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TRUST AND CONTROL IN UNIVERSITY-INDUSTRY COLLABORATIONS

Draft Bachelor Thesis by Faron Melisse

Contents

CHAPTER 1 INTRODUCTION

1.1   BACKGROUND TO THE RESEARCH

In the Netherlands public and private parties have often cooperated. The Dutch Parliament actively stimulates these partnerships by investing €110 million in cooperation between Universities, the government and companies (Rijksoverheid, 2015). In order to bridge the gap between theory and practice, the government invests in Human Capital Agenda's (HCAs) (Human Capital, n.d.). 'Topsectoren'[1] wish to invest in talented students such that they will benefit from the right link between higher education and the labour market. In the HCAs 'topsectoren' propose partnerships between Universities, the government and companies in which this connection may be established. The Netherlands –Asia Honours Summer School (NAHSS) is an example of such a triple helix network in which all of these parties cooperate (NAHSS, 2015). This partnership was founded in 2012 with the aim of exchanging knowledge with and improving relations between Asia and the Netherlands. Talented students are motivated and educated and awareness is created of the future importance of this continent. NAHSS has identified a need for students to have experience with Asian cultures and the Asian business network, for students currently have limited knowledge and experience. Investment in triple helix networks is justified by the government with the belief of enhancing the 'topsectoren' in which the Netherland excels in order to stimulate entrepreneurship and reach sustainable economic growth (EL&I, 2011; Rijksoverheid, 2015).

It is not only in the Netherlands that cooperation between public and private parties is perceived to be of significance. Public organizations have become increasingly interested in entering into relationships with private partners such that they can benefit from increased customer responsiveness of organizations (Cools, Slagmulder, & Abbeele, 2011). Private parties have experienced changes in the global competitive landscape and in technological development which forced these parties to seek out various forms of cooperation in order to gain a competitive advantage (Plewa, Korff, Johnson, Macpherson, Baaken, & Rampersad, 2013).

However, cooperation with other organizations is not without problems and hence, sometimes Public-Private Partnerships (PPPs) fail (Johnston & Gudergan, 2007; Bloomfield, 2006; Jamali, 2004). Literature has investigated a range of factors which could contribute to the success of the PPP (Cools, Slagmulder, & Abbeele, 2011; Jacobson & Choi, 2008; Jefferies, Gameson, & Rowlinson, 2002). The type of PPP examined ranges from long-term construction projects to a partnership between academia and companies. The last type is currently of significance in the Netherlands, for the government will invest in €110 million in these types of partnerships (Rijksoverheid, 2015). A University-Industry Collaboration (UIC) is a difficult task, because the parties face considerable challenges working together (Bstieler, Hemmert, & Barczak, 2015; Elmuti, Abebe, & Nicolosi, 2005; Hemmert, Bstieler, & Okamuro, 2014; Cyert & Goodman, 1997).

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[1] The Dutch term for the nine sectors in which it wishes to excel

Governance of UICs needs to be structured effectively in order to build a sustainable relationship. Limited attempts have been made to synergize findings about Inter-Organizational Relationships (IORs) from management control literature with research about UICs. Cools et al. (2011) made an attempt at explaining the governance structures of PPPs by focusing on risk. However, no attempts have been made to use the most recent insights about governance structures in IORs and use this as a foundation for analysing UICs. This thesis addresses this shortage of research.

1.2   RESEARCH QUESTION

The research question which will be addressed in the paper is:

How are trust and control interrelated within Management Control Systems in the contract phase of UICs?

Two main bodies of literature will be examined in this paper being trust and control in IORs and Critical Success Factors (CSFs) in collaborations. Most importantly, the interaction perspective describing the relationship between trust and control in IORs (Minnaar, Veen-Dirks, Vosselman, & Hassan, 2010; Vosselman & Meer-Kooistra, 2009; Costa & Bijlsma-Frankema, 2007) and CSFs in UICs (Celeski, 2011; Iqbal, Khan, Iqbal, & Senin, 2011; C, Wohlin, Aurum, Angelis, & Phillips, 2012; Thune, 2011) are discussed.

A relationship should be built on the right foundation and often in the contract phase issues arise. Hagen (2002) mentions the failure of many alliances can be traced to the partner selection and planning stages. Jamali (2004) acknowledges that relationships often fail because of a too hastily prepared contract. The management control literature suggests that the relationship between control and trust in IORs play a role building a sustainable relationship between independent parties. The interplay between trust and control in the contract phase should establish the required foundation for a sustainable relationship (Hassan & Vosselman, 2010).

Several universal factors which apply to IORs and UICs could pose a problem if not established correctly. These factors include trust, commitment and quality of communication. Additional issues have been identified in the literature affecting the collaboration between academia and industry. Barriers to collaboration include differences in objectives and cultural differences. The latter includes problems with time horizons, intellectual property rights and difference performance evaluation. Thus, governance of a UIC may be more complex, but insights from management control literature address fundamental issues about the interaction between trust and control which in turn may provide useful insights for examining the relationship between academia and industry collaborations.

1.3   JUSTIFICATION FOR THE RESEARCH

This paper is important from a theoretical and practical perspective.

In both the management control and the UIC literature there is a need to take a more dynamic approach while researching an IOR or UIC respectively. Dekker (2004) highlighted the need for a dynamic approach when researching trust and control in IORs. He mentions that the focus of his case study was to explain the governance structure, but he acknowledges that he has done so in a static way. Focusing on the dynamic relationship between trust and control in IORs would be a logical extension of the analysis. Vosselman & Van der Meer-Kooistra (2009) addressed this gap in the management control literature and created a theoretical framework capable of addressing the dynamic relationship. This theory was tested empirically by a case study from Minnaar et al. (2010).

In the UIC literature this gap is also mentioned, however, this gap remains unaddressed in the empirical literature. Perkmann & Walsh (2007) conducted a literature review and highlighted a gap in the literature. The authors mention the organizational *dynamics* of UICs remain under-researched. There is a need for research in two areas: the partner selection process and the organization and management of collaborative relationships. Costa & Bijlsma-Frankema (2007) mention the context of organizations is constantly evolving and hence, future research should focus especially on the role of trust and control in organizational relationships. Empirical research should address the need for understanding the dynamics of trust and control in these relationships, because this need is likely to grow in importance. Evidence needed for dynamic analysis will provide a foundation for understanding how changes in one factor may lead to changes in another.

Hemmert et al. (2014) conducted a structured survey in the United States, Japan and Korea. The authors investigated five variables being trust, contractual safeguards, partner reputation, tie strength and champion behaviour. Using a regression they investigated the effect of the latter four variables on trust. However, the authors mention their study is limited in capturing the relational dynamics of UICs and future research should focus on this.

Bstieler et al. (2015) conducted research in the biotechnology industry on small and medium-sized companies' (SMEs) involvement in UICs. This research investigated the effect of intellectual property (IP) policies and shared governance on trust. It also looked at the relationship between trust and successful UIC outcomes. These relationships were tested by survey data from U.S. firms. Results indicate that IP policies and shared governance are relevant mechanisms for developing trust, but the relevance of the factors may vary depending on the stage of the collaboration. Trust plays an important role in the outcome of an UIC, but the outcomes of UICs may also be related to different factors. However, the study has limitations such as a single informant survey response per collaboration. Bstieler et al. (2015) state this research design was limited in capturing the dynamics of UICs. The authors suggested fruitful avenues for future research as:

"Further research on the role of interorganizational governance mechanisms in UI collaborations in general appear to be promising. Qualitative research based on case studies may complement this survey-based study." (Bstieler, Hemmert, & Barczak, 2015)

This theoretical contribution of this study will be to make an attempt to address the gap in empirical UIC literature by qualitative research based using an in-depth case study by applying the theoretical framework for IORs by Vosselman & Van der Meer-Kooistra (2009) as a basis for describing the dynamics of trust and control in UICs.

The findings related to the dynamics in the stages of UICs are important at the managerial level to the government (Plewa, Korff, Johnson, Macpherson, Baaken, & Rampersad, 2013). For example, from a practical perspective this study is of interest, because it researches how trust and control are interrelated in UICs. The insights from this study will lead to a better understanding of how UICs can turn into stable and durable relationships. This is of special interest to the policies surrounding the 'topsectoren'. As mentioned before, the government wishes to invest more in 'topsectoren' and will do this by investing in partnerships between academia and industry. The government will benefit from insights of this study, for this study wishes to explain how governance structures in these partnerships could be most effectively arranged in practice.

1.4   METHODOLOGY

In this paper a conceptual framework will be built based on the theory by Vosselman & Van der Meer-Kooistra (2009). The debate in the management control literature is reviewed and the most recent perspective, the interaction perspective, of how trust and control relate is chosen as the theoretical foundation of this paper. This theory will be complemented by specific factors relevant to UICs. These factors help overcome the challenges and barriers UICs face. These are discussed in the review of the UIC literature.

Building a framework using the insights from IORs and applying them to PPPs has been done by Cools et al. (2011). The authors built upon the insights from management control research related to risk and complemented this with insights from public administration. Hence, relational and performance risk, as part of IOR, were complemented by socio-political risk to examine PPP projects. They showed that research surrounding PPPs can learn from established literature involving IORs. They made a contribution to research by focusing on risk management, one of the six core areas of PPPs (Liu, Love, Davis, Smith, & Regan, 2015). Therefore, using a similar approach applied to the dynamics of trust and control in UICs seems promising.

This framework will be tested by a case study of NAHSS. In-depth interviews will be held with the representatives of the Universities who take part in this program. Celeski (2011) mentions in-depth interviews with the individuals in the collaboration could provide insights into the dynamics of such

collaborations. Data will be gathered by means of formal interviews and will be complemented by other sources of information.

1.5   OUTLINE OF THE PAPER

This paper is comprised of five chapters. The Introduction is followed by the second chapter being the Theoretical Framework. This part is followed by Methodology (Chapter 3), Findings and Discussion (Chapter 4) and the Conclusion (Chapter 5). The content of these chapters is discussed below.

Chapter 2 provides a Theoretical Framework which consists of three sections. The first section is literature overview which discusses the two literature streams that will be combined in this chapter. The first literature stream is about the interaction of trust and control in IORs and the second is the UIC literature stream. The second part of this chapter reviews the empirical literature which addresses ways to overcome the challenges in UICs. These CSFs from the second section are combined with the interaction perspective from the first section in the conceptual model which is created in the third part. This model provides the theoretically ideal situation of the governance of a UIC.

Chapter 3 discusses and justifies the methodology of the case study. Data collection and analysis is discussed and the case setting is described. The organisation of the NAHSS case is also discussed which involves the different parties of UIC.

Chapter 4 discusses the findings of the NAHSS case. Model 1, as described in Chapter 2, was evaluated based on the data of the NAHSS case. Furthermore, an additional theme was introduced which unfolded from the analysis of the design of the control structures in NAHSS.

The last chapter is the conclusion which summarizes the paper and answers the research question. Theoretical and practical implications are mentioned, validity and reliability is discussed and limitations and future research directions are provided.

CHAPTER 2 THEORETICAL FRAMEWORK

2.1   INTRODUCTION

This second chapter introduces the two literature streams and the theory behind this research. The theoretical framework consists of three sections.

In the first section the background of the literature will be presented. The first part will discuss IORs and special attention will be given to the interaction between trust and control. The second part describes PPPs with a focus on the challenges surrounding UICs. A brief summary will conclude the first section.

The second section discusses the empirical literature surrounding the CSFs in UICs. This review highlights the complex interaction of factors present in governing UICs. These factors are grouped under four common themes. The second section is concluded by a summary and a table that includes the authors and their corresponding hypotheses and findings.

In the third section the conceptual model is created that portrays an ideal situation in which trust and control interact in UICs. The model is fundamentally based on theory from IOR literature and complemented by UIC empirical literature findings. A conclusion is presented at the end of this chapter.

