



Public-private partnerships:

The influence of contractual and
relational conditions on external
stakeholder management

A case study of the A9 and A16
infrastructure projects

Master thesis Environmental and
Infrastructure Planning

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Preface

With this thesis I will finalize the master Environmental and Infrastructure Planning and the bachelor of Spatial Planning and Design. In these four years that have flown by, I have learned a lot about the world of spatial planning. During the last year, my interest in complex infrastructure projects and collaboration in decision-making grew.

I want to thank my supervisor Stefan Verweij for sparking my interest in the field of public-private partnerships. Your always critical yet very constructive feedback helped me to get the best out of myself and to come up with new ideas every time. The meetings were always very pleasant and productive. I would also like to thank Bert de Groot, for becoming my second supervisor during the process. Without your help, I would not have been able to get in touch with Rijkswaterstaat so easily. You also helped me to make the connection between the abstract world of theories, data, and research methods, and the practical reality of the researched projects.

My special thanks go to Lammert Postma, the external stakeholder manager of the A9. At the A9 project office, I worked on my thesis for a few months. You immediately made me feel very welcome at Rijkswaterstaat, where you took me along to several meetings, which opened my eyes to the very interesting world of managing citizens and other stakeholders in such infrastructure projects. I liked your personal and knowledgeable way of dealing with every stakeholder, whether it is a citizen that complains about noise nuisance, or an influential stakeholder like Amsterdam. I also want to thank all other members of the A9 project team, who made the two hour travel time worthwhile. Lastly, I want to thank all other managers for the interviews that I could arrange very easily, and all the other people that contributed in any other way to this thesis.

I hope you enjoy reading my thesis as much as I enjoyed writing it.

Abstract

Keywords: public-private partnerships; stakeholder management; infrastructure management; contractual governance; relational governance; collaboration; case study research

In the Netherlands, infrastructure projects are increasingly implemented as public-private partnerships, in the form of DBFM contracts. These are contractual arrangements between public and private parties that include private finance and the bundling of design, construction, and maintenance into a single contract. DBFMs rely on a strict contractual division of risks and responsibilities, whereas the idea is that the collaboration between the public and private party has advantages for them. Recent literature focused on the question whether contractual or relational conditions explain outcomes for the internal parties. However, an understudied aspect is the complex external stakeholder environment in which DBFMs have to be implemented, which can hinder the realization of infrastructure projects. This research fills these research gaps by answering the research question: 'How does the interplay between contractual and relational conditions in the internal organization of public-private partnerships, influence external stakeholder management approaches?' Studied contractual conditions are sanctions and risk transfer, and relational conditions entail communication and interaction, trust, and conflict management. A mixed methods comparative case study was done to gather qualitative and quantitative data, combining a social network analysis, participatory observation, and 11 semi-structured interviews at the A9 Gaasperdammerweg and A16 Rotterdam projects.

The social network analysis shows that Rijkswaterstaat and the Special Purpose Vehicle are the most influential stakeholders in the PPPs. The semi-structured interviews reveal that the contract is mainly used to structure the collaboration, and that mainly the relational conditions are crucial for managing external stakeholders, especially if there are differences in the interpretation of the contract. Despite the risk transfer to the private parties, the public and private party show a collaborative approach in managing the external stakeholders. Rijkswaterstaat built up knowledge in the preparation of the projects, and is therefore influential in the flow of knowledge and authority through the networks. However, there were differing degrees of success between the projects in managing the external stakeholders. This was mainly due to the differences in trust and transparency between the two projects. These differences resulted in different issues managing the external stakeholders: the verification of requirements, the transition from preparation to realization, requesting permits, dealing with the most affected citizens, and issues with administrative stakeholders using their formal powers in the permitting process. The results additionally show the relevance of tackling nuisance through sanctions. Recommendations to improve the external stakeholder management are to fix a good working model with regards to verification and external stakeholder responsibilities, and expanded financing for dealing with the most affected citizens.

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BOT..... Benen op Tafel overleg	PPP..... Public-Private Partnership
DO..... Definitief Ontwerp	QCA..... Qualitative Comparative Analysis
DBFM... Design Build Finance Maintain	RWS..... Rijkswaterstaat
EMVI... Economisch Meest Voordelige Inschrijving	SNA..... Social Network Analysis
EPC..... Engineering Procurement and Construction	SPV..... Special Purpose Vehicle
EPCM... Engineering Procurement and Construction Management	UVO..... Uitvoeringsovereenkomst
ES..... external stakeholder	UO..... Uitvoeringsontwerp
MTC..... Maintenance Company	VAP..... Vinger aan de pols
	VO..... Voorlopig ontwerp

1 Introduction

1.1 Background information

The last decades there has been an increase in the amount of Dutch infrastructure projects that are implemented as a public-private partnership (PPP). This is a hybrid organizational form between the government and private parties (De Schepper et al., 2014). Verweij et al. (2017, p.120) describe a PPP as an: ‘enduring contractual relationship between two or more partners of which at least one is a public body, in which both public and private partners bring some kind of resources (e.g., money, property, authority, knowledge) to the partnership and in which responsibilities and risks (e.g., financial, economic, social) are shared for the purpose of delivering public infrastructure-based products and/or services’.

The focus in this thesis will be on road infrastructure PPPs. In the Netherlands, a common contract form in this type of PPPs are Design Build Finance Maintain (DBFM) contracts, covering a period of 15-30 years (Klijn & Van Twist, 2007). In a DBFM, the financing and the multiple phases of a project process are bundled in an integral contract and are then tendered to the market. The government only makes sure the government’s requirements and objectives are met (Rijkswaterstaat, 2019a).

In PPPs, private parties thus get a larger role compared to traditional contracts (Verweij, 2018b), as the risks and responsibilities of projects are shifted largely towards the market. The idea is that involved parties can focus on their core tasks and simultaneously use the qualities and resources of the other (such as money, properties, knowledge, and reputation) by collaborating (Klijn & Van Twist, 2007). In turn, the synergies between two or more organizations can create a ‘collaborative advantage’: something that cannot be achieved by the individual organizations alone (Huxham & Vangen, 2004).

Governments opt for PPPs rather than traditional contracts, because they expect financial, time, and quality benefits (Hodge & Greve, 2017; Hodge et al., 2018; Himmel & Siemiatycki, 2017). However, there is growing consensus in literature that the benefits of PPPs should be derived from more than just these benefits for the internal organization, and that PPPs also have an effect on people and organizations outside the PPP (Verweij, 2018b). Verweij (2018b) mentions that this dimension is less understood, especially in relation to the internal value that also needs to be created for the public and private party. The internal organization is regarded as the entities within the public-private partnership that are charged with delivering the project (Amadi et al., 2018), in which the main parties are the public one (client) and the private one (contractor). The Innovation Agenda 2015-2020 of Rijkswaterstaat (Rijkswaterstaat, 2014) regularly mentions the need to create benefits for people and organizations outside PPPs, but it is not clear how this is achieved. In academia, the importance of external stakeholder management (ESM) to achieve benefits for external stakeholders in PPP projects also remains underexposed (De Schepper et al., 2014; Nederhand & Klijn, 2017).

The success of PPPs could be enhanced by capturing and addressing the external stakeholder environment, by having appropriate ESM processes in place (De Schepper et al., 2014). This is because PPPs are part of a dynamic external stakeholder environment, which refers to the citizens, societal organizations, and administrative stakeholders outside the PPP organization that have a legitimate interest in a project (El-Gohary et al., 2006). Citizens and societal organizations face negative externalities during the realization phase of infrastructure projects, such as noise nuisance and limited accessibility during construction (Verweij et al., 2017). This might cause them to act negatively, e.g. going to court. Contrarily, close involvement of external stakeholders can result in support (Nederhand & Klijn, 2017), can speed up the implementation of projects, and can even produce mutual satisfaction (Verweij et al., 2017). Furthermore, consensus with administrative stakeholders can smoothen the realization phase (Verweij, 2015a).

However, the management of external stakeholder environments becomes more complex in PPPs. There

is a complex interplay of contractual and relational conditions between the private and the public party, due to the sharing of responsibilities and resources between a high number of stakeholders, which increases the amount and intensities of mutual dependencies (Klijn & Teisman, 2003; Mok et al., 2015). This could cause questions to arise on the allocation of ESM responsibilities in the internal organization. In the internal organization, collaboration is regarded as (a combination of) contractual and relational conditions. On the one hand, a contract determines the division of risks and responsibilities between the public and private party. Contractual aspects are 'a formal mechanism or constitutive rules defined in written documents and sanctioned through a formal position of authority and ownership' (Benítez-Ávila et al., 2018), and consist of risk transfer and the possibility of sanctions (Warsen et al., 2019). These two aspects structure how the cooperation in a PPP proceeds (Klijn & Teisman, 2003; Koppenjan, 2005). So cooperation is mainly about accomplishing a task by dividing it among participants, where each person is responsible for a part of the problem solving (Kozar, 2010). In PPPs, there is often a tight contract with responsibilities for stakeholder management transferred to the private party, which can then impede the management of the dynamic external stakeholder environment (Steenhuisen & De Bruijne, 2015). For instance, the transfer at the A15 Maasvlakte project led to low interaction with administrative external stakeholders due to financial incentives of the private party (Neerlands Diep, 2016; Verweij, 2015a). On the other hand, collaboration implies that there is a 'mutual engagement of participants in a coordinated effort to solve the problem together' (Kozar, 2010, p.16). Literature increasingly recognizes the importance of relational conditions between contractual partners for successful collaboration (Warsen et al., 2018), which entail the informal rules of social exchange. Aspects are communication and interaction, trust, and conflict management (Warsen et al., 2019; Benítez-Ávila, 2018). The complexity of the external stakeholder environment requires a joint ESM, in which collaboration across the limits of the contract is crucial (Verweij, 2015a). However, the differing perspectives on external stakeholders' legitimacy, the complex trust relations between the two project teams, and a focus on contractual agreements can keep external stakeholders out of the picture (De Schepper et al., 2014).

1.2 Research aim

Recent literature has focused on the dichotomous question whether contractual or relational aspects are the most important for explaining outcomes for the internal organization (e.g. time, money, quality benefits) (Verweij, 2018a). However, Edelenbos and Teisman (2008) and Van Gestel et al. (2012) stress the relevance of a successful combination or balance of contractual and relational aspects. Nevertheless, the way contractual and relational conditions interact within the internal organization of infrastructure projects is not yet well understood (Nederhand & Klijn, 2017). Furthermore, the scarce literature on this topic focuses on outcomes for the internal organization (e.g. Warsen et al., 2019; Nederhand & Klijn, 2017). Therefore, this thesis uses a research perspective in which contractual and relational aspects are not seen as opposite to each other, but as in relation to each other. Secondly, a more outward looking view is taken by focusing on benefits for the external stakeholder environment as well.

The aim of this research is therefore to understand how the interplay between the contractual and relational conditions in the internal organization, influences ESM approaches. A successful combination of contractual and relational aspects to manage the dynamic external stakeholder environment can potentially facilitate the realization phase of PPPs, which is beneficial for both the internal organization and external stakeholders.

This thesis will therefore compare two Dutch road infrastructure DBFM-projects procured by Rijkswaterstaat, that are in the realization phase. The management of the realization phase, the phase of

'infrastructure construction and/or service delivery' (Jones & Noble, 2008, p.109), remains relatively underexposed in research (Verweij et al., 2017). The realization is an important phase though, because thorough public-private agreements and project preparations can fail during the realization phase (Verweij et al., 2017). Next to that, the ESM and the interplay between the contractual and relational aspects can be measured best in that phase, because details and intricacies about the measured variables are not yet lost. Both projects being in the same phase also facilitates comparison. The focus in the internal organization will be on the public initiator and the private party, and in the external stakeholder environment on citizens and administrative stakeholders.

1.3 Research question and sub-questions

The aim of the research leads to the following research question:

How does the interplay between contractual and relational conditions in the internal organization of public-private partnerships, influence external stakeholder management (ESM) approaches?

Secondary research questions will be answered in order to answer the main research question:

1. *Which stakeholders are involved in public-private partnerships and how are they linked through contracts?*

Social-network analysis (as described in chapter 3.2) will result in a figure which visualizes how both internal and external stakeholders are linked to each other through contracts. This is relevant for the other sub-questions, as the figure will show which linkages are of importance in the PPPs, so the contractual and relational conditions influencing those linkages can be studied. Results are discussed in chapter 4.1.

2. *What ESM approaches do the internal stakeholders use?*

Information for this sub-question will be derived from project documents, contracts, and interviews with external stakeholder managers. Results are discussed in chapter 4.2.

3. *How do contractual conditions influence ESM approaches according to the internal stakeholders?*

To see how contractual conditions influence the ESM approaches, semi-structured interviews with project team members on both the private and public side will be used to derive this information. Results are dealt with in chapter 4.3.

4. *How do relational conditions influence ESM approaches according to the internal stakeholders?*

Studying the relational conditions will also rely on the semi-structured interviews with both the private and public side. The results are shown in chapter 4.4.

5. *How does the interplay between contractual and relational conditions influence ESM approaches?*

This sub-question will address the 'interplay' part of the research question. With the last sub-question, the research question can be answered, combining the gathered data from the previous sub-questions. The results are shown in chapter 4.5.

1.4 Scientific and planning relevance

This thesis is expected to contribute to planning practice and academia. During the last years, there has been research into the effectiveness, management, legitimacy, transaction costs, and collaboration processes of PPPs (Villani et al., 2017). However, a number of research gaps remain.

Firstly, Chowdhury et al. (2011) and De Schepper et al. (2014) call for more research into the roles of the different stakeholders, how these roles are related to each other, and how the structure of a PPP can have certain implications (in this research type of stakeholder management). From this it can be derived that the structure of a PPP, in terms of contracts, possibly has an influence on ESM approaches. This research aims to contribute to close the research gap about the relation between the structure of a PPP and the ESM, by mapping and analyzing the contractual structures of PPPs with social network analysis (SNA), and how those structures in turn affect ESM approaches. This research aims to gain understanding of those contractual and relational ties.

Recently, Warsen et al. (2019) researched how specific combinations of contractual and relational conditions (sanctions, risk transfer, trust, and conflict management) play a role in the performance of PPPs, with a Qualitative Comparative Analysis (QCA). It is particularly this interplay between contractual and relational governance that has gained attention in the study of inter-organizational arrangements. However, the results are not conclusive, and the nature of their interplay still remains ambiguous, according to a systematic literature review by Cao & Lumineau (2015). Warsen et al. (2019) found that contractual aspects have to be complemented by relational aspects. However, outcomes were limited to time, budget, value-for-money, and satisfaction with performance, so values for the internal parties. This thesis will therefore address this second research gap by looking at the influence of the interplay of relational and contractual conditions on ESM approaches, taking an outward looking view.

Nederhand & Klijn (2017) identified a third research gap: a lack of qualitative and detailed knowledge of how trust and conflicts in the internal organization affect ESM. This thesis specifically looks at these conditions, by using a qualitative approach in exploring the influence of these and other conditions, on ESM approaches.

For planning practice, the results of this study can be valuable for different parties that are involved in PPPs. For public service officials, it is insightful to know how the needs of external stakeholders can be addressed in PPPs, because current arguments for choosing PPPs are mainly based on solving time and budget overruns (Warsen et al., 2018). For both the private and the public party, effective stakeholder management can contribute to the legitimacy of projects. Therefore the insights from this study can be especially relevant for project teams, to establish an organizational form that is beneficial for its external stakeholder environment. Furthermore, it will be interesting to see whether an increased focus on relational aspects, for instance promoted in the Dutch Market Vision (Marktvisie, 2016), has turned into reality with regards to managing external stakeholders. The results of this study could lead to an advice directed towards the parties involved in a PPP on how to establish a certain organizational form that facilitates relational conditions and facilitates effective ESM.

1.5 Research design

The primary research strategy is a comparative case study. Case studies are the A9 and A16 highway projects, to gain an in-depth understanding of the relation between contractual and relational conditions, and ESM. The double case study allows for comparison between the two cases.

A mixed method approach is used to gather both qualitative and quantitative data. First of all, a social network analysis (SNA) is done. By using SNA, the relevant and influential stakeholders and how they are related to each other, can be identified and visualized as a first step.

Secondly, semi-structured interviews with members of the A9 and A16 project teams are held to gather a combination of qualitative and quantitative data. Thirdly, participatory observation is used to gain additional qualitative data. A further explanation of the research methodology can be found in chapter 3.

1.6 Reading guide

This thesis consists of five chapters and appendices. The first chapter has given an introduction on the topic and has introduced the research questions. The next chapter will encompass the theoretical framework, discussing PPPs and the relevant theories and concepts. This will result in a theoretical framework, employed to carry out the research. Chapter 3 contains the used methodology to answer the research question and an elaboration on the two case studies. Chapter 4 will analyze and compare the obtained data, resulting in an answer to the research question in chapter 5. Chapter 5 will also discuss the relevance of the results, the contribution to science and planning practice, recommendations for further research and a reflection on the data collection.

2 Theoretical framework

This chapter will deal more in-depth with the theories, definitions, and conditions that will be used to carry out the research. To give a background, it will first elaborate on what PPPs entail, then the phases and structure of a PPP will be discussed. Subsequently, ESM will be elaborated upon. Then, the contractual and relational conditions that influence ESM will be examined. Finally, a conceptual model is presented that links the several definitions and theories.

2.1 What is a PPP?

The interest for PPPs emerged in the 1980s and 1990s in the United Kingdom, and in the 1990s in the Netherlands (Eversdijk & Korsten, 2015). Governments experienced fiscal deficits and looked for alternative ways to finance government services (Forrer et al., 2010; Koppenjan, 2005). New Public Management also influenced politics, envisioning a more efficient and effective government, with an increased role for the market (England & Ward, 2007; Rhodes, 1996).

This has led to a diversity of governance forms with increased private involvement, of which a PPP is one. However, multiple forms of PPPs exist and there is a considerable debate about the meaning of a PPP (Iossa et al., 2007). Within the definition of Klijn & Teisman (2003, p.137), 'cooperation between public and private actors with a durable character in which actors develop mutual products and/or services and in which risks, costs, and benefits are shared', the structure of a partnership can range from legally binding contracts to loose general agreements to cooperate.

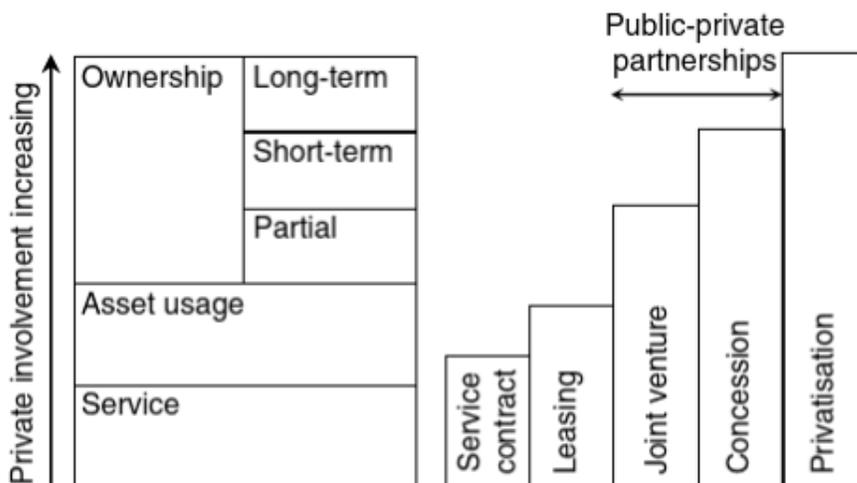


Figure 1: Different private sector involvement levels (Dewulf et al., 2011)

To narrow down the research, Dewulf et al. (2011) describe a PPP as an organizational structure, with a degree of both public and private responsibilities and where the public party can still exercise ownership rights and control over the infrastructure provisions. This organizational structure can be a concession or a joint venture (see fig. 1):

- Concessional PPP: there is a hierarchical client–contractor relationship. Responsibilities are divided between the partners and fixed in contracts (Leendertse, 2015; Yescombe, 2007).
- Alliance/joint venture PPP: horizontal relationships and sharing risks between public and private partners are core (Winch, 2010). The idea is that the partners pursue a common goal and responsibilities and tasks in implementation are taken on jointly. However, most joint ventures still have a contractual relationship between public and private partners, keeping a somewhat hierarchical client-contractor relationship. Furthermore, the different interests can hinder the pursuance of a common goal (Leendertse, 2015).

In the Netherlands, the concessional form is prevalent (Verweij et al., 2017; Dewulf et al., 2011), which facilitates comparison in this thesis. Verweij et al. (2017, p.120) use the following definition, fitting a concessional PPP: ‘an enduring contractual relationship between two or more partners of which at least one is a public body, in which both public and private partners bring some kind of resources (e.g., money, property, authority, knowledge) to the partnership and in which responsibilities and risks (e.g., financial, economic, social) are shared for the purpose of delivering public infrastructure-based products and/or services’. Similarly, Koppenjan (2005, p.137) uses: ‘structured cooperation between public and private parties in the planning, construction and/or exploitation of infrastructural facilities in which they share or reallocate risks, costs, benefits, resources and responsibilities’. This reveals that contractual relationships and structured cooperation are at the core of a concessional PPP. The structured cooperation can be perceived as a result of contractual relationships: the contracts determine largely how the cooperation will proceed. Combining the strengths of both definitions leads to the following narrow definition, used for the rest of this thesis:

‘An enduring, contractual relationship that structures the cooperation between two or more partners of which at least one is a public party, in which all parties bring some kind of resources (e.g. money, property, authority, knowledge) to the partnership and in which responsibilities and risks (e.g. financial, economic, social) are shared for the purpose of delivering public infrastructure-based products and/or services.’

Whereas this definition might not encompass all types of PPPs, it is a more suitable definition for contract-based PPPs in infrastructure projects.

There is a number of key elements of these concessional PPPs (Yescombe, 2007; Steijn et al., 2011; Forrer et al., 2010):

1. There is a long term contract between a public and private party
2. The private party designs, constructs, finances, maintains, and/or operates public infrastructure: there is an integration of project phases into a single contract. Agreements between the public and private sector that do not bundle these activities can be regarded as outsourcing
3. The private party is responsible for financing the project
4. Public and private parties have to mutually align their activities and daily routines to realize a desired exchange of information. This results in a specific and highly structured organizational arrangement that enhances the collaboration process, governs the cash flows, and allocates risks and profits (see chapter 2.3)
5. Risk and profit sharing is needed: public and private actors share risks and sometimes profits. These might be financial profits or societal benefits, e.g. a higher quality of the infrastructure
6. Instead of the government bearing most of the risk, there is a high level of risk transfer to the private party

Worldwide, there is a large variation of different contract types of contract-based PPPs, shown in figure 2 (Walker & Smith, 1995; Buxbaum & Ortiz, 2009). In a BOT for example, the ownership of the project belongs to the contractor during the contract, and in a DBFO the contractor carries a high exploitation risk (Ministerie van Verkeer & Waterstaat, 2008). Miller (2000) regards these contractual arrangements as comparable delivery methods in which the client procures design, construction, financing, and maintenance and/or operation of an asset, and accompanying services as an integrated package delivered by a single contractor. The comprehensive figure below shows a number of these contract types on a spectrum of little to much private sector involvement.

