The influence of an online collaboration tool on relationships in inter-organisational networks

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Abstract

This thesis extends the research into the influence of information and communications technology on relationship management by specifically exploring the use and influence of an online collaboration tool (OCT). An OCT is the web-based information infrastructure used for coordinating project activities, and the major market segment for OCTs is the construction sector.

Following a literature review, a conceptual framework was developed to analyse the influence of an OCT on dispute resolution in the inter-organisational network of a construction supply chain, to answer the over-arching research question:

- How do online collaboration tools influence relationships in inter-organisational networks?

The research questions were explored using a case study approach by interviewing members of two construction supply-chains that used an OCT. Nine case studies were conducted, where a case's unit of analysis is a project manager from the builder or consultants; four and five project managers, respectively, were interviewed from each project.

The major contribution is the simplified trust-reputation model that relates attributional trust and issue resolution to corporate reputation. In effect, individuals on the project are very forgiving of supply chain members with regard to issues because of concern for their company's reputation. Hence, while trust may vary, there was no breakdown in trust because this would affect their company's reputation as a good partner. Furthermore, although there was a reported variance in trust by the project managers, it did not affect the project's outcome, but it did affect the ease of doing business.

With regard to managerial implications, there is a possibility that the introduction of an OCT may induce a behavioural change in the builders to issue a greater number of requests for information (RFIs) to get issues on the record. Hence, this change needs to be managed upfront at a kick-off meeting at which it should be agreed what constitutes a RFI that needs to be issued using the OCT.

This thesis adds value by noting how the dependent relationship between attributional trust and corporate reputation prevents a relationship breakdown.

Student Declaration

"I, Ian Horgan, declare that the PhD thesis entitled "The influence of an online collaboration tool on relationships in inter-organisational networks" is no more than 100,000 words length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature: ……………………………………   Date: …………………...

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1   Introduction

This chapter states the research motivation and gap, and introduces the research method.

1.1   Research Motivation

The purpose of this thesis is to explore the influence of an online collaboration tool (OCT) on relationship management in a construction supply chain.

1.2   Research Questions

The over-arching research question is:

- How do online collaboration tools influence relationships in inter-organisational networks?

Therefore, in the context of inter-organisational networks, this research will answer the following sub-headings:

- What creates trust (interpersonal and inter-organisational), and how is trust measured?
- What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?
- What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?
- What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?
- How does an OCT change the project-manager's work practices, and how do these changes affect their relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?

1.3   Justification for the Research

The following four points justify the importance of this research from theoretical and practical perspectives. First, the influence of an OCT on relationship management in a construction supply chain addresses a gap in the body of knowledge. However, whilst this research was undertaken in response to the scarcity of OCT-based research, its prime contribution elucidates the importance of attributional trust (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005), a topic of research with even less coverage than OCTs (Nikas & Poulymenakou 2008; Nikas, Poulymenakou & Kriaris 2007).

Second, a review of 64 papers on relationship quality (Athanasopoulou 2009) found only seven focused on the supplier, with three interviewing both the buyer and supplier. Further,

only four studies were qualitative. Seppanen, Blomqvist and Sundqvist (2007) reviewed 15 empirical papers on inter-organisational trust. They noted: all the studies had a single key informant, presenting the problem of informant bias; empirical studies do not account well for the confusion with antecedents and consequences, as in the reciprocal loop of trust and communication; the majority of studies were in technology-intensive industries; the temporal element of trust has been given less attention. As a result, Athanasopoulou (2009) and Seppanen, Blomqvist and Sundqvist (2007) call for more qualitative research. This research interviews members of two construction supply chains, differentiated by coming from completed and on-going projects. Hence, the research is qualitative and addresses the issues of informant bias and the temporal element of trust.

Third, in 2010–11, 11.4 million people were employed across all industries (ABS 2011) in Australia. From an industry perspective, the health care and social assistance industry employed the greatest number of people (1.3 million persons or 11.4% of total employment). The next largest industry was retail trade (10.9%), followed by construction (9.1%) and manufacturing (8.6%) (ABS 2011). Therefore, the construction sector is important to the economy, and the research has the potential to affect many people.

Finally, the use of an OCT to manage projects is a new phenomenon. The Melbourne-based, market leading OCT, Aconex, was founded in 2000. Hence, any research conducted regarding its use is of practical interest to a growing base of users.

1.4   Research Method

A postpositivist qualitative stance, as exemplified by the data analysis strategies of Yin (1994), was chosen by the author to address the need for greater qualitative research noted in the literature (Athanasopoulou 2009; Dainty 2008; Seppanen, Blomqvist & Sundqvist 2007).

Case study has been chosen as the research method (chapter 4), after consideration of the benefits relative to narrative research, phenomenology, grounded theory and ethnography. A case study is a beneficial approach where the inquiry has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases (Creswell 2007). With regard to multiple cases the researcher typically chooses no more than four or five cases (Creswell 2007). Stake (2006) advises between 4 and 10 cases be studied for a multi-case study. Nine cases were studied in total, where a case is a project manager. The research topic concerns the influence of an online collaboration tool on the relationships between project managers in a construction supply chain.

1.5   Structure of Thesis

Chapter 1 entitled "Introduction" introduces the research topic and questions, and the process followed to gather the evidence.

Chapter 2, "Literature Review" introduces the general, relationship management literature through the theoretical lens of social capital, which is used to identify the four key constructs: trust, shared information, shared practices, and shared values and goals, which are discussed in Chapter 3.

Chapter 3, "Contextual Background and Conceptual Framework", explores the literature pertaining to the four key constructs and the context-specific construction sector, dispute resolution and OCTs. Finally, the conceptual framework is derived from the literature review, the research questions formulated and propositions summarised.

Chapter 4, "Research Method" describes the qualitative method undertaken, case study, and justifies why it was selected. The case study protocol that contains the procedures and general rules to guide the researcher in carrying out the case study (Yin 1994) is defined. The protocol has the following sections: an overview of the case study project; field procedures; case study questions; a design guide for the case study report.

Chapter 5, "Analysis of Completed Project Case Studies" develops the evidence from the completed project's case studies

Chapter 6, "Analysis of On-going Project Case Studies" develops the evidence from the on-going project's case studies

Chapter 7, "Multi-case study Analysis and Conclusions" develops the evidence from the multi-case perspective, using the outline stated in the case study protocol, to articulate general conclusions.

Chapter 8, "Discussion of Research Results" discusses the evidence using deductive and inductive approaches, and concludes with theoretical contributions and managerial implications, and an evaluation of the research process.

Chapter 9, "Conclusions", provides a succinct summary of the research motivation, contributions and limitations, and ideas for future research are detailed.

1.6 Summary

This chapter laid the foundations for the thesis. It introduced the background to the research and the research questions, and the research method was briefly described and justified, and the thesis structure was outlined. On these foundations, the thesis can proceed with a detailed description of the research

1.6 Summary

2 Literature Review

The purpose of this chapter and chapter 3 is to explore the literature through the theoretical lens of social capital, culminating in the production of a conceptual framework and associated research questions.

The Literature Review Structure, figure 1, outlines the approach to defining the conceptual framework. The purpose is to set the scene for the reader so that they may know the direction, in advance, of the literature review, and its relationship to the conceptual framework, as highlighted in Chapter 3.

Relationship Management
2.1

Social Capital and Socialisation
2.2, 2.3

Trust, Shared Information, Shared Practices, Shared Values & Goals
3.1

Construction Relationship Management
3.2.1

Construction Dispute Resolution
3.2.2

OCT
3.2.3

Conceptual
Framework
3.3
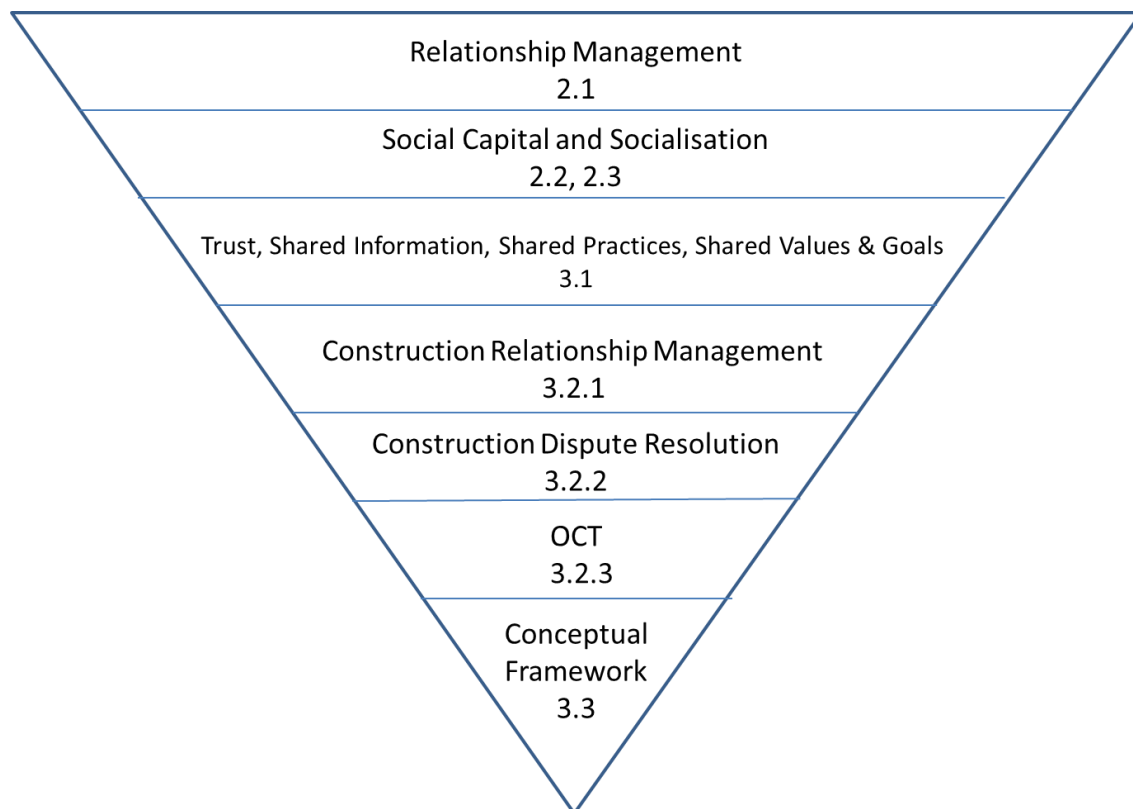
Figure 1, Literature Review Structure

The objective of the literature review is threefold. First, it aims to provide a general view of the key factors in the relationship management literature, irrespective of context (e.g., interpersonal, organisational, industry and cultural), so that the results of the field research may be explained with regard to the existing literature. The identified overlap between supply chain management (SCM) and key account management (KAM) practice (Ryals & Humphries 2007) suggests an approach seeking generalisations is productive. Therefore, the general business literature (predominantly marketing, management and IS) is explored, even though the topic of OCTs is predominantly IS-related (Lam, PTI, Wong & Tse 2010; Nikas & Poulymenakou 2008; Nikas, Poulymenakou & Kriaris 2007; Xue et al. 2012).

Second, the discussion progresses from social capital, embodied by trust and reputation (Burt 2005; Cook, Hardin & Levi 2005), and socialisation, to then documenting the relationship literature from the perspective of four key constructs of relationship management: trust; shared information; shared practices; shared values and goals.

Finally, the limited literature concerning business relationships in the context of the construction industry, dispute resolution and OCTs is reviewed, and the conceptual framework and research questions are presented.

2.1   Relationship Management

Relationship management has become a key topic of interest in the management, marketing, and IS literature, where it is regularly examined with regard to buyer-supplier relationships (Bell, Oppenheimer & Bastien 2002), strategic alliances (Dyer, Kale & Singh 2001), marketing channels (Geyskens, Steenkamp & Kumar 1999), new product development (Ragatz, Handfield & Scannell 1997) and outsourcing (Babar, Verner & Nguyen 2007). Relationship management is regarded as a competitive advantage that requires people to be sensitive to political, cultural, organisational and human issues (Kanter 1994). It can concern customers, suppliers, alliance partners and internal business units (Gulati & Kletter 2005).

The importance of relationship management and inter-organisational interactions can be viewed through several examples. The Industrial Marketing and Purchasing (IMP) group report an average relationship length between companies of over 12 years, and that it is not uncommon for some companies to source between 70% to 90% of their product value from such long-term partner companies (Hakansson et al. 2009). On the demand-side, Athanasopoulou (2009) reports it is five times more expensive to acquire new customers than to retain existing ones. In a review of the information technology (IT) outsourcing literature, Lacity, Khan and Willcocks (2009) state that higher levels of relational governance are associated with higher levels of outsourcing success.

In relationally-governed exchanges there is a greater reliance on social processes, as opposed to contractual terms, to promote norms of flexibility, solidarity and information exchange to manage the relationship (Poppo & Zenger 2002). The importance of relational governance has also been demonstrated in a review of the international strategic alliance (ISA) (Robson, Skarmeas & Spyropoulou 2006) and new product development (Chen, Ming-Ji & Chang 2006) literature. Unfortunately, 60% of strategic alliances fail, with Ellis (1996)

highlighting the importance of trust to success. Zineldin and Bredenlow (2003) report the yearly growth in US strategic alliances at 25%, but project a failure rate as high as 70%.

The importance of relational governance is not a recent phenomenon. One could surmise that relational governance was important to the expansion of the empire, as the British policed their empire using local warriors under young white officers who had learnt the language and adopted the national costume to establish a personal bond (Keegan 2002). However, this historical example of relational governance may have been borne more out of necessity than choice: in the early nineteenth century, the Royal Navy had a tonnage of vessels greater than the combined navies of France, Spain, Russia and the Netherlands (Ferguson 2003), and as such the United Kingdom had a small army relative to their mainland rivals. Today, on the corporate battle-field, trust and transparency are critical to a company's reputation (Edelman 2010), and trustworthiness is a competitive advantage (Argentie, Lytton-Hitchins & Verity 2010). Hence, the literature documents the importance of relationship management.

The existing research on relationship management covers a range of closely related topics, such as relationship trust (Day et al. 2013; Gillespie 2012; Lyon, Möllering & Saunders 2012; Seppanen, Blomqvist & Sundqvist 2007; Xue et al. 2012), satisfaction (Callarisa Fiol et al. 2009; Cambra-Fierro & Polo-Redondo 2008; Gök 2009; Niraj et al. 2008; Terawatanavong, Whitwell & Widing 2007), commitment (Goo, Huang & Hart 2008; Leonidou, Talias & Leonidou 2008; Taylor et al. 2008; Zhao et al. 2008), quality (Athanasopoulou 2009; Holmlund 2008; Myhal, Kang & Murphy 2008; Ulaga, W. & Eggert 2006) and strength (Donaldson & Toole 2000; Herington, Johnson & Scott 2007; Shi, GC et al. 2009). However, some authors (Athanasopoulou 2009; Seppanen, Blomqvist & Sundqvist 2007) argue that careful consideration of this research reveals major inconsistencies in the conceptualisation and operationalization of key theoretical constructs.

For example, Seppanen, Blomqvist and Sundqvist (2007) reviewed 15 empirical articles on inter-organisational trust that were published between 1990 and 2003; they noted the different conceptualisations and measures of trust, with the only common factors being communication and shared values. Day et al. (2013) listed 15 definitions of trust before deeming it to be a function of credibility and benevolence: that is, meeting expectations and showing concern for another's welfare. Seppanen, Blomqvist and Sundqvist (2007) also found that trust can be both an antecedent and an outcome, reflecting the real-world experience of trust, thus questioning its suitability for causal modelling. The authors conjecture that the use of different conceptualisations is indicative of the lack of a widely-

agreed measure of trust and, therefore, more qualitative research is required, not quantitative, to further explore this construct and define a widely agreed measure of it. They advise enagaging multiple key informants to explore the causes and effects of trust, preferably in longitudinal studies.

Also, in a survey of 64 studies on relationship quality, Athanasopoulou (2009) concurred with Seppanen, Blomqvist and Sundqvist (2007) that there is no accepted framework of relationship management, and noted the only area of convergence is the three major dimensions of relationship quality: trust, commitment and satisfaction. Athanasopoulou (2009) suggests the ultimate variables to be studied are: trust, commitment, customer satisfaction, conflict, cooperation, opportunism, power, adaptation, atmosphere and bonds. Again, Athanasopoulou echoes Seppanen, Blomqvist and Sundqvist (2007) in calling for more qualitative research for greater insight into these areas that have an over-riding concern with opportunism.

Relationship management is concerned with using control mechanisms to control partner opportunism, with the overall goal of minimising governance costs (Stump & Heide 1996). In general, four types of relationship governance exist to manage opportunism: bargaining power; contracts; reputation; and trust (Alvarez, Barney & Bosse 2003). For instance, firms with low switching costs (Porter 1980) have the power to seek an alternative supplier. And, while contracts specify the rights and responsibilities in the exchange and how violations will be managed, the use of contract law is often too costly to regulate behaviour (Cook, Hardin & Levi 2005). Moreover, information about another firm's reputation may be used to manage opportunism before the exchange commences, and trust, as contracts, may be used to manage opportunism during the exchange when both parties are vulnerable, as vulnerability binds them together (Alvarez, Barney & Bosse 2003). Therefore, each has a role to play in thwarting opportunism.

However, it is trust and reputation that are integral to social capital theory (Burt 2005; Cohen & Prusak 2001) and form the basis of this literature review, although it is acknowledged that contracts and bargaining power equally have a role to play in managing relationships. For instance, one school of thought considers partnering in the construction industry is only feasible when there is a dominant partner, or an interdependent relationship (Cox & Ireland 2002), as it takes power to force a partner to invest in a relationship.

2.2 Social Capital

Definitions of social capital include: social capital explains how people do better because they are somehow better connected with other people (Burt 2005); social capital enables us

to get things done by people with whom we do not have a substantial trust relationship (Cook, Hardin & Levi 2005). They have in common a reference to the importance of ties to others. Cook, Hardin and Levi (2005) consider that, although social capital is not constituted by trust, being trustworthy may be important for accessing social capital, and the governance of social exchanges is due to the fear effect of acquiring a damaged reputation. On the other hand, Burt (2005) argues that trust, an expectation of co-operation, is fundamental as contractual terms are incomplete. The different operationalisations of trust are considered in section 3.1.1.1, with the purpose of this introduction to social capital being to demonstrate the importance of ties by focusing on the work of the aforementioned authors.

Burt (2005) states the concept of social capital in four stylised facts. Stylised facts are facts that are true in the broad majority of cases (Burt 2005). The four facts are:

1. Brokers, people who bridge the gaps between networks, are rewarded by way of: more positive individual and team evaluations, compensation higher than peers and faster promotion. Figure 2 shows the brokerage relationship between Jack and Jill linking groups A and B.