2.2   LITERATURE OVERVIEW

The parent disciplines of this research are IORs and PPPs. First, the development of IORs is discussed. Emphasis is given to the debate of trust and control surrounding a specific type of IOR: outsourcing relationships. The most recent perspective, the interaction perspective, is highlighted in this debate. The theory of Vosselman & Van der Meer-Kooistra (2009) on the interaction between trust and control in IORs will lay the foundation for the conceptual framework that will be created in the third section of this chapter. The second parent discipline is PPPs. Specific emphasis is given to the collaboration between academia and industry, UICs, and its challenges surrounding it.

2.2.1 INTERORGANIZATIONAL RELATIONSHIPS

During recent decades IORs have become increasingly popular (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). These relationships can be defined as a form of cooperation between independent organizations. There is a variety of forms of cooperation an IOR can encompass. These include supply chain initiatives, outsourcing relationships, joint ventures and strategic alliances. Supply chain initiatives are a type of IOR which attempt to improve performance throughout the entire supply chain (Lee, 2008). The outsourcing decision, also known as the 'make' or 'buy' decision, entails the firm's decision whether to perform an activity itself or purchase this activity from a third party, and thus entering into an outsourcing relationship with this party (Besanko, Dranove, Shanley, & Schaefer, 2013). In between the 'make' or 'buy' is a joint venture in which two or more firms agree to establish an independent entity which relies on both parent companies' resources. A strategic alliance similar to a joint venture however,

no separate entity is created. Instead, the firms cooperate to organize the more complex business transactions while remaining autonomous. These alliances can be across the same industry or vertical, so along the supply chain.

The business environment firms have to currently operate in can be characterized by specialized companies which perform a limited amount of operations (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). These, in turn, only contribute to a minor part of the end product for the customer. Simultaneously, the requirements of customers have also grown more complex and require to be satisfied by specific products as opposed to generic products. This high dependence on specific suppliers and customers stimulated firms to cooperate to gain a sustainable competitive advantage. In these types of IORs trust has been recognized as a key factor influencing it (Boersma, Buckley, & Ghauri, 2003; Madhok, 1995; Sahay, 2003; Das & Teng, 2001; Langfield-Smith & Smith, 2003). Literature studying outsourcing relationships has especially focused on the relationship between trust and control within this IOR. A recent debate has evolved around how these variables affect each other in a relationship.

2.2.1.1 OUTSOURCING RELATIONSHIPS

The outsourcing decision is derived from the value chain of Porter (1985). This theory was thought up as a method for the identification of ways to create more value (Kotler & Keller, 2012). Porter, as referred to in Besanko et al. (2013), provided a model which divides the firm's activities into primary and secondary activities. There are five primary[2] and four secondary[3] activities and the way in which these are carried out affects costs and profits. Porter (1985) argues that companies that can efficiently manage these activities in the value chain can use this ability to gain a competitive advantage. The division into primary and secondary activities helps in the analysis of a more efficient value chain. Part of this analysis is which activities to perform in-house and which activities to outsource.

Outsourcing was put into theory by Williamson in 1975 (Haetoenen & Eriksson, 2009). The concept built upon Adam Smith's notion of specialization. Smith stated that companies would be more efficient if employees specialized themselves in certain production tasks. Williamson elaborated on this idea by adding that certain operations could also be performed by an external party. The outsourcing firm could focus on its core activities and outsource the activities to specialized companies which were better equipped to perform those operations. Williamson believed that transaction costs were of central importance in the outsourcing decision. These would determine whether outsourcing would be beneficial to the firm.

Razzaque and Sheng (1998) discussed the main drivers behind the development and increased importance of outsourcing. Globalization is the most commonly mentioned factor which contributed to outsourcing. Companies started facing larger markets and fierce global competition. Transaction costs, agency costs and economies of scale were incorporated into strategic decision making (Besanko, Dranove, Shanley, & Schaefer, 2013). The main perspective used for the outsourcing decision had been the

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[2] Inbound logistics, operations, outbound logistics, marketing & sales and service
[3] Firm infrastructure, procurement, technological development and human resources

transaction cost theory by Williamson (Dekker, 2004). However, scholars began a discussion in 1997 whether this theory alone could explain the outsourcing decision to its full extent. According to Osborn and Hagedoorn (1997) solely regarding this theory may obscure more than it clarifies. Within IORs, scholars have to regard different theories in order to shed light on all of the features of the complex relationships. IORs might have benefits transaction cost theory may have overlooked.

2.2.1.1.1   EXTENDED OUTSOURCING DECISION

The definition of outsourcing has also grown more complex, because this too moved beyond theories of transaction cost. The extended outsourcing decision is divided into three steps with the first one being the choice to outsource (Meer-Kooistra & Vosselman, 2000). The second step entails to which external party to outsource the operation. The last step looks at which management control systems to design.

2.2.1.2   TRUST AND CONTROL

Companies increasingly establish IORs. Subsequently, the variety in the governance of these relationships also increased (Mellewigt, Hoetker, & Weibel, 2006). Hassan and Vosselman (2010) discussed that the notion governance is broader concept. It covers both the notions of trust and control. Every control system involves some degree of trust (Merchant, 1985). The goal of Management Control (MC) Systems is to implement organizational strategies (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). These systems consist of different ways to enhance the organization's long-term performance while conforming to its strategic objectives. Typical elements such as trust and control interact in order to build a viable management control system. These elements will be discussed in more detail below.

2.2.1.2.1   TRUST

In an IOR, trust may come from previous experiences, or it can be gradually built during the relationship (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). Trust is a difficult subject to study, for it has numerous classifications and definitions (Langfield-Smith & Smith, 2003). Minimum levels of trust are necessary in IORs in order to reduce the probability of opportunistic behaviour by one of the parties. Sako (1992) has defined three types of trust which will be used in this paper:

- Contractual trust
- Competence trust
- Goodwill trust

The first type of trust described, contractual trust, is based on the contractual terms and conditions made with the other party. It relies on the assumption that the other party will honour this agreement regardless of whether it is in writing or not. The second form of trust is competence trust. This type is based the expectation that the counter-party will have the expertise and ability to perform their role competently. It relates this ability to the specified contract. The last type of trust is goodwill trust and this deals with the trust that the partner will not behave opportunistically. It will have good intentions and it will hence act in the best interest of the relationship. Dekker (2004) mentions it is irrelevant whether the actions benefit the party itself or not. These three types of trust can be grouped as positive expectations

(Costa & Bijlsma-Frankema, 2007). These positive expectations are comprised of an individual and a relational component. Competence trust is the individual component which regards the characteristics of the trustee. Goodwill and contractual trust represent the relational component, for they deal with belief in the trustee's goodwill *towards* the trustor and the integrity to fulfil commitments to the trustor respectively. Kramer (1999) mentions most scholars agree that trust is a psychological state that expresses itself in the behaviour towards others. Trust is comprised of these positive expectations and these are based on the willingness to become vulnerable to the actions of others (Dekker, 2004). Costa & Bijlsma-Frankema (2007) discuss that this willingness can be associated with risk. The authors believe that there is a risk that the behaviours of others can do you harm. They believe trust to be associated with risk taking behaviour explaining that trust, by the trustor, is the expectation of a desirable outcome taking place, in spite of the possibility of being disappointed. However, relating trust to taking a risk goes against Kramer's definition in which trust is seen as a psychological state. Trust is not a behaviour such as cooperation, nor is it a choice such as taking a risk (Dekker, 2004). It is a psychological condition that can cause or result from the intention to accept vulnerability based on the positive expectations of the behaviour of another party. Thus, it is erroneous to believe trust can be harmful because there is risk involved. Risk taking in the relationship is simply the outcome of the willingness to accept vulnerability (Vosselman & Meer-Kooistra, 2009).

2.2.1.2.2   CONTROL

Management control is the process in which managers influence other members of the organization to implement the firm's strategies (Das & Teng, 2001; Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014; Costa & Bijlsma-Frankema, 2007). There is a distinction between two types of control. The first being formal control and the second being informal control. Formal control is the process of establishing policies and procedures used to monitor and reward the performance (Costa & Bijlsma-Frankema, 2007). When organisations enter into long-term relationships, one of the major issues is appropriation concerns (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). These denote whether both parties feel that they receive an equal share of the benefit of the collaboration. If the parties feel that this share is equal then they will be more inclined to put effort into the relationship. Formal controls are used to handle appropriation concerns. Inter-organizational performance measures can reflect whether the goals of the relationship are achieved. Generally, the measures include financial and non-financial measures. Outcome controls specify and measure results which have to be achieved and these do not interfere in the way how these results are established (Cools, Slagmulder, & Abbeele, 2011). Cools et al. (2011) mention formal controls which are externally specified and measured include outcome controls, which have been described above, as well as behaviour controls. Inter-organizational behavioural controls evaluate whether the parties act in accordance with specifications. Policy documents and procedures specify the behaviour controls by dictating acceptable behaviour and the policy structures state the roles of the parties in the relationship. Joint meetings are also a common form of inter-organizational management control. Informal control is related to the norms, values and the culture of the company (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). This type of control cannot be explicitly designed, but can be influenced by meetings and ceremonies. The focus is on creating shared values and goals among

the parties in the relationship such that appropriate behaviour is stimulated and rewarded (Cools, Slagmulder, & Abbeele, 2011).

2.2.1.2.3   INTERACTION BETWEEN TRUST AND CONTROL

Governance needs to be structured appropriately could reduce the failure rate of an IOR (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014; Langfield-Smith & Smith, 2003). However, there has been a debate on how trust and control affect each other. The main perspectives of the debate can be distinguished as the substitution and complement perspective (Hassan & Vosselman, 2010). However, solid theoretical frameworks that can help in understanding the dynamic relationship between trust and control has not yet proposed by these perspectives (Long & Sitkin, 2006). The substitution perspective has focused on an inverse relationship between trust and control (Dekker, 2004). If there is a low degree of trust, a higher degree of formal control is needed. Similarly, if trust is high then this allows for a lower degree of formal control (Meer-Kooistra & Vosselman, 2000). Thus, under this perspective trust and control are considered as alternatives to achieving a sustainable IOR (Oomels, Porumbescu, Bouckaert, & Im, 2014). The complementary perspective argues that trust and control can mutually reinforce each other (Costa & Bijlsma-Frankema, 2007). At the earlier stage of IORs trust can add to control (Tomkins, 2001). The exchange of accounting information that results from the use of controls may provide positive expectations about future behaviour. However, scholar have noted that these perspectives are too limited (Dekker, 2004; Costa & Bijlsma-Frankema, 2007). Parties change their expectations during a relationship and in turn experience changes in trust and adopted control mechanisms. Trust and control and hence interrelated in dynamic patterns. Vosselman & Van der Meer-Kooistra (2009) acted upon this gap in the literature and designed a framework that provides the basis for a new perspective: the interaction perspective. The interaction approach includes elements from both substitution and complementary theory, while it acknowledges that trust and control are not static. Trust needs control and control needs trust. Similarly, trust produces control and control produces trust. Trust and control have the common goal of being important in the absorption of behavioural uncertainty. During the IOR, control may change and this may have direct and indirect effects. This change may affect the absorption of behavioural uncertainty directly, but it can also directly affect trust. Indirectly, this may lead to absorption of behavioural uncertainty. To illustrate, the types of trust by Sako (1992) have to be redefined. Contractual trust has to be labelled as 'thin' trust. It is considered 'thin', because this type of trust merely relies on compensation for negative behavioural expectations as indicated by the contractual terms and conditions. It does not produce positive behavioural expectations itself. Formal control structures help create a 'zero-positive' situation. The structures help create a 'zero' situation by compensating for the negative behavioural expectations which exist before entering into an IOR. Simultaneously, the structures move aside appropriation concerns which makes way for commitment to day-to-day interaction creating a positive situation. However, due to the presence of fundamental uncertainty thin trust is not a sufficient condition for the continuance of an IOR. Both parties have to be willing to behavioural risks related to the remaining fundamental uncertainty which is left. Competence and goodwill trust are grouped together under the label 'thick' trust. Thick trust needs to be built, because compensating for negative behavioural expectations is not sufficient. Thick trust is expected to build positive behavioural expectations regarding

the behaviour of the counter-party. Thus, thick trust complements thin trust, for the former trust is the result voluntary decisions instead of the result of negotiated contracts. Voluntary decisions signal co-operative behaviour, so these decisions act as a form of relational signalling. Trust adds to control and it helps to produce control. The presence of mistrust can produce control, because there are legitimate expectations about future opportunistic behaviour of the other party. Thin trust is produced out of this. A zero-positive situation provides the basis for the necessary positive behavioural expectations which can be built by relational signalling. This signalling allows both parties to show their integrity and competence. It also shows that they care about long-term interests as opposed to short-term ones. This constitutes the basis of a durable and stable relationship. Showing such a commitment will build thick trust. This type of trust can add to control, for accounting and control structures can reflect the positive expecations about the partner. According to Vosselman and Van der Meer-Kooistra (2009) open book accounting is an example of one of the structures which can be established due to the signalling of co-operative behaviour. A case study by Minnaar et al. (2010) tested this theory and gave new insights about the interaction between trust and control in the contracting phase. They concluded that relational signalling is more important than control aspects in an IOR. Control structures, as theorized by Vosselman & Van der Meer-Kooistra (2009), are not established in the context of compensating for mistrust, but in the context of trust building. In their case study formal controls were not enough to compensate for legitimate negative behavioural expectations regarding the partner. Parties also have to signal their commitment to the relationship during these control practices. Minnaar et al. (2010) discuss that a lack of socializiation during the contract phase resulted in failure of the first contract. The relationship benefited from a change in organizational structure and project management which provided an opportunity for socialization. Socializiation is the first signalling device and the second is contracting. This signalling will build thin trust needed in the contracting phase.

