moment.

A final suggestion is to invest time and effort in good preparations. Good preparations of a contact moment are key for creating expected value and $\Delta value$. By preparing for the contact moment all attendees are aware what it is about; are able to discuss the important topics; and are able to reach the goal of the contact moment easier. FCMs need the best possible preparations, while ICMs only need this to a lesser extent. ICMs require lesser preparations due to its no consequence character and more open and free discussions. ICMs should always remain their informal character.

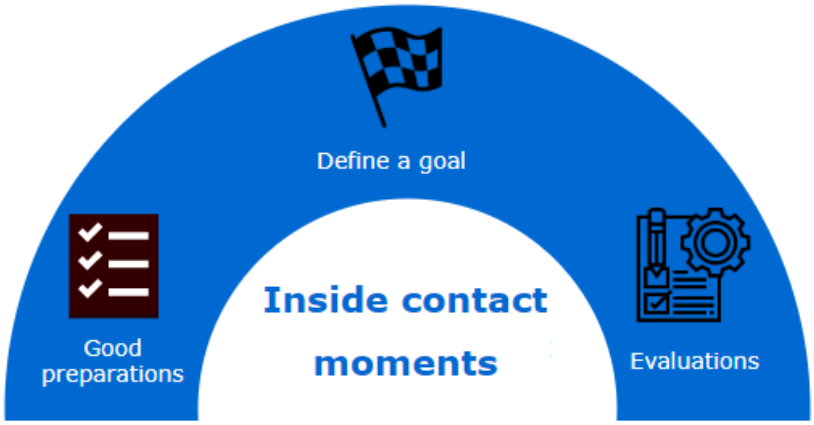


Figure 22 Suggestions for inside contact moments. Own figure.

8.3 Recommendations

The research had several insights about the creation of public and private values in contact moments. These insights raise new questions that can be studied in future research. Practical recommendations are also made for Dura Vermeer in order to create more value.

Recommendations for future research

This research was solely focussed on the DBFM project delivery method. More research is recommended on the same topic but with data collection from different project delivery methods. This helps to examine if the findings of this research can also be applied to other project delivery methods.

Secondly, there is still little practical experience or empirical evidence on the collaboration program as described in chapter 6 and 8. Future research on how these collaboration programs should be set up, how long they should take, who should participate, how to share values and goals, etc. might enrich its effectiveness and efficiency. Empirical data on what values need to be created first in a project supports this.

Another recommendation for future research is to extend the scope of this research by also looking into the tender and maintenance phase. By doing so, the entire project lifetime is encompassed. This might result in different or more phase specific findings. The focus of this research also better enriches findings on how one phase supports the other in terms of value creation.

Extension of the scope towards other countries also helps to enrich the findings of the research. The current scope is only focussed on the Netherlands, which may limit the results.

Furthermore, the research finds that project members have a hard time ranking the values of project members of the other organization, while they actually believe that they do not. It is recommended to study this phenomenon in order to bring both organizations closer together. This could be a study on the most important values for both organizations and how to correctly align them, to avoid

misperceptions of value. Further studies could also look solely inside the consortium of private organizations. Inside these organizations, values might also not be aligned.

This research failed to identify how contact moments contribute to overall project value. More research in this area is necessary to see how single contact moments truly contribute to public value creation.

Fifthly, this research did not study how the insides (layout, topics, etc.) and perfected circumstances (amount of people at the table, what time of the day, etc.) of contact moments should be structured. This could however contribute positively to the overall quality and value creation of contact moments, therefore it is recommended to do future research on this topic.

Future research can also be done on the topic of this research without the limitation of the value framework that was used. The value framework limited the values that were discussed with the interviewees, which subsequently limited the interpretation. Without such a framework, future research produces broader findings.

Lastly, this research found that project members have a different preferred contact moment structure. All projects are also unique and different, and cannot be compared. Therefore, this research concluded that a perfect contact moment structure doesn't exist. Research on how a perfect contact moment structure would look like with the most important value set from this research would make a great addition to the findings of this research.

Recommendations for practice

The recommendations for practice closely resemble the answers to the research question and are applicable and useful for both the client and contractor. Firstly, it is recommended to start collaboration programs in DBFM projects. They should start as soon as the tender is won and the preparation phase begins. They are more effective the earlier they start. The focus should be on getting to know both one's colleges and one's counterparts at the other organization; learning each other's core values; building soft values; etc.

Furthermore, both the client and the contractor should make adjustments to contact moments: 1) make sure that attendees come fully prepared to every contact moment. This ensures creating the most positive $\Delta value$. 2) Try to get both project teams in the same or adjacent building for easy access to ICMs. Subsequently, ensure that counterparts have daily ICMs. This also supports the creation of expected value and positive $\Delta value$. 3) Have clear goals and agendas for all contact moments and make sure that they are communicated with the other organization. This also means that all attendees have to know what the goals are of the other organization. 4) Have short evaluations at the end of every contact moment. This also contributes to the creation of expected value and positive $\Delta value$.

A third recommendation for practice is to introduce BOT-meetings for high ranked managers. The frequency of these meetings should be high, weekly or bi-weekly. The high ranked managers often have little time to sit in an informal setting with the other organization. The BOT-meeting is an informal contact moment following a formal contact moment structure, and acts like an ICMs. The expert meetings have informed the research that the BOT-meeting is nowadays often used in DBFM projects, the case study however only found one case that used this type of meeting.

Specifically, Dura Vermeer should start to introduce collaboration programs in their DBFM projects and possibly in other types of PPP they are currently realizing. The collaboration program helps to improve value creation and overall smoother processes in the project. It can help to answer and find solutions for any questions about integrity that Dura Vermeer sometimes experience. Dura Vermeer

should also try to have their own project organization as geographically close to public project delivery organization as possible. This can further smoothen processes because of the easy access to ICMs.

The clients of DBFM project should also try to have their public project delivery organization geographically close to the private project organization to improve overall processes. The client should also use the collaboration program to address the behaviour issue that they can encounter. They encounter different behaviour from the contractor in ICMs than in FCMs.

