Managing perceptual distance to enhance project performance in the construction industry

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Managing Perceptual Distance to Enhance Project Performance in the Construction Industry

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Abstract

Companies are increasingly dependent on their enlarging supplier base, which is the result of the increasing competition in the market. To manage these relationships, these companies apply both formal and social control, and collaboration is sought to enhance the performance. However, within buyer-supplier relationships, the partners have their own purposes and behave out of self-interest within the collaboration. Both partners have different backgrounds, espoused values and underlying perceptions which interferes with a proper collaboration. This perceptual distance belongs to the social control aspect of relationships. Perceptual distance causes among others misalignment, conflict, and distrust which adversely affect performance. Consistency in the field of perceptual distance is still lacking, and, as such this study investigates the underlying causes and the effects these differing perceptions have on the collaboration in order to provide business with tools to manage perceptual distance. A framework is developed in which the two variables causing perceptual distance, 'informational complexity' and 'social identity', are addressed with the four categories on which perceptions can differ, namely (1) cognitive issues (objectives and resources), (2) regulations, (3) operations, and (4) norms and values. Subsequently, these four categories merge into the latent variable of perceptual distance which affects project performance. Both qualitative (i.e. interviews) and quantitative (i.e. questionnaires) data has been gathered. Research is done in a dyadic manner, meaning that data is obtained from both partners in the relationship. This enhances the reliability of this research. Ten projects are investigated within two companies. The data that has been gathered proves the existence of perceptual distance on several of the items within the four categories in multiple projects. Furthermore, the presence of perceptual distance influences negatively the project performance while preventive measures do mitigate this effect, although support for these statements were insignificant due to the small sample size. Altogether, perceptual distance does yet receive limited attention from managers, while its presence can have detrimental effect on performance. Therefore, a compact tool has been developed that can be used by practitioners to mitigate and prevent the effect of perceptual distance on performance.

Preface

This thesis paper has been the result of six months of internship within two companies in the construction industry. With a background in architecture a switch to innovation management might not have been the most logical choice. However, the path that I have followed has given me different viewpoints which has been very useful in the execution of this research in this industry. The graduation project has been a very encouraging period in which I saw that the education I have had and the courses that are taught do really matter in practice. For this, I am very thankful to my first supervisor, Arjan van Weele, who has taught me to connect theory to practice in a sense-making and inspiring manner. The support I received was large and the meetings we had always gave me a direction to go for. Furthermore, Josette Gevers has incredibly helped me with the research methodology and data analysis, without whose help this thesis definitely could not have been as it is now.

As well in the companies, the supervisors have supported me in all the activities and communication towards their colleagues and their suppliers. I am very thankful for all the effort this has cost for both. I would like to thank Björn Smeets and Stan van den Thillart for their continuous engagement in my research and bringing in valuable knowledge and ideas to enhance my study. Furthermore, I am thankful for the effort that is put in making me a part of the purchasing team of Woonbedrijf and the company overall for this relatively short period. Thanks to both supervisors there has been no day I did not like to come to the office. I am thankful for all the support I have had from the project teams, project leaders and directors that have ensured my research to come at the desks of their team members and suppliers.

Besides the companies and my supervisors I am very thankful to several others that have made my study period unforgettable. First of all, I thank my girlfriend, parents, brother and sisters for their endless encouragement and support. Especially my father has encouraged me in doing this study, since he did not hesitate to directly apply in his own working field the knowledge from this thesis that I took home. Secondly, as a member of the Christian student association I could developed myself in many ways, especially during my board membership and as a member of the dependent fraternity of this student association. I am thankful to the friends I have made in this association and the skills I could learn with and from them that helped me to develop myself.

Eindhoven, March 25th , 2016

Christian van der Krift

Management Summary

Companies face an enlarging supplier base due to the increasing outsourcing of non-core activities to (specialized) suppliers. The supply chains become more complex as well as the supply base of these companies. To manage these suppliers, companies apply both formal (regulations and contractual obligations) and social control (shared values and cooperative norms). While formal control still receives most attention from buyers, due to its manageable and rational character, social control is assumed to have much effect on performance as well. Both control methods are complementary to each other; therefore, business should pay more attention to social control than is done now.

A part of social control is the expectations that either party has regarding the project and the partner, which is the result of internal (industry- or company-specific) norms regarding cognitive (objectives and resources), regulative, operational, and normative issues. Companies develop and adapt themselves over time to remain in the market and to withstand the increasing competition. The decisions that are made over time, and the development that has gone through create an organizational culture, which contains internal norms. The employees within that culture think, expect and perceive in a specific way. Hence, due to path-dependency of different companies and their different backgrounds, within collaborations representatives of companies are likely to have different expectations and perceptions of the project and (the role of) their partner. This is called 'perceptual distance', what is defined in this study as "*the difference between collaborating partners' perceptions of key issues in their relationship*" based on several prior studies. However, current literature is inconsistent regarding the presence of perceptual distance within buyer-supplier collaborations, although literature is more consistent in the negative effect on performance where present. Therefore, the main question of this research is:

What are the effects of perceptual distance on project performance in buyer-supplier relationships, and, how can this perceptual distance be managed?

This research question needs to be addressed by several sub questions which are answered in this management summary in order to give a comprehensive answer to the research question.

1. *What is perceptual distance and what are the origins of perceptual distance in buyer-supplier relationships?*

This question has already largely been addressed in the above introduction to the research question. Perceptual distance is the extent to which buyer and supplier perceive certain aspects of the collaboration differently from each other. The origin of perceptual distance lies in the institutional background of the company, the internal norms, and in previous experiences with other buyers or suppliers. This defines the expectations of companies regarding the project and partner and the subsequent perceptions (reality as compared to the expectations).

2. *How is perceptual distance measured?*

Perceptual distance needs to be measured dyadically, meaning that data is obtained at both buyer's side and supplier's side. Furthermore, perceptual distance is measured on project-base since the perceptions are as well regarding the specific project and the collaborating partner. Questionnaires have been gathered in which the distance between the buyers' and suppliers' evaluation on the variables within a project can be assessed with several methods, which were found coherent with each other. Eventually, a standardized mean difference method, hedges' *g*, is used as the determinant for perceptual distance, since it accounts for different group sizes and for the standard deviation that is present within both groups. This measure has been modified by taking the natural logarithm in order to alleviate some extreme values that are the result of this method.

3. *Where does perceptual distance exist in buyer-supplier relationships?*

Perceptual distance can occur on four issues in buyer-supplier collaborations, namely the objectives and resources, regulative, operational, and normative. These are divided into twenty-one underlying variables. These variables have been analyzed to discover the most important determinants of project performance. Firstly, several variables were omitted after being found unreliable in the scale reliability analysis. Afterwards, the reliable variables are tested on perceptual distance and several showed little to no perceptual distance within many projects. Lastly, these variables are assessed for their (negative) effect on project performance, since some perceptual distance might be normal in principal-agent collaborations within the construction industry, and therefore do not affect performance. The variables that do not affect performance have no need to be mitigated by preventive measures.

The variables that are found both reliable and did reveal perceptual distance that contribute to project performance are *goal orientation and satisfaction*, *knowledge principal*, *knowledge agent*, *interpersonal skill agent*, *implementation of regulations*, *internal task routines agent*, *process vs. result agent*, *normative vs. pragmatic*, *integrity*, and *organizational responsiveness agent*. Hence, these variables need to be mitigated by means of a tool which can be used by managers.

Since both questionnaires and interviews have been done, several variables that were found unreliable in quantitative analysis revealed perceptual distance in the interviews. Therefore, these variables should not be assumed to have no perceptual distance, or not to contribute to project performance. On the contrary, in future research these should be improved, and examined again to investigate their importance. These variables are *decision making autonomy*, *flexibility*, *openness*, and *information sharing*.

4. *What are the effects of perceptual distance on project performance?*

Perceptual distance is assumed to lead to misaligned processes and activities of the collaborating parties, to misunderstandings, conflicts and distrust. These do negatively affect performance. With both quantitative and qualitative data the negative effect of perceptual distance is largely confirmed. Although the sample is too small to discern a significant relation overall, perceptual distance on several variables is significantly (negatively) correlated to performance indicators and the correlation is as well supported by the interviews. Hence,

perceptual distance does affect performance in a negative manner, enlarging the need for managerial intervention and mitigation.

5. *How can perceptual distance be managed to enhance the performance of the buyer-supplier relationship?*

Having discovered that perceptual distance is present in buyer-supplier collaborations in the construction industry and does have negative effect on performance is insightful. However, managers have little use for this knowledge without any tool, instrument or framework to apply in their collaborations with their partners, be it suppliers or buyers. Therefore, a tool is developed that managers can use in their regular meetings. This tool is a set of recommendations with underlying questions that need to be asked to have a better understanding of each other's perceptions regarding the relationship issues. These recommendations are:

1. Discuss satisfaction on goals
2. Exploit knowledge
3. Clearly mention assumptions
4. Openly discuss deviations a.s.a.p.
5. Discuss expectations and delivery
6. Explain processes

This tool (the recommendations and their underlying questions) should be used regularly in the meetings, and should be prepared. Furthermore, it is important that both parties are given the space to contribute with their perceptions and thoughts.

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Chapter 1 Introduction

§1.1 Current Situation

Over the past decades two major macroeconomic changes can be observed. The first one is the rise of the global market. Thereby, sourcing opportunities have heavily increased for companies, resulting in more competition (Andersen, Christensen, & Damgaard, 2009; Sheth & Sharma, 1997). The second development is the growth of outsourcing activities. Most companies outsource many of their processes which do not belong to their core value proposition. Objectives are to decrease costs and enhance competitive position (Nyaga, Whipple, & Lynch, 2010; Sheth & Sharma, 1997). As a result, companies do have a large, and more diverse supplier base these days.

To manage these suppliers both formal and social control are applied. Formal control refers to the contractual obligations and rules that define the behavior and actions being expected in the relationships. Social control refers to the shared values and cooperative norms that are present in relationships and to the atmosphere in which trust that the business partners have in each other plays a significant role to enhance the interests and alignment of the partners (Huang, Cheng, & Tseng, 2014). Many companies still rely on the formal control due to its manageable and rational character. However, due to the increasing dependence on their suppliers companies will benefit of social control in their supplier relationships (Morris & Carter, 2005).

Companies develop, learn and adapt themselves over time to withstand competition. This process creates an organizational culture consisting of patterns of assumptions. Due to their specific institutional contexts and background, representatives are likely to have different attitudes, values and beliefs (Nahm, Vonderembse, & Koufteros, 2004; Polychronakis & Syntetos, 2007). This results in differences in views on, expectations and perceptions of their business partner and the collaborative projects worked on. Throughout the paper, these dissimilarities will be referred to as "*perceptual distance*" which is defined as "*the difference between collaborating partners' perceptions of key issues in their relationship*" following the descriptions given by Barnes, Naudé, and Michell (2007), Oosterhuis, Molleman, and Van der Vaart (2013), and Gibson, Cooper, and Conger (2009).

Whenever perceptual distance is present in a buyer-supplier relationship it might cause a misalignment of activities and goals which leads to an increase of costs (Andersen, et al., 2009; Stephen & Coote, 2007), conflict, and decrease of commitment and trust (Kim, Park, Ryoo, & Park, 2010; Lavie, Haunschild, & Khanna, 2012; Oosterhuis, et al., 2013; Pothukuchi, Damanpour, Choi, Chen, & Park, 2002). These issues have detrimental effect on project performance.

§1.2 Problem Statement

As stated in the previous paragraph, managers have currently the tendency to focus on formal control instead of social control in managing their relationships; while the two control mechanisms are found complementary to each other (Huang, et al., 2014). In other words,

the usefulness of formal control is limited by the extent to which social control is well applied. Social control should therefore be better understood in practice. Due to their different background, organizations (i.e. their employees) are likely to have different perceptions of the project and their partner. This perceptual distance will negatively influence performance, making it a problematic, managerial matter.

Furthermore, current research is inconsistent regarding the presence of perceptual distance in relationships (Oosterhuis, et al., 2013). Where some studies show that perceptual distance is not present in buyer-supplier relationships (e.g. Barnes, et al., 2007; Nyaga, et al., 2010), others show that there are differences in perceptions and expectations (e.g. Hald, Cordón, & Vollmann, 2009; Oosterhuis, et al., 2013; Sjoerdsma & Van Weele, 2014). However, several limitations of these studies constrain the reliability and interpretability of the results. Generally, authors do agree that, whenever present, perceptual distance is likely to have a negative effect on performance (Andersen, et al., 2009; Homburg & Jensen, 2007).

According to Nyaga, et al. (2010) and Barnes, et al. (2007), perceptions of buyers and suppliers tend to be rather similar. However, in both studies specific sampling methods are used. Nyaga et al. (2010) used independent buyer and supplier samples which could balance out interesting perceptual distance in specific buyer-supplier relationships. Research on matched dyads would therefore be an improvement (Nyaga, et al., 2010). Barnes et al. (2007) used snowball-sampling in which three buyers with different relationships terms are selected. This method may lead to biased results since positive relationships are more likely to occur in this snowball sampling (Zaheer, McEvily, & Perrone, 1998). Therefore, the results of these studies are less reliable than the results of the studies that do reveal perceptual differences, such as the study of Oosterhuis et al. (2013) that does follow the recommendations of Zaheer et al. (1998).

According to Oosterhuis et al. (2013) previous research assumed the buyer and supplier in a relationship to have the same perceptions. However, in their study they show that differences do exist between partners towards several supply chain attributes. Furthermore, they mention that these differences can destabilize the relationship, lead to lower trust and commitment, and subsequently, can have important implications for both parties. Affirmatively, Homburg and Jensen (2007) stated that differences in "*thought worlds*" between teams hamper performance. In several case studies performed by Sjoerdsma and Van Weele (2014) differences in the perceptions of buyers and suppliers have been observed, and if present, these differences tended to negatively affect the relationship outcomes (e.g. quality and timing issues, satisfaction of parties) as well.

Concluding, although perceptual distance is a phenomenon and part of social control present in buyer-supplier relationships that needs to be controlled, organizations prefer to spend their attention on formal control. Meanwhile, literature is inconsistent regarding the presence of perceptual distance between buyers and suppliers. Hence, practitioners are facing a problem that yet has not fully been researched and solved by academics.

§1.3 Research Question

Given that (1) perceptual distance is likely to occur in buyer-supplier relationships, and (2) perceptual distance does have impact on relationship outcome(s), research on the effects of perceptual distance will be valuable. In literature, research on the effects of perceptual

distance on project performance is limited. This leads to the following main question for this thesis:

What are the effects of perceptual distance on project performance in buyer-supplier relationships, and, how can this perceptual distance be managed?

The following sub questions need to be answered to come to a holistic answer to this main question:

1. *What is perceptual distance and what are the origins of perceptual distance in buyer-supplier relationships?*
2. *How is perceptual distance measured?*
3. *Where does perceptual distance exist in buyer-supplier relationships?*
4. *What are the effects of perceptual distance on project performance?*
5. *How can perceptual distance be managed to enhance the performance of the buyer-supplier relationship?*

With these questions as a starting point, in the next chapter a literature review is done. The literature review aims to answer the first sub-question and to provide a basis for the third and fourth question in this thesis in the form of a conceptual framework. This conceptual framework is tested by the data that is gathered for this thesis in order to give a proper answer to the third and fourth question. The methodology for data collection and measurement is discussed in Chapter 3 and aims to answer the second sub-question.

§1.4 Scope Definition

This master thesis will be performed within two companies in the construction industry, namely Dura Vermeer and Woonbedrijf. Within these companies, ten projects will be studied. These projects are described in Appendix A.

Dura Vermeer is a construction company which exists for more than 160 years and had a yearly revenue of 1.0 billion euro's in 2014 (Dura Vermeer Groep NV, 2015). Dura Vermeer has projects in among others construction, infrastructure, engineering, and services. The clients of Dura Vermeer usually provide them with the full risk and responsibility of the entire project, in which Dura Vermeer largely outsources to and cooperates with partners and subcontractors. Dura Vermeer calls itself a relational-focused company with the mission of building trend-setting projects characterized by continuity, sustainability and innovativeness in an open, honest, and customer-friendly way (Dura Vermeer, n.d.).

Woonbedrijf is the result of a merger in 2005 of two housing associations which both did exist for almost a century before. The association possesses 31,196 houses and the yearly revenue generated from renting was 182.0 million euro's in 2014 (Stichting Woonbedrijf SWS.Hhvl, 2015). Their mission is to deliver payable rental houses with a good quality. In order to execute their mission in the future, they believe sustainability is part of their responsibility as the largest housing association in the region of Eindhoven (Woonbedrijf, n.d.).

The construction industry is an industry in which a project-based approach is dominant. This results in less collaboration in supply chains, because the project duration is usually seen as the relationship term. Construction projects can become very complex (especially to

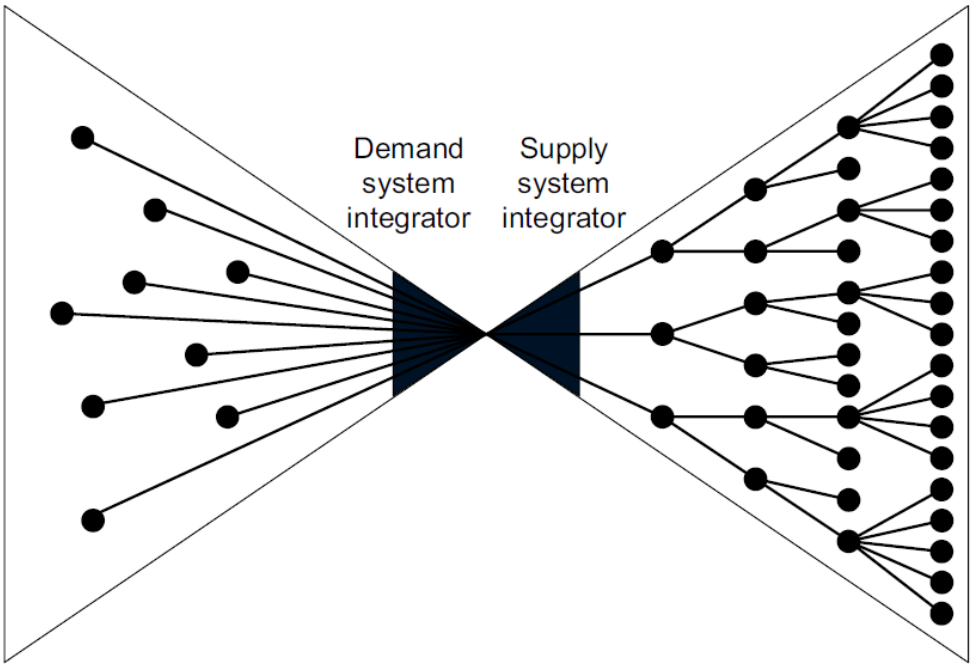

***Figure 1.1*. The demand and the supply system in the construction industry. Reprinted from "Supply chain integration for achieving best value for construction clients: client-driven versus supplier-driven integration" by Vrijhoef, R., & De Ridder, H., 2005, *Proceedings QUT Research Week. July 4-6.* Brisbane: Queensland University of Technology. Copyright by R. Vrijhoef by Researchgate. Reprinted with permission.**

coordinate) as more parties get involved (Segerstedt & Olofsson, 2010; Vrijhoef & De Ridder, 2005). In case of large construction projects, many parties will be involved with different interests and views. Furthermore, the construction companies largely operate locally (Segerstedt & Olofsson, 2010). The demand and supply system in the construction industry is illustrated in *Figure 1.1*.

In this figure, the demand system integrator would be the principal which is for instance a housing association or regional or local governmental department. The supply system integrator usually is a contractor (agent), which will again assign a great part (approximately 75%) of the project to subcontractors, engineers, architects, suppliers, etcetera (Segerstedt & Olofsson, 2010). The contractor is very dependent in the result and completion of the project on the subcontractors due to their specific expertise (Stephen & Coote, 2007). In relation to these subcontractors, the contractor is seen as the principal and the subcontractor as the agent. The two companies that have been selected for this study, Woonbedrijf (housing association) and Dura Vermeer (contractor), are respectively a demand system integrator and a supply system integrator.

§1.5 Deliverables

A proper understanding of the mechanisms underlying perceptual distance will be useful for managing the perceptual distance that is present within buyer-supplier relationships. As soon as companies are able to manage this perceptual distance, its negative effect on performance is controlled as well. Hence, the aim of this research is twofold: firstly, the study aims to investigate the phenomenon of perceptual distance; secondly, the study aims to provide practice with useful and clear directions and tools to manage perceptual distance in order to enhance performance. The study has both a theoretical and a practical objective. In this master thesis, a conceptual framework will be proposed based on a thorough literature review. This framework is tested with data gathered from the two companies mentioned before. This results in a reviewed framework as one of the deliverables of this thesis. This reviewed framework can be used as the starting point for future research. Secondly, the study makes some recommendations which are based on information that is derived from the questionnaires and interview but are not directly related to perceptual distance. Lastly, the author aims to develop an instrument that can be used by practitioners to assess perceptual distance and prevent perceptual distance from having major effects on project performance.

§1.6 Conclusion

In this chapter, the problem of perceptual distance is elaborated upon which results in a research question and five subquestions. The scope of this research is defined as the construction industry, specifically two companies: a housing assocation and a contractor in the Netherlands. Furthermore, the deliverables of this study are specified, addressing both a theoretical and practical objective. Predominantly, the study aims to deliver a tested theoretical framework on perceptual distance, and an instrument that can be used by practitioners to prevent perceptual distance from having detrimental effects on performance.

The research question stated will be partially adressed through a literature review, and theoretical and subsequent conceptual framework in Chapter 2. The methodology, data collection and procedures are discussed in Chapter 3. In Chapter 4, the analysis of the data

and its results are presented and discussed. The instrument that is developed for managerial purposes is proposed and discussed in Chapter 5. Lastly, in 0 the conclusion is drawn, and managerial and theoretical recommendations are made.

Chapter 2 Literature Review

§2.1 Introduction

In the previous chapter, the research question has been introduced based on a managerial problem that is currently present within buyer-supplier relationships but has yet been limitedly researched by academics. In order to answer the main question of this master thesis, a theoretical basis needs to be built by means of a literature review. In this chapter the author briefly elaborates upon the literature and valuable theories that form the basis of a conceptual framework that is described at the end of this chapter.

As is mentioned in Chapter 1, the theoretical basis of this thesis should answer the first sub-question of this thesis and provide a basis for the third and fourth question. This implies that this chapter elaborates upon (1) the origins of perceptual distance, (2) the aspects of the relationship on which it can be expected, and (3) the effect of perceptual distance on performance.

§2.2 Methodology

Literature is sought in the fields of human performance, inter-organizational relationships (specifically buyer-supplier relationships), and organizational culture. Within these fields is sought for keywords such as *perceptions*, *expectations*, *norms*, *governance*, *control*, *behavior*, *performance* (*measurement*), *collaboration*, and *supply chains*. To enhance the reliability and quality of this research project, articles have mainly (but not exclusively) been sought in high-quality journals such as *Academy of Management Review*, *Journal of Supply Chain Management*, *Organization Science*, *Strategic Management Journal*, *Journal of Applied Psychology*, *American Psychologist*, *Journal of Marketing*, and *Journal of Operations Management*. From the articles that are found, the bibliographies are used to find other interesting readings related to the topic of this research project.

§2.3 Literature Review

Relationships with supply chain partners are governed via both formal (contractual) control and social (relational) control (Huang, et al., 2014; Nyaga, et al., 2010; Stephen & Coote, 2007; Wallenburg & Schäffler, 2014). Formal control refers to the contractual obligations and rules that define the behaviour and actions being expected in the relationships. Social control refers to the shared values and cooperative norms that are present in relationships and to the atmosphere in which trust that the business partners have in each other plays a significant role to enhance the interests and alignment of the partners (Huang, et al., 2014). The appropriateness of social control and formal control differs over the phases of the relationship (Jap & Ganesan, 2000; Wallenburg & Schäffler, 2014). Recently, Huang et al. (2014) proved both types of control to be complementary to each other and, therefore, should be well-balanced in companies.

Due to the increasing dependence of companies on their suppliers, companies will reap benefits of the social control of these suppliers (Morris & Carter, 2005; Kim, et al., 2010). The

focus on the social control of a relationship has partially replaced the contractual/formal approach towards relationships (Sheth & Sharma, 1997; Heide & John, 1990) giving prominence to issues of collaboration and cooperation (Terpend, Tyler, Krause, & Handfield, 2008). Relational focused, cooperative buyer-supplier relationships have a positive influence on the performance of both firms in the relationship (Morris & Carter, 2005; Nyaga, et al., 2010; O'Toole & Donaldson, 2002; Sheth & Sharma, 1997; Shin, Collier, & Wilson, 2000).

One aspect of social control is the expectations that firms have about behavior in the relationship (Heide & John, 1992; Cai & Yang, 2008) and expectations about the intention to cooperate in order to achieve mutual goals (Cai & Yang, 2008). Andersen et al. (2009) make a distinction of domains to which expectations can differ. Differences in expectations are the result of differences in attitude towards (1) regulative issues, (2) normative issues, and (3) cognitive issues. Internalized norms on these issues form the basis of an institutional context and they are present before the relationship between buyer and supplier. Inter-institutional differences in these internalized norms form the distance in expectations towards communication, role specification, coordination, planning, and trust. Diverging expectations towards these three types of issues negatively affect the relationship performance (Andersen, et al., 2009). Since organizational cultures elucidates to a large extent these inter-institutional differences in norms (Schein, 1990) and is a highly important influence on buyer-supplier relationships (Polychronakis & Syntetos, 2007) the subsequent paragraphs are dedicated to organizational culture to come to an understanding of the underlying mechanisms.

Organizational culture can be divided into three different layers, namely: (1) "*artifacts*", which are the "*visible organizational structures and processes*", (2) "*espoused values*", which consist of "*strategies, goals, and philosophies*", and (3) "*basic underlying assumptions*", referring to "*unconscious, taken-for-granted beliefs, perceptions, thoughts, and feelings*" (Polychronakis & Syntetos, 2007, p. 433; Schein, 1990). Hence, the deepest level of organizational culture consists of perceptions. In order to adapt as an organization, leaders should focus on the deepest level to change according to Schein, because this is the fundament of the others (Polychronakis & Syntetos, 2007).

Organizations learn and develop themselves by adaptation to survive in the environment and by integrating this internally, which is a behavioral, cognitive, and an emotional process (Schein, 1990). This learning and developing creates an organizational culture which consists of patterns of assumptions that have proven themselves. Subsequently, these patterns are shared and transmitted to new people entering the organization. Therefore, people in an organization perceive, think, and react similarly to problems observed. However, in a buyer-supplier relationship the partners have their specific institutional context (market characteristics, cultural background) (Andersen, et al., 2009; Pothukuchi, et al., 2002), characteristics (e.g. company age, company size, market share), interests (Pothukuchi, et al., 2002), orientation (Boisot & Li, 2005), and routines (Lavie, et al., 2012).

Consequently, the attitudes, values, beliefs and perceptions of an organization can differ from those of other organizations in the market and supply chain such as suppliers and customers (Nahm, et al., 2004) as indicated by Polychronakis and Syntetos (2007, p. 442) stating that "*the mismatch and the absence of strategic fit remind us that organizations simply have different purposes and raisons d'etré* [sic]". Organizations have their own path-dependent memories and knowledge which leads them to handle information differently (Boisot & Li, 2005; Oosterhuis, et al., 2013). Concluding, partners can have different

expectations for and perceptions of the relationships (Andersen, et al., 2009; Boisot & Li, 2005, Lavie, et al., 2012; Pothukuchi, et al., 2002); i.e. perceptual distance can be present in relationships.

Perceptual distance will cause misaligned processes, misunderstandings, conflicts, and distrust (Lavie, et al., 2012; Pothukuchi, et al., 2002). Correspondingly, although more briefly, agency theory discusses self-interest underlying the actions of both principal and agent and the (partial) incongruence of goals which are the causes of moral hazard and adverse selection as major problems in principal-agent dyads such as buyer-supplier relationships (Eisenhardt, 1989; Wiseman, Cuevas-Rodríguez, & Gomez-Mejia, 2012).

Some illustrations of perceptual distance in buyer-supplier relationships can be found in the article written by Sjoerdsma and Van Weele (2014, pp. 8-10), among which the following example:

> *Alpha experienced the relationship with Supplier as troublesome; as opposed to Supplier who found that they had a good relationship with Alpha. The interviewees on the Alpha team found that there was not much of a relationship with Supplier.* […] *Overall, both parties are not satisfied with the final result. The project took too long to complete and even though the product has been released in the market there are still a lot of quality-issues to be resolved.*

The difficulties that the Supplier and Alpha faced were related to communication, trust, information exchange, the preference for either formal or social control, and flexibility. On these aspects the parties had perceptual differences.

Furthermore, two theories that investigate perceptual distance more specifically are social perceptual theory (Allport, 1955; Gibson, et al., 2009) and social capital theory (Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013). Both theories approve perceptual distance to be determined by two characteristics of a relationship. One refers to the informational complexity of the relationships and the other to social identity within the relationship. With informational complexity is referred to the diversity in language and perspectives in between organizations and to the willingness to share information (Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013). With social identity is referred to the differences in values and norms between the firms and the resulting comparative behavior within the groups of both firms leading to distance in buyer-supplier relationships (Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013). This is in accordance with Allport (1955, p. 367) who has stated that: "*the members of each group or society will perceive under their proper norms quite differently from other groups*". Perceptual distance is the largest in case that both aspects are present. Correspondingly, Homburg and Jensen (2007) state that information asymmetry and social differences have a negative effect on cooperation quality.

In addition to the cognitive, normative, and regulative issues in the relationships, operational differences in routines are regularly mentioned in literature (e.g. Boisot & Li, 2005; Lavie, et al, 2012; Nyaga, et al., 2010; Pothukuchi, et al., 2002). These four form together the categories that address both aspects causing perceptual distance which are informational complexity and social identity. In literature, several issues in relationships have been mentioned in connection with differing perceptions, expectations, and backgrounds of

one or both of the parties. Many, if not all, of these issues can be allocated to the four categories. Some of the examples are goal orientation and accomplishment (Gibson, et al., 2009; Homburg & Jensen, 2007; Oosterhuis, et al., 2013), time orientation (Homburg & Jensen, 2007), conflict (Gibson, et al., 2009; Oosterhuis, et al., 2013), decision-making autonomy (Gibson, et al., 2009; Polychronakis & Syntetos, 2007), competences (Homburg & Jensen, 2007), nature and implementation of rules (Andersen, et al., 2009), internal task routines and marketing routines (Lavie, et al., 2012), communication, goal achievement, power structures, task- or people orientation, and pragmatism (Pothukuchi, et al., 2002), solidarity and flexibility (Heide & John, 1992; Jap & Ganesan, 2000), dedicated investments (Barnes, et al., 2007; Nyaga, et al., 2010), information sharing (Barnes, et al., 2007; Heide & John, 1992; Nyaga, et al., 2010), openness (Pothukuchi, et al., 2002), organizational responsiveness (Lavie, et al., 2012), shared values (Andersen, et al., 2009; Barnes, et al., 2007; Lavie, et al., 2012), and trust (Andersen, et al, 2009; Barnes, et al., 2007; Lavie, et al., 2012; Nyaga, et al., 2010).

Concluding, expectations and perceptions are part of the social control that is applied in relationships. Expectations and perceptions are the result of internalized norms regarded to cognitive, regulative, operational, and normative issues. Differences in these internalized norms are largely ascribed to different organizational, cultural backgrounds. Organizations do have different attitudes, beliefs, and perceptions due to their path-dependent development. Perceptual distance occurs as a result of both informational complexity and social identity in the relationship. Since the deepest layer of organizational culture consists of perceptions, perceptual distance is an important target to adapt and enhance businesses (Polychronakis & Syntetos, 2007; Schein, 1990). Given that organizations are likely to behave out of self-interest and that interests (attitudes, beliefs, and perceptions) differ, perceptual distance may work contentiously in the relationship and be adverse for performance. A large set of relationship issues have been found on which perceptions can differ. These issues found together the four categories described (cognitive, regulative, operational, and normative).

§2.4 Theoretical Framework

As is elaborated upon in the previous paragraph, the thesis builds on several theories that shape the stance of literature on (or related to) perceptual distance and buyer-supplier relationships. To build on these theories supports the theoretical adequacy of the study (Shrivastava, 1987). Correspondingly, Terpend et al. (2008) have advised for future research to simultaneously apply multiple, complementary theory sets as theoretical basis for research. So far, in literature multiple theory sets have been used, such as agency theory (e.g. Hald, et al., 2009; Oosterhuis, et al., 2013), transaction cost economics (Cai & Yang, 2008; Kim, et al., 2010), resource dependency theory (Cai & Yang, 2008; Kim, et al., 2010), social contract theory (e.g. Wallenburg & Schäffler, 2014), social exchange theory (e.g. Hald, et al., 2009; Morris & Carter, 2005), social perceptual theory (e.g. Gibson, et al., 2009), social capital theory (e.g. Kim, et al., 2010; Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013), and theory of organizational culture (Lavie, et al., 2012; Polychronakis & Syntetos, 2007; Pothukuchi, et al., 2002).

Buyer-supplier relationships are seen as agency relationships (Stephen & Coote, 2007; Bergen, Dutta, & Walker Jr, 1992). Therefore, agency theory is used as basis for the thesis. In this relationship the buyer is mostly seen as the principal, and the supplier as the agent (Hald,

Cordón, & Vollmann, 2009). In principal-agent relationships the principle relies on the behavior of the agent that needs to be in accordance with the desires of the principal, who gives incentives in return. The behavior of the agent is (usually) limitedly visible to the principal (Mackintosh, 2001; Perloff, 2003). This gives rise to opportunistic behavior such as moral hazard and adverse selection. In adverse selection an informed principal/agent does not reveal "*unobserved characteristics*" of itself. In moral hazard the informed principal/agent takes advantage of the other via "*unobserved action*" (Perloff, 2003, pp. 659-660). The basis for both types of opportunistic behavior is found in the presence of asymmetric information, which is one of the two causes of perceptual distance in a business-to-business relationship.

In addition, in research on buyer-supplier relationships social capital theory is regularly used, especially to address the social aspects of the relationship that are present (e.g. Roden & Lawson, 2014; Carey, Lawson, & Krause, 2011; Villena, Revilla, & Choi, 2011; Wagner, 2011). This theory is also used by Oosterhuis et al. (2013) for the development of understanding of perceptual distance within the relationship. Therefore, social capital theory is a promising theory related to both buyer-supplier relationships and perceptual distance. According to Häuberer (2011, p. 148) social capital can be described as "*a resource embedded in social relationships*". In social capital theory the actors are individuals or organizations purposefully acting with the use of resources. This acting happens within a network of relationships among individuals or organizations. Depending on the characteristics of the individual or organization, the access to social capital differs.

Concluding, by using these theories both informational complexity and social identity are addressed. These two variables are supposed to form the basis of perceptual distance in buyer-supplier relationships.

§2.5 Conceptual Framework

In the literature review is found that perceptual distance can be expected regarding several relationship issues. These relationship issues have been divided into four categories. Three of these are based upon the research of Andersen et al. (2009) i.e. (1) objectives and resources, (2) regulations, and (3) norms and values. One category is added, since it appeared to be an important organizational factor for performance that could not be ranked among the other three categories, i.e. operations. Hence, perceptual distance is a latent variable based upon differences on the four categories discussed before. Furthermore, from the literature has been concluded that perceptual distance does influence project performance.