2.2.2   PUBLIC-PRIVATE PARTNERSHIPS

The insights from the interaction perspective in IORs can be extended to PPPs. This paper applies a similar method applied by Cools et al. (2011) who extended the framework of Das and Teng (2001). The IOR literature was consulted which discussed the relationship between risks and control. Two types of risk were extensively discussed in the literature being relational and performance risk. Cools et al. (2011) extended this framework to PPPs by including the socio-political risk that PPPs also face. This extension of an IOR framework to a PPP version focused on one of the major critical success factors (CSFs) examined in this stream of literature being risk allocation and sharing (Osei-Kyei & Chan, 2015). CSFs are studied, for the realization of a successful PPP proves difficult (Twist, Klijn, Edelenbos, & Kort, 2006). Various CSFs have been researched which relate to the framework by Vosselman & Van der Meer-Kooistra (2009). Jamali (2004) defines PPPs as an institutionalized form of cooperation between public and private parties which work towards a joint goal. It is not a derivative of the privatization of public services, but scholars have agreed that it is a partnership in which resources are bundled and the competences of the public and the private parties are used to pursue common goals. Thus, PPPs should

not be a substitute for taking action or responsibility and do not imply less government, but imply a different type of governmental participation.

Jefferies, Gameson and Rowlinson (2002) showed in their case study on a construction project that trust was perceived as a CSF. They propose that future research should look into what key attributes make this a CSF. Besides analysing trust the authors have also taken other CSFs into account such as complimentary skills, complicated negations, community and political support. Unlike IORs, political stability and support is a factor inherent to the success PPPs (Jefferies, Gameson, & Rowlinson, 2002; Cools, Slagmulder, & Abbeele, 2011; Jacobson & Choi, 2008)

Jacobson and Choi (2008) examined the role of trust in construction PPPs. Several CSFs which were examined were trust, open communication and the willingness to collaborate. They concluded that these factors are intertwined. The authors mention that trust underlies the partner's ability to collaborate in order to achieve mutual goals. Communication in the form of weekly meetings helped build a sense of 'being in it together' among the parties involved. The PPP case showed that when all these factors are present, a successful partnership is more likely. The Public Works case showed that low trust and low degrees of communication and collaboration can occur as well. Levels of trust were high initially, but when project management changed levels of trust started to diminish significantly. The change in project management in this case had a negative impact. The results by Minnaar et al. (2010) also highlight this factor, but in this case change in management had a positive impact. Thus, this indicates that this factor can play a role in the success of such a relationship. However, it is still unclear how exactly a change of management can positively or negatively impact the relationship. It is also unclear whether there is a difference in such a change in PPPs or IORs. Researching this factor may be a fruitful avenue for future research.

2.2.2.1 UNIVERSITY-INDUSTRY COLLABORATIONS

The previous studies focused on the role of trust in construction projects, but there have also been projects related to education. Since the 1980's academia and industry began collaborating and it had been increasingly identified as a factor of economic growth and a source of new innovations (Etzkowitz & Leydesdorff, 1998). University-Industry Collaborations (UICs) are partnerships between corporations and higher education institutions (Elmuti, Abebe, & Nicolosi, 2005). These UICs have gained momentum the last couple of years. The institutions of higher education increasingly play an important role in tackling complex fundamental industrial problems of major societal significance. There are several reasons why these alliances are formed. Elmuti et al. (2005) mention the potential of these collaborations is immense, for when successfully implemented, companies can gain access specific markets, or gain a competitive advantage. Companies can achieve this by for instance conducting research contributing to innovation over the long-run (Hemmert, Bstieler, & Okamuro, 2014). Another reason is that these partnerships have increasingly served as a stepping stone for a more complex version of collaboration involving multiple firms, universities and other entities (Elmuti, Abebe, & Nicolosi, 2005).

2.2.2.1.1   CHALLENGES

However, working together is not an easy endeavour for academia and industry (Hemmert, Bstieler, & Okamuro, 2014). They face major challenges when attempting to work together (Bstieler, Hemmert, & Barczak, 2015; Hemmert, Bstieler, & Okamuro, 2014; Elmuti, Abebe, & Nicolosi, 2005; Cyert & Goodman, 1997; Bruneel, D'Este, & Salter, 2010). Empirical literature has addressed these challenges by investigating which factors are of significance in overcoming these challenges (Hemmert, Bstieler, & Okamuro, 2014; Elmuti, Abebe, & Nicolosi, 2005; Bruneel, D'Este, & Salter, 2010). The empirical literature will be reviewed in the second section of this chapter.

2.2.2.1.1.1   CULTURAL DIFFERENCES

The two institutions have inherently different cultures (Hemmert, Bstieler, & Okamuro, 2014). Universities are driven by a culture that emphasizes scientific performance and requires the free and open communication of research results. Industry focuses on a different working style being the protection of proprietary information. This is due to the highly competitive business environment in which companies provide their products and services (Elmuti, Abebe, & Nicolosi, 2005). Additionally, the partners have different organizational cultures and values that potentially result in communication problems. Cyert and Goodman (1997) focus on other factors explaining the fundamentally different cultures. Time horizons and assumptions made in two organizations vary greatly. Time frames are of a long-term nature in universities, for few quarterly goals exist and research papers rarely have deadlines. This contrasts the short term deadlines that are common in business. The second point of different assumptions about work deals with the relevance of their work. For researcher the performance is evaluated outside the university by their professional reference group. In turn, their reputation determines their salary. Managers' performance is evaluated by their superior and if the manager deals with a specific UIC the results will be taken into account. It is more difficult to evaluate a researcher based on the performance of a UIC, for this may cause motivational issues. Firstly, it may be difficult to motivate the researcher to join a UIC. Secondly, if the faculty's interest changes the researcher may be more inclined to exit the relationship. Cyert and Goodman (1997) argue that these differences may work against the relationship. Bruneel et al. (2010) put this into perspective by stressing that this weak attitudinal alignment is not caused by the views of scientists on the benefits of working with industry. Many fields of research have considerable interaction with practice such as engineering, accountancy and medicine. In these areas practical problems provide an incentive to the researcher to develop innovative ideas. This weak attitudinal alignment is caused by conflicting views about the timing or form of disclosure of the results. This introduces the next issue.

2.2.2.1.1.2   DIFFERENCE IN OBJECTIVES

Most firms have different final objectives compared to universities. The former wants the partnership to yield insights which can be applied to make a marketable product or service along with innovative ideas on problem solving (Elmuti, Abebe, & Nicolosi, 2005). The goal of academia is to contribute to knowledge by sharing new concepts or empirical results. Even if the UIC produces an interim product such as a prototype, these fail to satisfy (Cyert & Goodman, 1997). This is because these products are far removed

from a final product. The path of commercialization, from prototype to final product, is made difficult in UICs. This can be accounted for by conflicts about the ownership of intellectual property rights and tensions about the long time span, complexity and ambiguity inherent in applied the nature of applied research (Elmuti, Abebe, & Nicolosi, 2005; Cyert & Goodman, 1997; Bruneel, D'Este, & Salter, 2010).

2.2.3 SUMMARY OF LITERATURE OVERVIEW

Research into the relationship between control and trust can be broadly classified into the substitution, complementary and interaction approach. The substitution approach suggests an inverse relationship between trust and control (Dekker, 2004), while the complementary approach suggests the variables are mutually reinforcing each other (Costa & Bijlsma-Frankema, 2007). Both approaches have received support and have received criticism (Hassan & Vosselman, 2010). The main critique is that the relationship between trust and control has been regarded as static. The interaction perspective emerged as a response to this critique. In this approach elements from the substitution and complementary perspective have been combined while acknowledging that trust and control are interrelated in dynamic patterns.

The theory by Vosselman & Van der Meer-Kooistra (2009) has been used as a basis for how trust and control interact in IORs. The authors theorize an ideal situation in which a stable and durable relationship can be built due to the presence of a strong foundation, a zero-positive situation, on which thick trust can be built by means of signalling cooperative behaviour. The interrelations between trust and control discussed in this theory are part of the research problem area of this study.

As a first step to gain insight into how trust and control interact in collaborations between firms and academia specific challenges in UICs were addressed. These challenges were identified, for they prove crucial to building a successful and durable relationship between academia and industry. UIC literature has described two main challenges unique to this collaboration being cultural differences and differences in objectives (Bstieler, Hemmert, & Barczak, 2015; Elmuti, Abebe, & Nicolosi, 2005). Several ways of overcoming these relationships, including trust and control, and their interrelations will be discussed in the next section.

2.3   EMPIRICAL LITERATURE REVIEW

The second part of the theoretical framework reviews the empirical literature focusing on CSFs in UICs. Specific factors for these collaborations are grouped under four common themes described by Barnes et al. (2002). CSFs found in the results empirical literature are discussed in depth.

2.3.1 CRITICAL SUCCESS FACTORS IN UNIVERSITY-INDUSTRY COLLABORATIONS

Certain factors in collaborations between academia and industry can overcome the challenges that they face. Empirical literature has identified several CSFs in UICs. Barnes et al. (2002) did a cross-case analysis on six separate cases in order to identify common themes and factors which influence the perceived success of UICs. Data was collected by means of interviews with key participants of the projects. The results indicate that the success factors are ad hoc and that there is no overall pattern. Barnes et al. (2002) explain that every UIC is governed by a complex interaction of factors. Among the cases they discern between some common themes. These include choice of partners, project management issues, trust and outcomes.

2.3.1.1 PARTNER SELECTION

The first theme deals with partner selection and often the industrial partner prefers to take a supporting role in the partnership. Especially in research partnerships the industrial partner shows little indication that they want to take an active role in the research as they consider their academic counterparts as experts. A success factor present in the cases is partner contribution and commitment. The degree of commitment of the partners can be agreed upon when establishing a contract. However, often in many cases it is not possible to have a choice of which partner to choose. This choice could be restricted to the appropriate combination of expertise and technology.