2. Brokers are more successful because they are exposed to new ideas that make them more creative.

3. Performance is highest for closure within a group combined with brokerage beyond the group. The prevalence of closure in practice, due to organisational inertia, is acknowledged by Burt (2005), who admits brokerage is more theory than fact.

4. Closure, by using the sanction of reputation, reinforces behaviour consistency and amplifies strong relations to extremes of trust and distrust, and slows decay in new relations. Figure 2 shows the closed networks of groups A and B.
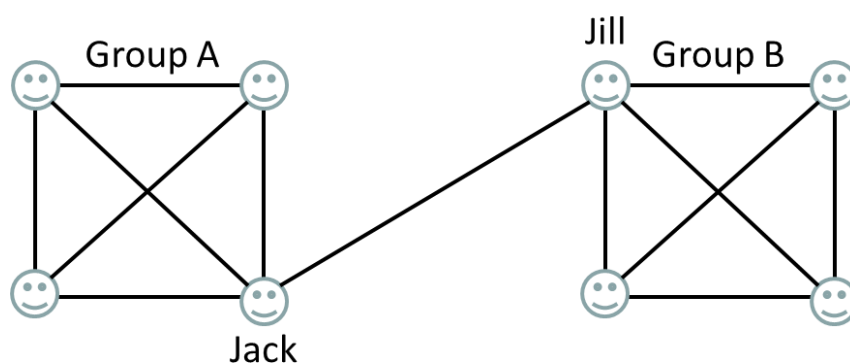
Figure 2, Closure and Brokerage (Burt 2005)

What follows is an explanation of the four facts as demonstrated by Burt's research into organisations and managers.

Literature Review

Brokers bridge structural holes to acquire: access to a wider diversity of information; early access to that information; control over information diffusion. A structural hole is a lack of information flow between groups or people. Their value is that they separate non-redundant sources of information. A broker, by bridging a structural hole, has access to alternative opinion and practice, early access to new opinion and practice, and an ability to move ideas between groups where there is advantage in doing so. The hole-spanning network is social capital.

A bridge is a (strong or weak) relationship for which there is no effective indirect connection through third parties. A strong relationship is characterised by high levels of trust formed from on-going interactions and the rich data they provide about each other. For individuals and groups, networks that span structural holes are associated with more positive evaluations, earlier promotion and higher compensation. Burt (2005) predicts that the value of a bridge should decrease across successive bridges, and the decrease is probably steeper for the first few bridges than for the last few. Hence, value declines with subsequent entrants down to some equilibrium level at which the benefit is marginally higher than the cost of bridging the hole. Therefore, brokerage provides a temporary, local advantage.

Brokerage is associated with good ideas, as people familiar with activities in two groups are more able than people confined within either group to see how a belief or practice in one group could create value in the other. People, whose networks span structural holes, have early access to diverse, often contradictory, information and interpretations which give them a competitive advantage in seeing good ideas. Creativity by brokerage involves moving an idea mundane in one group to another group where the idea is new and valued. In a study of supply chain managers, managers whose networks spanned structural holes were more likely to have a good idea, and express and discuss their idea with colleagues (Burt 2005). Managers with experience of structural holes are more likely to see the holes and have an advantage in seeing how to launch projects. Brokerage offers an advantage in seeing who to contact for support, how to connect them, and when. The projects they launch are more likely to succeed because brokers are more likely to anticipate and adapt to problems that will inevitably arise. Therefore, organisations with management and collaborative networks that more often bridge structural holes in their markets learn faster and are more productively creative.

Bridging a structural hole can create value, but delivering the value requires the closed network of a cohesive team around the bridge. Brokerage is about coordinating people between whom it would be valuable, but risky, to trust. Closure is about making it safe to

trust. A network is closed when both parties have strong relationships to mutual parties. The relationally embedded network between Jack and Jill (fig. 2) has become a partially closed, structurally embedded relationship in figure 3, due to the addition of third-party ties connecting Jack and Jill.
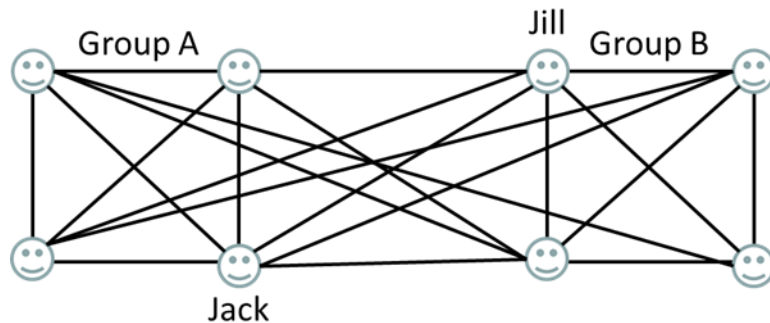
Figure 3, Structurally embedded network (Burt 2005)

The more closed the network the more likely that misbehaviour will be detected and punished. In order to maintain their reputation within the group people cooperate with other people within the group. In effect, the reputation incentive to cooperate lowers the risk otherwise associated with trust, and so increases the probability of trust. By making it possible to detect and punish bad behaviour, closure's value comes from driving variation out of the closed network, in other words, peer pressure. While closure is about forcing people to behave in prescribed ways, brokerage is concerned with exposing one to the diversity of opinion and practice across other groups. Hence, performance is optimised by a structurally autonomous group that consists of people strongly connected to one another, with extensive bridge relations beyond the group. The strong reputation mechanism aligns people within the group, and a strong vision mechanism encourages a diversity of approach. The inference is that profit margins should be highest in an industry where there is low competition between manufacturers dealing with disorganised suppliers and customers (Burt 2005). Similarly, high-performance teams will be those in which member networks beyond the team span structural holes, and strong relations within the team provide communication and coordination.

Burt (2005) elaborates on the importance of reputation within closed networks by introducing the concept of echo and describing how it amplifies trust and distrust in the relationship. Echo assumes that third-parties communicate a sample of what they know about an individual, a sample defined by etiquette such that people hear predispositions echoed by data and treat the echo as data. Etiquette involves not contradicting the tone of the conversation and raising topics on which people can agree. Therefore, closed networks do not enhance information flow but reinforce predispositions. Favourable opinions are

amplified into trust; doubt is amplified into distrust. Given the amount of time required for trust to mature within a relationship, it is expected that in most cases individuals will rely upon the reputation sanctions of structural embedding to ensure cooperation. Hence, structural embedding, or mutual contacts, plays an important role in preventing the dissolution of relationships in the early years. With regard to reputation, echo implies that you do not own your reputation, it is owned by the people, who while engaging in social bonding (gossiping), echo your reputation to each other, whether or not the story is true. A positive impression will amplify into trust; a negative one into a character assassination. Unfortunately, echo leads to groupthink (Janis 1972) which requires brokerage to break away from the hubris of uninformed certainty.

Echo reinforces closure, the boundaries between groups, deepening the structural holes that segregate groups. Closure typically prevails over the productive potential of brokerage. It is hoped that once this destructive consequence of closure is realised that brokerage will be addressed. In the previously mentioned study of supply chain managers that proved idea creation was related to brokerage, the adoption of ideas was inhibited by closure, or network stability (Burt 2005). The inference is that ideas were not discussed to change business practice so much as they were discussed to display competence and entertain familiar colleagues (Burt 2005).

Burt's ideas have been explored by a number of academics: a team with low to moderate closure is the most effective, and while informal socialising with horizontal groups is not important, socialising with the formal leaders of other groups increases group effectiveness (Oh, Chung & Labianca 2004); however, the group needs to have formed strong bonds internally before it can bridge (Newell, Tansley & Huang 2004). A study of investment banks alliance formation confirmed the importance of closure and brokerage, as in the partner banks being of similar status and having complementary resources (Chung, Singh & Lee 2000); and the social capital of senior managers in the semiconductor industry is crucial to their firm's alliance formation, with social capital being judged by the size of the senior management team and their experience working for other semiconductor firms at a senior level (Eisenhardt & Schoonhoven 1996).

While Burt (2005) imports the requirement for reputation to precede trust, Cook, Hardin and Levi (2005) state that social capital is not constituted by trust where social capital is, A has access to B, a facilitator, to motivate C to act on A's behalf. This could be because A has paid B, or, B is motivated by a communal norm such as reciprocity. However, the presence of trust may make things easier. Interestingly, there was no term for trust in English before

about the twelfth century, as reliability was enforced by norms that were backed by sanctions that the community could apply (Cook, Hardin & Levi 2005). A sanction could range from a mild reprimand to banishment from the community. In urban societies, the sanction is the threat to affect one's reputation. In organisations, relational contracts, the self-enforcing rules and norms that develop within a specific workplace, may engender trust between individuals due to the on-going nature of the relationship. However, it is probably a norm of cooperation and implied threat to reputation that elicits better performance, secondary to the organisational design of incentives and penalties.

While Cook, Hardin and Levi (2005) do not offer a more encompassing account of social capital due to their treatise considering other institutional forms of ensuring reliability, they differ from Burt (2005) in two respects. Their use of a precise definition of trust involving encapsulated interest (see section 3.1.1.1), that being shared interests attained over a period of cooperation, precludes trust being an instrumental part of social capital as promoted by other authors. Also, they make the important but subtle difference between an individual having access to social capital and groups having social capital.

UPS is offered as an example of a company exhibiting social capital (Cohen & Prusak 2001), where social capital is defined as the stock of active connections among people: the trust, mutual understanding, and shared values and behaviours that bind the members of human networks and communities and make cooperative action possible. Cohen and Prusak (2001) determine that many of the elements of social capital are both cause and effect, and that this is reflected in their book's lack of rigorous distinctions among social capital causes, indicators and effects. The benefits of social capital are:

1. Better knowledge sharing due to established trust relationships, common frames of reference and shared goals.
2. Lower transaction costs due to a high level of trust and a cooperative spirit (both within the organisation and between the organisation and its customers and partners).
3. Low turnover rates, thus reducing severance costs and hiring and training expenses, and avoiding discontinuities associated with frequent personnel changes, therefore maintaining valuable organisational knowledge.
4. Greater coherence of action due to organisational stability and shared understanding.

UPS examples of investments in social capital that grow cumulatively with effective use include:

1. Hiring people who fit the culture and share the core values of hard work, cooperation and commitment.
2. Orientation programmes taught by UPS employees, emphasizing values and norms along with skills and procedures.
3. Strong promotion from within policy, virtually universal share ownership, and distributed decision-making contribute to a sense of participation and membership.
4. Annual employee opinions survey on issues including fairness of opportunity and trust.
5. "Legacy books" that recount the experiences and thoughts of early leaders to keep its traditions, aims and values alive. Story-telling about the company's past and present.
6. Emphasis on socialisation and getting together to make important decisions, build relationships, and communicate about issues and concerns.

Trust is a precondition of social capital, and high levels of trust also tend to indicate high social capital. Trust is categorised as being either "thick" or "generalised" (Cohen & Prusak 2001). Thick trust is defined by the shorter, stronger trust bonds within local groups, and generalised trust refers to widespread organisational trust. For instance, having generalised trust in a company refers to believing that an employee in the company is honourable, helpful and competent, by dint of working for the company. Reputation acts in the middle ground between thick trust and generalised trust. Until we have developed thick trust based on on-going interactions, reputation gives us more to rely on than the generalised trust that judges pretty much everyone in the organisation as probably trustworthy. Acting to build and maintain trust is the most important capital investment leaders can make. Leaders need to set the tone by: behaving consistently, fairly, reasonably and reliably; by being open and encouraging openness; by trusting employees; by encouraging cooperation through group, not individual, incentive schemes (Cohen & Prusak 2001).

The preceding paragraphs have explored social capital from individual and organisational aspects, using the concept of ties to illustrate individuals having access to, and organisations having, social capital. Using the social capital dimensions of structural, relational, and cognitive (Nahapiet & Ghoshal 1998), Inkpen and Tsang (2005) discuss the importance of personal and organisational social capital using the viewpoint of three network types, multinational company (MNC), strategic alliance and industrial district, with regard to knowledge transfer. For example, they conceptualise that a strategic alliance should exhibit the following conditions to facilitate knowledge transfer:

- Structural: strong organisational ties based on prior relationships and repeated transactions. Multiple personal knowledge connections between partners. A non-

competitive approach to knowledge transfer to avoid information asymmetry creating relationship instability.

- Relational: trust reduces the fear of opportunism and encourages investment in learning. Trust, norms and identifications are the facets of relational capital but Inkpen and Tsang (2005) focus on trust.
- Cognitive: cultural diversity is beneficial to knowledge transfer. Goal clarity reduces inter-organisational conflict by facilitating the negotiation and establishment of common goals.

Likewise for an MNC:
- Structural: personnel transfer between network members, where network members are headquarters and a subsidiary, or different functional departments. Decentralisation of decision-making to encourage ties between network members. Low personnel turnover as leavers take knowledge with them and affect intra-organisational learning.
- Relational: clear and transparent reward criteria to reduce mistrust among members.
- Cognitive: shared vision and collective goals. Accommodation for local and network structures.

A case study of the relationship between a US manufacturer and one of its outsourced software suppliers (Rottman 2008) presents eight practices for creating, managing and exploiting social capital in a strategic alliance, using the framework developed by Inkpen and Tsang (2005). These practices enable the manufacturer to improve knowledge transfer, decrease development costs, shorten cycle time, increase the quality of developed deliverables, quickly respond to changes in the regulatory environment, and build strong, strategic relationships.
- Structural: (1) utilise multiple suppliers to enhance network ties and to increase social networks; (2) increase network utilisation and frequency and maintain multiple connections by unitising projects into small segments; (3) ensure knowledge retention and transfer by requiring a supplier to have shadows for key supplier roles.
- Relational: (4) increase internal trust by understanding and managing the talent pipeline.
- Cognitive: (5) strengthen cultural understanding by visiting the offshore supplier and project teams; (6) clarify goals by communicating the offshore strategy to all parties; (7) integrate the supplier's employees into the development team; (8) co-train internal employees and supplier employees to communicate goals and increase cultural awareness.

Other papers provide general advice with regard to social capital practices. For example: use consensus building, accountability mapping, conflict management, adopt shared values, and joint problem solving (Harvey et al. 2003); vendor mentoring, joint training, reciprocal site visits, knowledge management system, and provide funds for socialising (Ghosh, B & Scott 2009); senior executives should establish a close relationship with senior supplier executives to enable knowledge and resource exchanges (Lacity & Rottman 2009). The similarities between Inkpen and Tsang (2005), academics, and Cohen and Prusak (2001), practitioners, are notable. Likewise, C. Jones, Hesterly and Borgatti (1997) espouse the case for social mechanisms as a form of network governance to encourage a cooperative rather than adversarial approach, and to control relational opportunism. Suggested social mechanisms to create structural embeddedness are: always working with the same limited number of reputable partners to develop strong ties; ensuring shared assumptions and values; and using reputation between network members to reinforce acceptable behaviour (Jones, C, Hesterly & Borgatti 1997).

In conclusion, social capital refers to the resources made available by social relationships emanating from embedded relationships (Granovetter 1992), and is measured along three dimensions: structural, relational and cognitive (Nahapiet & Ghoshal 1998). It is an important part of all business transactions: markets, hierarchies and networks (Granovetter 1985). Although academics seem to question the value of social capital: the Wild West of academic work (Burt 2005); a fad (Lin, N 2001); a murky concept (Cook, Hardin & Levi 2005); the lack of consensus on a precise definition (Nahapiet & Ghoshal 1998), social capital provides a foundation for describing the valuable resources that are relationships (Inkpen & Tsang 2005).

The three dimensions of social capital, structural, relational and cognitive (Nahapiet & Ghoshal 1998), are now explored with reference to an empirical paper on supplier development (Krause, Handfield & Tyler 2007) that indicates support for the application of social capital theory to buyer-supplier relationships. Results show that commitment between two firms is an important complementary condition in seeking social capital accumulation with suppliers (Krause, Handfield & Tyler 2007).

2.2.1 Structural Capital

Structural capital is about the ties that relationship partners have; it is measured by information sharing achieved through activities such as supplier evaluation and "direct-involvement" face-to-face supplier development, such as regular visits to suppliers' facilities, supplier training and a dedicated supplier development team (Krause, Handfield & Tyler

2007). Structural capital in the form of supplier development, alongside cognitive capital shared values, explained buying firm performance in terms of quality, delivery and flexibility. Hence, tacit knowledge transfer is more important to performance than simple information sharing or supplier evaluation.

However, whilst "direct-involvement" activities may facilitate the transfer of complex, tacit knowledge, the cost, particularly of personnel's time, needs to be weighed against the benefits (Daft & Lengel 1986). Codified information, such as demand and supply projections, supplier performance data and certification, is explicit knowledge and may be easily communicated using information technology (IT).

Whilst structural ties are beneficial, a team with too strong ties to group members will suffer from groupthink (Massey & Dawes 2007), and will not benefit from the information that is available from external, informal socialising ties (Burt 2005). Therefore, the ideal network is partially open with ties to other groups (Newell, Tansley & Huang 2004), particularly group team-leaders (Oh, Chung & Labianca 2004). However, it is not just about whom one knows, but also the quality of the relationship that matters (Moran 2005), or the relational capital.

2.2.2 Relational Capital

Relational capital results from shared practices through on-going institutionalisation and adaptation in repeated interactions that increase asset-specificity and bilateral dependence, with increased trust being an outcome (Krause, Handfield & Tyler 2007). The expectation of a continuing relationship leads to shared planning and flexibility, where flexibility is adaptation to the changing environment (Johnston & Kristal 2008). Relational capital in the form of buyer and supplier dependence, alongside cognitive capital shared values, explained buying performance achievements in cost and total cost (Krause, Handfield & Tyler 2007).

Whilst structural embeddedness plays a role in explaining more routine, execution-oriented tasks (managerial sales performance), relational embeddedness is important in explaining new, innovation-oriented tasks (i.e., managerial performance in product and process innovation), when mutual learning is needed and more tacit knowledge exchanged (Moran 2005). The classic example of relational capital is the performance of US suppliers for US-based Japanese auto manufacturers. Toyota and Honda proactively develop their suppliers' capabilities, share information and conduct joint-improvement activities in a partnering approach that ensures mutual performance benefits for supplier and customer. This is a feat that cannot be replicated by US auto manufacturers (Liker & Choi 2004). Dyer and Nobeoka (2000) chart the progress of Toyota's US subsidiary's suppliers from weak ties between Toyota and the suppliers to strong ties, and eventually strong ties between the suppliers

themselves. Toyota uses a mixture of processes that motivate knowledge sharing, discourage "free riders", and efficiently transfer both explicit and tacit knowledge.