Since the literature revealed that informational complexity and social identity are the variables that cause perceptual distance, these four categories need to address both variables. With informational complexity is referred to the diversity in language and perspectives in between organizations and to the willingness to share information (Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013). With social identity is referred to the differences in values and norms between the firms and the resulting comparative behavior within the groups of both firms leading to distance in buyer-supplier relationships (Nahapiet & Ghoshal, 1998; Oosterhuis, et al., 2013). The categories 'objectives and resources', and 'regulations' are seen as main contributors to informational complexity, because of the differences in perspectives and language it causes. The categories 'operations' and 'norms and values' are seen as main contributors of social identity, because in case of differences on these issues the

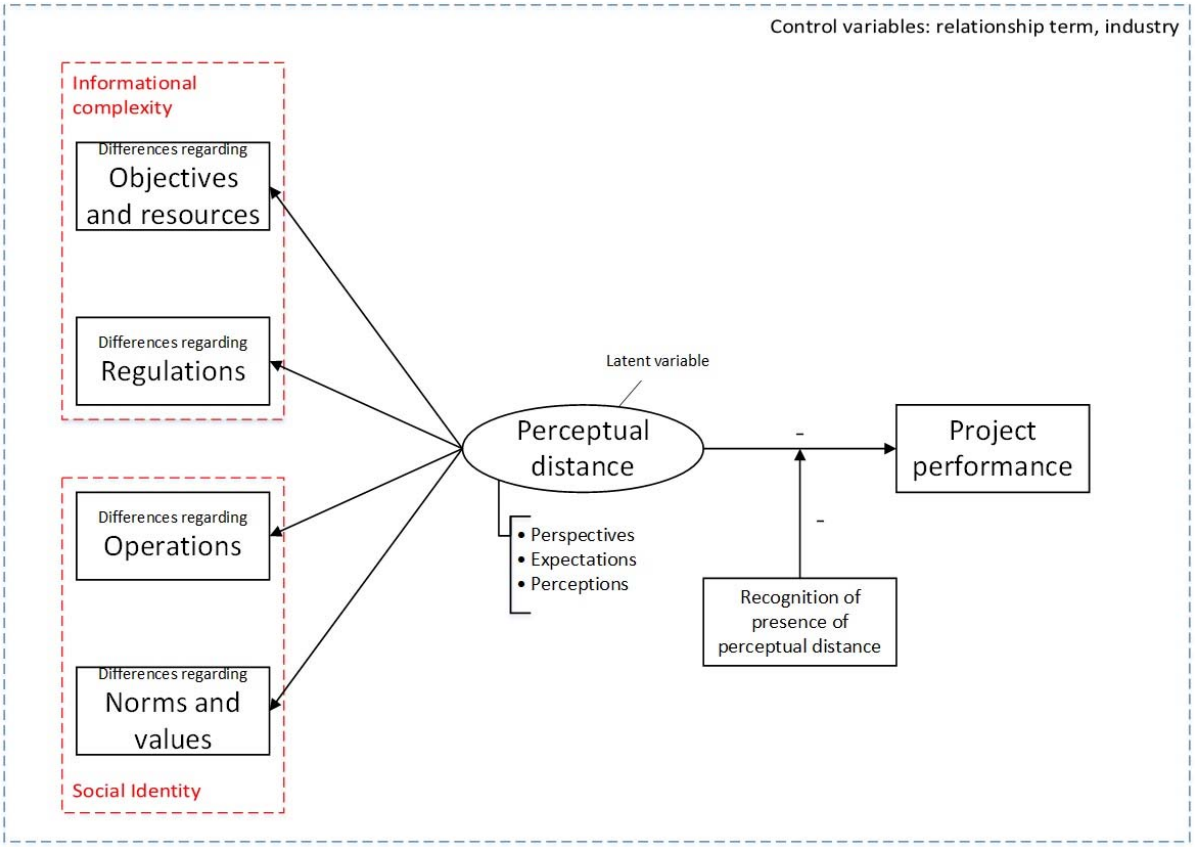

***Figure 2.1*. The conceptual framework of this thesis.**

teams of the separate firms create a group identity which is compared to the group of the other firm (Oosterhuis, et al., 2013).

In the research of Lavie et al. (2012) was shown that the recognition of organizational differences moderates the relationship between these differences and performance. Similarly is expected that the recognition of presence of perceptual distance, and use of preventive measures, will reduce the effect of it on cooperative performance. Variables that will be controlled for in the overall model are relationships term (Barnes, et al., 2007; Cai & Yang, 2008) and industry (Kim, et al., 2010; Pothukuchi, et al., 2002; Stephen & Coote, 2007) since these are regularly mentioned as potential variables in the model. The conceptual framework that is developed, can be seen in *Figure 2.1*.

§2.6 Conclusion

In this chapter is described that perceptual distance is the result of two variables in buyer-supplier relationships, namely informational complexity and social identity. From literature several relationship issues on which perceptions potentially differ are derived. These issues have been categorized, resulting in four constructs for the conceptual framework, namely: (1) objectives and resources, (2) regulations, (3) operations, and (4) norms and values. The four constructs address together both variables, informational complexity and social identity, causing perceptual distance. Hence, perceptual distance is a latent variable resulting from distance between the buyer and supplier existing on each of these four constructs. Subsequently, perceptual distance does have a negative effect on project performance, which is moderated by the recognition and prevention of perceptual distance in the collaboration.

The thesis builds upon two valuable and common theories. Firstly, agency theory is used to address the information aspect, and conflict of interest in buyer-supplier relationships. Secondly, social capital theory is used to address the social identity factor of perceptual distance.

Chapter 3 Methodology

§3.1 Introduction

In the introduction the scope of this thesis has been defined. The scope is the construction industry, in which collaboration is sought with two companies: a housing association and a contractor in the Netherlands. This chapter elaborates upon the methodologies currently applied in literature on (or related to) perceptual distance, what methods are found appropriate for the character of this thesis, and as a result the research design for this thesis. Furthermore, data collection and measurement procedure is discussed.

Overall, this chapter describes how perceptual distance as deduced from literature in Chapter 2 is measured and therewith aims to answer the second sub-question based on literature.

§3.2 Research Design

In the literature review, two aspects regarding the research design were regularly mentioned. The first aspect considers the exploratory character of this study, since the subject of study has so far been limitedly researched. For this exploratory character, the case study is a very suitable method. This is especially true for the development of new theory (Voss, Tsikriktsis, & Frohlich, 2002), which will be done in this master thesis. This case study will provide us with insight into the context and the underlying mechanisms of perceptual distance (Lin, 1998). Furthermore, case studies are believed to be able to found a grounded theory that is both relevant and useful (Numagami, 1998).

The second aspect considers the bilateralism of buyer-supplier relationships. Especially since differences in perceptions are addressed, both parties should be involved in the collection of data. Dyadic research is preferred over research focusing on either side (Barnes, et al., 2007; Huang, et al., 2014; Kim, et al., 2010; Oosterhuis, et al., 2013), though dyadic research is seen as more complex (Barnes, et al., 2007; Tse & Ashkanasy, 2015). Dyadic research considers "*the relationship between a single supplier and a single buyer*" (Cousins, et al., 2008, p. 23) and is therefore focused on the relationship instead of a partner as independent entity. These dyads are again part of a chain of interrelationships between suppliers and buyers as is illustrated in *Figure 1.1*. Research on paired dyads can reveal more aspects (Nyaga, et al., 2010), while research on just one side of the dyad is "*conceptually and statistically deficient*" (Tse & Ashkanasy, 2015, p. 1177). Therefore, the methodology in this master thesis is different from most of the studies in literature concerning perceptual distance.

§3.3 Case Selection

Within each of the two companies described in Chapter 1, five projects have been investigated, eventually to examine the presence of perceptual distance between principal and contractor, or contractor and subcontractor. These projects are randomly selected in conversation with the respective company mentor. The projects had at least the following

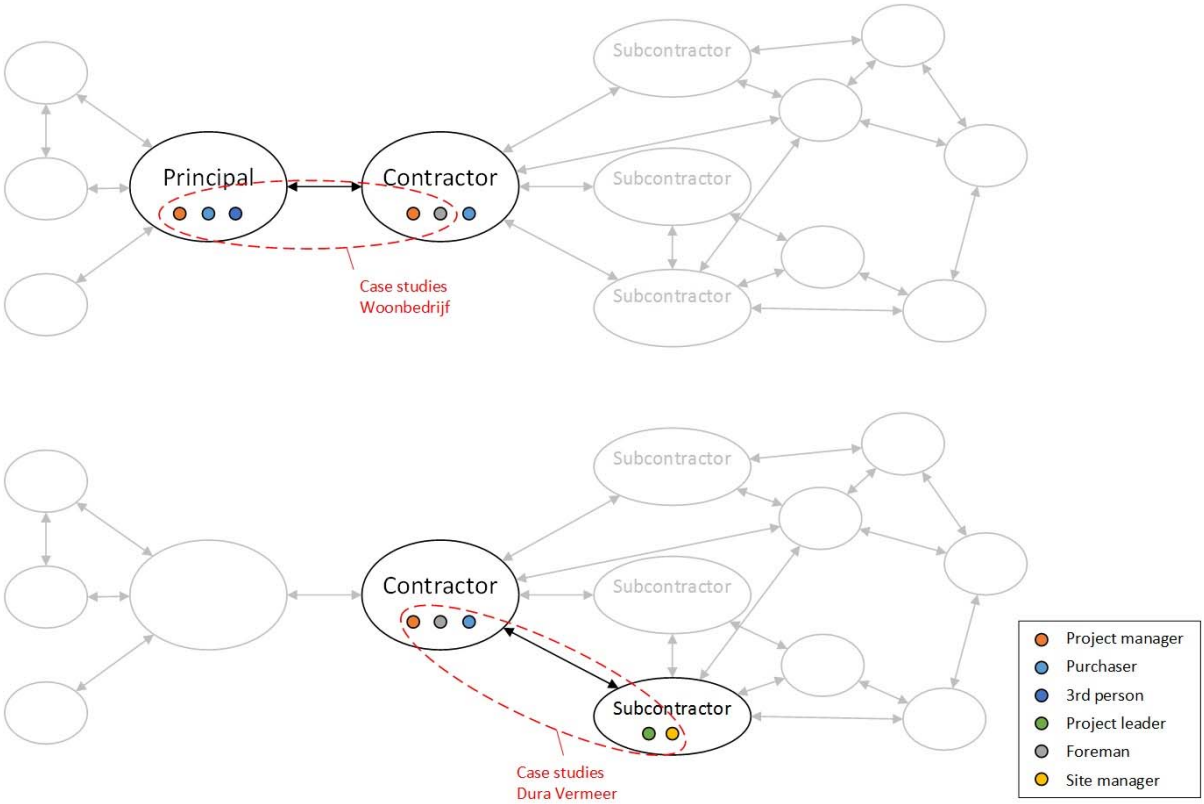

***Figure 3.1*. The unit of measurement in the case studies for Woonbedrijf (above) and Dura Vermeer (below).**

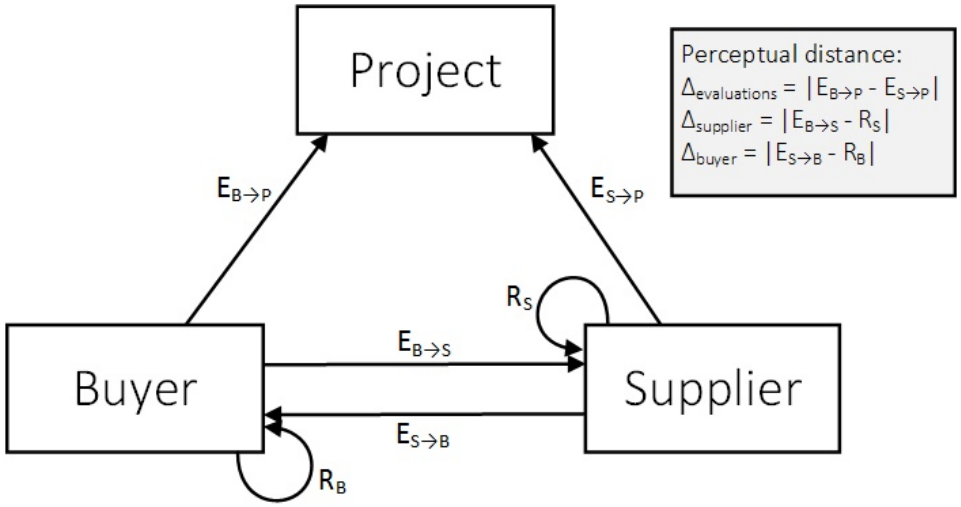

***Figure 3.2*. The design for the derivation of perceptual distance from the questionnaires in this study.**

preconditions, namely: (1) the project has progressed far enough to be able to evaluate and to give somehow a value judgment regarding the performance, (2) the project is completed maximally half a year ago to still have the main accomplishments and struggles in mind, (3) the project is of importance to the company, (4) within the project business-critical (sub)contractors can be identified to be researched.

Per project five interviews were intended in combination with ten questionnaires. Higher management, project leaders with a good overview on the (sub)contractors performance and activities were interviewed, other personnel which is directly influenced by the work performed by the (sub)contractor have been asked for the questionnaire. This results in a total sample consisting of 50 interviews and 100 questionnaires. Since the research is performed on the initiative of the principal within the relationship, three interviews are executed on their side, and two on the agent's side. With *Figure 1.1* as a basis, the research will address the entities depicted in *Figure 3.1*, in which the grey shapes resemble links of the overall supply chain but are out of the scope of this thesis. However, *Figure 3.1* is not a realistic representation since usually more subcontractors are involved, the grey shapes are randomly drawn, and the functions involved differ per project. Furthermore, Woonbedrijf and Dura Vermeer have no interaction with each other in the projects researched.

§3.4 Measurement Procedure

In this thesis, both questionnaires and interviews are used in order to obtain both quantitative support for the existence of perceptual distance and a more qualitative understanding of the reasons and mechanisms underlying perceptual distance. The questionnaires aim to discover the validity and importance of the topic, constructs and items found in the literature review and adopted in the conceptual framework. However, questionnaires can have some bias as a result of specifically oriented questions (Schein, 1990). Therefore, the questionnaires are validated by two academics (mentors from the university) as well as two practitioners (mentors within the companies)

According to Schein (1990) interviews can be used to study the values and norms in the culture of an organization. Especially open-ended interviews are useful to discover how these values and norms work in the organization. In order to get to a deeper layer, to decipher the perceptions and underlying assumptions of an individual, semi-structured interviews will be done with the managers within the projects.

3.4.1 Questionnaires

In the questionnaires, the questions have three possible 'characters' which are based on the direction to which perceptions can exist, namely: (1) reflection on the organizational culture, norms and values of one's company, (2) evaluation of the partner, their role and their normative behavior, and (3) evaluation of the project, such as performance related questions. Subsequently, perceptual distance is calculated from differences between the answers on the constructs in the questionnaire on the side of the buyer and of the supplier. This can either be a difference between (1) the reflection of the buyer and the evaluation of the buyer by the supplier, (2) the reflection of the supplier and the evaluation of the supplier by the buyer, or (3) the evaluations of the project of both buyer and supplier. A visual representation of this paragraph is shown in *Figure 3.2*. The exact equation for the calculation of perceptual distance will be elaborated upon in Chapter 4.

***Table 3.1*. The four categories to which perceptions can differ, subdivided into constructs which will be measured in the questionnaires and interviews.**

	Construct	Category	Questionnaires	Interviews	Literature
Objectives and resources	Goal accomplishment and orientation	C1	•	•	Gibson, et al. (2009), Homburg and Jensen (2007)
	Constructive conflict	C2	•	•	Gibson, et al. (2009), Oosterhuis, et al. (2013) Lavie, et al. (2012)
	Decision-making autonomy	C3	•	•	Gibson, et al. (2009) Pothukuchi, et al. (2002)
	Competence (knowledge *k*)	C4k	•	•	Homburg and Jensen (2007)
	Competence (interpersonal skill *p*)	C4p	•	•	Homburg and Jensen (2007)
Regulative	Nature of rules that shape economic behavior	R1	•	•	Andersen, et al. (2009)
	Implementation of the rules (consistency)	R2	•	•	Andersen, et al. (2009)
Operational	Internal task routines (being goal oriented, team effort, work ethic)	O1	•	•	Lavie, et al. (2012)
	Process vs. result	O2	•	•	Pothukuchi, et al. (2002)
	Employee vs. job (power distance, task- or people orientation)	O3	•	•	Pothukuchi, et al. (2002)
	Normative vs. pragmatic (resp. rule- and customer orientation)	O4	•	•	Pothukuchi, et al. (2002)
	Management style (managerial approach, control systems (strict vs. flexible), hierarchy)	O5	•	•	Lavie, et al. (2012)
Normative	Solidarity	N1	•	•	Heide and John (1992)
	Flexibility	N2	•	•	Heide and John (1992)
	Integrity	N3	•	•	Lavie, et al. (2012) Hald, et al. (2009)
	Dedicated investments	N4	•	•	Barnes, et al. (2007) Nyaga, et al. (2010)
	Information sharing	N5	•	•	Nyaga, et al. (2010)
	Open vs. closed	N6	•	•	Pothukuchi, et al. (2002)
	Joint effort (planning, goal setting, problem solving)	N7	•	•	Barnes, et al. (2007) Nyaga, et al. (2010)
	Self-interest	N8	•	•	
	Organizational responsiveness (open-mindedness, acceptance of outsiders)	N9	•	•	Lavie, et al. (2012)

In principal-agent dyads, it is for several constructs hard for the agent (supplier) to 'evaluate' the principal (buyer) due to the position the principal (buyer) has. In principal-agent theory, the buyer is usually seen as the party suffering from informational asymmetry leading to moral hazard and adverse selection (e.g. Mackintosh, 2001; Perloff, 2003; Steinle, Schiele, & Ernst, 2014). However, the informational asymmetry may also be directed the other way (Perloff, 2003). With the mentors of both case companies separately, the constructs on which the buyers' evaluation of the suppliers and vice versa might be difficult have been identified.

The questionnaire discusses the four categories that have been found in the literature. The constructs that form together the four categories have been found in several papers concerning among others perceptual differences, differences regarding expectations, (relational) norms, and differences in organizational culture. *Table 3.1* shows short descriptions of all constructs and in which papers these constructs appear. The questions are mostly adopted from these articles. For some constructs, however, no questions were found in the literature. Six of the twenty-one constructs have been split into separate constructs for the agent (C4ka, C4pa, O1a, O2a, N6a and N9a) and for the principal (C4kp, C4pp, O1p, O2p, N6p, and N9p). To cover any shortcomings, the questionnaires have been discussed with and reviewed by both academics and practitioners. The questionnaire consists mostly of statements that could be agreed with on a seven-point Likert-type scale, ranging from 1 "strongly disagree" to 7 "strongly agree". Furthermore, performance is measured in terms of (1) costs, (2) planning, (3) quality, (4) sustainability, and (5) innovativity based on Spina et al. (2013). Since a distinction on different elements of performance will add more depth to this study, it is chosen not to combine them in a single variable.

3.4.2 Interviews

As is depicted in *Table 3.1*, all constructs are discussed in both the interviews and the questionnaires. The interviewees are first asked to fill in a questionnaire. This enables the interviewer to select questions based on observations from the questionnaire. Furthermore, this method allows the interviewer to get directly to the underlying reasons for the judgement made by the interviewee. The basic set of questions can be found in Appendix B; however, the exact composition of questions in the interview differs per interview due to its semi-structured character.

During the interviews, notes and citations are made and directly proposed to the interviewee for approval with the opportunity to change. This prevents the interviewer from having any misinterpretations of the things being said by the interviewee. Subsequently, in the analysis these citations can be used to compare the buyer's and supplier's perception of the relationship and their partner.

§3.5 Sample

The intended total sample consists of 100 respondents divided over ten projects in two companies. Per project the respondents are selected based on their affinity with the work and employees of their partner. Since only two companies are involved, some employees have had multiple interviews and questionnaires for several of their projects. The total sample consists of 93 respondents divided over the projects as depicted in *Table 3.2*. As can be seen, the sample contains two interviews more and twenty-three questionnaires less than planned.

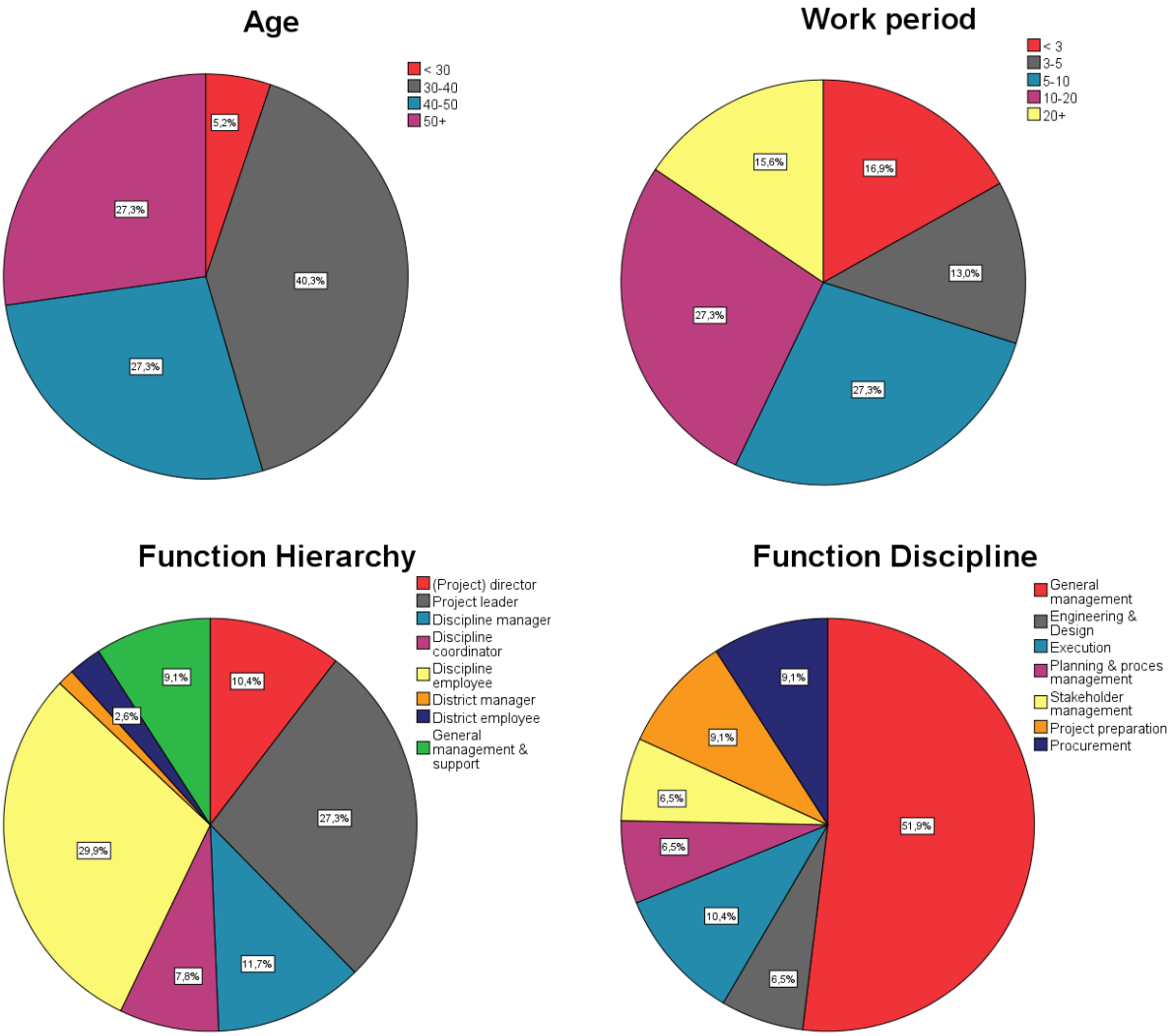

Figure 3.3. **Four pie charts indicating some basic information on the data that has been gathered.**

Less questionnaires have been gathered due to both a response rate of 83%, and a lack of employees able to answer the questions.

***Table 3.2*. Overview of interviews and questionnaires distributed and responded to per project**

	Principal				Agent			
	Interviews		Questionnaires		Interviews		Questionnaires	
	Distributed	Responded	Distributed	Responded	Distributed	Responded	Distributed	Responded
Project A	3	3	4	4	2	2	2	1
Project B	3	3	6	6	2	2	3	2
Project C	3	3	6	4	2	2	2	2
Project D	3	3	10	5	2	2	7	6
Project E	2	2	4	4	2	2	3	3
Project F	3	3	5	4	3	3	3	3
Project G	4	4	4	4	2	2	2	1
Project H	3	3	6	5	3	3	4	4
Project I	3	3	9	6	2	2	5	5
Project J	3	3	4	4	2	2	4	4
Total	30	30	58	46	22	22	35	31

	Sent	**Response**	**Rate**
Interviews	-	52	-
Questionnaires	93	77	83%

Since the questionnaires have been collected at project team level, the respondents have a diverse set of functions (33 different functions were mentioned in the questionnaires). The functions have been classified and a diagram can be seen in *Figure 3.3*. Few extraordinary patterns can be seen in the data so far, except for the large portion of "general management" as discipline, which is due to the proportion of (project) directors and project leaders in the sample with no known, specific discipline. Furthermore, respondents are relatively equally dispersed in age groups, except for the relatively small group that is younger than 30 (5.2%). Regarding the period worked in the specific company, five different periods are chosen, in which none of them is extremely small or large. Concluding, these observations support the reliability of the study since the sample is representative of the normal composition of the teams and the companies.

§3.6 Conclusion

In this chapter, the methodology for analysis has been formulated. Most importantly, both qualitative and quantitative methods of data gathering are used. Furthermore, the methodological approach is dyadic, meaning that data is obtained from both the buyer's and supplier's side. Perceptual distance can occur on a total of 21 constructs, which address the four aspects of the buyer-supplier relationships that have been introduced in Chapter 2 (i.e. objectives and resources, regulations, operations, and norms and values).

The interviews are conducted in a semi-structured manner, in which all constructs are addressed, based on the results from the questionnaire that has been filled in by the

participant. The questionnaire consists mostly of Likert scale items (from 1 to 7, from “strongly disagree”, to “strongly agree”) that were derived from studies in which the specific scale was found. Perceptual distance is calculated as the difference between the project evaluations of both parties, and between the evaluation of the partner and the reflection of this partner in both directions.

Within the two companies, five projects are selected for the study, and in each project, a business-critical supplier is chosen for the analysis. Within these ten projects, 52 interviews have been conducted and 77 questionnaires have been gathered., in which nearly all interviewees have filled in a questionnaire as well. The sample resembles the population since the respondents have a diverse set of functions and disciplines, and vary in age and working period. In the next chapter, the analysis of the questionnaires and interviews is done, and the effect of perceptual distance on project performance is examined.

Chapter 4 Analysis and Results

§4.1 Introduction

In this chapter the data gathered from the questionnaires is firstly examined and subsequently analyzed. The first step includes the detection of missing data, outliers and the examination of normality of all the variables (Hair, et al., 2009). This examination aims to support the validity and reliability of the analysis. Subsequently, a factor analysis is performed (partially confirmatory, partially exploratory) and afterwards perceptual distance between principal and agent (i.e. buyer and supplier) is calculated and presented. Subsequently, correlations between perceptual distance on the variables and project performance indicators are investigated, and a Structural Equation Model is tested based on the questionnaires. Furthermore, a more qualitative cross-case comparison is made with the calculated perceptual distance on the variables and the data from the interviews that have been conducted. The observations from the different analyses in this chapter results in the omission of several variables and performance indicators leading to a revised conceptual framework, which will be presented in *Figure 4.3*.

§4.2 Data Examination

4.2.1 Missing data

Firstly, missing data has been evaluated for the entire dataset, for the variables and the observations. Within missing data, a distinction is made between systematically (ignorable) and non-systematically (not ignorable) missing data (Hair, et al., 2009). The sample contains 6.8% non-systemetical and 2.9% systematical missing data, which is very low. For the missing data the Little's MCAR test has been performed to investigate whether the missing data are at random or are related to any item in the sample. The test revealed a significance of 1.000 with $\chi^2 = 2223.285$ and df = 3110. This means that the missing data is missing completely at random (MCAR) according to Hair et al. (2009).

All items and observations will be used for the analysis; however, no imputation will be used since the sample is fragmented into smaller groups (ten projects times two partners). Therefore, imputation methods such as mean substitution and regression substitution are expected to influence the variance and correlations in the sample. Furthermore, the all available data method is suitable for samples with little missing data (Hair, et al., 2009). However, for the detection of multivariate outliers missing values are undesired. Therefore, a separate file has been created without missing values using the Expectation Maximization function (per factor) which is a regression substitution method. This file has exclusively been used for missing value analysis.

4.2.2 Normality

Normality is one of the basic assumptions in multivariate analysis (Hair, et al., 2009). In Appendix C, a table is added with some basic values of all items in the questionnaire (i.e. N, mean, standard deviation). This table shows as well the $z_{skewness}$ and $z_{kurtosis}$ which both should be between -2.58 and 2.58; z-values outside this margin are shown in red. Many variables do

not match this criterion, most likely due the fact that the sample consists of several independent groups (i.e. projects) with all their own distributions (Cribbie, et al., 2012). When the z-values of the entire sample are compared to separate z-values for the buyer and supplier, differences can be seen. On average, the absolute z-values decrease due to the different distributions for buyers and suppliers, which is the main topic of this research. Therefore, to manipulate the item values in order to enhance the normality of the variables could as well change the differences between the values found at the supplier's and the buyer's side, which would be detrimental to the findings of this study.

4.2.3 Outliers

One of the latter stages of data examination is the detection of univariate, bivariate and multivariate outliers. Currently, the data consists still of many items (112), including many different dependent items, since performance is hard to deduce from a single item. Therefore, univariate analysis and multivariate analysis have been performed, leaving bivariate analysis out of scope. Many cases have outliers on several items; however, all the multi-item outlying cases seem to come from specific projects. For instance, seven of the fourteen cases are from Project D. Furthermore, project A, project B, project F, and project I do not contain any cases outlying on more than four items, Hence, though many cases are outlying on many items compared to the sample as a whole, within their respective projects, these cases are far less unique.

For the investigation of multivariate outliers, the Mahalanobis distance has been calculated in SPSS. The calculation of this measure heavily depends on missing data, meaning that either the items or cases need to be omitted for analyses whenever they contain any missing data (Hair et al., 2009). Therefore, the Mahalanobis distance has been calculated in three scenarios. The first scenario started by only omitting the variables with systematic missing data, using 87% of the items, while for the second scenario as well some items with high levels of missing data have been omitted, using 67% of the items. In the first scenario many cases (60%) had to be dropped for calculating Mahalanobis distance, while in the second scenario much less cases (34%) were dropped. In the third scenario, Expectation Maximization is first used per factor to replace all missing data in the sample. Overall, neither of the three scenarios showed any significant multivariate outliers. Hence, none of the cases have been dropped.

§4.3 Factor Analysis

The questionnaire consists of questions which are (literally) taken from literature and of questions newly developed. Therefore, both an exploratory and confirmatory factor analysis should be done. Firstly, an exploratory factor analysis is performed on the items addressing the regulatory part of the model, since the items on these scales could not be taken from literature.

4.3.1 Exploratory Factor Analysis

The exploratory factor analysis has been performed by use of SPSS. Because little is known about the variance of the constructs, a common factor analysis is performed instead of a component factor analysis (Hair, et al., 2009). Furthemore, oblique rotation is used. Based on the latent root and scree test criterion, the number of variables to derive is either two or three. In Appendix D the matrices of the two scenarios are compared to each other. Based on

the research by Andersen, et al. (2009) and on the character of the items, the two-factor-case fits better. The variables are called *importance of regulations* and *implementation of regulations*.

The factor analysis is significant (KMO = .750, Bartlett's χ^2 = 321.686, df = 78, Sig = .000) and has a non-significant goodness-of-fit, which is desirable. Furthermore, the variables explain 47.4% of the variance and have a correlation of .01, which means that the method of rotation has little influence on the variables.

4.3.2 Reliability Analyses

Firstly, all the scales that have been derived from either literature review or the exploratory factor analysis have undergone a scale reliability analysis in SPSS. The results of this reliability analysis is found in Appendix E, including the items (in Dutch, from principal's perspective) underlying the scales. This analysis resulted in the deletion of some items for the construction of the variables. Some items have been manipulated, and even some scales needed to be omitted overall. In further analysis, the scales with a Cronbach's alpha of higher than .60 will be used, which is the appropriate cut-off value for the exploratory character of this study (Hair, et al., 2009). *Table 4.1* shows a summary of the reliability analysis for all the scales in the sample. In the middle column, as well the highest potential Cronbach's alpha for the omitted scale is found. Based on the reliability analyses of the scales, the scales have been created by averaging the items included.

4.3.3 Normality of variables

Due to several items being non-normal in the previous analysis, the variables that have been constructed from the items are also tested for normality. Eventually, on these variables the statistical analysis will be performed. In Appendix F, the $z_{skewness}$ and $z_{kurtosis}$ are presented for all the constructs for (1) the complete sample, (2) the buyers, (3) the suppliers, (4) project D, and (5) project I. These projects have been chosen since they have the largest sample size, (almost) equally divided over buyers and suppliers (see *Table 3.2*). A visual examination of the graphs leads to the conclusion that deviations from normality are indeed present; however, these are not extreme, especially considering the fact that distributions per project and per side (buyer or supplier) do show more normal results.

§4.4 Quantitative results

Currently, some first insights can be derived from the dataset as a result from the statistical analysis performed so far. Hence, in this paragraph the perceptual distance between buyers and suppliers over the entire dataset is elaborated upon, along with the correlations of the current variables.

4.4.1 Correlations of variables

In Appendix G, the correlation sheet for all the variables is depicted. It appears that almost all of the variables specifically addressed at the agent, which are *interpersonal skill agent*, *organizational responsiveness agent*, *internal task routines agent*, and *process vs. result agent* are highly correlated with each other. This means that whenever agents perform well (or badly), they do so on multiple aspects. Secondly, *constructive conflict* is highly correlated with *solidarity*, and *integrity* which means that conflicts are more likely to be solved in a constructive way when partners are willing to do each other a favor and are trusting each other, which makes sense.

Table 4.1. **Summary table of the scale reliability analysis**

Scales				
Scale	**Literature**	**Cronbach's α**		**No. of items (planned)**
Constructive conflict	Gibson et al. (2009)	0.742		3 (4)
Decision-making autonomy	Gibson et al. (2009)		0.053	X
Competence knowledge (principal)	Homburg & Jensen (2007)	0.726		2 (2)
Competence interpersonal skill (principal)	,,	0.841		5 (5)
Competence knowledge (agent)	,,	0.792		2 (2)
Competence interpersonal skill (agent)	,,	0.880		5 (5)
Importance of regulations	X	0.852		7 (-)
Implementation of regulations	X	0.831		6 (-)
Internal task routines (principal)	Lavie et al. (2012)	0.703		2 (4)
Internal task routines (agent)	,,	0.705		2 (4)
Process vs. result (principal)	Pothukuchi et al. (2002)		0.399	X
Process vs. result (agent)	,,	0.638		2 (3)
Agent vs. project	,,	0.677		3 (4)
Normative vs. pragmatic	,,	0.675		3 (4)
Management style	Lavie et al. (2012)	0.765		3 (3)
Solidarity	Heide & John (1990)	0.731		2 (2)
Flexibility	,,		0.523	X
Integrity	Poppo & Zhou (2014), Ganesan (1994)	0.765		4 (4)
Dedicated investments	Heide & John (1990)		-0.024	X
Information sharing	Nyaga et al. (2010)		0.573	X
Open vs. closed (principal)	Pothukuchi et al. (2002)		0.442	X
Open vs. closed (agent)	,,		0.607[a]	X
Joint effort	Nyaga et al. (2010)	0.683		3 (3)
Self-interest	X	0.663		2 (3)
Organizational responsiveness (principal)	Lavie et al. (2012)	0.725		3 (3)
Organizational responsiveness (agent)	Lavie et al. (2012)	0.844		3 (3)
Continuity	X	0.964		2 (2)
Awareness	Lavie et al. (2012)	0.606		2 (3)

[a] This scale is omitted since the equivalent on the principal's side did not fit the requirements, while the scale itself met the requirements very tightly as well.

Another observation is that both *implementation of regulations* and *continuity* (of the collaboration) are highly correlated to many other variables. Since *implementation of regulations refers* among others to 'to follow up on the agreements', 'not bypassing the contract', and 'execution fits the agreements', it is intuitive that it correlates to *constructive conflict*, *integrity*, and the variables specifically addressed at the agent. Whenever these three statements are positively answered, partners have less reason for distrust and less thorough conflicts need to be present; specifically, if the last statement is true, the agent can be assessed as good since the work is executed conform agreements. As well, when principal and agent cooperate more jointly (*joint effort*) and when the agent is given more participation (*project vs. agent*), less disagreements can be present (Pothukuchi, et al., 2002), and agreements might be better fitted and better attainable for the partners.

Furthermore, it is also logical that the *continuity* of the collaboration is correlated with (or influenced by) the *integrity*, the assessment variable of the agent, and the *implementation of regulations*. When the agent performs well, the principal is more likely to collaborate with the agent as well in a future project. *Continuity* is also higher when both partners follow up the agreements and are trustworthy, honest (Kim, et al., 2010; Nyaga, et al., 2010).

Lastly, *integrity* is as well correlated to *organizational responsiveness agent*, and *project vs. agent*. When the agent quickly reacts to change, is open to problem solving with the principal, and open-minded towards new ideas, trust is created (Lavie, et al., 2012). When both partners do have more trust and feeling of honesty in each other, the agent might as well be given more participation within the project because the principal believes the agent does the best he can, which is the case in employer-employee setting from which the variable is derived (Pothukuchi, et al., 2002).