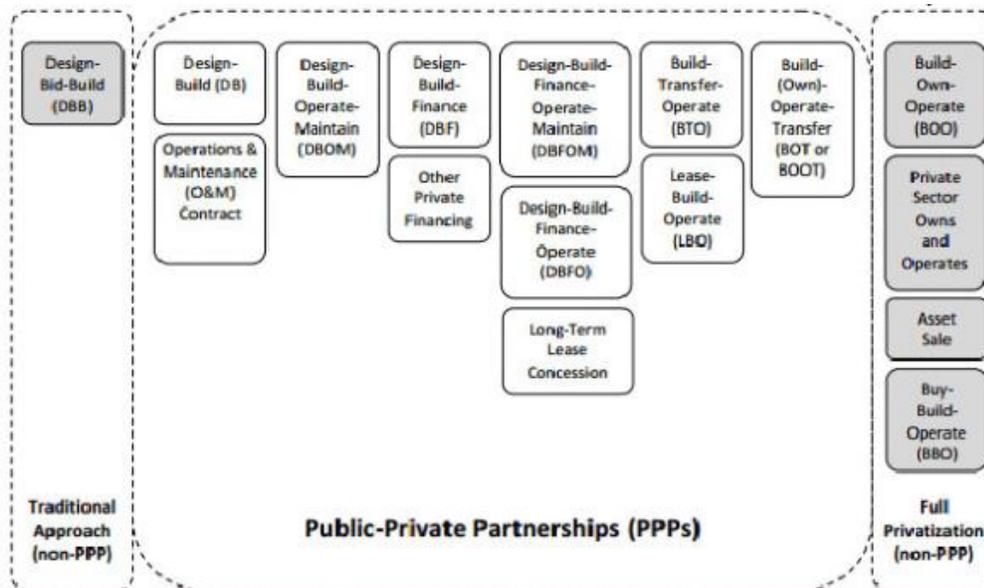


Figure 2: Concession type PPPs on a spectrum from a traditional approach to full privatization (Buxbaum & Ortiz, 2009)

In the Netherlands, the concessional form of the Design, Build, Finance, and Maintain (DBFM) contract is prevalent (Verweij et al., 2017; Dewulf et al., 2011), so the focus will be on this type. Winch (2010, p. 29) however argues that in concessions, the contractor should operate the ‘facility for a pre-defined period, the capital investment being repaid through the revenue stream generated by the operation of the facility’. The Dutch DBFM model does not include revenue through tolls, and as such, the DBFM contract can be seen as an adaptation of the international concession model (DBFMO), used in countries such as France and Spain where the concessionaire is awarded on the basis of toll collection (Dewulf et al., 2011). Figure 3 shows where DBFMs are in the typology of PPPs.

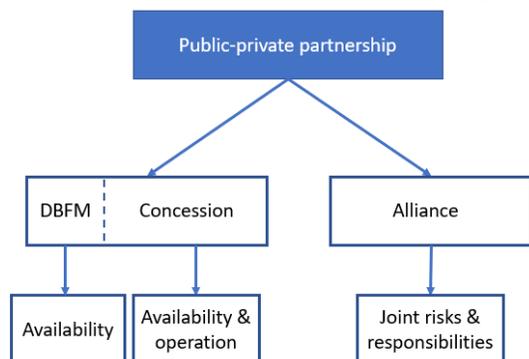


Figure 3: Typology of PPPs

DBFMs are different from traditional forms that are used in the Netherlands. In the most traditional form, there is a separate contract for each phase (see fig. 4). The government formulates detailed specifications and there is a strict separation between design and construction. In the much used Design & Build contracts, the government still lists the specifications, but the contractor has to do both the design and the construction, so there is more integration (BNG Advies, 2012). DBFM can be seen as the most integrated type of concessional PPP used in the Netherlands, in which the private parties are expected to contribute financially to the PPP project, with their own assets or through external financiers (Koppenjan, 2005). Also, the maintenance is integrated into the contract, for the length of the contract (BNG Advies, 2012).

This thesis thus follows the previously presented definition of PPPs, with a focus on DBFMs, covering arrangements that include private finance and the bundling of design, construction, and maintenance into a single contract.

Degree of integration ↑ less ↓ more	Contract form	Design	Build	Maintain	Operate
		Contract with public financing			
	Traditional	Contractor A	Contractor B	Contractor C	Contractor D
	Design Build	Contractor A		Contractor B	Contractor C
	Design Build Maintain	Contractor A			Contractor B
	Design Build Maintain Operate	Contractor A			
	Contracts with private financing				
	Design Build Finance Maintain	Contractor A			Contractor B
	Design Build Finance Maintain Operate	Contractor A			

Figure 4: From traditional to integrated contract forms in the Netherlands (adapted from BNG Advies, 2012)

DBFM contracts could offer the following advantages, although they are debated:

- The contractor aligns the planning of the design, construction, and maintenance, leading to lower costs and a shorter preparation phase, compared to traditional contractual forms (Hodge & Greve, 2017, Rijkswaterstaat, 2019b)
- Bringing the different actors and scales together leads to creativity or innovation in the design and implementation of the project (Himmel & Siemiatycki, 2017; Rijkswaterstaat, 2019b)
- The client contracts out the construction, so the client can focus more on its core (public) tasks (Rijkswaterstaat, 2019b)

2.2 Phases of DBFM

DBFM-projects integrate the phases of design, construction, and maintenance into a single bundle. Financing is arranged in the procurement phase and is important for project control in the other three phases (Lenferink et al., 2013).

There is a limited amount of academic literature on the phases of a DBFM. The model of Weihe (2008b) is presented here, as it is the most comprehensive model, consisting of five phases (see fig. 5). In the design phase, the potential contractors make preliminary designs (*voorontwerp/VO*). In the procurement phase, the private consortium is chosen through a competitive dialogue and the contracts are signed. The contractor finalizes the preliminary design into a definitive design (*definitief design/DO*). Also, the private party has to attract funding from banks. The focus of this research is on the construction/realization phase, in which the project will be constructed. DOs are translated into a construction design (*uitvoeringsontwerp/UO*). When the realization is finished, the private party will receive a payment based on output specifications. In the commissioning phase the validation of the requirements forms an important aspect. Finally in the operational/maintenance phase, the project is maintained for a period of 15-30 years. The private party also receives payments, based on availability and service levels.

This model is limited in the fact that it does not include phases before the start of the tender that are important for the public party. For example, some other literature (e.g. Hueskes et al., 2017) also distinguishes an initiation phase in which the public party decides on the costs, needs, and benefits, and a preparation phase, in which a reference design is made and a contract form is chosen.

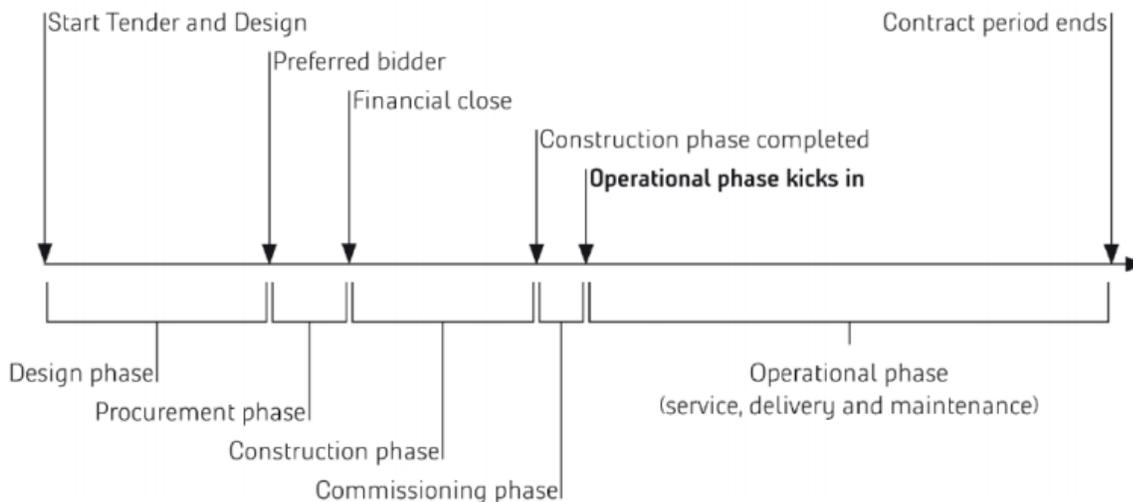


Figure 5: Phases DBFM project (Weihe, 2008b)

2.3 Structure of DBFMs

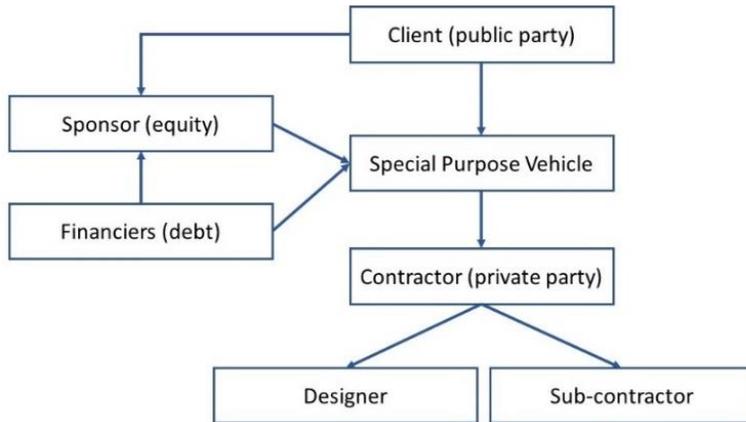


Figure 6: PPP general structure internal organization (adapted from Chowdhury et al., 2011)

DBFMs rely on a specific organizational structure, that governs the cash flows and the development and lifecycle of the project (PPP Certification, 2019). In the used definition of PPPs, contractual agreements form the basis for the relationships between the various internal stakeholders (see fig. 7). Internal stakeholders are regarded as the entities within the legal public-private partnership that are charged with delivering the project and form the internal organization of a PPP (Amadi et al., 2018). External stakeholders are the persons or organizations outside the PPP organization that have a legitimate interest in a project (De Schepper et al., 2014), but which are not charged with delivering the project. Contracts in the internal organization can be found between governments, financiers, contractors (the private parties), and maintainers, and make sure that the stakeholders within the PPP are linked to each other financially and legally. The structuring of DBFMs is complex, as the interests of a large number of parties and the relationships between them needs to be taken into account (De Schepper et al., 2014; Chowdhury et al., 2011). At the core of the internal organization is the Special Purpose Vehicle (SPV), a legal entity created to fulfill specific and temporary objectives (Sainati et al., 2016), formed by the private party. Different contracts link the SPV to other parties. Key is the PPP agreement, which is the contract between the public party and the private party. The engineering, procurement, and construction contract, and the maintenance contract are implemented by the same contractor in DBFMs, however there can be differences in the organizational structures.

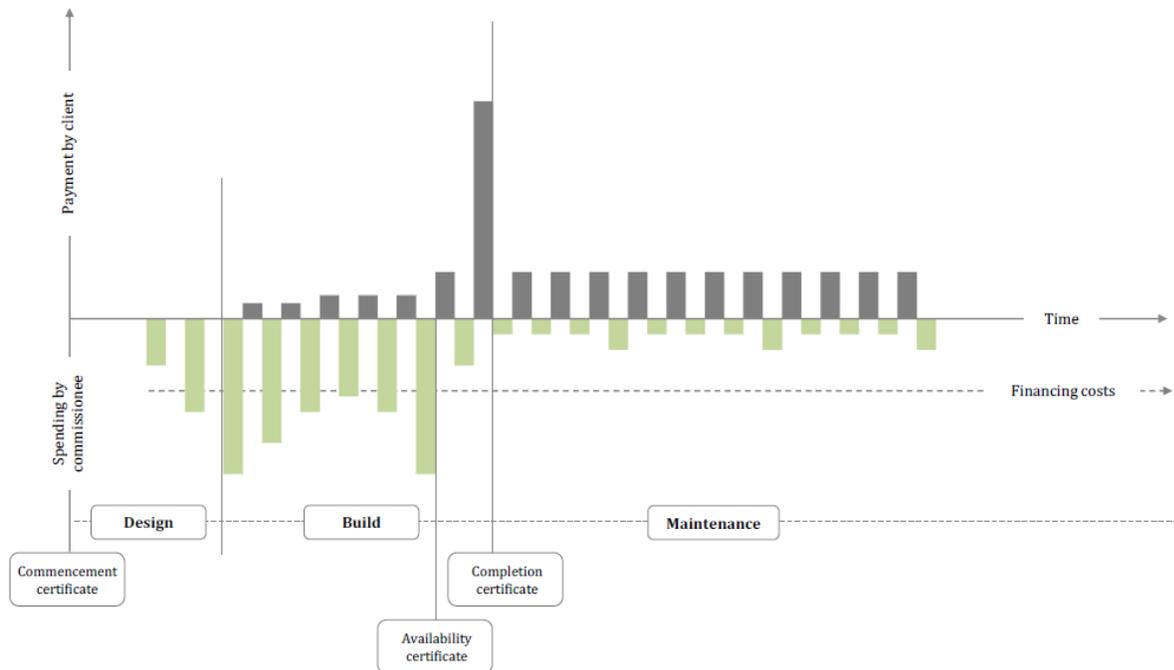


Figure 7: General payment mechanism of PPPs (PPP Unit, 2019)

The financial structure ensures how the private party is compensated for its costs (PPP Certification, 2019). In DBFM PPPs, payments to the private party are usually linked to when it meets performance requirements (Rijkswaterstaat, 2019b), so not when it incurs costs. Performance requirements are often based on availability to use, e.g. the actual ability of a user to safely use the infrastructure, or deemed availability/service level, e.g. a maximum amount of lane closures per year. Payments are therefore based on a 'service' and not a 'product'. Payments can also be linked to achieving quality requirements. Because the private party does not receive upfront payments, it has to attract funding through loans from financiers such as banks and institutional investments to pay the costs in the realization phase (Chowdhury et al., 2011). The private party usually also receives a payment when the realization phase is finished (completion payment) (see fig. 8).

2.4 Managing external stakeholders

Several authors emphasize the role of ESM in PPPs. El-Gohary et al. (2006) stress that stakeholder opposition can lead to undesired results in the implementation of PPPs, such as delays, budget overruns and legal procedures (El-Gohary et al., 2014). De Schepper et al. (2014) mention that addressing stakeholder concerns through the right stakeholder management processes is crucial for the success of PPP projects. The initial phase, in which there is no private party involved yet, is essential in preparing and reducing the potential for stakeholder resistance in the realization phase. The right ESM approach can prevent conflicts and opposition, can speed up the realization of projects, and can even produce mutual satisfaction (Verweij et al., 2017). Furthermore, consensus with administrative stakeholders can smoothen the project realization phase (Verweij, 2015a).

Freeman's pioneering work in stakeholder theory defined a stakeholder as 'a group or individual who can affect or is affected by the achievement of the organization's objectives' (1984, p.46) and introduced a few key concepts to identify (external) stakeholders: legitimacy, power, and urgency. Legitimacy is a 'generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, definitions' (De Schepper et al., 2014, p. 1212). Power is 'the relative access (discretion and control) to critical resources for a certain stakeholder group regarding its focal organization', whereas urgency is 'the degree to which stakeholder claims call for immediate attention' (De Schepper et al., 2014, p.1213-1214).

The stakeholder literature can be classified into normative, instrumental, and descriptive types (Donaldson & Preston, 1995). A descriptive type is most suitable for this research, as descriptive literature tries to answer questions such as: 'What tactics will the focal organization(s) use to manage their stakeholders?' (De Schepper et al., 2014). There are several descriptive models to identify external stakeholders (e.g. Savage et al., 1991; Friedman & Miles, 2002), but these generic models are not able to capture the complexity of PPPs. The model of De Schepper et al. (2014) addresses this weak point and will therefore be used. The more specific model explicitly makes a connection between stakeholder identification and stakeholder salience, i.e. the conditions under which a manager or organization is likely to respond to a stakeholder claim.

De Schepper et al. (2014) mention three important aspects: stakeholder identification, ESM approaches, and allocation of responsibilities.

Stakeholder identification

According to De Schepper et al. (2014), it is important to define first the stakeholders that have a potential influence on a project's success, which facilitates appointing the most appropriate focal stakeholder (public/private) responsible and/or accountable for the management of the identified stakeholders. The power-urgency balance matrix developed by Mitchell et al. (1997) and De Schepper et al. (2014) provides guidance to the conditions under which managers are likely to respond to stakeholders. It assigns a position of stakeholders with regards to their power and urgency:

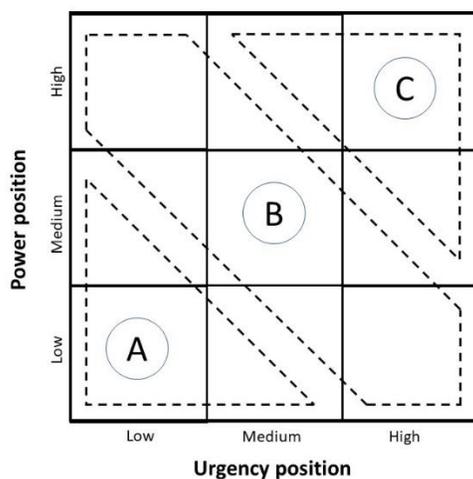


Figure 8: Stakeholder identification matrix (De Schepper et al., 2014)

ESM approaches

To combine the level of influence with the level of inclusion, De Schepper et al. (2014) identify three main ESM approaches linked to the position on the power-urgency matrix:

Location in stakeholder matrix	Influence	Definition	Appropriate management strategy
A	Minor influence on the project and the uncertainty in the project	Low power position, low urgency position	Inform; e.g. through open houses, newsletters
B	Potential influence on the project and uncertainty in the environment	Medium-high power position, medium-high urgency position	Involve; e.g. surveys, opinion polls, meetings, working groups
C	Direct influence on the project and environment	High power position, high urgency position	Collaborate; implies that they can steer the decision process directly

Table 1: Linking type of stakeholder with management approaches (De Schepper et al., 2014)

Allocating stakeholder responsibilities

Allocating stakeholder management responsibilities between the two main internal stakeholders (public and private party) can be problematic in PPPs. On the one hand, the management itself becomes more complex. The organization that identifies and manages stakeholders is not a unique actor, but both the public and private party play a role in identifying and managing external stakeholders (De Schepper et al., 2014). Therefore, responsibility and accountability on ESM become critical for the internal organization. The sharing of project management roles and their own perspectives on the power and urgency of external stakeholders, can make it difficult to allocate the stakeholder responsibilities between both focal organizations.

On the other hand, the external stakeholder environment is generally quite complex in PPP involving many stakeholders with different and sometimes unforeseen changing interests. A higher stakeholder complexity in terms of number of relationships between stakeholders and intensity of stakeholder interactions can be expected (El-Gohary et al., 2006; De Schepper et al., 2014).

The differing perspectives on stakeholder identification, approaches, and responsibilities can lead to the fact that levels of inclusion of external stakeholders can differ between the public and private party. De Schepper et al. (2014) found that meaningful allocation implies balancing reactive and proactive responses to stakeholder claims, and that a more reactive stakeholder approach is associated with public responsibility, whereas a proactive approach is associated with a private responsibility. Contrarily, Verweij et al. (2017) found that private parties are more likely to show reactive approaches, due to payment mechanisms.

On the one hand, these responsibilities and risks are dealt with through contracts, but on the other hand, relations are important for dealing with a dynamic and uncertain external stakeholder environment (Verweij, 2018a). The influence of contractual and relational conditions on ESM will be discussed in the next sub-chapters.

Operationalization

The following variables of ESM will be measured:

Variable	Sub-variable	Definition	Measurement scale
External stakeholder identification	EI1. Identified actor EI2. Power position EI3. Urgency position	EI1. Person or organization outside the PPP organization that has a legitimate interest in a project, and has been identified in stakeholder analysis EI2. Relative access (discretion and control) to critical resources for a certain stakeholder group regarding its focal organization EI3. Degree to which stakeholder claims call for immediate attention	EI1. Name/type of actor EI2. Low-medium-high EI3. Low-medium-high
Used ESM approach	A1. Approach	A1. Strategies or the lack thereof to deal with the needs of external stakeholders	A1. Inform/involve/collaborate
Stakeholder responsibility	SR1. Internal actor responsible for managing external stakeholder	SR1. Party that has the contractual duty to deal with the external stakeholder	SR1. Public/private party/shared

Table 2: Operationalization ESM

2.5 Influence of contractual conditions on ESM

DBFM contracts are strongly based on the principles of the ‘institutional economy’, which presupposes rationality and calculating behavior. Actors would use a ‘logic of consequences’: they choose the most optimal behavior based on their own interests and the (economic) incentives that are present (Koppenjan et al., 2018). To reduce this opportunistic behavior, contracts are used to structure the exchange between parties (Warsen et al., 2019). Parties can also use contracts as a guide to define roles, coordinate activities, and adapt the project to unforeseen circumstances. Product and exchange rules include agreements on performance, risk transfer, payments, and sanctions and dispute mechanisms (PPP Certification, 2019). Several authors identify two contractual conditions aimed at reducing opportunistic behavior between principals and agents: risk transfer and the application of sanctions (Hodge & Greve, 2007; Warsen et al., 2019; Akintoye, Beck & Hardcastle, 2008).

Risk transfer

Risk transfer is the act of defining to what extent which party will be responsible for which risk (PPP Certification, 2019). The idea behind risk transfer is that risks should be transferred to the party that is able to control or mitigate those risks (Rijkswaterstaat, 2019a). The risk transfer can lie anywhere between the private and public party, but a characteristic of PPPs is that a significant proportion of risks is assigned to the private party. The idea is that when the party that manages the risk also bears its financial cost, it will face incentives to mitigate risks and to perform (Hovy, 2015).

Verweij (2018a) mentions that the public party has built up relations with stakeholders in the preparation phase, although contractually risks and responsibilities for managing external stakeholders are often (fully) transferred to the private party in the realization phase. This mismatch of the risk transfer on ESM and the experience, skills, and knowledge of the contractor with regards to ESM, can lead to problems in managing external stakeholders (Verweij, 2018a). Contracts are often focused on achieving deadlines and agreed

performance targets over any other aspect of the project during the realization phase (Verweij et al., 2015a). Whereas the public party is likely to protect a wide variety of public interests, the market faces financial risks in case of an untimely realization of the project. As such, the involvement of external stakeholders and their third party wishes could be perceived as a threat to the achievement of targets in the contract (Nederhand & Klijn, 2017). De Schepper et al. (2014) mention that it is likely that stakeholders get too little attention as a result of this in the realization phase. Verweij (2015b) found a similar pattern: managers in the internal organization often apply internally-oriented and autonomy-seeking responses to events happening outside the PPP, not taking into account interests of the external stakeholders, leading to unsatisfactory outcomes. Externally oriented, cooperative management responses are associated with satisfactory outcomes. However, cooperative management requires joint actions between the public and private party, whereas this collides with the idea of a clear division of risks and responsibilities (Verweij, 2015b). To conclude, a high transfer of ESM risks to the public party possibly impedes the involvement of external stakeholders.

Application of sanctions

Sanctions are considered to be a crucial element of the contract governing the partnership (Warsen et al., 2019). The possibility of applying sanctions provides the public party with the option to make sure that the private party performs and adheres to the contract. Without sanctions, public parties would not have the ability to decrease opportunistic behavior of the private party if it would not perform up to standard. There are two types of sanctions:

- Sanction without a recovery period: a sanction that will be applied immediately if the monitoring process shows that performance does not live up to the required standards (Warsen et al., 2019). An example is a payment by the private party to the public party, or a deduction from the availability payment to the private party when the infrastructure is not available.
- Sanctions with a recovery period: a sanction in which the private party will be given a contractually defined recovery period to bring the performance to the required standards. Only when after this recovery period the performance still does not live up to the required standards, the private party will receive a sanction or deduction of the availability payment (Warsen et al., 2019).

Klijn & Koppenjan (2016) show that sanction possibilities have a negative effect on project performance, such as cost overruns and bad relations between parties. However, the exact effects on ESM are an understudied aspect, so this thesis will contribute to an understanding of this. At least, Nederhand & Klijn (2017) found that if sanctions are strictly applied to tight performance indicators, it is very difficult to include external stakeholders. This article did not mention that sanctions can also be connected to performance criteria that are specifically aimed at reducing nuisance or involving external stakeholders. A strict application of those sanctions possibly has positive effects on the level of external stakeholder involvement, as opportunistic behavior (e.g. choosing solutions which cause more nuisance, but which are cheaper) can be punished.

Possibly, the public party decides not to impose sanctions, if this does not contribute to the intended effect of it (Nederhand & Klijn, 2017). A more relational approach taken to deal with conflicts and disputes would be beneficial according to Warsen et al. (2019). A third sub-variable, possibilities to discuss the application of sanctions, is therefore added.

Operationalization

The following table shows the components of contractual conditions that will be measured. They have been derived from the research of Warsen et al. (2019).