2.2.3   Cognitive Capital

Cognitive capital is a measure of parties sharing goals and visions (Krause, Handfield & Tyler 2007), and shared cultures (Inkpen & Tsang 2005). There is mutual understanding of the goals to be achieved and how to achieve them, with a corresponding effect on on-going improvements in cost, quality, delivery and flexibility for the parties. Cognitive capital is a common factor in explaining both dimensions of performance, cost and total cost, and quality, delivery and flexibility. Conversely, incongruent goals and visions, it is suggested, will lead to conflict, dissatisfaction, less information-sharing and negative effects on performance (Inkpen & Tsang 2005).

The catalyst for social capital formation is socialisation which, in turn, is dependent on the sociability of managers.

2.3   Socialisation

Successful relationship managers have social competence, network knowledge, and a portfolio of good personal relationships (Walter 1999). Social competence includes communications skills, conflict management, empathy, flexibility and adaptability. Network knowledge involves knowledge of actors' goals, expectations, behaviours, and their relationships with third-parties. A portfolio of good personal relationships is about interacting with relevant others who control significant resources (Walter 1999). The importance of social competence in a team to task performance is noted (Helfert & Vith 1999), due to improved communication, coordination and cooperation. It has been referred to as the human element and acknowledges the value of trust, communication, courtesy and impartiality in the relationship (Handfield & Nichols 2004). Buyers rate personal interaction as a key component of supplier value, alongside price, quality, delivery and other dimensions (Ulaga, Wolfgang 2003).

Personal interaction is associated with the benefits of improved communication, problem resolution and a better understanding of each partner's goals (Ulaga, Wolfgang 2003). Personal relationships can be divided into professional and social relationships. Professional personal relationships relate to work matters. Social relationships occur outside the workplace and working hours, and serve to consolidate the professional personal relationship. They play a critical role in the purchasing relationship and involve targeting individuals, not organisations (Lian & Laing 2007). Hence, having good personal interactions is paramount to good relationships.

Literature Review

How social capital develops through interactions is referred to as socialisation, which has been studied extensively in buyer-supplier relationships (Cousins et al. 2006; Cousins, Lawson & Squire 2008; Cousins & Menguc 2006; Petersen et al. 2008). Cousins, Lawson and Squire (2008) define socialisation mechanisms as the means by which individuals in a buyer-supplier engagement acquire knowledge of the other enterprise's social values, and thereby establish interpersonal relationships. The act of socialisation establishes relational capital which is assessed by the degree of mutual respect, trust and close interaction between the partner firms (Cousins et al. 2006). Formal and informal socialisation mechanisms are acknowledged, where informal socialisation is differentiated, as suggested by Cousins et al. (2006), as interactions in a non-workplace environment, or 'off-site'. There is the question of what is socialisation, with socialisation in practice defined by the following items taken from Cousins' referenced papers (* denotes informal socialisation practice):

- Social events*
- Joint workshops
- On-site visits*
- Regular supplier conferences
- Team building exercises
- Cross-functional teams
- Matrix-style reporting
- Communications guidelines* (e.g., we have an open-door policy)
- Awareness of supplier issues*

Further work needs to be undertaken to develop the idea of formal and informal socialisation practices, and whether there should in fact be two types, because it has been suggested that formal socialisation practices do not lead to relational capital, but may facilitate the informal patterns of socialisation required for the creation of relational capital (Cousins et al. 2006). Hence, the identification of informal socialisation practices is paramount. However, in a survey of the relationship between contractors and sub-contractors in the construction industry, socialisation consisting of supportive leadership and supplier feedback was shown to be associated with the relational behaviours of flexibility, solidarity, and trustworthiness and information exchange. Aspects of informal socialisation were not explicitly stated, although supportive leadership and supplier feedback could have taken place off-site (Stephen & Coote 2007). Again, as with trust (Seppanen, Blomqvist & Sundqvist 2007), we see different operationalisations, in that supportive leadership (Stephen & Coote 2007) could result from awareness of supplier issues (Cousins et al. 2006), and supplier feedback (Stephen & Coote 2007) could happen at a supplier's conference (Cousins et al. 2006).

In a study of supply chain management (SCM), the people issues, such as culture, trust, aversion to change, and willingness to collaborate were shown to be more intractable than the technology issues (Fawcett, Magnan & McCarter 2008). Therefore, there is a need to recruit the "right" people to do the job (Handfield & Nichols 2004), with a culture that supports the right attitudes towards cooperation, trust and interdependence (Kothandaraman & Wilson 2000). However, personal chemistry is not dependent on similarities in organisational culture, but compatibility caused by shared values, or trust resulting from a shared understanding of the differences (Beugelsdijk, Koen & Noorderhaven 2009).

Suffice to say, an investment in socialisation, such as taking the customer to dinner, making the customer feel special, and giving the customer special reports, are financially rewarding to the supplier (Palmatier, Gopalakrishna & Houston 2006). The limited definition of socialisation used by Palmatier, Gopalakrishna and Houston (2006) is contrasted with the list defined by Cousins et al. (2006) earlier, questioning the validity of claiming a financial return to the supplier in all instances of socialisation. Running a supplier conference and taking a customer to dinner every now and then require considerably different budgets.

2.4 Summary

Research has demonstrated the importance of socialisation to business relationships in creating relational capital as measured by trust, but questions remain as to the difference between formal and informal socialisation, and the relative importance of interactions in the workplace versus non-workplace environment (Cousins et al. 2006).

3   Contextual Background and Conceptual Framework

This chapter continues the literature review by making a case for capturing the essence of social capital by exploring the literature based on trust, shared information, shared practices, and shared values and goals, which are themselves dimensions of social capital. The inputs and outputs of the dimensions of social capital are shown in table 1, based on Krause, Handfield and Tyler (2007), to demonstrate the relevance of the four constructs to social capital.

Table 1, Social Capital Dimensions (Krause, Handfield & Tyler 2007)

Input	Dimension	Output
Ties	Structural	***Shared information***
Shared practices	Relational	***Trust***
Shared values and goals	Cognitive	Value creation (performance)

3.1   The Four Key Constructs of Relationship Management

Based on an extensive survey of the relationship management literature, four key aspects of relationship management related to social capital keep re-appearing, namely trust, shared information, shared practices, and shared values and goals, as exemplified by the following studies.

In a case study to analyse the relevance of the commitment-trust model (Morgan & Hunt 1994) to a long-term relationship, the findings demonstrated the importance of commitment, trust, relation termination costs and benefits, shared values and communication between the exchange partners (Friman et al. 2002). Woo and Ennew (2004) established the significance of institutionalisation/cooperation, adaptation and atmosphere (a norm of cooperation and trust) to service quality. McNally and Griffin (2007) identify relationship marketing as a second-order factor consisting of: an ongoing bonding process; mutual value creation; a cooperative atmosphere; and the use of IT to manage relationships. In another study, the social and economic aspects of trust formation are considered as: social interacting; open communications; customer orientation (demonstrate need for buyer's welfare); exceed customer requirements; offer value for money (Doney, Barry & Abratt 2007).

Conversely, uncertainty, distance and conflict have been found to have a negative impact on the quality of relationship between U.S. industrial exporters and their overseas customers (Leonidou, Barnes & Talias 2006). Uncertainty should be managed by providing reliable and

accurate information. Delayed or distorted information caused by distance can be managed by undertaking regular trips abroad and learning the language. The solution to conflict is setting mutually agreed roles and goals (Leonidou, Barnes & Talias 2006).

Hence, the four constructs have been determined to be representative of current research into relationship management, and are discussed in detail to highlight the diversity of relationship management thinking, and provide an overview of these key constructs

3.1.1   Trust

Trust is a key construct in the relationship management literature, and the purpose of this section is to present an introduction to trust-related research. The research is presented in a descriptive manner to capture the breadth of work to date, similar to the review by Seppanen, Blomqvist and Sundqvist (2007), to support the point that more qualitative inquiry is needed into it.

A willingness to be vulnerable, within reason, is an accepted part of contemporary trust definitions (Alvarez, Barney & Bosse 2003), with trusting behaviour being the behavioural manifestation of trust (Gillespie 2012). As such, Gillespie (2012) has proposed the Behavioural Trust Inventory (BTI) as a new measure that assesses the willingness of trust to be vulnerable as none of the existing instruments were considered adequate. The BTI measures two domains of trust behaviour: (1) reliance: that is, relying on another's skills, knowledge, judgements or actions; (2) disclosure: that is, sharing work-related or personal information of a sensitive nature. Gillespie's (2012) work is introduced as a promising response to Seppanen, Blomqvist and Sundqvist's (2007) criticism of the non-standard operationalisations of trust defined in the relationship management literature.

Wicks, Berman and Jones (1999) suggest that there is an optimal level of trust, thereby acknowledging that there can be too much or too little trust. It has been suggested that high organisational trust should be balanced by low interpersonal trust and vice-versa to ensure optimal trust (Jeffries & Reed 2000). What follows is an introduction to the seminal trust research, which culminates in an integrated model of trust based on the work of key researchers' operationalisations of trust.

3.1.1.1   Trust Operationalisations

While Krause, Handfield and Tyler (2007) has provided a basis for measuring the dimensions of social capital, there have been several trust frameworks proposed. The operationalisations cover the facets of trust, perceived trustworthiness and trusting behaviour (Colquitt, Scott & LePine 2007; Mayer, Davis & Schoorman 1995).

McAllister (1995) defines interpersonal trust as the extent to which a person is confident in, and willing to act on the basis of, the words, actions and decisions of another. McAllister highlighted two types of interpersonal trust: cognitive and affective. Cognitive trust is concerned with having good reasons to trust, while affective trust is about emotional bonds and showing concern for the well-being of partners. Some level of cognitive-based trust is necessary for the development of affect-based trust, and they are causally affected. McAllister notes the importance of a colleague's reputation to the development of cognition-based trust. Affiliative citizenship behaviour, for example, listening to a person's problems and worries and expressing care and concern, is associated with managers' affect-based trust in peers (McAllister 1995).

Mayer, Davis and Schoorman (1995) define trust as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the truster, irrespective of the ability to monitor or control that other party. Again, trust is an issue of risk, or vulnerability, in having to rely on another to fulfil an expectation. Trustworthiness has three factors, ability, benevolence and integrity. Ability refers to competence: we trust somebody because they are competent to undertake tasks pertinent to their training and experience. Benevolence acknowledges that the trustee wants to do well for the truster as in, for example, a mentoring situation where there is no intrinsic reward for the trustee. Integrity is determined by the truster believing the trustee follows a set of principles the truster considers acceptable. For example, the trustee has a sense of justice, and the trustee's actions are consistent with their words.

A high trusting relationship would exhibit high levels of ability, benevolence and integrity. But trust is a continuum, and an individual will place a different importance on the three factors, under different circumstances. Hence, trust is context-specific. Mayer, Davis and Schoorman (1995) suggest that integrity will take precedence in trust formation in the early stages with benevolence assuming importance later on. The importance of an individual's propensity to trust, based on perceived integrity, without prior information on the trustee being available was noted.

Lewicki and Bunker (1996) introduced a three-stage, interpersonal model of trust, applicable to professional relationships, consisting of calculus-based, knowledge-based and identification-based trust. Lewicki and Bunker use Boon and Holmes definition of trust as "a state involving confident positive expectations about another's motives with respect to oneself in situations entailing risk" (Boon & Holmes, 1991 cited in Lewicki & Bunker 1996).

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Contextual Background and Conceptual Framework

Calculus-based trust is based on individuals doing what they say because they fear the consequences of being punished for not doing what they say. The potential loss must outweigh the profits potential that comes from defecting from the relationship or violating expectations. This type of trust is typical in arms-length business relationships (Lewicki & Bunker 1996). Knowledge-based trust develops as a result of on-going interactions between the parties over time. It reflects an expectancy of consistency in behaviour based on past history. The key factor in knowledge-based trust is regular communication to exchange information about wants, preferences and approaches to problem-solving. At this stage, the relationship is strong enough that trust is not necessarily broken by inconsistent behaviour provided an adequate excuse is given. Identification-based trust is based on empathising with the other party's needs, developing a collective identity, and shared values and goals. It involves knowing and predicting the other's needs, choices and preferences, and identifying with them as one's own.

Trust evolves from calculus-based for many relationships to incorporate identification-based trust for a few. Lewicki and Bunker's (1996) model was revisited by McAllister, Lewicki and Chaturvedi (2006), who validated measures for identification-based and affect-based trust. Calculus-based trust was replaced by deterrence-based trust, a measure of distrust. Lewicki, McAllister and Bies (1998) suggested that trust in a relationship is the aggregate effect of trust and distrust of all facets of a relationship, and that our behaviour is governed by this ambivalence. For example, a lecturer may trust a colleague to teach his/her class, but would not trust him/her to co-author a paper, but overall the lecturer would have a trusting disposition toward their colleague. In effect, we are ambivalent in never totally trusting anybody or anything, and manage trust, a proxy for uncertainty, by undertaking scenario-planning for situations as they arise, as the lecturer did.

Based on 33 manager interviews in the US auto industry, four dimensions of trust were identified reflecting one party's willingness to be vulnerable to another party based on the belief that the latter party is (a) competent at doing their job, (b) open and honest, (c) concerned about others' interests, and (d) reliable in that they do what they say (Mishra 1996). Trust is defined as a willingness to be vulnerable to another party based on the belief that the other party is competent, open, concerned and reliable. Trust is a multi-dimensional measure with a low level of trust in one dimension offsetting higher levels of trust in the other dimensions (Mishra 1996). The measures are applicable to individuals and companies. Doney, Cannon and Mullen (1998) considered inter-organisational trust in their study of buyer-seller relationships. They showed that it is trust of the selling organisation, as well as of the salesperson, that determines future business, with trust of the company operating as

an "order-qualifier", a prerequisite for even being considered as a supplier, and not an "order-winner".

While Lewicki and Bunker (1996) assumed the parties were entering into a new relationship without any previous history, Kramer (1999) considered six bases of trust that influence individuals' expectations about each other. Presumptive trust (Kramer 1999) is formed prior to working together on a particular project, and allows for prior working experience. The six bases are: dispositional – an individual's natural inclination to trust others; history – past working experiences between the individuals; third-party – trust based on references from third-parties; category-based – membership of a social or organisational group; role – occupancy of an organisational role signalling competence and intent to meet one's obligations; rule – shared understandings regarding the system of rules pertaining to acceptable behaviour. Swift trust is presumptive trust minus the history dimension, and evolves to reason-based cognitive trust as team-members work together (Robert Jr, Dennis & Hung 2009). However, relying too much on swift trust is not encouraged (Kramer 2009).

In contrast to Kramer (1999), Cook, Hardin and Levi (2005) offer the "encapsulated interested" model of trust, when trust exists because one party believes the other party has an incentive to act because they have your interests at heart. By encapsulate they mean our interests become yours in the trust relationship between us. Trust is to do with interpersonal relationships and complements organisational arrangements that make cooperation possible. Trust develops over a period of time due to mutual interdependence, and is about maintaining the relationship into the future. Other organisational arrangements include reputation, legal processes, employer/employee hierarchical reward structure, and professional organisations that investigate unethical behaviour (Cook, Hardin & Levi 2005).

Reputation, when considered with regard to a person's future reputation, could be considered encapsulated interest. It is in one's interest to live up to the expectations created by one's past to maintain one's reputation as being reliable, to encourage future cooperative relationships with others. In effect, safeguarding one's reputation pre-supposes that you have to demonstrate a concern for the other party's interests at heart. By adopting the encapsulated interest model the definition of distrust becomes self-evident: we distrust others because we believe that their interests conflict with ours (Cook, Hardin & Levi 2005).

In a conceptual paper, the influence of national culture, individual or collective, and trust formation was related to one of five trust processes: (1) calculative – reward versus penalty, (2) prediction – reliance on past actions to forecast behaviour, (3) intention – interpretation of

words/behaviour as benevolent, (4) capability – ability to perform and meet obligations, (5) transference – extending trust to a third-party due to identification with a known entity (Doney, Cannon & Mullen 1998). Trust was defined as a willingness to rely on another party and to take action in circumstances where such action makes one vulnerable to the other party (Doney, Cannon & Mullen 1998). The paper made a number of propositions regarding which trust-building processes should be used with different types of culture. For example, members of an individualistic society are most likely to form trust using calculative and capability processes, and in a low-power distance society intentionality and transference is preferred. Doney, Cannon and Mullen (1998) suggest employers deliver training courses in engendering trust in employees, customers and suppliers, customised for cultural sensitivity.

In a recent paper on organisational trust, Schoorman, Mayer and Davis (2007) revisit their seminal paper (Mayer, Davis & Schoorman 1995) to discuss their model's appropriateness in the light of on-going research, and highlight new areas of research into trust. Although benevolence has received little attention relative to the other factors of ability and integrity, they contend that the three factors are applicable to analysing intergroup and inter-organisational trust. An increase in the trust factors should coincide with an in increase in risk-taking (Schoorman, Mayer & Davis 2007).

The role of values, attitudes, moods and emotions in trust formation (Jones, GR & George 1998) is deemed an interesting new area of research. The relevance of emotional bonding to trust development (McAllister, Lewicki & Chaturvedi 2006) and commitment (Stanko, Bonner & Calantone 2007) has been empirically validated. G.R. Jones and George (1998) suggest that without evidence at the start of a social encounter to support a congruence of values, we suspend belief of the trustworthiness of the other party and behave as though they have similar values, because of favourable attitudes to the other party. An attitude is the specific thought about an entity based on our knowledge or beliefs. On-going successful exchanges eventually provide the cognitive evidence to suggest that both parties share the same values, and so establish unconditional trust. Conversely, negative interactions result in distrust (Jones, GR & George 1998).

Emotions have the power to cloud a person's judgment and affect their perception of trust. An emotion is a feeling such as happy or sad. Hence, a happy person would be expected to be more trusting than a sad person, under the same conditions of cognitive trust as measured by the three factors of capability, integrity and benevolence. There is, therefore, an emotional stimulus to the rational, cognitive form of trust measured by Mayer, Davis and Schoorman (1995). Andersen and Kumar (2006) propose that the emotional states of

individuals will be similar where there is a positive interdependence of interests. A negative interdependence of interests leads to dissimilar emotions and makes termination of the relationship more likely. Therefore, negative feelings lead to distrust and relationship termination (Andersen & Kumar 2006).

Also of importance to Schoorman, Mayer and Davis (2007) is how trust is damaged. Ten trust violation factors were discovered in a series of interviews and focus groups conducted by Fraser (2010 cited in Kramer & Lewicki 2010):

- Disrespectful behaviours: discounting people or blaming others.
- Communication issues: not listening or trying to understand other viewpoints.
- Unmet expectations: broken promises, breach of confidentiality.
- Ineffective leadership: poor decisions, favouritism.
- Unwillingness to acknowledge: not owning issues, placing self before group.
- Performance issues: unwilling or unable to do job, incompetence.
- Incongruence: actions do not match words.
- Structural issues: lack of structure or too much structure, changes in procedures.