Barnes et al. (2002) relate partner selection to the theme of trust by discussing the cases they studied showed that in the UICs the partners preferred to work with previously known partners. A basis of trust has been established with prior partners. However, Thune (2011) finds conflicting results in her empirical study of cross-sector collaboration between regional universities and energy firms in Norway. The author finds prior experience working with a partner may influence participants' experiences, but not necessarily the results that are produced in the UIC. In UIC theory, perceptions of success have been emphasized as a more important measure of success (Barnes, Pashby, & Gibbons, 2002; Mora-Valentin, Montoro-Sanchez, & Guerras-Martin, 2004). Thune (2011) explains that UICs are complex and therefore the measurement of success is difficult. Emphasis on the assessment of the relationship by partners may overlook the effect of outcomes on success. However, the findings of Thune (2011) neglect the indirect effect prior experience with partners can have on outcomes. The indirect effect comes from trust which is built up in these prior experiences. Upon entering a new collaboration, prior experiences may build up a 'zero-positive' situation (Vosselman & Meer-Kooistra, 2009) hence, providing a stable foundation to build thick trust on. As discussed before, this 'zero-positive' situation is not a sufficient condition for a successful outcome, but it is necessary. Having a strong foundation will more likely result in successful

outcomes. Thick trust is built through relational signalling which is done by effective communication. Thus, emphasis on the assessment of the relationship by partners may not necessarily overlook the effect of outcomes on success, because there is an indirect channel of trust which builds a strong foundation for the UIC.

Barnes et al. (2002) relate partner selection to the project management by explaining that trust is built because of effective communication channels that have already been established. This implies that themes of trust and project management are also interlinked. Bruneel et al. (2010) confirm the results of Barnes et al. (2002) which indicated that partner selection is related to project management. By applying regressions to survey results Bruneel et al. (2010) they analyse the effect of collaboration experience on barriers to UICs. The first barrier is an orientation-related barrier which deals with the different objectives companies and universities have. The routines learnt through joint research lower this barrier and helps the partners overcome attitudinal differences on research methods.

2.3.1.2 PROJECT MANAGEMENT

Project management issues can arise in UICs. Collaboration projects between academia and industry are found to be subject to misinterpretation and unrealistic interpretation (Barnes, Pashby, & Gibbons, 2002). Hence, objectives have to be clearly defined in the contract phase. The case results show that in four out of six cases both partners felt that their ambitions had been too ambitious of what could be achieved within that amount of time. Clearly defined objectives have to involve adjustments of the differing expectations of both parties. In the contract phase, planning and monitoring is seen as a success factor to overcome the problem of the different time horizons present in academia and industry. Rohrbeck and Arnold (2006) found that the issue with a misalignment of objectives can be overcome. The authors did a case study on the Deutsche Telekom (DT) Laboratories which is a UIC in a separate organization setting. They found that organizing the UIC as a separate entity improves collaboration between both partners by creating a shared vision and mission. Besides creating a separate entity, Bruneel et al. (2010) confirmed that the barrier of different expectations of the partners can be reduced by trust as well. However, the authors do not give an example of how this trust can be built. Their results discuss the effect trust had on the orientation-related barrier of UICs. They show that trust reduced this barrier. Bruneel et al. (2010) argue this is because trust relies on strong bonds of mutual understanding. This way the different expectations of the parties can be managed because trust builds strong bonds of mutual understanding.

2.3.1.2.1   EFFECTIVE COMMUNICATION

An important element in planning is effective communication (Barnes, Pashby, & Gibbons, 2002). In the six cases discussed by Barnes et al. (2002) it was important to avoid having lengthy and frequent meetings, for this might create the feeling that the discussion is irrelevant. Without effective communication, the partnerships will result in a relationship of doubt and mistrust (Elmuti, Abebe, & Nicolosi, 2005). Rohrbeck and Arnold (2006) elaborated on Barnes et al. (2002) ideas on how to facilitate effective communication in UICs. In the DT Laboratories case a combination between informal and formal meetings was proven to be successful. A central coffee shop was built in order to reduce cultural barriers

and this way informal links could be established between the academic and industry employees. This informal communication was combined with coordination through quarterly project reviews and progress presentations. Celeski (2011) researched the effect of social bonds on boundary spanning managers and found that it increases perceived success of the UIC and promotes trust among these managers. Boundary spanning managers are individuals which have the task of linking university and industry personnel and are in charge of enhancing effective communication.

2.3.1.3 TRUST

The third theme is the universal success factor trust. Barnes et al. (2002) do not categorise which specific types of trust they mean. They focus on the role of senior management as a CSF in overcoming natural resistance to take risk or to share proprietary information. Lower levels of management are less likely to commit to the UIC if the project is not supported sufficiently by senior management. It is argued that trust takes a long time to develop and that it is justified that in UICs parties who have prior collaboration experience have built up a basis of trust already. Thus, trust built due to prior experience is also seen as a success factor. Celeski (2011) complemented this with a comparative case study of four cases in New Zealand. He found that the level of commitment cannot entirely be explained by the level of trust between parties. The type of co-operation significantly influenced commitment. On the one hand, government funded collaborations often lacked commitment, because commitment was limited to the contract and securing of governmental funding. On the other hand, research partnerships required more commitment, because the parties were more committed to creating value.

Continuity of personnel is another success factor related to trust. The lack of continuity of personnel is an issue, for the case results revealed that progress on the projects was sometimes hindered by the need to brief every new contact. The change in project managers was perceived as a signalling problem. In four out of six cases project management changed at least once and this was regarded as either a lack of commitment to the project, an attempt to rejuvenate a badly performing project or a lack of competence of the partner to choose effective individuals. Barnes et al. (2002) mention that change in project management personnel is the greatest cause for concern for the development of trust in UICs within the success factor continuity of personnel. However, Rohrbeck & Arnold (2006) found contrasting results. They showed that the creation of a separate entity facilitated an environment of trust and transparency. In DL Laboratories stability was created towards short-term shifts in corporate decisions. If responsibilities of the staff changed, as described by Barnes et al. (2002), the manager on the company's side would move to another position. This in turn, contributes to stability of the staff and hence, reduces the risk of reducing trust.

2.3.1.4 OUTCOMES

The last theme discussed is related to outcomes. One of the partners in the cases mentioned *"we weren't getting a reasonable return on our investment"* (Barnes, Pashby, & Gibbons, 2002). The industrial partners expressed their frustration about tangible outcomes. They felt that the universities should focus on these more, because to them this indicated actual progress. Having tangible outcomes therefore is another success factor. Success is often measured in terms of new products, publications or students trained

(Cyert & Goodman, 1997; Elmuti, Abebe, & Nicolosi, 2005). Iqbal et al. (2011) confirm that outcomes are often seen as the most important success criterion. The authors conducted a survey and they had the respondents rank the importance of outcomes, project management and financial support. They found that outcomes rank the most important followed by criteria related to project management such as mutual perception, common goals and strong commitment. Financial support criteria ranked least important. However, Iqbal et al. (2011) provide a limited perspective, for the respondents consisted of university respondents (PhD students) only. It also neglects the dynamics of UICs, for these collaborations are subject to complex interactions between success criteria and a strong foundation needs to be built first in order to be able to expect tangible outcomes. Thus, building a strong foundation for a UIC should rank as more important than expecting outcomes.

2.3.2 EMPIRICAL LITERATURE REVIEW SUMMARY

In the collaboration between academia and industry CSFs can be grouped under common themes including partner selection, project management, trust and outcomes. The empirical findings can be related to the management control system, for the themes of CSFs are directly related to trust, informal and formal control. The authors propose different ways to enhance the UICs long-term performance while committing to its strategic objectives. Rohrbeck & Arnold (2006) found in the case of DT Laboratories that the establishment of a separate entity resulted in a shared vision and mission. To enhance the environment of trust and commitment, effective communication was stimulated by a combination of joint formal and informal meetings. Hence, this combination of behaviour control was shown to influence informal control not only through meetings, but also by creating a separate entity. Besides informal and behaviour control, outcome controls also plays a role in UICs. Having tangible outcomes was shown to be a CSF in UICs (Barnes, Pashby, & Gibbons, 2002; Iqbal, Khan, Iqbal, & Senin, 2011).

The themes appear to be related with each other. Partner selection is related to project management because of effective communication channels built from prior collaborations which plays a role in the selection of a partner (Barnes, Pashby, & Gibbons, 2002). The routines learnt through joint research can also contribute to reducing attitudinal differences in research objectives and methods (Bruneel, D'Este, & Salter, 2010). Partner selection is related to trust, because of trust built through prior experience working together (Barnes, Pashby, & Gibbons, 2002). Trust is also related to project management, for effective communication can promote trust (Rohrbeck & Arnold, 2006; Celeski, 2011). In turn, trust can influence project management through reducing different expectations of both parties by creating mutual objectives, because strong bonds of mutual understanding have been established (Bruneel, D'Este, & Salter, 2010). Table 1 summarises the findings of the empirical literature on the CSFs in UICs. The next section will combine the CSFs in UICs from this section with the theory of Vosselman & Van der Meer-Kooistra (2009) from the first section.

TABLE 1 SUMMARY EMPIRICAL FINDINGS

| Author(s)	Findings
(Barnes, Pashby, & Gibbons, 2002)	The authors used a cross-case analysis on six separate cases in order to create a good practice model for collaboration management. Major common themes emerged including partner selection, project management, trust and outcomes. Partner selection is related to trust due to prior collaboration experience. Partner selection is also related to project management because of the effective communication channels which have been built before. This, in turn, enhances trust building. CSFs include trust from prior experience, continuity of personnel and having tangible outcomes.
(Rohrbeck & Arnold, 2006)	In this paper a case study on DT Laboratories was performed. Misalignment of objectives can be overcome by creating a separate entity for the UIC. This way a shared vision and mission is facilitated through an environment of trust and transparency. Effective communication was facilitated by means of a combination of informal and formal meetings.
(Bruneel, D'Este, & Salter, 2010)	Regressions were applied to survey results which indicated that partner selection is related to project management. Routines learnt through joint research between academia and industry lowered the orientation-related barrier which deals with different objectives of the parties. This way the attitudinal difference on research methods was overcome. Different expectations of both parties can be reduced by trust as well, because strong bonds of mutual understanding are created.
(Celeski, 2011)	Celeski did a case study of four research co-operations in New Zealand. Project management and trust were found to be related. His research found that social bonds between boundary spanning managers enhanced effective communication and this in turn promoted trust among the managers. Commitment between parties was not entirely due to trust, the type of co-operation significantly influenced commitment.
(Iqbal, Khan, Iqbal, & Senin, 2011)	The authors conducted a survey in which the perceived importance of project management, outcomes and financial support was ranked. Outcomes were found to be the most important success criteria compared to project management in which common goals and strong commitment play a role.
(Thune, 2011)	This empirical study focused on cross-sector collaboration between regional universities and energy firms in Norway. The author findings include prior experience working together with another party may influence the perception of success, but not necessarily the results produced in the UIC.

2.6   CONCEPTUAL MODEL

The theoretical insights from Vosselman & Van der Meer-Kooistra (2009) related to the interaction between trust and control will be combined with the insights from the empirical literature on CSFs in UICs in this section. Vosselman & Van der Meer-Kooistra (2009) explain relational signalling requires control structures in order to reach a 'zero positive' situation. During the writing of formal control structures relational signals play an important role as well. The development of formal control structures, and the thin trust connected with it, also has a need of trust. Thus, control also requires relational signalling. The control structures entail a form of accountability. They may for instance be outcome related and include performance measurement systems. Long-term interest can diverge, so these have to be aligned by formal control structures. However, thin trust will only provide a foundation for a stable and durable relationship. Fundamental uncertainty will remain and therefore a contract cannot fully compensate for all potential opportunism. This remaining uncertainty will be compensated by positive behavioural expectations in a sustainable relationship. In UICs building thick trust is constrained to certain barriers such as difference in objectives and cultural differences (Bstieler, Hemmert, & Barczak, 2015; Bruneel, D'Este, & Salter, 2010; Elmuti, Abebe, & Nicolosi, 2005; Hemmert, Bstieler, & Okamuro, 2014). Traditional management control deals with institutional power which is focused on the behaviour of other parties (Vosselman & Meer-Kooistra, 2009). Relational signalling focuses on the stability and durability of a relationship instead. Individuals do not feel the need to control others, but have a need to signal their commitment to the partner. Simultaneously, they expect the partner to voluntarily signal their commitment. Thus, control can be seen as the informal control of the signals of commitment that partners give to one another.

In the empirical literature on UICs previously discussed commitment and effective communication were important themes. In the cases discussed in section two of this chapter various authors identified CSFs in these relationships. Model 1 portrays an ideal situation how trust and control are interrelated incorporating CSFs in UICs.

