Abstract

Trust is a critical success factor for PPP-projects, in which public and private parties jointly realize a construction project. In The Netherlands, there is an expected increase in these PPP-projects. Trust however, is an abstract and intangible concept, which is hard to concretize. In order to work towards successful construction projects in the form of a PPP, more insight in the vague and abstract critical success factor trust needs to be obtained for the specific context of Dutch PPP-projects. Therefore this research aimed at operationalizing the concept of trust from a perspective based on literature, and a perspective based on practical experience with PPP-projects, by means of case study research. The aim is not to validate the findings from literature by an empirical study, but to provide an interpretation of trust for the specific contact of Dutch infrastructural alliance PPP-projects. Several elements of trust were found, of which: people, collectivity, communication, compliance and culture, seem to form the basis of trust from both perspectives (literature and empirics). According to empirical data, the relation with parent organizations might be crucial for trusting relationships as well, and needs further investigation.

Keywords: trust, operationalization, construction, PPP-projects, case study research

1. Introduction

Both in policy discussions as well as in practice the Dutch government attention for public-private partnerships (PPP) has increased the last decades (Eversdijk 2013, Klijn and van Twist 2007). Some well-known examples of Dutch PPP-projects are: HSL-Zuid, A2 Hooggelegen, N31 and the new building of the Ministry of Finance (Klijn and van Twist 2007). Apart from these practical experiences with PPP-projects, the Dutch government also integrated PPP in their policy. When major new government buildings and infrastructure projects are being planned, consideration is first given to whether PPP would produce better results than traditional procurement (Government of the Netherlands 2015).

One of the most critical success factors of PPP-projects is trust (Mistry and Davis 2009). Trust between the involved parties in a project can strengthen the cooperation (Ngowi en Pienaar 2005). Trust between organizations is important, especially in an industry that is characterized by constantly changing combinations of organizations working on temporary projects, as in the construction industry (Laan 2009).

Therefore, many authors mentioned trust as success factor for projects executed by a collaboration of public and private parties (Mistry & Davis, 2009; Klijn, Edelenbos, & Steijn, 2010; Ngowi & Pienaar, 2005; Laan, 2009).

However, trust is an abstract and even vague term, let alone that information is known about the factors that influence trust in these kinds of projects. The concept of trust is widely discussed in science, an described in many ways by many researchers (Klijn, Edelenbos en Steijn 2010). Additionally, several authors have discussed the topic of measuring the abstract and conceptual factor trust. Therefore, there are several ways to operationalize trust and make it more concrete, in the context of construction projects (Klijn, Edelenbos en Steijn 2010).

This research aims at contributing to this search for operationalization of trust, from the perspective of theory and empirics, for the specific context of Dutch infrastructural alliance PPP-projects. This perspective is chosen, because of the expected increase of PPP-projects in the Netherlands, in line with the Dutch government policy. Therefore, the central research question in this article is:
How can trust be operationalized, in order to create more understanding about this abstract term in the context of infrastructural alliance PPP-projects in the Dutch construction industry?

In the following chapter the research method to answer this question will be presented. Chapter 3 will elaborate on the definition and meaning of the concept of trust. Then, chapter 4 will present an operationalization of trust according to literature. Followed by an operationalization of trust according to the practice from PPP-projects in the construction industry in chapter 5. Finally, a conclusion and recommendations for further research are presented in chapter 6.

2. Research method

In order to work towards an operationalization of trust in the context of PPP-projects in the construction industry, this chapter presents a methodology to answer the central research question. This method exists of two phases, namely a literature review and a qualitative comparative analysis (QCA), via case study research. In the literature review first insights into the theoretical concept of trust will be presented. By means of the QCA a more specific interpretation to the theoretical construct trust will be presented, for the specific context of Dutch infrastructural alliance PPP-projects. Hence, the empirical phase of this study does not aim at validating statements from literature.

2.1 Literature review

The literature review will form the theoretical basis for this research. In this phase an in-depth literature review is conducted on trust, its definition, and perspectives on operationalizing this concept. Furthermore, this review should lead to input for the formulation of interview questions for the QCA.