8.4 Reflection

Writing the thesis is my final act as a MSc student and is the end of 7-years at the TU Delft. I believe that during these years, nothing really prepares you for what you can encounter during your thesis. The bachelor thesis and other supportive courses do improve your knowledge about everything related to writing a thesis, but there are many unknown things you run into that you didn't think of before. Beforehand, I expected all work to be relatively straightforward and logic, both with their respective difficulties. But writing the thesis sometimes felt like grasping in the dark. I know believe that I underestimated the thesis. Steering from my counsellors helped tremendously on this aspect.

With the experience I know have, I would also have structured the initial layout of the whole thesis and the research methodology better. This was one problem I ran into during the course of the thesis: continuously looking forward and backwards to where I stand; where I should be going; where I am coming from; etc. A better structure at the start would have helped me to smoothen the process of writing the thesis.

Another unknown aspect is the expectations from you as a student. All my counsellors have shown great interest into my thesis, but they all had a slightly different view and opinion on it. This can make you question what roads to take, and which ones to skip. In retrospect, I would have asked more questions to my counsellors on this aspect.

The case study was extremely helpful for the progress of the thesis as well as an informative experience for myself. For the thesis, I finally got real data to work with, since I only had done the literature review up to that point. The 12 interviews did require a long time to transcribe and summarize, which I also underestimated. But doing and preparing for the actual interviews was the most fun I had in the thesis. I had to travel all across the Netherlands, from Groningen to Limburg to conduct the interviews. All interviewees were inviting and helpful, and allowed me to visit fantastic organizations, work places and construction sites. They gave me new insights on the topics and asked thought provocative questions to help me improve.

REFERENCES

Algemene-Rekenkamer. (2013). *Contractmanagement bij DBFMO-Projecten.* Algemene Rekenkamer.

Allport, G. W., Vernon, P. E., & Lindzey, G. E. (1960). *Study of Values: A Scale for Measuring the Dominant Interests in Personality.* Houghton Mifflin.

Anvuur, A. M., Kumaraswamy, M. M., & Fellows, R. (2012). Perceptions of Status and TMO Workgroup Cooperation: Implications for Project Governance. *Construction Management and Economics*(9), 719-737.

Bell, K. L. (1994). *The Strategic Management of Projects to Enhance Value for Money for BAA. .* Heriot-Watt University.

Bolman, L. G., & Deal, T. E. (2017). *Reframing Organizations: Artistry, Choice, and Leadership.* John Wiley & Sons.

Bovens, M. A. (1996). *Het Verhaal van de Moraal. Een Empirisch Onderzoek naar de Sociale Bedding van Morele Bindingen.* Amsterdam & Meppel: Boom.

Boyne, G. A. (2002). Public and Private Management: What's the Difference? *Journal of Management Studies, 39*(1), 97-122.

Bozeman, B. (2007). *Public Values and Public Interest: Counterbalancing Economic Individualism.* Washington D.C.: Georgetown University Press.

Brabham, D. C. (2009). Crowdsourcing the Public Participation Process for Planning Projects. *Planning Theory, 8*(3), 242-262.

Bremekamp, R., Kaats, E., & Opheij, W. (2009). Een Nieuw Kijkglas voor een Heldere Blik op Samenwerken. *Holland Management Review*, 2-9.

Brinkman, J., Hertogh, M. J., Bosch-Rekveldt, M. G., & Rook, L. (2014). Collaboration between Subsidiaries with Different Disciplines in the Construction Industry. *IPMA World Congress* (pp. 44-54). Rotterdam: Elsevier.

Brundtland, G. H., Khalid, M., & Agnelli, S. (1987). *Our Common Future.* Oxford: Oxford University Press.

Bryson, J. M., Crosby, B. C., & Bloomberg, L. (2014). Public Value Governance: Moving Beyond Traditional Public Administration and the New Public Management. *Public Administration Review*(4), 445-456.

Bult-Spiering, M. D. (2003). *Publiek-Private Samenwerking: De Interactie Centraal.*

Burke, R., & Demirag, I. (2017). Risk Transfer and Stakeholder Relationsihps in Public-private partnerships. *Accounting Forum*, 28-43.

Chen, Q., Jin, Z., Xia, B., Wu, P., & Skitmore, M. (2015). Time and Cost Performance of Design-Build Projects. *Journal of Construction Engineering and Management*(2).

Cheng, M. Y., Su, C. W., & You, H. Y. (2003). Optimal Project Organizational Structure for Construction Management. *Journal of Construction Engineering and Management, 129*(1), 70-79.

Choudhry, R. M. (2014). Behavior-Based Safety on Construction Sites: A Case Study. *Accident Analysis & Prevention, 70*, 14-23.

Cleland, D. I., & Kerzner, H. (1985). *A Project Management Dictionary of Terms.* Van Nostrand Reinhold.

Creswell, J. W., & Poth, C. N. (2017). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches.* Sage Publications.

Dahl, R. A. (1989). *Democracy and its Critics.* New Haven: Yale University Press.

De Bruijn, H., & Dicke, W. (2006). Strategies for Safeguarding Public Values in Liberalized Utility Sectors. *Public Administration, 84*(3), 717-735.

De Graaf, G., & Paanakker, H. (2014). Good Governance Performance Values and Procedural Values in Conlict. *The American Review of Public Administration, 45*, 635-652.

De Graaf, G., Huberts, L., & Smulders, R. (2013). *Publieke Waarden: De Beginselen van Goed Bestuur in de Dagelijkse Praktijk van Ziekenhuis en Gemeente.* Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.

De Graaf, G., Van Doeveren, V., Reynaers, A. M., & Van der Wal, Z. (2011). Goed Bestuur als Management van Spanningen tussen Verschillende Publieke Waarden. *Bestuurskunde, 20*(2), 5-11.

Doris, J. M. (2002). *Lack of Character: Personality and Moral Behavior.* Cambridge: Cambridge University Press.

Edquist, C. (2010). Systems of Innovation Perspectives and Challenges. *African Journal of Science, Technology, Innovatoin and Development, 2*(3), 14-45.