Kramer and Lewicki (2010) note most violation factors map into Mayer, Davis and Schoorman's (1995) model: ability (performance, unwillingness to acknowledge); benevolence (disrespectful behaviours, ineffective leadership); integrity (unmet expectations, incongruence). However, communications and structure issues do not (Kramer & Lewicki 2010). Note, Mishra (1996), using similar factors to Mayer, Davis and Schoorman's (1995), added honest and open communications in his multidimensional model of trust published a year later.

A practical, tested model of trust, incorporating the trust factors just identified, is provided by Hurley (2006). Given that half of managers do not trust their leaders (Hurley 2006), key factors of trust need to be identified along with ways of working with them to cultivate trust in the relationship. Trust is defined as a confident reliance on someone when you are in a position of authority. Ten factors were identified (Hurley 2006) building on research into trust and practical experience. They consist of three factors related to the truster, and seven pertaining to the trustee.

The three decision-making factors are:
1. Risk tolerance: the propensity to risk of the truster.
2. Level of adjustment: poorly adjusted people see threats everywhere and find it more difficult to trust.

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3. Relative power: more powerful people can afford to trust as they can sanction. Less powerful people feel more vulnerable and are less trusting.

The seven remaining factors are situation specific and concern the specific relationships between two individuals:

4. Security: how secure do we feel, particularly with regard to our job? The less secure, the less trusting.

5. Number of similarities: the more similar the trustee is to ourselves, the more we will trust them. Similar to the category, role and rule bases of presumptive trust (Kramer 1999).

6. Alignment of interests: to what extent is the person's interest encapsulated by their manager?

7. Benevolent concern: does the person feel that their manager will support their position and fight for them?

8. Capability: is the trustee competent and capable of doing the job at hand?

9. Predictability and integrity: does the trustee do what they say they will do?

10. Level of communication: is there open and honest communication?

Of more importance is the response to these factors when they are low. Hence, a manager faced with these issues should do the following:

1. Risk tolerance: explain risks and options, or offer a safety net.

2. Level of adjustment: be patient as trust takes time with poorly adjusted persons.

3. Relative power: don't be coercive; explain how decisions serve the company.

The seven remaining factors are situation specific and concern the specific relationships between two individuals:

4. Security: be patient; offer some form of safety net.

5. Number of similarities: use the word "we" more than "I", and emphasis what you have in common.

6. Alignment of interests: be clear about whose interests you are serving, and accommodate others' interests, if possible.

7. Benevolent concern: show a genuine concern for others.

8. Capability: demonstrate competence. Counter a lack of ability by delegating.

9. Predictability and integrity: under-promise and over-deliver. Explain why you did not deliver.

10. Level of communication: increase the frequency and openness of your communications.

Contextual Background and Conceptual Framework

The explored research has demonstrated the prevalence of psychological and cognitive situational factors in trust research, with emotional trust factors suggested as an interesting area of new research (Schoorman, Mayer & Davis 2007), while the practical advice provided by Hurley (2006) is consistent with the academic research (Cook, Hardin & Levi 2005; Kramer 1999; Mayer, Davis & Schoorman 1995; Mishra 1996). Having identified the academic thinking on trust, the practitioners' perspectives are now explored using two papers in which respondents were asked an open-ended question to describe trust (Cousins & Stanwix 2001; Hawkins 2008a).

Based on the results of 200 discussions with industry practitioners, as part of an on-going programme into collaboration through standards (Hawkins & Little 2011a, 2011b) by the Institute for Collaborative Working (ICW), Hawkins (2008a) suggests trust is concerned with expected behaviour and not actual behaviour, as one person's commitment is another's expectation, with trust being the antithesis of risk (of non-performance). Trust is an output that reflects one's confidence in another based on a cognitive consideration of personal experience, recommendations and public reputation. It is also related to an organisation's people and not its processes (table 2), given the preponderance of personal behaviours (Hawkins 2008a).

Table 2. Trust Index (Hawkins 2008)

Compliance (Performance)	Culture	Commitment
• On time delivery • High quality • Contract compliance • Meeting schedule • Concise reporting • Factual • Punctual • Risk averse • Reliable • Structured access • Sound Planning • _Meets performance targets_ • Robust policies • Health and safety • Regulatory	• Open to negotiation • Customer focus • _Going the extra mile_ • Adaptable to change • _Good communication_ • _Openness_ • _Honest reputation_ • _Share information_ • Friendly • Strong people focus • Staff retention • Innovative • Creative • Service driven • Win –Win • Collaborative	• _Early warnings of problems_ • _Responsive_ • _Fairness_ • Flexible • Dependable • Empathy • _Clear Commitment_ • Accessible • Problem solving • Continuous improvement • Sustainability focus • Do what they say they will • Conscientious

Contextual Background and Conceptual Framework

Compliance (Performance)	Culture	Commitment
adherence • Process driven • Proven performance • Strong administration • Low level of complaints		

Note: The 10 underlined factors were the most mentioned

Trust is considered an aggregation of three categories, compliance, culture and commitment (Hawkins 2008a). Hence, trust is an aggregate of ten items of performance and behaviours (the underlined factors mentioned the most by the interviewed practitioners in table 2), for which tangible evidence may be sought, and serves to value trust as a measure of expectation fulfilment. In other words, past performance is an indicator of future performance. Hawkins (2008a) suggests the 10 items as a Trust Index that companies may use to periodically test the level of trust in an relationship. Given the daily changes in trust that occur, Hawkins (2008a) cautions that the Trust Index should be used to establish a trend. Participants may use colour based coding to score their viewpoint on each factor. For example, Green=10 points, Amber= 5 points, Red= 0 points, as this enables easy consolidation, averaging of scores and creation of a trust index.

> 80-100 points is clearly a high trust environment
> 60-79   points there is a good level of trust
> 40-60   points would suggest there is need for some improvement
> 0-40   points would suggest a break down in trust between the parties

Based on the work of Kramer and Lewicki's (2010) classification of violation factors mapped into Mayer, Davis and Schoorman's (1995) trust model of ability, benevolence and integrity, the Hawkins (2008a) ten items present as:

- Ability: meets performance targets; responsive.
- Benevolent: going the extra mile; early warnings of problems; fairness.
- Integrity: clear commitment; honest reputation.

Adopting Mishra's measure of honest and open communications as an addition to Mayer, Davis and Schoorman's (1995) three factors:

- Communications: good communication; openness; share information.

In the Cousins and Stanwix (2001) study of what effects mutual trust, 17 high-trust effecting factors (table 3) were identified by 14 informants in the UK motor industry, who were

suppliers to vehicle manufacturers. The factors were a mixture of personal and organisational attributes. Through a process of ratiocination, the 17 factors have been allocated to the trust factors of ability, benevolence, integrity and communications (Mayer, Davis & Schoorman 1995; Mishra 1996).

Table 3. Cousins High-Trust Effecting Factors (Cousins & Stanwix 2001)

Factor	Characteristic
1	Full and open communications *(Communications)*
2	Consistent view from all personnel *(Communications)*
3	Long-term commitment *(Integrity)*
4	Material/currency payments *(Ability)*
5	Dedicated supplier development teams *(Ability)*
6	Full cost transparency *(Communications)*
7	Price not the overriding factor *(Benevolence)*
8	Honesty and openness *(Communications)*
9	Early input in project design *(Communications)*
10	Mutual advantage *(Benevolence)*
11	Words backed up by actions *(Integrity)*
12	Receptive to supplier ideas *(Communications)*
13	Attitude and loyalty *(Integrity)*
14	No "market testing" on current products *(Benevolence)*
15	Confidence in customer personnel *(Ability)*
16	Honouring price commitments *(Integrity)*
17	Help provided to the supplier with no "strings" attached *(Benevolence)*

In forming a view on the allocation of trust factors in both papers, the author has been guided by Mayer, Davis and Schoorman's (1995) definitions of ability (competence to undertake task), benevolence (trustee wants to do good for truster, irrespective of extrinsic reward), and integrity (trustee follows a set of principles the truster considers acceptable). The process followed for mapping a factor to each characteristic involved asking a series of hierarchical questions:

1. Benevolence: Is this a form of extra-role behaviour? If not, it maybe
2. Integrity: Is this a principle, a rule of good behaviour? If not, it is
3. Ability: Does this show competence to perform a task?

Any characteristic primarily based on open and honest communications, or information sharing, was noted as communications.

Contextual Background and Conceptual Framework

Even though benevolence has received little attention relative to the other factors of ability and integrity (Schoorman, Mayer & Davis 2007), there seems to be ample evidence of benevolence being a desirable characteristic of a practitioner's relationship (Cousins & Stanwix 2001; Hawkins 2008a; Hurley 2006). Where benevolence, for example, is going the extra mile and doing more than what is expected, or extra-role behaviour (ERB) (Wuyts 2007), similar to indirect functions (Walter et al. 2003). Indirect supplier functions consist of: helping a customer to establish contact with new partners; passing on market-related information; engaging in a collaborative development project; creating and maintaining social bonds (Walter et al. 2003).

In considering integrity the focus has been on identifying behaviour that both parties would consider a principle. Hence, integrity is more than a reliability dimension of trust, or doing what you say (Mishra 1996), but a specific principle (Mayer, Davis & Schoorman 1995), such as attitude and loyalty.

Ability, competence to undertake a task, is the most tangible of the four factors identified and can be seen as the bare minimum required for establishing trust. Recent research has explored the importance of competency to trust in business-to-business (Han, S-L & Sung 2008) and business-to-consumer (Sichtmann 2007) markets. However, the necessity for interpersonal trust in business relationships in developed countries may be obviated when the firm has consistent processes and outcomes performance (Iyer, Sharma & Evanschitzky 2006). Iyer, Sharma and Evanschitzky (2006) suggest that interpersonal trust is only of importance in developing economies without mature legal systems.

Having determined the fit between a model containing elements of Mishra's (1996) and Mayer, Davis and Schoorman's (1995) ideas, and practitioner surveys and experience (Cousins & Stanwix 2001; Hawkins 2008a; Hurley 2006), Lewicki and Bunker's (1996) model of interpersonal trust is contrasted with that of Mishra (1996) and Mayer, Davis and Schoorman (1995).

Lewicki and Bunker (1996) suggest that over time a relationship will develop from one formed by calculus-based trust to one based on the knowledge of consistent behaviour, to one based on shared values and goals. Calculus-based trust, or trust associated with compliance due to fear of reprisal, also described as deterrence-based trust (McAllister, Lewicki & Chaturvedi 2006), is normally associated with arms-length, market-based transactions. Given the focus on the threat of reprisal it is probably best considered as

another form of governance as it could involve a break in contract, legal action or a damaged reputation (Alvarez, Barney & Bosse 2003).

Knowledge-based trust involves regular communication to exchange information about wants, preferences and approaches to problem-solving to establish behavioural consistency (Lewicki & Bunker 1996). With regard to Mishra (1996) and Mayer, Davis and Schoorman (1995), knowledge-based trust contains elements of ability (competent to perform the task), communications and integrity (agreement on a set of principles).

Identification-based trust, shared values and goals, involves knowing and predicting the other's needs, choices and preferences, and identifying with them as one's own (Lewicki & Bunker 1996). Benevolence (Mayer, Davis & Schoorman 1995; Mishra 1996), doing well for another, is incorporated into identification-based trust as it involves identifying with another's needs as your own. Hence, in general, the models are consistent, with the key difference being that Lewicki and Bunker (1996) discuss trust from the interpersonal perspective, while Mishra (1996) and Mayer, Davis and Schoorman (1995) identify with trust at the interpersonal, intergroup and inter-organisational levels.

In contrast to the broad approaches of Lewicki and Bunker (1996), Mishra (1996) and Mayer, Davis and Schoorman (1995), Cook, Hardin and Levi's (2005) encapsulated interest trust assumes that, the trustee is competent to do the job, and their reason for doing it is not just the concern for their interests, but concern for the truster's interests. It is situation specific in that A trusts B with regard to issue X in a situation, S, thereby acknowledging trust is not general, and dependent on a lack of, or minimal, conflict of interests. Again, as with the previous models, it assumes an on-going relationship to allow the shared interests, similar to identification-based trust (Lewicki & Bunker 1996) and benevolence (Mayer, Davis & Schoorman 1995; Mishra 1996), to emerge through communications and working together. The specificity of context is what makes encapsulated interest unique, although Lewicki, McAllister and Bies (1998) have noted that general trust in a relationship is the aggregate effect of trust and distrust of all facets, or situations, of a relationship. Hence, there is a consistent approach to the cognitive development of trust, with the different factors being broadly similar measures.

The psychological aspect of trust is explored by Mayer, Davis and Schoorman (1995) in their consideration of the predisposition to trust of the truster. Presumptive trust (Kramer 2009) expands on predisposition to trust by including other factors.

Contextual Background and Conceptual Framework

History-based trust uses prior interactions to form an expectation of how trustworthy the trustee will be in future interactions. As the interactions accumulate one should expect an increase in the level of trust (Kramer 1999). Trust based on third-party gossip is an important conduit of trust related information in organisations (Kramer 1999) that reinforces predispositions. Favourable opinions are amplified into trust; doubt is amplified into distrust (Burt 2005). Category-based trust, a form of depersonalised trust, allocates trustworthiness based on the trustee's membership of a social group or organisation (Kramer 1999). Because of an in-group bias fellow members are attributed positive characteristics such as honesty, cooperativeness and trustworthiness (Kramer 1999). This confirmation bias results in individuals seeking evidence that confirms their decisions and judgments of others, instead of taking a more rational approach to the evidence (Wilson, 1960 cited in Cook, Hardin & Levi 2005). Another form of depersonalised trust is role-based trust (Kramer 1999). Other status characteristics used to assign trustworthiness are age, gender, educational achievement and race or ethnicity (Cook, Hardin & Levi 2005). Rule-based trust, also a form of depersonalised trust, is predicated on a shared understanding of acceptable behaviour (Kramer 1999).

Depersonalised forms of trust are dispositions of trustworthiness cognitively attributed to the trustee; in contrast, the propensity to trust is the disposition of trust attribute of the truster (Cook, Hardin & Levi 2005). It is this propensity to trust that is psychological and reflects a general belief by an individual that another can be relied upon. High trusters are more trustworthy, find it difficult to lie, and are generally more likeable (Cook, Hardin & Levi 2005). High trusters have the social intelligence to differentiate whom to trust from whom not to trust on the basis of cues, or dispositions of trustworthiness (Yamagishi, 2001 cited in Cook, Hardin & Levi 2005). Hence, prior to the relationship commencing trusters rely on presumptive trust, a mixture of their own disposition to trust and dispositions of the trustee, to determine whether the trustee's perceived trustworthiness warrants trusting.

An integrated trust model consistent with theory is presented (fig. 4). The model assumes that generalised trust is the summation of all facets of a relationship (Lewicki & Bunker 1996), where a facet is a situation of trust (Cook, Hardin & Levi 2005). Prior to the relationship commencing, an evaluation of presumptive trust (Kramer 1999) is undertaken to determine whether the relationship should commence. As the relationship progresses and interactions accumulate, knowledge-based trust (Lewicki & Bunker 1996) forms from consistent behaviour. Eventually, the relationship may elevate to one of identification-based trust (Lewicki & Bunker 1996) consisting of shared values and goals. Underpinning the development of trust is open and honest information-sharing (Mishra 1996). The potential for

the irrational impact of emotion on the cognitive process of trust formation is signified at all stages of trust's evolution (Jones, GR & George 1998). The trust violation factors (Fraser, 2010 cited in Kramer & Lewicki 2010) discussed earlier, on one hand, indicate how trust is impaired in a relationship, on the other, they are the opposite of trust building behaviours (Mayer, Davis & Schoorman 1995; Mishra 1996).
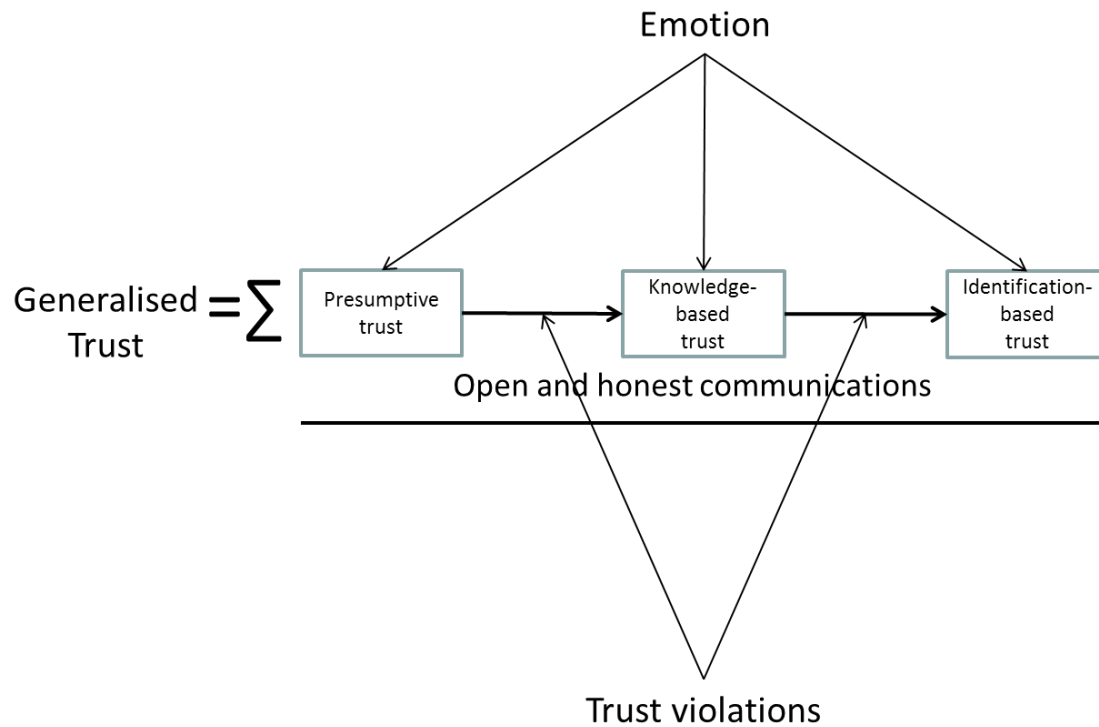
Figure 4, Integrated trust model - cognitive and emotional (Cook, Hardin & Levi 2005; Jones, GR & George 1998; Kramer 1999; Kramer & Lewicki 2010; Lewicki & Bunker 1996; Mayer, Davis & Schoorman 1995; Mishra 1996)