MANAGEMENT CONTROL SYSTEM

The model depicts the MC System and consists of two parts being the MC Structure and the MC Process. The former can be explained as a combination of informal controls and formal controls and the latter deals with planning, performance evaluation and employee motivation (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). The MC Structure and MC Process help managers execute control. Trust is an important cultural value which is directly related the MC System.

Model 1
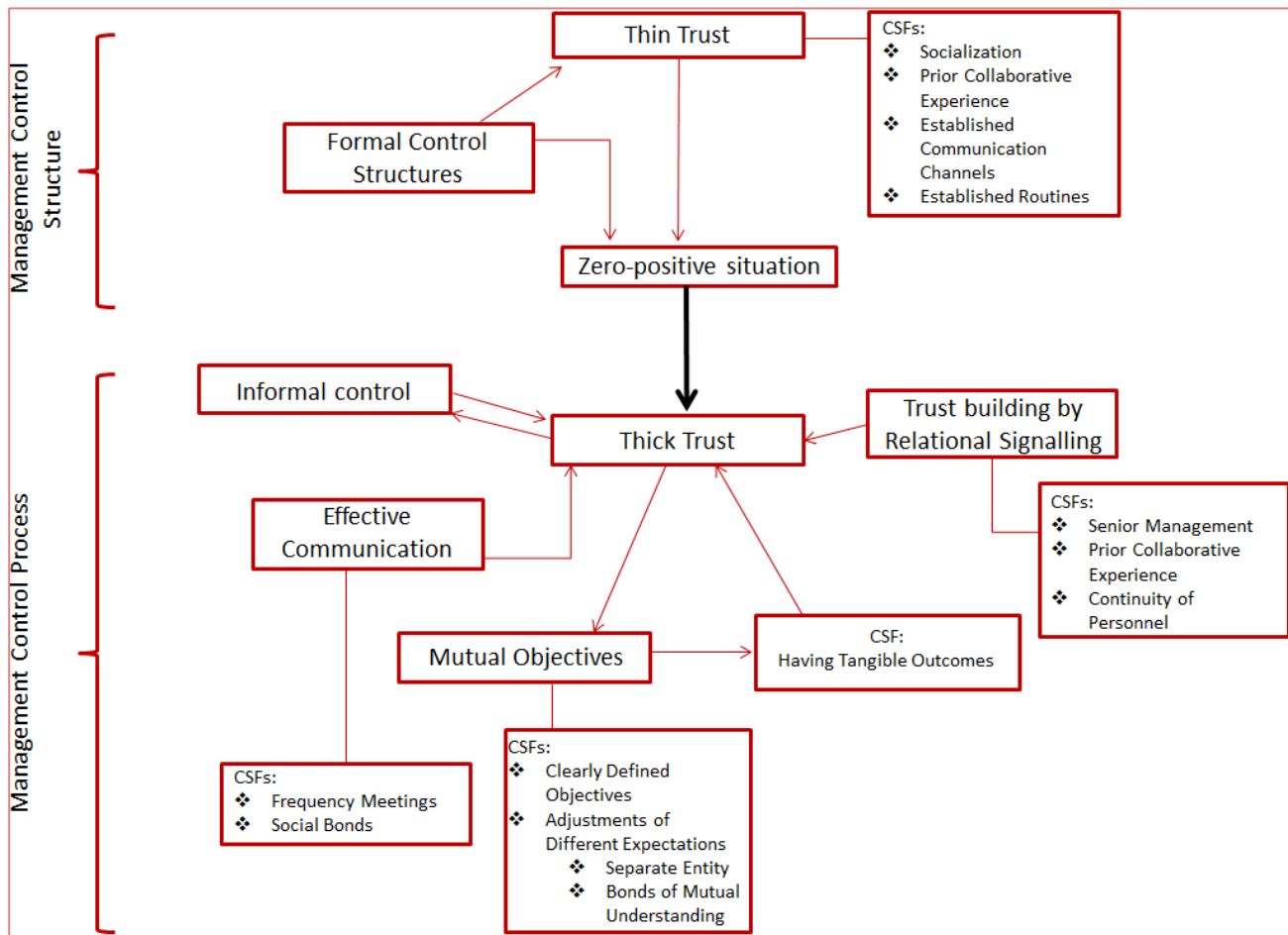
Anthony et al. (2014) state once management has decided that a given structure is optimal the structure must be regarded as given. The system designer must always fit the system to the organization. Anthony et al. (2014) illustrates this with the shifting of accounting supervisors. At advertising agencies these employees may be frequently shifted from one account to another in order to benefit from their new perspective. However, this makes it difficult for their performance to be measured, because their effect on the outcomes of the advertising campaign may take a long time to develop. In model 1 this given MC Structure consists of formal control structures and thin trust. However, this model focuses on creating a stable and durable relationship, and hence includes relational signalling as well. Thus, signalling commitment can increase informal control. So, in the MC Process the informal control of the MC Structure can be enhanced. The formal controls can be regarded as given, but informal control can still be developed during the MC Process.

With a MC Structure in place, managers have to turn to the MC Process (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). The MC Process consists of four parts: long-term planning, short-term planning, performance evaluation and motivation. In model 1 long-term planning is related to Clearly Defined Objectives, while the most current information of the UIC is covered during regular meetings and this is captured by the Effective Communication. Performance evaluation is related to Having Tangible

Outcomes. The satisfaction of the partners influences their motivation and this satisfaction can be influenced by either of the CSFs in the model.

The model captures both elements of a MC System. The black arrow connects the parts of the MC System. The zero-positive situation represents the given MC Structure on which a stable and durable relationship can be built. This can be done during the MC Process by an interaction thick trust and informal control. CSFs related to effective communication, mutual objectives and outcomes can positively influence thick trust. Thus, the upper part and the lower part of the model naturally converge, because the former provides the foundation for a stable and durable relationship while the latter ensures this by enhancing trust in the relationship.

CRITICAL SUCCESS FACTORS IN THE MODEL

The proposed CSFs for establishing thin trust are the CSFs found in the partner selection theme discussed in the second section of this chapter. These include prior collaborative experience, established communication channels and established routines. These factors are added to the model by Vosselman & Van der Meer-Kooistra (2009) in order to be able to extend this model from IORs to UICs. The theoretical ideal of the creation of a zero-positive situation depends on thin trust and control structures. Thin trust is produced out of the control structures which are created either due to legitimate expectations of future opportunistic behaviour or due to trust building. Minnaar et al. (2010) find that socialization is an important signalling device in the contract phase of an IOR. This signalling device can create thin trust and it can contribute to thin trust by providing a context of trust building such that control structures can be established. Prior collaborative experience can provide a basis of trust between the prior partners (Barnes, Pashby, & Gibbons, 2002). Bruneel et al. (2010) argue routines learnt in prior collaborative experiences lowers the orientation-related barrier which is turn helps partners overcome attitudinal differences over research methods. Hence, the routines can provide a guideline for the control structures in the new UIC increasing the possibility for thin trust to be created. Barnes et al. (2002)state trust is built through established communication channels and Bruneel et al. (2010) confirmed these results.

The building of thick trust, its relationship to control and the CSFs in UICs related to building thick trust can be seen in lower part of model 1. In this model commitment is regarded as informal control. Trust is interrelated with control. Factors such as continuity of personnel and senior management support increased commitment and this increases trust (Barnes, Pashby, & Gibbons, 2002; Celeski, 2011; Rohrbeck & Arnold, 2006). Trust will increase commitment through effective communication, because of the social bonds which are built (Celeski, 2011; Rohrbeck & Arnold, 2006). Hence, trust and control are interrelated.

Trust is built by relational signalling and CSFs influencing this are senior management support, prior collaborative experience and continuity of personnel. The support of senior management can help overcome the natural barriers to taking risk which lower level management is exposed to (Barnes, Pashby, & Gibbons, 2002). This support hence reduces risk attitudes by lower level management and this

way they will commit more strongly to the project. Openly having senior management support the project signals trust. Prior collaborative experience will contribute to trust building, for the basis of trust built in these prior relationships provides a strong foundation for relational signalling (Barnes, Pashby, & Gibbons, 2002). Furthermore, Barnes et al. (2002) argue that continuity of personnel is related to trust building. The changing of managers of the project is perceived as a signalling problem, because it can signal lack of commitment or an attempt to rejuvenate a badly performing UIC. Discontinuity of personnel is a cause of concern, because it can lead to signalling which negatively impacts trust building. However, unlike Barnes et al. (2002) argue, it is not the single greatest cause for concern in the building of thick trust.

Having mutual objectives can also promote trust building (Rohrbeck & Arnold, 2006). Creation of a separate entity contributes to promoting mutual objectives, for a separate entity proved to provide an environment of transparency and trust. Trust can reduce different expectations of the partners and hence, promotes mutual objectives (Bruneel, D'Este, & Salter, 2010). This is because trust relies on strong bonds of mutual understanding. Having mutual objectives in a UIC is of importance, because this challenge has to be faced in such a partnership. If there is a shared vision on which objectives to strive for, there will be a mutual understanding of which outcomes are desirable. These tangible outcomes can in turn influence trust, because striving towards these outcomes signals commitment.

Effective communication can influence thick trust. Barnes et al. (2002) found that it was important to keep track of the frequency of the meetings of an UIC, for too frequent meetings may lead to parties feeling the communication is irrelevant. Rohrbeck & Arnold (2006) found that social bonds can enhance effective communication. Informal communication facilitates social links among parties. Cultural differences can be overcome this way and trust can be built. Celeski (2011)also found that social bonds between managers can promote trust among the individuals.

2.7 CHAPTER CONCLUSION

This chapter has discussed the literature relevant to this research. An overview was given of the underlying theories present in the debate surrounding the relationship between trust and control in IORs. Furthermore, in this overview the challenges in UICs were also discussed. The empirical literature on CSFs in UICs was review which dealt with ways to overcome the challenges discussed in the overview. At the end of the chapter a conceptual model was created which was based on the interaction theory presented by Vosselman & Van der Meer-Kooistra (2009) and complemented by the findings from the empirical literature review of CSFs in UICs.

The methodology used to answer the research question of this study is described in Chapter 3.

CHAPTER 3 METHODOLOGY

3.1 INTRODUCTION

Chapter 2 provided a literature overview and reviewed the empirical literature studying ways to overcome the challenges in UICs. A conceptual model was created which is to be tested in this research. Specifically, this study aims to the current literature's limited focus on a dynamic approach studying trust and control in collaborations. Empirical data is provided in this context by using a case methodology which should lead to deeper insights.

The third chapter is divided into five parts, the first part describing the research methodology, the second discussing data collection. The third part elaborates on data analysis, followed by the fourth part that looks into ethical considerations. The final part discusses the setting of the case and the organization of the UIC.

3.2 RESEARCH METHODOLOGY

The aim of this research is to investigate the interaction of trust and control in a specific UIC. The nature of the research question makes field research the most appropriate approach (Yin, 2003). This research poses a 'how' question and it focuses on a contemporary phenomenon in a real-life context. In this situation, explanatory case studies are preferred. Furthermore, the focus on the interaction between trust and control provides a response to the calls for taking a dynamic approach when studying trust and control in UICs (Costa & Bijlsma-Frankema, 2007; Bstieler, Hemmert, & Barczak, 2015). Due to the scope of this research, a single-case study was chosen in order to study a single organization. This entails the problem of generalization, for many critics of this method claim that it is difficult to generalize from one case to another (Yin, 2003). Therefore, to avoid this problem, this research attempts to generalize the findings to theory. This study focuses on the contract fase and a case was selected based on the stage of cooperation it was in. In order to capture the recent views from the beginning stages of collaboration, the planning and contracting phase, a recently established UIC had to be selected because study participants would be in the midst of the contract phase. Therefore, the NAHSS case was selected, for the UIC was started in 2012.