4.4.2 Perceptual distance

Perceptual distance can be measured by performing an independent paired sample's t-test, and the Mann-Whitney U test, its parametric equivalent. The results of these tests on the entire sample, with all the variables created in the previous paragraph is found in Appendix H. In the entire sample, several variables score significantly different values for principals and agents. These variables are *knowledge principal* ($t = -4.59;\ p_t < .01 \mid Z = -4.71;\ p_U < .01$), *knowledge agent* ($Z = -2.09;\ p_U < .05$), *interpersonal skill agent* ($Z = -2.23;\ p_U < .05$), *organizational responsiveness principal* ($t = 2.03;\ \ p_t < .05$), *organizational responsiveness agent* ($t = -6.02;\ p_t < .01 \mid Z = -4.89;\ p_U < .01$), *internal task routines agent* ($t = -4.07;\ p_t < .01 \mid Z = -3.12;\ p_U < .01$), *process vs. result agent* ($t = -4.43;\ p_t < .01 \mid Z = -3.58;\ p_U < .01$), *normative vs. pragmatic* ($t = -3.16;\ p_t < .01 \mid Z = -3.35;\ p_U < .01$), *management style* ($t = -2.60;\ p_t < .05 \mid Z = -2.97;\ p_U < .01$), *continuity* ($t = -2.06;\ p_t < .05 \mid Z = -2.80;\ p_U < .01$), *goal accomplishment on quality* ($t = -2.76;\ p_t < .01 \mid Z = -2.39;\ p_U < .05$), and *satisfaction with goal orientation on sustainability* ($t = -2.46;\ p_t < .05 \mid Z = -2.38;\ p_U < .05$).

The tendency for both principal and agent is to be more positive towards its own attitude and activities than their partner is, and vice versa to be more negative towards the attitude and activities of the partner than the partner is itself (e.g. *interpersonal skill agent*, *organizational responsiveness principal*, *organizational responsiveness agent*, *internal task routines agent*, *process vs. result agent*). However, not all variables are as such (*knowledge principal*, *knowledge agent*). Apparently, the partners tend to value each other's knowledge higher than their own, especially agents do so as can be seen in Appendix H.

Other interesting observations are that (1) agents perceive themselves to be more informal than principals do, (2) principals put more effort in managing perceptual distance through investigation of the agent prior to collaboration, and through discussion of differences between them and the agents, (3) agents are in general more eager to collaborate in the future, and (4) agents perceive better quality to be delivered, but perceive innovation to be worse. These variables on which distance exists give insight into the judgments that are made and should be kept in mind when analyzing project-specific perceptual distance, which is done in the next paragraph.

Since the conceptual framework of this research aims to use a measure for perceptual distance to determine the effect of perceptual distance on project performance, a method for assigning a number to the variable 'perceptual distance' is needed. For the calculation of perceptual distance, a standardized mean difference is chosen, namely Hedges' g. This method accounts for the standard deviation on the variable on either side and accounts for unequal group sizes, which is the case in most of the projects in this study. However, the different standardized mean difference equations result in very large values on some variables in some projects (up to values of 11.5, whereas 0.8 is considered to be 'large') (Cohen, 1988). Considering that such values for perceptual distance are relatively hard to justify, and that such values will have detrimental effect on further analysis on the effect of perceptual distance on performance, it is chosen to modify the Hedges' g value, as shown in equation (1), in which PD_{fp} is the perceptual distance on variable f within project p, between the groups principal P and agent A.

$$\mathrm{PD}_{fp} = \ln\left(g_{fp} + 1\right) = \ln\left(\frac{\left|\mu_{fpA} - \mu_{fpP}\right|}{\sqrt{\frac{\left(n_{fpA} - 1\right)\sigma_{fpA}^2 + \left(n_{fpP} - 1\right)\sigma_{fpP}^2}{n_{fpA} + n_{fpP} - 2}}} + 1\right) \qquad (1)$$

4.4.3 Correlation perceptual distance and performance

A rather basic method to investigate the effect of perceptual distance on project performance is by investigating the correlations between perceptual distance on each of the variables and the performance indicators. In Appendix I, the correlation sheet is found.

Several observations can be made from this sheet. Perceptual distance on the following variables seem not to relate to any of the performance indicators: *goal accomplishment*, *goal orientation and satisfaction*, *interpersonal skill principal*, *importance of regulations*, *process vs. result agent*, *normative vs. pragmatic*, *management style*, *solidarity*, and *joint effort*. Perceptual distance on *knowledge principal*, *self-interest*, and *awareness* is not significantly related ($.05 < p < .25$) to multiple indicators. Lastly, significant correlations between perceptual distance and performance indicators are: *constructive conflict* and *performance on planning* ($C = -.66; p < .05$), *knowledge agent* and *performance on innovation* ($C = .69; p < .05$), *interpersonal skill agent* and *performance on innovation* ($C = -.80; p < .01$), *internal task routines agent* and *continuity* ($C = -.64; p < .05$), *agent vs. project* and *performance on sustainability* ($C = -.69; p < .05$), *integrity* and *performance on sustainability* ($C = -.76; p < .05$), *organizational responsiveness principal* and *performance*

on planning ($C = -.86; p < .01$), and *organizational responsiveness agent* and *performance on costs* ($C = -.78; p < .01$).

The significant correlations indicate that perceptual distance mostly affects the planning, sustainability, and innovation, and in lesser extent the continuity and costs as well. Furthermore, perceptual distance on several variables can be omitted for their limited effect on project performance according to the correlations. The variables that remain within the conceptual framework are: *constructive conflict*, *knowledge agent*, *interpersonal skill agent*, *internal task routines agent*, *agent vs. project*, *integrity*, *organizational responsiveness principal*, and *organizational responsiveness agent*. Furthermore, *knowledge principal*, *self-interest*, and *awareness* could remain as well due to their overall impact on several indicators. One very remarkable observation is the significantly positive influence of perceptual distance on *knowledge agent* on innovation.

4.4.4 Model

The conceptual framework, with the variables that are not found to be reliable omitted, is tested with SEM using statistical software program IBM AMOS 22. The Structural Equation Model with perceptual distance calculated by the natural logarithm of hedges' *g*, and all the reliable variables included, is shown in *Figure 4.1*, which shows as well the parameter values from the SEM analysis, and the model indicators RMR (which should be > -4.0; < 4.0) and GFI (which should be > .90) (Hair, et al., 2009). Other indicators are not available due to the limited sample size (and resulting non-positive definite covariance matrices). The model has inadequate indicators (Hair, et al., 2009). However, this is a logical result of the insufficient sample size (n = 10) that lays the basis for the model. Hence, this model cannot give a solid argument for the acceptation of the conceptual framework. However, it does provide insight in the most important variables determining perceptual distance and does give an approximation for the effect of perceptual distance on performance and the mitigating effect of preventive measures.

The parameter values under .30 can be removed to improve the model, causing the removal from the model of ten variables, namely *goal accomplishment*, *constructive conflict*, *interpersonal skill principal*, *interpersonal skill agent*, *importance of regulations*, *management style*, *solidarity*, *joint effort*, and *organizational responsiveness principal*, and two performance indicators, namely *sustainability* and *innovation*. When the variables that are omitted within the Structural Equation Model are consistent with the observations regarding perceptual distance within the qualitative analysis, more support is obtained for the conceptual framework.

§4.5 Qualitative results

In the following subparagraphs, each project is discussed separately on the presence of perceptual distance on the four aspects and their underlying variables, and on the effect of perceptual distance on project performance. The four aspects are (1) objectives and resources, (2) regulations, (3) operations, and (4) norms and values. Furthermore, for each of the cases statements that are made within the interviews will be used to support the quantitative data that is retrieved via the questionnaires, and of which a colored visualization is found in Appendix J.

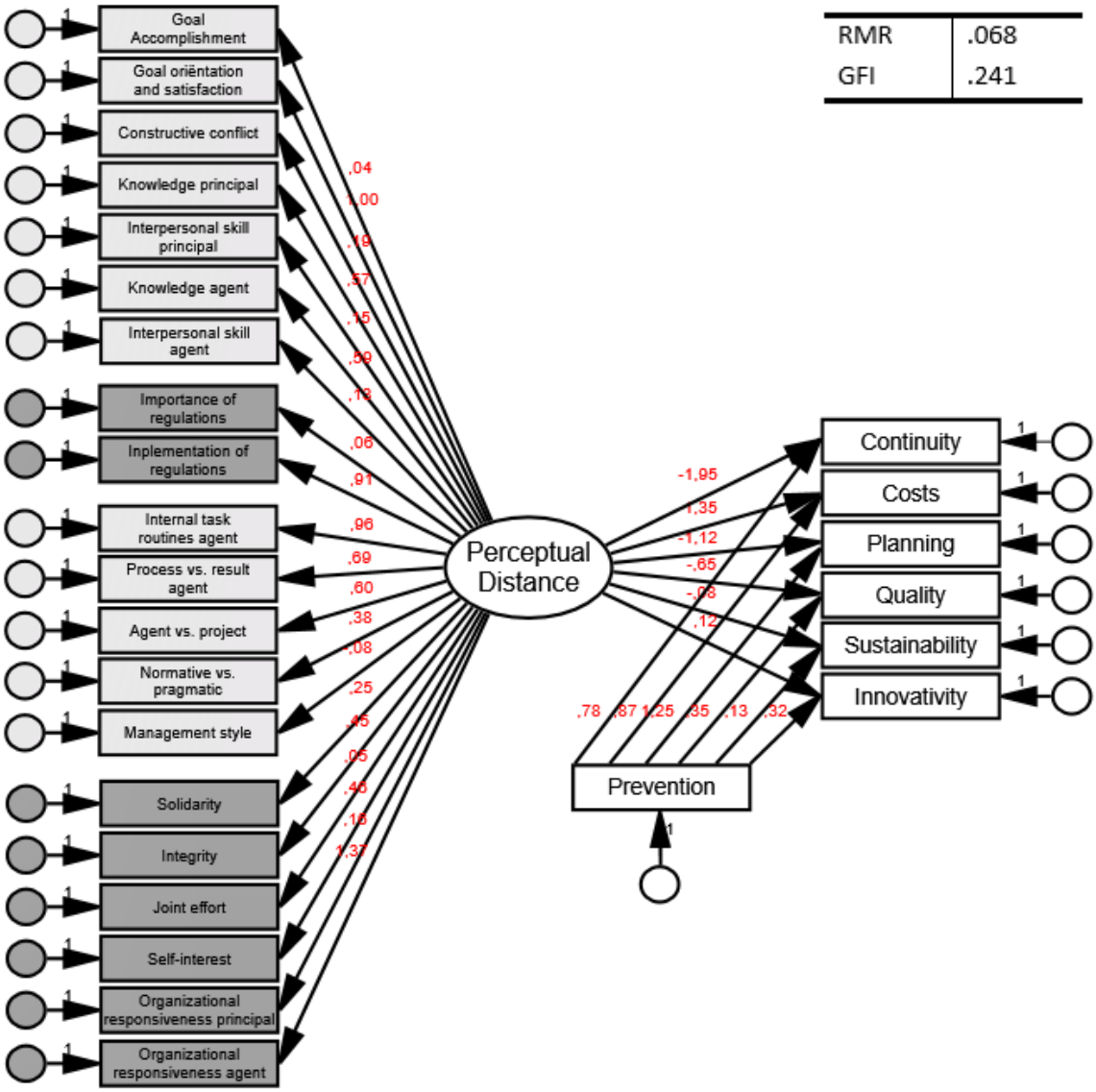

***Figure 4.1*. The Structural Equation Model with all the variables that are found reliable in the CFA (the red color is to enhance visibility, the grey colors are to distinguish the four categories of variables)**

4.5.1 Project A

The data from the first project is obtained from four questionnaires on the buyer's side and one questionnaire from supplier's side. Project A is characterized by little to moderate perceptual distance.

On the aspect 'objectives and resources', most variables reveal little perceptual distance, except for *constructive conflict* and the *interpersonal skill of the agent*. The red color on *constructive conflict* is probably the effect of the quote of the project leader at the agent, and due to the single informant on the agent's side (*Box 4.1*). The orange color for *interpersonal skill of the agent* can very likely be explained by a lack of planning capacities on the agent's side according to the coordinator on the principal's side among others (*Box 4.2*).

The observations on the first aspect are as well consistent with the moderate perceptual distance that is found on the *implementation of regulations* in which the item 'execution fits the agreements' is asked for. Especially agreements regarding the planning of the project were not met, many aspect were delivered to late, which is also very clear in the red color for *planning* in performance and in the quotes.

***Box 4.1*. Constructive conflict**

> *"In one specific conflict some unjust claims were made. But in general both partners are open and conflicts are solved well."*
>
> Project leader, agent, Project A

***Box 4.2*. Interpersonal skill agent, implementation of regulations**

> *"On technical aspects they are a good partner, but they have less planning capacity. They know this themselves as well."*
>
> Coordinator, principal, Project A
>
> *"Especially regarding the planning, we have not always delivered at the time wished. This had also to do with availability of information, and the fact that we wanted to deliver a good quality."*
>
> Project leader, agent, Project A

***Box 4.3*. Integrity**

> *"They have promised a certain capacity and they could not realize this. Because of this, the planning has been extended."*
>
> Project leader, principal, Project A

On the operational aspect, perceptual distance occurs on *management style*, referring to hierarchy in both companies, which is the case in more of the projects. However, in project F, H, and J is stated that perceptual distance in *management style* does not affect project performance.

Lastly, on the normative aspect, perceptual distance is found mostly at the variable *solidarity*; however, no support for this has been found in the interviews. The moderate distance on *integrity* seems to be as well the result of the fact that the agent could not realize its promises regarding the planning (see *Box 4.3*).

Overall, for the little perceptual distance that is present, the performance is quite bad (except for *continuity*). The bad performance on planning is the main issue that is related to perceptual distance on many variables. However, also limited effort has been put into *prevention* of perceptual distance from having effect on performance. Therefore, this project provides limited support for the conceptual framework.

4.5.2 Project B

In this project six questionnaires at the principal's side, and two at the agent's side have been obtained. This project is characterized by moderate perceptual distance. On the cognitive aspect, perceptual distance is found on *goal orientation and satisfaction* and *knowledge* and *interpersonal skill of the principal*. Since the agent evaluates the principal to be better than the employees of the principal did themselves, it has been limitedly discussed in the interviews. Satisfaction with the goals was mainly influenced by relatively low costs, and a very short planning that had been set for the project (*Box 4.4*).

***Box 4.4*. Goal orientation and satisfaction**

> *"The project has been taken for a price far too low, and the project was difficult to execute. We have had to do much work in a very short period due to the planning which was also set far too tight."*
>
> Project manager, agent, Project B
>
> *"This* [tight planning] *has effect on the employees working on the project which is not beneficial to the collaboration."*
>
> Director, agent, Project B

Although there is little perceptual distance on the regulative aspect, several issues are worth mentioning. First of all, the contract negotiations took a very long time, even resulting in the execution being started before the contract was signed. Secondly, the agreements that were made in the tender phase were revised in the project phase, which was perceived as unfair by the agent (see *Box 4.5*). This was furthermore one of the reasons that made the contract negotiations took a very long time.

***Box 4.5*. Regulations**

> *"Execution had already started before the contract was signed* […]. *We would have preferred to sign the contract; and, to change it later if needed.* […] *It was disappointing that the agreements that we had made in the tender phase were altered later in the contract negotiations."*
>
> Director, agent, Project B

On the operational aspect, the principal tended to evaluate the *internal task routines* (e.g. effectiveness, mentality) and *process vs. result* (e.g. speed, initiative) at the agent's side lower than the agent did itself. However, in the interviews both companies stated to be satisfied with their counterpart regarding their (mutual) operations, the effectiveness and mentality in their work, which can be seen in *Box 4.6*.

***Box 4.6*. Operations**

> *"I am perfectly satisfied with their working style."*
>
> Discipline manager, principal, Project B
>
> *"Everything has to be planned and contrived in advance due to the complexity of the project. We anticipate on this together."*
>
> Project manager, agent, Project B

On the normative aspect, little perceptual distance is present. Responsibilities are taken by both parties, where the principal is more satisfied with the *solidarity* of the agent than vice versa. Both companies are considered by their counterparts to be *flexible*, and *trustworthy* (except for the revision of the agreements after the tender phase as is discussed in previous paragraphs). The variables *openness* and *communication* are not found to be reliable with the tests in §4.3. However, in the interviews some considerations on these aspects are given and perceptual distance is clearly present

(see *Box 4.7*). However, due to the unreliability of the scale, it is not taken further in the analysis.

The results of project B show the impact that this little perceptual distance has. The costs which was already very clearly an issue in the beginning of the project is the only aspect of performance that is not according the planning. Furthermore, *continuity* of the collaboration between the two partners is evaluated as good and further collaboration is said to be very likely. Lastly, the *prevention* (conversation on the differences that are present) of perceptual distance to have impact seems to moderate the effect of perceptual distance on performance as well.

4.5.3 Project C

In this third project, four questionnaires at the principal's side and two at the agent's side have been gathered. The project shows little perceptual distance. On the objectives and resources aspect almost no differences occur. In general, both sides are satisfied with each other though internally on the principal's side the opinions slightly deviate (see *Box 4.8*). On the *interpersonal skills of the agent*, perceptual distance occurs (employees on the agent's side evaluate themselves more positively); however, this did not come back in the interviews.

Regarding regulations, a specific type of contract was used. The quote in *Box 4.9* shows that it was a more functionally oriented contract, meaning that special attention needs to be given to the *decision-making autonomy* of the agent. Perceptual distance is the highest on the regulative aspect, and this is quite obvious from the statements made during the interviews, shown in *Box 4.11*. Main differences between the principal and the agent is that the principal was more strict on the contract, while the agent is more concerned with the intention and purpose of instead of the details in the contract.

***Box 4.7*. Openness and communciation**

> *"The principal is closed regarding their financial situation. We want to help each other and to solve problems; but openness is needed for that. Whenever needed, openness is present."*
>
> Project manager, agent, Project B
>
> *"Once the agent made some change in their working method that was communicated later in the process. As principal, we did not really appreciate this behavior."*
>
> Discipline manager, principal, Project B

***Box 4.8*. Competence agent**

> *"They perform on or even above the level of specification. The agent has worked autonomously.* […] *On most aspects they are good or better than expected."*
>
> Discipline employee, principal, Project C
>
> *"The expectations I had have been partially fulfilled. We have had a pleasant collaboration, but they have taken little responsibility."*
>
> General manager, principal, Project C

***Box 4.9*. Decision-making autonomy**

> *"To give the requirements to the principal and never hear from them until completion does never work; the principal wants to be involved in the project and we need to take care of that. This works perfectly fine in informal meetings. Eventually, everyone has to do what (s)he is good at."*
>
> General manager, agent, Project C

On the operational aspect, some perceptual distance is present as well. On the *task routines* and *process vs. result* variables, however, the interviews do not show the same pattern as the questionnaires. The principal is satisfied with the effectiveness, mentality, and speed in the work of the agent. Furthermore, the participants agree on the extent to which the agent can participate in decisions and can speak out on issues that are present (*agent vs. project*), although this had to develop over the process of the project. The agent had the autonomy to investigate the problem and propose solutions to the principal, who decided in which direction to continue. The *management style* is quite different between the companies, with the agent having a more hierarchic structure, while the principal has a more flat hierarchy, which is shown in a quote, which indicates as well the higher value on prevention: the companies have taken the time to get to know each other and their companies and to discuss any differences in order to prevent these differences from having detrimental effect on the collaboration and the performance.

On the normative aspect, most variables show no perceptual distance, while on the variable *joint effort* higher perceptual distance is found. In the interviews on both sides the participants state that meetings are held on a regular basis and planning is set together. However, some inconsistency is on the cooperative problem-solving, shown in *Box 4.12*. Furthermore, on the principal's side some doubts were raised regarding the *openness* of the agent. However, since this scale turned out to be unreliable in §4.3, it has been taken out of the analysis.

Concluding, due to the little perceptual distance that is present between the principal and the agent in project C, the results are largely according to expectations as well. Furthermore, the preventive measures as well prevent the perceptual

***Box 4.11*. Regulations**

> *"On our side there was a higher tendency to consult the contract than at the agent's side. Mainly for examining the quality of the project and to check whether their proposed solution satisfied requirements."*
>
> General manager, principal, Project C
>
> *"The specification from the principal is very important to them, but during the execution the contract has not often been consulted. The contract type was important, but the paper itself is not. The intention behind the contract is continued."*
>
> Discipline coordinator, agent, Project C

***Box 4.10*. Management style and prevention**

> *"We have started with getting to know each other and the organizations. Here several issues already were brought forward and discussed. Especially the division of responsibilities and the communication were difficult to specify. This has been complicated in the collaboration.* […] *We are more hierarchically, everything needs to be coordinated, while they are a very flat organization in which everyone has much say."*
>
> General manager, agent, Project C

***Box 4.12*. Norms and values**

> *"In the beginning the agent did not take the responsibility to solve problems or propose solutions to us for the problems they encountered.* […] *Later they came with one solution while we did not get involved in the process, what was neither desirable.* […] *this has been improved."*
>
> General manager, principal, Project C

distance from affecting the project performance. Only the fairly worse performance on the qualitative and innovative aspect might be related to the distance on cooperative problem solving.

4.5.4 Project D

Within project D, five questionnaires on the principal's side and six on the buyer's side have been gathered. This project shows moderate to high perceptual distance, especially on the operational aspect.

Regarding *goal accomplishment*, the principal is less satisfied with *planning*, while the agent is less satisfied with *innovation* and *sustainability*, resulting in an overall perceptual distance. The dissatisfaction of the agent on the *innovation* in the project is illustrated by the quote from the project leader at the agent in *Box 4.13*. The agent perceives *conflicts* to be less *constructive*, explaining that it heavily depends on the person at the other side of the table. Furthermore, both sides state that they worked on separate locations, despite the plan was to work on the same location, which did result in more costs and longer duration as indicated by the project director. The *knowledge of the principal*'s employees was evaluated higher by the agent than by the principal's employees themselves, while for the *interpersonal skills* it is vice versa. The quote in *Box 4.14* implies that this last fact is probably due to the limited empathy on the principal's side.

Although the regulative aspect indicates little perceptual distance, many things can be said on the contract and the agreements on the basis of the interviews. The participants at both sides indicate the contract to be taken very strictly on either side. Furthermore, the contracting phase was very disorganized, including several changes and ambiguities in the contract, which resulted in a very long process. The execution even had to start before the contract was signed, which was already indicated in project A to

***Box 4.13*. Goal accomplishment and orientation**

"We receive less quality than expected. This does affect the costs and planning."

Project leader, principal, Project D

"Unfortunately, there is little room to be innovative and sustainable. However, this is a difficult issue for the final customer. We have been put in a straitjacket."

Project Leader, agent, Project D

"In this project costs are very important; the budget is tight and they work price-driven. We do not have to perform higher than the norm. Because we know the final customer, we know what is required. We cannot economize on quality, because we are being acknowledged for that."

Project leader, agent, Project D

"Somehow we did not succeed in working on the same location. This resulted in much more costs, much rework, and a longer project duration. […] *It usually goes wrong because they design on the norm instead of on feasibility resulting in corrections.."*

Project director, principal, Project D

***Box 4.14*. Interpersonal skill principal**

"There is sometimes little understanding for our processes at the principal because they have little experience with this type of work."

Project leader, agent, Project D

be undesirable. Moreover, both companies tend not to follow up on the agreements. Since this opinion is shared by the companies this does not result in any perceptual distance; however, this obviously has its result on the collaboration within the project.

Regarding the operational aspect, perceptual distance is quite high. Especially regarding the effectiveness, mentality and speed of work of the agent is evaluated as much worse by the principal than by the agent itself. Another interesting fact is that in the interviews the principal says the agent lacks assertiveness, while the agent (both quotes are in *Box 4.17*) says the principal should have involved them in the process. Hence, both companies are pointing at each other for the same problem.

On the normative aspect, less perceptual distance is present. Firstly, both companies state that the principal is more *flexible* than the agent, which according to the agent has to do with many interdependencies within their work that are not known by the principal. This refers back again to the little understanding that is present at the side of the principal for the processes within the agent. However, the scale for flexibility was found to be unreliable, and thus, no quantitative support can be given. Furthermore, the perceptual distance on *organizational responsiveness of the agent* is as well explained by the quotes of project leader at the principal. The principal evaluates the agent not to be capable of quick reaction to changes and openness in problem solving. Moreover, this mentality and attitude of the agent is compared by the principal to its own standards, how the principal is itself (see *Box 4.16*).

Furthermore, it is clear that both companies put little effort in managing or discussing these differences. Overall, the perceptual distance in this project seems to have a detrimental effect on performance,

***Box 4.15*. Regulations**

"The contract has been formed disorderly. There are many ambiguities, many additions had to be made later on. This should not be the case for such a large contract."

Project leader, principal, Project D

"In the starting phase of the project, the contract type has been changed […]. *Why this has been done is unclear"*

Project manager, agent, Project D

"Both companies are guilty of not following up on the agreements. The product and the input that are delivered are not always on time and correct."

Project leader, agent, Project D

***Box 4.17*. Operations**

"The agent works slowly and is not capable of accelerating. This is a matter of mentality and organizational culture. This is different at our side. […] *They take no responsibility. Everything is given to us for a decision. They could have been more assertive."*

Project leader, principal, Project D

"Project-relevant decisions regarding the execution are made by the principal. Little was left for us to decide upon. We could have been more involved by the principal in the decisions with the final customer."

Project manager, agent, Project D

***Box 4.16*. Norms and values**

"They are very bad at dealing with changes. We are flexible with changes, we are used to it."

Project leader, principal, Project D

which is also visible in the two red colors at project D in Appendix J. Perceptual distance in this project tends to have the most effect on the performance on costs and planning. Moreover, the perceptual distance affects the *continuity* of the collaboration, meaning that the principal shows only moderate willingness to collaborate with the agent again.

4.5.5 Project E

At project E, four questionnaires on the principal's side and three at the agent's side have been obtained. This project is one of the projects with the least perceptual distance.

Regarding the cognitive aspect, the largest 'issue' seems to be the *decision-making autonomy* of the agent, which comes forward in the interviews but which scale has been omitted due to its unreliability in the factor analysis. Perceptual distance on this issue is mainly the consequence of the contract type, which was more functionally oriented. As was the case in project C as well, this resulted in perceptual distance on what the exact responsibilities are for which party and how communication should be done, as is as well illustrated by the quotes in *Box 4.18*.

While the questionnaires indicate more perceptual distance on the *importance of regulations*, and less on the *implementation*, the interviews seem to point the other direction. Both companies state the contract to be very important to the collaboration; however, the following up on the agreements and the satisfaction with the contract type (*implementation of regulations*) is more different on both sides which can be seen in the quotes of the project leader and discipline employee in *Box 4.19*.

On the normative aspect as well little perceptual distance is found. Both companies evaluate the responsibility being taken by the other party as good and state that *openness* and trust was present in their

Box 4.16. **[continued]**

"Changes bring a lot of risks with them due to the implications they have for design [many other changes]*. At the principal they do not assess these risks. We want to be flexible, but this can result in errors for which we should share the risk."*

Project manager, agent, Project D

Box 4.18**. Decision-making autonomy**

"The aim was to have them be 100% responsible. However, they were sometimes too autonomous; it should have been checked more whether everything was according the agreements, they could have done that internally as well. […] *But this never has been adverse to the collaboration though."*

Discipline employee, principal, Project E

"Both companies have interpreted the request differently. Here we have made some specific, erroneous assumptions. With this [type of contract] *we did not want to 'disturb' the principal and solve the problems on our own. We have learnt of it."*

Discipline manager, agent, Project E

"There has been little communication. It was difficult to which extent communication was needed whenever there were deviations."

Discipline employee, agent, Project E

collaboration. Furthermore, most information was shared between the parties.

Concluding, the little perceptual distance that is found between the collaborating partners does result in better project performance as well. Furthermore, principal (and agent) have put their effort in preventing perceptual distance from having any negative impact on the performance. Hence, the results are in general as was expected and planned (or even better) and the *continuity* of the collaboration is evaluated as very good, meaning that further collaboration between the two companies is very likely. Hence, this project supports the conceptual framework.

4.5.6 Project F

For the sixth project four questionnaires on the principal's side, and three on the agent's side have been obtained. This project is characterized by little to moderate perceptual distance.

On the aspect of objectives and resources, there is moderate perceptual distance on the *knowledge* and *interpersonal skill of the principal*. However, these variables are evaluated higher by the agent than by the principal as in many other projects. Therefore, it did not come back in the interviews. Lastly, perceptual distance exists on the *interpersonal skill of the agent*. However, the interviews do not confirm anything in that direction. The principal only states to be very satisfied with the skills of the agent (see *Box 4.20*).

Regarding the regulations the perceptions are very similar on both sides as well. The contract is said to be only for backup but actually does play a minor role in this project. Furthermore, on both sides they agree upon the fact that their counterpart follows up on the agreement and deals with the contract very well.

***Box 4.19*. Implementation of regulations**

> *"In the beginning, deviations from the contract were discussed resulting in the expectation that all deviations would be announced to us. Eventually this was not the case, and many things needed to be fixed delivering trouble for the planning."*
>
> Project leader, principal, Project E
>
> *"The quality assurance and monitoring needed to be addressed by me several times. The reports were incorrect. This did not affect the collaboration though. In new projects they have developed and they do show improvement."*
>
> Discipline employee, principal, Project E

***Box 4.20*. Objectives and resources**

> *"They performed above average. They have certainly the qualities that I expected. There is a positive attitude within the project team and that affects the quality.* […] *They put in the effort as well; there has been invested a lot in the employees and the atmosphere."*
>
> Project leader, principal, Project F

***Box 4.21*. Implementation of regulations**

> *"The agent's employees handle the contract well. They follow up on the agreements and, therefore, the contract does not have to be consulted."*
>
> Discipline employee, principal, Project F

Regarding the operational aspect, some perceptual distance is found in the questionnaires. However, organizational differences in *management style* do not necessarily affect the performance in the project as is said in the interviews (see *Box 4.22*). Furthermore, the agent

has much say in the project, and the principal always listens to the advice and solutions that are brought in by the agent.

On the normative aspect, little perceptual distance seems to be present based on the interviews, except for *organizational responsiveness of agent*, which was not confirmed by the interviews. Both parties take their responsibility, both are open and transparent towards each other, information is exchanged, and problems are solved in a cooperative, good manner. Furthermore is stated that both parties share a common goal and that no *self-interest* is involved.

Altogether this little perceptual distance seems to result in more positive project performance. Besides, discussion on any differences and background checks were applied to prevent even this little perceptual distance from occurring or having any impact on performance. Although the *costs* are higher than expected, the *quality* is better as well. Furthermore, the *continuity* of the collaboration is evaluated as highly probable as well.

***Box 4.22*. Operations**

"The agent is a very informal organization. There is a fixed but flat hierarchy. Within the principal the hierarchy is larger and decision-making takes longer than within the agent's organization. […] *But it is also how you deal with this as an employee. When things are well-prepared, decisions can be made fast and this is appreciated within both principal and agent."*

Project leader, principal, Project F

"We are more practically oriented as a company, the principal is more customer-oriented. This does not affect the work, we just follow the principal in this."

Discipline employee, agent, Project F

4.5.7 Project G

Within project G, data has been obtained from four questionnaires on the principal's side and one at the agent's side. A necessary side-note is that the participants have moderate levels on missing data. Appendix J indicates high values for perceptual distance on many variables.

Regarding 'objectives and resources', perceptual distance seems to be present mainly on *goal orientation and satisfaction*, *knowledge principal*, and *knowledge* and *interpersonal skill of the agent*. The distance on *goal orientation and satisfaction* is mainly the result of dissatisfaction of the agent on the goals set regarding *innovation*, because missing data was on the satisfaction on the other goals set. *Knowledge of the principal* is higher evaluated by the agent than by the principal itself, where on the variables

***Box 4.23*. Objectives and resources**

"There are differences between the people at the principal. Some understand our design processes well, other less. You have to understand these processes in order to manage us as an agent."

Project manager, agent, Project G

"At the agent they have the qualities needed. They know substantially what they are doing. However, the designs are not clear for us, they do not deliver it always completely. […] *they are not able to devise what we need to execute our work. This is perceptual distance."*

Discipline employee, principal, Project G

knowledge and *interpersonal skill of the agent*, the principal evaluates the agent to be worse than the agent itself does. This is shown by a quote in *Box 4.23*. The variable *decision making autonomy* is quite inconsistent on both sides internally with some stating the agent to be highly autonomous while others mention the interdependencies with other fields, restricting their autonomy and emphasizing communication.

On the regulative aspect, both variables show high perceptual distance. However, in the interviews little perceptual distance seems to be present. Both parties state the contract to be important, but not often to be consulted during the project. Furthermore, both companies are following up on the agreements. However, some perceptual distance might be the result of dissatisfaction (mainly at the principal's side) with the contract type. Lastly, the contract phase took very long which even resulted in the contract being signed after the start of the execution (both observations are in *Box 4.24*).

Regarding operations, the *management style* is quite similar, which is also supported by the interviews. However, perceptual distance exists on the working style of the agent, which can be improved according to the principal, while the agent itself evaluates its *task routines* and *process vs. result* orientation as much better. Regarding the input the agent has in the project, the agent evaluates them to have more input than the principal evaluates, while in the interviews is mentioned that the principal should listen better to their input within the project. This is shown by the quotes in *Box 4.25*.

On the normative aspect, all variables are evaluated higher by the agent than by the principal (as well *organizational responsiveness of the principal* and *self-interest*, for which a high value implies less self-interest of the principal). Despite the questionnaires, little perceptual distance

***Box 4.24*. Regulations**

> *"The contracting phase took too long, the work had even started before the contract was signed.* […] *The contract is not under-standable to the employees, activities have not been clearly specified and delineated."*
>
> Discipline coordinator, principal, Project G

***Box 4.25*. Operations**

> *"In general, there are some exceptions, the involvement and speed in their work could be quite enhanced. The mentality to work harder when the planning needs to be realized misses as well."*
>
> Discipline manager, principal, Project G
>
> *"Eventually the principal will decide where to go with the design. The agent does proposals, but the principal will look after the best integral solution."*
>
> Discipline manager, principal, Project G
>
> *"They should sometimes listen better to us. It is important to involve the designing parties in the decision process."*
>
> Project manager, agent, Project G

***Box 4.26*. Solidarity**

> *"We deal with problems together, this has been improved over the course of the project. We go through this together.* [But] *they do not carry any risk. They just get paid a high hourly wage that actually could be more conform the market price."*
>
> Discipline manager, principal, Project G

seems to be present on the variable *solidarity* in the interviews; both sides mention that responsibilities are taken when needed, but this has been improved over the project (see *Box 4.26*). Regarding the *organizational responsiveness* on both sides, at the principal's side is stated that changes are not dealt with fast enough, but also not on their side (see *Box 4.27*).

Overall, the project performance is one of the worst of all projects studied, especially on costs and planning. Therefore, the project is confirmative of the hypothesis that perceptual distance influences performance, even though within this project the *prevention* measures (background checks and regular discussion of any differences) are applied.

4.5.8 Project H

In project H, on the principal's side five questionnaires and on the agent's side four questionnaires have been gathered. In Appendix J this project shows perceptual distance on a quite high number of variables, especially on the operational variables.

On the aspect 'objectives and resources', perceptual distance is mainly found on the variables *goal orientation satisfaction*, *knowledge principal*, and *interpersonal skill agent*. The perceptual distance on *goal orientation satisfaction* is mainly on *quality* and *innovation*, where the principal evaluates agreements on these aspects worse than the agent. However, this has not been discussed in the interviews. The *knowledge of the principal* has been evaluated higher by the agent than by the principal, as in more projects. The *interpersonal skills of the agent* are evaluated more badly by the principal, which is illustrated by a quote in *Box 4.28*, mentioning that it has been improved. Regarding *decision-making autonomy* (which was found to be unreliable in the factor analysis), some perceptual distance was present both within

***Box 4.27*. Organizational responsiveness**

> *"Regarding the process sometimes it is mentioned that something has to be done quickly. At times, we miss here the understanding that a design needs to be finished quite in advance of the execution."*
>
> Discipline employee, principal, Project G
>
> *"Changes are caused by one of the many parties involved, this needs to be noticed on time. At both sides this can be improved."*
>
> Project coordinator, principal, Project G

***Box 4.28*. Objectives and resources**

> *"In the beginning there were some communication problems of the agent with our customer. However, this has been improved after someone else was made responsible for this."*
>
> *"The agent has the authority to make decisions. However, on both sides* [this intention] *has not been followed through very well . On our side, they would not take their hands off, while on their side* […] *they were not proactive."*
>
> Discipline employee, principal, Project H
>
> *"In this project we have a* [specific type of contract with engineering as responsibility of the agent] *while much input is given, such as drawings. This creates a grey area. They did not dare to let go everything.* […] *We have received drawings, for instance, through which we could exclude some specific risks. Eventually, these risk appeared to be present, however, in contradiction to the drawings."*
>
> Project leader, agent, Project H

and between the teams. In this project, the contract was designed to provide the agent with the autonomy; however, several employees on the principal's side still wanted much control, while the employees on the agent's side did not take enough initiative, as is very clearly described by some quotes in *Box 4.28*. Therefore, perceptual distance on *decision-making autonomy* and the *implementation of the regulations* are related.