The discussed works on trust present a rational-choice approach to trust development, whereby trust builds slowly and repeated, successful, on-going interactions allow the parties to increase the stakes with greater confidence (fig. 5).
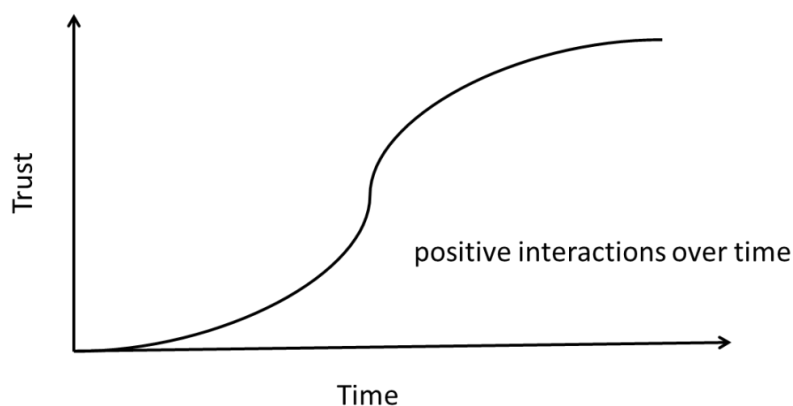
Figure 5, Traditional model of trust development (Murningham, Malhotra et al. 2004)

Contextual Background and Conceptual Framework

In the rational-choice model, people gradually increase their trust in each other, relying on previous, successful interactions to increase their confidence in trusting resulting in a successful transaction. However, a trust violation results in a dramatic reduction or disappearance of trust, with the reestablishment of trust considerably more difficult than the task of initial trust establishment, figure 6 (Murnighan, Malhotra & Weber 2004).
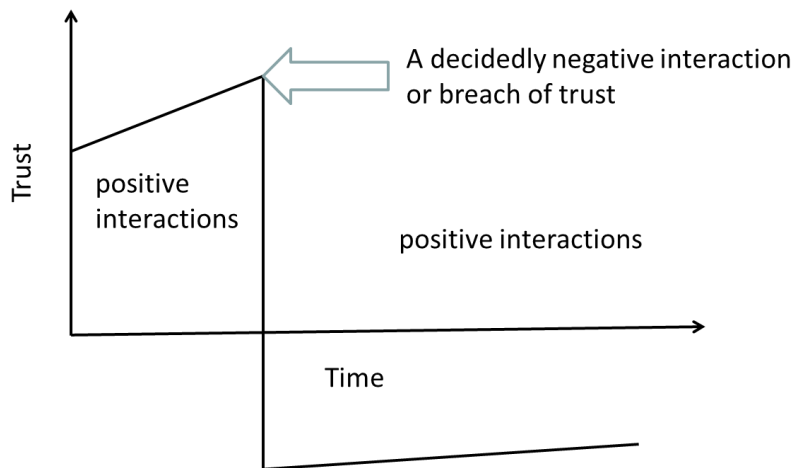
Figure 6. The impact of a breach of trust (Murnighan, Malhotra et al. 2004)

However, Murnighan, Malhotra and Weber (2004) suggest that an attributional model is required to complement the rational-choice model of trust. In the attributional model individuals attempt to influence others' attributions of their actions: by showing another trust we hope to be judged trustworthy. Thus, in the attributional model it pays to take an initial, greater risk to encourage the other party to reciprocate, whereas the rationale-choice model encourages a slow build-up of trust by gradually increasing the stakes based on evidence from on-going interactions. The irrational approach of the attributional model suggests a decision to trust is based on an emotional expectation of future realised benefits, irrespective of past interactions or shared interests (Murnighan, Malhotra & Weber 2004). If the truster does not take a major risk and the other party realises that they have held back, significant reciprocity is not likely. Hence, the truster may not have the option of taking gradual risks (Murnighan, Malhotra & Weber 2004).

Murnighan, Malhotra and Weber's (2004) research into attributional trust, using a computer-based trust game, has revealed what they call the six paradoxes of trust that do not fit the rational choice model:

- Long-term cooperation may require the simultaneous use of contracts and trust, but the use of one can undermine the other: cooperation was credited to the use of contracts thus undermining the trust development process. Relationships with strong trust may forgo the use of contracts, even though contracts may reduce their risks.

Contextual Background and Conceptual Framework

- Non-cooperative behaviour is damaging to both outcomes, and it is more damaging to joint outcomes if one party is cooperative when the other party is non-cooperative: communication and repeated interaction gives both parties the opportunity to establish cooperative behaviour even if initially they were competitive. Unfortunately, communication also offers the opportunity for both sides to entrench their positions.

- To repair a damaged relationship, it may be important for those who were initially trustworthy and those who were initially untrustworthy to switch roles: the longer the relationship the more important it is to repair the relationship in the short-run, even if it proves costly, to establish mutual trust and cooperation.

- As trust in a relationship increases, it is simultaneously less likely that the parties will exploit each other and more likely that they will get away with exploiting each other: a breakdown in trust in a long relationship may be resurrected by an apology, but offers of financial compensation were more effective than apologies alone, with the size of the offer not particularly important.

- Trust, by definition, entails risk and vulnerability, which is important to manage, but trusters are punished for hedging, and may need to choose between large acts of trust or none at all: actions that communicate partial rather than complete trust lead to negative attributions and less reciprocity by the trusted parties.

- While building trust is necessary to accommodate large risk taking, large risk taking may be necessary to build trust: homosexuals engaged in unsafe sex to avoid signalling distrust (Appleby, Miller et al. 1999 cited in Murnighan, Malhotra & Weber 2004).

The integrated model presented in figure 4, is modified to incorporate attributional trust, figure 7. In the model, attributional trust is associated with major risk-taking and a focus on the future, and the perceived benefits of cooperation guiding the decision to trust. Presumptive trust is associated with a reliance on character dispositions of the truster and trustee, and previous history between them, to guide the decision to trust. Using the rational choice model, previous history will determine the stakes, or risk, with low stakes associated with a relationship that has no previous history. The other difference between the rational choice model and the attributional model is the reaction to trust violations. The rational choice model suggests a trust violation will result in a decrease in trust (signified by "-" in figure 7) that will take time to resolve; attributional trust forecasts that trust will not be negatively affected in return for a simple apology (noted by "=" in figure 7).

Generalised Trust $= \sum$

- Trust violation results in negative impact (Rational model)

= One-off trust violation results in zero impact (attributional model)
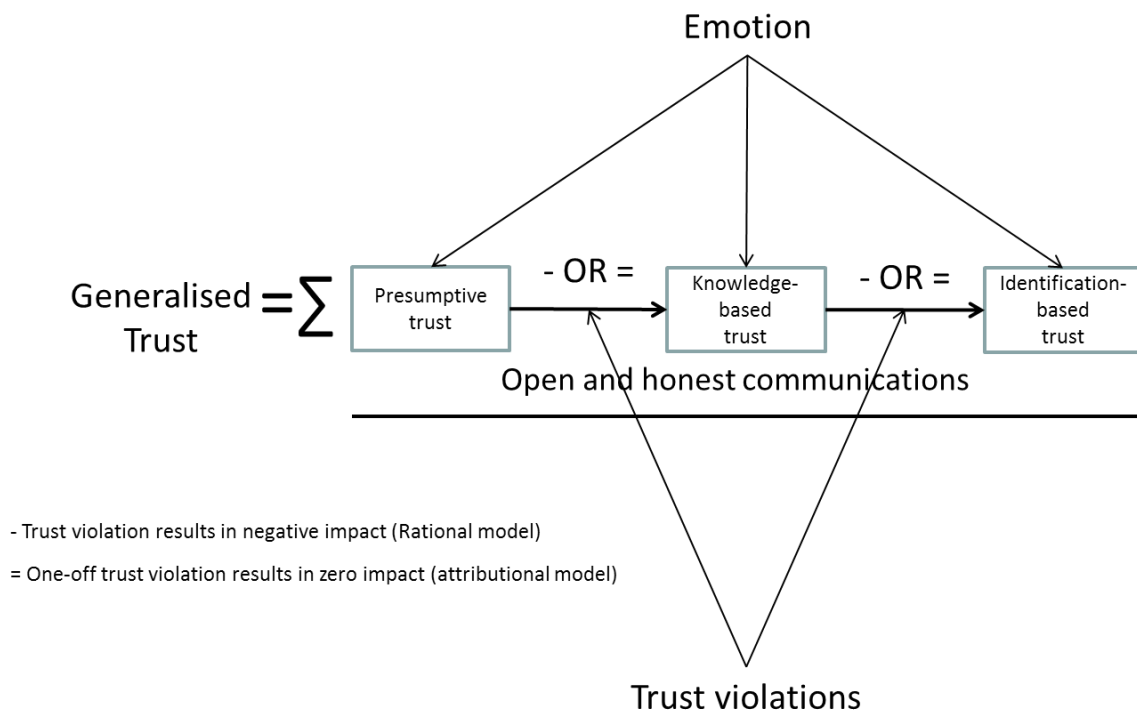
Figure 7. Integrated trust model - cognitive, emotional and attributional (Cook, Hardin & Levi 2005; Jones, GR & George 1998; Kramer 1999; Kramer & Lewicki 2010; Lewicki & Bunker 1996; Mayer, Davis & Schoorman 1995; Mishra 1996; Murnighan, Malhotra & Weber 2004)

It is questionable as to whether the amount of trust affects the outcome. In an empirical investigation of business school students into trust and performance, Jarvenpaa, Shaw and Staples (2004) found that although the level of trust can eliminate process losses, or improve efficiency, it does not improve the task outcome. Therefore, Jarvenpaa, Shaw and Staples (2004) conclude there is no relationship between trust and performance. With regard to trust violations, an experiment involving business professionals demonstrated that the magnitude of the trust violation is irrelevant; it is the expectation of future occurrences that affects trust (Wang & Huff 2007). Elangovan, Werner and Erna (2007) suggest two violations will be tolerated, especially when trusters perceived the trustees could not fulfil the trust-expectations; to mitigate the effect, the trustee should let the truster know how they did their very best to fulfil the expectation. In another experiment, the results showed that when trust breaches occurred in the initial stages of new relationships, restoration of trust was more difficult and less likely. Trust breaches that occurred in established relationships were easier to mend (Lount et al. 2006). The revised model (fig. 7) will be used to explore connotations of trust discovered in the field research.

3.1.2 Alternatives to Trust
As indicated by Alvarez, Barney and Bosse (2003), trust has its alternatives in protecting a company against opportunism. These alternatives, bargaining power, contract and reputation are now explored with regard to the existing literature. Greater attention will be

paid to reputation to explore the contention that reputation is a substitute for trust (Alvarez, Barney & Bosse 2003).

However, other relationships safeguards have been proposed to protect against opportunism. For instance, Jap and Anderson (2003) studied the importance of three relationship safeguards against opportunism under different levels of opportunism: bilateral, relationship-specific investments; goal congruence; interpersonal trust. Given lower levels of opportunism, bilateral idiosyncratic investments and interpersonal trust enhance performance outcomes and future expectations, while goal congruence has no discernible effect. However, at higher levels of opportunism, goal congruence becomes a more powerful safeguard, while interpersonal trust becomes less effective. Bilateral idiosyncratic investments continue to preserve performance outcomes and future expectations even at higher levels of opportunism (Jap & Anderson 2003).

Sheppard and Sherman (1998) discussed risk and trust with regard to the degree of dependence/interdependence between companies. Dependence concerns one party relying on another, whereas interdependence is about mutual reliance. Sheppard and Sherman (1998) believe that identifying the relational form, that being the degree of dependence or interdependence between the parties, allows one to identify the risks in the relationship and suggest mechanisms to control the risks and aid trust production. The mechanisms include deterrence, collective sanctions, communicate intentions, and shared values (Sheppard & Sherman 1998).

The importance of relational norms to safeguarding against opportunism has also been emphasised (Heide & John 1992). Flexibility, a bilateral expectation of a willingness to make changes as circumstances change; information exchange; solidarity (co-commitment), a bilateral expectation that a high value is placed on the relationship, lead to increased control for buyers' investments in transaction-specific assets (Heide & John 1992). Without those relational norms present, Heide and John (1992) suggest that investments in transaction-specific assets by the buyer decrease the buyer's control over supplier decisions because it increases the buyer's dependence on the supplier. Conversely, buyer compliance with supplier requests, as opposed to buyer control, is positively related to buyer dependence under high relational norms (Joshi & Arnold 1998), where the relational norms consisted of information exchange and flexibility. Empirical results suggest that flexibility, in response to the changing business environment, is an important determinant of customer satisfaction, trust, and commitment (Ivens 2005).

However, the "paradox of trust" suggests that increased relational governance, in reducing the perception of risk, provides greater opportunity for opportunism (Granovetter 1985). In general, while increasing communication leads to greater trust, which in turn leads to more co-operation and adaptation (Fynes, Voss & De Búrca 2005), there exists a U-shaped effect: being too close to a supplier, as well as not being close enough, encourages opportunism (Wuyts & Geyskens 2005), as the perceived benefits of acting opportunistically outweigh the benefits of sustaining the relationship. Wuyts and Geyskens (2005) advise managers to choose between drafting detailed contracts and selecting a close partner. The combination of both triggers, rather than reducing, opportunism (Wuyts & Geyskens 2005) as they act at cross-purposes: detailed contracts signal distrust . Detailed contracts are better when the relationship is embedded in a network of close mutual contacts. When there is no embedded network, moderately close relationships are more effective in curbing opportunism (Wuyts & Geyskens 2005).

Again, in this brief introduction to opportunism, the importance of the four key constructs of trust, shared information, shared practices, and shared values and goals is underlined.

3.1.2.1   Trust and Reputation

Reputation involves an outsider's subjective judgement of an organisation's qualities in terms of its perceived past performance. It builds up over a period of time and reflects the consistency of its actions (Bennett & Gabriel 2001). A favourable reputation has been associated with numerous business benefits and competitive advantage independent of first-hand experience dealing with the firm (Bennett & Gabriel 2001). Alvarez, Barney and Bosse (2003), in their study of alliances, suggest that reputation and trust are substitutes, with the difference being that reputation manages the threat of opportunism before the exchange commences, and trust manages the threat after the exchange has begun.

However, Bennett and Gabriel (2001) contend reputation is a surrogate for trust in the early stages of a relationship where there is limited performance information. Companies will seek a close relationship with firms that have an excellent reputation, with trust significantly dependent on the buyer's working experience with the supplier and the latter's reputation. Hence, a company with limited working experience of the suppliers will be more likely to trust the supplier with a high reputation. Closeness is typified by the exchange of technical and commercial information, joint problem-solving activities and relationship-specific adaptations (Bennett & Gabriel 2001). Money et al. (2010) advance the concept of partnership reputation, whereby third-parties perceive a group of companies working to the same end have a mutual understanding, are flexible and benefit from synergy. The benefits of a good partnership reputation are: positive behaviour from potential and existing suppliers towards

the partnership and each partner; positive behaviour from a range of stakeholders towards the partnership and each partner. In effect, partnership reputation is a key asset that may be used to develop weak ties into strong bonds across a supply chain.

Suh and Houston (2010) question the importance of trust in the existing literature because in their research they discovered a company's reputation was positively related to a partner's willingness to invest and affective commitment (positive feelings towards the partner). However, trust, both benevolence and integrity, did not relate positively to willingness to invest or affective commitment. The surprising result was the negative relationship between benevolence and willingness to invest: the more concerned your partner is about your company, the less your company wants to invest in the partner, probably because there is no desire to increase the buyer's perceived dependence (Heide & John 1992). Their study suggests the salience of reputation in business-to-business (B2B) settings, and they note the need for explicit tests of the relationship between supplier reputation and a buyer's financial outcomes (Suh & Houston 2010).

The difficulty with reputation is that it is built on past behaviours, whereas trust involves an assessment of how a company will behave in the future (Blois 2003). Therefore, it is important not to take a trusting relationship for granted and to continually monitor the relationship for changes in the environment that may change a partner's predisposition to be trustworthy (Blois 2003). In a case study of the relationship between Marks and Spencer (M & S) and a supplier, Baird, Blois (2003) differentiates between weak trust and strong trust. Weak trust is reliance, an expectation that the partner will meet its contracted requirements, for example, pay its bills. Strong trust goes further in an expectation that the partner will exercise goodwill to the other party by providing an on-going supply of orders, for example. The case revolves round M & S's decision to terminate the relationship with Baird, a clothing supplier, after 30 years to source more competitive products. Baird expected a continuing profitable relationship with M & S irrespective of M & S's poor financial performance because Baird believed the relationship was built on strong trust. Baird failed to take an encapsulated view of trust (Cook, Hardin & Levi 2005), in realising that the more cost competitive environment prevented M & S from taking Baird's interests into account due to the overriding interests of shareholders. Due to the perceived unilateral change in rules, M & S suffered a severe blow to its reputation as having a special relationship with its suppliers (Blois 2003). Hence, Blois (2003) cautions against a blind reliance on strong trust by:
- regularly evaluating the relationship;
- constantly monitoring for alternative opportunities;

- calculating how divergent the partner's behaviour can be from the expected before relationship will dissolve or be dissolved.

Other relationships between reputation and trust have been noted. Working with partners that have a high reputation creates trust at both personal and organisational levels. The high level of trust leads to a low coercive strategy (Lui, Ngo & Hon 2006). A coercive strategy involves high-pressure influence in the form of threats and promises (Frazier, Gill et al. 1989 cited in Lui, Ngo & Hon 2006). A Chinese study into third-party logistics (3PL) providers (Tian, Lai & Daniel 2008) found that trust can be increased by focusing resources on keeping the customer satisfied, demonstrating commitment through relationship-specific investments, and sharing information with customers. Improving the company's reputation works to a lesser extent in increasing trust. Perhaps reputation is salient before the relationship commences, with trust becoming salient as the parties' knowledge of each other increases, with a favourable trusting experience increasing the level of reputation for consideration on future projects (Wagner, Coley & Lindemann 2011). It is possible that the respondents in the aforementioned Suh and Houston's (2010) study may have thought they were being asked about possible alternative suppliers, as opposed to existing suppliers, hence, it would be not surprising to find reputation more salient in their results.

While the highlighted reputation literature has mostly been concerned with inter-organisational relationships, Helm (2011) found that perceived corporate reputation has a positive effect on employee's pride in being affiliated with the firm, and it is this, not job satisfaction and commitment, that is a strong driver of employee performance. Similarly, corporate reputation has a positive influence on both customer trust and identification. Customer identification with a company can increase product loyalty and referral sales (Keh & Xie 2009). Customer trust has a stronger effect on purchase intention than on accepting a premium price, while customer identification has a larger influence than customer trust on price premium. Customers identifying with the company, due to the shared identity and values, are more likely to be committed to it than those that simply trust it. Corporate reputation and trust are critical antecedents of customer identification towards companies (Keh & Xie 2009). The authors questioned whether the high level of uncertainty avoidance in Chinese culture, the origin of the survey, may have strengthened the relationships between customer commitment and purchase intention and price premium in their study, in comparison to the low level of uncertainty avoidance in Western society (Keh & Xie 2009). It is best to deal with those you know.