Eisenhardt, K. M. (1989). Building Theories from Case Studies. *Academy of Management Review, 14*(4), 532-550.

Elo, S., & Kyngäs, H. (2008). The Qualitative Concent Analysis Process. *Journal of Advanced Nursing, 62*(1), 107-115.

Eversdijk, A. (2013). *Kiezen voor Publiek-Private Samenwerking.* Den Haag: Lemma bv.

Eversdijk, A. W., & Korsten, A. F. (2015). *Motieven en Overwegingen Achter Publiek-Private Samenwerking.* Beleidsonderzoek Online.

Fugate, B. S., Mentzer, J. T., & Stank, T. P. (2010). Logistics Performance: Efficiency, Effectiveness and Differantiation. *Journal of Business Logistics, 31*(1), 43-62.

Gann, D., Salter, A., & Whyte, J. (2003). Design Quality Indicator as a Tool for Thinking. *Building Research & Information, 31*, 318-333.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods, 16*(1), 15-31.

Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report, 8*(4), 597-606.

Hardin, R. (2002). *Trust and Trustworthiness.* Russel Sage Foundation.

Hatfield, R. D. (2006). Collegiality in Higher Education: Toward an Understanding of the Factors Involved in Collegiality. *Journal of Organizational Culture, Communications and Conflict, 10*(1), 11-19.

Hendrickson, C. (2008). *Project Management For Construction* (2.2 ed.). Pittsburgh: Prentice Hall.

Hendriks, F., & Drosterij, G. (2012). *De Zucht naar Goed Bestuur in de Stad.* Den Haag: Boom-Lemma Uitgevers.

Hertogh, M., & Westerveld, E. (2010). *Playing With Complexity. Management and Organisation of Large Infrastructure Projects.*

Hofstede, G., Van Deusen, C. A., Mueller, C. B., & Charles, T. A. (2002). What Goals Do Business Leaders Pursue? A Study in Fifteen Countries. *Journal of International Business Studies*(4), 785-803.

Holbrook, M. B. (1999). *Consumer Value: A Framework for Analysis and Research.* Psychology Press.

Hueskes, M., Koppenjan, J., & Verweij, S. (2016). Publiek Private Samenwerking in Nederland en Vlaanderen: Een Review van 14 Nederlandse en Vlaamse Proefschriften. *Bestuurskunde*(2), 90-104.

Jacob, S. A., & Furgerson, S. P. (2012). Writing Interview Protocols and Conducting Interviews: Tips for Students New to the Field of Qualitative Research. *The Qualitative Report, 17*(42), 1-10.

Jacobs, J. (1992). *Systems of Survival: A Dialogue on the Moral Foundations of Commerce and Politics.* New York: Random House.

Jones, R., & Noble, G. (2008). Managing the Implementation of Public-Private Partnerships. *Public Money and Management, 28*(2), 109-114.

Jorgensen, T. B., & Bozeman, B. (2007). Public Values: an Inventory. *Administration & Society, 39*, 354-381.

Kagioglou, M., Cooper, R., & Aouad, G. (2001). Performance Management in Construction: A Conceptual Framework. *Construction Management and Economics, 19*(1), 85-95.

Kauffeld, S., & Lehmann-Willenbrock, N. (2012). Meetings Matter: Effects of Team Meetings on Team and Organizational Success. *Small Group Research, 43*(2), 130-158.

Kelly, J., Male, S., & Graham, D. (2014). *Value Management of Construction Projects.* John Wiley & Sons.

Klijn, E., Edelenbos, J., Kort, M., & Van Twist, M. (2006). *Management op het Grensvlak van Publiek en Privaat.* Den Haag: Lemma.

Koops, L. S. (2017). *Creating Public Value: Optimizing Cooperation Between Public and Private Partners in Infrastructure Projects.* doi:10.4233/uuid:53c3c8cb-ff74-49c9-9e7d-e826a60fbba6

Koppenjan, J., Steenhuisen, B. M., Broekhans, B., & Cremer, R. (2012). *Op Zoek naar de Ideale Uitvoeringsopdracht voor Grote Projecten: Kennis in het Groot in Samenwerking met TU Delft.* Programma Kennis in het Groot.

Kothari, C. R. (2004). *Research Methodology: Methods and Techniques.* New Age International.

Kuitert, L., Volker, L., & Hermans M, H. (2016). Safeguarding Public Values by Project-Based Construction Clients Leads for Future Research. *Proceedings of the 32nd Annual ARCOM Conference: ARCOM 2016* (pp. 145-154). ARCOM.

Kuitert, L., Volker, L., & Hermans, M. H. (2017). Public Commissioning in a New Era: Public Value Interests of Construction Clients. *Proceedings 33rd Annual ARCOM Conference* (pp. 84-93). Cambridge, UK: ARCOM.

Kuitert, L., Volker, L., & Hermans, M. H. (2018). Taking On A Wider View: Public Value Interests of Construction Clients In A Changing Construction Industry. *Construction Management and Economics*, 1-21.

Kwak, Y. H., Chih, Y. Y., & Ibbs, C. W. (2009). Towards a Comprehensive Understanding of Public-private partnerships for Infrastructure Development. *California Management Review, 51*, 51-78.

Leach, D. J., Rogelberg, S. G., Warr, P. B., & Burnfield, J. L. (2009). Perceived Meeting Effectiveness: The Role of Design Characteristics. *Journal of Business and Psychology, 24*(1), 65-76.

Lenferink, S., Leendertse, W., & Arts, J. (2017). PPS: Publieke én Private Waarde. *Rooilijn, 50*(2), 126-133.

Lenferink, S., Tillema, T., & Arts, J. (2013). Towards Sustainable Infrastructure Development Through Integrated Contracts: Experiences with Inclusiveness in Dutch Infrastructure Projects. *International Journal of Project Management, 31*(4), 615-627.

Lenferink, S., Verheij, S., Leendertse, W., & Busscher, T. (2017). DBFM: Van Efficiëntieoptimalisatie op Projectniveau naar Meerwaardecreatie op Netwerkniveau. *Verkeerskunde, 68*(3), 14-15.