This single-case study uses qualitative data for describing, explaining and analysing the phenomenon. The data will be contrasted and compared with the theory in order to contribute to further theory building. The theoretical ideal has been described in the last section of Chapter 2 and the case is contrasted with this ideal in order to identify potential CSFs. Plausible conclusions can be drawn by using the theory in combination with the field data (Lukka & Modell, 2010). Thus, from this perspective the study is interpretive of nature. The complexity of the phenomenon is retained, while views of those participating are offered and critically analysed. An attempt will be made to provide a theoretical interpretation of how trust and control interact in UICs with emphasis on the role of relational signalling and CSFs.

3.3 DATA COLLECTION

The main source of data is a semi-structure interview. Other sources of information include documents from the websites of the UIC, such as a presentation of a conference about the NAHSS. Unrecorded informal conversations with the ambassadors of the programme are also included. Yin (2013) mentions the format of such an interview reveals how the interviewees construct reality and think about situations. This prevents the interviewer from raising too specific questions that are part of the researcher's own implicit construction of reality. In the case of NAHSS the Program Board (PB) members who were interviewed are at the centre of the relationship. Only few people will fill such roles and these interviews can be regarded as "elite" interview (Yin, 2013). Yin (2013) states in case key persons of organizations are being studied the participants' construction of reality gains importance. To gain insights into the participants' perspective, an emphasis on interviews instead of other sources of information can be justified. Therefore, in the case of NAHSS the emphasis is on the semi-structured interview can be justified.

The interviewer was not affiliated to the NAHSS, and hence did not have prior contact with the individuals of the PB. For the interview, an informant[4] was asked to contact the members of the PB of NAHSS to participate in this study. If they agreed to participate the informant asked to pass their contact information to the researcher. The initial contact was made at the end of April 2015 and the interview was conducted on the 8th of June at a place and time convenient to the PB of the NAHSS. The interview took place in Utrecht at the head office of the NAHSS with the duration of 56 minutes.

Due to the weakly structured nature of the interview the questions were open-ended, for this allowed for better communication of field insights. The questions posed were related to the themes and CSFs discussed and integrated in the model in Chapter 2. The interview guide in Appendix A provides an overview of the questions posed during the interview. Two board members were interviewed and pseudonyms are assigned to their names throughout this study in order to maintain confidentiality. One interviewee's board position entailed managing the communication with the SB and keeping track of Finance (SB&F-PB member) and the other board member managed Student Relations (SR-PB member).

3.4 DATA ANALYSIS

The interview was recorded for analysis on a later date. Qualitative content analysis was used for this study. This qualitative method is appropriate to research questions that focus on organizational processes (Kohlbacher, 2006). Organizational dynamics play a large role in this research area and, according to Kohlbacher (2006), qualitative methods are sensitive to allow for a detailed analysis of what processes are involved in the case and how they work.

Yin (2013) proposed four general strategies in qualitative case study analysis with the first one being the most preferred strategy. This strategy is to follow the theoretical propositions that led to your case study.

---

[4] A previous NAHSS participant

This design of this case study relied on the theoretical propositions made in Chapter 2. The first step of the data analysis consisted of screening and analysing the data alongside the theoretical propositions. The propositions include the CSFs proposed in the model provided in Chapter 2.

During the second step the transcript of the interview was read and re-read and all the data was analysed and reduced by means of summarizing and separating themes. This allowed for analysis beyond the stated propositions. Thus, the collected data from the interview and the other sources of information are also analysed beyond the CSFs.

3.5 ETHICAL CONSIDERATIONS

Unfavourable consequences for the study and the research participants were avoided by considering ethical issues. The in-depth interviews conducted in this study contain potentially sensitive information to the UIC. Negative consequences resulting from participation should be avoided.

The steps taken to prevent unfavourable consequences are the following. Firstly, one week prior to the interview, the interview guide from Appendix A was sent to the interview participants. Secondly, pseudonyms were assigned to the names of the individuals to promote confidentiality. Lastly, protection was also given by email in which a guarantee which given to the research participants to read the paper beforehand and potentially make changes. These changes relate to the specifics mentioned in the interview, but not the way the case is contrasted to theory in Chapter 4.

3.6 DESCRIPTION AND SETTING OF THE CASE

The NAHSS was founded in 2012 by two private and two public parties with the former being McKinsey & Company and AkzoNobel and the latter being Utrecht University and TU Delft. During a meeting of the 'Adviesraad Internationale Vraagstukken' in 2012 this advisory council discussed about foreign policy regarding Asia (NAHSS, 2015). During a presentation for the NAHSS, chairman of the Social-Economic Council, Wiebe Draijer (2013), discussed how the idea of the NAHSS was established. Several parties including high officials of businesses, government and universities had gathered to discuss global issues and the potential role of the Dutch private and public parties in these issues. The main topic was China and a Chinese representative talked about and gave his personal views on the development in his city. The future of the development of China was the reason for his visit to the Netherlands. From this visit and speech emerged the idea that a unique opportunity would have to be provided to the best students in the Netherlands. Dutch students have had limited contact with the Asian culture and their business environment (NAHSS, 2015). Therefore, Dutch talent had to be prepared for the increasing demand of knowledge of Asian cultures. The NAHSS enables these students to experience Asia, and in turn the bilateral relationship with Asia will be strengthened by this generation.

After a successful pilot in 2012, the NAHSS became a separate entity. A Programme Board of students was commissioned for the first time in 2013. Since the founding of the collaboration, many organizations

became partners of the programme. These include various business parties, all Dutch Universities, four Dutch Ministries and Chinese public and private parties.

3.6.1 THE ORGANIZATION OF THE UNIVERSITY-INDUSTRY COLLABORATION

The parties of the UIC can be depicted as in Figure 1. The PB stands at the centre of the relationship and are responsible for the daily tasks. It consists of students from the University partners which have joined the NAHSS as students the previous year. Annually the PB is re-elected with alumni of the NAHSS.

The policy advisor, or secretary to the SB, is the direct contact person in providing assistance in daily tasks. The Supervisory Board (SB) assists the PB in the overall content of the program with an emphasis on the ensuring the quality and pursuance of long-term goals. Quarterly meetings are held to discuss policy issues of the NAHSS. The majority of the SB and PB try to attend these meetings. The SB consists of eight members from the different partners with a balance between public and private parties[5]. Within the PB the SB&F-PB member is the only individual who maintains contact with the SB. The main partners of the NAHSS are PwC, McKinsey & Company and AkzoNobel and therefore, contact is also held with employees of these companies. Weekly to monthly contact is maintained with McKinsey to discuss the policy regarding the daily tasks. This company offers coaching in the form of personal development of the PB members and the relationships within the Board are reviewed by McKinsey's employees as well. Contact with PwC and AkzoNobel is focused on public relations and human resources issues. Other partners are also part of NAHSS, but their support is limited to financial and/or non-financial contributions. The non-financial contributions of those partners come in the form of in-house days, company visits and workshops.

Figure 1

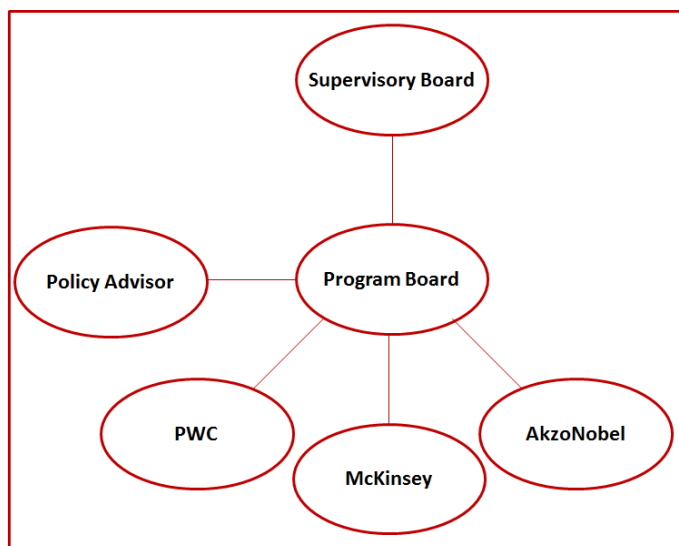[5] Current SB members: M. Oudeman (President Utrecht University), D. van den Berg (President TU Delft), W. Draijer (CEO Rabobank), R. Jones-Bos (Secretary-General of the Ministry of Foreign Affairs), C. Keijzer (Executive Committee AkzoNobel), P. van Mierlo (CEO PwC NL) S. Riedstra (Secretary-General of the Ministry of Infrastructure and the Environment) and P. de Wit (Managing Partner McKinsey & Company Western Europe)

3.7 CHAPTER CONCLUSION

The use of a case study methodology was justified in this chapter. The NAHSS is used as a single-case study in the context of UICs. Data collection and analysis were also discussed. Furthermore, the origin of the UIC is described and in the last part of this chapter the parties in the collaboration and their corresponding roles were introduced.

CHAPTER 4 FINDINGS & DISCUSSION

4.1 INTRODUCTION

In Chapter 3 the methodology used in this study was discussed in order to compare a case with the ideal situation portrayed by model 1 in Chapter 2. The CSFs described in these models will be tested by means of a case study of NAHSS. This chapter describes and discusses the findings of the case.

The chapter is divided into three sections. In the first section an in-depth analysis is provided on the CSFs related to MC Structure which was described in Chapter 2. Furthermore, an additional theme is introduced in the first section. The second section provides an analysis of the CSFs related to MC Process described in Chapter 2. The CSFs influencing trust building by relational signalling, effective communication, mutual objectives and commitment are discussed. At the end of this chapter a conclusion is given to sum up the findings and discussion.

4.2 EVALUATION OF THE CRITICAL SUCCESS FACTORS

CRITICAL SUCCESS FACTORS INFLUENCING MANAGEMENT CONTROL STRUCTURE

The foundation of a stable and durable relationship, as described in Model 1 of Chapter 2, consisted of thin trust and control structures resulting in the creation of a zero-positive situation. The proposed CSFs influencing thin trust were socialization, prior collaborative experience, established communication channels and established routines.

The proposed CSFs were derived from empirical literature on UICs with one public and one private party, and hence this may not be entirely transferable to the structure of NAHSS which involves multiple public and private parties. The factors needed for building a zero-positive situation are only partially present in this study. In the case of NAHSS formal control structures are absent. The commitment of the parties is based on oral affirmation as well as written affirmation in the form of emails. The partners have a high degree of intrinsic motivation and this is paired with the feeling of connectivity to the programme.

The SB&F-PB member notes that this programme has a unique focus compared to other forms of cooperation between academia and industry, for example events organized by study associations. NAHSS is not focused on recruitment, but the long-term goal is to provide talented students with an opportunity to experience the Asian culture.

The SB&F-PB member refers to the type of cooperation and the absence of a contract:

> *"It is a real mind-set and a contract is inappropriate in this cooperation."*

A zero-positive situation is, unlike in IORs and forms of research cooperation, not achieved through means of formal control structures in this case. During the meeting between the high officials of public and private parties when the idea for NAHSS emerged socialization lead to establishment of thin trust.

However, another factor was of great importance to reach understanding of all parties present. Wiebe Draijer (2013) mentions a degree of mutual understanding was established when the idea was brought up. The high officials recognised the need for students to become acquainted with Asian cultures and business for the benefit of strengthening the current and future ties between The Netherlands and Asian countries, with an emphasis on China. The SB&F-PB member states that it is not obligatory to become part of the SB:

"These 8 people are people with very busy agendas. The NAHSS will not cost much time, but the time they make for it is based on goodwill."

ADDITIONAL THEME: COMPLEXITY & CONTROL STRUCTURES

The foundation of the UIC is based on bonds of mutual understanding and socialization, which according to theory is a necessary condition for the creation of a zero-positive situation. However, it is not a sufficient condition as formal control structures have not been established. Theoretically, a zero-positive situation has not been achieved. However, in case of NAHSS the formal control structures have been substituted by informal control structures in which commitment plays a central role in entering a UIC. In NAHSS multiple parties were involved in founding the separate entity which made the nature of the relationship more complex compared to UICs in which one private and one public party enter a relationship. Relational signalling seems to play a role in the building of thin trust once the UIC becomes more complex. Informal control structures are made in the context of relational signalling instead of compensating for mistrust. It does not seem the case in NAHSS that there exist negative behavioural expectations about the future behaviour of the trustee. Within the complex collaboration of NAHSS, bonds of mutual understanding among the variety of partners seem to be of influence to socialization and in turn to thin trust. The complexity of the various partners involved in NAHSS seems to have reduced the need for formal control structures and has substituted these with informal control structures. Commitment has to be signalled at the initiation of the collaboration because this builds thin trust and in turn thick trust can be built to reduce the remaining fundamental uncertainty. The NAHSS case suggests that an increased complexity of parties cooperating reduces the need for formal control structures and increases the need for relational signalling which builds informal control structures with signalling commitment playing a large role. Thus, this case suggests also suggests that relational signalling plays a more important role as the complexity of the UIC increases. It also suggests formal control structures can be substituted with informal control structures.