For the literature review, the book of Laan (2009) provides many insights in trust in construction projects. His perspective is in line with the publication of Nooteboom (2002). These two references form a good starting point for literature research on the topic of trust. For an operationalization of the concept of trust in construction, the perspective of Klijn (2010) is a functional starting point. The additions from (She 2013, Wong, et al. 2008) are valuable contributions to the operationalization of trust. Furthermore, by using databases other publications were found, via the key words: trust, construction projects, and PPP-projects.

2.2 Qualitative comparative analysis

As mentioned, the proposed research exists of a Qualitative Comparative Analysis (case study research). This case study research will be executed by means of five Dutch infrastructural alliance projects. This type of projects is chosen, because there are high expectations of this ‘alliance-from’ in literature, which is characterized by close cooperation between public and private parties (Eversdijk 2013). Furthermore, it is assumed that especially in these projects, were public and private parties work so close together, trust is a critical success factor (Mistry and Davis 2009). A qualitative comparative analysis is suited for this research, because in order to develop a generic operationalization of trust that is useful for a group of projects (‘infrastructural alliance PPP-projects’), a comparison between a group of projects has to be made. The qualitative approach ensures the preservation of the complexity of these projects (Verweij en Gerrits 2012). Furthermore, QCA is a suitable method for topics on which limited theory is developed and limited data on practical experience is available (only four projects realized and one currently executed as alliance PPP-project in the Netherlands).

The five Dutch infrastructural alliance PPP-projects that will be used in this study are:

- **Waardse Alliantie**: as part of the Betuweroute. A rail project (1999-2003)
- **Bataafse Alliantie**: a railway project in Houten (2007-2010)
- **A2 Hooggelegen**: a road project near Utrecht (2007-2011)
- **N201**: a road project in the Province of North-Holland (2007-2012)
- **OV-SAAL**: a rail project between Schiphol and Almere (2012-2016 expected)

Because of the exploratory character of this research, information about these cases will be obtained by semi-structured interviews, based on information from (Yin 1994) and (van Thiel 2007).

3. The concept of trust

3.1 Identification of perspectives

Some characteristics of trust that are frequently mentioned in literature, are: vulnerability, risk and expectations (Klijn, Edelenbos en Steijn 2010). A commonly used definition, which includes these frequently mentioned terms, is the definition of Nooteboom (2002, p. 45):
“The expectation that things or people will not fail us, or the neglect or lack of awareness of the possibility of failure, even if there are perceived opportunities and incentives for it. Trust is the willingness to take this risk” (Nootenboom 2002, 45).

In the context of trust in construction projects there are comparable definitions of trust used (Mistry & Davis, 2009; Klijn, Edelenbos, & Steijn, 2010; Ngowi & Pienaar, 2005; Laan, 2009). Trust in an alliance project is related to the stable positive expectation that a party (e.g. your project alliance partner) has the intentions and motives to refrain from opportunistic behaviour, even if the opportunity arises. Trust is based on the expectation that a party will take the interest of his alliance partner into account (Klijn en van Twist 2007). Given the fact that the focus of this research is on trust in the alliance and a trusting relationship between the alliance partners, the definition of Nootenboom provides a related perspective.

Following the argumentation of Nootenboom (2002), it can be remarked that trust is about two-sidedness, which should be recognized in the analysis of the concept of trust. There is a distinction between the ‘trustor’ and the ‘trustee’. On the side of the trustor it is about giving trust, and on the side of the trustee it is about trustworthiness (Laan 2009, Nootenboom 2002). In the definition of Nootenboom this means that the trustor has the expectation that the trustee will not engage in opportunistic behaviour. When this perspective is related to alliance projects, the question arises if as well the client, contractor, as the alliance organization can be seen as both trustor and trustee. For answering this questions, the perspective of Laan (2009) on inter-organizational trust can provide some insights. Laan (2009) makes a distinction between organizations and individuals, and argues that trusting (from the perspective of the trustor) can only be an individual-level phenomenon and that organizations cannot trust (Laan, 2009, p. 26; Doney & Cannon, 1997). This statement follows from the assumption that trust is not behaviour, but a state of mind, and therefore an individual matter (Nootenboom, 2006). Therefore, it is assumed that both individuals and organizations can be trustees, but that only individuals can be trustors (Laan 2009).