Variable	Sub-variable	Definition	Measurement scale
Risk transfer	R1. Identified risk that impacts ESM R2. Risk transfer to private/public partner	R1. Risk that has an influence on ESM according to managers R2. By whom risk is held	R1. Type of risk R2. Private party/public party/shared.
Sanctions	S1. Imposing sanctions without a recovery period S2. Imposing sanctions with a recovery period S3. Possibilities to discuss the application of sanctions	S1. Sanctions without a recovery period will be applied if the monitoring process shows that performance does not live up to the required standards S2. Sanctions with a recovery period will be applied if the monitoring process shows that performance does not live up to the required standards S3. Presence of processes or arrangements between public and private party to discuss the application and intended effect of a possible sanction	S1. Always/usually/sometimes/never S2. Always/usually/sometimes/never S3. Yes/partly/no

Table 3: Operationalization contractual conditions (Warsen et al., 2019)

2.6 Influence of relational conditions on ESM

A traditional governance perspective argues that if formal rules fixed in contracts are well-aligned, then this is a sufficient behavioral driver for guaranteeing partners' contribution towards project performance (Benítez-Ávila et al., 2018). However, practice and recent governance have shown that relational governance elements are also key for collaboration in PPP projects (Benítez-Ávila, 2018). Expected benefits of PPPs are not only achieved by the contractual conditions, but are largely dependent on trust and management. Projects perform better when relations between public and private parties are actively managed, and where trust is prevalent (Klijn & Koppenjan, 2016).

According to Warsen et al. (2019), contractual and relational conditions complement and reinforce each other. In contracts, it is impossible to specify all the product and exchange rules because neither the public nor the private party can predict and control all possibilities and risks that influence an effective realization of a project. Badenfelt (2011) therefore mentions that contracts form reference points for developing relational norms that allow managers to interact with each other and deal with issues on a daily basis. Therefore the values and social rules that are informally shared by project coalition members also play a large role in the success of PPPs (Warsen et al., 2019).

The relational conditions that will be researched are communication and interaction, trust, and conflict management. Firstly, communication and interaction play a key role (Benítez-Ávila et al., 2018), because actors behave according to what they see as appropriate and assess behavior of others in a similar way (Warsen et al., 2019). If management not only follows the letter of the contract and is receptive to events or changing circumstances in the external stakeholder environment, this can facilitate project realization (Verweij, 2015a). Secondly, in a literature review, Cao & Lumineau (2015) mention trust as the most frequently discussed relational governance condition. Despite high levels of trust or good contractual governance, conflicts with regards to managing external stakeholders are likely to emerge, because actors

have different perceptions and interests (Bertelli & Smith 2009; Klijn and Koppenjan 2016). Thirdly, therefore, conflict management is a much discussed relational condition (e.g. Ansell & Gash, 2008; Warsen et al., 2019).

Communication and interaction

This entails 'imparting or exchanging of information' resulting in 'reciprocal action or influence' (Cambridge Dictionary, 2019). Organizational arrangements can facilitate interaction, such as regular meetings between team members. Benítez-Ávila et al. (2018) stress the importance of trying to find common grounds between conflicting interests when problems occur. Making different viewpoints of the different actors visible would also contribute to interaction. Communication and interactions is useful in a number of ways for managing external stakeholders. Firstly, it enables to tackle emergent problems in the dynamic external stakeholder environment jointly. Research by Verweij (2018b) showed a joint stakeholder management approach could solve implementation problems, which led to satisfaction amongst internal and external stakeholders. Secondly, it enables to deal with omissions in the contract, e.g. with regards to the connecting infrastructure. Thirdly, interaction can make sure resources of the other party are used; the public party often has built up relationships with external stakeholders to a larger extent than private contractors, and the private party may use these relationships to manage external stakeholder issues more effectively (Verweij, 2018a).

Trust

Trust is supposed to be important in situations of high uncertainty. Trust can be defined as 'a stable positive expectation that actor A has (or predicts he has) of the intentions and motives of actor B in refraining from opportunistic behavior, even if the opportunity arises' (Klijn et al., 2010, p.196). Klijn et al. (2010, p.195): 'Trusting another actor means that one is willing to assume an open and vulnerable position. One expects the other actor to refrain from opportunistic behavior even if the opportunity for it arises without having any guarantee that the other party will indeed act as expected. Thus, the actor believes and expects that the other actor will take both actors' interests into account in the interaction.' Trust has the advantages that it facilitates, solidifies, and enhances the performances of a cooperation (Edelenbos & Klijn, 2007). Five aspects of trust can be found in table 3.

Nederhand & Klijn (2017) mention trust as a potential factor that influences external stakeholder involvement. It has a mediating role on the interaction between the internal stakeholders. Trust would reduce the necessity to actively monitor the private party and actors would be more likely to invest in the relationship. This could be beneficial when difficulties arise in ESM, and could facilitate finding solutions. Trust could possibly play a role in transferring responsibilities between the public and private party, when the project shifts from preparation to implementation. Ring & Van der Ven (1992) additionally found that a combination a strict application of sanctions and trust seems unlikely as the implementation of sanctions has a risk of damaging trust (Ring & Van der Ven, 1992).

Conflict management

Conflict is an inevitable aspect of PPPs, as the multiple stakeholders have shifting interests and values during long-term and complex projects. Conflict management can be defined as ‘the extent to which public and private partners adequately know how to mitigate and handle conflicts that arise during the project implementation, and prevent the escalation of these conflicts using conflict management strategies: bringing partners together, bridging differences by mediation, and arbitration’ (Warsen et al., 2019, p.4). Conflict management in PPPs relies on both contractual and relational aspects. Formal dispute regulation mechanisms can be built into contracts, but resolving disputes also depends on the relational aspects, as contracts are incomplete or differences in interpretation of contracts can arise (PPP Knowledge Lab, 2019). There is little research into the role of conflict management on ESM. However, it can be expected that good conflict management can prevent conflicts from negatively impacting external stakeholders.

In conflict management there is a distinction between (Warsen et al., 2019):

- Formal and informal mechanisms that manage potential conflicts: formal mechanisms involve the contract and a third party might be involved to arbitrate, whereas in informal mechanisms the partners jointly work towards a solution.
- Preventing, controlling, or solving conflicts: preventive measurements manage differences of opinion so that these differences do not turn into conflicts, controlling measurements try to not enlarge the conflict when it arises, and solving measurements focus on getting rid of the conflict when it has arisen.
- Timing of agreements on conflict management: proactive agreements are made to prevent conflicts vs. reactive agreements on how to handle conflict are made after an incident occurs.

Operationalization

The following table shows the components of relational conditions that will be measured:

Variable	Sub-variable	Definition	Measurement scale: 5 point scale
Communication and interaction	CI1. Regular or incidental organizational arrangements to facilitate interaction CI2. Sharing viewpoints CI3. Time is spent on communication	CI1. Boards, meetings, project follow-ups/start-ups CI2. In the decision-making process about the project different views are included and made visible CI3. Is, according to the manager, sufficient time spent on communication between public and private party	CI1. Presence yes/no CI2. Not at all – very much CI3. Not at all – very much
Trust	T1. Agreement trust T2. Benefit of the doubt T3. Reliability T4. Absence of opportunistic behavior T5. Goodwill trust	T1. The parties in the network generally live up to the agreements made T2. Giving one another the benefit of the doubt T3. Keeping in mind the interest of other parties T4. Do not use contributions of other parties for own advantage T5. Assume that the intentions of other parties are good	T1-T5. Very much disagree – very much agree

Conflict management	CM1. Description of conflicts arising CM2. Nature of approach CM3. Focus of measurements CM4. Timing of agreements (proactive/reactive) CM5. Attention for potential sensitive issues CM6. Willingness to make adaptations	CM1. Description of the case in terms of conflict, differences of opinion, and the way the partners in the project deal with them CM2. Is the contract used to solve the conflict? CM3. Are measurements to manage difference of opinion focused on preventing, controlling or solving conflicts CM4. Early implementation of agreements about conflict management (proactive) vs. agreements are drafted after an incident occurs (reactive) CM5. Do managers bring up sensitive issues at an early stage to leave enough time to discuss them CM6. Are actors willing to change the contract voluntarily, in case the contract does not work	CM1. Examples (qualitative) CM2. Very formal - very informal CM3. Not at all – very much CM4. Very proactive - very reactive CM5. Not at all – very much CM6. Not at all – very much
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Table 4: Operationalization relational conditions (Warsen et al., 2019 & Benítez-Ávila, 2018, and adapted)

2.7 Conceptual model

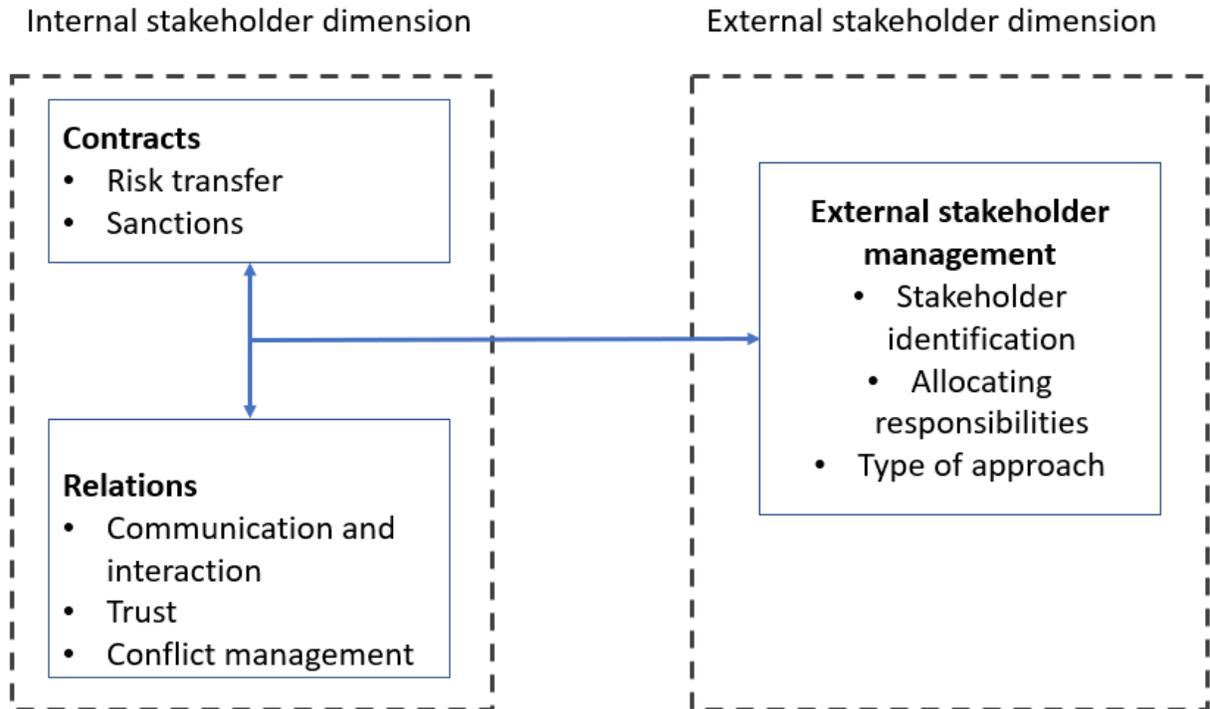


Figure 9: Conceptual model

The conceptual model (fig. 10) shows the relationships between the various variables. On the one hand, there is the internal stakeholder dimension with the public and private party. There is an interplay between contractual and relational conditions, which in turn could affect the ESM approach.

3 Methodology

In this chapter, the methodology of this research is presented. The research strategy and methods will be explained and justified, after which the case selection, case description, and data collection process will be dealt with. Then the interviews and their ethics and limitations will be discussed. Finally, the data analysis technique will be covered.

3.1 Research strategy

To be able to answer the research question, a comparative case study was conducted. A case study provides detailed information about the context in which a phenomenon is situated. According to Gustaffson (2017), case studies are a good way to explore a setting in order to understand it. The single-N method allows for clarifications, with a focus on the heterogeneity, uniqueness, and context of a specific project. As the aim of this research is to gain more understanding in the complex interplay of relational and contractual conditions, and the way this influences ESM approaches, a case study is a suitable research method. With a small-N study, it is possible to explore for example what the reason is that trust potentially has an influence on ESM, whereas researching reasons would not be possible with a statistical large-N analysis. However, an often heard criticism is that case studies cannot be generalized, and that extrapolating findings would be a difficult matter (Rice, 2010). Nevertheless, the goal of this research is not to make general statements about infrastructure projects, but rather to gain in-depth understanding of the aforementioned complexities. According to Eisenhardt (1989), a case study can help to build new theories through empirical observation, rather than to test theories.

By using two cases, the researcher can understand the differences and the similarities between the cases. Furthermore, the researcher is able to analyze the data both within each situation and across situations (Yin, 1994). It allows for replication, so cases which confirm relationships can enhance confidence in the validity of the relationships. On the other hand, cases which disconfirm the relationships allow for refining and extending theories (Eisenhardt, 1989). Replication through a double case study can provide a more solid basis for possible ties between relational and contractual conditions, and differences in ESM approaches.

3.2 Research methods

Within these case studies, a mixed method approach was used, combining different approaches and qualitative and quantitative data. This triangulation can strengthen the validity of the results and widen the understanding of the results (Olsen, 2004).

Firstly, a document analysis was done to perform a social network analysis (SNA), which shows how the social structure of relationships around a person, group or organization affects beliefs or behaviors (Chowdhury et al., 2011). The analysis will answer sub-question 1 and shows how the internal and external stakeholders are linked to each other through contracts. The resulting bipartite graph (see fig. 11) shows (1) which stakeholders are participating in PPP agreements and in how many agreements a stakeholder is involved, and (2) a statistical analysis performed on the graph shows the betweenness centrality, which represents the degree to which nodes stand between each other. Stakeholders with high betweenness

may have a considerable influence within a network by their control over resources passing between others (Robins, 2015).

The power of the network analyses lies not in its ability to explain the influences of the networks, but is meant to describe the network and to serve as a basis for the subsequent sub-questions. The graph and the betweenness centrality also reveal the most influential stakeholder(s) in a PPP structure, as an influential position in a network can have an effect on the collaboration within a project.

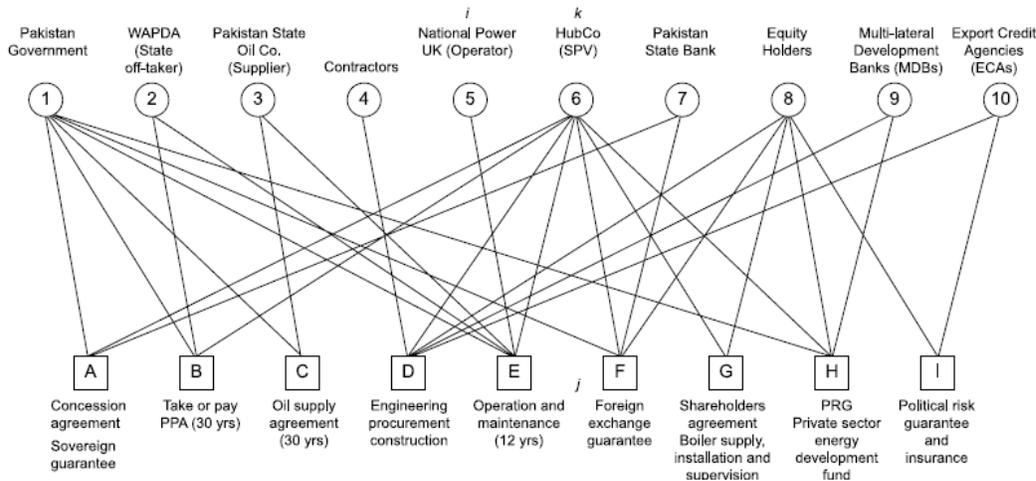


Figure 10: Example of a 'bipartite graph' (Chowdhury et al., 2011)

Secondly, semi-structured interviews were held with members of the A9 and A16 project teams to gather both quantitative and qualitative data. Quantitative data was gathered to measure and compare the separate conditions across the two cases (see operationalization in chapters 2.4-2.6). Additionally, qualitative data was used to explore how the conditions relate to each other and to the ESM approaches. Qualitative research is more useful to dive into these complex relations, helps to emphasize on the how and the why of processes, and how they relate to their context (Kothari, 2004). A drawback is that qualitative research is time-intensive and is less suitable to generalize. However, according to Onwuegbuzie & Leech (2010), qualitative data still allows for case-to-case transfer, which involves making generalizations from one case to another (similar) case.

Thirdly, participatory observation was used to elicit extra qualitative data (see chapter 3.5). This is the 'description of events, behaviors, and artifacts in the social setting chosen for study' (Marshall & Rossman, 1989, p.79). This consisted of spending additional time at the A9 project to work on the thesis and getting acquainted with the ESM department. The meetings and events that have been attended can be found in chapter 3.6.

3.3 Case selection

To be able to compare and contrast the two cases, the two cases had to be different to some extent. However, too many different variables could make it more difficult to cross compare the two cases, because differences can be attributed to several factors. The main criteria were the following:

- Type of contract: DBFM, because DBFMs are the most common type of contractual PPPs in the Netherlands
- Project phase: realization phase, because the intricacies of each condition are probably most fresh in the minds of the project team members, which facilitates qualitative research
- Scope of the projects: road infrastructure, because these projects are most likely to lead to negative consequences during realization, such as noise nuisance, making ESM a relevant aspect

Additional criteria were the expected availability and quality of data. Because of the availability of data from Rijkswaterstaat, projects were selected with Rijkswaterstaat as the public party. These criteria limited the amount of possible projects. To further narrow down the selection, there was a focus on projects in a highly urbanized area, because it is likely that more stakeholders are directly affected by the project.

Two cases were selected to conduct the case study: A9 Gaasperdammerweg and A16 Rotterdam. Both are road infrastructure projects and situated near highly urbanized areas, which makes it relevant to research the ESM. The A9 Gaasperdammerweg has been on the news negatively due to nocturnal nuisance and damage to houses, and 'lacking compensatory measures' (Meershoek, 2016) and the A16 sparked protests from citizens, societal groups, and nature organizations (Naber, 2016).

Several other projects were not selected, because of their isolation from their context in terms of external stakeholders (e.g. Afsluitdijk). Furthermore, the researcher decided not to include project which are in the same overarching SAA program as the A9 Gaasperdammerweg, as the results might be too similar.

3.4 Case description: A9 Gaasperdammerweg

The A9 Gaasperdammerweg was chosen due to its proximity to residential and leisure areas, and infrastructure. It is the reconstruction of the existing A9 highway between Holendrecht and Diemen, to improve the accessibility and livability of Southeast Amsterdam (Bezoekerscentrum SAA, 2019). The current highway cuts through a neighborhood with 80000 residents, resulting in congestion, air and noise pollution, and spatial segregation. The road will be widened to 2x5 lanes, plus a reversible lane, over a distance of seven kilometers. Three kilometers of the road will be in a tunnel, with a new park on top of it, to reduce the negative consequences of the existing road (Bezoekerscentrum SAA, 2019).

The project is part of the larger SAA-project, which entails the extension of the A1, A6, A9, and A10 highways, totaling 4.5 billion euros. Each project has its own ESM team. The Final Environmental Impact Statement was made in March 2011. The public initiator of all SAA-projects is Rijkswaterstaat, the Dutch infrastructure agency belonging to the Ministry of Infrastructure and Environment. The DBFM contract has been signed in September 2014 with the consortium IXAS (Ballast Nedam, 2019), consisting of Ballast Nedam and Heijmans (construction companies), Fluor (project management), and 3i (investment company) (Bezoekerscentrum SAA, 2019). IXAS will be responsible for 20 years of maintenance (Ballast Nedam, 2019). At the end of 2013, preparatory road works have started, and in 2016 the construction of the tunnel has started. The tunnel will open in 2020.

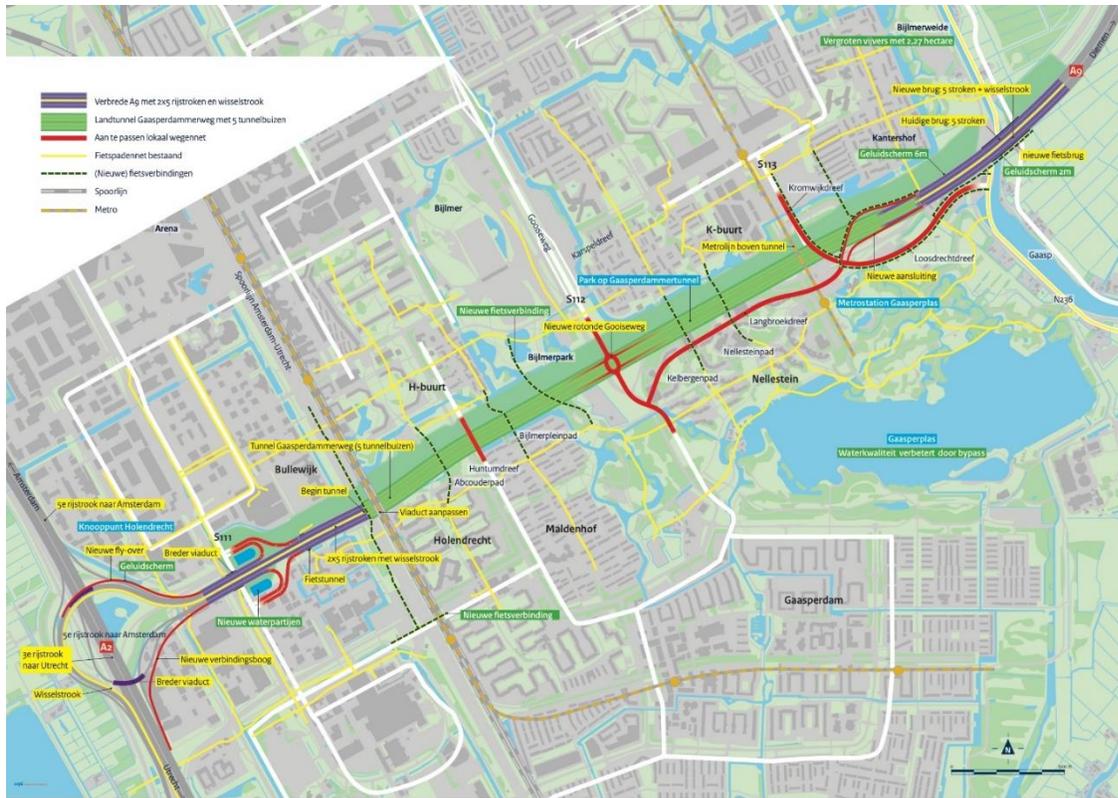


Figure 11: Project Gaasperdammerweg

3.5 Case description: A16 Rotterdam

The A16 freeway project will be a new 11 kilometer long freeway between Rotterdam The Hague Airport and the Terbregseplein interchange, connecting the existing A13 and A16. 2 kilometers will be in a land tunnel, similar to the A9. It will form part of a wider ring road around the existing one (Rijkswaterstaat, 2019d). This case was chosen due to its proximity to residential areas and the Lage Bergse Bos, a natural area where the land tunnel will cut through. Furthermore, the proposed construction sparked outrage from residents and environmental organizations. 11.000 signatures against the project were given to the minister in 2015, but to no avail (Onnink/AD, 2019). In 2017 the highest court gave permission for the construction to start. The aim of the new road is to alleviate congestion, to increase accessibility of the whole city and the airport, and to improve the livability of the neighborhoods (Rijkswaterstaat, 2019d). The Record of Decision was made in 2005, in 2011 the preferred alternative was chosen by the minister and in 2016 the Final Environmental Impact Statement was made, after disagreements between the state and the municipalities (Rijkswaterstaat, 2016). Appeals against the final decision were ruled unfounded in 2017 (Raad van State, 2017). In March 2018, the DBFM contract was signed between Rijkswaterstaat and the consortium ‘De Groene Boog’, consisting of Besix, Dura Vermeer, Van Oord, John Laing, Rebel, and TBI. Preparatory works started in 2017, and construction of the road takes places between 2019 and 2024. The consortium is responsible for 20 years of maintenance (Rijkswaterstaat, 2019d).