On the regulative aspect, more perceptual distance is present, especially on the second variable, which is the *implementation of regulations*. Besides the issues on autonomy, the principal perceives the agent not to follow up on the agreements, which is shown by the quote in *Box 4.29*.

On the operational aspect, most perceptual distance is found (see *Box 4.30*). Firstly, the principal evaluates the effectiveness, mentality and speed in the work of the agent worse than the agent does itself. During the interviews was explained that some switches in personnel influenced this in a positive way, communication became better and the process more structured. Regarding the say and participation of the agent, the principal did expect more initiative, but in general both sides stated that the authority lies at the principal's side. The differences in hierarchy and *management style* is present, but it is stated that it does not affect the project.

On the last aspect, the normative, perceptual distance is mainly present on two variables, *integrity* and *organizational responsiveness agent*. Both have higher values at the agent's side. One very clear supporting quote can be found in *Box 4.31* regarding the *integrity* of the agent. Besides these two variables, as well perceptual distance on *openness* is found within the interviews. At the principal, employees perceive the agent to be very closed and limitedly sharing information. Regarding the

***Box 4.29*. Regulations**

> *"Both companies have dealt well with the contract. The execution is, however, not conform the agreements.* […] *We had certain agreements in the contract, specific request they had promised to execute and eventually could not make true."*
>
> Project leader, principal, Project H

***Box 4.30*. Operations**

> *"The working style differs per person, some work very hard while others do not. After a change* [in personnel] *much has improved. Before the change, it was chaotic and you did not know the process. After the change communication was better and more open."*
>
> Discipline employee, principal, Project H
>
> *"Agent is a family company, a flat organization with little hierarchy. Principal is a larger organization with more layers and a more hierarchical structure.* […] *That the organizations are different does not have effect for me on the project."*
>
> Discipline employee, agent, Project H

***Box 4.31*. Norms and values**

> *"They promiss a lot, but they don't do it. We have addressed this multiple times, also written, before something was done with it."*
>
> Discipline employee, principal, Project H
>
> *"We are a very open company, that is different for the agent, they are not really open and honest. It never comes to light what exactly is going on."*
>
> Project leader, principal, Project H

organizational responsiveness, principal states the agent not to be able to anticipate on any delays, mainly due to a lack of capacity on their side (see *Box 4.31*).

***Box 4.*31. [Continued]**

> *"The planning has been overrun, they reacted not quickly enough to this, they could not manage that."*
>
> Discipline employee, principal, Project H

Overall, the performance lacks mostly on *quality*, *sustainability*, and *innovation*, while *cost* and *planning* seem to be conform the expectations. Compared to the other projects, performance is quite low; however, continuity of the relationship is still probable even though less effort has been put into *prevention* of perceptual distance by the principal. Hence, compared to the other projects, project H does only partially confirm the conceptual framework.

4.5.9 Project I

For project I, six questionnaires on the principal's side and five questionnaires on the buyer's side have been gathered. This project is characterized by little to no perceptual distance, as is clearly visible in Appendix J. Only on the normative aspect, some minor differences seem to be present.

On the aspect 'objectives and resources', the interviews as well reveal little perceptual distance, although internally on the principal's side perceptions can deviate from each other. In general, *conflicts* have been solved well. In the beginning some problems tended to be present, but after a change in personnel on both sides the collaboration enhanced. The agent has the qualities and has put in the effort to realize the deadline in collaboration with the principal. At both sides is as well clear, that whenever something is not done properly it will be mentioned and improved (see *Box 4.32*).

***Box 4.32*. Objectives and resources**

> *"Agent certainly has the qualities needed. Halfway the project, we needed to adjust ourselves, because some people were not on the right place. This has been solved well."*
>
> Discipline manager, principal, Project I
>
> *"The planning is also important in cost control: the earlier we get involved, the better we can estimate the costs. In this project we have been involved early in the start-up phase. The project was very complex which became more clear later on; and acceleration in the project was needed. This acceleration has been done adequately and in good dialog."*
>
> Director, agent, Project I

On the regulative aspect, as well little perceptual distance is found. Reading the quote in *Box 4.33*, it is clear that on the higher management levels, at least, employees follow up on the agreements and solve their problems in a good manner.

***Box 4.33*. Regulations**

> *"On the working level, sometimes they look for the edge on both sides. On higher levels they follow up on the agreements."*
>
> Discipline manager, principal, Project I

Regarding the operations, at the principal they are satisfied with among others the mentality, effectiveness, and speed in work. Furthermore, the agent has much say within the project and at both sides this is appreciated and considered to be valuable.

On the normative aspect, both parties perceive their counterpart to be *flexible* and

to take responsibility. Except for some minor incidents, promises were kept and trust was present (see *Box 4.34*). Furthermore, at both sides was invested in the project and collaboration, although internally on the principal's side employees do not agree upon the extent to which the agent has invested. Also on *organizational responsiveness principal*, little perceptual distance is found within the interviews.

Overall, almost no perceptual distance is found and from the questionnaires can be derived that little *prevention* of perceptual distance and its effect on performance is applied. Regarding the result is observable that the *continuity* of the collaboration is highly certain, while performance on *costs* was much lower and the performance on *quality* higher than expected. Hence, support for the conceptual framework is partially provided by this project.

4.5.10 Project J

For the tenth and last project, four questionnaires have been received from either side. This project is characterized by moderate perceptual distance, which can be seen in Appendix J.

On the objectives and resources aspect, perceptual distance is the highest on *knowledge agent*, *knowledge principal*, and *goal orientation satisfaction*. On *constructive conflict*, moderate perceptual distance is found; however, the quotes in *Box 4.35* do reveal some perceptual distance regarding conflicts. *Knowledge principal* is higher evaluated by the agent than by the principal, which has therefore not come back in the interview. *Knowledge agent* has been evaluated higher by the principal than by the agent as in many other projects. Hence, in the interviews on the principal's side mostly positive evaluation was given. Regarding the *goal orientation satisfaction* can be said that agent was in general satisfied with the agreements while principal was moderately

***Box 4.34*. Norms and values**

"There have been multiple interpretations of what is included in the contract.This has delivered some discussions, in which the principal found it to be part of the contract and we did not. This is not unique in this work […] *With these discussion we usually stroke the mean, it has been solved in harmony."*

General manager, agent, Project I

"Trust had to grow over the course of the collaboration, as well as the will to meet with each other and a mutual understanding enlarged. It evolved from individualistic to teamwork."

Director, agent, Project I

***Box 4.35*. Objectives and resources**

"Most conflicts consider the tasks; it always has to do something with finance. However, because it is fixed price, it is their case. [in other cases] *we will look at it together."*

Discipline employee, principal, Project J

"Conflicts recur in meetings. We always work it out. Often it is about interpretations of [specific contractual pieces]*; it is often related to costs. Most of the times we are the ones who have to make a compromise."*

Project leader, agent, Project J

"They have both the technical and the social side present in their project team."

Project leader, principal, Project J

satisfied to satisfied. However, this has been limitedly discussed in the interviews.

Regarding regulations, perceptual distance is found on the *implementation*. This is related to both a poorly specified contract, making the principal not very satisfied with the contract and delivering several discussions. Furthermore, the agent does not always clearly communicate agreements made with the final customer. Both aspects can be seen in *Box 4.36*.

On the operational aspect less perceptual distance is found. Regarding the working style (*internal task routines*, *process vs. result*) there is some perceptual distance, but it is stated that it is work in progress, explaining the moderate distance that is found. Furthermore, organizational differences are present, especially regarding hierarchy and decision-making although this is not confirmed by the questionnaire (*management style*); however, these do hardly affect project performance (see *Box 4.37*).

On the normative aspect, some perceptual distance is present. From the questionnaires can be seen that most distance is present on *organizational responsiveness of the agent* and *integrity*. However, in the interviews some issues were raised regarding *solidarity* in the collaboration, which fades away in the quantitative analysis due to the high standard deviation within principal on this variable. However, both parties tend to perceive themselves as more solidary to the counterpart than vice versa, clearly illustrated by the quotes in *Box 4.38*. The variable *self-interest* has been evaluated higher (meaning lower self-interest of the principal) by the agent which is quite controversial to the quote of the project leader at the agent in *Box 4.38*. The difference on *integrity* is related to the difference on *openness* as is explained in the

***Box 4.36*. Regulations**

"There have been many variations [additional]*, because of poorly described specifications; however, sometimes it was mentioned in the specifications but did they just try to get a variation order."*

Project leader, principal, Project J

"Sometimes agreements were made with the final customer which were not communicated to us, and would deliver variations. Here we were not involved well by them, but this has been improved."

Discipline employee, principal, Project J

***Box 4.37*. Operations**

"We have less layers in our organization. We can make decisions faster regarding the project. Within principal many issues need to be discussed internally afterwards. We do not suffer from this. If you know this about each other, you can take it into account."

Project leader, agent, Project J

***Box 4.38*. Norms and values**

"The willingness to do each other a favour is less here than in other projects. That can be, to some extent, ascribed to their attitude."

"If there would have been more openness, more trust could have emerged."

Project leader, principal, Project J

"Regarding responsibility it usually concerns deviations from the specifications. We have to do more often a favour to the principal than the other way around. This is not different from other projects."

Project leader, agent, Project J

Box 4.38 as well. Lastly, concerning *organizational responsiveness* no perceptual distance can be observed within the interviews.

Overall, little to moderate levels of perceptual distance are found within project J, considering both the questionnaire and the interviews. The performance of the project is largely conform the expectations except for *performance on costs*, which is slightly worse. Remarkably, the *continuity* of the collaboration is bad. However, within *Box 4.39*, a probable explanation is given to this strange observation. This project largely supports the conceptual framework.

***Box 4.39*. Continuity**

> *"Internally there is a certain bias on and attitude towards this agent. I do not really recognize this. You have to look at the knowledge and skills of an agent in the selection for a project."*
>
> Discipline employee, principal, Project J

§4.6 Revised Conceptual Framework

The conceptual framework that is proposed in Chapter 2, has been tested with both quantitative and qualitative data in this chapter. Questionnaires have been used to perform several tests, namely: (1) group difference within the entire sample, (2) correlation between perceptual distance on variables and performance indicators, and (3) a structural equation model. Furthermore, with these questionnaires perceptual distance has been calculated per project, per variable. This perceptual distance has been visualized in Appendix J, which has been used for the cross-case comparison with the qualitative data in §4.5. In this paragraph, the observations from the previous paragraphs are firstly summarized, which lead to the revised conceptual framework.

Firstly, within the cross-case comparison most variables tend to be consistent between interviews and questionnaires. However, not all the perceptual distance that was found in the questionnaires was supported by statements from the interviews. However, on average there was one variable with perceptual distance per project that could not be supported by the interviews, and it are different variables over the projects. Hence, the interviews and the questionnaires are consistent with each other and do provide a solid basis for analysis. The projects in which no inconsistencies were present between interviews and questionnaires were the projects with the highest sample size (project D, H, and I). This implies, that whenever research is done on perceptual distance between (project) teams the preferred sample size per team would be $n \geq 5$.

Secondly, in several projects (project F, H, and J) was stated that any differences in management style, hierarchy and decision making does not affect the collaboration or performance in any way. Therefore, this variable will be omitted from the conceptual framework.

Thirdly, in several projects, perceptual distance on *knowledge of the agent* (and/or *principal*) is very high. These projects are B, D, G, and J. Within three of these projects, the agent evaluates the *knowledge of the principal* much higher than the agent evaluates itself and the principal evaluates itself. Furthermore, the principal evaluates the *knowledge of the agent* higher than the agent does itself, while the principal does evaluate the *knowledge of the principal* and of the *agent* quite equally. This is true among almost all the projects, as was

discussed in §4.4; however, for these four projects the effect is much larger. This is a quite unexpected observation, and a visualization is shown in *Figure 4.2*. When considering that especially three of these four projects are the projects with the 'worst' performance, *knowledge principal* and *knowledge agent* contribute quite much to perceptual distance, which implies that these variables should remain in the revised conceptual framework.

Fourthly, several variables show limited perceptual distance on any of the projects, and can therefore be expected to contribute limitedly to project performance. These variables are *goal accomplishment*, *constructive conflict*, *interpersonal skill principal*, *integrity*, *joint effort*, *self-interest*, and *organizational responsiveness principal*. However, the variable *integrity* did show perceptual distance in the interviews. Unexpectedly, many of these variables belong to the aspects of objectives and resources (1-3) and norms and values (4-7). That perceptual distance does limitedly occur on these variables does not mean that self-interest, or unreliability (integrity) does not occur in buyer-supplier collaborations in the construction industry; it only implies that whenever self-interest is or is not present, both parties perceive this in an equal manner.

Lastly, several variables that are found unreliable in §4.3 did reveal perceptual distance within the interviews. Variables that were discussed in several projects and did show perceptual distance within the interviews are *decision making autonomy*, *flexibility*, *openness*, and *information sharing*. For these variables, in future research reliable scales should be constructed in order to address the perceptual distance on these variables that can be present within buyer-supplier collaborations.

With these observations from the cross-case analysis, and the results from both the correlation analysis, shown in Appendix I, and the structural equation model, *Table 4.2* is constructed. This table shows per analysis the variables that did show perceptual distance, and contribute negatively to project performance. Within the cross-case analysis a distinction is made between the calculated perceptual distance, and its consistency with the interviews. Furthermore, also the performance indicators have been assessed. The different analyses and methodologies are relatively consistent with each other. Considering the final statements regarding the cross-case analysis as well, several variables need to be omitted from the conceptual framework based on this study. These variables are *goal accomplishment*, *constructive conflict*, *interpersonal skill principal*, *importance of regulations*, *agent vs. project*, *management style*, *solidarity*, *joint effort*, *self-interest*, and *organizational responsiveness principal*. Of the performance indicators, *sustainability*, and *innovativity* will be removed from the model, since these only were found to relate negatively to perceptual distance in one of the tests.

***Table 4.2*. The omission of variables from the conceptual framework per methodology with which the model is tested**

Variable	SEM	Cross-case comparison		Corre-lations	Final model
		Colors	Interviews		
Goal accomplishment					-
Goal orientation and satisfaction	X	X	X[a]		X
Constructive conflict				X	-
Knowledge principal	X	X	X	X	X
Interpersonal skill principal					-

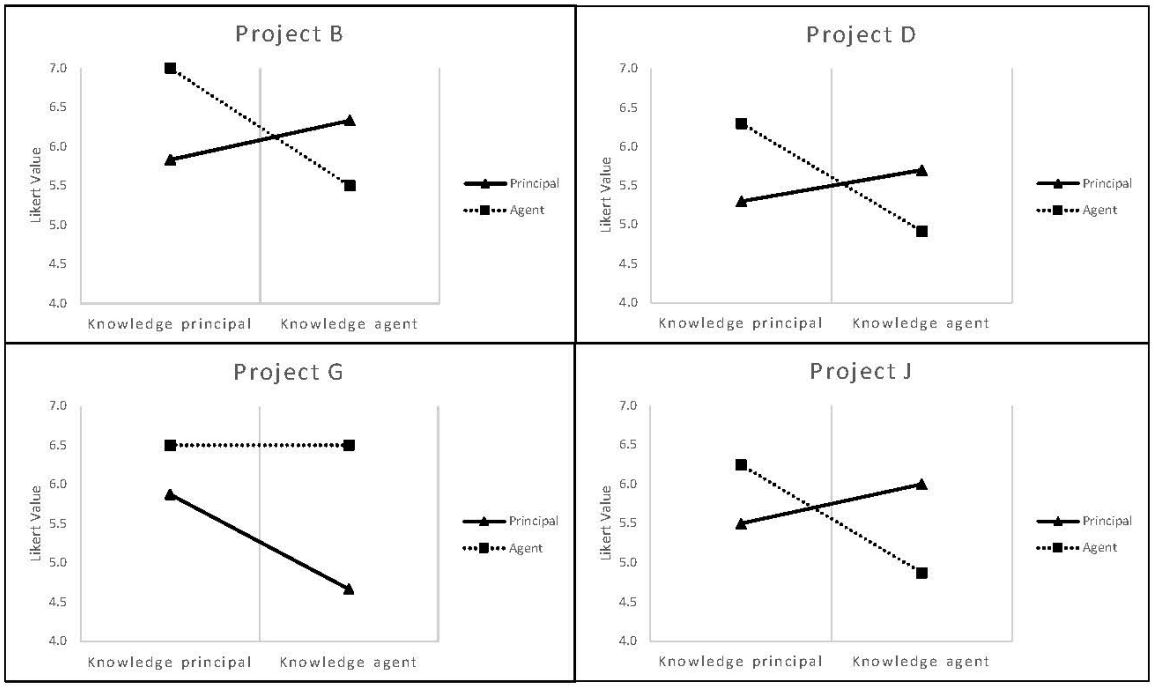

***Figure 4.2*. The evaluation of both principal and agent on the knowledge of principal and agent within project B (upper left), project D (upper right), project G, (lower left), and project J (lower right).**

Table 4.2. **[Continued]**

Knowledge agent	X	X	X	X	X
Interpersonal skill agent		X	X	X	X
Importance of regulations		X			-
Implementation of regulations	X	X	X	X	X
Internal task routines agent	X	X	X	X	X
Process vs. result agent	X	X	X		X
Agent vs. project	X			X	-
Normative vs. pragmatic	X	X	X[a]		X
Management style		X			-
Solidarity		X			-
Integrity	X	X	X	X	X
Joint effort					-
Self-interest	X			X	-
Organizational responsiveness principal				X	-
Organizational responsiveness agent	X	X	X	X	X
Continuity	X	X	n.a.	X	X
Costs	X	X	n.a.	X	X
Planning	X	X	n.a.	X	X
Quality	X	X	n.a.		X
Sustainability			n.a.	X	-
Innovativity		X	n.a.		-

[a] Limitedly discussed in the interviews

The omission of these variables leads to the revised conceptual framework which is depicted in *Figure 4.3*.

§4.7 Conclusion

With both the quantitative and qualitative data, with a visualization of the perceptual distance on all reliable variables per project and the quotes from the interviews, perceptual distance has been explored within the ten projects. The quantitative and qualitative data, and the resulting analyses are found consistent with each other, and both indicate that perceptual distance does indeed negatively affect project performance. Furthermore, the effect of perceptual distance on project performance is mitigated by preventive measures applied by the principal and agent.

Ten variables are found to be the most contributing to this perceptual distance, and, therefore the most influential on project performance (continuity, costs, planning, and quality). These variables are divided over four categories, namely (1) objectives and resources (*goal orientation and satisfaction*, *knowledge principal*, *knowledge agent*, and *interpersonal skill agent*), (2) regulations (*implementation of regulations*), (3) operations (*internal task routines agent*, *process vs. result agent*, and *normative vs. pragmatic*), and (4) norms and values (*integrity*, *organizational responsiveness agent*). Hence, the many variables that were found in the literature review to be susceptible to perceptual distance have been narrowed to a selection of variables, especially eroding the contribution of the normative aspect to perceptual distance. This narrowing provides future research with a more solid starting point, and enables practitioners to focus their attention to the most important aspects of perceptual distance and social control in general in their management of collaborations.

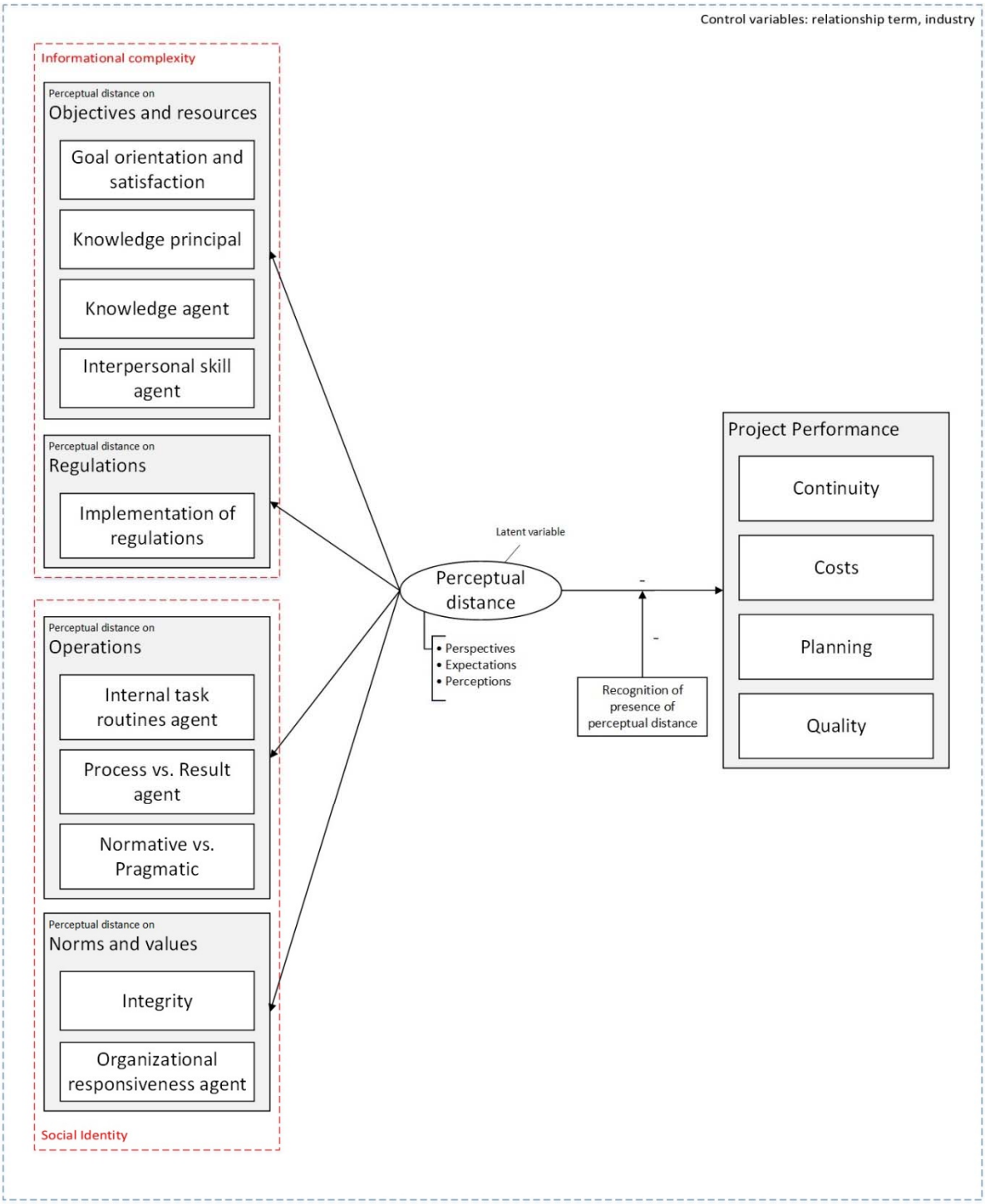

***Figure 4.3*. The revised conceptual framework**

Hence, in the following chapter, the underlying mechanisms for perceptual distance on these ten variables is investigated in order to develop a solution for the perceptual distance that is present. This solution that is created for practitioners can be used to mitigate the effect of perceptual distance on project performance, which is as well proved to affect project performance.

Chapter 5 Solution Design

§5.1 Introduction

In the previous chapter the ten construction projects have been compared using both the quantitative and the qualitative data that is obtained. Within this analysis, several variables present little perceptual distance in all of the projects. On the other hand, several variables demonstrate significant perceptual distance in several projects. Furthermore, perceptual distance does negatively affect project performance.

Obviously, companies do benefit from a better performance of their projects. Therefore, this chapter aims to design a solution for (construction) companies to prevent perceptual distance from occurring or having effect on project performance. As is proved as well within the analysis, the preventive measures applied within the projects (background checks and discussion on any organizational differences) do affect as well project performance, but in a positive way. Hence, a tool that can be used by practitioners to properly discuss any perceptual distance is probable to enhance project performance.

The next paragraph starts with the requirements for the solution design. How does the solution need to address the different variables on which perceptual distance can occur. Afterwards, in §5.3 the nature of perceptual distance on each variable is sought in order to create the solution that is as well presented in this paragraph. In the fourth paragraph, the solution is tested on fulfilling the design requirements.

§5.2 Design Requirements

Firstly, since all the projects and the entire study has focused on the construction industry, the solution is as well primarily aimed to serve the construction industry. In Chapter 1 is stated that the construction industry is highly complex due to the many different companies (contractors and subcontractors) that are involved in the projects, especially when the projects are larger and involve many different disciplines.

The solution addresses the interface of two collaborating companies with a definite principal- and agent-role. Hence, the solution is not meant for application in collaboration of equivalent partners within construction projects. Since the application of the solution does probably need some time and effort, the solution is mostly designed to serve more business-critical and important (sub)contractors.

Furthermore, the tool should be compatible with and complementary to the current processes and structures in place regarding supplier management. Moreover, the solution should be convenient to use (i.e. compact and easy to understand).

§5.3 Solution

In order to provide practice with a suitable solution, it is needed to understand the underlying mechanisms of perceptual distance that does occur on the ten variables that are found reliable and contribute to perceptual distance.

Goal orientation and satisfaction

Apparently, when one of both parties is more or less satisfied with the goals set than the other, this does negatively affect project performance. Performance has been divided into five different directions within this study, namely: (1) costs, (2) planning, (3) quality, (4) sustainability, and (5) innovativity. The projects that have the highest perceptual distance on this variable are project B, G, H, and J. Within these projects, cost and innovativity seem to be the most contributing (see *Table 5.1*). Furthermore, it is not necessarily true that either agent or participant is always more satisfied with a particular performance indicator, although it seems to be that agreements on the less specifiable indicators (quality, sustainability, and innovativity) are usually more satisfactory for the agent, but no support can be found for this in either interviews or questionnaires. Since goal orientation and satisfaction does highly contribute to perceptual distance, it is valuable for both parties to discuss the satisfaction at either side on all the indicators in the projects, and discuss any dissatisfaction where present and investigate opportunities to enhance this.

***Table 5.1*. Perceptual distance on goal orientation and satisfaction indicated by the modification of hedges' *g* and between brackets the party evaluating this item the highest**

Goal Satisfaction	B	G	H	J
Costs	1.713 (p)	[a]		1.451 (a)
Planning	2.141 (p)	[a]		
Quality		[a]	2.117 (a)	
Sustainability		[a]		1.138 (a)
Innovativity		1.783 (a)	1.167 (a)	.972 (a)

[a] This item did lack sufficient data to measure perceptual distance

Knowledge principal and knowledge agent

As is already discussed in §4.6, four projects within the sample, project B, D, G, and J show significant perceptual distance on the variables *knowledge principal* and *knowledge agent*. Investigating how the perceptual distance on the two variables is related, *Figure 4.2* is the result. The question is how it can be that the projects in which the agent perceives the principal to be more knowledgeable than itself have the worst performance. What these projects have in common is that there is as well perceptual distance on the variables *internal task routines agent*, *process vs. result agent*, and *organizational responsiveness agent*.

Several underlying mechanisms are possible. A study performed by Corsten and Kumar (2005) explains this correlation quite well and gives also direction to underlying mechanisms. When suppliers do perceive asymmetric capabilities or knowledge in the collaboration they get a feeling of inferiority to the buyers, leading to "*a passive acceptance of lower performance outcomes*" (p. 90) which does refer to the supplier's performance, but not necessarily. Somehow, it can be quipped that what is observed in these projects is an "enterprise inferiority complex". This is related to power imbalance in the collaboration as well. Hence, the hypothesis could be made that in collaborations in which the buyer is, or at least 'acts', more powerful (and knowledgeable) the buyer will perceive their knowledgeability to be inferior leading them to accept lower performance. However, research is needed to support this brief hypothesis made here.

In these projects the buyer does not perceive the agents to be less knowledgeable, leading to the conclusion that this perceptual distance is not objective, but purely a wrong perception

possibly resulting from power imbalance within the collaboration. Hence, it is in reach of both parties to decrease this perceptual distance by discussing this issue.

Interpersonal skill agent

On the variable *interpersonal skill agent*, perceptual distance mainly exists in project G, and H, and as well in lesser extent in project A, C, and F. In each of these projects, the agent evaluates its interpersonal skills higher than the principal does. Within project A is quite clear from the quotes that the principal perceives a lack of planning capacity at the agent's side, which is related to teamwork and negotiation skills for which is asked in the questionnaire. In project C, the most likely explanation lies in the statements that little responsibility is taken and that there were some discussions on the contract in the beginning (affecting the satisfaction of the principal with the negotiation skills of the agent). Within project F, little support for the perceptual distance on this variable is found. The principal in project G states the agent to be unable to deliver conform wishes of the principal because they do not understand it. This is related to communication, persuasiveness, assertiveness, and empathy at the agent's side, which are interpersonal skills. Lastly, in project H, the principal stated that some communication problems were present in the beginning between the agent and the final customer. In general, at the principal side is stated that agents have lack of some specific social, interpersonal capabilities; therefore, there is a need to manage the agents on this aspect.

Hence, principal and agent should regularly discuss their satisfaction with the interpersonal skills of their counterpart. Especially in the beginning, where negotiation, communication, and the understanding of each other's expectations play a central and crucial role and where both parties can still adjust to each other.

Implementation of regulations

The *implementation of regulations* reveals high perceptual distance in projects G, H, and J, and moderate perceptual distance in project A, and C. Except for project A, which shows the least perceptual distance of these, in all projects the agent evaluates this variable higher. Hence, the agent evaluates more than the principal that 'execution is conform agreements', 'agent/principal follows up on the agreements', and 'either party does not try to bypass the contract'. Since most of the contract determines the processes for the agent, specifies their work, activities, deadlines, et cetera, it is expected that it is more likely for the principal to be dissatisfied with this variable and these items than for the agent.

The underlying mechanism can be twofold: (1) principal and agent have different perceptions of the agreements, or (2) the agent evaluates its own fulfilment of these agreements more positively than the principal. However, in both case it affects performance negatively. Because, the perception of the principal of the agreements determines whether other activities and work, planned by the principal are aligned with the activities of the agent. In project G and J, the first scenario seems to be true (wrong or poor specifications, leading to different interpretations/perceptions), in project H, the second scenario is the case (they could not make true their promises due to capacity problems).

Hence, for both scenario's lessons can be learned. First of all, assumptions regarding the agreements at both sides should be mentioned and discussed. Even though it might have a financial purpose not do this (in order to earn on contract variations later in the project) this will affect the continuity of the collaboration for the agent; therefore, ruining future business

for the agent completely. Secondly, whenever conditions are as such that agreements cannot or are not met, this should be openly discussed and explained, and possible adjustments at either side to fulfill these agreements should be supported.

Internal task routines agent and process vs. result agent

The variables *internal task routines agent* and *process vs. result agent* have high perceptual distance in several projects. Furthermore, perceptual distance on these two variables is highly correlated ($p < .05$). The projects that suffer the most from perceptual distance on these variables are projects B, D, G, and H. Project J shows some perceptual distance here as well. At all five projects, on both variables the principal evaluated the agent lower than the agent did itself, implying that the principal is less satisfied with among others the effectiveness, mentality, speed in work, and initiative at the side of the agent.

The quotes from two of these four projects (i.e. D and G), which can be found in §4.5, show that the agents perceive the principal to have very little understanding of their processes. According to them, the principal does not take into account the implications its decisions have on the processes of the agent. Logically, this might result in increase of work for the agent, who needs longer time to finish it; and, this extended planning is perceived by the principal as proof of little effectiveness and speed in work at the agent. As well in project H, some issues were present regarding the processes of the agent and the way these processes were perceived by the principal as chaotic, which created little understanding at their side. However, within this project participants state that this had been improved afterwards.

Hence, projects D, G, and H show together that an understanding of each other's processes, which is a responsibility of both parties, can be very crucial for perceptual distance and does therefore affect the project performance. The responsibility for the agent is to explain their processes, to point at the implications of certain decisions made by the principal, and to regularly discuss their processes and progress with the principal. On the other hand, the principal should take into account the agent's processes, the implications of their decisions on the work of the agent, and either adjust their decisions or take the responsibility for the consequences of them.

However, as was indicated as well in project D and G, the work that was performed by the agent was not always according to the wishes of the principal, because "*they are not able to devise what we need to execute our work*". In project D, this was clearly the result of working on separate locations increasing misunderstandings and rework. Hence, misunderstanding of each other's processes goes two ways, the agent is not able to determine what the principal needs (even though they are knowledgeable of their discipline) while the principal does not know what processes are behind the work of the agent.

Normative vs. pragmatic

In two projects, F and G, this variables shows large perceptual distance, as well but less significantly in project C and J. Within each of these projects, the agent evaluated this variable higher than the principal. Hence, the agents perceived more attention towards social responsibility (at either side), and more customer-oriented behavior at the agent's side than the principal does, which affects many other practices according to Pothukuchi et al. (2002). That the presence of attention towards social responsibility is evaluated higher at the agent's side can be explained by the fact that social responsibility is mostly applied in human labor, giving chances to the underprivileged in society. Usually this will be the more practical labor

as compared to the office duty that is more common on the principal's side. On the other item 'emphasis is laid on wishes of the client within agent', perceptual distance would be more logical to affect performance. Whenever the principal does perceive the agent to put less emphasis on their wishes than the agent does itself, this affects performance in a negative manner. However, in the interviews this item has been limitedly discussed; furthermore, considering project F the image of limited emphasis on the principal's wishes does not fit. Hence, few recommendations can be given regarding this variable.

Integrity

Mainly in projects H, and J the variable *integrity* reveals perceptual distance. Furthermore, in project A, G, and I, *integrity* shows moderate perceptual distance as well. In most of these projects, the agent perceives higher *integrity* within the collaboration than the principal, except for project I, in which the principal perceives higher *integrity*.

Within project A, H and I, the fulfilment of promises was mentioned in the interviews. In project A the agent did not make true their promises regarding planning and capacity, while in project H the agent generally did not fulfil their promises (as well regarding planning and capacity). In project I, on the agent's side was stated that "*there were some incidents in which they did not fulfil their promises, but in general promises are fulfilled*". Hence, both parties should be open when promises cannot be fulfilled and inform each other about this, looking for opportunities to solve the issue. Otherwise, in the future, problems will eventually occur since promises are as well remembered by the other party. Furthermore, the disadvantaged party should as well state any dissatisfaction when promises are not kept.

In project G, and J, money is the largest issue. In project G is stated that the agent easily earns its money, rates are not really market-conform, which is perceived as unfair (part of *integrity*). In project J is stated that the agent tries to get variation offers, even when the activity is actually part of the agreement. Furthermore, *openness* plays a role as well in the perceived *integrity*, clearly in project J, but also in project H it seems related. Hence, when both parties are open regarding changes and/or variations, and regarding an unappreciated financial attitude at the other side, this needs to be discussed. Both aspects should be discussed as early as probably, preferably prior to collaboration, since this determines as well the expectations. For instance, agents have a tendency to adjust their offer in the beginning by knowing earnings can be derived from variation offers. When both parties have clearly discussed this beforehand, less issues regarding *integrity* will be the result.

Organizational responsiveness agent

This factor show perceptual distance on many projects, among which the most within project D, F, G, H, and J. In these five projects, agents are more positive regarding their organizational responsiveness (openness to change, open-minded in problem-solving, and speed in dealing with changes). Perceptual distance on this project is significantly ($p < .05$) and mostly correlated to perceptual distance on *knowledge agent*, and secondly to perceptual distance on *internal task routines agent* ($p < .05$).

In project D is obvious that the principal is dissatisfied with the way the agent reacts to changes, while the agent states that the principal does not take account for the consequences of the chances they ask for. In project F, little distance on this variable is present according to the interviews. In project G, dissatisfaction is mostly the result of a lack of speed at the agent's

***Box 5.1*. The tool (DECODE) that has been developed for managing perceptual distance in construction projects**

Six recommendations to manage

Perceptual Distance

1. Discuss satisfaction with goals

Q1. What are the current goals regarding costs, planning, quality, sustainability, and innovativity?
Q2. How do we perceive these goals?
Q3. How can we mutually enhance our (satisfaction with the) goals?