However, it might be hard to draw a tight line between trust in individuals and trust in organizations, because they influence each other. The trust in individuals can be based on trust in the organization (e.g. organizational culture, structure, procedures). Trust in organizations can be formed by the individuals who act on behalf of the organization (Carrall & Judge, 1995; Laan, 2009, p. 26; Perrone, Zaheer, & McEvily, 2003). Because of this connection between trust in organizations and trust in individuals, the so-called boundary spanning individuals might fulfil a crucial role in a trusting relationship (Janowicz & Noorderhaven, 2006). Boundary spanning individuals are the people who fulfil roles and positions that connect organizations with outside partners (Laan, 2009, pag. 26). Janowicz and Noorderhaven (2006) therefore argue that it might be more interesting to study the trust of these individuals, instead of the trust held by non-boundary spanning individuals (Laan, 2009, pag. 26).

Finally, because of the characteristic of trust being two-sided it could be argued that trust (or distrust) especially exists when parties interact. Therefore, it might be stated that trust and possible issues with trust arise on the interfaces between client, alliance and contractor.

4. Operationalization of trust according to literature

As mentioned, many authors have tried to operationalize trust (Klijn, Edelenbos and Steijn 2010). The article of Klijn (2010) provides an overview of five items to measure trust, derived from literature (Rousseau, Sitkin, Burt, & Camerer, 1998; Sako, 1998), namely:

- **Agreement trust** – the parties in this project generally live up to agreements made with each other
- **Benefit of the doubt** – the parties in this project give one another the benefit of the doubt
- **Reliability** – the parties in this project keep in mind the intentions of the other parties
- **Absence of opportunistic behaviour** – parties do not use the contributions of other actors for their own advantage
- **Goodwill trust** – parties in this project can assume that the intentions of other parties are good in principle

Other authors, like Ngowi (2005), She (2013), Wong (2008), Laan (2009) and Van Garsse (2007) use their own concepts to operationalize trust. Some of these are in line with Klijn or on the same abstraction level, others have a different
focus. Wong (2008) makes, just as She (2013), a distinction between three trust types, namely:

- **System based trust** – formalized and procedural arrangements, no personal issues
- **Cognition based trust** – develops from the confidence built upon knowledge that reveals the cognitive bearings of an individual or organization
- **Affect based trust** – describes an emotional bond that ties individuals to invest in personal attachment and be thoughtful to each other (She, 2013; Wong, Cheung, Yiu, & Pang, 2008; Laan, 2009; Ngowi & Pienaar, 2005; van Garsse & Verhoest, 2007)

In the article of Wong (2008) he translates these broad trust types into trusting behaviour on several attributes. This is a valuable step towards the concretization of the concept of trust.

Finally, the perspective of Laan (2009) is interesting to look into, because the concept of trust he describes is applied on several Dutch infrastructural alliance PPP projects (Laan 2009). Where Wong (2008) focuses on development of trust via the three trust types, Laan (2009) chooses a broader perspective that focuses on the dynamics of trust development between organizations. According to Laan (2009) inter-organizational trust develops over time and is related to risk, control and performance.

### 3.2 A first operationalization of trust

Although many authors tried to operationalize the concept trust, some of them propose an operationalization that is still quite conceptual and abstract. Therefore it is tried to merge the different perspectives on trust into a new operationalization, which focuses on making the concept even more concrete. The operationalization made, based on the literature review, is:

- **Affection** – personal relations, matching cultures and skills, impressions, staff
- **Intention** – assume good intentions, work in best for project
- **Organization** – defined goals and tasks, good management, support, contractual arrangements
- **Interaction** – open and frequent communication, based on procedures
- **Compliance** – comply to arrangements and responsibilities

Given the chosen research method (interviews) and the aim to operationalize trust further, it is preferred to discuss the topic trust in a more concrete manner with the respondents.

### 5. Operationalization of trust according to empirics

When respondents were asked to tell something about trust in the project they were involved in, many topics came across. Supported by stories from practice, a joint search for the operationalization of trust resulted in eleven elements by which trust in alliance PPP-projects can be influenced. These eleven elements are formulated by interpreting and clustering the information of respondents. An overview of all elements is shown in Figure 1. This chapter will shortly discuss each of these eleven elements in the following paragraphs.