Contextual Background and Conceptual Framework

The question remains as to how one measures a company's reputation. Bennett and Gabriel (2001) used the qualities represented by the *Fortune* reputation variables of: (a) has top quality management, (b) offers good quality service, (c) is financially sound, (d) is able to attract and retain talented employees, (e) has a good long-term future, (f) is environmentally responsible, (g) is innovative, and (h) uses its assets wisely, to explore the importance of a port's reputation to a shipper. They added an extra item to their Reputation construct; (i) is frequently mentioned in the trade press and media. It is assumed that there were good reasons behind the press coverage.

Walsh and Beatty (2007) validated a 5-item measure of customer-based reputation (CBR): customer orientation, good employer, reliable and financially strong company, product and service quality, and social and environmental responsibility. Three of the dimensions, product and service quality, good employer and customer orientation were consistently related to the four outcome variables of customer satisfaction, loyalty, trust and word of mouth (WOM). Customer-based reputation was defined as: the customer's overall evaluation of a firm based on his or her reactions to the firm's goods, services, communication activities, interactions with the firm and/or its constituencies (such as employees, management or other customers) and/or known corporate activities. A later study of a German energy company's customers also validated the CBR scale and proved trust and customer satisfaction to be antecedents of CBR, with customer loyalty and WOM being outputs (Walsh et al. 2009). Hence, given the importance of customer satisfaction and trust to CBR, it is necessary to ensure that employees are empowered to act in the interests of customer satisfaction (Walsh et al. 2009).

The work by Walsh et al. (2009), demonstrating trust as an antecedent of reputation, needs to be contrasted with that of Helm (2011) who found reputation to be an antecedent of trust. Both papers confirm the previously identified issue of causality when exploring trust and other issues, for example, trust and cooperation, trust and communication, and trust and performance (Seppanen, Blomqvist & Sundqvist 2007). The circular causality of reputation and trust is acknowledged by Wagner, Coley and Lindemann (2011), who determine reputation is salient pre-project, and trust salient during the project. However, suppliers can develop and protect their reputation by demonstrating fairness and trustworthiness during the project (Wagner, Coley & Lindemann 2011).

3.1.2.2 Trust and Contract
Das and Bing-Sheng (1998) made the case for trust and control being complementary, and discussed trust formed by: reciprocal risk-taking, being equitable, proactive information exchange and inter-firm adaptation. They suggest that the level of trust in a partner

determines the requisite level of control, or contractual governance. High trust equates to a lower contractual control, leading to greater flexibility, a faster response and more efficient inter-firm adaptation.

Mouzas, Henneberg and Naudé (2007) question the use of trust as an inter-organisational measure, and suggest reliance is more apt as it reflects performing in-line with the terms of the contract. They see trust as a measure of interpersonal relationships, and believe a quality relationship can exist without interpersonal trust provided both parties fulfil their contractual expectations. However, Poppo and Zenger (2002) agree with Das and Bing-Sheng (1998) in noting the complementarity of trust and contractual governance. Formal contracts detail roles and responsibilities, specify procedures for monitoring, penalties for noncompliance and outcomes to be delivered (Poppo & Zenger 2002). In their study of IT outsourcing, Poppo and Zenger (2002) concluded that contracts and relational governance function as complements, where relational governance consists of the relational norms of trust, open communications and information-exchange, dependence and cooperation. Managers tend to employ greater levels of relational norms as their contracts become more customised, and to employ greater contractual complexity as they develop greater levels of relational governance. A customised contract specifies contingencies, adaptive processes and controls to mitigate opportunism, thereby supporting relational governance. Both contractual and relational governance increase the level of performance, although it is relational governance, and not the contract, that maintains the relationship in times of conflict (Poppo & Zenger 2002).

A study of overseas distributors notes the importance of the legal environment (Cavusgil, Deligonul & Zhang 2004). A hostile legal environment is a country where there is bias towards the local distributor. In countries where there is low hostility, trust and contractual governance are complementary. However, in countries where there is high hostility, only trust should be used to mitigate opportunism as a contract is not enforceable and signals mistrust (Cavusgil, Deligonul & Zhang 2004). Hence, in general, contractual and relational governance go hand in hand provided the contract is enforceable, otherwise it may be best to rely on relational governance. A contract is necessary but not sufficient: relational governance is salient. However, relationship management requires constant attention and day-to-day management, and mutual commitment to the necessary time to communicate and exchange information and to build trust (Willcocks & Kern 1998).

3.1.2.3 Trust and Bargaining Power
As stated by Alvarez, Barney and Bosse (2003), the ultimate sanction of bargaining power is leaving the exchange, however, this section commences with an introduction to the effect of

performance on trust, as performance may be used to exert influence, the purpose of bargaining power. It is followed by discussions on the literature pertaining to dependence and bases of power. A broad approach to power, beyond that of the ability to leave the exchange (Alvarez, Barney & Bosse 2003), has been adopted so that the richness of the trust literature may be portrayed. The importance of power in the construction supply chain, which is covered in section 3.2.1, summarises the issues covered in this section: an on-going relationship, partnering skills, availability of alternative buyers/suppliers, switching costs, dependence, information asymmetry, search costs and attractiveness (Cox, Ireland & Townsend 2006).

Power by performance could be due to a pro-active attempt to exert influence by the supplier (Morgan & Hunt 1994), or in response to market forces (Walter et al. 2003), or a mixture of both to seek a competitive advantage (Porter 1980). The seminal paper by Morgan and Hunt (1994) on trust and commitment supported the need for superior offerings, shared values, communication and not being opportunistic to engender trust. Walter et al. (2003) consider the direct, e.g., cost reduction, and indirect, e.g., personal bonds, effects on relationship quality as measured by trust, commitment and satisfaction. Their study of industrial purchasers also noted the moderating effect of the availability of alternative suppliers, reflecting high expectations from customers in competitive supply markets as it easier to get reasonable prices, quality, know-how and market information. That is, in a competitive market, the buyer relies more on performance than on trust.

Extra-role behaviour (ERB), similar to the indirect functions (Walter et al. 2003) displayed by suppliers in a competitive market, also has a positive effect on the buyer, particularly when the supplier was selected after extensive partner evaluation (Wuyts 2007). Indirect functions consist of helping a customer to find new exchange partners, passing on market information useful to the customer, supporting a customer's innovation, and being a cooperative and supportive partner to maintain personal bonds (Walter et al. 2003). Social behaviours (social interaction, open communications, customer orientation) dominate the trust building process (Doney, Barry & Abratt 2007), with customer orientation being the strongest contributor to trust. However, relational behaviours do not obviate the need to perform economically in offering value and meeting customers' requirements.

A conceptual model considered the question of mutual attraction between a buyer and a supplier (Hald, Cordon & Vollmann 2009). Attraction is a function of perceived expected value, perceived trust and perceived dependence. Perceived dependence is based on: "expected association value", a measure of the growing importance of the associate to the

focal company's future value streams; "associate alternatives", the focal company's perception of how many alternatives suppliers it has to choose from; and, "level of transaction specific assets", the focal company's perception of the switching costs involved in finding an alternative supplier. Hald, Cordon and Vollman (2009) acknowledge that the very dependence that has a positive effect in bringing companies together may also push them apart due to fears of opportunism, especially where there is a low level of trust, reinforcing the importance of relational governance highlighted by Poppo and Zenger (2002).

However, power asymmetry in the relationship affects the desire for a relational-oriented exchange, as defined by cooperation, communications and the expectation of a long-term relationship (Izquierdo & Cillian 2004). In a relationship where the manufacturer is the dominant party, the manufacturer will eschew a close relationship, whereas the supplier is in favour, with trust moderating this negative effect on the supplier. In a symmetrical relationship where both parties depend significantly on each other, both the supplier and manufacturer are inclined to maintain the relationship and this desire is greater when they share a feeling of mutual trust (Izquierdo & Cillian 2004). Similarly, buyers who do not have a lot of control over their suppliers should work to build trust to improve supplier responsiveness (Handfield & Bechtel 2002). Research suggests that working to build a trusting relationship, irrespective of the interdependence structure, is a useful exercise (Geyskens et al. 1996). However, in a trusting, cooperative relationship, increased supplier dependence will cause a buyer's operational efficiencies to increase, but their product innovation performance to weaken (Tangpong, Michalisin & Melcher 2008).

A study of the US automotive industry confirmed the positive relationship between trust and cooperation and satisfaction (Benton & Maloni 2005). Surprisingly, there was not a relationship between performance and satisfaction. The researchers concluded that this is because the focus on relationship results in performance as a natural outcome. The research also confirmed the importance of non-mediated expert and referent power, and reward power, to strengthen satisfaction between the buying and supplying firms. The use of coercive power is to be avoided (Benton & Maloni 2005) as it increases conflict, which is negatively associated with trust (Leonidou, Talias & Leonidou 2008). Expert power is associated with cooperation, collaboration and coordination, but not with trust and problem solving. The non-significant association between trust and expert power could be due to the uncertain environment of the study's high-technology environment (Sahadev 2005) as there is a negative relationship between environmental uncertainty and trust (Geyskens et al. 1996).

The length of the relationship is also a factor as it allows the possibility of increased switching costs and interdependence (Porter 1980). The association between interdependence and trust is associated with greater relationship satisfaction in the build-up and maturity phases of a relationship, while commitment is associated with greater relationship satisfaction in the maturity phase (Terawatanavong, Whitwell & Widing 2007). This positive length of relationship factor for Thai exporters and Australian importers should be contrasted with the negative association found between trust and relationship length in Korean outsourcing (Lee, J-N & Kim 1999), with the key difference in context being the higher environmental uncertainty associated with the IT industry. However, a study of purchasing managers at US manufacturing firms found no relationship between relationship length and commitment (Stanko, Bonner & Calantone 2007), suggesting the association is industry context dependent.

Cultural differences may also play a role (Yeung, JHY et al. 2009; Zhao et al. 2008). In China, reward power has a positive impact on both trust and compliance, whereas in the West, mediated power (reward and coercive) has a negative impact on trust. Due to the existence of guanxi in business relationships, reciprocity of a reward for good performance is expected, with an ensuing, positive impact on trust in the relationship resulting (Zhao et al. 2008). Guanxi emphasises the use of personal relationships in facilitating operations or problem-solving in business transactions. It involves the use of personal or inter-firm connections to secure favours in the long run (Lee, PKC & Humphreys 2007). In circumstances of high-trust in China's high power distance culture, coercive power can improve supplier integration, as buyers will view the use of power by powerful suppliers to increase the buyer's internal, cross-functional working as friendly behaviour (Yeung, JHY et al. 2009).

The review of literature regarding trust and its alternatives has confirmed the building of trust as a useful exercise, irrespective of the interdependence structure (Geyskens et al. 1996), contract employed (Poppo & Zenger 2002), or reputations of those involved (Wagner, Coley & Lindemann 2011). Hence, the importance of trust as a key construct is vindicated. The review proceeds with a discussion of the other three key constructs, beginning with shared information.

3.1.3   Shared Information

The topic of shared information will be introduced here, before being discussed later from an application of IT perspective in section 3.2.3, with regard to the research topic of online collaboration.

Contextual Background and Conceptual Framework

Information sharing has a primary impact on reducing uncertainty in relationships, thereby increasing trust (Kwon & Suh 2005). While supplier relationships tend to be stronger in firms where there is cross-functional sharing of supplier, customer and market information, allowing the firm to react faster to changes in the environment (Martin & Grbac 2003). Furthermore, buyer-supplier collaboration mediates the influence of information sharing capability, the integration of a firm's information/decision systems and business processes with those of supply chain partners, on firm performance (Hsu et al. 2008). In a capital item sales-cycle, the supplier promotes its trustworthiness by displaying their knowledge of the customer and technology (Lehtimäki, Simula & Salo 2009). However, information sharing could require a shift in operational processes and company culture, highlighting the importance of trust in the relationship to sharing information, in response to concerns about the benefits and costs of sharing (Ghosh, A & Fedorowicz 2008).

A US auto study of supplier evaluation notes that communicating supplier evaluation does not, in itself, assure improved supplier performance (Prahinski & Benton 2004). The buyer has to demonstrate their commitment to the supplier by enhancing cooperation, problem-solving and expressing their desire for a long-term relationship. Practical examples could include site visits by the buyer to the supplier, and education and training programmes targeted to the supplier's personnel. The emphasis should be on improving the supplier's capabilities (Prahinski & Benton 2004). Han, Lee and Seo (2008), in research into Korean IT outsourcing, note the importance of organisational relationship capability (the ability to coordinate between IT and business groups) and vendor management (helping vendors implement their services to satisfy all user needs) to information sharing, trust and outsourcing success. The key component of partnering is open-book accounting, which allied with trust, presages profit sharing. However, only two out of seven suppliers to an equipment manufacturer were willing to share accounting information in one study (Kulmala, Paranko & Uusi-Rauva 2002). In some instances this could be due to a supplier not knowing its costs, instead of a lack of co-operation (Kulmala, Paranko & Uusi-Rauva 2002). Hence, a willingness to share information must be matched by the ability and desire to do so.

Information sharing is a critical aspect of supply chain integration (Patnayakuni, Rai & Seth 2006). Investments in specific assets and a long-term orientation encourage the use of formal and informal routines to enable information sharing (Patnayakuni, Rai & Seth 2006). This process of interacting is also known as socialisation (Cousins et al. 2006). The importance of trust in the information exchanged between relationship partners is not as important as the socialisation and norms followed in the process of communication (Denize & Young 2007). Norms include keeping each other informed, having confidence in the

accuracy of information provided by each other, and searching for solutions to any joint problems that emerge as part of the long-term interactions within the relationship (Denize & Young 2007; Patnayakuni, Rai & Seth 2006). Communications quality, a measure of timeliness, completeness, credibility, accuracy and adequacy, was used to differentiate between strong and weak relationships (Holden & O'Toole 2004). Subsequently, research into the relationship between marketing managers and R&D managers determined a positive association between communications quality and cognitive-based trust, and bi-directional communications and affect-based trust (Massey & Kyriazis 2007).

In a successful partnership characterised by improved communication, trust and satisfactory performance, good communications negates the need for formal conflict resolution (Tuten & Urban 2001). Trust is positively associated with functional conflict. Functional conflict involves consultative interactions and can help to reduce "groupthink" (Massey & Dawes 2007). The critical success factors of conflict resolution in new product development (NPD) are communication, trust and commitment to the collaboration (Lam, P-K & Chin 2005). Hence, beneficial information sharing is an important aspect of relationship management.

3.1.4 Shared Practices

Shared practices are essentially co-operation and adaptation, and in a relationship both firms make specific adaptations to an extent. For example, a manufacturer may accede to a distributor's request to supply equipment and marketing collateral under the distributor's brand. In return, the distributor signs a longer term contract than normal and increases its minimum ordering quantity. Adaptations that may be both planned and unplanned increase the level of trust and commitment in a relationship, although an unplanned adaptation may result in a disadvantageous relationship. Hence, there needs to be a strategic relationship process to ensure that the benefits of adaptation outweigh the costs (Brennan & Turnbull 1999). Supplier adaptation is driven by relative power, buyer support, and by the managerial preferences of the two firms for a more or less relational form of exchange. The use of power to encourage adaptation may well deter a longer-term relationship investment (Brennan, Turnbull & Wilson 2003).

The buying situation affects the level of adaptation in the relationship (Claro, Claro & Hagelaar 2006; Leonidou 2004). A straight re-buy has a higher level of adaptation, commitment, communication and cooperation in the working relationship, than a modified re-buy or a new buy. This is because the buyer and seller in a straight re-buy have greater experience of dealing with each other and, hence, there is less perceived risk due to greater dependence, trust and understanding (Leonidou 2004). Claro, Claro and Hagelaar (2006) also note the importance of the on-going experience from a straight re-buy, and

acknowledge the impact of information from the company's extended network regarding the partner's reputation. To assure a buyer's satisfaction, a supplier needs to adapt to the customer's needs, cooperate to meet mutual needs/goals, communicate to exchange detailed relevant information, and build trust to reduce perceived uncertainty (Cambra-Fierro & Polo-Redondo 2008). Flexibility, otherwise described as adaptive processes (Poppo & Zenger 2002), was explored in research into the market research service sector. Empirical results suggest that service provider flexibility is an important determinant of customer satisfaction, trust and commitment (Ivens 2005). A buyer's trust in a supply chain partner is positively associated with the supplier's specific asset investments, but negatively associated with their own investments. The ease of replaceability of the supplier moderates the positive relationship between the buyer's trust and the supplier's specific asset investment (Suh & Kwon 2006).

Relationship orientation, adopting new ideas and processes to enable adaptation, in the Logistics Service Provider (LSP)-client relationship has been found to lead to higher levels of innovativeness, improvement in the quality of logistics service and improved performance for the LSP, provided there is mutual understanding, commitment and trust (Panayides 2006). However, deepening relational commitment to a partner could lead to inertia through the institutionalisation of relationship norms, resulting in less marketplace adaptability over time. To avoid inertia, firms need to complement strong relational ties with weak market-based ties to gain insight into emerging trends (Beverland 2005). Burt (2005) refers to these weak ties as bridges across structural holes that are valuable for creating the information variation needed for identifying new opportunities. A study of IS outsourcing concurred with increased dependency on a vendor stifling innovation (Shi, Y 2007). Dependency is a controlling factor in that high relational commitment and high dependency are associated with operational efficiency, whereas high relational commitment and low dependency are associated with product innovation, as a diversity of customers is a major source of new information and knowledge (Tangpong, Michalisin & Melcher 2008).

The B2B-RELPERF relationship performance scale exemplifies the importance of shared practices by including two measures related to it: (1) relationship policies and practices defined as common beliefs about what behaviours and policies are important, appropriate, and right; (2) mutual cooperation. The other three measures are: trust, relationship commitment and satisfaction (Lages, Lancastre & Lages 2008). Iyer, Sharma & Evanschitzky (2006) argue that industrial firms can both conceive and enhance marketing strategies based on developing high quality and consistent processes, products or outcomes to create trust. In a study of Business Process Outsourcing (BPO) amongst German banks,

standardisation of processes, and not adaptation, was related to BPO success in garnering economies of scale that increased the effectiveness of relational governance (communication, coordination and consensus), whilst reducing the difficulty of negotiating and monitoring (Wüllenweber et al. 2008). Even for firms with standardised processes, frequent communication and the ability to adapt are necessary due to possible changes in the environment (Polo-Redondo & Cambra-Fierro 2008).