2. Exploit knowledge

Q1. What is everyone's expertise?
Q2. Where can specific expertise be used?
Q3. How can we support in bringing in this expertise/knowledge?

3. Clearly mention assumptions

Q1. What do both parties assume (not) to be shared under the agreements?
Q2. On which standards do we base these assumptions?
Q3. What do we do eventually when other assumptions of us deviate as well?

4. Openly discuss deviations a.s.a.p.

Q1. What can be agreed on now in dealing with any deviations beforehand?
Q2. What might be difficult to execute in the process?
Q3. What additions might occur during the process?

5. Discuss expectations and delivery

Q1. How is the work of the agent perceived, and how can this be improved (also input by principal)?
Q2. How do both parties communicate, and how can this be improved?
Q3. Are there any promises we cannot fulfil or are not fulfilled by the other?
Q4. How can these still be made true?

6. Explain processes

Q1. What processes are behind your work that we do not see?
Q2. What are the implications of changes we propose to these processes?
Q3. How can we support each other in limiting the negative consequences?

side in its reaction to changes, as well as in project H. Lastly, in project J it is more due to the lack of openness on the agent's side in any changes within the project.

Hence, perceptual distance could be largely prevented by (1) reporting and explaining the implications of any changes by the agent, and (2) being open on all the changes that happen in the project and mention these to the other party.

Tool

Concluding, in *Box 5.1* the most important recommendations to prevent and manage perceptual distance on the variables mentioned before are summarized and organized in a compact one-pager. The six recommendations that are made in this tool do address most of the variables. The first recommendation addresses the perceptual distance on *goal orientation and satisfaction*; the second the distance on variables *knowledge agent*, and *knowledge principal*; the third *implementation of regulations*; the fourth *implementation of regulations*, *integrity* and *organizational responsiveness agent*; the fifth, *interpersonal skill agent*, and *integrity*; and, the sixth *internal task routines agent*, *process vs. result agent*, and *organizational responsiveness agent*. In the following paragraph is elaborated upon the implementation of this tool.

§5.4 Implementation

Since the tool is developed for multiple companies, the specificity of the implementation will be left for the specific companies, since both have their respective processes and procedures in place. However, some general recommendations are given regarding the implementation and how the tool should be used within the construction industry.

The first recommendation regards when the tool should be applied. Construction project can be divided into several phases or points. Most commonly, the following phases/points can be determined: (1) request for proposal (to a selection of contractors), (2) reception of the offer, (3) selection of the contractor, (4) negotiation process, (5) contract signing, (6) milestones or delivery points, and (7) final delivery. Although some of these phases or points may be skipped, for the sake of simplicity these seven phases/points are assumed. When each of the recommendations will need to be discussed is pointed out below:

- **Discussion on satisfaction with goals** is most important after the request has been sent by the principal. The agent's offer will contain their specified goals in which proposals can be done to enhance the mutual goals within the project. From there discussion on the goals that are set can continue until the start of the project.
- **Exploitation of knowledge** should be made explicit from the very beginning, in which agents are given the space to use their expertise and the knowledge they have to propose smarter solutions, products, and processes. Furthermore, in the beginning, can still be decided on many issues; however, during execution these decisions (and the expertise) must be applied logically.
- **Clearly mention assumptions** is mostly important in the beginning, where assumptions are made based on previous projects and collaborations. In the early phases, both parties should be explicit what logically can be expected from each other, and where they base these assumptions on (which industrial standards, or references are held by the representatives).

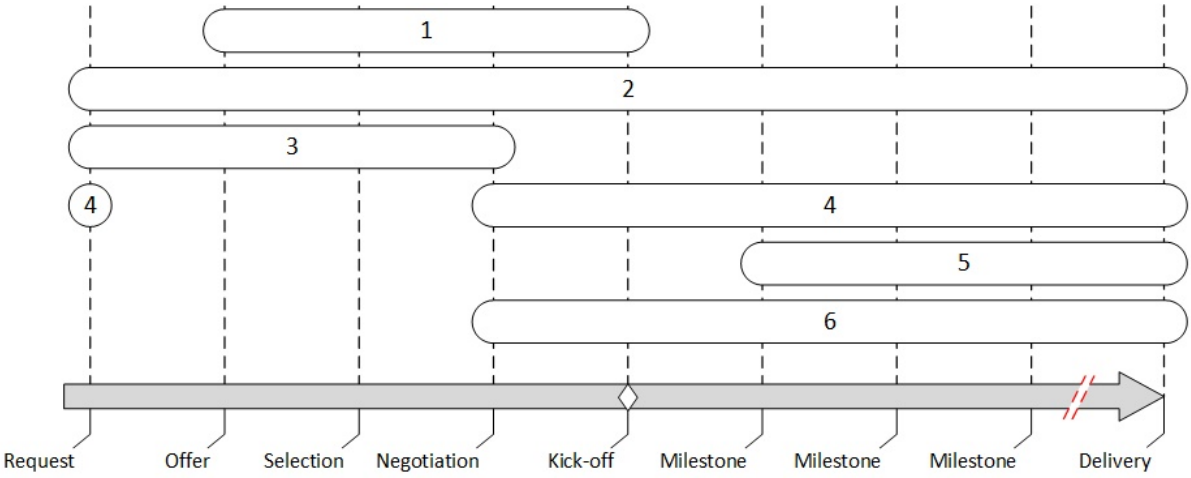

***Figure 5.1*.The different project phases and the important recommendations for these phases**

- **Openly discuss deviations as soon as possible** is very important in the earliest phase; agreements should be made on how to deal with any deviations that might occur in the project, and what kind of deviations can be expected by both parties. During the project, any deviation, be it an addition or reduction, should be mentioned as soon as possible and discussed when needed, because it might affect the processes of the other for instance.
- **Discuss expectations and delivery** should be done on a regular base during the execution of the project. At both sides improvements might be needed, because either party can have certain expectations that the other has little knowledge of. Furthermore, it should be mentioned whenever certain promises are not fulfilled or cannot be fulfilled, since the disadvantaged party still expects the promise to be fulfilled which affects the probability of continuity which is far more effective than the short-term advantage it could deliver not to mention the unfulfilled promise.
- **Explain processes** is a very important recommendation. The understanding of each other's processes lacked in many of the cases studied, affecting the perception of the parties. By knowing the counterparty's processes, it can be understand why something takes longer, or why something should (not) be done in a specific way. The responsibility here is two-sided; whenever a representative is not able to explain the processes, it cannot expect the counterparty to take these processes into account. With this should be started before the kick-off of the project and should be continuously focused on during the entire execution of the project.

Concluding, in *Figure 5.1* the planning for the different recommendations can be seen over the project planning.

The second recommendation regards how the tool should be applied. Since preference may differ per project leader or company, several potential solution directions are provided. The first and most obvious solution is to put these points on the agenda for the meetings that are held at or around the time points on the graph in *Figure 5.1*. However, only posing the question will not be sufficient to prevent perceptual distance; moreover, openness and respect should be present on either side. The principal needs to realize that as a facilitator of the meeting (s)he should provide the space for the agent to react and to be honest without being judged or 'punished' instantly. Furthermore, the question why something is the case regarding all the six recommendations should be explained in order to realize respect and mutual understanding within the collaboration. Other options might be:

- 'White paper session' with four quadrants 'dream', 'fear', 'do', and 'don't' to make a distinction between the strategic and the operational level and to specify both desirable and undesirable behavior. In these quadrants, post-it's are put in an early (kick-off) meeting by both parties in the collaboration regarding the aspects relevant at the time of the meeting. In subsequent meetings, these post-it's could be grouped on whether they are going well or badly. This sheet can be hung in a central office or meeting room so that everyone is aware of these issues and agreements and their current state.
- Discussion on each of the six recommendations at the beginning (as soon as the aspect can be discussed). Subsequently, prior to every meeting both parties evaluate each other and the current state regarding the performance on every aspects. This evaluation could be done based on a set of questions or statements, such as (1a) we are satisfied with the

goals set, (1b) the other party acts according the goals, (2a) there is the space to bring in our expertise, (2b) the other party makes use of its expertise for the benefit of both parties, (3a) it is clear what the other party perceives to be our activities and our role, (3b) the other party acts as we did expect and assumed them to do, (4a) it is clear how we deal with any type of deviation, (4b) the other party handles with deviations very well, (5a) the other party delivers as is expected, (5b) communication by the other party is done well, (6a) the processes of the other party are clear to us, (6b) the other party respects and takes into account our processes. However, these questions are dependent on the agreements that are made in the beginning.

These examples are just some of the many potential implementations of the six recommendations for the management of perceptual distance. Most importantly, any setting is good in which both sides of the table, representatives of both principal and agent are able to speak out and can be open regarding their dissatisfaction or satisfaction on any of the issues in mutual respect.

§5.5 Conclusion

Concluding, to prevent perceptual distance from occurring, and mitigating its effect on project performance, companies should be aware of the ten variables on which perceptual distance can occur. These variables are: *goal orientation and satisfaction*, *knowledge principal*, *knowledge agent*, *interpersonal skill agent*, *implementation of regulations*, *internal task routines agent*, *process vs. result agent*, *normative vs. pragmatic*, *integrity*, and *organizational responsiveness agent*. In this chapter a tool for principal-agent collaborations in the construction industry is presented which is convenient to use and compatible and complementary to the current processes. This tool is a set of six recommendations (with underlying questions for meetings):

1. Discuss satisfaction on goals
2. Exploit knowledge
3. Clearly mention assumptions
4. Openly discuss deviations a.s.a.p.
5. Discuss expectations and delivery
6. Explain processes

When this tool is used in (preparation of) meetings, and both parties are able to speak out their opinions and perceptions regarding the six recommendation and underlying questions, then perceptual distance is mitigated. Of these six recommendations, the first and third are most important prior to the execution of the project; the second and fourth during the entire project, while the fifth and sixth are most important during the execution phase of the project.

Chapter 6 Conclusion

§6.1 Discussion and limitations

This study started with the observation that literature is inconsistent regarding the presence of perceptual distance within buyer-supplier relationships. Some studies state perceptual distance to be present, while in other studies is found that it is not (Oosterhuis et al., 2013). However, it is indicated that specific sampling methods underlie the studies that do show the absence of perceptual distance. The errors meant here are single-sided observation, snowball-sampling (in which positive relationships are more likely to be analyzed), and complete sample comparison instead of project-specific analysis. Therefore, the approach in this study has been dyadically, and comparison has been made on project-base. Furthermore, a selection of business-critical relationships has been made in ten projects within two companies.

This study shows significant perceptual distance on many variables in these ten projects, in which there is a diversity in the projects regarding both perceptual distance and project performance. Although there is limited support, due to the sample size, for the effect of perceptual distance on project performance, the data support and give direction of this effect and the most important variables. At least, the findings of this study contradict the studies revealing no significant perceptual distance between buyers and suppliers, supporting the statement that their results are indeed influenced by their methodology.

However, this study does have several limitations as well. The first and most important limitation is the single industry in which this study has been performed. The construction industry is a very typical industry which has a complex structure with many critical interdependencies due to outsourcing to (sub)contractors (Segerstedt & Olofsson, 2010; Vrijhoef & De Ridder, 2005). Therefore, it is a good environment for this study in which buyer-supplier relationships play an important role, and are assumed to affect performance. Therefore, the applicability of this study to other fields cannot be guaranteed.

Secondly, the sample size is very small due to the multi-level character of this research. While 77 respondents participated, they were divided over twenty teams within ten projects. Therefore, some teams eventually had only one participant, while others had six participants. The single informant per team is an undesirable situation, given the standard deviation that is present in other projects between the participants within a team. In §4.6 is explained that the preferred sample size per team is ≥ 5, due to the inconsistencies that might appear between interviews and questionnaires. Furthermore, whenever a team perception is used based on individual's questionnaires, it is desirable to justify the aggregation by use of the eta-squared or intraclass correlations (ICC1, and ICC2) for instance (Klein & Kozlowski, 2000). However, due to the very small team size, which was determined by the extent to which team members were able to answer the questions, these analyses were not possible. This multi-level character of this study resulted also in a sample size of 10 (projects) for the final analysis in which the effect of perceptual distance on project performance was tested. Logically, this test did not yield in a significant result for this correlation.

A final limitation of this study is the use of nonmetric data in the analysis. While the use of nonmetric data is not uncommon in social science, it might be a burden when it comes to the calculation of perceptual distance, in which these nonmetric values are used in calculations to derive a standardized mean difference (hedges' *g*) (Hair et al., 2009). However, for the calculation of significant differences, as well methods specifically developed for dealing with nonmetric data are used, such as the Mann-Whitney U test. A comparison of the different methods for indicating perceptual distance on all the projects is found in Appendix K. Only in Project G, substantial differences are found between the Mann-Whitney U test and the standardized mean difference Cohen's *d* (comparable to hedges' *g*).

§6.2 Conclusion

In this study has been found that perceptual distance does occur in buyer-supplier collaborations within the construction industry. A selection of variables contribute the most to perceptual distance in its effect on project performance, based on several analysis using both quantitative and qualitative methodologies. These variables are *goal orientation and satisfaction*, *knowledge principal*, *knowledge agent*, *interpersonal skill agent*, *implementation of regulations*, *internal task routines agent*, *process vs. result agent*, *normative vs. pragmatic*, *integrity*, and *organizational responsiveness agent*. Although quantitative support is limited due to the small sample size, the different methodologies applied do support together the conceptual framework making perceptual distance of interest for managers due to its negative effect on performance. Furthermore, the effect of perceptual distance is mitigated by the preventive measures that are applied by the buyer in their cooperation with the supplier. Therefore, a solution is proposed that can be used to regularly discuss the variables on which perceptual distance is found, or their underlying mechanisms that cause their existence. This solution (see *Box 5.1*) addresses the ten variables on which perceptual distance is most likely to be present in a compact one-pager with six recommendations that should be used by both principal and agent and kept in mind during meetings and discussions.

§6.3 Implications

6.3.1 Theoretical implications

From a theoretical point of view, studies on perceptual distance are scarce and inconsistent. Applying knowledge from other fields, such as team-leader literature and organizational culture distance in alliances, the research gap of perceptual distance in buyer-supplier collaborations has been tried to fill. Hence, this study has added several elements to current literature.

First of all, the study is consistent with the statement in current literature that perceptual distance is present within buyer-supplier relationships. Moreover, this study has explored many variables on which perceptual distance could be found according to literature, and has made a selection of the most detrimental variables for project performance. However, quantitative support is limited, implying that in future research more projects should be analyzed on the presence of perceptual distance in order to deliver more support for the assumption that perceptual distance does indeed affect project performance. Furthermore, many variables were omitted because they were found unreliable in the confirmatory factor analysis. In future research more reliable, consistent items should be found for the

construction of these variables, since in the interviews these variables seemed to reveal perceptual distance in several projects.

Secondly, within this study multi-methodological research is applied, using interviews as qualitative data and questionnaires as quantitative data. For the exploratory character of this research this methodology is highly recommended, since the qualitative data enabled to bring nuance in the data that was obtained from the questionnaires. Furthermore, the interviews provided much insight into the underlying mechanisms for perceptual distance which also provided the support for the composition of the tool presented in Chapter 5.

Thirdly, several methods and equations have been found and applied in order to calculate perceptual distance on the variables. Although nonmetric data is gathered, the calculation of the standardized mean difference as embodied in the natural logarithm of hedges' *g* is consistent with parametric analysis of group differences using the Mann-Whitney U test. However, the original cut-off values for standardized mean differences had to be loosened.

6.3.2 Managerial implications

In the beginning of this study is stated that the emphasis of managers still lays at formal control in their management of buyer-supplier relationships. This study indicates the importance of social control within these relationships by addressing and proving the presence of perceptual distance. Furthermore, perceptual distance most probably affects project performance in a negative manner, implying that when managers want to increase their performance, they should pay attention to perceptual distance or, generally, to social control within their business collaborations.

Furthermore is stated that tools need to be provided to practice in order to make social control more specific and manageable as well, since formal control still receives the emphasis due to its rational and manageable character. The scientific knowledge on perceptual distance obtained in this study is presented in a relevant and insightful manner by means of a tool that is both compact and understandable and can be used easily in the interface of principal and agent in construction projects.

§6.4 Recommendations

The last paragraph of this study concludes with the recommendations for both companies that the study has been performed in, and for companies in the construction industry in general. Overall, the first recommendation is to apply the tool that has been proposed in *Box 5.1*. The use of this tool should be on a regular basis using the timeline in *Figure 5.1*, in order to detect any occurring perceptual distance before it influences any processes of the project and collaboration. The implementation can be done in several ways, of which three are proposed in Chapter 5 as well. Both parties should react to the different recommendations and the underlying questions, and most importantly, should be open on all the issues that might be present in this discussion.

During the interviews, many other issues have been discussed. Although these do not necessarily relate to the topic of this study, they are worth mentioning since they are usually somehow related or seen as the cause of perceptual distance in some of the projects.

One regularly mentioned aspect is (the length of) the contract negotiations. For many agents, but for the principal's employees as well, this phase needs to be shortened for a quick

start on the project. Sometimes, execution of the project did even have to start before the contract was signed what is seen as formal 'misbehavior' at the higher levels within the agents' management (see *Box 6.1*).

Another important lesson is that changing teams between the tender and execution phase is perceived to impact the buyer-supplier relationships in a negative manner (see *Box 6.2*). Agreements are limitedly transferred to the subsequent teams, which in project B might have resulted in the renegotiation of the agreements which impacted the agent, and in project G to an opacity regarding the agreements on the principal's side leading to failure in meeting the planning. Apparently, construction projects are heavily dependent on the knowledge transfer that happens between changing teams, but as well between different projects. This is emphasized at two different agents that state that in new projects with the same principal they have to feeling to start all over again, which is perceived badly by both participants (the quote from project I is depicted in *Box 6.2*). This project-based attitude in the construction industry is supported as well by a quotes from project F at the principal's side (see *Box 6.3*) as well which state that a project-based approach is not necessary and does impact the collaboration and the project. This does not necessarily imply that teams should remain fixed. However, more attention should be paid towards the transfer of knowledge, expertise and agreements, and the continuity in the collaboration with suppliers. A further investigation of this phenomenon is recommended.

This observation of changing teams is interlacing with the importance of the human aspects within construction projects. The importance of the right individual on the right function in the right project is as well illustrated by the three projects (projects D, H, and I, see *Box 6.4*) in which changes were

***Box 6.1*. Contracting phase**

"The contracting phase took too long. You start with a forecast in the tender, after which a new team arrives which extends the process. […] *Therefore, we have to start before we have the contract. Formally this is not possible, but from a collaborative perspective it is."*

General manager, agent, Project A

***Box 6.2*. Changing teams**

"It was disappointing that the agreements that we had made in the tender phase were altered later in the contract negotiations. […] *Because there was a different team during the tender phase and the contracting phase, the agreements were not clear for both parties."*

Director, agent, Project B

"The team for the tender phase was different from the team during the execution. Therefore, agreements were not very clear. […] *It would be good to work in fixed teams for the projects, from the tender phase to the realization phase, but also between comparable projects."*

Discipline coordinator, principal, Project G

"It is a shame that in the construction industry, knowledge is not transferred and that successful approaches [meaning specific combinations of buyer and supplier]*, in which costs are being cut, are being torned down.* […] *It is a shame that we work on project base, instead of having a long-term relationships in which we could work with an open budget […] in new projects primarily the price counts."*

Director, agent, Project I

made in the project team due to difficulties in the collaboration after which the collaboration enhanced as perceived by participants on both sides. This mismatch in employees between the principal and the agent, could be tried to prevent by several means, such as (1) acquaintance meetings (as applied in project E), (2) partially fixed teams for specific projects with specific buyers/ suppliers, (3) team selection by the principal (with 'job interviews'), or more advanced methods such as (4) personality tests in determining the collaborative teams. However, this is out of the scope of this study, and can only be a recommendation for further analysis or experiments within the companies.

A last observation over multiple projects is the opinion that is shared by several agents that their involvement in the early phases and processes of the project is limited and could be enlarged (see *Box 6.5*). A large body of research into early supplier involvement (ESI) does already exist, and the involvement of key suppliers in the early design phase of the project is often proved to enhance performance in terms of costs, planning and quality (Johnsen, 2009). However, several managerial challenges are present in ESI such as the supplier selection, the coordination and the need for presence of trust and commitment within the collaboration. Especially trust and commitment need some attention in the determination of partners in the construction industry, due to the dominant project-based approach in the construction industry (Vrijhoef & De Ridder, 2005).

***Box 6.3*. Project-based approach**

> *"Construction is human labour. Both sides should give and take. It is a project for a specific term, but they should not deal as such in the collaboration. Then, the relationship could be for longer term."*
>
> Project leader, principal, Project F

***Box 6.4*. Human aspect in project team**

> *"There can be someone* [in the project team] *at both sides that has less qualities, or does not fit in the team.* […] *It is very important to prevent this beforehand."*
>
> Discipline employee, principal, Project I

***Box 6.5*. Early involvement of suppliers**

> *"It would help if we could contribute and help in the starting phase, with the project plans for instance."*
>
> Project leader, agent, Project G
>
> *"We should find new methods to enter these type of projects. If agents would be involved earlier, than adjustments can be better made."*
>
> Project leader, agent, Project D

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Appendices

Appendix A. Description of the projects

Dura Vermeer

Project – i-Lent

This project concerns the digging of a side-path of one of the largest rivers in the Netherlands as well as moving the dikes 350 meter inland. This side-path is dug in Nijmegen, a large city in the Netherlands, to decrease the influence of high tide on the area and nature along the river. The project is commissioned by the regional water authorities. In this project several bridges need to be extended or built. The project size is 350 million Euro. The project is initiated October 2012 and planned to be finished before April 2016.

***Figure A.0.1*. Render image of the project in finished state (left), aerial photo while the largest bridge is extended and traffic led via the bypass (right)**

Subcontractor – Van Noordenne

The subcontractor in this project that has been chosen for the study is the company that delivers and fixes the reinforcement steel for among others the bridges. The subcontractor was faced with several challenges, mainly regarding the planning. Therefore, the collaboration with this subcontractor is seen as critic for project performance. The subcontractor has been chosen after a limited tender. The contract was an integrated contract (UAV-GC 2005) and the subcontractor has got paid about 8 million.

***Figure A.0.2*. Fixation of the reinforcement steel, the main task of the subcontractor**

Project – Parkeergarages Leiden

This project concerns the construction of a multi-storey underground car park in the city center of a large city in the Netherlands. The customer of the construction company is the municipality. The car park is the deepest in the Netherlands at the time built. Additionally, Dura Vermeer provides 15 years of maintenance, resulting in a DBM-contract. The project size is 29.0 million Euro for both the construction and maintenance. The contract was signed April 2014 and the project is planned to be finished end of October 2016.

***Figure A.0.3*. A cross-section of the car park (left), the ground work of the subcontractor (right)**

Subcontractor – Verboon Maasland

The subcontractor in this project that has been chosen for the study is the company that takes care of the groundwork as preparation for the construction. The groundwork is critical in underground projects' success since it is the first construction phase in the project and determines much of the subsequent steps. The subcontractor has been chosen after a limited tender. The contract size is 1.9 million Euro. The contract is typified as a UAV-GC 2005 (integrated contract).

Project – Dijkversterking Spui-Oost

This project concerns the reinforcement of 8.3 kilometer of dike along a river in the Netherlands in order to guarantee safety for the surrounding area for the coming 50 years. The project was initiated by the regional water authority. The project size is 26.8 million Euro. The project started December 2014 and is planned to be finished June 30th, 2017.

***Figure A.0.4*. Two images of the project under construction**

Subcontractor – Fugro GeoServices

The subcontractor in this project that has been chosen for the study is the company engineering and calculating the project. This early stage of the project is critical for the success of the project as a whole. The tender has been a negotiated tender with one single supplier. The contract is typified as a DNR 2011 contract (Dutch abbreviation for 'The New Rule'), which is a type of contract specifically for engineering, design, and architecture outsourcing. The contract size is 830 thousand Euro. The planning for the engineering and calculation was from February till August 2015, but has been extended.

Project – OV Saal

This project concerns the improvement and broadening of a railway trajectory of 2.3 kilometer around the central station of Almere, a large city in the Netherlands. On the same railway two other trajectories are improved as part of the project. The customer of the construction company is the government agency in the rail road industry. The project size is 28 million Euro, excl. additional works. The project was initiated September 2014 and is planned to be finished December 1st, 2016.

***Figure A.0.5*. Two aerial photos of the railway trajectory: under construction (left), and before construction (right)**

Subcontractor – Movares

The subcontractor in this project that has been chosen for the study is the company delivering the design and engineering of the project. This early stage of the project is critical for the success of the project as a whole. The tender has been a negotiated tender based on a framework agreement, resulting in a DNR 2011 based contract. The contract size with this subcontractor was set at 2.0 million Euro, but has been realized at 2.3 million Euro.

Project – De Vaart

This project concerns the improvement and broadening of a highway trajectory of 15 kilometer in the south of the Netherlands. The project client is the province government. The project size is 71 million Euro. The project was initiated January 2015 and is planned to be finished March 2017.

***Figure A.0.6*. One of the interchanges that is part of the trajectory: the current situation (left) and the design (right)**

Subcontractor – Advin

The subcontractor in this project that has been chosen for the study is the company delivering the design and engineering of the project. This early stage of the project is critical for the success of the project as a whole. The tender has been a negotiated tender based on a framework agreement, resulting in a DNR 2011 based contract. The contract size with this subcontractor is 1.5 million Euro.

Woonbedrijf

Project – Aireys Nieuwbouw

This project concerns the demolishment of 54 apartments and 12 houses and the construction of 68 apartments and 14 houses. Including, the contractor was asked to maintain the complexes for a subsequent 15 years, making it a DBM-contract. The project size is 11.3 million Euro. The demolishment started January 2014, the project is finished December 9th, 2015. Within this project, sustainability and participation of the future inhabitants played a major role.

***Figure A.0.7*. Two render images of the project consisting of apartments and houses**

Contractor – Heijmans

The contractor in this project is one of the larger construction companies in the Netherlands. The contractor was chosen after a restricted tender with five bidders winnowed to a shortlist of three bidders in which the companies were selected based on their affinity with the contract type and maintenance in general.

Project – Tivoli fase III

This project concerns the renovation of 180 houses of 10 different types in inhabited state. The contract type that has been chosen for this project is an Engineering & Construct (integrated contract) type with a warranty of 25 years. This contract type had not been used before by Woonbedrijf for a renovation project. The project size is 4.0 million Euro. The project started January 2015 and was planned to be finished December 31st 2015.

***Figure A.0.8*. Two photos of the project taken during the renovation**

Contractor – Groenen

The contractor in this project is a local family-business. This contractor has regularly done business for the principal over the past years; therefore, they are familiar with the clients of the housing association. The contractor was chosen after a limited tender with three bidders.

Project – De Kemphaan

This project concerns the construction of 22 houses. The focus in this project is standardization with lower costs as a result. The contract size (for the construction) is 1.7 million Euro. It is a turn-key contract including a warranty of 30 years. The planning for the project started November 2014 and the project was planned to be finished July 31st, 2015. The project has been realized between April and July 2015.

***Figure A.0.9*. Two render images of the project**

Contractor – Stam en de Koning

The contractor in this project is a local contractor as part of one of the largest construction companies of the Netherlands which consists of over 100 subsidiary companies. The contractor was chosen after a restricted tender with six bidders winnowed to a shortlist of three bidders in which the companies were selected on their affinity with standardized concept-houses.

Project – Philipsdorp fase II

This project concerns the renovation of 245 houses of 10 different types. This includes the temporary housing for the inhabitants. The project had been cut in two parts of both 7.9 million Euro. The second part would be assigned to the contractor in case the first part went well (measured with several KPIs). The planning of the first part was from September 30th, 2013 until December 21st, 2014; the second part was from December 21st, 2014 until March 31st, 2016. The contract is a standard construction contract (UAV2012).

***Figure A.0.10*. Photo of a part of the project after renovation (left), aerial photo of the district (right)**

Contractor – Jansen-Huybregts

The contractor in this project is a smaller, but national construction company specialized in renovation and maintenance. The contractor was chosen after a limited tender with three bidders.

Project – Philipsdorp fase III

This project concerns the renovation of 69 houses of 14 different types. This includes the temporary housing of the inhabitants. The contract is a standard construction contract (UAV2012). The size of the project was set at 7.2 million Euro. The project is a part of a larger set of projects. The planning of the project was from January 12th until November 28th, 2015.

***Figure A.0.11*. Render image of a part of the project after renovation (left), photo of situation after renovation of another part of the project (right)**

Contractor – Strukton van Straten

The contractor in this project is a smaller local construction company, which has been overtaken by an international technological company after bankruptcy in October 2012. This project has been assigned to the contractor due to performance according the KPI's in the earlier project (in the set mentioned before) via a negotiated tender.

Appendix B. Interview Questions (in Dutch)

Cognitief

Waarom de samenwerking met het andere bedrijf?

Wat zijn belangrijke aspecten/resultaten (innovatie, duurzaamheid, kosten, planning, kwaliteit) voor uw bedrijf in dit project?

Wanneer er conflicten ontstaan, hoe gaan beide partijen daar mee om?

Tot op welke hoogte acht u de aannemer zelfstandig in het maken van beslissingen en veranderingen in het project?

Heeft de andere partij de kwaliteiten die nodig zijn en die u verwacht had in de samenwerking met deze partij?

Regelgeving

Wat is de rol van het contract in deze relatie?

Hoe is het contract tot stand gekomen?

Waren jullie als partij tevreden met het type contract dat werd/wordt gehanteerd?

Hoe gaat de andere partij om met het contract?

Houdt men zich aan de afspraken in deze samenwerking?

Operationele zaken

Hoe bevalt de manier van werken van de andere partij u? (werkmentaliteit, doelmatigheid, initiatief, snelheid, formaliteit)

Hoe is in de inspraak van beide partijen en hoe zijn de verhoudingen?

Hoe sluiten de bedrijfsculturen bij elkaar aan? ((in)formeel, maatschappelijk verantwoord, procedures, controle, besluitvorming)

Normen en waarden

Hoe gaat men om met verantwoordelijkheid in deze samenwerking?

In hoeverre is men bereid een dienst te bewijzen aan de partner?

Hoe flexibel is de andere partij en hoe gaan jullie om met veranderingen?

Hoe eerlijk verloopt de samenwerking?

Hoe gaat men om met (mondelinge) beloften?

Hoeveel investeren beide partijen in de samenwerking en hoeveel passen zij zich aan elkaar aan?

Hoe gaan jullie om met informatie? Hoeveel wordt gedeeld en wordt er achtergehouden? Wat is uw beeld bij de informatieverstrekking van de andere partij?

Hoe open vindt u de andere partij?

Hoe worden beslissingen gemaakt? Is er sprake van overleg en samenwerking?

Welke belangen van beide partijen spelen er in de samenwerking en hoeveel aandacht wordt hieraan besteed?

Hoe gaat de andere partij om met probleem oplossen en (openheid voor) veranderingen in situaties?

Wat voor cijfer geeft u de samenwerking over het geheel?