![Figure 1: Trust operationalized in eleven elements](image)

#### 5.1 People

Nearly all respondents mentioned the element people as of influence on a trusting relationship between alliance partners. “Central to project success, are the people”, mentions a respondent (Interview Rounds 2015). According to these respondents the element ‘people’ can be influenced upfront: by the selection of the team and by paying attention for a project start-up. They argue that during the project, enough feedback and evaluation moments should be organized, and the attitude (e.g. regarding mutual
respect, role model, professional and alliance-attitude) of people should be monitored. Furthermore, an human resource policy that changes people’s positions if they do not function, is required for a trusting relationship.

5.2 Communication
Almost all respondents address the topic ‘communication’. ‘Stay continuously in conversation: know what is going one!’ mentions one of the respondents (Interview Rounds 2015). It is argued that trust can be stimulated, by establishing communication procedures upfront. In addition, upfront ‘counterpart communication’ can be organized as well: frequent communication moments between counterparts from the public and the private organizations. During the project the focus of communication should be on openness and transparency, and on frequent and direct communication. Furthermore, a proactive attitude of the team members, who approach others and ask for help, can contribute to the trust-development process. Finally, the way of decision making is mentioned as of influence on trust: substantiating and motivating choices can contribute to a trusting relationship.

5.3 Relation to parent organizations
A large majority of the respondents mentioned that the relation from the alliance to parent organizations is of crucial success for a trusting relationship in general. A respondent mentions ‘currently there is not much attention for the parent organizations, but they are crucial, because they can act very disruptive as well’ (Interview Rounds 2015). A good relation with parent organizations could be influenced upfront, by organizing mandate and commitment among the right persons. Furthermore, ‘ambassadors of the alliance’, who explain or even promote the alliance within their parent organization, could be appointed. During the project the attitude of parent organizations and of team members can strongly influence the development of trust in the alliance. Finally, when a relation between public and private parties on board level is arranged, this could positively influence trust-development.

5.4 Working principles
‘In the contract, some basic alliance principles were formulated, such as open book and unanimity, which helped to realize project success’ (Interview Rounds 2015). Some respondents mentioned the importance of working principles for the development of a trusting relationship, and in the end project success. The respondents argue that firstly, upfront, working principles should jointly be defined. Secondly, the parties should discuss these principles during the project, and address it if someone does not comply with these principles.

5.5 Organizational
Several respondents mention the importance of arranging some practical or organizational aspects that might contribute to the development of a trusting relationship. Most of these organizational aspects can be organized upfront, such as: working together physically (on the same location or in the same building), and jointly defining process and contractual agreements. During the project the organization of sessions or events could be valuable for trust-development, for example by means of a so-called ‘zeepkistsessie’, in which there is a platform to present achievements or issues, and discuss these publicly.

5.6 Collectivity
‘An alliance arrangement can be an incentive for collectivity, which can contribute to a trusting relationship’ (Interview Rounds 2015). Some respondents mention that subjects related to collectivity, are of importance for trust-development. Before the start of the project, interests should be discussed and joint goals should be formulated. However, it might be possible that these goals or interests change over time, so therefore sessions for goal revision could be organized during the project. Furthermore, a collaboration-focused attitude and working on tasks jointly, can contribute to a trusting relationship during the project as well.

5.7 Dealing with conflicts
A few respondents mention the importance of dealing with conflicts for the development of a trusting relationship. Upfront, this could positively be stimulated by arranging a platform for help: make sure a structure is organized, and people know where to go if a problem occurs. Furthermore, getting to know each other personally in an early stage and substantiate decisions with sufficient argumentation, might contribute to limited escalation when conflicts occur. Furthermore, as a respondent mentions: ‘how is dealt with the first conflict, is crucial for the rest of the project’ (Interview Rounds 2015). Dealing with the first conflict can be a leading example for later conflicts. Finally, it is important to discuss conflicts, for example during a Project
Follow-up session, an ‘away-day’ or by means of an incident analysis.