3.1.5   Shared Values and Goals

Shared values, for example, loyalty, fairness and reliability, were conceptualised as precursors of unconditional trust that lead to the formation of tacit knowledge, and positive emotions that flow from its actualisation (Jones, GR & George 1998). Shared values result in a desire to cooperate, even at personal expense, and the development of seven kinds of social processes that promote superior team performance: broad role definitions, communal relationships, high confidence in others, help-seeking behaviour, free exchange of knowledge and information, subjugation of personal ego and needs for common good, and high involvement (Jones, GR & George 1998). Trust is dependent on values, attitudes and emotions (Jones, GR & George 1998). McAllister, Lewicki and Chaturvedi (2006) referred to shared values and goals as identification-based trust (IBT) and validated its measure. Shared vision and focusing on mutual needs, aspirations and values promotes commitment in buyer-supplier relationships (Hult et al. 2000). Team interorganisationality, represented by equal representation from the partners and a shared approach to setting and attaining team goals, influences team performance, particularly when uncertainty is high (Stock 2006).

Emotional attachment, mutual confiding, and a joint approach to decision-taking and problem-solving are positively related to buyer commitment to the selling organisation. The strongest relationship is between emotional intensity and commitment (Stanko, Bonner & Calantone 2007). The delineation between personal and organisational commitment has been proven, however, the results suggest that the cultivation of personal commitment supports the creation of organisational commitment (Tellefsen & Thomas 2005). Hence, there is a symbiotic relationship between personal and inter-organisational commitment.

Andersen and Kumar (2006) propose that emotional states will be similar if there is a positive interdependence of interests, with positive emotions effecting positive behaviour, and behaviour effecting trust. Liking the salesperson, a predictor of similar business values, has a positive effect on trust (Nicholson, Compeau & Sethi 2001). However, research shows perceived, not measured, personality types are linked to trust and sales performance in buyer-seller relationships (Dion, Easterling & Miller 1995). Importantly, organisations do not have to have a similar culture of organisational norms and values to have a successful

relationship: compatibility is important, not similarity. Compatibility is achieved by sharing the difference in organisational norms and values with your partner, this shared understanding of the differences is an important source of trust (Beugelsdijk, Koen & Noorderhaven 2009).

Kothandaraman and Wilson (2000) discussed the importance of the attitudes of relationship managers in their Alignment with Relationship Paradigm (ARP) model that calls for a strong attitude toward cooperation, trust and interdependence in business relationships. The sharing of goals, skills and tasks, and the positive attitude of the relationship manager towards trust, cooperation and interdependence improve relationship performance (Kothandaraman & Wilson 2000). However, the emotional construct of affective commitment, consisting of trust and socialisation, has a much stronger effect on customer loyalty than the more cognitive construct of relational benefits, exemplified by adaptation, co-operation and knowledge transfers (Čater & Čater 2009). This may be a case of emotional contagion (Homburg & Stock 2004) whereby the emotion of the receiver converges with that of the sender. For example, a customer's satisfaction is impacted by the salesperson's job satisfaction (Homburg & Stock 2004).

The trust-commitment model (Morgan & Hunt 1994) and the positive effect of shared values was explored in a case study of five international companies. The findings demonstrate the importance of commitment, trust, relationship termination costs and benefits, and shared values and communication between the exchange partners (Friman et al. 2002). In a study of Serbian and Croatian companies the influence of national culture was explored, finding Serbs were more predisposed to building relationships based on values, trust and commitment (Zabkar & Brencic 2004). However, this is questioned by Fletcher and Fang (2006) who consider understanding ethnic groupings, a lower level of aggregation than nationality, to be more apt. For example, we may all be Australian but Australian-Indians are different to Australian-Chinese. However, questions remain, as Dyer and Chu's (2000) research indicates that the profit motive is a compelling enough argument for US suppliers to adopt a relational approach with Japanese US based auto manufacturers, and forego their natural, cultural inclination for an arms-length contractual approach.

Having undertaken a broad-based review of the relationship management literature, particulalry with regard to the four key constructs of trust, shared information, shared practices, and shared values and goals, the review is further refined to the construction sector.

3.2 Construction Sector Literature

The target informants for the research are construction project managers who are users of an OCT. The influence of context, i.e., the organisational characteristics and external environment, is often unrecognised or underappreciated in adding value to understanding organisational behaviour, and making research more readable to practitioners (Johns 2006). If we do not understand situations, then we will not understand person-situation interactions and be able to convey the application of the research (Johns 2006). Hence, to achieve this objective, relationship management of dispute resolution between construction supply chain project managers has been chosen as the context. Hereafter, the typical construction supply chain will be introduced, together with examples of the general construction relationship management literature, and specific research pertaining to dispute resolution. Finally, the limited literature on OCTs is explored.

3.2.1 Construction Supply Chain Relationship Management

The generic supply chain for a construction project is detailed in figure 8, where a supply chain is defined as the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer (Christopher 1992). The key roles are those of the construction firm and the professional services companies. The construction company is the prime-contractor that has the role of integrating all the supplier inputs to meet the end customer's requirements. The professional services firms are employed by the client to look after the client's interests and guard against opportunism by the prime-contractor and other suppliers. The service firms cover project management, design and architecture, quantity surveying and independent cost consultancy: in short, the construction design and detailed project management to meet the end user's requirements. Typically, the service firm responsible for project management of the construction takes the lead in representing the client's interests. The project manager from the project management professional services firm is referred to as the client's project manager in this thesis. Hence, a request for a design change from the contractor would be investigated by the architect, but the decision to proceed, based on the architect's recommendation, would be taken by the client's project manager after consultation with the client.
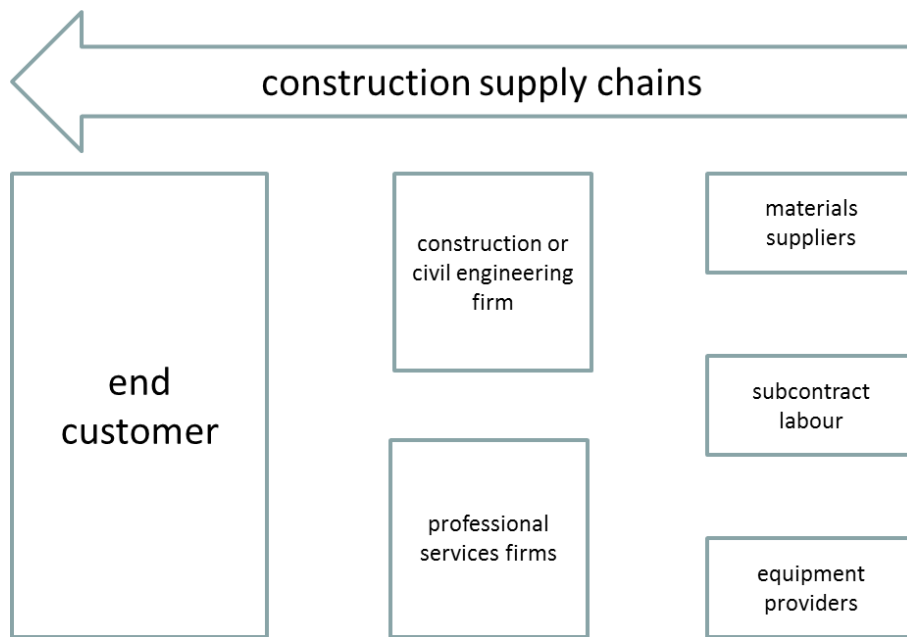
Figure 8. Construction supply chains (Cox, Ireland & Townsend 2006)

The typical construction process is illustrated in figure 9.
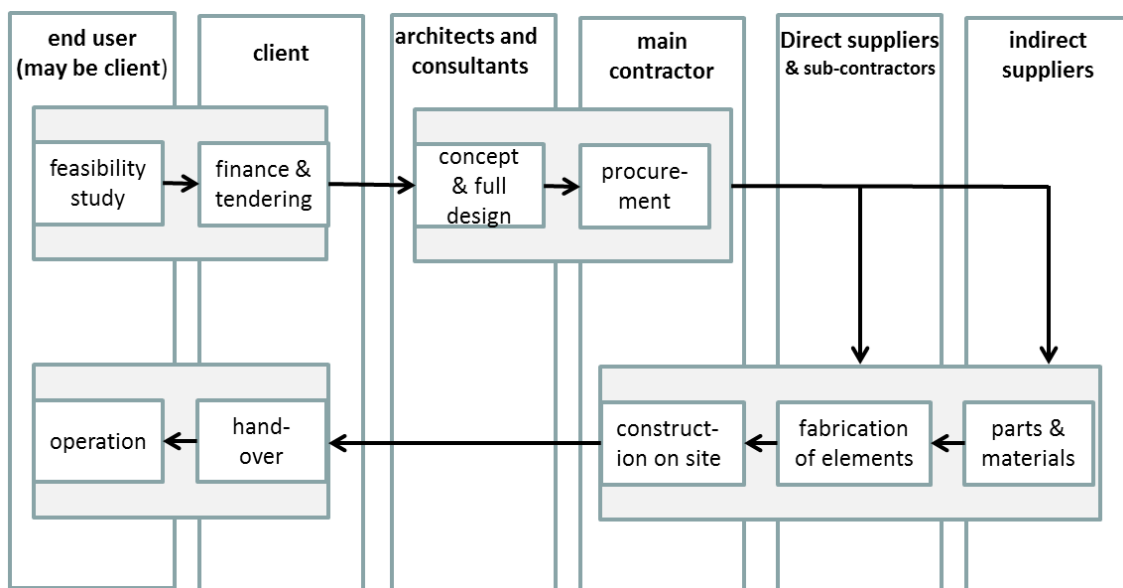
Figure 9. Construction process (Cox, Ireland & Townsend 2006)

For example, the client could be a business park that solicits requirements of potential end-users, say small businesses, that culminates in a business case. The business case details the potential demand for office space of a provisional design. The client, a property company, upon successful financing employs an architect to finalise the design that becomes the project's statement of requirements (SOR). A tender is released and the main contractor chosen. The main contractor by itself, or in conjunction with the professional services companies, contracts with the materials, labour and equipment supply chains. Unlike a manufacturing process, the construction is a temporary project with a coalition of companies coming together to build something unique (Cox, Ireland & Townsend 2006).

Relationship management in the construction industry is acknowledged as being adversarial due to the temporary, one-off nature of projects that encourages opportunism (Cox, Ireland & Townsend 2006). Common problems include:

- low rates of productivity and considerable cost inefficiency and waste;
- frequent time-overruns and high rates of quality defects;
- considerable complexity and non-transparency of processes;
- high variability and uncertainty during the project making effective project planning and management difficult;
- poor quality information exchange that is hindered by obsolete information systems and self-interest from key players;
- inability of firms to develop (and invest in) long-term relationships;
- high rates of insolvency brought on by late payment and cash-flow problems.

The solution, suggested by reports in the UK (DETR 1998; Latham 1994) and Australia (ACA 1999, 2003), has been to adopt a partnering approach based on trust and transparency to achieve mutually beneficial outcomes, or 'win-win'. The partnering approach to achieve a mutually beneficial outcome encompasses collaboration, commitment, open communication, empowerment, innovation, joint risk-sharing and problem solving. The benefits for the client being less exposure to litigation, lower risk of cost and time overruns, better quality product and increased opportunity for innovation. Unfortunately, an approach that has been argued should lead to 30% cost reduction and 20% improvement in cycle times, with profitability for both buyers and suppliers (Cox, Ireland & Townsend 2006), has been criticised due to the lack of evidence that a partnering approach, based on trust and transparency, has resulted in an increase in value for money.

It is argued that partnering should only be considered where there is an on-going relationship between the companies, and the partner companies have the requisite competence to enact a partnering relationship (Cox, Ireland & Townsend 2006). An on-going relationship provides the financial incentive to invest in partnering that consists of jointly creating technical bonds, developing cultural norms of working together, and relationship-specific adaptations in order to create new products, services and offerings. Clients that have regular construction are estimated to constitute less than 25% of the total UK construction market (Cox, Ireland & Townsend 2006). Given the similarity in economic development, 25% is considered applicable to Australia.

In fact, in Australia, the Federal Government is encouraging the use of alliance contracting, whereby the buyer and the seller collaborate to develop the requirements and the proposal for complex projects, and the buyer shares the benefit of a cost under run, and the pain of a cost overrun (DIT 2011). It is estimated that at least a third of the total value of public sector infrastructure projects delivered in Australia involve alliance contracting (DIT 2012). The seven key success factors are (DIT 2011):

- risk and opportunity sharing;
- commitment to 'no disputes';
- best-for-project unanimous decision-making processes;
- 'no fault-no blame' culture;
- good faith;
- transparency expressed as open book documentation and reporting;
- joint management structure.

Hence, alliance contracting is similar to partnering, but without the prerequisite of an on-going relationship between the companies. Innovation is fundamental to alliance contracting and partnering. Cox, Ireland and Townsend (2006) delineate between arms-length and collaborative partnering approaches as between a choice of market-based innovation or innovation from proactive cooperation.

However, an on-going relationship and competence are not the only prerequisites, the power regime is also important. The power regime (table 4) determines whether a partner may implement a partnering regime, as it takes power to force a partner to invest in a relationship. The weaker partner requires an incentive of on-going business to adopt a costly partnering approach given the relationship investments they are expected to undertake. In an independent power regime where there are many buyer/sellers, negligible dependence and low switching costs, an arms-length approach should be employed as there is no need for innovation; companies buy what is on offer in the marketplace. However, in a buyer/supplier dominance or interdependent relationship, there is the potential for an arms-length or collaborative partnering approach, dependent upon whether the relationship is short- or long-term. In some instances, even with an on-going relationship and appropriate power regime, an arms-length regime may be enacted due to lack of competence.

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Table 4. Power matrix: attributes of buyer and supplier power (Cox, Ireland & Townsend 2006)

BUYER DOMINANCE	INTERDEPENDENCE
Few buyers/many suppliers	Few buyers/few suppliers
Buyer has high % share of total market for supplier	Buyer has relatively high % share of total market for supplier
Supplier is highly dependent on buyer for revenue with few alternatives	Supplier is highly dependent on buyer for revenue with few alternatives
Supplier's switching costs are high	Supplier's switching costs are high
Buyer's switching costs are low	Buyer's switching costs are high
Buyer's account is attractive to supplier	Buyer's account is attractive to supplier
Supplier's offering is a standardised commodity	Supplier's offering is relatively unique
Buyer's search costs are low	Buyer's search costs are relatively high
Supplier has no information asymmetry advantages over buyer	Supplier has moderate information asymmetry advantages over buyer
INDEPENDENCE	**SUPPLIER DOMINANCE**
Many buyers/many suppliers	Many buyers/few suppliers
Buyer has relatively low % share of total market for supplier	Buyer has low % share of total market for supplier
Supplier has little dependence on buyer for revenue and has many alternatives	Supplier has no dependency on buyer for revenue and has many alternatives
Supplier's switching costs are low	Supplier's switching costs are low
Buyer's switching costs are low	Buyer's switching costs are high
Buyer's account is not particularly attractive to supplier	Buyer's account is not particularly attractive to supplier
Supplier's offering is a standardised commodity	Supplier's offering is relatively unique
Buyer's search costs are relatively low	Buyer's search costs are very high
Supplier has very limited information asymmetry advantages over buyer	Supplier has substantial information asymmetry advantages over buyer

Where Cox, Ireland and Townsend (2006) disagree with other writers (Carlisle & Parker 1989; Fisher & Ury 1991; Hines et al. 2000) is their views on 'win-win'. They conclude that the desire for 'win-win' is not feasible given the incommensurable objectives of a buyer and supplier: the buyer seeks to minimise costs of ownership, whereas the supplier seeks to maximise profits; the buyer wants a constant increase in functionality at an ever reducing cost of ownership, where functionality could be performance, quality, delivery, etc.; the supplier wants a constant increase in the share of the customer's business in tandem with increased prices and profits. As such, 'win-win', the mutually beneficial outcome described

by writers is impossible. Cox, Ireland and Townsend's (2006) preference is to discuss outcomes in terms of win, partial-win and loss. Hence, 'win-win' is replaced by 'win-partial win'. Of course, a 'win-loss' outcome is possible, but is discouraged as putting a supplier out of business further restricts the supply-base, unless the supplier has chosen to operate as a 'loss-leader' to drive competitors out of the market, or develop a brand association with a major customer to cultivate premium pricing business with other customers.

Also, Cox, Ireland and Townsend (2006) determine that collaborative partnerships involve, in addition to long-term relationships, trust and transparency, with transparency equating to open-book accounting. Cox, Ireland and Townsend (2006) documents 16 case studies outcomes, using the proactive collaborative and reactive arms-length approaches, to demonstrate the clarity of their approach. However, not all writers are so specific and consider trust as an everyday attitude to improve the adversarial nature of construction projects, irrespective of the relationship being arms-length or collaborative (Davis 2008; Diallo & Thuillier 2005; Khalfan, McDermott & Swan 2007; Pinto, Slevin & English 2009; Yeung, JFY, Chan & Chan 2009). While Cox, Ireland and Townsend (2006) reflect the reality of business in suggesting 'win-partial win' outcomes, the inclusion of open-book accounting in all collaborative relationships is open to question. The key component of partnering is open-book accounting, which allied with trust presages profit sharing. However, only two out of seven suppliers to an equipment manufacturer were willing to share accounting information in one study (Kulmala, Paranko & Uusi-Rauva 2002). In some instances this could be due to a supplier not knowing its costs, instead of a lack of co-operation (Kulmala, Paranko & Uusi-Rauva 2002). Having discussed Cox's methodical approach that links trust to long-term, collaborative relationships shaped by power, other viewpoints on trust in construction relationships are introduced.

In a UK study of trust in construction projects, honesty, reliance, and delivery of outcomes were determined to be the three main factors of trust (Khalfan, McDermott & Swan 2007). Honesty concerned people sharing truthful information with the team. Reliance is concerned with working with people who are consistent in what they are doing. Delivery of outcomes means working with competent people who do what they say, and meet or exceeds expectations. Khalfan, McDermott and Swann (2007) found that people were trusted more than organisations, with reputation used to judge organisations. An organisation's reputation clouded the decision as to whether its employee was to be trusted on the project. Also, if an organisation has a reputation for not decentralising decision-making and trusting its own people, its ability to create and foster trusting relationships with other organisations will be

hampered (Khalfan, McDermott & Swan 2007). The study determined building trust was a matter of:

- Experience: working with people in on-going, repeated interactions.
- Problem-solving: working as a team to solve problems.
- Shared goals: a joint understanding of the aims and goals of the project.
- Reciprocity: team members returning favours in rewarding each other's trusting behaviour.
- Reasonable behaviour: working fairly and professionally with people in the project team.

A breakdown of trust resulted from people not fulfilling their obligations or telling lies. The conclusion of the paper is a need to move from a blame culture to a problem-solving culture.

A more comprehensive list of alliance success factors is detailed in an Australian study of construction projects (Love, Mistry & Davis 2010). They include:

- Trust facilitated by a close working relationship.
- Open communications facilitated by joint workshops and conflict resolution/problem solving.
- Integration of people, systems and processes.
- Team building.
- Effective coordination by dedicated relationship managers.
- Clearly understood shared goals.
- Experienced leaders with social and technical skills.
- Senior management support to provide adequate resources.
- Alliance agreement to communicate common goals and strategies.
- Learning and creativity to develop process and product innovations.
- Project team members making commitments to each other.