Appendix C. Normality Analysis

Descriptive Statistics

	N	Mean	Std. Deviation	Complete sample		Buyer		Supplier	
	Statistic	Statistic	Statistic	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$
APC1	66	4.83	1.484	-1.821	-.589	-1.336	-.681	-1.221	-.166
APC2	70	4.84	1.337	-2.446	.725	-1.236	-.406	-2.682	2.658
APC3	68	4.44	1.274	-1.647	.977	-1.328	1.603	-.774	.298
C1PC1	64	5.36	1.429	-2.286	.509	-1.894	.118	-.239	-.841
C1PC2	73	4.52	1.270	1.948	.148	1.588	-.370	.896	1.002
C1PC3	71	4.18	.867	.594	.994	-.385	.174	2.644	-.231
C1PC4	69	3.83	.617	-8.759	14.060	-2.993	6.455	-4.503	4.156
C1PC5	70	3.61	1.120	-1.116	2.785	.548	3.952	-1.286	.349
C1V1	64	4.95	1.485	-3.654	.489	-2.783	.931	-2.464	.011
C1V2	69	5.17	1.599	-3.555	-.001	-3.175	.365	-1.994	-.309
C1V3	66	5.36	1.090	-4.769	1.724	-2.762	.103	-4.261	3.132
C1V4	66	5.26	.997	-.853	-2.509	.438	-2.101	-1.961	-.321
C1V5	68	4.88	1.310	-2.008	-.874	-.700	-.782	-2.480	.232
C2PC1	73	5.47	1.270	-4.173	2.404	-3.350	3.148	-2.368	.576
C2PC2	74	2.11	1.211	4.593	2.136	2.881	.556	3.534	2.249
C2PC3	75	5.75	.807	-6.087	10.122	-2.428	6.320	-3.191	4.099
C2PC4	71	5.70	1.126	-4.898	4.065	-2.787	1.010	-.262	-.334
C3PC1	70	5.69	.910	-5.418	6.516	-4.268	3.466	.346	.395
C3PC2	71	5.32	1.240	-4.618	3.002	-3.319	1.425	-3.375	4.082
C4PC1	74	5.99	.482	-.137	2.691	-2.290	1.158	2.970	-.288
C4PC2	75	5.87	.704	-4.385	6.446	-4.149	4.224	2.486	-.921
C4PC3	74	6.09	.501	.681	1.690	.833	2.150	.181	.659
C4PC4	74	5.89	.713	-1.889	1.108	-1.350	1.650	-1.147	.091
C4PC5	75	5.56	.919	-3.678	1.717	-2.987	1.564	-2.281	1.223
C4PC6	75	5.71	.818	-2.733	1.760	-2.682	2.076	-.878	.110
C4PC7	73	5.67	.783	-1.444	-.108	-.551	-.238	-1.648	.490
C4PC8	71	5.65	.896	-7.489	11.228	-6.122	10.672	-4.748	6.909
C4PC9	70	5.67	.863	-5.209	6.808	-3.927	3.795	-3.143	4.701
C4PC10	71	5.65	.958	-4.611	2.866	-4.540	3.478	-2.641	1.359
C4PC11	70	5.29	1.218	-4.498	3.634	-3.546	3.582	-3.232	2.381
C4PC12	70	5.14	1.158	-2.751	.385	-1.586	-.057	-2.185	.645
C4PC13	71	5.34	1.027	-3.062	1.512	-1.922	.144	-2.598	2.561
C4PC14	71	5.03	1.219	-3.711	3.189	-3.052	2.637	-3.251	3.581
GPC1	71	5.70	1.388	-4.799	2.912	-2.067	.009	-5.792	7.722
GPC2	70	5.66	1.350	-4.469	2.548	-1.750	-.844	-4.992	6.033
N1PC1	73	5.34	1.356	-4.552	3.033	-4.910	7.121	-1.810	.090
N1PC2	74	5.62	1.082	-4.886	3.435	-4.260	3.306	-2.727	1.742
N2PC1	74	5.16	1.098	-5.194	3.094	-3.654	3.363	-2.955	.597
N2PC2	69	5.55	1.008	-5.300	5.733	-4.381	3.911	-3.208	4.919
N2PP1	72	5.78	1.116	-5.784	7.222	-2.869	.990	-6.278	11.589
N2V1	73	5.86	.751	-6.946	9.839	-4.515	5.024	-6.004	13.462
N3PC1	69	5.77	.942	-4.626	5.858	-2.150	2.582	-4.248	5.584
N3PC2	66	4.59	1.436	-1.958	-.176	-.550	-.535	-1.945	.116
N3PC3	69	4.94	1.149	-2.247	-.618	-2.292	.489	-.989	-1.186
N3PC4	69	5.17	1.350	-3.362	-.009	-1.854	-.766	-3.330	2.171

Descriptive Statistics

	N	Mean	Std. Deviation	Entire Sample		Buyer		Supplier	
	Statistic	Statistic	Statistic	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$
N4PC1	68	5.74	.956	-2.732	.344	-1.555	-.456	-2.027	1.439
N4PC2	67	4.16	1.620	-.695	-1.367	-1.050	-.047	.346	-1.250
N5PC1	74	5.46	.954	-5.741	4.731	-1.665	1.091	-2.433	-.053
N5PC2	70	5.31	1.161	-4.161	2.316	-2.823	.523	-3.916	6.028
N5V1	75	5.99	.814	-5.381	7.114	-2.496	3.002	-3.943	4.504
N5V2	75	5.83	.978	-6.607	7.653	-3.551	4.143	-3.585	2.314
N5V3	74	5.42	1.123	-3.986	1.297	-2.114	-.493	-3.953	3.768
N6PC1	69	2.88	1.500	1.420	-1.616	-.139	-1.504	2.846	1.256
N6PC2	68	3.69	1.605	-.265	-1.829	.258	-1.132	-.691	-1.362
N6PC4	75	3.04	1.428	2.477	-.477	1.864	-.671	1.151	-.675
N6PC5	74	3.80	1.728	.557	-1.911	-.100	-1.424	1.027	-1.033
N7PC1	75	5.29	1.531	-3.699	.972	-3.437	1.634	-1.870	.235
N7PC2	71	5.48	1.094	-4.565	2.083	-2.639	.119	-4.273	4.417
N7PC3	73	5.59	1.065	-5.287	3.676	-3.942	2.544	-3.614	3.037
N8PC1	74	5.26	1.099	-2.987	.246	-2.427	-.387	-.443	-.747
N8PC2	74	5.15	.961	-3.084	1.038	-1.825	-.370	-2.459	1.370
N8PC3	73	5.25	1.128	-5.100	6.902	.046	-1.029	-3.924	3.772
N9PC1	75	5.63	.969	-8.739	14.718	-3.998	2.286	-4.958	6.120
N9PC2	76	5.50	.856	-3.259	1.264	-.706	.135	-2.103	-.516
N9PC3	76	5.24	1.082	-5.213	5.005	-2.219	1.718	-2.592	1.046
N9PC4	70	5.76	1.042	-8.000	13.355	-5.508	6.742	.237	.109
N9PC5	70	5.24	1.233	-2.296	-.753	-.151	-1.194	-1.862	2.916
N9PC6	69	5.14	1.216	-2.683	-.240	-.540	-1.033	-1.775	2.311
O1PC1	46	5.80	.582	-1.864	1.981	-1.864	1.981		
O1PC2	46	5.83	.825	-1.810	.374	-1.810	.374		
O1PC3	46	5.72	.861	-.778	-.598	-.778	-.598		
O1PC4	46	6.15	.666	-1.803	1.867	-1.803	1.867		
O1PC5	71	5.62	.884	-5.021	3.351	-2.606	.043	.585	4.191
O1PC6	71	5.68	1.262	-3.825	1.388	-1.893	-.211	-3.736	5.314
O1PC7	67	5.13	1.370	-2.175	-.417	-.977	-.664	-4.121	4.207
O1PC8	69	5.61	1.178	-4.959	3.794	-3.064	.866	-.450	-.506
O2PC1	44	5.25	.918	-3.484	2.674	-3.484	2.674		
O2PC2	46	5.72	.621	-.881	.465	-.881	.465		
O2PC3	46	6.11	.526	-2.262	7.638	-2.262	7.638		
O2PC4	71	5.25	1.306	-4.538	2.818	-2.599	.245	-.551	-.003
O2PC5	70	5.60	.824	-3.591	2.881	-2.424	.941	-.049	.697
O2PC6	69	5.65	.968	-3.214	.833	-1.715	-.879	-4.250	7.735
O2PP1	74	3.61	1.383	.815	-1.430	1.249	-.825	-.177	-.883
O3PC1	74	5.66	.911	-7.642	10.478	-5.643	7.612	-5.736	9.384
O3PC2	73	5.14	1.170	-4.123	1.692	-3.341	2.470	-2.425	.297
O3PC3	70	5.43	.972	-5.959	5.422	-2.009	-.685	-4.584	3.897
O3PC4	75	5.32	1.055	-6.421	6.933	-4.757	4.794	-3.957	3.964
O4PC1	75	5.43	1.093	-5.302	4.790	-4.202	3.967	-3.111	1.777
O4PC2	69	5.19	1.204	-2.330	.225	-1.812	-.282	-1.906	1.192
O4PC3	38	5.03	.885	-.133	-2.209	-.133	-2.209		
O4PP1	75	5.75	.960	-2.773	.938	-2.009	.519	-1.521	.338

Descriptive Statistics

	N	Mean	Std. Deviation	Entire Sample		Buyer		Supplier	
	Statistic	Statistic	Statistic	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$
O5PC1	76	4.87	1.436	-2.810	-.253	-1.164	-.997	-3.421	2.239
O5PC2	76	4.88	1.200	-2.556	.808	-2.138	.982	-2.131	.907
O5PC3	75	5.43	1.129	-2.407	-.123	-.997	-.569	-2.281	1.968
R1PC1	69	5.51	1.106	-5.183	4.808	-1.491	.484	-4.189	3.365
R1PC2	76	5.96	.576	-1.543	2.805	.000	1.487	-1.471	1.751
R1PP1	73	5.86	1.228	-7.127	9.815	-3.124	2.473	-4.980	5.900
R1V1	73	5.62	1.391	-5.252	4.158	-2.034	.780	-2.708	.571
R2PC1	76	5.13	1.247	-3.472	.033	-2.956	.981	-1.805	-.839
R2PC2	73	4.34	1.502	-1.600	-1.419	-.386	-1.432	-2.092	-.019
R2PC3	73	5.33	1.179	-3.990	1.228	-2.704	.395	-2.771	1.051
R2PC4	68	4.88	1.310	-2.560	.139	-1.640	.020	-2.798	1.660
R2PC5	63	4.49	1.469	-.817	-1.484	.409	-1.195	-1.929	.175
R2PC6	67	2.93	1.636	3.202	.044	1.310	-1.016	3.867	3.051
R2PC7	71	5.00	1.352	-3.068	-.425	-1.679	-.893	-3.005	1.048
R2PP1	75	4.89	1.401	-4.029	1.046	-4.872	5.449	-1.219	-.977
R3PC2	69	4.83	1.485	-2.156	-.852	-1.187	-1.307	-1.652	.302
Valid N (listwise)	26								
			Average z-value (absolute)	3.550	2.973	2.257	1.844	2.562	2.294
			Out of margin	69	43	42	26	48	32

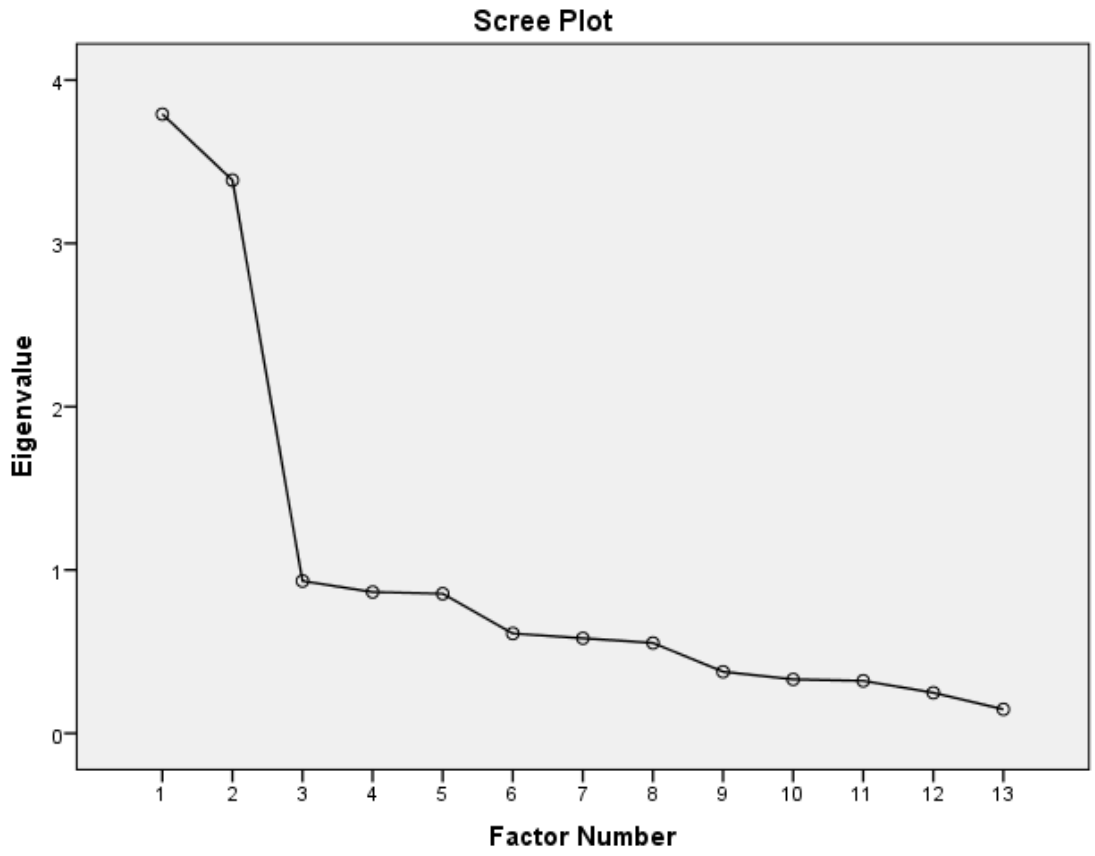
Appendix D. Exploratory Factor Analysis

Pattern Matrix

		Case I: Two factors		Case II: Three factors		
		1	2	1	2	3
R1PC1	De contractuele afspraken zijn belangrijk voor "aannemer".	0.563			0.576	
R1PC2	De contractuele afspraken zijn belangrijk voor "opdrachtgever".	0.435			0.419	
R1PP1	Een contract is een belangrijk element van de samenwerking.	0.791			0.813	
R1V1	Het contract is voor de samenwerking essentieel om controle te hebben.	0.866			0.860	
R2PC1	Er wordt binnen "opdrachtgever" op gewezen als er iets niet volgens het contract verloopt.	0.618			0.620	
R2PC2	Wij vinden het belangrijk om regelmatig met "aannemer" samen het contract door te nemen om zaken te bespreken.	0.612			0.588	
R2PC3	Wij houden ons altijd aan de afspraken die we op papier gemaakt hebben.		0.681			0.669
R2PC4	Zij ("aannemer") houden zich altijd aan de afspraken die we op papier gemaakt hebben.		0.698	0.896		
R2PC5	"aannemer" heeft mondelinge afspraken goed in het projectcontract omschreven.		0.757			0.635
R2PC6r	Regelmatig probeert "aannemer" het contract te omzeilen. (reversed)		0.796			0.651
R2PC7	De uitvoering komt overeen met wat contractueel is afgesproken.		0.577			0.552
R2PP1	Het is belangrijk binnen "opdrachtgever" om regelmatig het contract erbij te pakken om alle projectzaken na te lopen.	0.699			0.708	
R3PC2	Wij zijn tevreden met het type contract dat is afgesloten.		0.591			0.767

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.



Appendix E. Reliability Analyses (incl. items)

Constructive conflict

C2PC1	Conflicten worden in de samenwerking met "aannemer" op een constructieve wijze opgelost.
C2PC2r	Er is vijandigheid tussen de teams van beide partijen. (reversed)
C2PC3	Wij hebben een open houding in het zoeken naar een oplossing voor conflicten.
C2PC4	"aannemer" heeft een open houding in het zoeken naar een oplossing voor conflicten.
C2PC5_cal	Latere samenvoeging van C2PC3 en C2PC4 waarin de vraag m.b.t. de andere partij is.

Scenario 1 C2PC1, C2PC2r, C2PC3, C2PC4
Cronbach's alpha 0.598
No. of items 4

Inter-Item Correlation Matrix

	C2PC1	C2PC2r	C2PC3	C2PC4
C2PC1	1.000	.524	.444	.244
C2PC2r	.524	1.000	.261	.209
C2PC3	.444	.261	1.000	-.074
C2PC4	.244	.209	-.074	1.000

Scenario 2 C2PC1, C2PC2r, C2PC5_cal
Cronbach's alpha 0.742
No. of items 3

Inter-Item Correlation Matrix

	C2PC1	C2PC2r	C2PC5_cal
C2PC1	1.000	.577	.547
C2PC2r	.577	1.000	.339
C2PC5_cal	.547	.339	1.000

Decision-making autonomy

C3PC1	Wanneer er veranderingen nodig zijn die effecten hebben op ons zal "aannemer" ons altijd raadplegen.
C3PC2	"aannemer" is afhankelijk van "opdrachtgever" in het maken van keuzes ten aanzien van het project.

Scenario 1 C3PC1, C3PC2
Cronbach's alpha 0.053
No. of items 2

Inter-Item Correlation Matrix

	C3PC1	C3PC2
C3PC1	1.000	.028
C3PC2	.028	1.000

Competence knowledge (principal)

	Als u denkt aan een typische medewerker van "opdrachtgever" in "project", dan vindt u dat hij/zij:
C4PC1	grote kennis heeft van zijn/haar vakgebied.
C4PC2	beschikt over veel technische vaardigheden.

Scenario 1 C4PC1, C4PC2
Cronbach's alpha 0.726
No. of items 2

Inter-Item Correlation Matrix

	C4PC1	C4PC2
C4PC1	1.000	.588
C4PC2	.588	1.000

Competence interpersonal skill (principal)

Als u denkt aan een typische medewerker van "opdrachtgever" in "project", dan vindt u dat hij/zij:

C4PC3	goed in staat is tot het werken in teams.
C4PC4	goede communicatievaardigheden heeft.
C4PC5	goede onderhandelingsvaardigheden heeft.
C4PC6	overtuigend en assertief is.
C4PC7	een groot empathisch vermogen heeft.

Scenario 1	C4PC3, C4PC4, C4PC5, C4PC6, C4PC7
Cronbach's alpha	0.841
No. of items	5

Inter-Item Correlation Matrix

	C4PC3	C4PC4	C4PC5	C4PC6	C4PC7
C4PC3	1.000	.801	.296	.339	.516
C4PC4	.801	1.000	.480	.473	.636
C4PC5	.296	.480	1.000	.708	.551
C4PC6	.339	.473	.708	1.000	.540
C4PC7	.516	.636	.551	.540	1.000

Competence knowledge (agent)

Als u denkt aan de typische medewerker van "aannemer" in "project", dan vindt u dat hij/zij:

C4PC8	grote kennis heeft van zijn/haar vakgebied.
C4PC9	beschikt over veel technische vaardigheden.

Scenario 1	C4PC8, C4PC9
Cronbach's alpha	0.792
No. of items	2

Inter-Item Correlation Matrix

	C4PC8	C4PC9
C4PC8	1.000	.656
C4PC9	.656	1.000

Competence interpersonal skill (agent)

Als u denkt aan de typische medewerker van "aannemer" in "project", dan vindt u dat hij/zij:

C4PC10	goed in staat is tot het werken in teams.
C4PC11	goede communicatievaardigheden heeft.
C4PC12	goede onderhandelingsvaardigheden heeft.
C4PC13	overtuigend en assertief is.
C4PC14	een groot empathisch vermogen heeft.

Scenario 1	C4PC10, C4PC11, C4PC12, C4PC13, C4PC14
Cronbach's alpha	0.880
No. of items	5

Inter-Item Correlation Matrix

	C4PC10	C4PC11	C4PC12	C4PC13	C4PC14
C4PC10	1.000	.608	.340	.512	.609
C4PC11	.608	1.000	.609	.651	.793
C4PC12	.340	.609	1.000	.729	.499
C4PC13	.512	.651	.729	1.000	.595
C4PC14	.609	.793	.499	.595	1.000

Solidarity

N1PC1	Problemen die zich voordoen tijdens de samenwerking worden behandeld als een verantwoordelijkheid voor beide partijen.
N1PC2	Beide partijen in deze samenwerking zijn bereid om elkaar een dienst te bewijzen.

Scenario 1 N1PC1, N1PC2
Cronbach's alpha 0.731
No. of items 2

Inter-Item Correlation Matrix

	N1PC1	N1PC2
N1PC1	1.000	.596
N1PC2	.596	1.000

Flexibility

N2V1	Wij verwachten dat wanneer de omstandigheden veranderen, beide partijen bereid zijn elkaar tegemoet te komen in de samenwerking.
N2PP1	Wanneer er zich een onverwachte situatie voordoet, werken wij het liefst samen met "aannemer" naar een oplossing dan dat wij vasthouden aan het vastgestelde (contract).
N2PC1	Wanneer "aannemer" veranderingen voorstelt in het project, dan gaan wij daar flexibel mee om.
N2PC2	Wanneer wij veranderingen voorstellen in het project, dan gaat "aannemer" daar flexibel mee om.

Scenario 1 N2PC1, N2PC2, N2PP1, N2V1
Cronbach's alpha 0.505
No. of items 4

Inter-Item Correlation Matrix

	N2PC1	N2PC2	N2PP1	N2V1
N2PC1	1.000	.351	-.036	.241
N2PC2	.351	1.000	.289	.181
N2PP1	-.036	.289	1.000	.234
N2V1	.241	.181	.234	1.000

Scenario 2 N2PC1, N2PC2, N2V1
Cronbach's alpha 0.511
No. of items 3

Inter-Item Correlation Matrix

	N2PC1	N2PC2	N2V1
N2PC1	1.000	.352	.241
N2PC2	.352	1.000	.179
N2V1	.241	.179	1.000

Integrity

N3PC1	Wij vertrouwen (de medewerkers van) "aannemer" waar wij mee samenwerken.
N3PC2	"opdrachtgever" en "aannemer" krijgen beiden een eerlijk aandeel van de opbrengsten vergeleken met de bijdrage die zij leveren.
N3PC3	"aannemer" is consistent in de procedures voor het vaststellen en doorvoeren van veranderingen.
N3PC4	De beloftes die worden gemaakt door "aannemer" worden nagekomen.

Scenario 1 N3PC1, N3PC2, N3PC3, N3PC4
Cronbach's alpha 0.765
No. of items 4

Inter-Item Correlation Matrix

	N3PC1	N3PC2	N3PC3	N3PC4
N3PC1	1.000	.542	.559	.448
N3PC2	.542	1.000	.342	.409
N3PC3	.559	.342	1.000	.530
N3PC4	.448	.409	.530	1.000

Dedicated investments

N4PC1	"aannemer" heeft behoorlijk geïnvesteerd in de samenwerking met ons voor "project".
N4PC2	"aannemer" heeft zich als bedrijf behoorlijk moeten aanpassen om aan de wensen te voldoen die werden gesteld door ons.

Scenario 1 N4PC1, N4PC2
Cronbach's alpha -0.024
No. of items 2

Inter-Item Correlation Matrix

	N4PC1	N4PC2
N4PC1	1.000	-.014
N4PC2	-.014	1.000

Information sharing

N5PC1	Wanneer er vanuit ons een verandering doorgevoerd wordt in "project" stellen wij "aannemer" vooraf (formeel) op de hoogte.
N5PC2	Wanneer er vanuit "aannemer" een verandering doorgevoerd wordt in "project" stellen zij ons vooraf (formeel) op de hoogte.
N5V1	Beide partijen verwachten dat alle informatie die de andere partij kan helpen wordt verstrekt.
N5V2	Beide partijen verwachten dat zij elkaar op de hoogte houden over gebeurtenissen en veranderingen die hen aangaan.
N5V3	Regelmatig wordt er informatie uitgewisseld tussen "opdrachtgever" en "aannemer", naast de vooraf vastgestelde momenten.

Scenario 1 N5PC1, N5PC2, N5V1, N5V2, N5V3
Cronbach's alpha 0.541
No. of items 5

Inter-Item Correlation Matrix

	N5PC1	N5PC2	N5V1	N5V2	N5V3
N5PC1	1.000	.043	.169	.333	.182
N5PC2	.043	1.000	-.005	.282	.151
N5V1	.169	-.005	1.000	.366	.165
N5V2	.333	.282	.366	1.000	.312
N5V3	.182	.151	.165	.312	1.000

Scenario 2 N5PC1, N5V1, N5V2, N5V3
Cronbach's alpha 0.573
No. of items 4

Inter-Item Correlation Matrix

	N5PC1	N5V1	N5V2	N5V3
N5PC1	1.000	.166	.305	.193
N5V1	.166	1.000	.377	.185
N5V2	.305	.377	1.000	.318
N5V3	.193	.185	.318	1.000

Open vs. closed (principal)

N6PC4	"opdrachtgever" is een gesloten en formele organisatie.
N6PC5	Slechts bepaalde mensen van "aannemer" passen bij de bedrijfscultuur van "opdrachtgever".

Scenario 1 N6PC4, N6PC5
Cronbach's alpha 0.442
No. of items 2

Inter-Item Correlation Matrix

	N6PC4	N6PC5
N6PC4	1.000	.288
N6PC5	.288	1.000

Open vs. closed (agent)

N6PC1	"aannemer" is een gesloten en formele organisatie.
N6PC2	Slechts bepaalde mensen van "opdrachtgever" passen bij de bedrijfscultuur van "aannemer".

Scenario 1 N6PC1, N6PC2
Cronbach's alpha 0.607
No. of items 2

Inter-Item Correlation Matrix

	N6PC1	N6PC2
N6PC1	1.000	.437
N6PC2	.437	1.000

Joint effort

N7PC1	De planning voor "project" komt in nauw overleg tot stand tussen "opdrachtgever" en "aannemer".
N7PC2	Oplossingen voor problemen worden samen door "opdrachtgever" en "aannemer" bedacht.
N7PC3	De voortgang, de prestaties en problemen van "project" worden vaak genoeg besproken .

Scenario 1 N7PC1, N7PC2, N7PC3
Cronbach's alpha 0.683
No. of items 3

Inter-Item Correlation Matrix

	N7PC1	N7PC2	N7PC3
N7PC1	1.000	.406	.515
N7PC2	.406	1.000	.368
N7PC3	.515	.368	1.000

Self-interest

N8PC1r	"opdrachtgever"'s belang staat voorop in "project". (reversed)
N8PC2	Wij zijn bereid tot concessies wanneer het voor "aannemer" belangrijke zaken betreft.
N8PC3	Wij zijn geïnteresseerd in de belangen van "aannemer" in "project".

Scenario 1 N8PC1r, N8PC2, N8PC3
Cronbach's alpha -0.441
No. of items 3

Inter-Item Correlation Matrix

	N8PC1r	N8PC2	N8PC3
N8PC1r	1.000	-.393	-.416
N8PC2	-.393	1.000	.502
N8PC3	-.416	.502	1.000

Scenario 2 N8PC2, N8PC3
Cronbach's alpha 0.663
No. of items 2

Inter-Item Correlation Matrix

	N8PC2	N8PC3
N8PC2	1.000	.502
N8PC3	.502	1.000

Organizational responsiveness (principal)

N9PC1	Wij hebben een open houding richting "aannemer" wanneer wij problemen willen oplossen.
N9PC2	Wij zijn open minded (onbevangen) en creatief in onze benadering tot het oplossen van een probleem.
N9PC3	Wij reageren snel op veranderingen, situaties die zich voordoen en het zien van mogelijkheden.

Scenario 1 N9PC1, N9PC2, N9PC3
Cronbach's alpha 0.725
No. of items 3

Inter-Item Correlation Matrix

	N9PC1	N9PC2	N9PC3
N9PC1	1.000	.483	.428
N9PC2	.483	1.000	.516
N9PC3	.428	.516	1.000

Organizational responsiveness (agent)

N9PC4	"aannemer" heeft een open houding richting ons wanneer wij problemen willen oplossen.
N9PC5	Bij "aannemer" zijn ze open minded (onbevangen) en creatief in hun benadering tot het oplossen van een probleem.
N9PC6	"aannemer" reageert snel op veranderingen, situaties die zich voordoen en het zien van mogelijkheden.

Scenario 1 N9PC4, N9PC5, N9PC6
Cronbach's alpha 0,844
No. of items 3

Inter-Item Correlation Matrix

	N9PC4	N9PC5	N9PC6
N9PC4	1.000	.585	.605
N9PC5	.585	1.000	.740
N9PC6	.605	.740	1.000

Internal task routines (principal)

O1PC1	Wij zijn doelmatig en prestatiegericht.
O1PC2	Wij hebben een sterk arbeidsethos (geen 9-5 mentaliteit, overwerken om iets gedaan te krijgen).
O1PC3	Binnen "opdrachtgever" wordt zelfstandigheid gestimuleerd in het maken van beslissingen.
O1PC4	Binnen "opdrachtgever" speelt samenwerking (met andere medewerkers, ook van andere afdelingen) een belangrijke rol.

Scenario 1 O1PC1, O1PC2, O1PC3, O1PC4
Cronbach's alpha 0.535
No. of items 4

Inter-Item Correlation Matrix

	O1PC1	O1PC2	O1PC3	O1PC4
O1PC1	1.000	.576	.331	.193
O1PC2	.576	1.000	.086	-.032
O1PC3	.331	.086	1.000	.310
O1PC4	.193	-.032	.310	1.000

Scenario 2 O1PC1, O1PC2
Cronbach's alpha 0.703
No. of items 2

Inter-Item Correlation Matrix

	O1PC1	O1PC2
O1PC1	1.000	.576
O1PC2	.576	1.000

Internal task routines (agent)

O1PC5	"aannemer" is doelmatig en prestatiegericht.
O1PC6	Medewerkers van "aannemer" hebben een sterk arbeidsethos (geen 9-5 mentaliteit, overwerken om iets gedaan te krijgen).
O1PC7	Binnen "aannemer" wordt zelfstandigheid gestimuleerd in het maken van beslissingen.
O1PC8	Binnen "aannemer" speelt samenwerking (met andere medewerkers, ook van andere afdelingen) een belangrijke rol.

Scenario 1 O1PC5, O1PC6, O1PC7, O1PC8
Cronbach's alpha 0.791
No. of items 4

Inter-Item Correlation Matrix

	O1PC5	O1PC6	O1PC7	O1PC8
O1PC5	1.000	.621	.429	.445
O1PC6	.621	1.000	.441	.555
O1PC7	.429	.441	1.000	.530
O1PC8	.445	.555	.530	1.000

Scenario 2 O1PC5, O1PC6
Cronbach's alpha 0.705
No. of items 2

Inter-Item Correlation Matrix

	O1PC5	O1PC6
O1PC5	1.000	.579
O1PC6	.579	1.000

Process vs. result (principal)

O2PP1	Het samenwerkingsproces is belangrijker dan het resultaat.
O2PC1	Onze medewerkers zijn snel in hun werk.
O2PC2	Onze medewerkers nemen initiatief.
O2PC3	Binnen "opdrachtgever" gaan we op informele wijze met elkaar om.

Scenario 1 O2PC1. O2PC2, O2PC3, O2PP1
Cronbach's alpha 0.354
No. of items 4

Inter-Item Correlation Matrix

	O2PC1	O2PC2	O2PC3	O2PP1
O2PC1	1.000	.257	.125	.213
O2PC2	.257	1.000	.083	.192
O2PC3	.125	.083	1.000	-.067
O2PP1	.213	.192	-.067	1.000

Scenario 2 O2PC1. O2PC2, O2PP1
Cronbach's alpha 0.399
No. of items 3

Inter-Item Correlation Matrix

	O2PC1	O2PC2	O2PP1
O2PC1	1.000	.257	.213
O2PC2	.257	1.000	.192
O2PP1	.213	.192	1.000

Process vs. result (agent)

O2PC4	Medewerkers van "aannemer" zijn snel in hun werk.
O2PC5	Medewerkers van "aannemer" nemen initiatief.
O2PC6	Binnen "aannemer" gaan ze op informele wijze met elkaar om.

Scenario 1 O2PC4, O2PC5, O2PC6
Cronbach's alpha 0.585
No. of items 3

Inter-Item Correlation Matrix

	O2PC4	O2PC5	O2PC6
O2PC4	1.000	.516	.203
O2PC5	.516	1.000	.312
O2PC6	.203	.312	1.000

Scenario 2 O2PC4. O2PC5
Cronbach's alpha 0.638
No. of items 2

Inter-Item Correlation Matrix

	O2PC4	O2PC5
O2PC4	1.000	.520
O2PC5	.520	1.000

Agent vs. project

O3PC1	Er kan vanuit "aannemer" open gecommuniceerd worden met "opdrachtgever" over hoe tevreden hun medewerkers zijn.
O3PC2r	Beslissingen worden genomen door "opdrachtgever". (reversed)
O3PC3	Er is genoeg inspraak voor "aannemer" in het project.
O3PC4	"opdrachtgever" heeft aandacht voor de medewerkers van "aannemer".

Scenario 1 O3PC1, O3PC2r, O3PC3, O3PC4
Cronbach's alpha 0.273
No. of items 4

Inter-Item Correlation Matrix

	O3PC1	O3PC2r	O3PC3	O3PC4
O3PC1	1.000	-.157	.323	.476
O3PC2r	-.157	1.000	.021	-.398
O3PC3	.323	.021	1.000	.424
O3PC4	.476	-.398	.424	1.000

Scenario 2 O3PC1, O3PC3, O3PC4
Cronbach's alpha 0.677
No. of items 3

Inter-Item Correlation Matrix

	O3PC1	O3PC3	O3PC4
O3PC1	1.000	.325	.478
O3PC3	.325	1.000	.428
O3PC4	.478	.428	1.000

Normative vs. pragmatic

O4PP1	Een goed resultaat is belangrijker dan de procedures.
O4PC1	"opdrachtgever" draagt bij aan maatschappelijk verantwoord ondernemen in "project"
O4PC2	"aannemer" draagt bij aan maatschappelijk verantwoord ondernemen in "project"
O4PC3	Er wordt grote nadruk gelegd op de wensen van "opdrachtgever" binnen "aannemer".

Scenario 1	O4PC1, O4PC2, O4PC3, O4PP1
Cronbach's alpha	0.218
No. of items	4

Inter-Item Correlation Matrix

	O4PC1	O4PC2	O4PC3	O4PP1
O4PC1	1.000	.292	.502	-.213
O4PC2	.292	1.000	.502	-.431
O4PC3	.502	.502	1.000	-.218
O4PP1	-.213	-.431	-.218	1.000

Scenario 2	O4PC1, O4PC2, O4PC3
Cronbach's alpha	0.675
No. of items	3

Inter-Item Correlation Matrix

	O4PC1	O4PC2	O4PC3
O4PC1	1.000	.292	.502
O4PC2	.292	1.000	.502
O4PC3	.502	.502	1.000

Management style

O5PC1	"opdrachtgever" is een informele organisatie (weinig lagen management, weinig controle en monitoring, weinig bureaucratie en contracten).
O5PC2	Beslissingen binnen "opdrachtgever" worden vaker genomen in overeenstemming van iedereen (op democratische wijze), dan dat een hoger persoon het beslist.
O5PC3	Binnen "opdrachtgever" worden beslissingen genomen zonder 'verborgen agenda's'

Scenario 1	O5PC1, O5PC2, O5PC3
Cronbach's alpha	0.765
No. of items	3

Inter-Item Correlation Matrix

	O5PC1	O5PC2	O5PC3
O5PC1	1.000	.471	.510
O5PC2	.471	1.000	.615
O5PC3	.510	.615	1.000

Importance of regulations

R1PC1	De contractuele afspraken zijn belangrijk voor "aannemer".
R1PC2	De contractuele afspraken zijn belangrijk voor "opdrachtgever".
R1PP1	Een contract is een belangrijk element van de samenwerking.
R1V1	Het contract is voor de samenwerking essentieel om controle te hebben.
R2PC1	Er wordt binnen "opdrachtgever" op gewezen als er iets niet volgens het contract verloopt.
R2PC2	Wij vinden het belangrijk om regelmatig met "aannemer" samen het contract door te nemen om zaken te bespreken.
R2PP1	Het is belangrijk binnen "opdrachtgever" om regelmatig het contract erbij te pakken om alle projectzaken na te lopen.

Scenario 1 R1PC1, R1PC2, R1PP1, R1V1, R2PC1, R2PC2, R2PP1
Cronbach's alpha 0.852
No. of items 7

Inter-Item Correlation Matrix

	R1PC1	R1PC2	R1PP1	R1V1	R2PC1	R2PC2	R2PP1
R1PC1	1.000	.347	.462	.474	.532	.341	.375
R1PC2	.347	1.000	.264	.371	.349	.328	.384
R1PP1	.462	.264	1.000	.776	.437	.447	.567
R1V1	.474	.371	.776	1.000	.489	.532	.638
R2PC1	.532	.349	.437	.489	1.000	.372	.564
R2PC2	.341	.328	.447	.532	.372	1.000	.542
R2PP1	.375	.384	.567	.638	.564	.542	1.000

Implementation of regulations

R2PC3	Wij houden ons altijd aan de afspraken die we op papier gemaakt hebben.
R2PC4	Zij ("aannemer") houden zich altijd aan de afspraken die we op papier gemaakt hebben.
R2PC5	"aannemer" heeft mondelinge afspraken goed in het projectcontract omschreven.
R2PC6r	Regelmatig probeert "aannemer" het contract te omzeilen. (reversed)
R2PC7	De uitvoering komt overeen met wat contractueel is afgesproken.
R3PC2	Wij zijn tevreden met het type contract dat is afgesloten.

Scenario 1 R2PC3, R2PC4, R2PC5, R2PC6r, R2PC7, R3PC2
Cronbach's alpha 0.831
No. of items 6

Inter-Item Correlation Matrix

	R2PC3	R2PC4	R2PC5	R2PC6r	R2PC7	R3PC2
R2PC3	1.000	.464	.527	.573	.246	.338
R2PC4	.464	1.000	.586	.636	.451	.282
R2PC5	.527	.586	1.000	.613	.356	.472
R2PC6r	.573	.636	.613	1.000	.377	.386
R2PC7	.246	.451	.356	.377	1.000	.474
R3PC2	.338	.282	.472	.386	.474	1.000

Continuity

GPC1	Voor een volgende project zou ik graag weer met "aannemer" samenwerken.
GPC2	Ik ben tevreden met "aannemer" als samenwerkingspartner.

Scenario 1 GPC1, GPC2
Cronbach's alpha 0.964
No. of items 2

Inter-Item Correlation Matrix

	GPC1	GPC2
GPC1	1.000	.931
GPC2	.931	1.000

Awareness

APC1	Voorafgaand aan de samenwerking hebben wij de achtergrond van "aannemer" onderzocht en erkend.
APC2	Wij hebben gemerkt dat er organizationele verschillen zijn tussen "opdrachtgever" en "aannemer".
APC3	"opdrachtgever" en "aannemer" bespreken gezamenlijk de organizationele verschillen.