Loggers, M. L. (2018, November 9). Introductionary Interview to PPPs & Contractmanagement. (V. Weber, Interviewer)

Louwerse, W. (2019, February 13). Public and Private Values in Contact Moments. (V. Weber, Interviewer)

Maesschalck, J. (2004). The Impact of New Public Management Reforms on Public Servants' Ethics. *Public Administration, 82*(2), 465-489.

Mayring, P. (2000). Qualitative Concent Analysis. *Forum: Qualitative Social Research, 1*(2).

McGrath, S. K., & Whytty, S. J. (2018). Accountability and Responsibility Defined. *International Journal of Managing Projects in Business, 11*(3), 687-707.

Merrow, E. W. (2011). *Industrial Megaprojects: Concepts, Strategies, and Practices for Success.* Wiley Online Library.

Meynhardt, T. (2009). Public Value Inside: What is Public Value Creation? *International Jourcal of Public Administration*(4), 192-219.

Meynhardt, T. (2015). Public Value: Turning a Conceptual Framework into a Scorecard. In J. M. Bryson, B. C. Crosby, & L. Bloomberg, *Public Value and Public Administration* (pp. 147-169). Georgetown University Press.

Michener, G., & Bersch, K. (2013). Identifying Transparency. *Information Polity, 18*(3), 233-242.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis.* California: SAGE .

Mintzberg, H. (1980). Structure in 5's: A Synthesis of the Research on Organization Design. *Management Science*(3), 322-341.

Moore, M. H. (1995). *Creating Public Value: Strategic Management in Government.* Cambridge: Harvard University Press.

Moore, M. H. (2000). Managing for Value: Organizational Strategy in For-profit, Nonprofit, and Governmental Organizations. *Nonprofit and Voluntary Sector Quarterly, 29*(1), 183-204.

Nicholas, J. M., & Steyn, H. (2017). *Project Management for Engineering, Business and Technology.* Routledge.

Nilsen, P., Hudson, D. S., Kullberg, A., Timpka, T., Ekman, R., & Lindqvist, K. (2004). Making Sense of Safety. *Injury Prevention, 10*(2), 71-73.

Ogunlana, S. O. (2010). Beyond the 'Iron Triangle': Stakeholder Perception of Key Performance Indicators (KPIs) for Large-Scale Public Sector Development Projects. *International Journal of Project Management, 28*(3), 228-236.

Opara, M., Elloumi, F., Okafor, O., & Warsame, H. (2017). Effects of the Institutional Environment on Public-Private partnership (P3) Projects: Evidence from Canada. *Accounting Forum*(2), 77-95.

Oxford Dictionary. (2019, 2 4). Opgehaald van en.oxforddictionaries.com/definition/functionality

Palanski, M. E., & Yammarino, F. J. (2007). Integrity and Leadership: Clearing the Conceptual Confusion. *European Management Journal, 25*(3), 171-184.

Park, H. S., Lee, D., Kim, S., & Kim, J. L. (2015). Comparing Project Performance of Design-Build and Design-Bid-Build Methods for Large-Sized Public Apartment Housing Projects in Korea. *Journal of Asian Architecture and Building Engineering*(2), 323-330.

Pinto, J. K., & Winch, G. (2016). The Unsettling of "Settled Science:" The Past and Future of the Management of Projects. *International Journal of Project Management*(2), 237-245.

PMI. (2017). *Project Management Body of Knowledge (PMBOK).* Newton Square: Project Management Institute, Inc.

Porter, M. E. (2010). Value in Health Care. *New England Journal of Medicine*(26), 2477-81.
Porter, M. E., & Kramer, M. R. (2011). How Shared Value Is Created. *Harvard Business Review*, 2-17.
Porter, M. E., & Millar, V. E. (1985). *How Information Gives you Competitive Advantage.*
Reynaers, A. M. (2014). *It Takes Two to Tangle: Public-Private Partnerships and Their Impact on Public Values.* Amsterdam: Vrije Universiteit.
Reynaers, A. M., & De Graaf, G. (2014). Public Values in Public-Private Partnerships. *International Journal of Public Administration*(37), 120-128.
Reynaers, A. M., & Verweij, S. (2014). Kritisch Kijken Naar Kansen: De Schaduwzijde van DBFMO. *RO Magazine*(4), 32-34.
Roehrich, J. K., Lewis, M. A., & George, G. (2014). Are Public-Private Partnerships a Healthy Option: A Systematic Literature Review. *Social Science & Medicine*, 110-119.
Rogelberg, S. G., Scott, C., & Kello, J. (2007). The Science and Fiction of Meetings. *MIT Sloan Management Review, 48*(2), 18-21.
Sainati, T., Brookes, N. J., & Locatelli, G. (2014). Special Purpose Entities and Their Role in Megaprojects: A New Focus for Understanding Megaproject Behaviour. *Conference of the European Academy of Management.* Leeds.
Sainati, T., Brookes, N., & Locatelli, G. (2017). Special Purpose Entities in Megaprojects: Empty Boxes or Real Companies? *Project Management Journal*(2), 55-73.
Sainati, T., Locatelli, G., & Brookes, N. (2015). Organisational Forms in Megaprojects: Understanding the 'Special Purpose Entities' An Ontological Analysis. *Conference of the European Academy of Management.* Warsaw.
Sarmento, J. M., & Renneboog, L. (2016). Anatomy of Public-Private Partnerships: Their Creation, Financing and Renegotiations. *International Journal of Managing Projects in Business, 9*(1), 94-122.
Savage, G. T., Bunn, M. D., Gray, B., Xiao, Q., Wang, S., Wilson, E. J., & Williams, E. S. (2010). Stakeholder Collaboration: Implications for stakeholder Theory and Practice. *Journal of Business Ethics, 96*(1), 21-26.
Savas, E. S. (2000). *Privatization and Public-private partnerships.*
Schultz van Haegen, M. H. (2016). *Marktvisie Rijkswaterstaat en Bouwsector.* Ministerie van Verkeer & Waterstaat.
Shokri, S., Safa, M., Haas, C. T., Haas, R. C., Maloney, K., & MacGillivray, S. (2012). Interface Management Model for Mega Capital Projects. *Construction Research Congress 2012: Construction Challenges in a Flat World* (pp. 447-456). West Lafayette, Indiana: American Society of Civil Engineers.
Smith, N., & Van Thiel, S. (2002). De Zakelijke Overheid: Publieke en Bedrijfsmatige Waarden in Publiek-Private Samenwerking. *Bestuurskunde, 11*, 226-234.
Straub, A., Prins, M., & Hansen, R. (2012). Innovative Solutions in Dutch DBFMO Projects. *Architecture Science*(6).
Tarafdar, M., Tu, Q., & Ragu-Nathan, T. S. (2010). Impact of Technostress on End-User Satisfaction and Performance. *Journal of Management Information Systems, 27*(3), 303-334.
Teisman, G. R., & Klein, E. H. (2002). Partnerships Arrangements: Governmental Rhetoric or Governance Scheme? *Public Administration Review, 62*, 197-205.
Theoharis, G. (2007). Social Justice Educational Leaders and Resistance: Toward a Theory of Social Justice Leadership. *Educational Administration Quarterly, 43*(2), 221-258.
Thomas, D. R. (2003). *A General Inductive Approach for Qualitative Data Analysis.* Auckland: University of Auckland.
Thyssen, M. H., Emmitt, S., Bonoke, S., & Kirk-Christoffersen, A. (2010). Facilitating Client Value Ceation in the Conceptual Design Phase of Construction Projects: A Workshop Approach. *Architectural Engineering and Design Management, 6*(1), 18-30.
Turner III, D. W. (2010). Qualitative Interview Design: A Practical Guide for Novice Investigators. *The Qualitative Report, 15*(3), 754-760.
Turner, J. R. (2009). *Handbook of Project-Based Management.* New York: McGraw-Hill.
Turner, J. R., & Müller, R. (2003). On the Nature of the Project as a Temporary Organization. *International Journal of Project Management*(21), 1-8.