Figure 12: Project A16 freeway (Onnink/AD, 2019)

3.6 Data collection process

In order to obtain both qualitative and quantitative data, semi-structured interviews with project managers on both the public and private side of the two projects were held. To identify suitable managers to interview, the IPM-model of Rijkswaterstaat was used. The basis of the IPM model is to balance different interests in a project and to deal with this within the scope of the project. Rijkswaterstaat distinguishes five different processes in infrastructure projects, corresponding to five different roles, executed by five different managers. Each role has its own underlying team (Rijkswaterstaat, 2019c).

- The project manager aligns time and quality, and internal and external communication. This role was therefore relevant to research contractual and relational conditions and ESM.
- The contract manager controls the risks that arise between the public and private party. Contractual conditions form a basis for this, but relational conditions might also be of importance.
- The project control manager is responsible for the financial and time management. These aspects are of less influence on the researched aspects and therefore this manager was not interviewed.
- The external stakeholder manager is involved in the stakeholder analysis and adequate communication or involvement of external stakeholders in the project. This role was therefore very relevant to understand ESM approaches.
- The technical manager has to execute the technical process in accordance with the contract. If wishes of external stakeholders change, the technical manager has to assess if these changes are technically possible. This role touches upon the contractual, relational, and ESM aspects.

After the identification of these roles, the managers were contacted from March 2019 onwards. Because Rijkswaterstaat and the private consortiums both have their own project management teams, it is of importance to interview managers on public and private sides. The private side does not use the IPM roles, but equivalents of these roles on the private side were interviewed. In the case of A9, this is IXAS and in the case of A16, this is De Groene Boog. An overview of the arranged interviews is given below.

Organization	Project role	Date	Location	Duration (min)
A9				
RWS	Project manager	May 1	Project office A9 (Amsterdam-Zuidoost)	72
	External stakeholder manager	May 1		57
	Contract manager	May 7		35
	Technical manager	May 9		40
IXAS	EPCM director	May 8	Project office IXAS (Amsterdam-Zuidoost)	27
	External stakeholder manager/communication advisor	May 8		28
	SPV director	May 22	Fluor Hoofddorp	61
A16				
RWS	Project manager	May 15	Project office A16 (Rotterdam)	52
	External stakeholder manager	May 15		48
	Contract manager	May 22		52
De Groene Boog	EPC director	June 14	Telephone	40

Table 5: Interviewed project team members

An overview of the attended meetings at the A9 as part of the participatory observation is given below. Notes were taken on the Volunteering Day and the VAP meeting, to make sure that this data could be used in the data analysis.

Meeting/event	Date	Description
Volunteering day SAA	April 11	Day in which several activities were done to thank the neighborhood, and citizens could visit the tunnel
Narratives	April 25	Meeting where the current state of affairs of external stakeholders and adjacent projects are discussed
Contract meeting	May 1	Internal meeting at RWS where compliance of contractor is discussed
Vinger aan de pols (VAP)	May 22	Regular meeting with representatives of citizen groups where current state of affairs is discussed

Table 6: Attended meetings and events at the A9

3.7 Interviews

A part of the interviews was structured, in order to elicit the quantitative data of the specific conditions (see chapters 2.4, 2.5 & 2.6). In addition, semi-structured questions explored the relationship between the several variables. In this part, a balance between structure and flexibility could be kept. The informal, conversational type of interviewing allowed both the interviewer and interviewee to further touch upon interesting topics or to introduce new ones (Longhurst, 2010), to explain questions and allowed the interviewees to explain unclarities. Follow-up questions about examples made sure a complete understanding of contractual and relational conditions could be realized.

All interviews were held face-to-face in Dutch, except one interview that was held over a telephone call. An advantage of individual personal contact between the interviewer and interviewee was that more trust could be established, as compared to gathering data through questionnaires or phone interviews. The individual basis of the interviews made sure that participants did not feel pressured to share or withhold information, especially when there are conflicting interests, as compared to a focus group. Therefore, this type of quantitative and qualitative data gathering was chosen.

An informed consent form was used to inform participants about their rights and the data usage. Participants could also choose whether their name and function could be stated in the thesis, and whether the interview could be recorded (see appendix A). As the names were eventually not relevant for the data analysis, names were anonymized. Recordings made sure that everything would be understood correctly and to make transcription of the interviews possible. During the interviews an interview guide was used, containing closed and open questions, with possible follow-up questions. This helped to maintain structure and made sure all relevant topics were covered during the interview (Longhurst, 2010). The structure was based on the relevant concepts from the theoretical framework and can be found in appendix B. For the participatory observation, notes were taken of the meetings, including personal observations.

3.8 Ethics and limitations

A possible drawback of a semi-structured interview is an unequal relationship between the interviewee and interviewer, with regards to age and experience, which could lead to miscommunication. However, the researcher spent additional time at the project office of the A9 to work on the thesis and to get acquainted with the ESM department. Also, a number of meetings were attended. This allowed to form more personal bonds and to ask for clarifications later.

Furthermore, a relatively small group of interviewees could have a determining effect on the results. Interview results could not be generalized. This was mitigated to some extent by doing a double case study, so results between the two cases could be compared.

A third drawback to take into account is the possible influence of the interviewer on the answers that are given, by the way questions are asked and the non-verbal communication (Johnson & Onwuegbuzie, 2004). Follow-up questions reduced this tendency.

Fourthly, the interviewer had to be aware of possible confidential information (Longhurst, 2010). Although the contact person at Rijkswaterstaat gave permission to access contract documents, this still required a careful handling of this type of data. This has been done with the informed consent.

Lastly, the interviewer had to interpret the results, but an interviewer is never fully objective. Because people are interviewed partly about their opinions, a degree of subjectivity will be present. This is also part of quantitative research, but the interviewer still needed to be reflexive of his role and position in the interviews. The obtained data is context dependent and analyzing this means that answers should not

always be taken as facts. However, the operationalization and semi-structured questions made sure the data was gathered consistently.

3.9 Data analysis

Studying the contracts was first done for the network analysis, resulting in the bipartite graphs. UCINET software was used to visualize these data and to measure betweenness centrality. This software was also used to visualize the graphs showing the way that stakeholders and people are linked through discussion forms.

After collecting the data with the semi-structured interviews, these data were analyzed. To make sense of the qualitative parts of the interview, interviews were transcribed as soon as possible. This enabled the interviewer to better remember the specific details, e.g. in the behavior of the respondent. During the interviews, notes were taken to stress important aspects of the interview. The interviews were ordered using coding. Coding is ascribing certain labels to subjects, words, sentences, opinions, and citations that are relevant for answering the research question (Hennink, Hutter & Bailey, 2011). Coding is 'a way of evaluating and organizing data in an effort to understand meanings in a text' (Cope, 2010, p.441), and allows to identify and analyze categories and patterns within and across transcripts. Codes were also connected to the notes taken at the meetings. Two coding strategies were used. Deductive codes came from the literature, such as sanctions and trust, and were connected to fragments of the transcripts. The second type of codes are inductive, so they emerged as relevant during the data analysis. Examples are transparency and creating ownership. Coding categories can be found in appendix C. The analysis was carried out with the use of ATLAS.ti, a software program that enables to label fragments of the text. On the basis of these codes, a report was created that enabled the researcher to compare different text fragments, and served as input for the next chapter.

4 Results

In this chapter, the results of the interviews will be described. A closer examination will be taken of the influence of the conditions, described in the theoretical framework, on the external stakeholder management (ESM) approaches. First of all, the structure of the contracts of the A9 and A16 will be dealt with in more detail. Then, the ESM approach of both projects will be elaborated upon. Thirdly, the underlying contractual and relational aspects that influence the ESM approach are discussed.

4.1 The structure of the contracts

As a first step, the structure of the contracts of the two projects has been mapped, to answer the first sub-question: ‘Which stakeholders are involved in public-private partnerships and how are they linked through contracts?’. The handbook DBFM (Rijksoverheid, 2008) was used to derive the general structure, after which questions were posed at interviews with the contract manager (A16) and external stakeholder manager and SPV director (A9) to fill them in.

Stakeholders in the projects

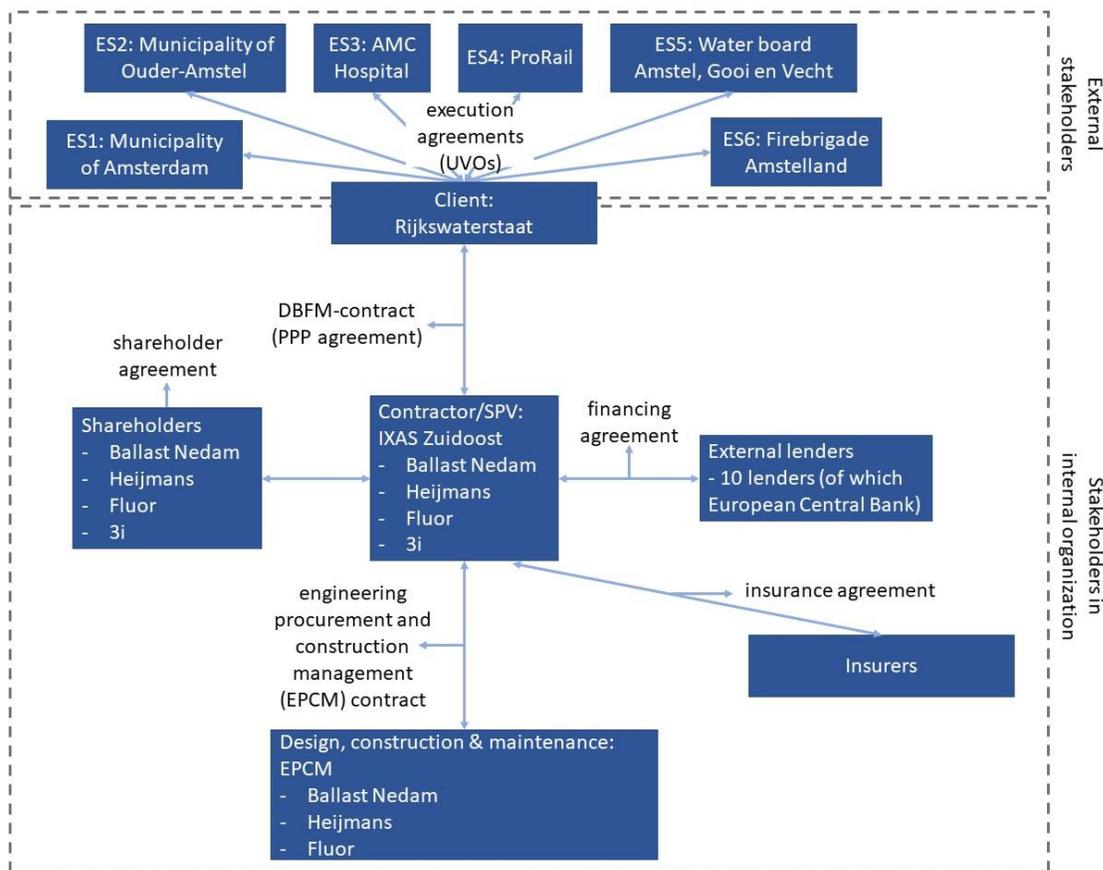


Figure 13: Structure of the contracts of A9 Gaasperdammerweg (ES = external stakeholder)

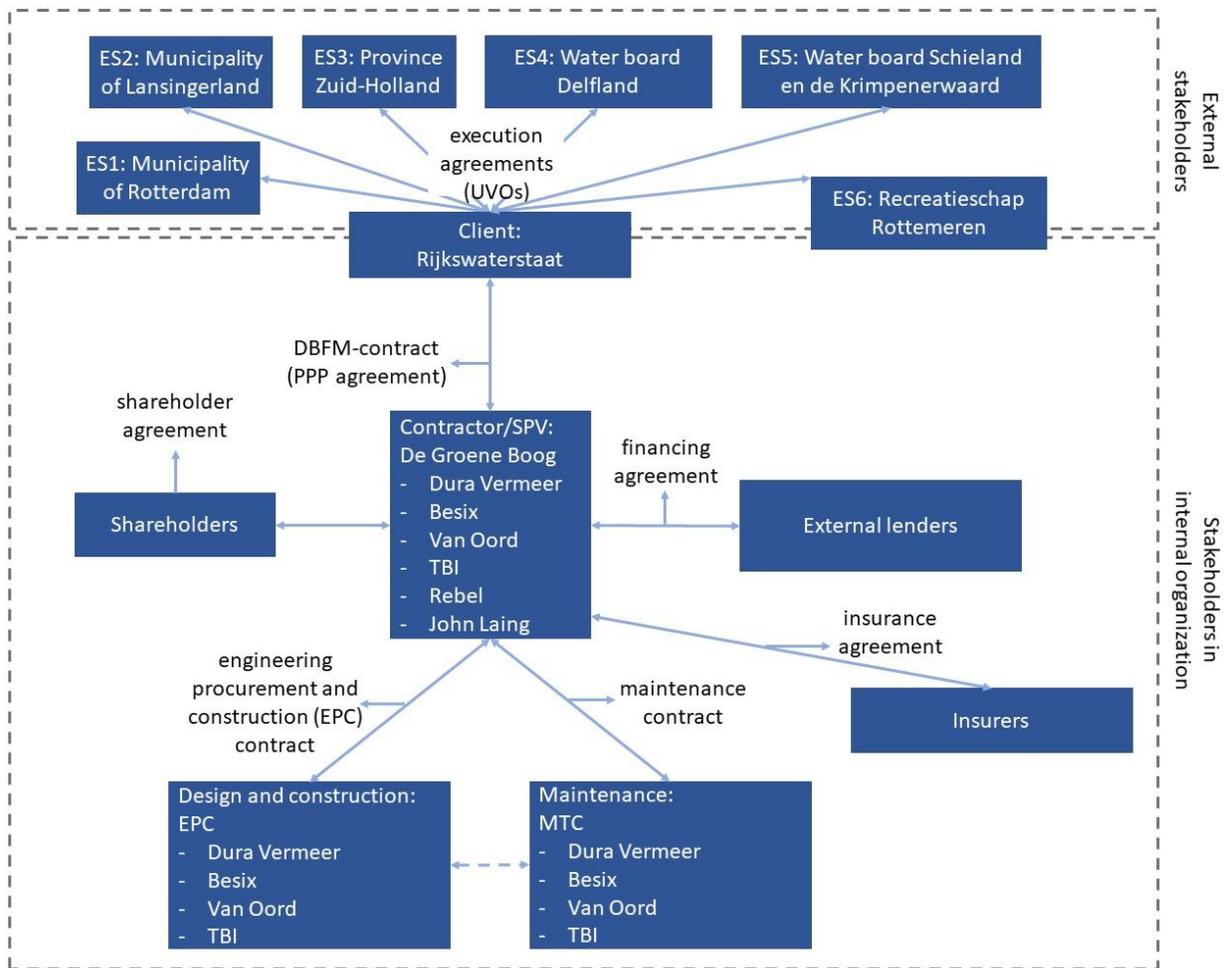


Figure 14: Structure of the contracts of A16 Rotterdam (ES = external stakeholder)

The principal stakeholders in both internal organizations are Rijkswaterstaat as the public party. *At the A9*, the private consortium is IXAS Zuidoost (hereafter: IXAS), forming a special purpose vehicle (SPV), consisting of the four separate entities Ballast Nedam, Heijmans (construction companies), Fluor (project management company), and 3i (international investor). It enters into the DBFM-contract with the client. The SPV arranges the financing of the project, through a financing agreement with external lenders.

At the A16, there is the same general contractual structure as the A9. The DBFM contract is signed between Rijkswaterstaat and the private party, De Groene Boog. Within de Groene Boog, Dura Vermeer, Besix, Van Oord, and TBI are construction companies, whereas Rebel and John Laing are investment companies. The EPC and MTC exist of the same companies except the investment companies.

The A9 SPV project manager: "Because of the responsibilities, the external lenders want that we pass on the construction work back-to-back to an EPCM." In such a back-to-back agreement, IXAS passes on the obligations and responsibilities to an EPCM contractor, consisting of the same parties, except for 3i. In case of the A9, this is one integrated EPCM (Engineering, Procurement, and Construction Management) that manages the whole project on behalf of IXAS, because in this way all lifecycles and disciplines are represented (Hertogh et al., 2017). However *at the A16*, responsibilities are more traditionally separated in an EPC, responsible for the design and construction, and a MainTenance Company (MTC), responsible for the maintenance. The A16 EPC director mentioned that this made it possible for the EPC to be a

temporary enterprise. Nevertheless, the same parties are involved in the EPC and MTC. It results in two separate contracts: the EPC contract and the MTC contract.

Both the SPV and the EPCM/EPC are separate private companies *in both projects*, which ensures financial security for the external lenders. In case the EPCM/EPC collapses, this will not immediately affect the SPV, so an extra buffer is created. There is no direct agreement in both projects, as opposed to the model by Chowdhury et al. (2011). The external stakeholder manager at the A9 mentioned that Rijkswaterstaat did not want to have an influence on the external financing.

Implementation agreements

In *both cases*, Rijkswaterstaat has also signed different implementation agreements (*Dutch: uitvoeringsovereenkomst/UVOs*) with administrative stakeholders, before the DBFM contracts were signed with the contractors. The purpose of these UVOs is to formally and contractually fix the wishes of the external stakeholders. Rijkswaterstaat incorporated the requirements of the UVOs into the DBFM-contracts, so then the contractors become responsible for the implementation of the UVOs.

At the A9, there are UVOs with the following external stakeholders:

- The municipality of Amsterdam (ES1) and the municipality of Ouder-Amstel (ES2): the connecting infrastructure (e.g. roads, greenery) has to be well coordinated between Rijkswaterstaat and the municipalities.
- AMC hospital (ES3): the hospital has to remain accessible.
- ProRail (ES4): train tracks are on top of the new tunnel, so construction work has to be coordinated between Rijkswaterstaat and ProRail.
- Water board Amstel, Gooi en Vecht (ES5): several drinking water pipes cut through the area and the project affects the water flows in the area.
- The fire brigade Amsterdam Amstelland (ES6): is an important stakeholder due to its location close to the tunnel.

In the interviews, citizens, other companies, and road users have also been identified as important external stakeholders, but no contracts have been signed with them.

At the A16, UVOs have been signed with the following external stakeholders:

- The municipality of Rotterdam (ES1), the municipality of Lansingerland (ES2), and the province of Zuid-Holland (ES3): the connecting infrastructure has to be well coordinated.
- The water board Delfland (ES4) and the water board Schieland en de Krimpenerwaard (ES5): several drinking water pipes cut through the area and the project affects the water flows in the area.
- Recreatieschap Rottemeren (ES6): the new road will cut through a forested area. Nature and water compensation measures have been coordinated with this organization, that is a partnership between several municipalities and the province, and which role is to enhance the recreative function of the area.

Bipartite graphs

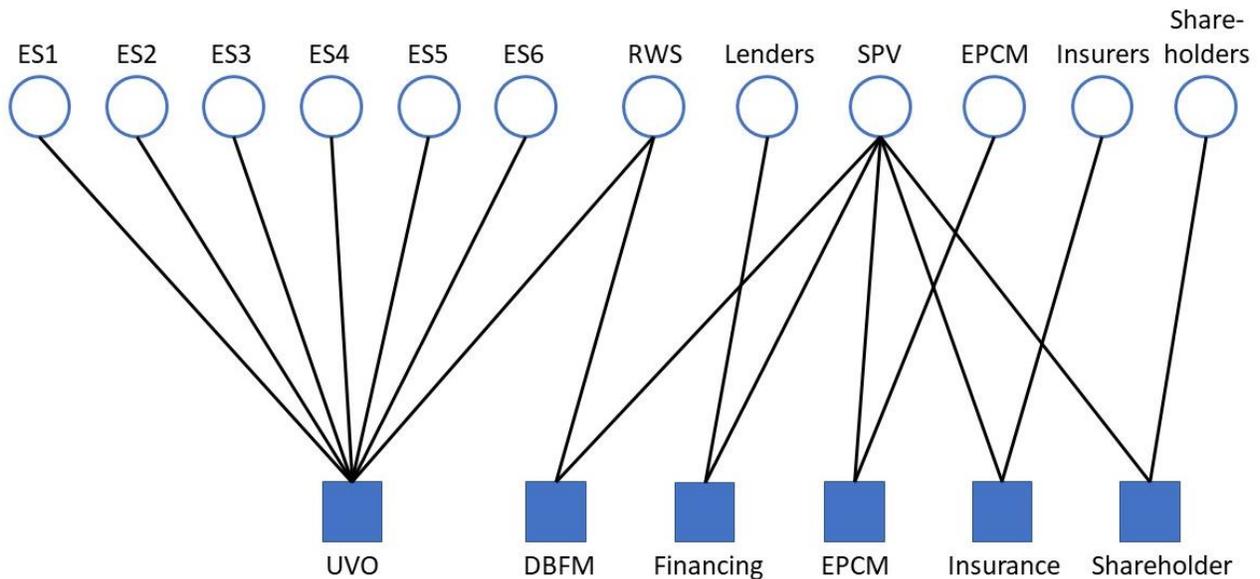


Figure 15: Bipartite graph showing the stakeholders and contracts of the A9 project

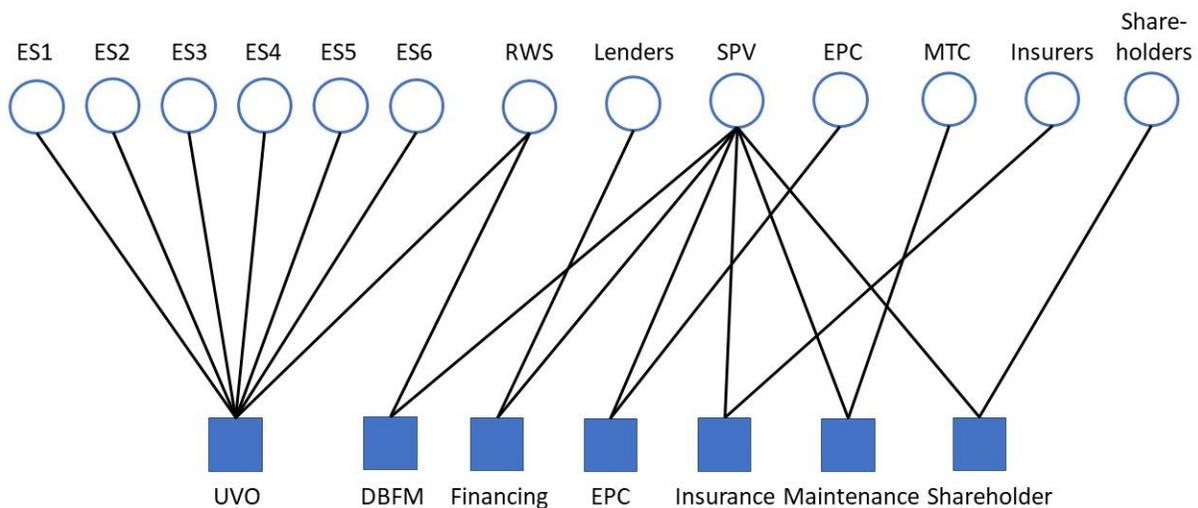


Figure 16: Bipartite graph showing the stakeholders and contracts of the A16 project

The bipartite graphs visualize how the stakeholders are linked to each other through contracts. Rijkswaterstaat and the SPV in *both cases* are linked to each other via the DBFM contract. From the DBFM contract, Rijkswaterstaat forms a link to the external stakeholders with the UVOs, but as can be seen, the external stakeholders are not directly contractually linked to the EPCM/EPC/MTC, which are responsible for the implementation of the project and the UVOs. So Rijkswaterstaat and the SPV (which its dependency on lenders for financing) are situated on the only possible path between the external stakeholders and the construction companies responsible for the implementation. A number of centrality measures have been calculated with UCINET that prove this finding.