CRITICAL SUCCESS FACTORS INFLUENCING MANAGEMENT CONTROL PROCESS

A stable and durable relationship can be ensured by building thick trust. In Chapter 2, the lower part of model 1 portrayed an ideal picture in which thick trust is influenced by various themes including commitment, mutual objectives, effective communication and relational signalling. The CSFs affecting these themes will be discussed in this section.

Senior Management Commitment

Thick trust can be built by relational signalling. In NAHSS the SB represents senior management. The SB&F-PB member states that the employees from PwC, AkzoNobel and McKinsey also signal their commitment:

"We experience that the employees who assist us in the daily tasks also enjoy it. Similar to the SB members, the employees also have to make time for us."

However, this did not reveal the direct influence of senior management support of the project on the employees. During conversations with the ambassadors of the programme more insights were gathered on this point. Last year the NAHSS PB held a pitch for the Human Resources department of one of the new partners[6] and they disliked the concept, because of the lack of focus on recruitment. However, the SB asked the company's CEO to review the concept and he gave his support. The employees started supporting the NAHSS due to the CEO's support. Shortly after the SB's request and the CEO's support, the company became one of the recent partners. Even though cooperation would be limited to the financial and non-financial contribution described in Chapter 3, there was shown to be a significant amount of mistrust for which senior management commitment could reduce the risks of entering this UIC. In turn, this senior management commitment signalled trust to the PB.

Prior Collaborative Experience

Prior collaborative experience is not applicable for NAHSS, because annually the PB is re-elected and replaced with a new group of students. The foundation of trust built up from prior experiences of companies working together and its positive influence on thick trust cannot be applied in this case. The programme operates independently of the partner Universities. The SR-PB member notes:

"We need the Universities, but we work independently of each other."

Due to this independence, prior experience working together is inapplicable and the benefits of the CSF are not used to its full potential. The SB members have to build up relationships with PB members every year, because the way they will cooperate will not represent the University's ways.

Discontinuity of Personnel

There is discontinuity of personnel potentially signalling a lack of commitment or aptitude. However, in boards consisting of students this normally occurs. Therefore, in the context of NAHSS this CSF was not necessary for trust building by relational signalling. The SB is open to cooperating with a new group of students every year, for the SB&F-PB member mentions:

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[6] The name is not disclosed due to confidentiality

"In the beginning, meeting the SB members felt weird, but after almost a year the relationship between us grew immensely: I know what to expect and they know what to expect of me. The communication is typically informal."

The SB members deal with the PB's issues on their break and enjoy working on the issues which are financially relatively small. In a short time the SB can make a large impact. Therefore, as mentioned by the SB&F-PB member, the communication between the SB and PB is more informal. Thus, the negative effect of discontinuity of personnel in NAHSS is overcome by an understanding of the SB that the PB members change every year. The informal mode of communication seemingly stimulates effective communication and mutual objectives which will be discussed next.

EFFECTIVE COMMUNICATION

Informal communication has affected thick trust. As mentioned above, the informal communication caused the SB&F-PB member to be sure what to expect of the SB and know what is expected of him. Thus, this relates to the competence trust part of thick trust.

The SB&F-PB member mentions that in the beginning of the board year:

"It was scary to meet the SB members as PB. What are their expectations and how can you live up to it? However, as time goes on the relationship between us rapidly grows."

However, the frequency of meetings between SB and PB members remains quite low (quarterly), allowing for ineffective ways of communication. The SB&F-PB interviewee mentions that direct communication between the PB and SB is limited to policies and issues regarding the content of NAHSS. Moreover, only the SB&F-PB member is appointed to as main contact person of the PB. It is not advised that the other PB members initiate communication with the SB, so there is no room for efficient information flows. Communication does not always directly go to the SB members, but through their secretary with regards to 'deadlines' that the PB would like to have a response. Although informal communication is present between SB and PB members, there is a low frequency of meetings and a lack of social bonds because of the busy agendas of the SB. This leaves room for more effective communication. In the NAHSS this is compensated for by the employees who assist the PB in their daily tasks. The meetings are more frequent, ranging from weekly to monthly. Informal meetings consist of having dinner together.

MUTUAL OBJECTIVES

The goal of NAHSS is to increase Dutch student's interest in Asia. All parties agree upon this goal and the NAHSS has clearly defined the objectives of parties. The SR-PB member states:

"This year the focus of the PB is to work on the organisation of the programme. This is starkly contrasted with previous years in which the focus on internationalisation. So, this year's focus is internally instead of externally."

However, several companies joined NAHSS as a partner solely for the related project. They support the UIC for recruitment purposes. However, they cannot recruit directly because the programme is designed

for second and third year's bachelor students. It is a programme with a long-term perspective. The expectations of some of the non-main partners are not aligned with the long-term goals of NAHSS. Some companies want research to be more company specific instead of sharing it with the entire sector such that the entire sector in the Netherlands can benefit from this research. The PB would like to create more transparency of the research results. However, the SR-PB member mentions:

"Some companies want more out of the projects. We don't mind this, because we need the projects."

This quote shows the dependence of the PB on the non-main partners. NAHSS is financially dependent on funding of companies. The SB could ensure the funding for the near future of the UIC. The durability of NAHSS is signalled to the PB due to the network of the SB which, according to the SB&F-PB member, *"implicitly assures this."*

However, a caveat of this assurance is that the programme has to perform well. The SR-PB member notes tangible outcomes cannot be given in the form of a contract in which the input and output of the relationship is defined. He mentions:

"The programme has an interdisciplinary aspect, because students from all Universities in the Netherlands can join. Therefore, you have to focus on the experience itself instead of immediate returns."

However, the NAHSS does measure performance in terms of indicators which represent the tangible outcomes described in Model 1 in Chapter 2. Firstly, since the start of the programme, the NAHSS has expanded to three other Chinese Universities. Secondly, the amount of partners, public and private, supporting the programme has increased rapidly. A high degree of flexibility with the partners is maintained which enhances the rapid growth. Thirdly, the number of participants has increased rapidly. The SR-PB member mentions: *"the interest of the Universities and students has increased by 70%."* Lastly, the number of alumni who end up studying and/or working in Asia is a performance indicator of the success of the programme. This builds goodwill trust, for the board members state:

SB&F-PB member: *"We are dependent on their goodwill, so we need to show that the programme is performing well"*

SR-PB member: *"That is important to the company. Tangible outcomes should come from the programme's performance"*

The main partners of the UIC and the PB have mutual objectives. The PB knows what is expected of them by the SB members, the strategies are agreed upon quarterly and the main partners provide assistance in the daily tasks of the PB which consist of the short-term objectives. Hence, different expectations are overcome during the board year and objectives for the short-term are agreed upon and clearly defined. The latter CSF is achieved because the UIC operates as a separate entity allowing the PB to take into account the perspectives of all different parties and think of the benefit of the UIC as a whole, without being largely dependent on the interests of Universities. Having tangible outcomes naturally flows from

these mutual objectives and the last two quotes above show that these are important to building thick trust. The SR-PB member discusses the impact of built thick trust:

"Due to this (built trust) we became more open to their views and wishes."

INFORMAL CONTROL

Commitment has been an important form of informal control in the case. It is influenced by the meetings the SB and PB have. The informal environment and communication induces the PB to signal thick trust in both competence and goodwill trust. The SB signals goodwill trust to the PB, because the members of the SB make time in their busy routines for dealing with the issues of the PB. This, in turn, increases the commitment of the PB because the communication becomes more informal, so the relational differences are decreased stimulating commitment.

4.4 DISCUSSION

The NAHSS collaboration has experienced rapid growth. The informal control structures are at the centre of the relationship and complexity reduces the need for formal control structures. Table 2 provides an overview of the findings of the case. The majority of the CSFs was supported or partly supported and four CSFs were not applicable to NAHSS.

TABLE 2 SUMMARY OF EVALUATION OF CRITICAL SUCCESS FACTORS

General Theme	CSF	Supported/not supported	Comments
Thin Trust	Socialization	Supported	Bonds of Mutual Understanding positively influenced socialization during the meeting
	Prior Collaborative Experience	Not Supported	Not applicable to NAHSS
	Established Communication Channels	Not Supported	Not applicable to NAHSS
	Established Routines	Not Supported	Not applicable to NAHSS
Trust building by Relational Signalling	Senior Management Commitment	Supported	
	Prior Collaborative Experience	Not Supported	PB is re-elected annually and operates independently
	Continuity of Personnel	Not Supported	SB acknowledges PB members change annually
Effective Communication	Frequency Meeting	Partly Supported	Low frequency with SB, but compensated for by employees assisting PB
	Social Bonds	Partly Supported	Lack of social bonds between SB and PB, but compensated for by social bonds with employees

Mutual Objectives	Clearly Defined Objectives	Supported	Between SB and PB
	Adjustments of Different Expectations (Separate Entity & Bonds of Mutual Understanding)	Supported	Different expectations are overcome during the board year. PB became more open to views of SB
Outcomes	Having Tangible Outcome	Supported	Performance indicators build thick trust

Thin trust was established in NAHSS due to socialization and the bonds of mutual understanding which promoted the socialization process. The other factors were not related to the creation of thin trust in NAHSS. However, a zero-positive situation was not created. The ideal way to create a zero-positive situation is to incorporate formal control structures as well, because a given MC Structure is needed. If these formal controls are not present then the system designer makes the mistake of not fitting the system to the organization (Anthony, Govindarajan, Hartmann, Kraus, & Nilsson, 2014). Relational signalling plays a large role in providing a solid foundation for developing UICs while complexity of the collaboration reduces the need for formal control. The formal control structures are created in the context of mistrust and informal control structures are created in the context of relational signalling. The NAHSS has long-term goals and according the PB members the UIC could not have existed if formal control structures were put in place. However, this does provide a caveat that the total absence of formal control structures reduces the stability and durability of the relationship. At the time the NAHSS rapid growth diminishes and financial and relational issues arise the SB members can opt out of the relationship, and hence the relationship could end in the same proportions it grew. Contrasting the case with the theoretical ideal, the NAHSS is inherently unstable and non-durable. However, the case did provide insights into how the complexity and the creation of control structures relate in the contracting phase.

It is surprising that thick trust is built, as proposed by the ideal interactions of CSFs as described in Model 1 of Chapter 2, even though a zero-positive situation is absent. For the relational signalling CSFs, the only factor which was not at least partially supported was prior collaborative experience, because the organization of NAHSS operates independently as a separate entity and the PB is re-elected every year. Commitment of the SB is important to NAHSS for convincing new partners to support the programme. Their commitment to this in turn signals trust to the PB. Continuity of Personnel was not supported. In NAHSS there is discontinuity of PB members, but the negative effects of this are compensated for by the understanding of the SB that the PB members are re-elected annually.

Effective Communication was partly achieved, for the frequency of meetings between the SB and PB was low and the social bonds between these boards was lacking. This was compensated for by the contact with the employees from AkzoNobel, McKinsey & Company and PwC. It was also mediated by the informal way of communication between the SB and PB which promotes trust. Communication could be more effective, but due to the low priority of the UIC to the high officials in the SB this was the most practical solution.