UK-Treasury. (2018). *Budget 2018: Private Finance Initiative (PFI) and Private Finance 2 (PF2).* London: HM-Treasury.

Van der Steen, M. A., Twist, M. J., Chin-A-Fat, N., & Kwakkelstein, T. (2013). *Pop-up Publieke Waarde: Overheidssturing in de Context van Maatschappelijke Zelforganisatie.* Nederlandse School voor Openbaar Bestuur.

Van der Wal, Z. (2008). *Value Solidity: Differences, Similarities and Conflicts between the Organizational Values of Government and Business.* Amsterdam: Vrije Universiteit Amsterdam.

Van der Wal, Z. (2009). Waardevastheid in Bestuur en Bedrijf. Een Empirisch Portret van Organisatiewaarden in Openbaar Bestuur en Bedrijfsleven. *Bestuurskunde, 18*(2), 84-94.

Van der Wal, Z., De Graaf, G., & Lasthuizen, K. (2008). What's Valued Most? Similarities and Differences between the Organizational Values of the Public and Private Sector. *Public Administration, 86*(2), 465-482.

Van Ham, H., & Koppenjan, J. (2002). *Publiek-Private Samenwerking bij Transportinfrastructuur: Werkend of Wijkend Perspectief?* Utrecht: Lemma BV.

Verhees, F., & Verwij, S. (2016). DBFM: Medicijn Met Bijwerkingen: Gezamenlijk Risico's Delen en Stakeholders Managen. *RO Magazine*(3), 32-34.

Verschuren, P., & Doorewaard, H. (2010). *Design A Research Project.* The Hague: Eleven International Publishing.

Verweij, S. (2015). Achieving Satisfaction When Implementing PPP Transportation Infrastructure Projects: A Qualitative Comparative Analysis of the A15 Highway DBFM Project. *International Journal of Project Management, 33*(1), 189-200.

Verweij, S. (2015). *Once the Shovel Hits the Ground: Evaluating the Management of Complex Implementation Processes of Public-Private Partnership Infrastructure Projects with Qualitative Comparative Analysis.* Rotterdam: Erasmus University Rotterdam.

Verweij, S., Teisman, G. R., & Gerrits, L. M. (2017). Implementing Public-Private Partnerships: How Management Responses to Events Produce (Un)atisfactory Outcomes. *Public Works Management & Policy, 22*, 119-139.

Visser, B., & Lindemans, S. (2018, 10 20). Startbijeenkomst afstudeeronderzoek Dura Vermeer. (V. Weber, Interviewer)

Volker, L., Eriksson, P. E., Kadefors, A., & Larsson, J. (2018). A Case Based Comparison of the Efficiency and Innovation Potential of Integrative and Collaborative Procurement Strategies. (pp. 515-524). Manchester, UK: ARCOM, Association of Researchers in Construction Management.

Walker, A. (2015). *Project Management in Construction.* John Wiley & Sons.

Weekers, M. (2018, 10 19). Vooronderzoek Afstudeeronderzoek bij Heijmans. (V. Weber, Interviewer)

Weihe, G. (2008). Public-Private Partnerships and Public-Private Value Trade-Offs. *Public Money and Management, 28*(3), 153-158.

Winch, G., & Leiringer, R. (2016). Owner Project Capabilities for Infrastructure Development: A Review and Development of the "Strong Owner" Concepte. *International Journal of Project Management*(2), 271-281.

Woodard, C. R. (2004). Hardiness and the Concept of Courage. *Consulting Psychology Journal: Practice and Research, 56*(3), 173-185.

Zhang, S., Teizer, J., Lee, J. K., Eastman, C. M., & Venugopal, M. (2013). Building Information Modeling and Safety: Automatic Safety Checking of Construction Models and Schedules. *Automation in Construction, 29*, 183-195.

Zheng, J., Roehrich, J. K., & Lewis, M. A. (2008). The Dynamics of Contractual and Relational Governance: Evidence from Long-Term Public-Private Procurement Arrangements. *Journal of Purchasing and Supply Management, 14*, 43-54.