Scenario 1	APC1, APC2, APC3
Cronbach's alpha	0.260
No. of items	3

Inter-Item Correlation Matrix

	APC1	APC2	APC3
APC1	1.000	-.056	.439
APC2	-.056	1.000	-.079
APC3	.439	-.079	1.000

Scenario 2	APC1, APC3
Cronbach's alpha	0.606
No. of items	2

Inter-Item Correlation Matrix

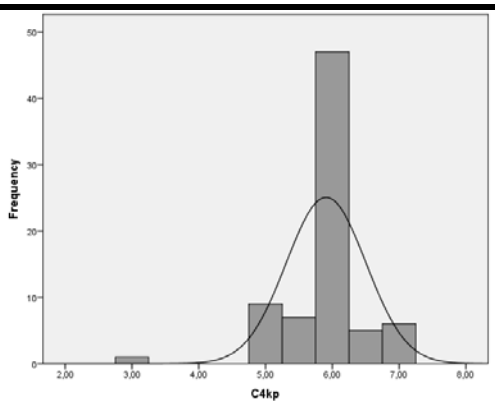
	APC1	APC3
APC1	1.000	.439
APC3	.439	1.000

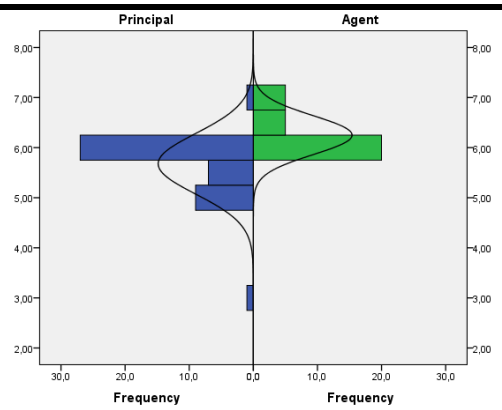
Appendix F. Normality of variables for sample, and subgroups

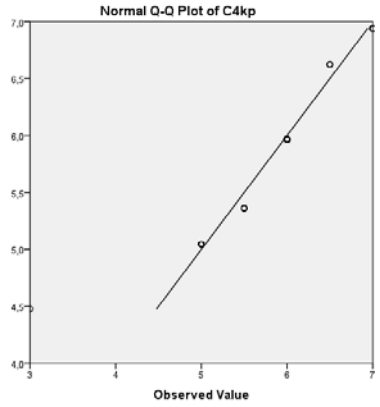
Statistics

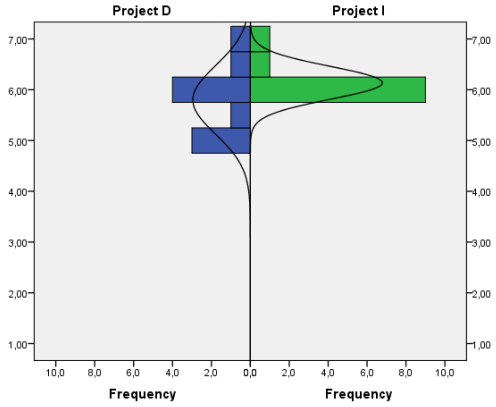
	N		Mean	Std. Deviation	Complete sample		Buyer		Supplier		Project D		Project I	
	Valid	Missing			$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$	$Z_{skewness}$	$Z_{kurtosis}$
Constructive conflict	75	2	5.536	1.033	-3.594	1.018	-2.721	.796	-2.377	.792	-1.108	-.614	-1.474	1.214
Competence knowledge principal	75	2	5.907	.597	-5.271	12.225	-5.552	10.736	2.644	-.231	.315	-.386	3.277	3.731
Competence interpersonal skill principal	75	2	5.781	.615	-1.663	1.668	-1.192	2.116	-1.192	.644	-1.520	.736	-1.512	1.255
Competence knowledge agent	71	6	5.655	.800	-6.478	9.812	-3.176	2.406	-5.211	8.153	-2.354	2.009	-4.082	6.455
Competence interpersonal skill agent	71	6	5.294	.928	-2.330	-.291	-1.700	-.581	-2.266	.738	-1.180	.260	-1.028	-.211
Importance of regulations	77	0	5.332	.885	-5.046	4.711	-1.553	.838	-3.057	1.438	-2.370	2.606	-1.277	.248
Implementation of regulations	76	1	4.939	1.054	-2.257	-.998	-.540	-1.688	-3.104	1.570	-.010	-.221	-.428	-.186
Internal task routines principal	46	31	5.815	.627	-2.425	1.596	-2.425	1.596			1.148	.143	.000	1.250
Internal task routines agent	71	6	5.648	.958	-4.179	2.057	-2.131	-.166	-1.368	1.830	.049	-.533	-.728	.431
Process vs. result agent	71	6	5.415	.945	-3.319	2.307	-1.969	.464	.615	.822	-.893	-.063	-.803	-.199
Agent vs. project	75	2	5.478	.755	-7.604	11.634	-3.261	2.867	-5.328	7.080	-1.290	.045	-1.782	.409
Normative vs. pragmatic	76	1	5.305	.931	-2.703	.562	-2.377	.324	-2.538	1.764	-.378	-.597	.724	-.744
Management style	76	1	5.042	1.085	-2.477	1.176	-.504	.071	-3.928	4.815	-.986	-.484	-1.191	.028
Solidarity	75	2	5.467	1.101	-5.379	4.918	-4.826	5.777	-2.836	2.138	-1.631	.333	-1.210	.050
Integrity	72	5	5.100	.953	-2.986	.912	-.872	-.685	-3.017	1.633	-1.118	.276	-1.255	.494
Joint effort	75	2	5.438	1.004	-4.661	3.063	-3.239	1.983	-3.161	2.088	-1.467	.657	-3.313	4.501
Self-interest	74	3	5.189	.909	-5.558	6.999	-1.553	-.973	-3.996	4.187	-1.719	.656	-.800	-.748
Organizational responsiveness principal	76	1	5.456	.781	-5.384	4.479	-2.931	1.984	-2.546	.676	-.736	-.911	-.835	-.515
Organizational responsiveness agent	70	7	5.381	1.014	-3.486	2.543	-1.456	1.348	-.098	1.117	-.242	-.767	-.645	-.981
Continuity	71	6	5.690	1.345	-4.806	3.114	-1.870	-.474	-5.793	8.126	-.547	-.859	.854	-.666
Awareness prevention	70	7	4.657	1.172	-.291	-.834	.087	-1.132	-.022	-.385	.075	-.207	.710	-.614

Competence knowledge principal

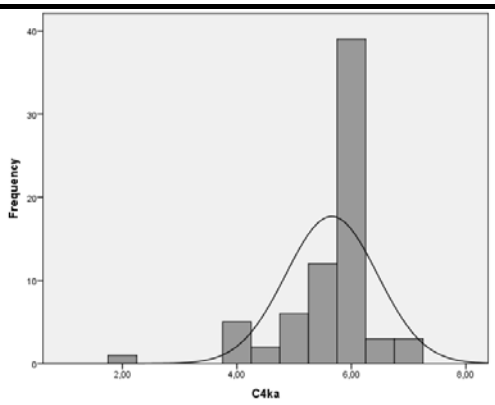


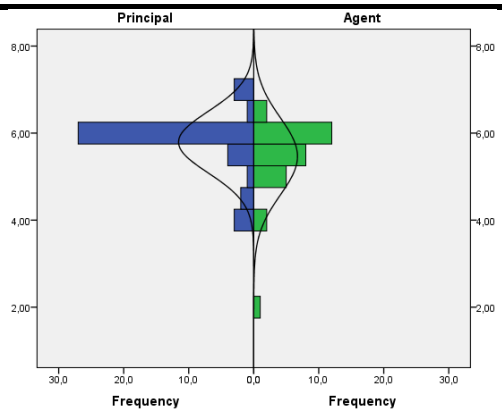


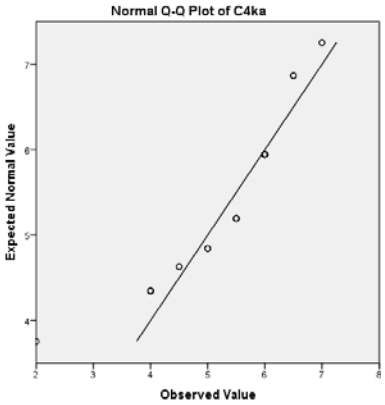


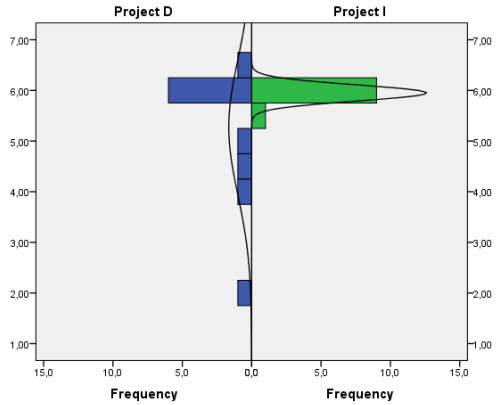


Competence knowledge agent

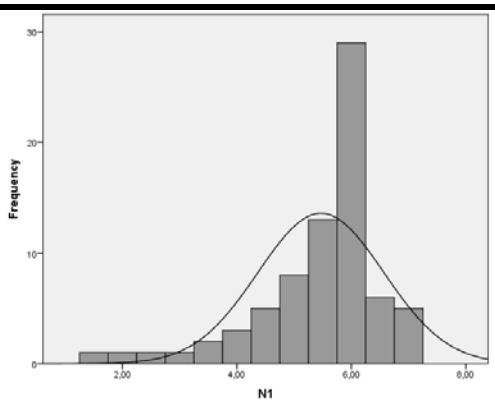


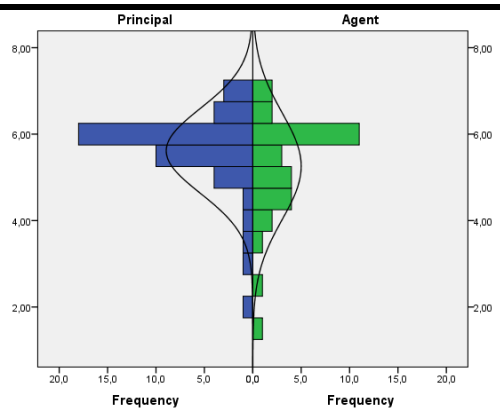


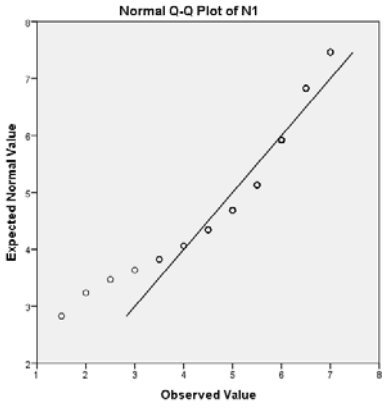


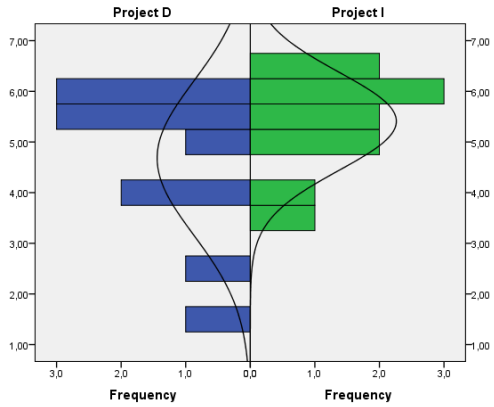


Solidarity

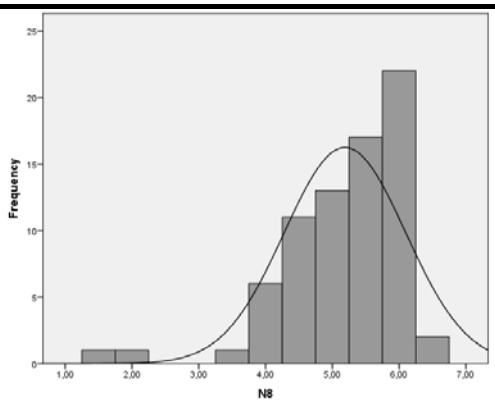


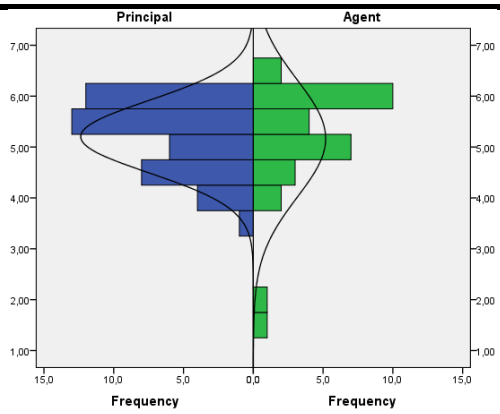


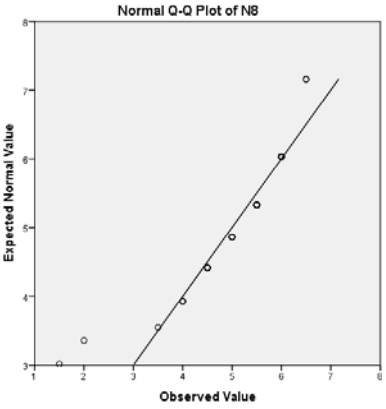


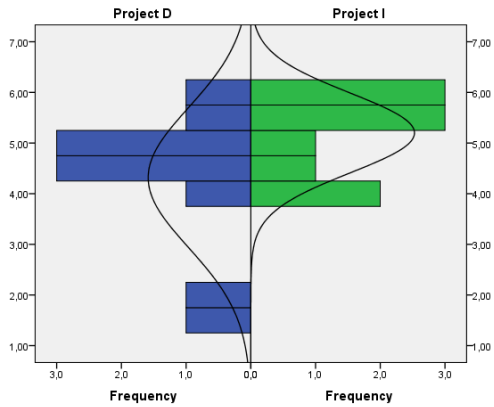


Self-interest

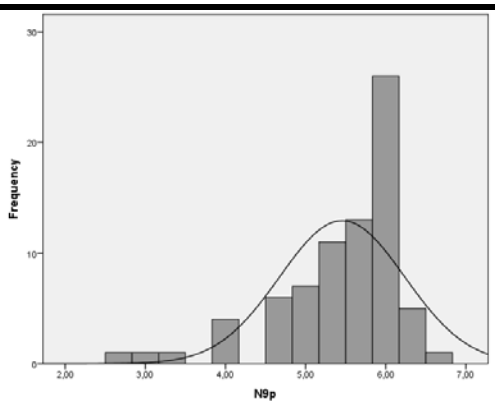


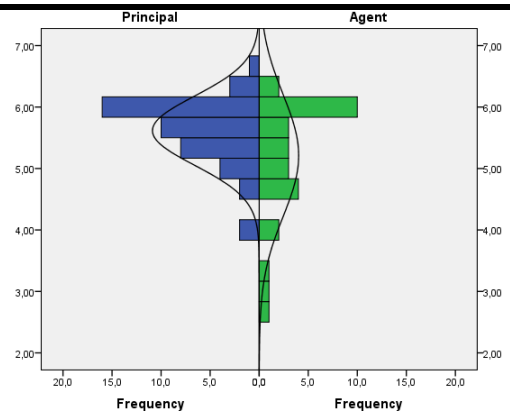


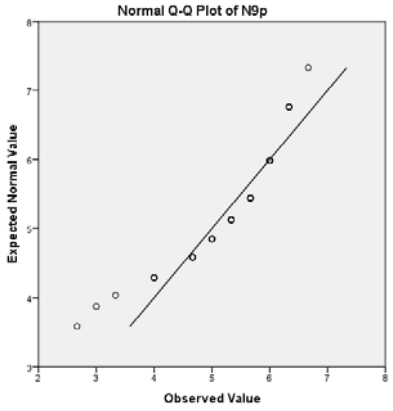


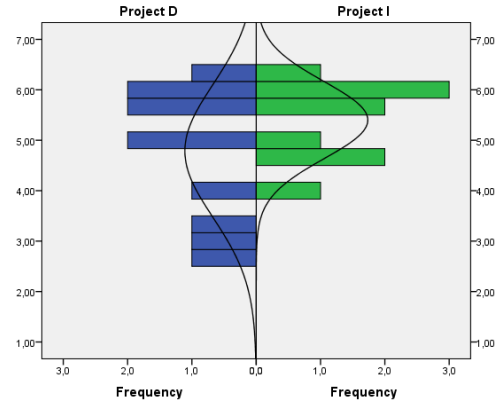


Organizational responsiveness principal

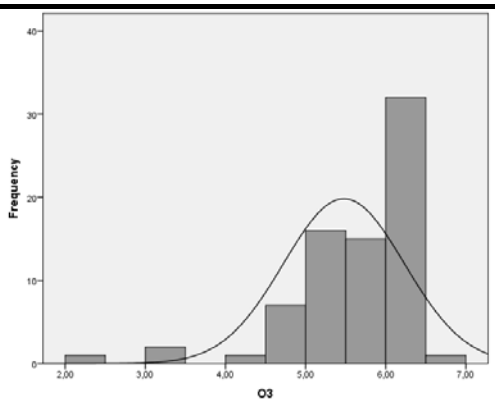


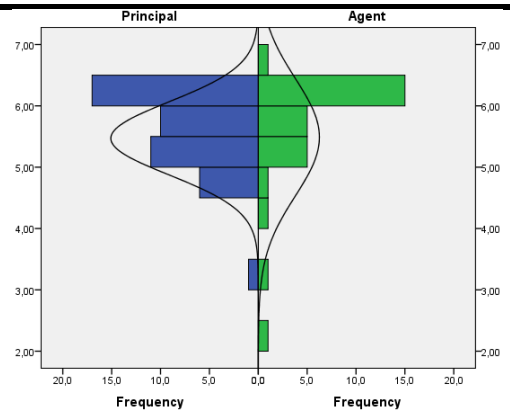


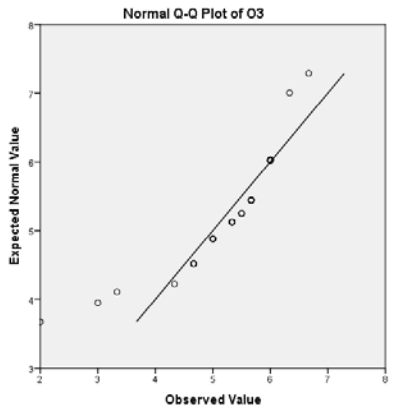


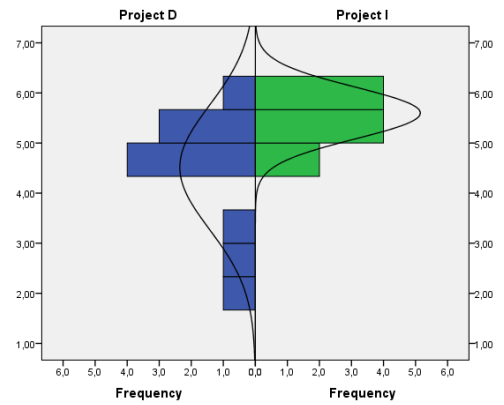


Agent vs. project

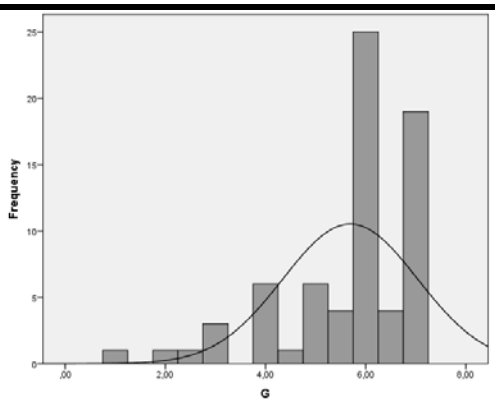


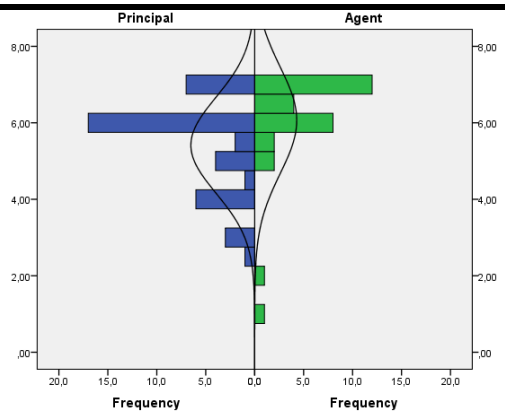


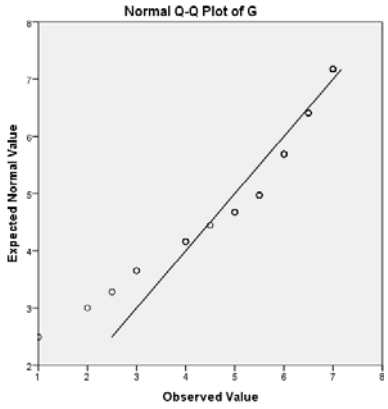


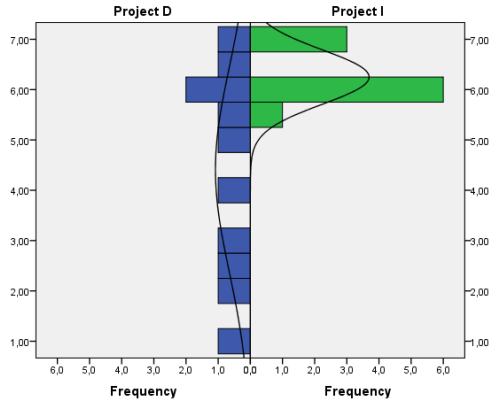


Continuity

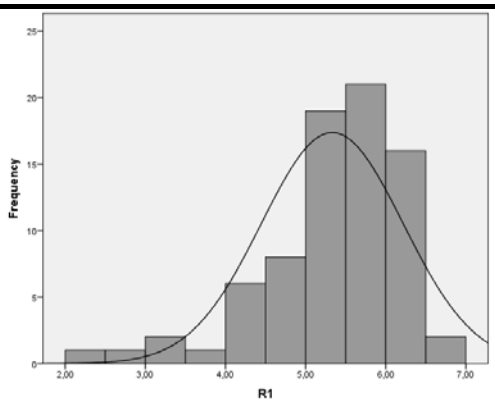


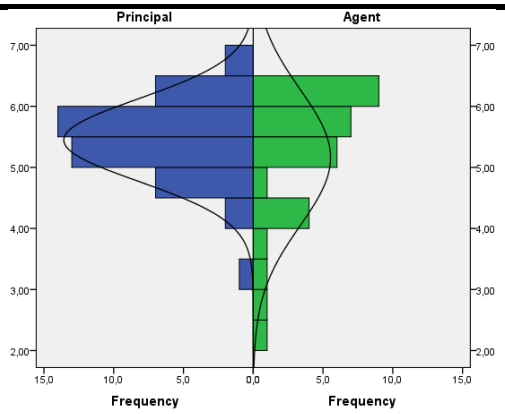


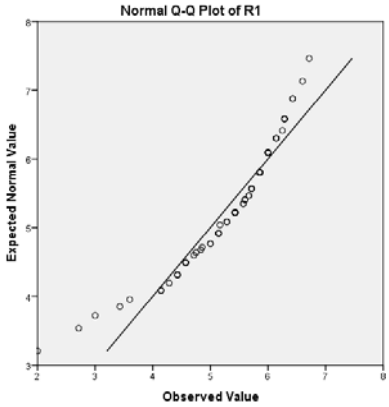


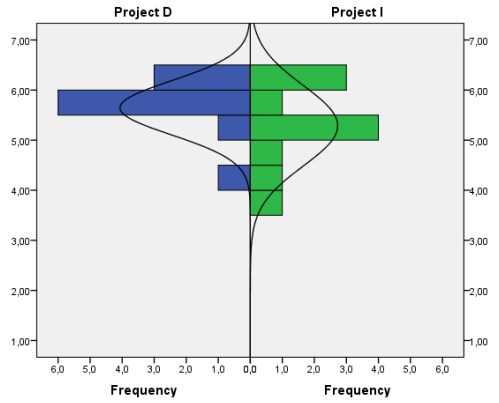


Importance of regulations









Appendix G. Correlations of variables

Spearman's rho Correlations

		Constructive conflict	Competence knowledge principal	Competence interpersonal skill principal	Competence knowledge agent	Competence interpersonal skill agent	Solidarity	Integrity
Constructive conflict	Correlation Coefficient	1.000	0.075	0.177	0.225	,520**	,723**	,630**
	Sig. (2-tailed)		0.530	0.134	0.060	0.000	0.000	0.000
Competence knowledge principal	Correlation Coefficient	0.075	1.000	,270*	0.068	,344**	-0.015	,238*
	Sig. (2-tailed)	0.530		0.019	0.580	0.004	0.903	0.048
Competence interpersonal skill principal	Correlation Coefficient	0.177	,270*	1.000	-0.065	,447**	,257*	,299*
	Sig. (2-tailed)	0.134	0.019		0.594	0.000	0.028	0.012
Competence knowledge agent	Correlation Coefficient	0.225	0.068	-0.065	1.000	,264*	0.180	0.190
	Sig. (2-tailed)	0.060	0.580	0.594		0.026	0.134	0.116
Competence interpersonal skill agent	Correlation Coefficient	,520**	,344**	,447**	,264*	1.000	,391**	,717**
	Sig. (2-tailed)	0.000	0.004	0.000	0.026		0.001	0.000
Solidarity	Correlation Coefficient	,723**	-0.015	,257*	0.180	,391**	1.000	,522**
	Sig. (2-tailed)	0.000	0.903	0.028	0.134	0.001		0.000
Integrity	Correlation Coefficient	,630**	,238*	,299*	0.190	,717**	,522**	1.000
	Sig. (2-tailed)	0.000	0.048	0.012	0.116	0.000	0.000	
Joint effort	Correlation Coefficient	,529**	0.163	,297*	0.185	,384**	,512**	,506**
	Sig. (2-tailed)	0.000	0.168	0.011	0.123	0.001	0.000	0.000
Self-interest	Correlation Coefficient	,487**	0.218	0.222	0.198	,494**	,453**	,586**
	Sig. (2-tailed)	0.000	0.066	0.061	0.100	0.000	0.000	0.000
Organizational responsiveness principal	Correlation Coefficient	,312**	0.047	0.221	0.211	,265*	,368**	,337**
	Sig. (2-tailed)	0.007	0.693	0.059	0.078	0.026	0.001	0.004
Organizational responsiveness agent	Correlation Coefficient	,479**	,447**	0.162	0.025	,599**	,262*	,661**
	Sig. (2-tailed)	0.000	0.000	0.185	0.839	0.000	0.028	0.000
Internal task routines principal	Correlation Coefficient	-0.005	0.183	,309*	-0.191	-,334*	0.112	-,324*
	Sig. (2-tailed)	0.972	0.228	0.039	0.230	0.033	0.467	0.039
Internal task routines agent	Correlation Coefficient	,364**	,480**	,389**	0.157	,654**	,283*	,554**
	Sig. (2-tailed)	0.002	0.000	0.001	0.194	0.000	0.017	0.000
Process vs. result agent	Correlation Coefficient	,318**	,457**	,341**	0.181	,626**	0.198	,578**
	Sig. (2-tailed)	0.007	0.000	0.004	0.134	0.000	0.099	0.000
Agent vs. project	Correlation Coefficient	,545**	,260*	,376**	0.132	,561**	,457**	,605**
	Sig. (2-tailed)	0.000	0.026	0.001	0.274	0.000	0.000	0.000
Normative vs. pragmatic	Correlation Coefficient	,313**	,362**	,418**	-0.084	,521**	,340**	,512**
	Sig. (2-tailed)	0.007	0.001	0.000	0.490	0.000	0.003	0.000
Management style	Correlation Coefficient	0.180	,283*	,387**	-0.088	,484**	0.157	,264*
	Sig. (2-tailed)	0.124	0.014	0.001	0.470	0.000	0.183	0.026
Importance of regulations	Correlation Coefficient	0.064	,269*	0.132	0.196	0.118	,247*	0.093
	Sig. (2-tailed)	0.588	0.020	0.260	0.102	0.326	0.033	0.436
Implementation of regulations	Correlation Coefficient	,696**	,354**	,372**	0.133	,666**	,532**	,766**
	Sig. (2-tailed)	0.000	0.002	0.001	0.274	0.000	0.000	0.000
Awareness prevention	Correlation Coefficient	,276*	0.026	0.140	0.116	,379**	0.227	,417**
	Sig. (2-tailed)	0.021	0.834	0.254	0.341	0.001	0.059	0.000
Continuity	Correlation Coefficient	,571**	,504**	0.177	0.235	,597**	,366**	,654**
	Sig. (2-tailed)	0.000	0.000	0.145	0.050	0.000	0.002	0.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Spearman's rho Correlations

		Joint effort	Self-interest	Organizational responsiveness principal	Organizational responsiveness agent	Internal task routines principal	Internal task routines agent	Process vs. result agent
Constructive conflict	Correlation Coefficient	,529**	,487**	,312**	,479**	-0.005	,364**	,318**
	Sig. (2-tailed)	0.000	0.000	0.007	0.000	0.972	0.002	0.007
Competence knowledge principal	Correlation Coefficient	0.163	0.218	0.047	,447**	0.183	,480**	,457**
	Sig. (2-tailed)	0.168	0.066	0.693	0.000	0.228	0.000	0.000
Competence interpersonal skill principal	Correlation Coefficient	,297*	0.222	0.221	0.162	,309*	,389**	,341**
	Sig. (2-tailed)	0.011	0.061	0.059	0.185	0.039	0.001	0.004
Competence knowledge agent	Correlation Coefficient	0.185	0.198	0.211	0.025	-0.191	0.157	0.181
	Sig. (2-tailed)	0.123	0.100	0.078	0.839	0.230	0.194	0.134
Competence interpersonal skill agent	Correlation Coefficient	,384**	,494**	,265*	,599**	-,334*	,654**	,626**
	Sig. (2-tailed)	0.001	0.000	0.026	0.000	0.033	0.000	0.000
Solidarity	Correlation Coefficient	,512**	,453**	,368**	,262*	0.112	,283*	0.198
	Sig. (2-tailed)	0.000	0.000	0.001	0.028	0.467	0.017	0.099
Integrity	Correlation Coefficient	,506**	,586**	,337**	,661**	-,324*	,554**	,578**
	Sig. (2-tailed)	0.000	0.000	0.004	0.000	0.039	0.000	0.000
Joint effort	Correlation Coefficient	1.000	,367**	,324**	,320**	0.255	0.207	,342**
	Sig. (2-tailed)		0.001	0.005	0.007	0.095	0.084	0.003
Self-interest	Correlation Coefficient	,367**	1.000	,395**	,410**	0.029	,418**	,334**
	Sig. (2-tailed)	0.001		0.000	0.000	0.854	0.000	0.005
Organizational responsiveness principal	Correlation Coefficient	,324**	,395**	1.000	0.185	,445**	0.099	0.037
	Sig. (2-tailed)	0.005	0.000		0.128	0.002	0.416	0.758
Organizational responsiveness agent	Correlation Coefficient	,320**	,410**	0.185	1.000	-0.216	,629**	,610**
	Sig. (2-tailed)	0.007	0.000	0.128		0.180	0.000	0.000
Internal task routines principal	Correlation Coefficient	0.255	0.029	,445**	-0.216	1.000	-0.031	-0.253
	Sig. (2-tailed)	0.095	0.854	0.002	0.180		0.849	0.110
Internal task routines agent	Correlation Coefficient	0.207	,418**	0.099	,629**	-0.031	1.000	,658**
	Sig. (2-tailed)	0.084	0.000	0.416	0.000	0.849		0.000
Process vs. result agent	Correlation Coefficient	,342**	,334**	0.037	,610**	-0.253	,658**	1.000
	Sig. (2-tailed)	0.003	0.005	0.758	0.000	0.110	0.000	
Agent vs. project	Correlation Coefficient	,506**	,573**	,388**	,447**	0.000	,491**	,421**
	Sig. (2-tailed)	0.000	0.000	0.001	0.000	0.998	0.000	0.000
Normative vs. pragmatic	Correlation Coefficient	,247*	,343**	,322**	,578**	-0.132	,527**	,523**
	Sig. (2-tailed)	0.034	0.003	0.005	0.000	0.380	0.000	0.000
Management style	Correlation Coefficient	0.146	0.112	0.188	,271*	0.212	,410**	,312**
	Sig. (2-tailed)	0.213	0.346	0.107	0.023	0.157	0.000	0.008
Importance of regulations	Correlation Coefficient	0.127	,289*	,328**	0.149	0.226	0.146	0.032
	Sig. (2-tailed)	0.277	0.013	0.004	0.219	0.130	0.224	0.792
Implementation of regulations	Correlation Coefficient	,619**	,520**	,258*	,704**	-0.042	,631**	,650**
	Sig. (2-tailed)	0.000	0.000	0.026	0.000	0.784	0.000	0.000
Awareness prevention	Correlation Coefficient	0.188	0.167	,236*	0.198	-0.281	,244*	0.226
	Sig. (2-tailed)	0.119	0.168	0.049	0.105	0.079	0.045	0.063
Continuity	Correlation Coefficient	,372**	,391**	0.205	,674**	-0.079	,719**	,603**
	Sig. (2-tailed)	0.001	0.001	0.087	0.000	0.624	0.000	0.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Spearman's rho Correlations

		Agent vs. project	Normative vs. pragmatic	Management style	Importance of regulations	Implementation of regulations	Awareness prevention	Continuity
Constructive conflict	Correlation Coefficient	,545**	,313**	0.180	0.064	,696**	,276*	,571**
	Sig. (2-tailed)	0.000	0.007	0.124	0.588	0.000	0.021	0.000
Competence knowledge principal	Correlation Coefficient	,260*	,362**	,283*	,269*	,354**	0.026	,504**
	Sig. (2-tailed)	0.026	0.001	0.014	0.020	0.002	0.834	0.000
Competence interpersonal skill principal	Correlation Coefficient	,376**	,418**	,387**	0.132	,372**	0.140	0.177
	Sig. (2-tailed)	0.001	0.000	0.001	0.260	0.001	0.254	0.145
Competence knowledge agent	Correlation Coefficient	0.132	-0.084	-0.088	0.196	0.133	0.116	0.235
	Sig. (2-tailed)	0.274	0.490	0.470	0.102	0.274	0.341	0.050
Competence interpersonal skill agent	Correlation Coefficient	,561**	,521**	,484**	0.118	,666**	,379**	,597**
	Sig. (2-tailed)	0.000	0.000	0.000	0.326	0.000	0.001	0.000
Solidarity	Correlation Coefficient	,457**	,340**	0.157	,247*	,532**	0.227	,366**
	Sig. (2-tailed)	0.000	0.003	0.183	0.033	0.000	0.059	0.002
Integrity	Correlation Coefficient	,605**	,512**	,264*	0.093	,766**	,417**	,654**
	Sig. (2-tailed)	0.000	0.000	0.026	0.436	0.000	0.000	0.000
Joint effort	Correlation Coefficient	,506**	,247*	0.146	0.127	,619**	0.188	,372**
	Sig. (2-tailed)	0.000	0.034	0.213	0.277	0.000	0.119	0.001
Self-interest	Correlation Coefficient	,573**	,343**	0.112	,289*	,520**	0.167	,391**
	Sig. (2-tailed)	0.000	0.003	0.346	0.013	0.000	0.168	0.001
Organizational responsiveness principal	Correlation Coefficient	,388**	,322**	0.188	,328**	,258*	,236*	0.205
	Sig. (2-tailed)	0.001	0.005	0.107	0.004	0.026	0.049	0.087
Organizational responsiveness agent	Correlation Coefficient	,447**	,578**	,271*	0.149	,704**	0.198	,674**
	Sig. (2-tailed)	0.000	0.000	0.023	0.219	0.000	0.105	0.000
Internal task routines principal	Correlation Coefficient	0.000	-0.132	0.212	0.226	-0.042	-0.281	-0.079
	Sig. (2-tailed)	0.998	0.380	0.157	0.130	0.784	0.079	0.624
Internal task routines agent	Correlation Coefficient	,491**	,527**	,410**	0.146	,631**	,244*	,719**
	Sig. (2-tailed)	0.000	0.000	0.000	0.224	0.000	0.045	0.000
Process vs. result agent	Correlation Coefficient	,421**	,523**	,312**	0.032	,650**	0.226	,603**
	Sig. (2-tailed)	0.000	0.000	0.008	0.792	0.000	0.063	0.000
Agent vs. project	Correlation Coefficient	1.000	,367**	,375**	0.200	,635**	,266*	,459**
	Sig. (2-tailed)		0.001	0.001	0.085	0.000	0.026	0.000
Normative vs. pragmatic	Correlation Coefficient	,367**	1.000	,354**	0.157	,560**	,338**	,488**
	Sig. (2-tailed)	0.001		0.002	0.175	0.000	0.005	0.000
Management style	Correlation Coefficient	,375**	,354**	1.000	0.121	,319**	-0.073	,308**
	Sig. (2-tailed)	0.001	0.002		0.298	0.005	0.551	0.009
Importance of regulations	Correlation Coefficient	0.200	0.157	0.121	1.000	0.086	-0.006	0.026
	Sig. (2-tailed)	0.085	0.175	0.298		0.458	0.963	0.832
Implementation of regulations	Correlation Coefficient	,635**	,560**	,319**	0.086	1.000	,289*	,692**
	Sig. (2-tailed)	0.000	0.000	0.005	0.458		0.015	0.000
Awareness prevention	Correlation Coefficient	,266*	,338**	-0.073	-0.006	,289*	1.000	,287*
	Sig. (2-tailed)	0.026	0.005	0.551	0.963	0.015		0.016
Continuity	Correlation Coefficient	,459**	,488**	,308**	0.026	,692**	,287*	1.000
	Sig. (2-tailed)	0.000	0.000	0.009	0.832	0.000	0.016	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix H. Independent-samples t-test