Stakeholder	Degree		Closeness		Betweenness	
	A9	A16	A9	A16	A9	A16
RWS	7	7	73,33	70,59	81,82	77,27
SPV	5	6	64,70	66,67	61,82	68,18
EPCM	1		40,74		0	
EPC		1		42,86		0
MTC		1		42,86		0
Lenders/insurers/ shareholders	1	1	40,74	41,38	0	0
External stakeholders	1	1	44,00	42,86	0	0

Table 7: Centrality measures

The degree shows how many linkages each stakeholder forms to other stakeholders. The closeness centrality shows how close, in terms of shortest path lengths, each stakeholder is to every other stakeholder. The betweenness centrality reveals the degree to which nodes (stakeholders) stand between each other. Both measures have been normalized. The closeness shows that Rijkswaterstaat and the SPV are most central in both networks. Combined with the high betweenness of Rijkswaterstaat and the SPV in both cases, this means those stakeholders possibly play a crucial role in the flow of resources (e.g. payments, authority, and knowledge) and in the connectivity of the whole networks. This has implications for the relations between the different parties, which will be discussed in more detail in chapter 4.5. Due to the extra contracts at the A16, the A9 and A16 differ slightly in closeness and betweenness. The SNA furthermore shows that the EPCM/EPC and external stakeholders have a low closeness and no betweenness. This might mean they do not play a crucial role in the flow of resources.

4.2 External stakeholder management

In this chapter, sub-question 2: ‘*What ESM approaches do the internal stakeholders use?*’ will be answered. Data came from the interviews and the VAP-meeting (see tables 6 and 7).

The external stakeholder managers make a distinction between public/administrative stakeholders, linked through the UVOs, and private stakeholders, such as citizens, road users, and companies.

According to the external stakeholder managers at Rijkswaterstaat, the purposes of ESM are two-sided. The first is *conditioning*, which means that the land should be available, to make sure that permits can be arranged and the contractor will not find any surprises. Also, the interfaces with the connecting infrastructure are catered for, which often belongs to the several municipalities, the water boards, and provinces. This confirms that ESM has a role in speeding up the realization of projects (Verweij, 2017). The second purpose is to *reduce resistance and to solve problems* to keep stakeholders in the surrounding area satisfied. This consists of communication, traffic management, and discussing with administrative stakeholders. This confirms the claim by De Schepper et al. (2014) that ESM can possibly help preventing conflicts and opposition.

reactive: “The set of measures has each time been built up because of the conflicts that arose. Actually you would like to be proactive.” On the other hand, he warned against too much proactivity, because that would have created too many expectations, so people would have kept asking for more and this might not be financially possible.

At the A16, intensive communication was also mentioned as an important aspect to create support. Compared to the A9, there was much more resistance upfront. Being visible, approachable, accessible, and reliable are the basic principles the external stakeholder manager mentioned. She found that a good informing and involving strategy has been able to turn the resistance into much support, which confirms that the strategy following from the matrix (De Schepper et al., 2014) is sufficient. An example is the Lage Bergse Bos, where many trees had to be cut. “Cutting trees is always very precarious in the Netherlands. [...] We chose a specific communication strategy, by giving a lot of information, not just about the cutting, but also about the future. So not just negative issues but also positive issues. What is the impulse it gives to the area?” This has resulted in zero complaints and questions about the tree cutting. An important aspect that complemented this approach is the far reaching collaboration with local nature organizations, who get a role in a soon-to-open experience center.

Approach towards administrative stakeholders

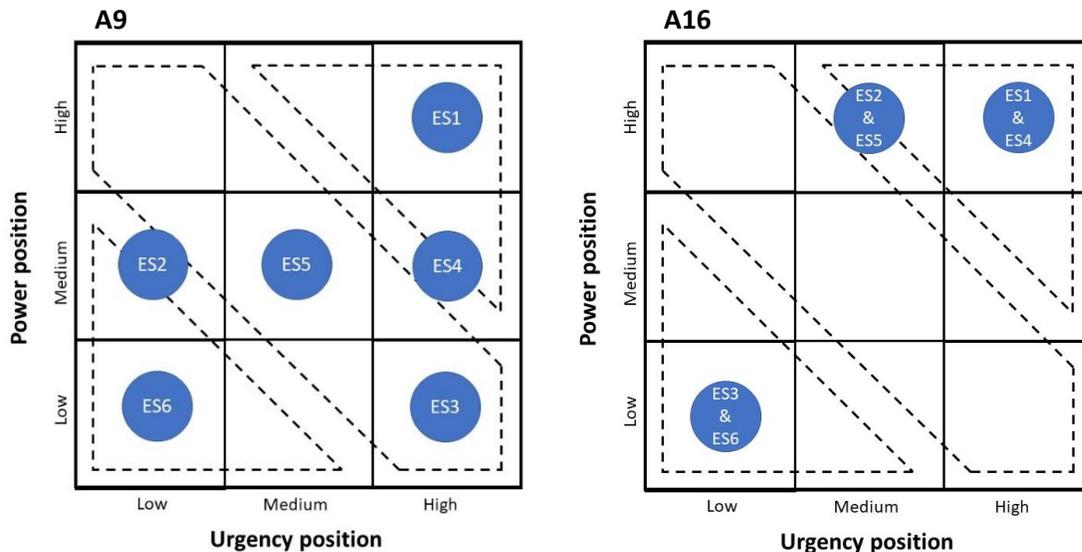


Figure 18: Administrative stakeholders on matrix according to external stakeholder managers

In both projects, the administrative stakeholders formally have three moments of influence. The first is when the contract is built. The administrative stakeholders can express their wishes of which some result as requirements in the UVO. The second moment is the verification and validation of the requirements. The contractor involves the stakeholders, because the contractor wants to make sure the requirements are translated correctly into a preliminary, final, and construction design (*Dutch: voorontwerp, definitief ontwerp, uitvoeringsontwerp*). Thirdly, some external stakeholders can exert power by their permitting authority. This requires coordination by the contractor, as requirements have to be met in order to receive permits.

Most external stakeholders therefore have a medium or high power and urgency position, except the ones

without permitting authority. According to De Schepper et al. (2014), an involving or collaborating strategy is suitable for the more influential stakeholders, which is also used in practice in both cases. Because influence varies over time, the positions on the matrix reflect the current situations.

In the first moment, the stakeholder wishes were collected by Rijkswaterstaat, which were then either honored or not. This happened before the contract with the contractor was built. *At the A9*, the external stakeholder manager at Rijkswaterstaat explained: “In this process of stakeholder wishes verification, a stakeholder has quite a lot of influence. Sometimes we asked specific questions: what kind of asphalt is used for your roads, what kind of public lighting should there be? So a list of standard things we want an answer to.” A similar process was used at the A16.

With regards to the **second moment** (verification and validation of requirements), the administrative stakeholders are involved to a large extent, mainly by the contractors. *At the A9*, this process seemed to go more smoothly than at the A16. The A9 external stakeholder manager of Rijkswaterstaat: “IXAS went really far in that regard, that is really nice. IXAS chose to do that themselves, because they said: before I am going to design, it needs to be clear how I should interpret a requirement, then it doesn’t cost much to adjust.” In this SMART process there were discussion rounds between administrative stakeholders and IXAS. Each requirement that was not considered SMART was subsequently discussed to make it more specific. Only when each wish was smart enough, the contractor started with the next phase. The same strategy was used for the final design and the construction design. This made sure that the wishes were well understood and that the administrative stakeholders were involved to a large extent from the beginning. A similar process was used *at the A16*, but more issues in this process arose. Administrative stakeholders used their formal power to come with extra or changed requirements. This resulted in some problems with requesting permits, and issues involving an external stakeholder and both internal stakeholders, discussed more in chapter 4.5.

At the **third moment** of influence, the danger is that authorities do not issue permits because they want to arrange extra requirements in the contract. *At the A9*, a joint approach from the beginning where Rijkswaterstaat and IXAS were present at the permitting authorities has prevented this. A9 EPCM director: “It’s not that Amsterdam tries to arrange extra requirements in the permit application. That actually doesn’t happen.” *At the A16*, this happened to a larger extent. The Rijkswaterstaat external stakeholder manager mentioned that the municipality of Rotterdam tries to arrange extra wishes in its meetings with de Groene Boog. The contract manager mentioned that it becomes then important to cooperate with the contractor to manage the external stakeholder (more about this in chapter 4.3 and 4.4).

Responsibilities for managing stakeholders

At both projects, responsibilities for ESM were clearly defined at the start. Rijkswaterstaat’s primary task is to do communication with the public, whereas the task of the contractors is to the communication about the construction. Furthermore, the administrative responsibility is for Rijkswaterstaat, but the contractors have to coordinate the design with the verification of the specifications, and have the primary duty to manage the external stakeholders. This is similar to the findings of Verweij (2015b) that responsibilities are contractually strictly separated.

The A9 EPCM director noted that Rijkswaterstaat is mostly involved at the strategic level (discussing with administrative stakeholders, informing ministers), IXAS is involved at the operational level (construction letters and informing/involving citizens), and everything in between is shared, e.g. the citizen meetings. Despite the strict separation, the IXAS external stakeholder manager said: “You just have your task division,

IXAS is responsible for the design and you have to implement that, Rijkswaterstaat is client and the one who signed the UVO, so you are a bit in between that. But we always worked closely together as a team.” The examples of noise nuisance and requesting permits also show that at the A9, the different tasks of ESM are shared to quite a large extent between Rijkswaterstaat and IXAS, despite strict contractual responsibilities.

At the A16, there is the same formal division of responsibilities. Contract close meant that responsibilities were immediately shifted to de Groene Boog. For citizens this has not resulted in problems, but it has for dealing with the administrative stakeholders. The EPC director: “I do not have a contract with my external stakeholders. I have an obligation to do certain things. This means you’re immediately in a gray area.” However, Rijkswaterstaat has come to realize that their role is still necessary, because the transition is not seamless. Firstly, things get stuck at administrative stakeholders, because they use their permit authority to still get demands on the table that were previously not approved in the UVOs, or because they differ in interpretation about the requirements. Secondly, the contractor sometimes needs a push from Rijkswaterstaat. When trees had to be cut at the A16, this required intensive communication towards the municipality, Rottemeren, and citizens. Whereas task was picked up jointly and successfully in the end, this had to be pushed by Rijkswaterstaat, because otherwise de Groene Boog would not have taken such an active role in communicating what would exactly happen, according to the Rijkswaterstaat external stakeholder manager. This disconfirms De Schepper et al. (2014) in that the private party would use more proactive approaches than the public party.

At the A9, this was an easier process, despite a similar division of responsibilities. This could be attributed to the fact that Rijkswaterstaat came up with the idea that IXAS should involve Amsterdam, the most influential stakeholder, from the beginning by showing them around the project, where Rijkswaterstaat took the role of letting this meeting function smoothly. Because IXAS directly realized they needed the stakeholders, this helped to build good relationships, to ensure a flexible attitude of the administrative stakeholders, and to arrange things that slightly differ from the UVOs, the external stakeholder manager mentioned.

At the A16, the external stakeholder manager however wants to avoid a situation that happened at the A15 Maasvlakte (Neerlands diep, 2016), where too many responsibilities for managing stakeholders were shifted to the private party. A balance should be found: “It would be nice if soon the collaboration between de Groene Boog and the stakeholders is going so well, that we can take a step back, and say, we still come once in three months to a meeting, but now we still collaborate in a triangle.”

Conclusion sub-chapter

Both projects use a management approach that suits the location of stakeholders on the matrix. Generally the used approach is sufficient, except at the A9, when an intensive informing strategy was insufficient for stakeholders with a low influence in case of extreme nuisance, contrary to the model of De Schepper et al. (2014). At the A16, a combination of intensively informing citizens and collaborating with a nature organization could tackle resistance upfront. Whereas responsibilities for managing stakeholders were similar in both projects, differences in issues with regards to administrative stakeholders arose: with the SMART interpretations, additional wishes, permit issues, and issues involving three stakeholders. This could point in the direction that a better relational governance at the A9 could prevent issues with administrative external stakeholders (Warsen et al., 2019). The table below summarizes these findings.

	A9 Citizens	A16 Citizens	A9 Administrative	A16 Administrative
Influence	Medium-high	Low-medium	Medium-high	Medium-high
Used approach	Informing/involving	Informing/involving (collaborate nature organization)	Involving/collaborating	Involving/collaborating
Match with desired approach (De Schepper)	Yes	Yes	Yes	Yes
Contractual responsibility	Private party	Private party	Public/private party	Public/private party
Used responsibility	Mainly private, some tasks shared	Mainly private, some tasks shared	Shared from beginning	First: private party, later: more shared
Issues	Resistance during realization	Resistance beforehand		Stakeholders use power for extra wishes Permit issues Triangle issues
Used approaches for issues	Custom-made measures, extra alleviating measures	Upfront tackling resistance	Early joint involvement adm. stakeholders Thorough SMART approach	Relational approach to deal with issues

Table 8: Conclusion ESM

4.3 Contractual conditions

In this chapter, sub-question 3: ‘How do contractual conditions influence ESM approaches according to the internal stakeholders?’ is dealt with. The interviews and figures 13-14 form the basis to answer this sub-question. First the role of the contract is discussed, then the influence of the conditions *sanctions* and *risk transfer* on ESM is covered.

Role of the contract

The respondents gave similar answers about the function of the contract and the way it is important for managing the external stakeholders. The aim of both contracts is to ensure the execution of the scope of the contract within the set framework.

Both projects fix structured review moments, which force the contractors to bring the design to the required standards and to settle issues between client and contractor. According to the contract managers, this helps to formalize and shape the collaboration between Rijkswaterstaat and contractors, and makes sure the external stakeholders get what they expect. The same applies to the stakeholder requirement verification. The contracts indeed show the principle of the ‘institutional economy’: contracts reduce opportunistic behavior, and structure the exchange between the public and private party (Koppenjan et al., 2018; Warsen et al., 2019).

Requirements in *both projects* were agreed upon on an administrative level between Rijkswaterstaat and the administrative stakeholders, before the contractor was involved. Due to the tendering procedure, the contractor needs to interpret the requirements in the tendering procedure without interacting with the external stakeholders. However, an interesting difference can be seen between the two projects.

At the A16, the three verification rounds were fixed in the contract, but this did not lead to good results. Some administrative stakeholders use their formal power to refuse giving permits if the contractor does

not alter its design. Roles and responsibilities for administrative stakeholders were not agreed upon, which led to problems. The EPC director: “I think you should fix in advance the process with the stakeholders. That Rijkswaterstaat agrees on a clear process with the roles and responsibilities to prevent arguing during the implementation.” Issues between three parties that arose will be discussed more in chapters 4.4 and 4.5.

At the A9, the contractor was only obliged to do verification for the tunnel technical installations, and for the rest IXAS decided to do that themselves because they saw benefits in aligning the interpretations of requirements with the administrative stakeholders. Whereas roles and responsibilities were also not agreed upon, there were less problems with regards to the verification. Relational conditions may therefore be of importance. Furthermore, during the realization administrative external stakeholders behaved in a more cooperative way. This will be discussed more in chapter 4.5.

Because all interviewees of both projects mentioned shortcomings of the contract, they equally stressed the importance of relations to solve these issues, discussed more in chapter 4.4.

Sanctions

Three different types of sanctions exist in both contracts. *At the A16*, no sanctions have been imposed so far, but this also has to do with the early stage of the realization phase. The external stakeholder managers of Rijkswaterstaat mentioned that the first type of a sanction, in the form of a **deduction of the availability payment**, does not really influence ESM.

Secondly, **penalty points** can be imposed if certain performance criteria are not met. This also has the role of making sure the agreements with administrative stakeholders are complied with, but does not directly influence citizens. These sanctions are usually applied *at the A9*. Important criteria are the contribution to the intended effect of a sanction (also on the relation between both parties) and the culpability of the contractor. There are possibilities to discuss the application of sanctions, which help to get a complete picture of all facts before applying a sanction, which is crucial for the collaboration in the project. This calls into question the claim of Nederhand & Klijn (2017) that including external stakeholders can become more difficult due to performance criteria. However, it confirms their finding that discussing the application of sanctions is important.

Thirdly, there are **EMVI specifications** *at both projects*. A difference can be observed between the two cases. *At the A16*, the contractor offered to implement these specific requirements for nuisance, such as dust and noise, which resulted from the DBFM tendering procedure. Also an extra ‘experience’ has been fixed in the contract as EMVI specification, exemplified by the Rijkswaterstaat contract manager: “What we did extra here, because we found it so important, [...], we also want the project to bring a positive experience to the environment. As an EMVI product, we asked a positive experience. In that way, we try to challenge the contractor how we can stimulate the existing [recreative] function in the environment with the realization of the project”. This requirement has resulted in a new experience center in the Lage Bergse Bos. Sanctions can be connected to the satisfaction of the stakeholders, which the contractor will measure. The contract manager mentioned that if contractual mechanisms such as this one are put centrally in the contract, this can enhance the way external stakeholders are valued. This requirement resulted in a strong collaboration with a local nature organization, which will tell people about the nature that can be found in the Lage Bergse Bos. In this way, ownership of the project can be created among external stakeholders and resistance upfront could be tackled: “We have to take all kinds of compensation measures. Then they can say at the end, you know, this is something we devised, and the project adopted

it. Then maybe they can boast a bit like: ‘if we wouldn’t have been here, then it wouldn’t have been the way it is.’”, the external stakeholder manager at Rijkswaterstaat exemplified.

Contrarily, *at the A9*, the EMVI reductions play a smaller role, there were no direct requirements for nuisance or a ‘positive experience’. IXAS implemented a ‘risk management plan’ as an EMVI product, reducing the risk of external stakeholder claims for Rijkswaterstaat. Basic measures such as stewards in the neighborhoods and the ‘doorbell sessions’ were proactive measures as a result of this, and made sure that citizens were informed and involved well. More reactive measures were also a result of the risk management plan. If there would be a certain amount of complaints, IXAS had to take measures. An example is using another sound when machines drive in reverse. Sanctions with a recovery period were almost always imposed in case of non-compliance, which had a positive effect on managing the external stakeholders. The Rijkswaterstaat external stakeholder manager was positive about the deployment of measures, because it created goodwill amongst the citizens and made sure the citizens were well informed. However, nuisance could not be preventively tackled, because there were no EMVI specifications on this at the A9. Whereas literature focuses on the negative aspects of sanctions, the A16, and to a lesser degree the A9, show that sanctions can contribute to a closer involvement of external stakeholders (cf. Nederhand & Klijn, 2017; Klijn & Koppenjan, 2016).

Risk transfer

Risk category	Risk transfer	Explanation
A9		
Legal	IXAS (mostly)	Requesting and receiving the permits is a responsibility of IXAS, except for the logging permit
Project finance	IXAS	Requesting and receiving the permits is a responsibility of IXAS, except for the logging permit
Third party	Both	Primarily Rijkswaterstaat for administrative discussions, and in case of changed wishes.
A16		
Legal	Groene Boog (mostly)	Rijkswaterstaat primarily responsible for requesting the permits, but de Groene Boog bears the risk of receiving the permit, except if the authorities do not respond timely
Project finance	Groene Boog	Contractor has to arrange financing between realization phase and maintenance phase
Third party	Both	If within boundaries of contract: De Groene Boog. If outside: Rijkswaterstaat

Table 9: Risk transfer

Legal, project finance, and third party risk were mentioned as important aspects for ESM in both projects (see table 8). The full table is included in appendix E.

Firstly, **project finance** plays a role in managing the external stakeholders. This also relates to the legal risks and the third party risk. The construction companies are dependent on the pre-financing from banks, through the SPV. Coming back to figures 13 and 14, the SPV’s betweenness indeed has a large influence on financial resources through the network and on collaboration in the project, because each contract change which costs more than 100,000 has to be approved by the banks. However, the SPV director said that the interest of the SPV is also to keep satisfied external stakeholders, because this helps

to get the UVOs validated. Despite that, the A9 external stakeholder manager noted that in the beginning the contractor was more willing to pay for extra stakeholder wishes, whereas later there were more additional work claims. The SPV therefore plays a crucial role in financial flows according to the EPC director: "If the citizens keep complaining we won't receive the availability payment. [...] Then we can decide to cause nuisance, and accept the penalty." This seems to confirm that financial incentives can have negative consequences for citizens (Nederhand & Klijn, 2017). However, this has not resulted in any conflicts in the projects so far. "The financial interests in stakeholder management are not large. So we invest in keeping the relations good." *At the A16*, the contractor mentioned the project finance has an influence on the legal risk sometimes.

Legal risk refers to the way that parties are responsible for getting the right permits. The contractor is responsible for requesting most of the permits in both projects. *At the A9*, only the tunnel opening permit and logging permit were the responsibility of Rijkswaterstaat. The logging permit ensured that the project had a smooth start and IXAS did not have to deal with resistance. In both projects, Rijkswaterstaat formally did not have a role with other permits, nevertheless *at the A9* they did not throw responsibilities over the fence as a result of this risk transfer. For example Rijkswaterstaat has played an active role at the authorities issuing the permits, as they serve as a cogwheel in the flow of information through the network. However, the external stakeholder manager of the A9 mentioned that in some projects too little energy is put in requesting the permits by the contractor, of which the results were visible *at the A16*. This is partly because the contractor needs to stick to the planning in order to receive the milestone payments in time, such as the availability certificate.

At the A16, this has sometimes resulted in tension on the relation with external stakeholders, because permits were too quickly requested. For example, the municipality of Lansingerland complained that it had not been consulted sufficiently involved in the design by the contractor in order to issue a permit. However, the EPC director found that administrative stakeholders come with changing wishes and do not recognize the requirements the way they were put in the contract by Rijkswaterstaat. *At the A9* however, it seemed that putting more energy in this has prevented these problems, emphasizing the role of interaction (more about this in chapter 4.5).

Third party risk lies with both the public and private parties, and interrelates with the first two risks. Firstly a risk in case of extra stakeholder wishes can arise, for example with the noise nuisance. When the claim is outside the scope of the contract, Rijkswaterstaat is essentially responsible for dealing with the wish. However, it is not always clear if a claim is outside the contract, which in both projects results in a more relational approach. A related second risk arises when an external stakeholder has a difference of opinion about a requirement when the project is implemented. Because the contractor is responsible for managing the external stakeholders and Rijkswaterstaat made the UVOs, this can sometimes result in issues. *At both projects*, the contractors became immediately responsible for managing the administrative stakeholders after the contract was signed, however *at the A16* more problems were encountered, so Rijkswaterstaat realized more guidance was needed. This will be discussed more in chapter 4.4.

Conclusion contractual conditions

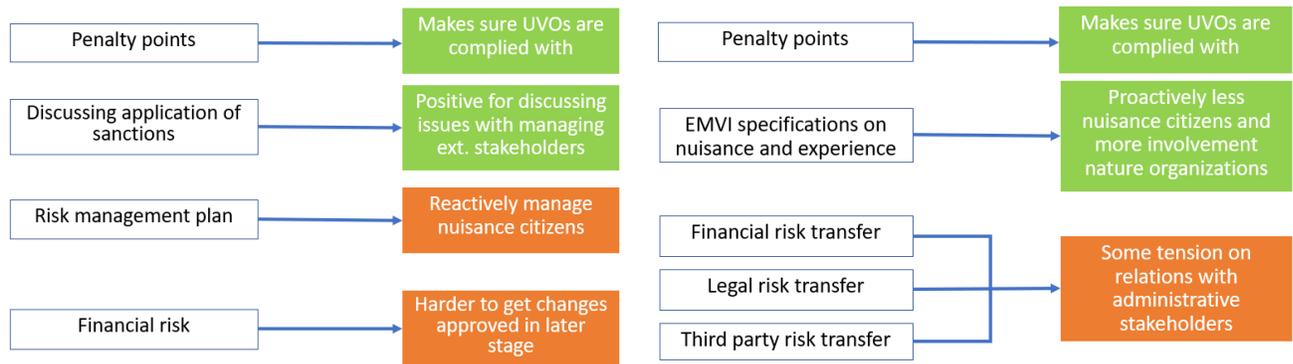


Figure 19: Relations theoretical framework (l: A9, r: A16)

Both cases showed that sanctions do not negatively influence ESM. Rather, combined with a good discussion of the application of sanctions, sanctions are positive to make the contractor comply to the UVOs, contrary to the findings of Nederhand & Klijn (2017). Also, the stronger the EMVI specifications on nuisance are, the more this can form a positive aspect for citizens. At the A16, the risk transfer put some tension on relations with administrative stakeholders, whereas this was not the case at the A9. Explanations for this will be elaborated upon in the next two sub-chapters. However, at the A9 the financial risk made it somewhat harder to get changes approved in a later stage.