APPENDIX A Interview explained & Dutch version

This appendix first presents the interview questions in English with explicit reasons why the questions were chosen for this research. Subsequently, the Dutch version of the interview is given.

Drafting the interview questions

The interview questions

This section will introduce and explain the interview questions. The interview questions are drafted with the literature review and the goal of the interview in mind: to collect data for the sub-questions of the research.

The interviewees are asked to look into two tables, containing the public and private values most frequently named important, which is similar to table 2 of section 2.5. The second table contains all other public and private values that were named important, but not as frequent as the values in table 2. See table 3 in section 2.5 for all these other values. After every value, the definition of that value is given according to the literature that it was from (see appendix B). This is done so that all the interviewees are on the same page as each other and the interviewer, and data can be analysed correctly afterwards. Subsequently, the interviewer will start to ask the first 4 questions.

1) Which 3 values from table 2 would you like to add to table 1: the table of most important values, and why?
2) How would you rank all 10 of those values from 1 (most important) to 10 (least important), and why?
3) Could you please explain during what contact moments all these 10 values are discussed, safeguarded or improved?
4) How do you think the other organization (client or contractor) would rank these 10 values, and why?

The first 2 questions collect data on the perception of value of the interviewee: which ones are most important and why. By putting in three extra values that are important for the interviewee, the research can look further than just the seven values from table 2 of section 2.5 and not limit itself to these seven. It is not possible for interviewees to add their own public values to the list, Kuitert et al. (2018) concluded that their list and value framework was sufficient and correctly reflected the value set that clients had. Private values are also not addable to the list during the interview. This is done because this may dilute the answers to much.

Question 3 will go in depth on how these values, that are for the interviewee most important, operationalize in the contact moments of the project. The interviewee has not seen the list of formal contact moment that was retrieved from the project documentation yet. This is done so that he is not biased towards a formal or informal contact meeting structure. The answers to question 3 can be coupled to the answers of questions 6, 7, 8 and 11 for analysis, where the interviewee has seen the formal contact moment structure. It would be interesting to analyse if the interviewee names the same contact moments when is not yet reminded of the contact moment structure to when he is reminded of this structure. Question 4 can then help to see how the organizations perceive each other's values.

There is a possibility, that due to the semi-structured nature of this interview, a lot of the following questions will be (partially) answered already. The questions will be asked nonetheless. The interviewee is asked how he generally experienced the contact moments with the other organization, and if possible, to give some examples. This is done to give the interviewer a view on how the contact moments were experienced and can later in the interview be recalled in follow-up questions.

5) How did you experience the contact moments with the other organization?

The interviewee is then asked to look into table 3. This table contains all formal contact moments of the case study that the interviewer has managed to collect from the case study documentation. For every contact moment, the description is also given, together with the known representatives for that contact moment of both the client and contractor and the frequency of occurrence.

6) Could you go over the list of table 3 and confirm if this is a correct and complete list?
7) How would you rank these formal contact moments of table 3 if you look at their usefulness and why?

Question 6 ensures that the interviewer and the interviewee are talking about the same list of contact moments. A follow-up question is to ask if the interviewee can add any missing contact moments to the list. Question 7 then asks the interviewee to make a distinction between those contact moments, to look which ones are perceived as the most useful and why he thinks so.

Subsequently, the following 2 questions are asked.

8) What were the informal contact moments between the client and the contractor, and what was the usefulness and necessity of them?
9) Looking at their usefulness, how would you rank these informal contact moments relative to the formal ones?

These questions collect data on how the interviewees perceive these informal contact moments and how they are ranked relative to the formal ones. Question 8 also answers sub-question 5, on what all the informal contact moments in the cases were and what their functions were.

The next three questions are more general:

10) What makes a contact moment (both formal or informal) good or bad?
11) What is the difference in goal-orientation between the formal and informal contact meetings?
12) Consider both the informal and formal contact moments, what would be the perfect contact moment structure for this project and why?

Question 9 gives data on the elements that make or break a contact moment. The data can also be compared with the literature on this topic, as given in section 2.4. Question 10 then asks for perception of the interviewee of the difference in goal orientation between the formal and informal contact moments. This question can help to see how both are perceived and what their perks and disabilities are. Finally, in question 11, the interviewee is asked what the perfect contact moment structure would have been for this project. Here it is interesting to see if the interviewee sticks to his answers of the previous questions and to follow up with the question why the perfect structure was not used in the first place.

13) How does a contact moment contribute to the creation or safeguarding of public or private value?

This final question resembles sub-question 6. Interviewees are asked to reflect how they believe that a contact moment actually adds to the creation or safeguarding of public or private values. The interviewer will ask in follow-up questions if the interviewee believes that he creates or safeguards public or private value for the public in general (e.g. transparency towards stakeholders, area residents, etc.) or that he only creates or safeguards public or private value between the two organizations (e.g. trust and integrity between the organizations). This is an interesting follow-up question to see where the public and private value actually is created according to the managers.

At the end of the interview, the interviewee is asked if he likes to add anything in relation to the topics that have just been discussed. No answer is required and the interviewer will make sure to let the interviewee stay on topic. This question is not regarded as a formal interview question and it will be unlikely that any data coming from this question can be compared from the different interviews.

Interview in Dutch

Het is vandaag (….). Tegenover mij zit (….).
Allereerst, bedankt dat u wil meewerken aan dit interview voor mijn afstudeeronderzoek.
Dit betreft een officieel interview, waarvan ik de data zal gaan analyseren in mijn onderzoek. Uw naam en het project zullen daarbij anoniem worden gemaakt als het onderzoek wordt opengesteld aan het publiek. Naderhand maak ik een samenvatting van dit interview van 3 à 4 A4'tjes, die zal ik dan opsturen naar u en vragen of u het eens bent met de inhoud. Dit wordt gedaan om het interview officieel op te kunnen nemen in de bijlages van het onderzoek. Uiteraard ook anoniem.