Group Statistics

Principal_Agent		N	Mean	Std. Deviation	Std. Error Mean
Constructive conflict	Principal	44	5.5682	.98982	.14922
	Agent	31	5.4892	1.10632	.19870
Knowledge principal	Principal	45	5.6778	.60449	.09011
	Agent	30	6.2500	.38841	.07091
Interpersonal skill principal	Principal	45	5.7733	.57777	.08613
	Agent	30	5.7933	.67756	.12371
Knowledge agent	Principal	41	5.7927	.70689	.11040
	Agent	30	5.4667	.88992	.16248
Interpersonal skill agent	Principal	41	5.1244	.85404	.13338
	Agent	30	5.5267	.98888	.18054
Importance of regulations	Principal	46	5.4478	.67583	.09965
	Agent	31	5.1611	1.11672	.20057
Implementation of regulations	Principal	45	4.7711	1.00643	.15003
	Agent	31	5.1828	1.09053	.19588
Internal task routines agent	Principal	41	5.3171	1.06511	.16634
	Agent	30	6.1000	.53175	.09708
Process vs. Result agent	Principal	41	5.0610	1.00744	.15734
	Agent	30	5.9000	.57834	.10559
Agent vs. Project	Principal	45	5.4704	.59490	.08868
	Agent	30	5.4889	.95786	.17488
Normative vs. Pragmatic	Principal	46	5.0471	.87536	.12906
	Agent	30	5.7000	.88668	.16189
Management style	Principal	46	4.7899	.99718	.14703
	Agent	30	5.4278	1.11733	.20400
Solidarity	Principal	44	5.6136	.98160	.14798
	Agent	31	5.2581	1.23741	.22225
Integrity	Principal	41	5.0366	.85352	.13330
	Agent	31	5.1828	1.07871	.19374
Joint effort	Principal	44	5.4848	.92190	.13898
	Agent	31	5.3710	1.12193	.20150
Self-interest	Principal	44	5.2045	.70972	.10699
	Agent	30	5.1667	1.15470	.21082
Organizational responsiveness principal	Principal	46	5.6159	.56204	.08287
	Agent	30	5.2111	.99224	.18116
Organizational responsiveness agent	Principal	40	4.9000	1.05193	.16632
	Agent	30	6.0222	.46265	.08447
Continuity	Principal	41	5.4146	1.25450	.19592
	Agent	30	6.0667	1.39416	.25454
Prevention of perceptual distance	Principal	40	4.8625	1.07410	.16983
	Agent	30	4.3833	1.25728	.22955
Recognition of perceptual distance	Principal	40	4.83	1.412	.223
	Agent	30	4.87	1.252	.229
Goal accomplishment (costs)	Principal	37	2.73	1.610	.265
	Agent	27	2.52	1.156	.222
Goal accomplishment (planning)	Principal	43	3.40	1.348	.206
	Agent	30	3.60	1.163	.212
Goal accomplishment (quality)	Principal	41	3.95	.865	.135
	Agent	30	4.50	.777	.142
Goal accomplishment (sustainability)	Principal	39	3.92	.354	.057
	Agent	30	3.70	.837	.153
Goal accomplishment (innovativity)	Principal	40	3.83	1.010	.160
	Agent	30	3.33	1.213	.221
Goal oriëntation satisfaction (costs)	Principal	36	5.03	1.444	.241
	Agent	28	4.86	1.557	.294
Goal oriëntation satisfaction (planning)	Principal	40	5.33	1.745	.276
	Agent	29	4.97	1.375	.255
Goal oriëntation satisfaction (quality)	Principal	37	5.19	1.244	.204
	Agent	29	5.59	.825	.153
Goal oriëntation satisfaction (sustainability)	Principal	37	5.00	1.000	.164
	Agent	29	5.59	.907	.168
Goal oriëntation satisfaction (innovativity)	Principal	41	4.78	1.314	.205
	Agent	27	5.04	1.315	.253

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Constructive conflict	Equal variances assumed	.076	.783	.324	73	.747	.07893	.24370	-.40676	.56463
	Equal variances not assumed			.318	60.054	.752	.07893	.24849	-.41812	.57599
Knowledge principal	Equal variances assumed	2.016	.160	-4.587	73	**.000**	-.57222	.12476	-.82087	-.32357
	Equal variances not assumed			-4.990	72.933	**.000**	-.57222	.11467	-.80076	-.34369
Interpersonal skill principal	Equal variances assumed	1.115	.295	-.137	73	.891	-.02000	.14598	-.31094	.27094
	Equal variances not assumed			-.133	55.357	.895	-.02000	.15074	-.32204	.28204
Knowledge agent	Equal variances assumed	.495	.484	1.720	69	.090	.32602	.18956	-.05215	.70419
	Equal variances not assumed			1.660	53.666	.103	.32602	.19643	-.06787	.71990
Interpersonal skill agent	Equal variances assumed	.510	.478	-1.834	69	.071	-.40228	.21939	-.83995	.03539
	Equal variances not assumed			-1.792	56.986	.078	-.40228	.22447	-.85177	.04722
Importance of regulations	Equal variances assumed	6.702	.012	1.403	75	.165	.28671	.20429	-.12025	.69368
	Equal variances not assumed			1.280	44.817	.207	.28671	.22396	-.16441	.73784
Implementation of regulations	Equal variances assumed	.101	.752	-1.694	74	.095	-.41168	.24306	-.89599	.07262
	Equal variances not assumed			-1.669	61.173	.100	-.41168	.24672	-.90501	.08164
Internal task routines agent	Equal variances assumed	19.028	.000	-3.698	69	**.000**	-.78293	.21171	-1.20528	-.36057
	Equal variances not assumed			-4.065	61.974	**.000**	-.78293	.19260	-1.16793	-.39792
Process vs. Result agent	Equal variances assumed	10.549	.002	-4.090	69	**.000**	-.83902	.20513	-1.24824	-.42980
	Equal variances not assumed			-4.428	65.749	**.000**	-.83902	.18948	-1.21737	-.46066
Agent vs. Project	Equal variances assumed	1.954	.166	-.103	73	.918	-.01852	.17916	-.37559	.33855
	Equal variances not assumed			-.094	43.918	.925	-.01852	.19608	-.41371	.37668
Normative vs. Pragmatic	Equal variances assumed	.001	.970	-3.162	74	**.002**	-.65290	.20647	-1.06430	-.24150
	Equal variances not assumed			-3.154	61.555	**.002**	-.65290	.20704	-1.06682	-.23898
Management style	Equal variances assumed	.118	.733	-2.599	74	**.011**	-.63792	.24545	-1.12699	-.14885
	Equal variances not assumed			-2.537	57.035	**.014**	-.63792	.25146	-1.14145	-.13439
Solidarity	Equal variances assumed	2.877	.094	1.386	73	.170	.35557	.25653	-.15569	.86683
	Equal variances not assumed			1.332	54.961	.188	.35557	.26700	-.17953	.89067
Integrity	Equal variances assumed	.753	.389	-.642	70	.523	-.14621	.22767	-.60028	.30785
	Equal variances not assumed			-.622	55.754	.537	-.14621	.23517	-.61736	.32493
Joint effort	Equal variances assumed	1.104	.297	.481	73	.632	.11388	.23658	-.35762	.58538
	Equal variances not assumed			.465	56.423	.644	.11388	.24479	-.37640	.60416
Self-interest	Equal variances assumed	2.470	.120	.175	72	.862	.03788	.21673	-.39416	.46992
	Equal variances not assumed			.160	43.899	.873	.03788	.23642	-.43862	.51437
Organizational responsiveness principal	Equal variances assumed	11.366	.001	2.269	74	**.026**	.40483	.17840	.04935	.76031
	Equal variances not assumed			2.032	41.242	**.049**	.40483	.19921	.00259	.80708
Organizational responsiveness agent	Equal variances assumed	15.605	.000	-5.453	68	**.000**	-1.12222	.20578	-1.53285	-.71159
	Equal variances not assumed			-6.016	56.644	**.000**	-1.12222	.18654	-1.49582	-.74862
Continuity	Equal variances assumed	.673	.415	-2.064	69	**.043**	-.65203	.31594	-1.28232	-.02175
	Equal variances not assumed			-2.030	58.623	**.047**	-.65203	.32121	-1.29485	-.00921
Prevention of perceptual distance	Equal variances assumed	.236	.628	1.717	68	.091	.47917	.27915	-.07786	1.03619
	Equal variances not assumed			1.678	56.785	.099	.47917	.28554	-.09267	1.05100
Recognition of perceptual distance	Equal variances assumed	1.041	.311	-.128	68	.898	-.042	.325	-.690	.607
	Equal variances not assumed			-.130	66.035	.897	-.042	.320	-.680	.596
Goal accomplishment (costs)	Equal variances assumed	3.645	.061	.581	62	.564	.211	.364	-.516	.938
	Equal variances not assumed			.611	61.993	.543	.211	.346	-.480	.902
Goal accomplishment (planning)	Equal variances assumed	1.574	.214	-.675	71	.502	-.205	.303	-.810	.400
	Equal variances not assumed			-.693	67.747	.491	-.205	.295	-.794	.385
Goal accomplishment (quality)	Equal variances assumed	.218	.642	-2.756	69	**.007**	-.549	.199	-.946	-.152
	Equal variances not assumed			-2.802	66.054	**.007**	-.549	.196	-.940	-.158
Goal accomplishment (sustainability)	Equal variances assumed	11.522	.001	1.502	67	.138	.223	.149	-.073	.520
	Equal variances not assumed			1.369	37.014	.179	.223	.163	-.107	.553
Goal accomplishment (innovativity)	Equal variances assumed	2.798	.099	1.849	68	.069	.492	.266	-.039	1.022
	Equal variances not assumed			1.801	55.781	.077	.492	.273	-.055	1.039
Goal oriëntation satisfaction (costs)	Equal variances assumed	.403	.528	.453	62	.652	.171	.376	-.582	.923
	Equal variances not assumed			.449	55.912	.655	.171	.380	-.591	.932
Goal oriëntation satisfaction (planning)	Equal variances assumed	1.359	.248	.921	67	.361	.359	.390	-.420	1.139
	Equal variances not assumed			.956	66.483	.342	.359	.376	-.391	1.110
Goal oriëntation satisfaction (quality)	Equal variances assumed	6.366	.014	-1.482	64	.143	-.397	.268	-.932	.138
	Equal variances not assumed			-1.554	62.449	.125	-.397	.255	-.908	.113
Goal oriëntation satisfaction (sustainability)	Equal variances assumed	2.856	.096	-2.461	64	**.017**	-.586	.238	-1.062	-.110
	Equal variances not assumed			-2.491	62.585	**.015**	-.586	.235	-1.057	-.116
Goal oriëntation satisfaction (innovativity)	Equal variances assumed	.008	.928	-.786	66	.434	-.257	.326	-.907	.394
	Equal variances not assumed			-.787	55.750	.434	-.257	.326	-.909	.396

		Ranks			Test Statistics			
Principal_Agent		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Constructive conflict	Principal	44	38.43	1691.00	663.000	1159.000	-0.206	0.837
	Agent	31	37.39	1159.00				
Knowledge principal	Principal	45	29.61	1332.50	297.500	1332.500	-4.712	**0.000**
	Agent	30	50.58	1517.50				
Interpersonal skill principal	Principal	45	37.07	1668.00	633.000	1668.000	-0.469	0.639
	Agent	30	39.40	1182.00				
Knowledge agent	Principal	41	39.99	1639.50	451.500	916.500	-2.091	**0.037**
	Agent	30	30.55	916.50				
Interpersonal skill agent	Principal	41	31.37	1286.00	425.000	1286.000	-2.228	**0.026**
	Agent	30	42.33	1270.00				
Importance of regulations	Principal	45	34.58	1556.00	521.000	1556.000	-1.869	0.062
	Agent	31	44.19	1370.00				
Implementation of regulations	Principal	41	30.32	1243.00	382.000	1243.000	-2.804	**0.005**
	Agent	30	43.77	1313.00				
Internal task routines agent	Principal	41	29.66	1216.00	355.000	1216.000	-3.118	**0.002**
	Agent	30	44.67	1340.00				
Process vs. Result agent	Principal	41	28.73	1178.00	317.000	1178.000	-3.582	**0.000**
	Agent	30	45.93	1378.00				
Agent vs. Project	Principal	45	35.76	1609.00	574.000	1609.000	-1.138	0.255
	Agent	30	41.37	1241.00				
Normative vs. Pragmatic	Principal	46	31.74	1460.00	379.000	1460.000	-3.348	**0.001**
	Agent	30	48.87	1466.00				
Management style	Principal	46	32.47	1493.50	412.500	1493.500	-2.971	**0.003**
	Agent	30	47.75	1432.50				
Solidarity	Principal	44	40.56	1784.50	569.500	1065.500	-1.252	0.211
	Agent	31	34.37	1065.50				
Integrity	Principal	41	34.13	1399.50	538.500	1399.500	-1.107	0.268
	Agent	31	39.63	1228.50				
Joint effort	Principal	44	38.38	1688.50	665.500	1161.500	-0.179	0.858
	Agent	31	37.47	1161.50				
Self-interest	Principal	44	36.25	1595.00	605.000	1595.000	-0.620	0.535
	Agent	30	39.33	1180.00				
Organizational responsiveness principal	Principal	46	41.37	1903.00	558.000	1023.000	-1.439	0.150
	Agent	30	34.10	1023.00				
Organizational responsiveness agent	Principal	40	25.40	1016.00	196.000	1016.000	-4.891	**0.000**
	Agent	30	48.97	1469.00				
Continuity	Principal	46	39.87	1834.00	673.000	1169.000	-0.416	0.677
	Agent	31	37.71	1169.00				
Prevention of perceptual distance	Principal	40	38.78	1551.00	469.000	934.000	-1.589	0.112
	Agent	30	31.13	934.00				
Recognition of perceptual distance	Principal	40	35.30	1412.00	592.000	1412.000	-0.098	0.922
	Agent	30	35.77	1073.00				
Goal accomplishment (costs)	Principal	37	33.07	1223.50	478.500	856.500	-0.293	0.769
	Agent	27	31.72	856.50				
Goal accomplishment (planning)	Principal	43	36.40	1565.00	619.000	1565.000	-0.325	0.745
	Agent	30	37.87	1136.00				
Goal accomplishment (quality)	Principal	41	31.49	1291.00	430.000	1291.000	-2.391	**0.017**
	Agent	30	42.17	1265.00				
Goal accomplishment (sustainability)	Principal	39	36.04	1405.50	544.500	1009.500	-0.770	0.441
	Agent	30	33.65	1009.50				
Goal accomplishment (innovativity)	Principal	40	38.63	1545.00	475.000	940.000	-1.642	0.101
	Agent	30	31.33	940.00				
Goal oriëntation satisfaction (costs)	Principal	36	33.14	1193.00	481.000	887.000	-0.334	0.738
	Agent	28	31.68	887.00				
Goal oriëntation satisfaction (planning)	Principal	40	38.35	1534.00	446.000	881.000	-1.718	0.086
	Agent	29	30.38	881.00				
Goal oriëntation satisfaction (quality)	Principal	37	31.16	1153.00	450.000	1153.000	-1.317	0.188
	Agent	29	36.48	1058.00				
Goal oriëntation satisfaction (sustainability)	Principal	37	28.99	1072.50	369.500	1072.500	-2.382	**0.017**
	Agent	29	39.26	1138.50				
Goal oriëntation satisfaction (innovativity)	Principal	41	32.52	1333.50	472.500	1333.500	-1.055	0.291
	Agent	27	37.50	1012.50				

Appendix I. Perceptual distance and project performance

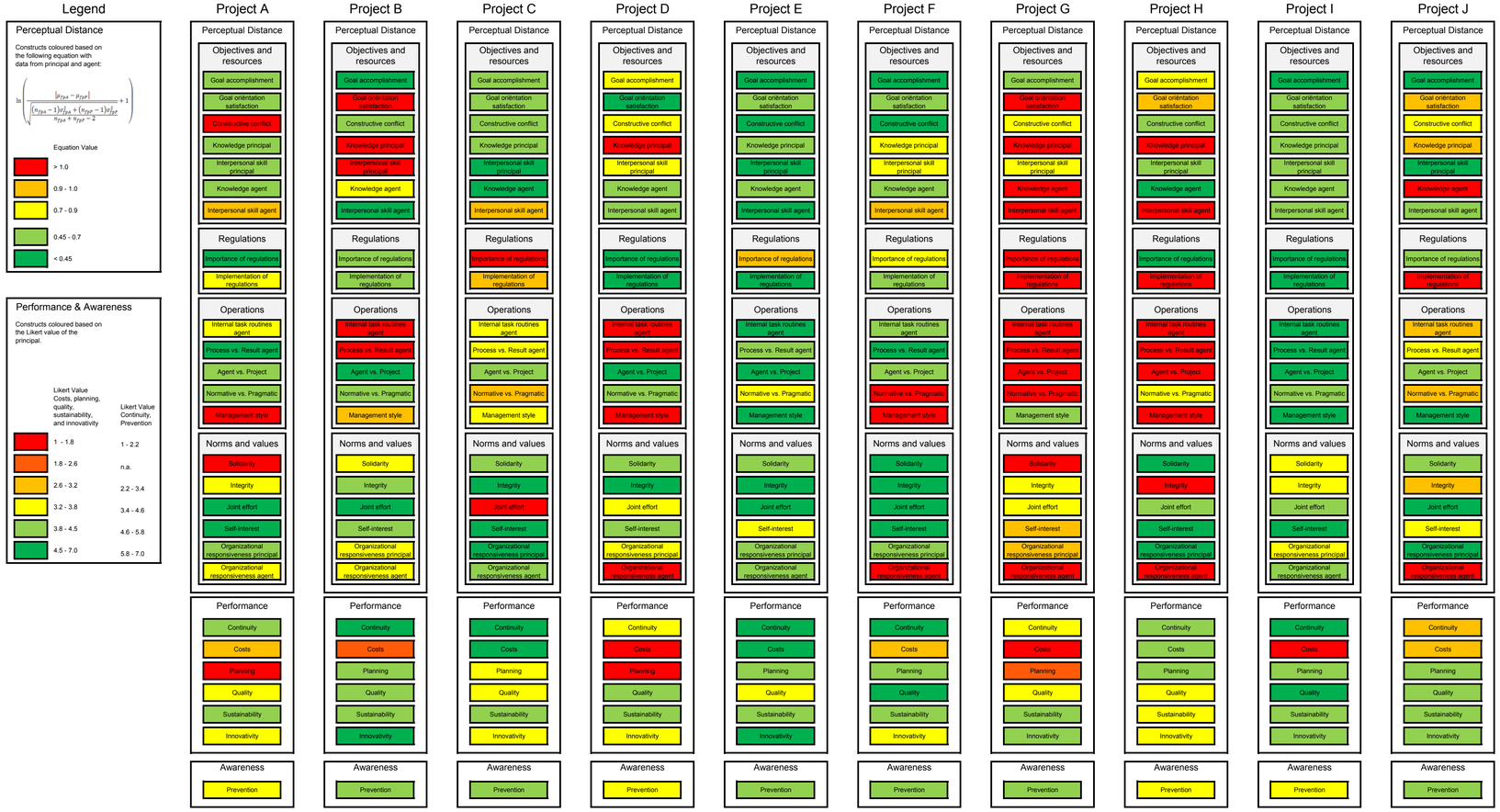
Pearson Correlations (n = 10)

Perceptual distance on		Performance Continuity	Performance Costs	Performance Planning	Performance Quality	Performance Sustainability	Performance Innovativity
Goal accomplishment	Pearson Correlation	.070	.140	-.400	-.423	-.355	-.364
	Sig. (2-tailed)	.847	.699	.252	.223	.314	.300
Goal orientation and satisfaction	Pearson Correlation	-.376	-.305	-.100	-.332	-.116	.264
	Sig. (2-tailed)	.284	.391	.783	.348	.750	.461
Constructive conflict	Pearson Correlation	-.214	-.172	-,664*	-.382	.059	-.194
	Sig. (2-tailed)	.554	.634	.036	.276	.871	.590
Competence knowledge principal	Pearson Correlation	-.429	-.529	-.203	-.065	-.117	.160
	Sig. (2-tailed)	.216	.116	.573	.858	.748	.658
Competence interpersonal skill principal	Pearson Correlation	.232	-.452	-.095	.337	.003	.157
	Sig. (2-tailed)	.519	.189	.793	.341	.994	.664
Competence knowledge agent	Pearson Correlation	-.351	-.540	-.096	.075	.399	,689*
	Sig. (2-tailed)	.320	.107	.792	.836	.254	.027
Competence interpersonal skill agent	Pearson Correlation	-.174	.100	-.161	-.193	-.399	-,803**
	Sig. (2-tailed)	.631	.782	.658	.592	.253	.005
Importance of regulations	Pearson Correlation	.348	.398	.171	-.112	.300	-.038
	Sig. (2-tailed)	.324	.255	.637	.758	.400	.917
Implementation of regulations	Pearson Correlation	-.477	.096	-.016	-.455	-.346	-.258
	Sig. (2-tailed)	.163	.792	.965	.186	.327	.471
Internal task routines agent	Pearson Correlation	-,641*	-.282	-.548	-.553	-.271	-.182
	Sig. (2-tailed)	.046	.431	.101	.097	.448	.614
Process vs. result agent	Pearson Correlation	-.289	-.110	-.145	-.268	-.297	.073
	Sig. (2-tailed)	.418	.763	.689	.454	.404	.842
Agent vs. project	Pearson Correlation	-.457	.192	-.163	-.571	-,692*	-.555
	Sig. (2-tailed)	.184	.595	.654	.084	.026	.096
Normative vs. pragmatic	Pearson Correlation	-.301	.081	.070	-.135	.040	.018
	Sig. (2-tailed)	.398	.824	.848	.710	.913	.961
Management style	Pearson Correlation	.196	.100	-.369	-.087	-.280	-.330
	Sig. (2-tailed)	.587	.783	.294	.811	.433	.352
Solidarity	Pearson Correlation	.034	-.332	-.590	-.400	.264	.200
	Sig. (2-tailed)	.925	.349	.073	.252	.462	.580
Integrity	Pearson Correlation	-.365	.235	.236	-.478	-,758*	-.227
	Sig. (2-tailed)	.299	.514	.512	.162	.011	.529
Joint effort	Pearson Correlation	-.141	-.024	-.271	-.369	.003	-.572
	Sig. (2-tailed)	.697	.947	.449	.294	.993	.084
Self-interest	Pearson Correlation	-.444	-.106	-.283	-.530	.210	.581
	Sig. (2-tailed)	.199	.771	.427	.115	.560	.078
Organizational responsiveness principal	Pearson Correlation	.012	-,862**	-.516	.113	.413	.394
	Sig. (2-tailed)	.974	.001	.127	.756	.235	.260
Organizational responsiveness agent	Pearson Correlation	-,776**	-.597	-.423	-.186	.044	.030
	Sig. (2-tailed)	.008	.068	.223	.606	.903	.934
Awareness prevention	Pearson Correlation	.400	.375	.587	.346	.322	.447
	Sig. (2-tailed)	.252	.285	.074	.327	.364	.195

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix J.Perceptual distance all projects


Legend
Perceptual Distance
Constructs coloured based on the following equation with data from principal and agent:
$\ln\left(\frac{|\mu_{ypa}-\mu_{ypp}|}{\sqrt{\frac{(n_{ypa}-1)\sigma_{ypa}^2+(n_{ypp}-1)\sigma_{ypp}^2}{n_{ypa}+n_{ypp}-2}}}+1\right)$
Equation Value
> 1.0
0.9 - 1.0
0.7 - 0.9
0.45 - 0.7
< 0.45
Performance & Awareness
Constructs coloured based on the Likert value of the principal.
Likert Value Costs, planning, quality, sustainability, and innovativity
Likert Value Continuity, Prevention
1 - 1.8
1 - 2.2
1.8 - 2.6
n.a.
2.6 - 3.2
2.2 - 3.4
3.2 - 3.8
3.4 - 4.6
3.8 - 4.5
4.6 - 5.8
4.5 - 7.0
5.8 - 7.0
Project A
Project B
Project C
Project D
Project E
Project F
Project G
Project H
Project I
Project J
Perceptual Distance
Objectives and resources
Goal accomplishment
Goal orientation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Regulations
Importance of regulations
Implementation of regulations
Operations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Norms and values
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Appendix K. Analysis Perceptual Distance projects

Legend

Perceptual Distance

Scenario 1: Constructs coloured based on the significance level of differences between principal and agent (t-test & Mann-Whitney).

Sig. Level
< 0.05
0.05 - 0.10
0.10 - 0.15
0.15 - 0.20
> 0.20

Scenario 2: Constructs coloured based on the differences (Likert 1-7) in means between principal and agent.

Δ Likert
> 1.0
0.8 - 1.0
0.6 - 0.8
0.4 - 0.6
< 0.4

Scenario 3: Constructs coloured based on cohen's *d* (standardize mean difference) between principal and agent.

Cohen's *d*
> 2.0
1.5 - 2.0
1.0 - 1.5
0.5 - 1.0
< 0.5

Performance & Awareness

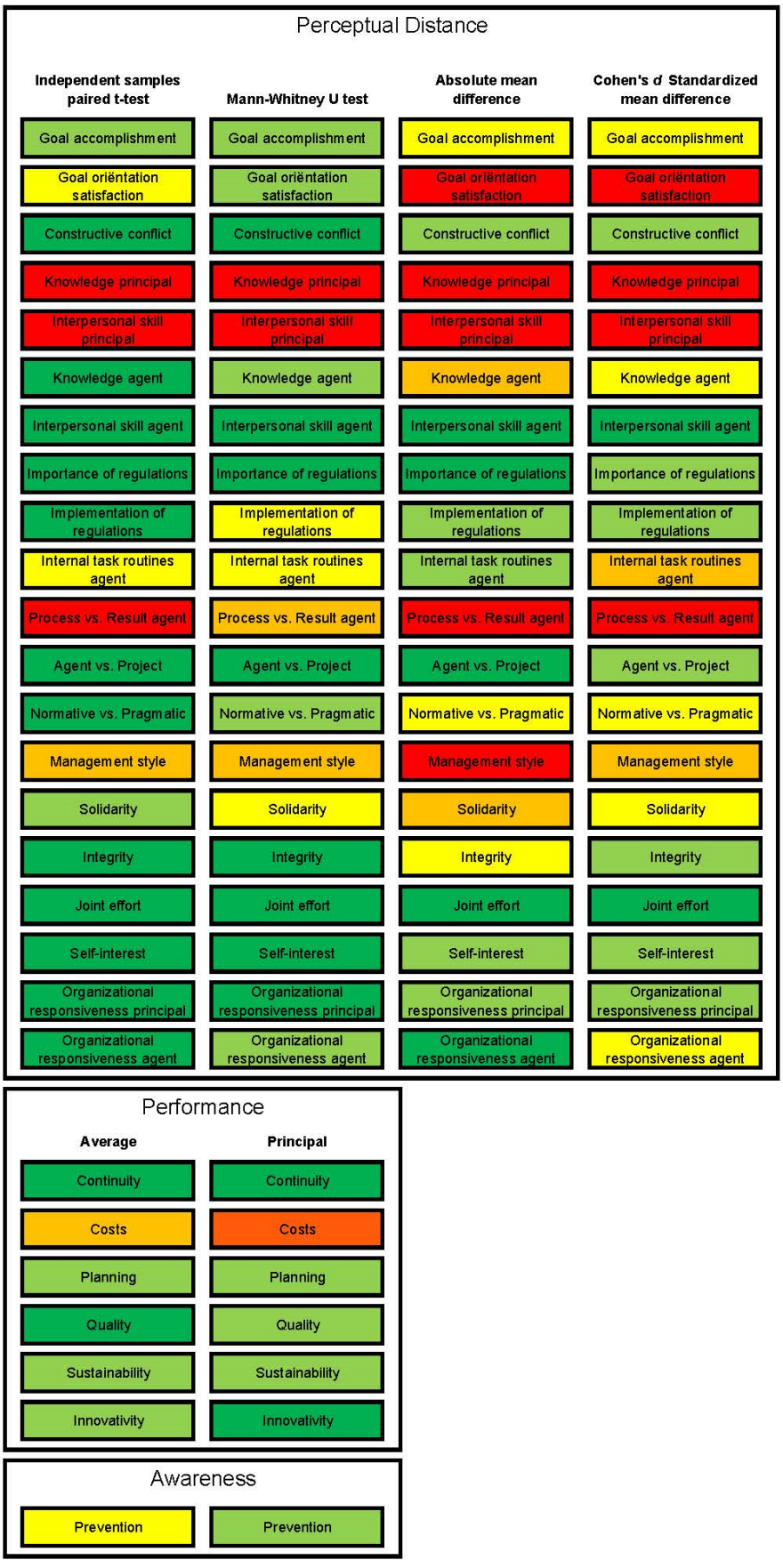
Scenario:
Constructs coloured based on the Likert value of (1) average of principal and agent, or (2) principal.

Likert Value Costs, planning, quality, sustainability, and innovativity	Likert Value Continuity, Prevention
1 - 1.8	1 - 2.2
1.8 - 2.6	n.a.
2.6 - 3.2	2.2 - 3.4
3.2 - 3.8	3.4 - 4.6
3.8 - 4.5	4.6 - 5.8
4.5 - 7.0	5.8 - 7.0

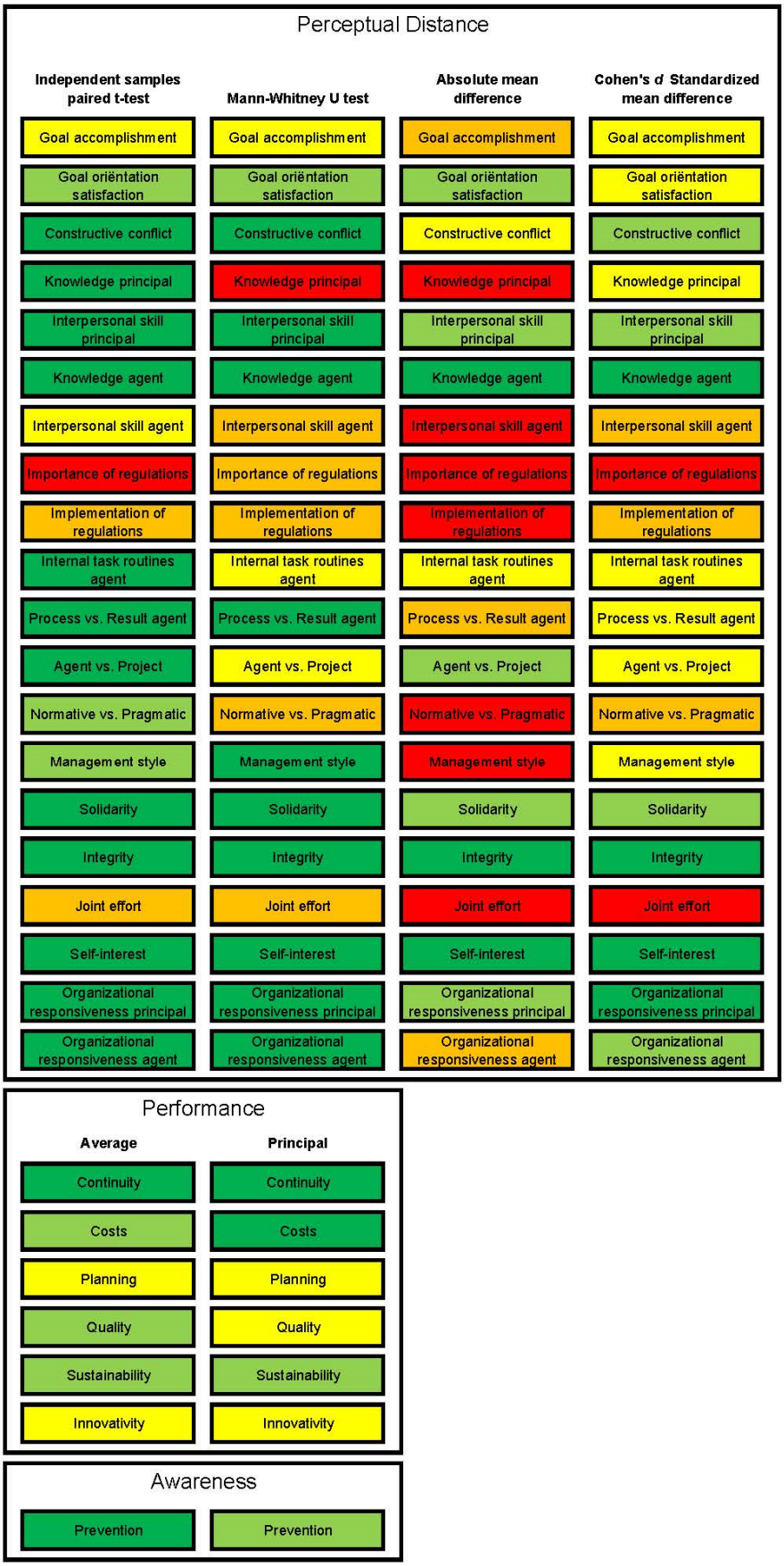
Project A


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project B


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

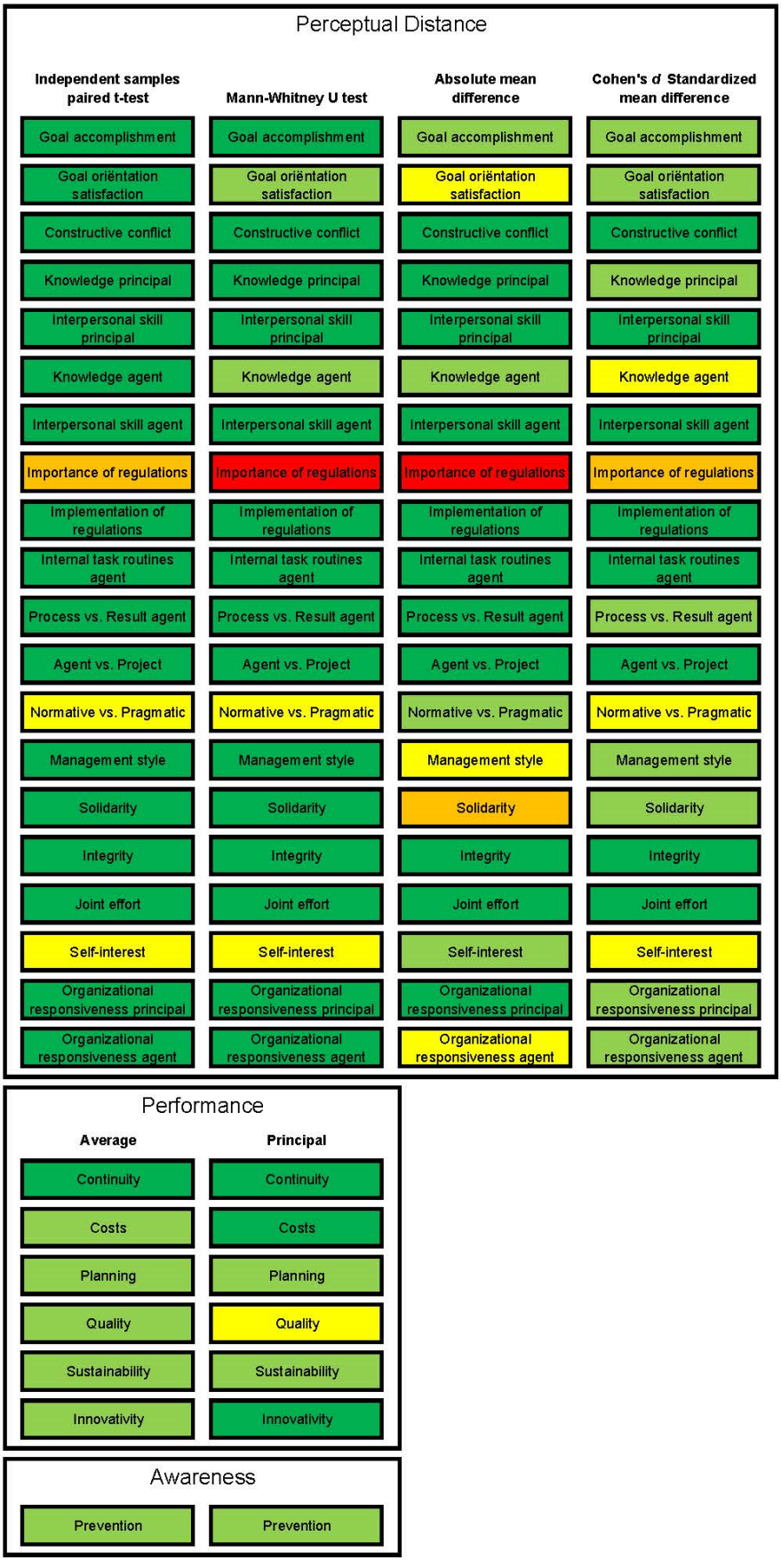
Project C


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project D


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project E


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project F


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project G


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project H


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention


Project I
Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention

Project J


Perceptual Distance
Independent samples paired t-test
Mann-Whitney U test
Absolute mean difference
Cohen's d Standardized mean difference
Goal accomplishment
Goal oriëntation satisfaction
Constructive conflict
Knowledge principal
Interpersonal skill principal
Knowledge agent
Interpersonal skill agent
Importance of regulations
Implementation of regulations
Internal task routines agent
Process vs. Result agent
Agent vs. Project
Normative vs. Pragmatic
Management style
Solidarity
Integrity
Joint effort
Self-interest
Organizational responsiveness principal
Organizational responsiveness agent
Performance
Average
Principal
Continuity
Costs
Planning
Quality
Sustainability
Innovativity
Awareness
Prevention