5.8 Compliance
A few respondents mention the importance of compliance, for trust-development in a project. Compliance is about making agreements upfront or in an early stage. During the project, the team members should consistently comply with these agreements. ‘Compliance with agreements is an important aspect of trust-development’, mentions a respondent (Interview Rounds 2015).

5.9 Culture
A few respondents mention that culture is of influence on the level of trust between parties in an alliance project. Upfront, this can positively be influenced by the establishment of an own identity: make sure people feel part of the alliance, and try to establish an own organizational culture (e.g. name, logo, social events). In addition, possible issues can be discussed upfront as well. As a respondent mentions ‘make sure issues from the past are discussed, for example during the Project Start-up or Project Follow-up sessions’ (Interview Rounds 2015). During the project it is important to pay attention to culture, and address this subject if it seems that issues arise as a result from cultural differences.

5.10 Project progress
‘Achieving milestones, joint pride in the project, and a focus on achieved results’ is a positive stimulant for the development of trust, mentions a respondents (Interview Rounds 2015). According to a few respondents, project progress, and celebrating this progress jointly, could contribute to a trusting relationship.

5.11 Division of roles
According to a few respondents, the division of roles can stimulate a trusting relationship between project partners. Upfront, discussing the responsibilities could be valuable. However, it should be taken into account that roles should not be divided too strictly, in order to guarantee overlap and to maintain an incentive for collaboration. Furthermore, a respondent mentions that ‘it is difficult when there are uncertainties regarding the responsibilities during the project’, and therefore these uncertainties should be made clear quickly, during the project (Interview Rounds 2015). Finally, it is important that people act according to their role. Therefore, role consistency should be monitored during the project as well.

6. Conclusions and recommendations
Based on the case study research eleven elements were formulated as of influence on trust, as presented in Figure 1. There is overlap observed between the theoretical and empirical perspectives, but the empirical information also provides some new elements that were not specifically mentioned in literature. A rough overview of the overlap between theory and practice can be found in Figure 2. As shown in this figure above the elements (from empirical data) communication, culture, people, collectivity and compliance largely overlap with the elements provided by literature. It therefore might be concluded that theory and practice are largely in line with each other, and that communication, culture, people, collectivity and compliance seem to be quite basic elements for a trusting relationship.

Figure 2: Overlap between operationalization of trust from theory and practice

Additionally, it can be remarked that the two of the five overlapping elements (people and communication) were mentioned by nearly all respondents. However, it is also noticed that the element ‘relation to parent organization’ was discussed by a majority of the respondents, but that this is not remarked as influential factor according to literature. However, it might relate to the two-sidedness of trust and the role of boundary spanning persons, as discussed in chapter 3. Finally, it is remarkable that one element from the empirical data, namely project
progress, has no overlap with elements from literature at all. Therefore, further research into these elements is suggested.

Regarding the interpretation of this information it could be assumed that the elements that were mentioned both in literature and in practice might be basic elements of a trusting relationship (‘basics of trust’), and that one should therefore pay attention to these elements. However, because this research did not aim at validating statements from theory, further validation regarding the importance of these elements for trust development, is required. Regarding the other, additional elements that only partially overlap with literature, it might be likely that these elements need even more validation. Furthermore, although paying attention to the basic elements of trust was already mentioned, it might be interesting to focus on the elements that were not mentioned in literature as well. These additional elements might provide an innovative perspective on the concept of trust (‘innovative trust-stimulating actions’ or ‘additional actions’).

To conclude, in line with literature the elements people, culture, communication, collectivity, and compliance are, based on this study, contributors to a trusting relationship. Therefore, it is recommended that the practice of future (alliance) PPP-projects should focus on these elements. However, the element ‘relation with parent organizations’ requires further research. This elements was not strongly remarked in literature, but came forward as important element in the empirical research, so further investigation into this elements is recommended. Furthermore, the element project progress might be interesting for further research as well, because this was not mentioned in literature at all. However, it was by only a few respondents remarked as important.

Finally, as a reflection on this study, it has to be kept in mind that the research is exploratory and that all the conclusions need further validation. It should be kept in mind that the empirical research did not aim at validating concepts from theory. The empirical research provided a specific interpretation of the theoretical construct trust, in the specific (narrow) context of Dutch infrastructural alliance PPP-projects.

References