Dan zou ik voordat we gaan beginnen graag uw verbale toestemming willen voor het afnemen en opnemen van dit onderzoek voor bovenstaande doeleinden en voorwaarden. Mochten er dingen gezegd worden tijdens het interview die u niet zou willen zien terugkomen op de samenvatting van dit interview, dan kan u dat gelijk aangeven.

Heeft u nog vragen op dit moment?

Het interview gaat over de contactmomenten tussen opdrachtgever en opdrachtnemer in DBFM-contracten. Het onderzoek kijkt alleen naar publieke en private waarden in de contactmomenten tijdens de voorbereidings- en realisatiefase. De aanbestedingsfase en de exploitatiefase liggen dus niet in de onderzoeksruimte van het onderzoek. Het doel van het onderzoek is om deze contactmomenten te verbeteren om voor beide partijen meer waarde te creëren.

Alle gestelde vragen zijn gefocust op dit project, dat een van de casestudies is van het onderzoek, dus relateer uw antwoorden vooral daaraan, behalve als er bewust iets anders wordt gevraagd. Mocht u vragen hebben over de vraagstelling of bepaalde begrippen in het interview, kunt u deze altijd tussendoor stellen. Voelt u vrij om te vertellen wat er in u opkomt.

Beschouw de waarden genoemd in tabel 1. Deze tabel bevat de waarden die het meest voorkomen in literatuur over belangrijke publieke & private waarden. Kijk dan ook even rustig naar tabel 2, deze waarden worden minder vaak genoemd in de relevante literatuur. Heel veel waarden hebben overlap met elkaar.

1) Welke 3 voor u belangrijke waarden uit tabel 2 zou u graag willen zien in de belangrijkste waarden in tabel 1 en waarom?
    a. Wat maakt een waarde wel of niet belangrijk voor u in dit project? Is dat wellicht project specifiek, of bedrijf specifiek of persoon specifiek?
    b. Kunt u zich herkennen in de lijst van tabel 1?

2) Hoe zou u deze aangepaste lijst van waarden rangschikken als u kijkt naar belangrijkheid en waarom? (Gebruik kolom #1 van tabel 1)

3) Zou u de aanwezigheid van deze waarden kort kunnen bespreken en toelichten hoe deze in welke contactmomenten naar voren komen? Beginnend bij de waarde die u op 1 heeft gezet.

4) Hoe zou de andere organisatie deze tabel met waarden rangschikken en waarom denk je dat? (Gebruik kolom #2 van tabel 2)

Nu schakelen we over naar een paar vragen over de contactmomenten tussen de opdrachtgever-opdrachtnemer.

5) Hoe heeft u de contactmomenten met de andere organisatie ervaren?

Beschouw de formele contactmomenten lijst van tabel 3. Deze tabel bevat de contactmomenten die zijn teruggevonden in de officiële documentatie van het project.

6) Kunt u bevestigen dat deze lijst correct en compleet is?

7) Hoe zou u de formele contactmomenten uit tabel 3 rangschikken als u kijkt naar hun nuttigheid en waarom?

Dit onderzoek kijkt ook naar de informele contactmomenten. Deze contactmomenten zijn door het onderzoek gedefinieerd als momenten die OG & ON bewust afspreken om samen te komen en die niet voorgeschreven staan in het contract.

8) Wat waren de informele contactmomenten in uw project en wat is het nut en de noodzaak van deze informele contactmomenten?

9) Hoe zou u deze dan rangschikken relatief tot de formele contactmomenten als weer gekeken wordt naar het nut van het contactmoment en waarom?

10) Wat maakt een contactmoment (formeel of informeel) goed of slecht in uw ogen?

11) Wat is het verschil tussen de doelgerichtheid van informele en formele contactmomenten?

12) Als je zowel informele als formele contactmomenten beschouwd, hoe zou een perfecte contactmoment structuur er dan vervolgens uitzien voor jou in dit project?

13) Hoe draagt een contactmoment voor u bij aan het beschermen of creëren van waarde?

Dit was het interview, is er nog iets wat u zou willen toevoegen op een van de onderwerpen of vragen?

Tabel 1 De publieke en private waarden die het meest frequent voorkomen als belangrijk.

Waarde set	Definitie	#1	#2
Aansprakelijkheid	De mate waarin iemand verantwoordelijk is voor de inhoud van het project in financiële, juridische en technische aspecten, en ook voor de prestaties die worden geleverd tijdens de verschillende fases van het project.		
Efficiëntie	Het bereiken van een doel met zo weinig mogelijk middelen.		
Integriteit	Eerlijk en oprecht zijn en ethisch handelen naar elkaar toe.		
Kwaliteit	Het geheel van eigenschappen en kenmerken van een product of dienst dat van belang is voor het voldoen aan gestelde eisen of behoeften.		
Transparantie	Openheid, zichtbaarheid en toegankelijkheid van het product, de processen, de organisatie en in gesprekken naar elkaar en anderen.		
Veiligheid	De mate van afwezigheid van potentiële oorzaken van een gevaarlijke situatie of de mate van aanwezigheid van beschermende maatregelen tegen deze potentiële oorzaken.		
Winstgevendheid	De mate waarin hoe wordt gehandeld om politiek, economisch of bureaucratische winsten te behalen.		

Tabel 2 Andere publiek en private waarden die minder frequent voorkomen als belangrijk.

Waarde	Definitie
Betrouwbaarheid	De mate waarin het eindproduct, de gebruikte technieken en de processen in het project te vertrouwen zijn.
Collegialiteit	Het ondersteunen en helpen van je collega's wanneer dat nodig is en rekening houden met hun behoeften en belangen.
Duurzaamheid	Het voorkomen van het gebruik maken van natuurlijke bronnen om een ecologische balans te houden.
Eerlijkheid	Met goede voornemens en zonder leugens of bedrog handelen met elkaar.
Effectiviteit	De mate waarin iets succesvol is om een gewenst resultaat te verkrijgen.
Eindgebruiker-tevredenheid	De mate waarin de eindgebruiker van een project positief reageert op de uitkomst van het project.
Expertise	De kennis en ervaring die meewerkende organisaties en personen hebben van het project.
Functionaliteit	Geschiktheid van het eindproduct voor het einddoel.
Gehoorzaamheid	Bereidheid of verplichting om te luisteren naar een persoon of organisatie en daarop te handelen
Gelijkheid	Het principe dat alle mensen evenwaardig zijn en gelijke rechten hebben.
Innovatie	Het gebruik maken van vernieuwende processen of producten om te resulteren in verbeterde producten.