4.4 Relational conditions

Sub-question 4: ‘How do relational conditions influence ESM approaches according to the internal stakeholders?’ will be answered in this chapter. Four conditions that influence ESM will be discussed: *communication and interaction, trust and transparency, and conflict management*.

Communication and interaction

Interaction between the public and private party for managing external stakeholders was mentioned as essential by all interviewees, because it ensures a smooth implementation of the contract and a contract is never complete. The SPV director A9 said: “The contract serves as the basis for everything. But the contract alone is not enough. Sometimes the contract is not totally clear, so you have to keep communicating with each other.” The contract and project managers at both projects stressed that primarily the people in the project are determinative for the collaboration between client and contractor, but that the contract offers guidance in the relations between the two parties and delineates responsibilities. This points in the direction, that relational governance plays a crucial role (Warsen et al., 2019). The technical manager at the A9: “We have a collaboration with IXAS in which we fall back onto the contract as little as possible from both sides. And with that, you see that the contract barely plays a role anymore.” At the A16, the project manager says about this: “We have to be solution-oriented and there has to be a will to figure it out together. That depends much more on the relational side and that isn’t there from day 1.” This shows that contracts are indeed incomplete and form reference points for dealing with differences of opinion about the contract (Badenfelt, 2011).

Both projects show how important interaction is for managing the external stakeholders, especially in the transition period between the preparation and realization phase, which Verweij (2015a) and Neerlands diep (2016) also mentioned. However, issues in this phase differ between both projects.

At the A9, the external stakeholder manager of IXAS got the impression that the ‘intensive collaboration’ in the A9 project is ‘quite unique’. Almost everything is discussed and solved, which has led to a jointly supported and implemented ESM approach. This smoothed arranging the permits and made sure issues with managing external stakeholders are discussed. The Rijkswaterstaat external stakeholder manager found that IXAS immediately picked up the tasks well and invested in the relations with external stakeholders. The plans of IXAS to bring forward the verification and validation were perceived positively and ensured that stakeholders behaved flexibly, and early involved. Because IXAS listened well to the interests of the stakeholders, the Commission Spatial Quality of Amsterdam approved at once the plans of IXAS. Allocating stakeholder responsibilities was not a problem, contrary to the findings of De Schepper et al. (2014).

At the A16, initially responsibilities were immediately shifted after contract close, however now some kind of transition period is taken. Rijkswaterstaat takes de Groene Boog along in citizens meetings for example, and to make people get used to de Groene Boog being their point of contact. Whereas the transition is going quite well, sometimes a push by Rijkswaterstaat is needed. The project manager found that the contractor does not have the same stakeholder management skills as Rijkswaterstaat, similar to what Verweij (2018a) found. Therefore, Rijkswaterstaat forms a crucial link between the contractor and external stakeholders in the flow of knowledge and authority. There are no contractual requirements about the intensity of informing external stakeholders. The Rijkswaterstaat external stakeholder manager said: “If they don’t do it the way we do it now and we think it is of importance, we can’t pin them down contractually.” She sees that the contractor is slow at copying the intensive strategy of being ‘visible, accessible, and reliable’. She mentioned that more contractual arrangements about this should be put in the contract. The result now is that different sub-areas are a bit mixed up, however she does not foresee many problems for the future. With regards to administrative stakeholders, the contractor needs some guidance from Rijkswaterstaat. Whereas in the beginning responsibilities were directly shifted, Rijkswaterstaat now takes a more intermediary and cooperative role in managing the external stakeholders. The EPC director: “Rijkswaterstaat also sees that a bit of guidance from Rijkswaterstaat is needed. What’s troubling us now... There is an omission in the contract that it is described so black and white. For the simple reason, they have built a relation with the external stakeholders for 8 years. Whereas we have to adopt it without that knowledge and relation. That puts you behind with 4-0.”

This cooperative management of administrative stakeholders is important when they try to change requirements or differ in interpretation. There is much collaboration in a triangle and Rijkswaterstaat cooperates with the contractor.

With regards to citizens *at the A9*, measures had to be taken that were outside the scope of the contract, as nuisance was worse than expected. Interaction was key to arrange the extra measures. Nevertheless, the stakeholder claims required Rijkswaterstaat had to take a leading role. Whereas IXAS saw the importance of intensive communication to manage the citizens, changes outside the scope that cost extra money had to be contractually agreed upon. Whereas some smaller measures were financed by IXAS, in most cases a settlement through interaction was reached with the contractor. Although IXAS’ approach was more reactive, because of the strict financial payments structure, the two parties were able to come

up with a set of measures. The issue also showed that the contractor uses more reactive approaches, contrary to De Schepper et al.'s (2014) findings.

In both projects, there are many regular and incidental organizational arrangements that facilitate interaction, and which help to deal with differences of opinion. Project startups and project follow ups helped to form common grounds, and to get the know the motivations of the other already in the tendering phase. What the A9 did extra was that a vision document was created at the beginning, in which the parties agreed how they wanted to work together, in which 'Stick to the plan, stick to the people' was important. Each other's norms and values were adopted. In this way shared identity of the project was created. However, its meaning had to be gained through practice and through other informal and formal meetings. *At both projects*, an external bureau is used to preventively and intensively help with relations.

All project managers found Benen op Tafel (BOT) ('Legs on the table') meetings between several managers of both internal organizations most important to create this interaction and meaning. This stresses the relevance of informal meetings to solve issues and to build trust (Verweij, 2018b; Warsen et al., 2019). The A9 SPV director explains: "This is a very important meeting, in which we discuss the items, which have not been formally agreed upon, because they are not far enough. I think this is very important to establish trust in both directions, and in which we can openly say: this could be coming up."

In both projects, in this process the different viewpoints are very much included and made visible according to the interviews. A more formal meeting is the internal 'strategic meeting' in which employees of Rijkswaterstaat discuss personal issues, and the focus is on the motivations of people. A third important meeting is the contract meeting, where the compliance of the contractor is most formally discussed. Because most issues in both projects could be solved through a more relational approach, conflicts in the projects with regards to managing external stakeholders have been prevented. The BOTs also helped to ensure that ESM approaches were well aligned.

Trust and transparency

Trust was mentioned as an important aspect in all interviews, both within the internal organization, and between the internal organization and the external stakeholders. Because in the A16 project, only preparatory construction works have been carried out yet, the consequences of trust were harder to measure.

Project managers of both the public and private side have been asked about five aspects of trust. However, the fourth aspect, *absence of opportunistic behavior*, was quite ambiguous because of the complexity of the question according to the respondents, and as such will not be included in the further data analysis.

	A9 RWS	A9 IXAS	A16 RWS	A16 De Groene Boog
T1. Agreement trust	4 (5)	4	4	4
T2. Benefit of the doubt	4	4	3	3
T3. Reliability	5	4 (5)	3	4
T5. Goodwill trust	5	5	3 (4)	3

Table 10: Scores on trust

In both projects the levels of trust were high between both parties. Whereas both projects deal with a result driven environment that is specified by its availability payment structure, and the public nature of Rijkswaterstaat requires them to take a more outward-looking perspective towards external stakeholders (Nederhand & Klijn 2017), the reliability at both projects ensures that both parties do not immediately claim additional work and keep in mind the others interests of the other party.

However at the A16 the scores were lower. The project manager mentioned that it is sometimes hard to see whether the other party is giving them the benefit of the doubt. Whereas Rijkswaterstaat tries to refrain from imposing penalty points to keep a good relation, the project manager then also expects an improvement of the process, which still has to be proven. Similarly, reliability is something that still needs to be worked on. For example he mentioned that the contractor does not always see the interests of the external stakeholders as much as Rijkswaterstaat does, for example in requesting the permits at Lansingerland. Contrarily, the EPC director mentioned that Rijkswaterstaat would not always realize the financial constraints of the contractor, and that it already took certain argument positions in the tender procedure, whereas they need to agree on requirements afterwards, for example with an issue about desalinated sand. This is a learning process for both parties, but interests are taken into account as far as possible.

Here the A16 project manager touched upon a fundamental topic: “We still have a long way to go. Trust is hard to gain but easy to lose. That means that it will take time.” Trust is important for transferring the responsibilities of ESM to the private party. “The closer the collaboration between contractor and client [...] the easier this is.” he mentioned. At the A9, the external stakeholder managers mentioned that the trust is the basis for establishing a joint strategy and to appear to the outside world as one team. This also protects the contractor against an external stakeholder that comes with additional claims.

At the A9, trust was quickly built up between Rijkswaterstaat and IXAS from the beginning. The Rijkswaterstaat technical manager: “We really emitted in the beginning: if there is something, we want to help you. [...] In the beginning, we could quickly solve a few problems that IXAS encountered, which helped to keep it small. And because we helped IXAS and gave them space, we could build trust.” This ensured Rijkswaterstaat trusted IXAS with carrying out stakeholder responsibilities.

At the A16, the contract manager found however that despite some issues, both parties showed a willingness to improve.

Trust also makes sure that the contract is not immediately used to claim additional work. The A9 external stakeholder manager (RWS): “If you jointly choose what is the best for the project, and you are free to listen to each other’s problems, then it is much easier to work together and it takes less energy to solve things. That is essential.” The interest of the project is crucial according to the project manager. The technical manager agrees: “If it costs one of us something extra, then let’s not look immediately who’s going to pay which euro. No, we solve it. And then we see how we are going to arrange it contractually. Often we can arrange it without it having financial consequences for one of the parties.”

These issues require *transparency*, which is a theme that emerged during the coding and which positively influences trust. *At the A9*, the project manager and technical manager mentioned that employees of Rijkswaterstaat are welcome at IXAS and that differences in opinion are discussed. The project manager mentioned how knowledge sharing played a role right at the start. Information about stakeholders but also about the things that don’t go well are shared. Trust, transparency, and interaction also help when

Rijkswaterstaat finds that the contractor does not comply to the UVO requirements. Daring to speak about that, and making it clear in the interaction beforehand can help. *At the A9*, the external stakeholder manager said: “It’s not that every discussion immediately leads to a contractual change and fuss on a contractual level.” Contrarily, *at the A16*, there are still some problems with regard to transparency. The external stakeholder manager found that de Groene Boog is still quite closed off (even though they are in the same building). The EPC director found that at a management level, issues are transparently discussed, but at an operational level, there is more distrust and less transparency. This resulted in issues with the requirement verification, issues the A9 did not have. This is discussed more in chapter 4.5.

Conflict management

In both projects, interviewees indicated that no conflicts have happened, neither with regards to internal issues, nor with regards to the (shared) managing of the external stakeholders. However there have been differences in opinion of course, which the managers called ‘issues’.

	A9	A16
CM1. Example	Nocturnal pile-driving	Desalinated sand
CM2. Nature of approach	Neither formal nor informal	Neither formal nor informal
CM3. Focus of measurements	All	Preventing-controlling
CM4. Timing of agreements (proactive/reactive)	Neither reactive nor proactive	Neither reactive nor proactive
CM5. Attention for potential sensitive issues	Much	Very much
CM6. Willingness to make adaptations	Very much	Much

Table 11: Conflict management approach

Both projects show a similar way of solving issues. *At the A9*, the nocturnal pile-driving was a potential conflict and there were differences in opinion. In this case, both parties looked beyond the contract and came up with different measures. The different organizational arrangements helped to prevent a conflict. Generally, when there is an issue, this is first solved between the respective employees, then the BOT plays a role, and finally the contract meeting. Issues are tried to be solved without the contract. In the issue, several possible solutions were discussed and the financial consequences were not immediately put at the top. The technical manager: “If you have a good solution and it doesn’t fit into the contract, then we have to adapt the contract and not the solution.” This has led to a solution where the nocturnal work was shifted to the day and the reversible lane was opened in the mornings so the traffic could flow. This way complaints from the external stakeholders could be taken into account. Because the municipalities were involved well since the start of the project, they permitted shifting the working times. Also, many additional measures were taken by both parties. Whereas IXAS was not willing to finance all additional measures, the parties were able to solve issues through interaction. This way differences of opinion were solved and a conflict was prevented. With the BOTs, potentially sensitive issues and solutions were discussed in an early stage.

At the A16, the contract manager mentioned: “We try to set up a working process, if we note that we have a difference, let’s see, what is the problem, what are the points of view at the moment, and how can we look for a direction of solutions which works for both. That asks a lot.”

An example is a difference in opinion with regards to managing the water board Delfland. All three parties differed in interpretation about a requirement with regards to using desalinated sand. This issue was first tried to be solved by the contractor, however they did not find a solution. When the issue had been simmering on for a few months, Rijkswaterstaat helped to find a solution. Whereas the contract played a role, the three parties got around the table together and tried to solve the issue. Because trust is quite high, there is close contact between the parties according to the EPC director. Also, the very high attention to discussing sensitive issues might have prevented the issue from growing.

Conclusion relational conditions

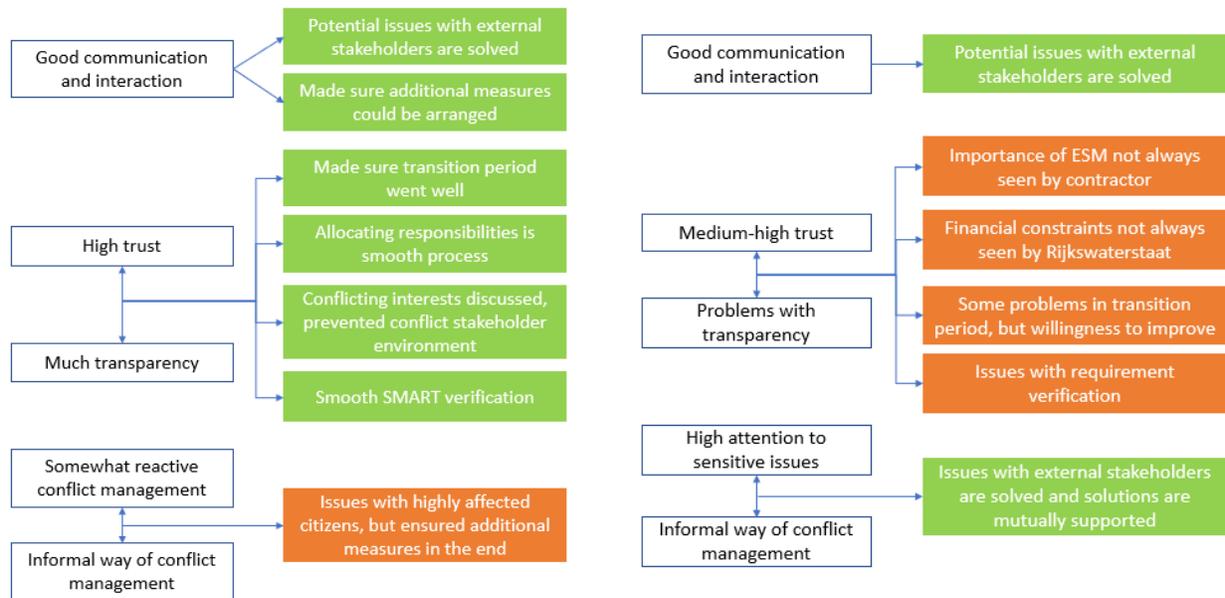


Figure 20: Relations theoretical framework

Both projects showed the relevance of good communication and informal interaction, which made sure that different issues with managing external stakeholders could be tackled. This underlines the findings of Benítez-Ávila et al. (2018) who stress the importance of trying to find common grounds between conflicting interests and making different viewpoints visible. The differing degrees of trust and transparency between the projects had an influence on external stakeholders. Less trust and transparency led to some problems in the transition period and with the requirement verification at the A16. Despite differing interests, the high attention in conflict management to sensitive issues could prevent the conflicts from growing at the A16. At the A9, successful conflict management could solve issues with citizens. The findings underline the importance of trust (e.g. Edelenbos & Klijn, 2007) and an informal, relational way of solving issues (Verweij, 2015b). More transparency and trust also positively seem to reinforce each other.

4.5 Interplay of contractual and relational conditions

In this chapter, an answer will be given to the last sub-question: *'How does the interplay between contractual and relational conditions influence ESM approaches?'*

As could be noticed in the previous paragraphs, contractual and relational conditions play a role in both projects. *Both projects* try to use the contract for guidance. The relational conditions make the contract work, they give meaning to the contract, and are crucial for how the collaboration evolves. The relation especially comes at play when there are differences in opinion about the interpretation of the contract. In this chapter, a number of issues will be discussed in which a combination of contractual and relational conditions had an influence on ESM: requirement verification, transition period, requesting permits, and 'triangle issues'.

Requirement verification

At the process of verifying and validating the stakeholder wishes, trust, interaction, transparency, and the contract played an important role. In this process the needs of Rijkswaterstaat and the administrative stakeholders, can be specified and consequently translated into the different stages of the design (verification) and checked whether the solution complies to the needs of the client(s) (validation). *In both projects*, this process played an important role.

At the A9, despite the lack of a contractual duty, they decided to use this process for all the requirements in the contract. Different discussion rounds were organized in which the external administrative stakeholders were invited to elucidate their requirements.

This process went well because there was much trust present between Rijkswaterstaat and IXAS. It also helped to establish trust between the external stakeholders and the contractor, and consequently made sure that IXAS, Rijkswaterstaat, and the external stakeholder were on same level of understanding about the UVOs.

At the A16 however, the contract manager and external stakeholder manager of Rijkswaterstaat were not satisfied about the whole process, calling it a sensitive issue. Interestingly, the verification was more contractually fixed than at the A9. The contractor did not discuss the requirements it already found SMART, so it was not clear whether the parties understood each other correctly with the SMART requirements. This sometimes meant that Rijkswaterstaat and the external stakeholder were confronted with a *fait accompli*. The external stakeholder manager misses transparency of the contractor: "We already had a few times, that the requirement they thought they could interpret it in a certain way, was not meant that way by the stakeholder. But they continued with their starting point, and now they have to repair. The stakeholder is not happy, because de Groene Boog did not discuss it." Improvement of this process is necessary according to the contractor manager.

Transition period managing the external stakeholders

In both projects much effort was put into getting a smooth transition preparation to realization. Interaction played a role in this. The A16 project manager: "It is an open discussion. What is difficult, is the conviction of the project team that what we want, is for 100% correctly stated in the contract." However, this also means accepting the position of the other.

At the A16 however, when trees had to be cut, this required a lot of communication towards the municipality, Rottemeren and citizens. But this also required that de Groene Boog would take a proactive

role in communicating what would exactly happen. This had to be pushed by Rijkswaterstaat, as they have more knowledge in this regard. However, because there was a good relationship, the parties jointly picked up this task in the end. The external stakeholder manager expected a bad informing strategy if Rijkswaterstaat would not have stepped in.

At the A9, this was an easier process. Rijkswaterstaat came up with the idea that IXAS should involve Amsterdam, the most influential stakeholder, from the beginning by showing them around the project, where Rijkswaterstaat took the role of letting this meeting function smoothly. Because IXAS directly realized they needed the stakeholders, this helped to build good relationships, to ensure a flexible attitude of the administrative stakeholders, and to arrange things that slightly differ from the UVOs. That the trust between Rijkswaterstaat and IXAS was good from the beginning, helped in that regard. Especially the plans to do the wishes verification earlier was positively perceived by Rijkswaterstaat and IXAS. Whereas the contract clearly delineates the responsibilities, in practice a more joint approach was used.

Requesting permits

Also with regards to requesting the permits, interaction, trust, and risk transfer are of importance. With regards to administrative stakeholders, *at the A9*, IXAS wanted to start earlier with construction work around the train tracks for example. This required a train-free period, for which it needed a permit from ProRail. Rijkswaterstaat and IXAS picked up this task jointly, even though this issue was formally the responsibility of the contractor. Because of the trust from the beginning between Rijkswaterstaat, contractor, and external stakeholders, this ensures that the quality of the applications is high and that deviations from the permit are accepted, according to the external stakeholder manager.

At the A16, the contract manager and external stakeholder manager mentioned that Rijkswaterstaat sometimes needs to look beyond the contract as well. In the process of requesting permits Rijkswaterstaat has an important role in helping the contractor with requesting the permits. The contractor manager: "Sometimes you get, that the contractor says: 'Well, if I want to stick to the planning, I need to apply for it now.' So the stakeholder says: 'Your application is not complete.' This results in some tension. Then we can only arbitrate." The contract manager found it important that Rijkswaterstaat remains a good partner of the administrative stakeholders and therefore it should help the contractor with requesting permits and this is also done.

Triangle issues

The contract manager at the A16 called issues between the public and private party and an external stakeholder 'triangle issues'. In this type of issues, interaction and transparency is especially necessary to deal with administrative stakeholders who do not acknowledge the interpretation of the requirements by the contractor.

At the A16, an issue was the use of desalinated sand for the slope of the road. The issue was particularly troublesome because the external stakeholder did not accept the solution of de Groene Boog. The contract manager described this as a triangle issue, where there is a complex interplay 'the external stakeholder doesn't want it', 'the contractor devised it', and 'Rijkswaterstaat made the agreement.' This requirement about the sand landed in the UVOs and thus the contractor was contractually responsible for the implementation. The contractor started from a certain approach. During discussing the approach and applying for the permit, the stakeholder said that they specified the requirement in a different way. Whereas the contractor could have used the contract to prove it was right, a more relational approach was used. In the end, the contractor asked Rijkswaterstaat for help. The project manager: "Eventually, the

contractor said: the issue is straining us, because we don't get it across at the water board. Because they stated that so explicitly, you can't say: 'listen, read the contract, it is in the contract.' We said, we have to get together with the contractor and say how they could do it [...] Within one or two months we saw the issue was going much better. This asks for a bit of vulnerability to dare to say that. Asking for help is not that easy sometimes." However, the EPC director mentioned that Rijkswaterstaat was not willing to help in the beginning with this issue. This required much time and effort to convince Rijkswaterstaat about the fact that the issue was bringing the project in danger. The EPC director mentioned that this required a step from both sides, which helped to find a solution that all three parties could agree with, and steps could be taken to solve the issue. The issue shows that Rijkswaterstaat can play a connecting role between the contractor and external stakeholders, as they are not contractually linked.

Conclusion interplay

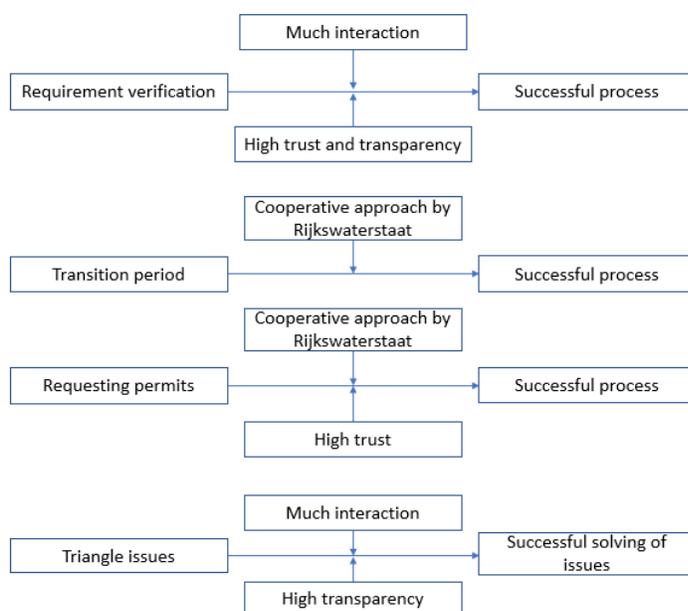


Figure 21: Relations theoretical framework

The A9 showed that much interaction (possibly because of a lack of contract) combined with high trust and transparency can lead to a successful requirement verification. This underlines the relevance of relational conditions (Warsen et al., 2019). In the transition period, a cooperative approach by Rijkswaterstaat is crucial, as Rijkswaterstaat has more knowledge and has built up relations with external stakeholders. This underlines their influential position in the PPP networks. At requesting the permits, the cases show that a cooperative approach by Rijkswaterstaat is helpful. The A9 showed that high trust in this process facilitates requesting the permits, as opposed to the A16. With the triangle issues, the A16 revealed that interaction and transparency (vulnerability) are key to successfully deal with external stakeholder issues. The interplay issues stress the importance of relational conditions, and the necessity of a cooperative approach by Rijkswaterstaat, which was also mentioned by Verweij (2018a).