The relationship between mutual objectives, outcomes and thick trust was fully supported. The NAHSS has clearly defined objectives and different expectations are adjusted throughout the year. The latter CSF is achieved, because the organization of the NAHSS as a separate entity allows for the PB to think of the UIC as whole and account for multiple perspectives. However, the PB is highly dependent on the SB's network which in turn determines the durability of the UIC. Thus, having tangible outcomes plays an important role in building thick trust. Thick trust in turn results in having mutual objectives, because they promote an open-minded perspective.

Based on this case, in the MC Process mutual objectives, outcomes and thick trust behave similarly to theoretical predictions. However, effective communication is not always present. In NAHSS it is not feasible for the SB to plan frequent meetings and create social bonds, because the SB focuses on the long-term progress of the UIC and the SB on the daily tasks. Therefore, informal communication is present between the SB and PB to alleviate the disadvantages of having a lack of social bonds and a low amount of meetings.

4.5 CHAPTER CONCLUSION

The findings of the study were discussed in this chapter. Model 1, as described in Chapter 2, was evaluated based on the data of the NAHSS case. An additional theme was discussed which emerged from the design of the control structures in the case. The case suggests complexity of the UIC reduces the need for formal control and increase the need for informal control, these control structures are suggested to be substitutive. In the contract phase, thin trust can be established in the context of relational signalling and this seems to play a larger role in a more complex UIC. Contrasting the NAHSS case to theory, the UIC is unstable and non-durable, because there is no given MC Structure, there is an absence of a zero-positive situation. Chapter 5 concludes this research and provides limitations and implications of the study for theory and practice.

CHAPTER 5 CONCLUSION

5.1 CONCLUSION ABOUT THE RESEARCH QUESTION

This paper examined the interaction between trust and control in UICs. Justification of this study was provided by highlighting the need for a dynamic approach in studying UICs (Bstieler, Hemmert, & Barczak, 2015; Hemmert, Bstieler, & Okamuro, 2014). Case study research could provide in-depth insights into how trust and control relate in these collaborations.

Research into the interaction between trust and control exists in an IOR context (Vosselman & Meer-Kooistra, 2009; Minnaar, Veen-Dirks, Vosselman, & Hassan, 2010). However, this interaction perspective has not moved over to a university-academia context. Studies in the UIC literature have focused on CSFs of such a collaboration. These CSFs can help overcome the challenges inherent to UICs which were described in the literature overview of Chapter 2. Therefore, to address this limitation in the literature the insights from the interaction perspective of IORs (Vosselman & Meer-Kooistra, 2009) were combined with the CSFs of the UIC literature. Model 1 unfolded from this synergy of literature insights. The model described how the foundation of a stable and durable can be created, as well as how to contribute to the relationship to turn it into a stable and durable relationship.

A case study of the NAHSS, which was in the first stages of its collaboration, was provided to test the theoretically ideal organisation of a UIC. The case was contrasted with the ideal situation which provided several insights for theory and practice. Chapter 2 gave a theoretical answer to the research question. Using the insights from the case study, the research question will be answered:

How are trust and control interrelated within Management Control Systems in the contract phase of UICs?

A theoretically ideal situation was provided in model 1 which showed that formal control and CSFs such as socialization and established communication channels can produce thin trust. Subsequently, a zero positive situation is created which is the foundation of a stable and durable relationship as well as the given MC Structure. Upon this basis, thick trust can be built and interacts with informal control, also seen as commitment, and is influenced by CSFs which play a role in the MC Process including effective communication, mutual objectives, outcomes and relational signalling. However, the NAHSS case depicts an extreme case and complex UIC in which formal controls were absent and completely replaced by informal control being the signalling of commitment. In light of this complexity, the case suggests relational signalling gains importance and informal and formal control structures can be substituted in order to establish thin trust.

To elaborate, the main findings of the case study relate to the MC Structure. Informal control plays a large role in the NAHSS case. Commitment is signalled during the contract phase which increased thin trust. Control structures were built in the context of relational signalling instead of the context of mistrust, because since the start of the UIC there was a mutual understanding of the long-term goal they would

strive to. In the contract and planning phase of a collaboration trust has to be built. However, for a stable and durable relationship to arise there needs to be a zero-positive situation which requires formal control structures. The case suggests that informal control structures can substitute these formal controls in order to reach a zero-positive situation. An increased complexity of the UIC influences the substitution of formal controls. However, the NAHSS cannot become a stable and durable relationship because during the contract phase because of an absence of formal controls. The case showed that even in the presence of an unstable and non-durable foundation the UIC can still experience rapid growth. This happens when there is an interaction between thick trust and informal control and thick trust being influenced by the CSFs described in Model 1.

On the basis of thin trust and informal control structures thick trust was built. Here too commitment interacted with trust, because the environment and communication between SB and PB members was informal. The majority of CSFs influencing thick trust were at least partially present in the NAHSS. In the MC Process mutual objectives, outcomes and thick trust were shown to relate similarly as suggested by theory. To illustrate, different expectations were adjusted throughout the collaboration, but due to dependency of the PB on the SB tangible outcomes had to presented. The rapid growth and success of this UIC resulted in thick trust which in turn resulted in the PB to become more open to the views of the SB. Other CSFs were not fully supported such as those related to the theme effective communication. Due to the busy agendas of the members of the SB, the NAHSS does not have priority and therefore communication with the PB is restricted to long-term strategic issues. Thus, a lack of social bonds and a low frequency of meetings is present, but this is compensated for by the communication between the PB and employees of PwC, AkzoNobel and McKinsey & Company. The CSF Senior Management Commitment was the only fully supported CSF in the NAHSS case related to relational signalling. The SB could signal their commitment by convincing new partners to support the programme and this in turn built thick trust.

This study has gained insights into the dynamics surrounding trust and control in UICs. This has practical and theoretical implications. Model 1 has been tested and the theoretical implication, based on the suggestions of this case, is that the MC Structure part has to be adjusted and the MC Process part operates similarly in practice. The MC Structure is suggested to be in need of adjustment, because the factor 'complexity of a UIC' plays a role in the creation of a zero-positive situation. When the complexity of a collaboration increases, the formal control structures can be substituted by informal control structures in which commitment is signalled. The practical implications are that the NAHSS will remain inherently unstable and non-durable. This paper implies that during the contract phase a degree of formal control structures had to be created in order to reach a zero-positive situation on which to build thick trust. In practice, it seems that thick trust can be built on an unstable foundation, but this may be explained by the rapid growth and successful performance of the NAHSS. Once the growth diminishes a new UIC may need to be established which will incorporate some degree of formal control structures.

The correct measurement of the concept was secured by using complementing the interview with other sources of evidence. The key participants were provided a draft of the case study report and gave further feedback. In order to prevent possible misunderstandings, Yin (2003) proposed these measures. Confirmation of these key informants increased the internal validity. The reliability is secured by the documentation trails. The questions of semi-structured interview has been provided such that the NAHSS case can be studied repeatedly. As discussed in Chapter 3, external validity is secured by generalizing the findings to theory (Yin, 2003). However, there are limitations to this research which brings us to the following section of this Chapter.

5.2 LIMITATIONS

The limitations of this study are related to the methodology. In the case study of a UIC, the sensitive nature of these collaborations limited the views of other parties besides the PB which stands at the centre of the collaboration. An attempt was made to interview the employees of PwC, McKinsey and AkzoNobel. However, the contact information was not made available to this study. The number of interview participants limits the objectivity of the findings, because these may be biased by the views of the interviewees. Findings would have been more robust if four participants were interviewed. Thus, this case study provides a one-sided view of the UIC. However, the study does provide a reasonable view of the collaboration, because the PB is at the centre of the relationship.

Another limitation is the cross-sectional design, similar to the study of Minnaar et al. (2010) which also looked at the interaction perspective using mainly cross-sectional data. This limits the insights into the dynamics of a relationship. Fortunately, the focus is on the contract phase and the experiences of the PB members are likely to not be greatly influenced by time differences, for they have held the position for less than a year.

The last limitation is that the results are not generalizable to a larger population and doubts can be raised about the objectivity of the methodology. Regardless of how rigorous one strives to be, some researchers may think the case study methodology is highly dubious (Hodkinson & Hodkinson, 2001). Case study research cannot avoid some degree of judgments about the significance of the data.

5.3 DIRECTIONS FOR FUTURE RESEARCH

Fruitful avenues for future research relate to how trust and control interact in different UICs in the Netherlands. The government wishes to invest €110 million in these collaborations and this investment should be made in stable and durable UICs. Hence, the interrelations between trust and control must be uncovered by other cases. Future empiricial research can uncover whether the conceptual model proposed in this study holds as an ideal way to build stable and durable UICs.

Another promising direction for future research is to test this model by using a comparitive case study methodology. Polar cases can uncover new insights including additional themes which could be added to the model. Especially, emphasis should be given on finding polar cases with different forms of complexity of the UIC. A different amount of public and private partners may provide provide more insights into the influence of complexity of a UIC on the given MC Structure and its formal control structures involved.

Furthermore, the findings of this research could be made more representative of a wider population. This extrapolation can be done by means of a quantitive research approach. To what extent the CSFs identified in the conceptual model play a signficant role to the majority of UICs in the Netherlands needs to be researched.

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APPENDIX A: INTERVIEW NAHSS PROGRAM BOARD

Bachelor Thesis Faron Melisse

Research Question: How are management control systems and trust interrelated in the contract phase of University-Industry Collaborations?

Het Program Board is verantwoordelijk voor de dagelijkse uitvoering en beleidsvoering

Ze zijn het aanspreekpunt voor partners en studenten, houden toezicht op de uitvoering van de strategie en bereiden besluiten voor voor het Supervisory Board.

Wat zijn de specifieke taken van de dagelijkse uitvoering en beleidsvoering van het Program Board?

Het bestuur wordt tijdens de uitvoering van de dagelijkse activiteiten ondersteund en geadviseerd door de secretaris van het Supervisory Board.
Kun je concrete voorbeelden geven van deze ondersteuning?

De Netherlands-Asia Honours Summer School is in 2012 opgericht door AkzoNobel, McKinsey& Company, Universiteit Utrecht en de TU Delft.

Vanuit welke organisatie kwam het idee?

Een financiële- en non-financiële bijdrage (bedrijfsbezoek, in-house dag, workshop) wordt van de partners verwacht. De relaties zijn gebaseerd op het gedeelde belang voor zowel de partners als het programma om het uiteindelijke doel van de NAHSS te realiseren: " de toekomstige generatie met eigen ogen de dynamiek van en kansen voor Nederland in Azië laten ervaren."

Hoe verschilt de manier en intensiteit van samenwerking tussen 1) de recentere partners en de Universiteit en 2) de oprichters (AkzoNobel en McKinsey & Company) en Universiteit?

Inhoud samenwerking
Is NAHSS een samenwerking op de lange termijn? Is er een vastgesteld einde aan een contract?

Management Control

Is er een contract dat moet worden nageleefd of is dit enkel in de opstartfase gebruikt? Zo ja, heeft dit gezorgd voor vertrouwen in de partner?

Hoe frequent zijn er meetings tussen de betrokken partijen (Ministeries, Universiteiten, Bedrijven)?

Is er een bepaald beleid voor de omgang met een partner die minder te vertrouwen is?

Hoe lang duurt het voordat je de partners kent?

Wordt het onderzoek van NAHSS gepubliceerd? Zijn er andere doelen vanuit de universiteit en het bedrijf?

Hoe verloopt de communicatie tussen jullie en de bedrijven?

Hoe wordt het contact onderhouden met de Aziatische bedrijven?

Hoe zou je de kwaliteit van de relatie met jullie partners omschrijven? Is er onderscheid te maken in hoe deze kwaliteit verschilt?

Was er al eerder samenwerking tussen de universiteiten en de bedrijven?

Zijn er intellectuele eigendomsrechten verbonden aan de resultaten die NAHSS krijgt met het onderzoek in Azie?

Zou je de relatie als succesvol omschrijven? Welke aspecten zijn voor jullie het belangrijkst in een samenwerking om zo'n samenwerking als succesvol te zien?

Wat zijn jullie korte termijn doelen?

Waren de lange termijn doelen in het begin ook al helder omschreven?

Wordt er performance feedback aan jullie gegeven en op welke manier gebeurt dit?