Karakter	Het bereiken van bepaalde eigenschappen van het eindproduct waardoor het een kenmerkend punt van de (lokale) samenleving wordt.
Leiderschap	De aanwezigheid van goed leiderschap in beide organisatie. Leiders hebben goede persoonlijke eigenschappen, zoals onder andere gerechtigheid, eerlijkheid, effectief in groepsprocessen en respect.
Moed	De bereidheid en eigenschap om confrontatie aan te gaan en te doorstaan.
Onpartijdigheid	Iedereen behandelen met dezelfde betrokkenheid en respect.
Openheid	Het openstaan voor elkaar, elkaars werkwijze en gebruiken, en eerlijk zijn naar elkaar.
Participatie	De mate van deelname van het bredere publiek aan de processen in het project.
Rechtmatigheid	De mate waarin de handelswijze en documentatie van alle processen en gesprekken in het project in overeenstemming zijn met de geldende regels en besluiten.
Samenwerking	Het werken met de andere organisatie aan een gezamenlijk doel.
Schoonheid	De mate waarin het eindproduct de esthetische eigenschap bezit.
Sociale gerechtigheid	De mate waarin het eindproduct een eerlijke en rechtmatige afspiegeling is naar de kosten en overlast die het heeft gemaakt voor de (lokale) gemeenschap.
Verantwoordelijkheid	De plicht hebben om bepaalde processen of activiteiten goed te laten afronden.
Vertrouwen	Het betrouwbaar achten van elkaar en de andere organisatie in activiteiten en processen.

Tabel 3 Formele contactmomenten tussen opdrachtgever en opdrachtnemer volgens de documentatie.

Contact moment	Omschrijving	Aanwezige(n) OG	Aanwezige(n) ON

Note 1: The input of this table 3 is different for all case studies. It holds the formal contact moments, its description and the representatives from both the client and contractor.

Note 2: The definitions are translations from the definitions given in Appendix B.

APPENDIX B Definitions of values

This appendix will provide the definitions of the values shown in section 2.4 and later on in the interviews. The source is written behind the definition and refers to the official References section of this research. Some definitions have been adapted to be applicable for construction projects. Table 1 shows the definitions of the created value set of section 2.4, while table 2 shows all other found values.

Table Appendix 1 The definitions of the created value set.

Value	Definition (source)
Accountability	"The ability of the procurer to account for (1) the content of the project in financial, juridical and technical terms, and (2) for the actual performance during the construction and operational phases" (Reynaers, 2014, p. 143).
Efficiency	Reaching a goal with the least amount of resources (De Graaf, Huberts, & Smulders, 2013).
Integrity	The traits of having a good character, such as good moral compass, fairness and honesty (Palanski & Yammarino, 2007).
Profitability	The degree to which is acted in order to accomplish political, economic or bureaucratic gain (Van der Wal, 2008).
Quality	The degree to which the outcome is according to specifications (Ogunlana, 2010).
Safety	The degree to which potentially dangerous situations are absent or the degree to which there are precautionary measures to prevent these situations (Nilsen, et al., 2004).
Transparency	The degree to which information and processes are visible, accessible, accurate and complete for others to see (Michener & Bersch, 2013).

Table Appendix 2 The definitions of all other values.

Value	Definition (source)
Beauty	The degree to which the end-product is aesthetically pleasing (Holbrook, 1999).
Character	Achieving a set of properties for the end-product that make it positively distinguishable for the community (Doris, 2002).
Collaboration	Working together to reach a mutual objective (Koops, 2017).
Collegiality	Being able to go along and support colleagues in a project (Hatfield, 2006).
Courage	The property of willingly engaging your confrontations (Woodard, 2004).
Effectiveness	The degree to which something is successful for a desired result (Fugate, Mentzer, & Stank, 2010).

End-user satisfaction	The degree to how content the consumer of the end-product is with the end-product (Tarafdar, Tu, & Ragu-Nathan, 2010).
Equality	The objective behaviour towards each other (De Graaf, Huberts & Smulders, 2013).
Expertise	The degree to which is acted with the correct skillset, knowledge and know-how (Van der Wal, 2008).
Functionality	"The quality of being suited to serve a purpose well; practicality." (Oxford Dictionary, 2019)
Honesty	The degree to which you are truthful to each other and the other involved organizations and the capability of keeping the promises that were made (Van der Wal, 2008).
Impartiality	Treating all actors with the same involvement and respect (Dahl, 1989).
Innovation	The creation and application of new and improved processes in a project (Edquist, 2010).
Legality	The degree to which processes go according to the rules and or law (De Graaf, Huberts & Smulders, 2013).
Leadership	The presence of good leaders in both organizations. Leaders have good personal traits, such as social, just, effective in the group process and respect amongst others (Bolman & Deal, 2017).
Obedience	The degree to which people from the other organization are able to listen and act on what is said in the processes of the project.
Openness	The degree to which the processes are transparent for other people or organizations (De Graaf, Huberts & Smulders, 2013).
Participation	The degree to which the public is involved in the processes of a project (Brabham, 2009).
Reliability	The degree to which the end-result, the technique and the processes in the project are trustworthy (Golafshani, 2003).
Responsibility	The obligation to perform accordingly to what is expected of you (McGrath & Whytty, 2018).
Social justice	The degree to which all processes and the end-product of the project are justifiable towards society regarding equality, economic, social and educational aspects (Theoharis, 2007).
Sustainability	Project "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987).
Trustworthiness	Having the qualities of confidence and good expectation in each other and the other organization in the project (Hardin, 2002).