Conclusion, discussion & reflection

The aim of this thesis is to understand how the interplay between the contractual and relational conditions in the internal organization, influences ESM approaches. An SNA, semi-structured interviews, and participatory observation have been used to answer the main research question. In this last chapter, first an answer will be given to the sub-question, after which the main research question will be contrasted with the theoretical framework. Then, the findings of the case studies will be placed in a broader context of societal developments with regards to DBFM projects. Finally, based on the limitations and findings, recommendations will be given for practice and academia and a reflection on the process will be discussed.

5.1 Conclusion

Answer to sub-questions

To be able to give an answer to the main research question, first the sub-questions will be answered.

The first sub-question related to *which stakeholders are involved in PPPs and how they are linked through contracts*. The SNA showed that external stakeholders in both cases are linked via different execution agreements to Rijkswaterstaat, and that the private parties do not directly form a contractual link to the external stakeholders, whereas they are responsible for the realization of the projects. The SPV and Rijkswaterstaat have a high closeness and betweenness centrality, therefore they could have an influential role in the flow of resources through the network, whereas the external stakeholders have a low closeness and betweenness centrality.

The second sub-question dealt with *the approach that the internal organizations use to manage the external stakeholders*. Both projects use an approach that suits the location of stakeholders on the matrix. Generally the used approach is sufficient, except at the A9, when an intensive informing strategy was insufficient for the most affected stakeholders, contrary to the model of De Schepper et al. (2014). At the A16, a combination of intensively informing citizens and collaborating with a nature organization could tackle resistance upfront. Despite a transfer of responsibilities towards the private parties, in both projects Rijkswaterstaat and the contractors used a cooperative approach to deal with the external stakeholders. However, at the A16 more issues with regards to administrative stakeholders arose: with the SMART interpretations, additional wishes, permit issues, and issues involving three stakeholders. This points in the direction that a better relational governance at the A9 compared to the A16 could prevent issues with administrative external stakeholders (Warsen et al., 2019).

The third sub-question related to *the contractual conditions that influence ESM*. Both cases showed that sanctions do not negatively influence ESM. Rather, combined with a good discussion of the application of sanctions, sanctions are positive to make the contractor comply to the UVOs, contrary to the findings of Nederhand & Klijn (2017). Also, the stronger the EMVI specifications on nuisance are, the more this can form a positive aspect for citizens. At the A16, the risk transfer put some tension on relations with administrative stakeholders, whereas this was not the case at the A9, due to an early involvement of the most influential administrative stakeholder, Amsterdam. However, at the A9 the financial risk made it

somewhat harder to get changes approved in a later stage, showing the influential role of the SPVs in the flow of payments and authority through the PPP network.

The fourth sub-question discussed *the relational conditions that influence ESM*. Relational conditions were found to be crucial, because there are omissions and unforeseen circumstances. Both projects used informal interaction based on trust and transparency to prevent and solve different (potential) issues with managing external stakeholders. However, the differing degrees of trust and transparency between the projects influenced managing external stakeholders. Less trust and transparency at the A16 could explain the problems in the transition period and with the requirement verification. Despite differing interests and issues, the conflict management based on an informal way of solving issues, with attention to sensitive issues could prevent issues from turning into conflicts at both projects. At the A9, successful conflict management could solve issues with citizens. The findings underline the importance of trust (e.g. Edelenbos & Klijn, 2007) and an informal, relational way of solving issues (Verweij, 2015b). More transparency and trust also positively seem to reinforce each other, as issues with transparency with SMART interpretations at the A16 have an ongoing effect. Despite a strict contractual division of responsibilities, the findings also revealed that Rijkswaterstaat plays a key role in managing the external stakeholders. Firstly, because a push is sometimes needed as the contractors take a somewhat more inward looking and reactive approach (contrary to findings of De Schepper et al., 2014), and secondly, because things get stuck at administrative stakeholders who want to arrange extra requirements. Rijkswaterstaat in both cases uses its knowledge and the relations it built up in the preparation phase, to help the contractor. Because of their influential role in the network, they have a role of connecting the interests of the external stakeholders and the private party.

The fifth sub-question looked *at the interplay of conditions* and found that this interplay occurred with the requirement verification, the transition period between preparation and realization, requesting permits, and 'triangle issues'. In the requirement verification, trust, interaction, transparency, and the contract played an important role. The A9 showed that despite the lack of contractual conditions, a relational approach that included trust, interaction, and transparency could make sure that the interpretations of all stakeholders were well aligned, whereas the A16 lacked some transparency, which strained the interaction and trust somewhat and led to problems with interpreting requirements in a later stage. In the transition period, the findings show that a cooperative role of Rijkswaterstaat is crucial. In both projects, Rijkswaterstaat uses a cooperative approach, but at the A9 this process was smoother due to more trust. At requesting permits, interaction, trust, and risk transfer were most important. The issues between contractor, Rijkswaterstaat, and an external stakeholder showed that interaction is key and that Rijkswaterstaat plays a connecting role between the contractor and external stakeholders, as contractor and external stakeholders are not contractually linked.

Answer to main question

Now an answer will be given to the main research question: 'How does the interplay between contractual and relational conditions in the internal organization of PPPs, influence external stakeholder management approaches?'

Five conditions were studied that potentially have an influence on ESM: sanctions, risk transfer, communication and interaction, trust, and conflict management. The results revealed that all conditions in the theoretical framework influence ESM approaches, to differing degrees, and depending on the type of external stakeholder. Transparency also emerged as a key theme that underlies trust. Firstly, it is found

that contractual and relational conditions complement and reinforce each other, which supports the findings of Warsen et al. (2019). The role of the contractual conditions in both projects is to structure the collaboration and management of external stakeholders between both parties. Sanctions combined with a possibility of discussing them were found to be of importance for managing administrative stakeholders, which shows that contracts and relations can reinforce each other. The strength of EMVI reductions have a positive effect on reducing resistance of citizens upfront. However, contractual mechanisms fell short in addressing the most affected citizens, in which a relational approach appeared to be crucial and complementary to arrange extra measures.

Secondly, relational conditions were found to be crucial to prevent, control, and solve external stakeholder issues and to allocate responsibilities. A good involvement of administrative stakeholders at the A9 from the beginning of the process with the stakeholder wishes verification helped to establish good interaction between Rijkswaterstaat, contractor, and administrative stakeholders and could ensure a flexible attitude of the administrative stakeholders with regards to permits. High trust and transparency at the A9 was found have a mediating role in this regard. As private parties did not have a direct formal relationship with the external stakeholders, trust helps to manage the external stakeholders in the transition period and made sure the public and private party come to a jointly supported and implemented stakeholder management approach. At the A16, less transparency influenced the trust between the two parties, which in turn strained the allocation of responsibilities somewhat and led to issues with requirement verification, transition period, issuing permits and triangle issues.

Thirdly, the conflict management based on a combination of proactive and reactive measures, transparency, and discussing sensitive issues helped to make sure conflicts with external stakeholders were prevented. Because the contractor sticks somewhat more to their contractual obligations due to the financial model of the DBFM contract, and the financial interests, the public parties have to take the first steps in this regard. However, because at both projects the parties saw and discussed each other's interests, they were able to solve issues. Even though contractually stakeholder responsibilities are sharply divided, in both cases a cooperative approach was used instead of a contractual approach. This way, Rijkswaterstaat can use its influential position in the PPP network to help the contractor. At the A16, first however some problems had to arise before a more cooperative approach was used. The research confirms the claim by Benítez-Ávila (2018) that relational governance elements are key for collaboration in PPP projects and complement contractual conditions (Warsen et al., 2019). Successful stakeholder management is not only achieved by the risk transfer and responsibility division, but this research points in the direction that the management is indeed largely dependent on trust and active management of relations (Klijn & Koppenjan, 2016). However, contractual conditions are still relevant to make the contractor comply to the UVOs and EMVI specifications have a positive effect on the involvement and reduction of resistance of citizens.

5.2 Discussion

This thesis contributed to academia by specifically looking at the interplay between contractual and relational conditions in a qualitative way. The results revealed that in practice the strict division of responsibilities and tasks of these two DBFM projects did not lead to large problems in allocating stakeholder responsibilities and managing the external stakeholders, but that a combination of contractual and relational conditions was prevalent.

It is interesting to contrast these two recent projects to developments in the field of DBFM projects. During the peak of the DBFM projects, around 2010, there was a strong belief in transferring nearly all responsibilities and risks to the market (Neerlands diep, 2016). The result of this could be observed well at the A15 Maasvlakte, where responsibilities for stakeholder management were initially all put towards the private party (Bahama-model). Looking at the two researched cases, positive developments are showing off. The focus in both projects is on the relational side. Responsibilities were also clearly defined from the start in both projects, however responsibilities for external stakeholders were lacking.

Due to the small-N and context specificness of this research, the findings are especially relevant for DBFM projects in the Netherlands. Next to that, the quality of the data is influenced by the validity and reliability of the data (Yin, 1984).

A limitation of this research touching upon the *validity* of the data is that investigating the exact linkages between contractual and relational conditions was difficult, because the theoretical framework did not account for this interplay aspect. Not every possible interplay aspect was studied. Secondly, the theoretical framework was useful as it contained conditions that matched with practice, but the high number of variables meant each variable could only be dealt with superficially. However, the aim of this research was not to prove a causal relationship, but rather to understand a little researched topic. The SNA proved to be an interesting and promising way to investigate the link between contracts, relations, and ESM. The strength of this research lay combining insights from the SNA with the cross-comparison of the cases, which revealed interesting linkages, e.g. about the role of trust and transparency in managing external stakeholders in the 'transition period'. Further research could investigate whether this pattern can be distinguished in more projects, also internationally. For instance by using a QCA-approach, because that would combine qualitative with quantitative insights and would show whether the findings hold true amongst a larger-N. The results are especially relevant for DBFM-projects in the Netherlands, but the relevance of an interplay of contractual and relational conditions is likely to hold true for many types of contracts and countries.

With regards to *reliability*, the A9 was researched more thoroughly than the A16, also with the extra participatory observation. This made it easier to research the variables at the A9. Furthermore, the A16 was in an earlier stage, which might lead to an overrepresentation of the 'transition period', and detailed information about this period was harder to acquire at the A9. Similarly, it could not be proven yet whether the approach towards citizens at the A16 works, as most construction still has to take place. However, it is not expected that this affected the reliability of the research to a large extent, as the theoretical framework has been employed consistently.

The results showed that there were problems with external stakeholders using their formal powers, and with the SMART interpretation process. Therefore, a first recommendation for planning practice would be to investigate how roles and responsibilities for the administrative stakeholders can be clearly defined, to make sure friction with them can be prevented in the realization phase. It would therefore also be relevant to see if the administrative stakeholders can be involved to some extent during the tendering procedure,

as there is now a gap between preparation and realization in which they are not involved.

Secondly, an improved process with the SMART requirements is necessary. It is important to also discuss the requirements that are perceived as SMART by the contractor, to reduce conflicts about interpretation in a later stage. Therefore, the SMART process should be more contractually fixed in new DBFM projects, in which different discussion rounds with external stakeholders for each design (VO, DO, UO) would be necessary.

Thirdly, the most affected stakeholders should be dealt with more generously, as the A9 showed that an informing or involving strategy is not sufficient for them. For the future, public parties should investigate whether expanded schemes for dealing with the most affected citizens would be useful. Possibly, this could be done at an overarching ministerial level. The role of EMVI reductions in this regard could be researched, as this research showed that EMVI reductions have a positive effect on reducing resistance.

5.3 Reflection on data process

In this last part of the thesis, a look back will be taken on the research process from a personal viewpoint. By and large, the research process went rather well and few setbacks were encountered. There was quite a consistent progress in writing the thesis. Writing the theoretical framework was difficult in the beginning, but turned out well at the end. Arranging the interviews was a smooth process. A limitation is that during the interviews, the interviewees told much about the contractual, relational, and ESM conditions, but investigating the exact linkages between them proved to be much harder. Sorting all this information was quite a challenging task. The high amount of variables made it quite difficult to deal with all of them. In hindsight, it might have been easier to focus on one type of external stakeholder, and less variables. A point of reflection is that the questions asked during the interviews changed a bit during the research, which might have affected some results of the interviews. This was inevitable as it was a process of learning by doing and every interview provided new insights, that served as input for the next. Also, ideally more people should have been interviewed to research the A16 more thoroughly. All in all, writing the thesis was a constantly changing and iterative, but very enjoyable process.

- Akintoye, A., Beck, M. & Hardcastle, C. (2008). *Public– private partnerships: managing risks and opportunities*. Oxford, UK: Blackwell Science Ltd.
- Amadi, C., Carillo, P. & Tuuli, M. (2018). Stakeholder management in PPP projects: external stakeholders' perspective. *Built Environment Project and Asset Management*, 8(4), 403-414.
- Ansell, C. & Gash, A. (2008). Collaborative Governance in Theory and Practice. *Journal of Public Administration Research and Theory*, 18(4), 543-571.
- Badenfelt, U. (2011). Fixing the contract after the contract is fixed: A study of incomplete contracts in IT and construction projects. *International Journal of Project Management*, 29, 568–576.
- Ballast Nedam (2019). *Reconstructie en verbreding A9 Gaasperdammerweg*. Accessed on 14-03-2019 via <https://www.ballast-nedam.nl/projecten/reconstructie-en-verbreding-a9-gaasperdammerweg/>.
- Bénitez-Ávila, C., Hartmann, A., Dewulf, G. & Henseler, J. (2018). Interplay of relational and contractual governance in public-private partnerships: The mediating role of relational norms, trust and partners' contribution. *International Journal of Project Management*, 36, 429-443.
- Bezoekerscentrum SAA (2019). *Wat en waarom Holendrecht-Diemen*. Accessed on 12-03-2019 via <https://bezoekerscentrum.rijkswaterstaat.nl/SchipholAmsterdamAlmere/waarom-a9-holendrecht-diemen-gaasperdammerweg/#.XlorgShKjIU>.
- Bing, L., Akintoye, A., Edwards, P. & Hardcastle, C. (2005). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management*, 23, 25-35.
- BNG Advies (2012). *Weloverwogen investeren in maatschappelijk vastgoed*. Accessed on 09-04-2019 via https://www.bngbank.nl/BG%20Articles/2012janfeb_P26-29_Boendermaker_deGroot.pdf
- Buxbaum, J. & Ortiz, I. (2009). *Public Sector Decision Making for Public-private Partnerships*. Transportation Research Board.
- Cambridge Dictionary (2019). *Interaction*. Accessed on 17-06-2019 via <https://dictionary.cambridge.org/dictionary/english/interaction>
- Cao, Z. & Lumineau, F. (2015). Revisiting the interplay between contractual and relational governance: A qualitative and meta-analytic investigation. *Journal of Operations Management*, 33-34, 15-42.
- Chowdhury, A., Chen, P. & Tiong, R. (2011). Analysing the structure of public-private partnership projects using network theory. *Construction Management and Economics*, 29, 247-260.
- Cope, M. (2010). Coding Transcripts and Diaries. In Clifford, N. French, S. & Valentine, G. (Red.), *Key Methods in Geography* (pp. 440-452). Thousand Oaks: Sage.
- Delmon, J. (2011). *Public-private partnership projects in infrastructure: an essential guide for policy makers*. Cambridge University Press.

- Dewulf, G., Blanken, A. & Bult-Spiering, M. (2011). *Strategic issues in public-private partnerships (2nd edition)*. UK: Wiley-Blackwell.
- Donaldson, T. & Preston, L. (1995). The stakeholder theory of the corporation: concepts, evidence, and implications. *Academic Management Review*, 20, 65–91.
- Edelenbos, J. & Klijn, E. (2007). Trust in Complex Decision-Making Networks: A Theoretical and Empirical Exploration. *Administration and Society*, 39(1), 25-50.
- Edelenbos, J. & Teisman, G. (2008). Public-private partnership on the edge of project and process management: Insights from Dutch practice: The Sijtwende spatial development project. *Environment and Planning C: Government and Policy*, 26(3), 614–626.
- Eisenhardt, K. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14(4), 532-550.
- El-Gohary, N., Osman, H. & El-Diraby, T. (2006). Stakeholder management for public-private partnerships. *International Journal of Project Management*, 24, 595-604.
- England, K. & Ward, K. (2007). *Neoliberalization: States, Networks, Peoples*. Malden: Blackwell.
- Eversdijk, A. & Korsten, A. (2015). Motieven en overwegingen achter publiek-private samenwerkingen. *Beleidsonderzoek Online*, 15.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219-245.
- Forrer, J., Kee, J., Newcomer, K. & Boyer, E. (2010). Public-Private Partnerships and the Public Accountability Question. *Public Administration Review*, 70(3), 475-484.
- Freeman, R. (1984). *Strategic Management: A Stakeholder Approach*. New York: Cambridge University Press.
- Gestel, K. van, Voets, J., & Verhoest, K. (2012). How governance of complex PPPs affects performance. *Public Administration Quarterly*, 36(2), 140-188.
- Grimsey, D. & Lewis, M. (2005). Are Public Private Partnerships Value for Money? Evaluating Alternative Approaches and Comparing Academic and Practitioner Views. *Accounting Forum*, 29(4), 345-378.
- Gustaffson, J. (2017). Single case studies vs. multiple case studies: A comparative study. Halmstad University.
- Hennink, M., Hutter, I. & Bailey, A. (2011). *Qualitative research methods*. Londen: SAGE Publications Ltd.
- Hertogh, M., Haas, K. de, Bellinga, H. & Blok, H. (2017). *Kennistrject Gaasperdammertunnel Deel 1: 2014-2016*. Delft: COB.
- Himmel, M. & Siemiatycki, M. (2017). Infrastructure public-private partnerships as drivers of innovations? Lessons from Ontario, Canada. *Environment and Planning C: Politics and Space*, 35(5), 746-764

- Hodge, G. & Greve, C. (2017). On public-private partnership performance: A contemporary review. *Public Works Management Policy*, 22, 55–78.
- Hodge, G., Greve, C. & Biygautane, M. (2018). Do PPPs work? What and how have we been learning so far? *Public Management Review*, 20(8), 1105-1121.
- Hovy, P. (2015). Risk Allocation in Public-Private Partnerships: Maximizing value for money. International Institute for Sustainable Development.
- Hueskes, M., Verhoest, K. & Block, T. (2017). Governing public–private partnerships for sustainability: An analysis of procurement and governance practices of PPP infrastructure projects. *International Journal of Project Management*, 35(6), 1184-1195.
- Huxham, C. & Vangen, S. (2004). Doing things collaboratively: realizing advantage or succumbing to inertia? *IEEE Engineering Management Review*, 32(4), 190-201.
- Iossa, E., Spagnolo, G. & Vellez, M. (2007). Contract Design in Public-Private Partnerships. Report prepared for the World Bank.
- Johnson, R. & Onwuegbuzie, A. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher*, 33, 14-26.
- Jones, R., & Noble, G. (2008). Managing the implementation of public-private partnerships. *Public Money & Management*, 28, 109-114.
- Klijin, E., Edelenbos, J. & Steijn, B. (2010). Trust in governance networks; its impact and outcomes. *Administration and Society*, 42(2), 193-221.
- Klijin, E., & Koppenjan, J. (2016). The impact of contract characteristics on the performance of public-private partnerships (PPP's). *Public Money & Management*, 36(6), 455-462.
- Klijin, E. & Teisman, G. (2003). Institutional and Strategic Barriers to Public—Private Partnership: An Analysis of Dutch Cases. *Public Money and Management*, 23(3), 137-146.
- Klijin, E. & Twist, M. van (2007). Publiek-private samenwerking in Nederland – Overzicht van theorie en praktijk. *M&O*, 3(4), 156-170.
- Koppenjan, J. (2005). The Formation of Public-Private Partnerships: Lessons from Nine Transport Infrastructure Projects in The Netherlands. *Public Administration*, 83(1), 135-157.
- Koppenjan, J., Klijin, E., Warsen, R. & Nederhand, J. (2018). Slimme sturing van publiek-private samenwerking bij publieke infrastructuur. *Bestuurskunde*, 27(2), 22-30.
- Kothari, C. (2004). Research Methodology. Methods and techniques. New Delhi: New Age International (P) Limited, Publishers.
- Kozar, O. (2010). Towards Better Group Work: Seeing the Difference between Cooperation and Collaboration. *English Speaking Forum*, 2, 16-23.
- Leendertse, W. (2015). *Publiek-private interactie in infrastructuurnetwerken: Een zoektocht naar waardevolle marktbetrokkenheid in het beheer en de ontwikkeling van publieke infrastructuurnetwerken* [Public-private interaction in infrastructure networks: A search for valuable market involvement in the

management and development of public infrastructure networks]. Groningen, The Netherlands: Rijksuniversiteit Groningen.

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.

Longhurst, R. (2010). Semi-structured Interviews and Focus Groups. In Clifford, N. French, S. & Valentine, G. (Red.), *Key Methods in Geography* (pp. 103-115). Thousand Oaks: Sage.

Marktvisie (2016). De Marktvisie. Accessed on 14-06-2019 via <https://www.marktvisie.nu/downloads/>.

Marshall, C. & Rossman, G. (1989). *Designing qualitative research*. Newbury Park, CA: Sage.

Meershoek, P. (2016). Gaasperdammerweg is 'Groninger toestanden' zat. *Het Parool* 11 okt 2016

Miller, J. (2000). *Principles of Public and Private Infrastructure Delivery*. Boston: Kluwer Academic Publishers.

Ministerie van Verkeer en Waterstaat (2008). *DBFM Handboek: een verkenning van contractonderdelen*.

Mitchell, R., Agle, B. & Wood, D. (1997). Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Academic Management Review*, 22, 853–886.

Mok, K., Qiping Shin, G. & Yang, J. (2015). Stakeholder management studies in mega construction projects: A review and future directions. *International Journal of Project Management*, 33, 446-457.

Naber, C. (2016). Het einde van een fileknoop. *NRC*. 2 sept 2016

Nederhand, J. & Klijn, E. (2017). Stakeholder Involvement in Public–Private Partnerships: Its Influence on the Innovative Character of Projects and on Project Performance. *Administration & Society*, 1-27.

Neerlands diep (2016). *Evaluatie projectmanagement A15 Maasvlakte - Vaanplein met behulp van de Neerlands diep-Spiegel*. Accessed on 14-06-2019 via <https://neerlandsdiep.nl/wp-content/uploads/2016/05/EindrapportageSpiegelprojectA15MaVa.pdf>.

Olsen, W. (2004). Triangulation in Social Research: Qualitative and Quantitative Methods Can Really Be Mixed. In: M. Holborn (ed.). *Developments in Sociology*. Ormskirk: Causeway Press.

Onnink, G. (2019). *Aanleg A16 Rotterdam begint maandag: Dit ging eraan vooraf*. Algemeen Dagblad. Accessed on 02-05-2019 via <https://www.ad.nl/rotterdam/aanleg-a16-rotterdam-begint-maandag-dit-ging-eraan-vooraf~ae1eb225/>

Onwuegbuzie, A. & Leech, N. (2010). Generalization practices in qualitative research: a mixed methods case study. *Qual. Quant.*, 44, 881-892.

PPP Certification (2019). *PPP Certification Program Guide*. Accessed on 10-02-2019 via <https://ppp-certification.com/ppp-certification-guide/about-ppp-guide>.

PPP Knowledge Lab (2019). *PPP Reference Guide*. Accessed on 12-03-2019 via <https://pppknowledgelab.org/guide/sections/51-ppp-cycle>

PPP Unit (2019). *Building the future together. PPP in infrastructure*. Rijkswaterstaat.

- Raad van State (2017). *Nieuwe Rijksweg A16 Rotterdam mag er komen*. Accessed on 02-03-2019 via <https://www.raadvanstate.nl/@9063/nieuwe-rijksweg-a16/>
- Rhodes, R. (1996). The New Governance: Governing without Government. *Political Studies*, 44, 652-667.
- Rice, S. (2010). Sampling in Geography. In Clifford, N. French, S. & Valentine, G. (Red.), *Key Methods in Geography* (pp. 230-252). Thousand Oaks: Sage.
- Ring, P. & Ven, A. van der (1992). Structuring cooperative relations between organizations. *Strategic Management Journal*, 13, 483–98.
- Rijksoverheid (2008). *Handboek DBFM: Een verkenning van contractonderdelen*. Report. Accessed on 05-06-2019 via <https://www.rijksoverheid.nl/documenten/rapporten/2008/01/01/dbfm-handboek-een-verkenning-van-contractonderdelen>.
- Rijkswaterstaat (2016). *Publicatie Tracébesluit A16*.
- Rijkswaterstaat (2019a). *DBFM*. Accessed on 23-12-2018 via <https://www.rijkswaterstaat.nl/zakelijk/zakendoen-met-rijkswaterstaat/werkwijzen/werkwijze-in-gww/contracten-gww/dbfm.aspx>.
- Rijkswaterstaat (2019b). *Wat is DBFM of DBFMO?* Accessed on 12-02-2019 via <https://www.rijksoverheid.nl/onderwerpen/publiek-private-samenwerking-pps-bij-het-rijk/wat-is-dbfmo-of-dbfmo>.
- Rijkswaterstaat (2019c). *Integraal projectmanagement*. Accessed on 12-03-2019 via <https://www.rijkswaterstaat.nl/zakelijk/zakendoen-met-rijkswaterstaat/werkwijzen/werkwijze-in-gww/werken-in-projecten/integraal-projectmanagement.aspx>
- Rijkswaterstaat (2019d). *A16 Rotterdam: nieuwe rijksweg tussen A13 en A16*. Accessed on 02-05-2019 via <https://www.rijkswaterstaat.nl/wegen/projectenoverzicht/a13-a16-nieuwe-rijksweg-rotterdam>
- Rijkswaterstaat (2014). *Innovatieagenda 2015-2020*. Den Haag: RWS.
- Robins, G. (2015). *Doing Social Network Research*. London: SAGE.
- Sainati, T., Brookes, N. & Locatelli, G. (2016). Special Purpose Entities in Megaprojects: empty boxes or real companies? Literature Review. *Project Management Journal*, 48, 55–73.
- Schepper, S. de, Dooms, M. & Haezendonck, E. (2014). Stakeholder dynamics and responsibilities in Public–Private Partnerships: A mixed experience. *International Journal of Project Management*, 32, 1210-1222.
- Steenhuisen, B. & De Bruijne, M. (2015). Publiek-private samenwerking en dynamische publieke waarden: Gedachte-experiment over een groengasaansluiting. In M. Sanders (ed.) *Publiek-private samenwerking: kunst van het evenwicht* (pp. 193–207). Den Haag: Boom Lemma.
- Steijn, B., Klijn, E. & Edelenbos, J. (2011). Public Private Partnerships: Added Value by Organizational Form or Management? *Public Administration*, 89(4), 1235-1252.

- Verweij, S. (2015a). Achieving satisfaction when implementing PPP transportation infrastructure projects: a qualitative comparative analysis of the A15 highway DBFM project. *International Journal of Project Management*, 33, 189-200.
- Verweij, S. (2015b). *Once the shovel hits the ground: evaluating the management of complex implementation processes of public-private partnership infrastructure projects with qualitative comparative analysis*. (Doctoral dissertation). Erasmus University, Rotterdam, the Netherlands.
- Verweij, S., Meerkerk, I. van. & Korthagen, I. (2015). Reasons for contract changes in implementing Dutch transportation infrastructure projects: An empirical exploration. *Transport Policy*, 37(1), 195-202.
- Verweij, S., Teisman, G. & Gerrits, L. (2017). Implementing Public–Private Partnerships: How Management Responses to Events Produce (Un) Satisfactory Outcomes. *Public Works Management & Policy*, 22(2), 119-139.
- Verweij, S. (2018a). Voorbij de dichotomie: Op zoek naar een succesvolle combinatie van contractuele aspecten en relationele aspecten in publiek-private samenwerking. In: M. Sanders (Red.). *Publiek-Private Samenwerking: Kunst van het Evenwicht*. Den Haag: Boom-Lemma Uitgevers.
- Verweij, S. (2018b). Meerwaarde door PPS: welke meerwaarde? *Agora*, 2018(3), 34-37.
- Villani, E., Luciano, G. & Phillips, N. (2017). Understanding Value Creation in Public-Private Partnerships: A Comparative Case Study. *Journal of Management Studies*, 54(6), 876-905.
- Walker, C. & Smith, A. (1995). *Privatized infrastructure: the BOT approach*. London: Thomas Telford.
- Warsen, R., Nederhand, J., Klijn, E., Grotenbreg, S. & Koppenjan, J. (2018). What makes public-private partnerships work? Survey research into the outcomes and the quality of cooperation in PPPs. *Public Management Review*, 20(8), 1165-1185.
- Warsen, R., Klijn, E. & Koppenjan, J. (2019). Mix and Match: How Contractual and Relational Conditions Are Combined in Successful Public-Private Partnerships. *Journal of Public Administration Research and Theory*, 1-19.
- Weihe, G. (2008a). *Public-private partnerships: Meaning and practice*. Copenhagen, Denmark: Copenhagen Business School.
- Weihe, G., (2008b). Public-Private Partnerships and Public-Private Value Trade-Offs. *Public Money & Management*, 3(28), 153-158
- Winch, G. (2010). *Managing Construction Projects*. Oxford: Blackwell Science.
- Yescombe, E. (2007). *Public-Private Partnerships: Principles of Policy and Finance*. Oxford: Elsevier.
- Yin, R. (1994). *Case Study Research: Design and Methods*. Thousand Oaks: Sage.
- Zheng, X., Yuan, J., Guo, J., Skibniewski, M. & Zhao, S. (2018). Influence of Relational Norms on User Interests in PPP Projects: Mediating Effect of Project Performance. *Sustainability*, 10, 1-19.

Appendices

Appendix A: Informed consent

Toestemming interview

Hartelijk dank dat u mee wilt doen aan een onderzoek naar publiek-private samenwerking in het kader van mijn afstudeerscriptie van de master Environmental and Infrastructure Planning bij de Faculteit Ruimtelijke Wetenschappen, verbonden aan de Rijksuniversiteit Groningen.

Het is van belang dat u op de hoogte bent van het volgende:

- U kunt te allen tijde besluiten om volledig te stoppen met het interview, ook nadat het interview heeft plaatsgevonden.
- U kunt te allen tijde aangeven dat u bepaalde vragen in het interview niet wilt beantwoorden.
- De antwoorden die u geeft zullen alleen worden gebruikt voor de scriptie, en niet voor andere doeleinden.
- De geluidsopname zal alleen worden beluisterd door de interviewer, om het interview te kunnen transcriberen en vervolgens de verkregen data te kunnen verwerken. De geluidsopname zal niet aan anderen worden verspreid.

Wilt u ook de volgende drie vragen beantwoorden:

- Gaat u akkoord met een geluidsopname van het interview ten behoeve van de latere data-analyse?

JA NEE

- Mag uw functie binnen Rijkswaterstaat zichtbaar gebruikt worden in de scriptie?

JA NEE

- Mogen uw voornaam en/of achternaam gebruikt worden in de scriptie, eventueel gekoppeld aan een citaat?

BEIDE

ALLEEN VOORNAAM

ALLEEN ACHTERNAAM

GEEN VAN BEIDE

Ondergetekenden verklaren dit document gelezen en begrepen te hebben.

Handtekening onderzoeker:

Handtekening deelnemer:

Getekend op te

Appendix B1: Interview guide project manager

Contractuele aspecten

Algemene vragen:

1. Welke functie speelt het contract in de samenwerking tussen Rijkswaterstaat en de opdrachtnemer?
2. Op welke manier is het contract van belang voor een succesvolle samenwerking? -waarom?

Relationele aspecten

1. Hoe zou u de samenwerking omschrijven tussen Rijkswaterstaat en de opdrachtnemer?
2. Is er een visie wat betreft de samenwerking en hoe wordt daarop gestuurd? Welke rol speelt de omgeving daarin?
3. Welke rol speelt vertrouwen in de samenwerking tussen Rijkswaterstaat en de opdrachtnemer?
4. Welke rol speelt openheid in de samenwerking?
5. Welke rol speelt conflictmanagement in de samenwerking tussen Rijkswaterstaat en de opdrachtnemer?
6. Welke rol spelen communicatie en interactie in de samenwerking tussen Rijkswaterstaat en de opdrachtnemer?
7. Op welke manier hebben vertrouwen, conflictmanagement en communicatie en interactie invloed op elkaar?
8. Wat zorgt ervoor dat vertrouwen, communicatie en interactie kan ontstaan?
9. Welke invloed heeft het contract op vertrouwen, conflictmanagement en communicatie en interactie?
10. Op welke manier hebben relationele aspecten invloed op de aanpak van externe stakeholders?

Vertrouwen:

Welke mate van vertrouwen is er in het algemeen tussen Rijkswaterstaat en opdrachtnemer op de volgende gebieden:

11. Houden de partijen zich over het algemeen aan de gemaakte afspraken?
helemaal niet 1 2 3 4 5 *helemaal/altijd*
12. Wordt de andere partij het voordeel van de twijfel gegeven?
1 2 3 4 5
13. Wordt er rekening gehouden met de belangen van de andere partij?
1 2 3 4 5
14. Worden de bijdragen van de andere partij niet voor het eigen gewin gebruikt?
1 2 3 4 5
15. Wordt er vanuit gegaan dat de intenties van de andere partij goed zijn?
1 2 3 4 5

Conflict management:

16. Hoe worden conflicten over het algemeen opgelost?
17. Kunt u een voorbeeld geven van een conflict (met betrekking tot omgevingsmanagement) en hoe dit is opgelost?
18. Op wat voor manier is dit conflict opgelost?
Zeer formeel - Zeer informeel (volgens het contract – buiten het contract om)
19. Zijn de maatregelen om conflicten te managen gericht op preventie, controle of oplossen?
Volledig preventie – volledig controle (problemen voor zijn – pas oplossen als probleem optreedt)
20. Is er aandacht voor gevoelige issues bij het bediscussiëren van conflicten?
Helemaal niet – helemaal wel
21. Is er bereidheid om aanpassingen te doen (aan het contract) bij conflicten?
Helemaal niet – helemaal wel

Communicatie en interactie:

22. Hoe verloopt de communicatie tussen Rijkswaterstaat en de opdrachtnemer? Welke overlegstructuren zijn er? Via wie verloopt de communicatie?
23. Is de communicatie meer formeel of informeel?
24. Worden de verschillende standpunten actief bediscussieerd?
25. Wordt er voldoende tijd besteed aan de communicatie tussen RWS en opdrachtnemer? *Actief informeren – passief informeren*

Relaties met andere variabelen?

1. Op welke manier kunnen een contract en relaties elkaar versterken?
2. Welke combinatie(s) van aspecten zijn van belang?

Appendix B2: Interview guide external stakeholder manager

Algemeen

1. Hoe is het omgevingsmanagementteam bij de opdrachtgever en opdrachtnemer opgebouwd bij dit project?
2. Wat ogen jullie te bereiken met het omgevingsmanagement? Zit er een verschil tussen de doelen van Rijkswaterstaat en de opdrachtnemer?
3. Op welke manier beoogt omgevingsmanagement bij te dragen aan meerwaarde voor het project? Wat verstaat u onder die meerwaarde?
4. Wat betekent dienend opdrachtgeverschap voor dit project?

Intern - extern

5. Hoe worden externe stakeholders geclassificeerd? Door wie worden de externe stakeholders geclassificeerd? Zit er een verschil tussen hoe de opdrachtnemer en hoe Rijkswaterstaat hen identificeren of is dit een gezamenlijke taak?
6. Welke (belangrijkste) externe stakeholders identificeert u?
7. Welke categorieën van stakeholders onderscheiden jullie en welke wijze van stakeholderaanpak kennen jullie daaraan toe? Kijken jullie ook naar macht en urgentie?
8. Verandert de aanpak van stakeholders ook tijdens het project?
9. Heeft de aanpak altijd goed gewerkt? Is voor iedere stakeholder de juiste aanpak gekozen?
10. Welke overlegstructuren vinden er plaats met de stakeholders?
11. Op welke manier worden afspraken vastgelegd?
12. Zouden bewoners naar uw mening meer of minder moeten worden betrokken bij zulke infrastructuurprojecten?
13. Zijn er zaken die achteraf gezien beter hadden gekund wat betreft het omgevingsmanagement?

Intern - intern

14. Op welke manier worden de verantwoordelijkheden voor het managen van de stakeholders verdeeld tussen Rijkswaterstaat en opdrachtnemer? Hoe worden externe risico's verdeeld tussen RWS en opdrachtnemer? Wie is verantwoordelijk per stakeholder?
15. In welke mate zijn deze verantwoordelijkheden vastgelegd in contracten en overeenkomsten tussen RWS en opdrachtnemer?
16. In welke mate heeft het contract invloed op hoe u uw werk kunt doen als omgevingsmanager?
17. Zit er een verschil in omgevingsmanagement tussen 'normale' projecten en publiek-private samenwerkingen? Zo ja, waar is dit verschil aan te wijten?
18. Heeft het verdelen van risico's en verantwoordelijkheden invloed op omgevingsmanagement? Zo ja, hoe?
19. Hebben verplichte en optionele sancties invloed op het omgevingsmanagement?
20. In welke mate denkt u dat communicatie invloed heeft op omgevingsmanagement?

21. In welke mate denkt u dat vertrouwen invloed heeft op omgevingsmanagement?
22. Op welke manier heeft u overleg de opdrachtnemer over omgevingsmanagement? Hoe vaak is er overleg?

Conflicten

23. Kunt u een voorbeeld beschrijven van een conflict tussen RWS en opdrachtnemer met betrekking tot het managen van de stakeholders? Hoe is dit vervolgens opgelost?
24. Kunt u een voorbeeld beschrijven van een conflict met een externe stakeholder(s)? Hoe is hier vervolgens mee omgegaan vanuit Rijkswaterstaat en opdrachtnemer?

Concluderend

25. Hoe bepaalt u het succes van omgevingsmanagement? Welke aspecten dragen bij aan goed/slecht omgevingsmanagement?

Appendix B3: Interview guide contract manager

Algemeen

1. Wat zijn de doelen van contractmanagement?

Het contract

2. Wat is/zijn de functie(s) van het contract tussen de opdrachtgever en opdrachtnemer?
3. In welke mate is het contract bepalend voor hoe de samenwerking tussen opdrachtgever en opdrachtnemer verloopt? voorbeeld
4. Wat voor gevolgen denkt u dat het feit dat dit een DBFM is op
 - Omgevingsmanagement
 - Samenwerking?

Risicoverdeling

5. Wat is de logica achter de risicoverdeling in het contract?
6. Welke invloed heeft het verdelen van risico's op de samenwerking tussen de opdrachtgever en opdrachtnemer? Voorbeeld
7. Welke invloed heeft de strikte scheiding van risico's op omgevingsmanagement? (b.v. externe stakeholders worden minder betrokken)

Sanctiemogelijkheden

8. Welke sanctiemogelijkheden zijn opgenomen in het contract?
9. Wat gebeurt er als de opdrachtnemer niet aan de performance criteria voldoet? Mogelijkheden om het te bespreken? Voorbeeld van oplossen
10. Worden sancties met hersteltermijn consequent toegepast door Rijkswaterstaat? Voorbeeld
11. Worden sancties zonder hersteltermijn consequent toegepast? Voorbeeld
12. Is er een mogelijkheid om sancties te bespreken tussen de opdrachtnemer en RWS?
13. Welke invloed hebben sanctiemogelijkheden op de samenwerking tussen de opdrachtnemer en Rijkswaterstaat? Voorbeeld
14. Hebben sancties invloed op samenwerking en het omgevingsmanagement? Voorbeeld

Externe risico's

15. Hoe wordt er omgegaan met externe risico's, bijvoorbeeld veranderende stakeholderwensen? Bij wie komen de risico's terecht?
16. Welke invloed heeft de financiering door banken op samenwerking en omgevingsmanagement?

Relaties en het contract

17. In welke mate heeft het contract invloed op vertrouwen, communicatie en interactie in het project?

18. Wordt er ook actief gemanaged op relaties binnen het project? Hoe denkt u hierover en kunt u hier een voorbeeld van geven? Hoe verhoudt zich dit tot het managen van het contract en kunnen hierdoor spanningen optreden tussen de managers?
19. Op welke manier kunnen een contract en relaties (vertrouwen, communicatie, conflictmanagement) elkaar versterken?
20. Hoe wordt er omgegaan met onenigheid met de Groene Boog over het contract? In welke mate wordt het contract gebruikt om problemen op te lossen en in welke mate speelt een meer interactie/dialoggerichte aanpak een rol?
21. Kunt u aangeven of de volgende risico's aanwezig zijn in het contract en bij wie deze risico's liggen?

	Aanwezig in contract?	Risico allocatie
Political and government policy		
Macroeconomic		
Legal		
Social		
Natural		
Project selection		
Project finance		
Residual risk		
Design		
Construction		
Operation		
Relationship		
Third party		

Appendix B4: Interview guide technical manager

1. Kunt u uw functie als technisch manager toelichten?
2. Waar bestaan uw dagelijkse taken uit?
3. Op welke manier vertaalt u de eisen van de stakeholders naar functionele specificaties?
4. Wat is het idee achter functioneel specificeren?
5. Op welke manier hebt u daarbij interactie met de omgevingsmanager?
6. Op welke manier hebt u daarbij interactie met de contractmanager?
7. Met welke houding kijkt u naar de wensen vanuit de omgeving? Hebt u contact met externe stakeholders? Welke rol speelt daarin het contract?
8. Welke knelpunten komen er voor met de andere rolhouders binnen Rijkswaterstaat?
9. Op welke manier en waarover hebt u overleg met de (technisch) manager van de opdrachtnemer?
10. Kunt u de samenwerking met de opdrachtnemer beschrijven?
11. Zijn er tegengestelde belangen tussen RWS en de opdrachtnemer en op welke manier lost u die op?
12. Op welke wijze worden conflicten opgelost?
13. In welke mate spelen relaties een rol?
14. In welke mate spelen vertrouwen, communicatie en interactie een rol in uw werk?

Appendix C: Coding scheme

Code categories	Code sub-categories	Inductive/deductive
Contract	Adapting the contract Discussing application of sanctions Risk transfer Influence on ESM Influence on relations Sanctions Payments Function of the contract Other	Deductive Deductive Deductive Deductive Deductive Deductive Inductive Inductive Deductive
Relations	Collaboration Communication Conflict management Trust Interaction Discussion forms Influence on ESM Creating ownership Creating identity Knowledge sharing Personal Transparency	Deductive Deductive Deductive Deductive Deductive Deductive Deductive Inductive Inductive Inductive Inductive Inductive
ESM	Administrative stakeholders Citizens Approach Communication Conflict management Conflict management – sensitive issues Conflict management – focus Influence on contract Influence on relations Function of ESM Stakeholder identification Resistance Influence of DBFM Responsibilities Creating ownership	Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Deductive Inductive
Other		

Appendix D: Centrality measures network analysis

	Stakeholder	Degree	Normalized degree	Closeness	Normalized closeness	Betweenness	Normalized betweenness
1	RWS	7	0,636	15	73,33	45	81,818
2	SPV	5	0,455	17	64,70	34	61,818
3	EPCM	1	0,091	27	40,74	0	0
4	Lenders	1	0,091	27	40,74	0	0
5	Insurers	1	0,091	27	40,74	0	0
6	Shareholders	1	0,091	27	40,74	0	0
7	ES1	1	0,091	25	44,00	0	0
8	ES2	1	0,091	25	44,00	0	0
9	ES3	1	0,091	25	44,00	0	0
10	ES4	1	0,091	25	44,00	0	0
11	ES5	1	0,091	25	44,00	0	0
12	ES6	1	0,091	25	44,00	0	0

Centrality measures A9

	Stakeholder	Degree	Normalized degree	Closeness	Normalized closeness	Betweenness	Normalized betweenness
1	RWS	7	0,583	17	70,588	51	77,273
2	SPV	6	0,500	18	66,667	45	68,182
3	EPC	1	0,250	28	42,857	0	0
4	MTC	1	0,167	28	42,857	0	0
5	Lenders	1	0,167	29	41,379	0	0
6	Insurers	1	0,083	29	41,379	0	0
7	Shareholders	1	0,083	29	41,379	0	0
8	ES1	1	0,083	28	42,857	0	0
9	ES2	1	0,083	28	42,857	0	0
10	ES3	1	0,083	28	42,857	0	0
11	ES4	1	0,083	28	42,857	0	0
12	ES5	1	0,083	28	42,857	0	0
13	ES6	1	0,083	28	42,857	0	0

Centrality measures A16

Degree: The number of vertices adjacent to a given vertex in a symmetric graph is the degree of that vertex

Normalized degree: The normalized degree centrality is the degree divided by the maximum possible degree expressed as a percentage

Closeness: The farness of a vertex is the sum of the lengths of the geodesics to every other vertex. The reciprocal of farness is closeness centrality

Normalized closeness: The normalized closeness centrality of a vertex is the reciprocal of farness divided by the minimum possible farness expressed as a percentage

Betweenness: a measure of the number of times a vertex occurs on a geodesic.

Normalized betweenness: the betweenness divided by the maximum possible betweenness expressed as a percentage.

Appendix E: Risk transfer

Risk level	Risk categories	Risk in contract	Risk transfer	Notes
Macro	Political and government policy	Yes	RWS	Changes in regulation are a risk for Rijkswaterstaat
	Macro-economic	Yes	Both	Price indexation: both, but there is an indexation agreement Changed traffic intensity: IXAS
	Legal	Yes	IXAS	Requesting and receiving the permits is a responsibility of IXAS, except for the logging permit
	Social	Yes	RWS	Rijkswaterstaat in case of deviation from set framework (extra stakeholder wishes)
	Natural	Yes	Both	Special circumstances: Rijkswaterstaat Other circumstances: IXAS
Meso	Project selection	No	-	Project has been chosen already
	Project finance	Yes	IXAS	There is a risk division for refinancing
	Residual risk	Yes	Both	Rijkswaterstaat carries a certain base risk
	Design	Yes	IXAS	If within boundaries of contract
	Construction	Yes	IXAS	If within boundaries of contract
Micro	Operation	Yes	Both	Activities of the operator, e.g. controlling systems in the tunnel and damage due to road users: Rijkswaterstaat Other: IXAS
	Relationship	No	Both (informal)	Both parties have an interest in a good relation
	Third party	Yes	Both	Primarily Rijkswaterstaat for administrative discussions, and in case of changed wishes.

A9

		A16		
Risk level	Risk categories	Risk in contract	Risk transfer	Notes
Macro	Political and government policy	Yes	RWS	Change in laws or regulation is specified in the contract and is risk of Rijkswaterstaat
	Macro-economic	Yes	Both	Price indexation: Rijkswaterstaat, intensity: IXAS
	Legal	Yes	Groene Boog (mostly)	Rijkswaterstaat is primarily responsible for requesting the permits, but de Groene Boog bears the risk of receiving the permit, except if the authorities do not respond timely
	Social	Yes	RWS	Rijkswaterstaat in case of deviation from set framework
	Natural	Yes	Both	Special circumstances: Rijkswaterstaat Other: Groene Boog
Meso	Project selection	No	-	Rijkswaterstaat procures, the contractor decides if it steps in
	Project finance	Yes	Groene Boog	Contractor has to arrange financing between realization phase and maintenance phase
	Residual risk	Yes	Both	De Groene Boog carries base risk but in special circumstances Rijkswaterstaat takes the risk
	Design	Yes	Groene Boog	If within boundaries of contract
	Construction	Yes	Groene Boog	If within boundaries of contract
	Operation	Yes	Both	Activities of the operator, e.g. controlling systems in the tunnel and damage due to road users: Rijkswaterstaat Other: de Groene Boog
Micro	Relationship	No	Both	Shared responsibility but not fixed in contract
	Third party	Yes	Both	If within boundaries of contract: De Groene Boog. If outside: Rijkswaterstaat

A16