Love, Mistry and Davis (2010) conclude that successful cooperation requires mutual trust, commitment and active exchange of information.

A Delphi study of Australian relationship-based construction projects by experts from industry and academia highlighted eight key performance indicators (KPIs) (Yeung, JFY, Chan & Chan 2009). Relationship contracts are usually long-term and involve substantial relations between parties targeting mutual benefits and win-win outcomes. The eight KPIs are:

- Client's satisfaction
- Cost performance*

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- Quality performance*
- Time performance*
- Safety performance
- Effective communications*
- Trust and respect*
- Innovation and improvement*

(* Six of the KPIs are common to a Hong Kong study (Yeung et al. 2007, 2008 cited in Yeung, JFY, Chan & Chan 2009)).

Hence, trust is prevalent in the construction relationship literature, and one of three variables that consistently appear in a relationship approach to construction supply chains: commitment, trust and performance satisfaction (Davis 2008). However, different stakeholders may have different perceptions of the value of trust. A Canadian study predicts that the project client will associate a positive working relationship with integrity and competence trust, while the contractor will only associate integrity trust (Pinto, Slevin & English 2009). Distance may also play a role. Perceived trustworthiness was significantly greater for collocated dyads than distributed dyads, although trust did not vary between the collocated and distributed dyads. The evidence suggests that distributed teams adapt to distance and to technology to develop interpersonal relationships. Early face-to-face meetings, exchanging information about each other's abilities and character, and better sharing of performance information between co-workers might facilitate the development of trust between geographically distributed team-members (Zolin & Hinds 2004).

A key account manager (KAM) approach was used to test the application of relationship management to a major UK contractor (Smyth & Fitch 2009). The business aim was to improve customer satisfaction through adding value in matching customer needs, with the expected benefits of: increased repeat business and referrals; increased profitability through adding value and reduced transaction costs. In a construction project environment this equates to:

- Developing close relationships to improve client and stakeholder understanding.
- Tailoring project services to match customer expectation.
- Satisfying the customer by meeting customer objectives.
- Thus, inducing repeat business and referrals.
- Increasing the market value of the supplier (Smyth, 2000 cited in Smyth & Fitch 2009).

Contextual Background and Conceptual Framework

The case study concerned a systems integrator whose operations were performing around market norms for profit margins and return on capital employed. As part of the KAM process, customers were ranked according to a weighted strength of relationship indicator. The strength was judged by: value of business; length of relationship; profitability; potential business; procurement via tendering or negotiating; regional spread of offices; alignment with supplier strategy; customer relationship. Customers with a score greater than 70% were assigned green status, greater than 40% amber, and greater than 20% red. Across the whole business, tender wins have increased from 25% in 2005, when the company introduced the KAM approach, to 57% in 2007. The success rate for green customers is over 90%. In the rail sector, the company has improved their market position from 14th to equal 3rd over the period 2003-2008 (Smyth & Fitch 2009).

The evidence presented shows an array of activities are required to be successful at relational construction management, with the most important factor being the client's adoption of a long-term perspective as partnering is a long-term learning process (Eriksson, Atkin & Nilsson 2009). This was borne out by the authors' case study of an AstraZeneca manufacturing plant. Participants stated that the partnering approach made the project more enjoyable due to the focus on trust, commitment, communication, openness, collaboration and better working environment. However, the project did not realise the expected economic benefits as the partnering process needed more time to develop. To facilitate a collaborative spirit, Eriksson, Atkin and Nilsson (2009) recommend using collaborative tools such as; a shared IT database to facilitate information exchange between all parties; teambuilding events for staff at all levels; the adoption of joint objectives; joint review workshops; establish a shared project office. They caution that the tools only work with people who have a collaborative attitude and unsuitable persons should be screened out. The chance of success can be increased by using formal partnering procedures to enhance cooperation. Unfortunately, Xue et al. (2012) conclude that human factors are important but neglected issues that influence the success of IT supported collaboration in construction projects. Business collaboration depends on the right IT tools and the right partners (Shamsuzzoha et al. 2011).

As has been shown, the construction sector literature is in agreement with the general relationship management research in portraying the desirability of the four key constructs of relationship management: trust; shared information; shared practices; shared values and goals. However, the construction sector literature differs by acknowledging the industry's preponderance with being adversarial, as presaged by reports from the UK (DETR 1998; Latham 1994) and Australia (ACA 1999, 2003), due to the temporary, one-off nature of

projects that encourages opportunism (Cox, Ireland & Townsend 2006). Hence, the study of conflict in construction projects warrants attention. The literature on dispute resolution is now explored to determine the salient points of relationship management in resolving issues.

3.2.2 Dispute Resolution

Sources of conflict in projects include scarce resources, scheduling priorities and personal work styles (PMI 2008). Conflict is the norm in major projects with disputes typically being resolved by a Change Control Board (CCB) (Mulcahy 2009). A CCB is a formally constituted group of stakeholders responsible for reviewing, evaluating, approving, delaying, or rejecting changes to a project, with all decisions and recommendations being recorded (PMI 2008). Change management is used by 87% of high performers and by only 57% of low performers (PMI 2011). Research on dispute resolution within the construction sector is a comparatively new area (Love et al. 2011; Marzouk, El-Mesteckawi & El-Said 2011; Tazelaar & Snijders 2010; Wall & Fellows 2010), with disputes so common that there is a call for construction professionals to be taught conflict-resolution competencies (Tobin 2009), such as communication. Communication is also identified as the core-competency in another study of project managers (Starkweather & Stevenson 2011), while purchasing managers emphasised good communication as a proactive way to avoid conflict (Tuten & Urban 2001). Therefore, dispute resolution is a key topic of interest to project managers.

A synopsis of current thinking is indicated by the following recent papers. Claims that disputes and litigation proliferate in the construction industry, due to the short-term opportunistic relationships, are based on circumstantial evidence, with reality portraying a slight increase in litigation over the IT industry (1.6% vs. 1.4%) (Tazelaar & Snijders 2010). Firms in a dispute have a choice of negotiating, settling, arbitration or litigation. A computer model has been developed to determine when negotiation is a waste of time. Negotiation is the optimal solution when the parties have a good, long-term, cooperative relationship (Marzouk, El-Mesteckawi & El-Said 2011). Forty-one in-depth interviews with Australian industry practitioners identified 58 examples of disputes that they have been actively involved with. The main causes are opportunistic work practices and a "blame culture" (Love et al. 2011). It is suggested that a co-funded dispute resolution adviser (DRA) should be jointly-appointed to prevent disputes, not just resolve them. The DRA helps to preserve the relationship by suggesting amicable, cooperative solutions (Wall & Fellows 2010). Conflicts arise between, and are resolved by, people. A study of multi-national projects identified two important personality factors: adventurism, a willingness to regard differences as challenges than threats; cultural empathy, showing sensitivity to others (Fellows & Liu 2010). Hence, while disputes may not be as prevalent as anticipated, there is agreement on the importance of people skills and communication to resolve them (Fellows & Liu 2010; Khalfan,

McDermott & Swan 2007; Starkweather & Stevenson 2011; Tobin 2009; Wall & Fellows 2010), just as there is in the general literature (Cousins et al. 2006; Handfield & Nichols 2004; Helfert & Vith 1999; Lian & Laing 2007; Ulaga, Wolfgang 2003; Walter 1999).

Mishra (1996), in a paper studying the relationship between trust and crisis resolution, posits three behaviours that are influenced by trust:

- Decentralised decision-making: the extent to which decision-making is delegated to individuals at lower levels in an organisation.
- Undistorted communications: the extent to which the person engages in undistorted, or open, communication.
- Collaboration: the extent to which a party attempts to satisfy his/her own needs while satisfying another party's needs.

A crisis is defined to be (a) a major threat to system survival with (b) little time to respond, (c) involving an ill-structured situation, and (d) where resources are inadequate to cope with the situation (Mishra 1996). A dispute is defined as when parties cannot resolve an issue relevant to the performance of the project in a proactive, timely and mutually acceptable manner, and each party forms an entrenched and contrary opinion with respect to the issue that requires resolution (Love et al. 2011). While Mishra (1996) explored the relationship between trust and crisis resolution, the author considers the closeness between the definitions of crisis and dispute to be similar enough to warrant use of the posited behaviours with regard to disputes, to form the basis of the conceptual framework proposed in section 3.3.

The literature review reveals examples that have identified these three behaviours as important:

- Decentralised decision-making (Khalfan, McDermott & Swan 2007; Whitener et al. 1998).
- Undistorted communications (Denize & Young 2007; Erdogan et al. 2008; Patnayakuni, Rai & Seth 2006).
- Collaboration (Brennan & Turnbull 1999; Panayides 2007).

Communication, vertically and horizontally, and internally and externally to the organisation is important for project success (Mulcahy 2009). The following references are examples of communications-related articles:

- Internal communications (Greer & Caruso 2007; Massey & Dawes 2007; Massey & Kyriazis 2007; Simons, T 2002; Whitener et al. 1998).
- External communications (Doney, Barry & Abratt 2007; Morgan & Hunt 1994; Walter 2003; Wuyts 2007).

In concurrence with Mishra's (1996) thinking, Dietrich et al. (2010) define a new construct, quality of collaboration, as the fluency of interactional activities taking place between collaborative actors in multi-partner projects. Quality of collaboration is characterised by: open communications (COM), coordination (COR), mutual support (MS), alignment between expectations on efforts (ALEF), and cohesion (COHE). Based on a literature review, they suggest formalising roles and responsibilities, trust, conflict resolution and expectation fulfilment as some of the antecedents of collaboration quality in their model. Further, the authors identified a number of mechanisms to enhance collaboration and knowledge integration (table 5), and related them to the core elements of collaboration quality.

Table 5. Examples of mechanisms to enhance collaboration and knowledge integration (Dietrich et al. 2010)

Examples of Mechanisms to Enhance Collaboration and Knowledge Integration	COM	COR	MS	ALEF	COHE	Sources cited in Dietrich et al. (2010)
Use a common workmen's shed to enhance informal communication	X				X	Christensen, 2008
Share project information through electronic means instead of paper-based methods		X				Anumba, Pan et al. 2008; Eriksson, Atkin and Nilsson 2009
Allow flexibility through a flexible organisational structure (shaped by the organisation's policies, processes, and system of rewards and incentives)		X				Leonard-Barton, 1995
Create shared contexts and common representation by group problem-solving and decision-making				X	X	God, Malhotra et al. 2001
Codify tacit knowledge into explicit rules by giving direction		X				Demsetz 1991; Grant 1996
Reduce the need for communicating explicit knowledge by introducing organisational routines		X			X	Grant 1996
Enhance shared expectations on behaviour by establishing common norms		X				Fieldman 1984
Facilitate a sense of commitment and community by developing a shared technical agenda and joint agenda		X		X	X	Daniel and Davis 2009; Eriksson, Atkin and Nilsson 2009
Allow open and flexible participation by creating an operational team structure			X	X		Daniel and Davis 2009

Examples of Mechanisms to Enhance Collaboration and Knowledge Integration	COM	COR	MS	ALEF	COHE	Sources cited in Dietrich et al. (2010)
Distribute leaderships roles and responsibilities appropriately			X	X		Daniel and Davis 2009
Provide a deeper perspective of the nature of the problems and contexts in the project by sharing narratives or "war stories"	X				X	Davis and Walker 2009
Bridge several disciplines or areas of expertise by using boundary-spanning people	X			X		Christensen 2008; Davis and Walker 2009
Increase the participants' motivation and commitment for collaboration and teamwork by establishing incentives and shared profits			X		X	Bayliss, Cheung et al. 2004
Provide an easier information exchange by establishing a joint project office	X	X		X		Eriksson, Atkin and Nilsson 2009
Establish a compatible blend of skills and personalities by carefully selecting the team composition		X		X		Bennett and Jayes 1998

The elements of communication and coordination are similar to Mishra's (1996) behaviours of open communications and collaboration, where coordination refers to the shared mutual understanding on goals, necessary activities and contributions needed to be performed by collaborating actors (Dietrich et al. 2010). Although decentralised decision-making is not specifically mentioned, aspects associated with it are: flexible organisation, open and flexible participation, and distribute leadership roles and responsibilities appropriately. Hence, although Mishra's (1996) research did not involve construction supply chains, it's applicability is considered pertinent given it's consistency with project management research (table 5). The importance of sharing information electronically is underscored in table 5, and is the topic of the next section.

3.2.3   Online Collaboration Tools

The key message from the general IT literature is the importance of a strong, on-going relationship alongside IT, as the following examples illustrates. In a study of 225 for-profit US firms, IT was shown to have a positive influence on firm performance with the antecedents of IT department technical quality, IT plan utilisation and top management support of IT positively affecting the influence of IT on the supply chain (Byrd & Davidson 2003). However, the effectiveness of IT co-operation is moderated by the existing strength of relationships as determined by trust, interdependence, long-term orientation and information sharing, and

should be considered a precursor to the successful introduction of a buyer-supplier IT system (Chae, Yen & Sheu 2005). Hence, in an environment of mutual trust, performance gains accrue when companies share information and customise IT (Klein, Rai & Straub 2007). However, to beget trust from the tool, it is necessary to have trust in the tool's ability to prevent confidential information from being accessed by inappropriate parties (Erdogan et al. 2008). However, while success is dependent on trust, it is a significant, neglected area in the research into construction collaboration tools (Xue et al. 2012).

Recent work postulated that traditional communication methods of telephone, fax, email, written, and face-to-face are significant factors for improving a buyer's performance (Carr & Kaynak 2007). Whereas, advanced communications methods (computer-to-computer links, electronic data interchange (EDI) and enterprise resource planning (ERP)) were not significant, probably due to low penetration/usage (Carr & Kaynak 2007). Another reason for the reliance on traditional communications could be the difficulty with integrating product and process information between the different professions working on the construction project (Bouchlaghem, Kimmance & Anumba 2004). However, a longitudinal study of the impact of integrated supply chain management on a US factory, concluded that sharing informing using advanced technologies was key, along with established partnerships with key suppliers and constant communication with employees (Elmuti, Minnis & Abebe 2008). Hence, it is surmised that advanced communications complement traditional communications.

There has been little research on OCTs in the relationship management domain. An OCT is the information infrastructure used for coordinating project activities (Nikas, Poulymenakou & Kriaris 2007). It is a web-based tool that is a central depository of project documentation, allowing instant recognition of who has placed what on the system, and who has accessed it. Prior to an OCT, documentation management was scanty, usually resulting in meeting attendees having different versions of documentation, with a resultant effect on project time and costs caused by poor communication.

The lack of research into OCTs is illustrated in a review of 42 empirical studies around trust and virtual teams (Mitchell & Zigurs 2009). Only one study concerned document sharing, which is the objective of an online collaboration tool. The Unified Theory of Acceptance and Use of Technology (UTAUT) is offered as an example of what portends user acceptance of an application, that is, performance expectancy (meets requirements), effort expectancy (ease of use), social influence (pressure to use the system) and facilitating conditions (supportive organisational and technical infrastructure) (Venkatesh et al. 2003).

In a similar vein to OCTs, web-based inter-organisational information systems (IOIS) are used to support relationships. A study of construction companies' use of web-based IOIS determined the following influencers of adoption: dependency on key suppliers; bargaining power over key suppliers; level of collaboration with its suppliers; length of relationship, significantly influence the use of the tool (Hadaya & Pellerin 2010). With regard to collaboration technologies, improvements in communication, standardisation of communication and cost reduction are the drivers for adoption of such tools (Nikas, Poulymenakou & Kriaris 2007). However, internet-based tools should be regarded as a complement, rather than as a substitute to personal interactions (Rao, Perry & Frazer 2003). An improvement in buyer-seller governance (trust and commitment) due to electronic collaboration has been demonstrated (Cassivi 2006). Albeit technology has a positive effect on inter-organisational trust due to increased inter-dependency and sharing of confidential information, it has a negative effect on interpersonal trust by inhibiting social exchange (Bunduchi 2008). These aspects concur with the findings of Lee, H, Kim & Kim (2007) in their study of Application Service Providers (ASPs), that suggested that service quality enhances trust and user satisfaction between the client firm and the ASP. Likewise, a study of online communities found system, information and service quality had a significant effect on member loyalty through user satisfaction (Lin, HF & Lee 2006).

However, the introduction of an OCT requires a change in practices by team-members, especially for the project manager who is no longer the hub of information flows, with the benefits being fewer meetings and less time resolving disputes. Training of all team-members and acceptance of their new roles is essential for a successful deployment (Nikas & Poulymenakou 2008). To encourage use of the system and information sharing, contributors should be made aware of the usefulness of their input and rewarded for it (such as being provided a bonus, promotion, better assignment or job security), and internal awareness about its benefits needs to be achieved (Kankanhalli, Tan & Kwok-Kee 2005). Unfortunately, Lam, PTI, Wong and Tse (2010) report undesirable behaviours such as the tendency to forward information to irrelevant parties and ignore information, in using IT for information exchange in construction projects. Hence, it is not surprising that Xue et al. (2012) concluded that trust is an important but neglected issue that influences the success of IT supported collaboration in the construction sector.

As a project-wide system, lack of adherence to its use will be visible to all stakeholders, affecting one's reputation and inviting sanctions, in accordance with social capital theory (Burt 2005; Cook, Hardin & Levi 2005). In effect, an OCT is a catalyst for social capital

formation, with the capability of ensuring closure and, by identifying who has what information, mediating brokerage opportunities (Burt 2005). Therefore, the following benefits of social capital (Cohen & Prusak 2001) could be expected to be realised by OCT system users:

1. Better knowledge sharing.
2. Lower transaction costs.
3. Low employee turnover rate.
4. Greater coherence of action.

Improved performance should see increased penetration through a process of mimetic institutionalisation (Dimaggio & Powell 1983), creating a network of OCT users who see each other as potential partners. Hence, the OCT system has the potential to improve access to social capital, as well as improving social capital, where social capital is defined as the stock of active connections among people: the trust, mutual understanding, and shared values and behaviours that bind the members of human networks and communities and make cooperative action possible (Cohen & Prusak 2001).

3.3   Conceptual Framework and Research Questions

In accord with the literature review, the conceptual framework is progressively developed by highlighting the relevant aspects of the literature review. Hence, the conceptual framework is incrementally built using figures 10, 11 and 12.

The association between socialisation and trust is detailed in figure 10. Socialisation leads to the development of relational capital (Cousins et al. 2006; Cousins, Lawson & Squire 2008; Cousins & Menguc 2006; Petersen et al. 2008) and trust (Lewicki & Bunker 1996), as regular communication allows the parties to exchange information about wants, preferences, and approaches to problems.
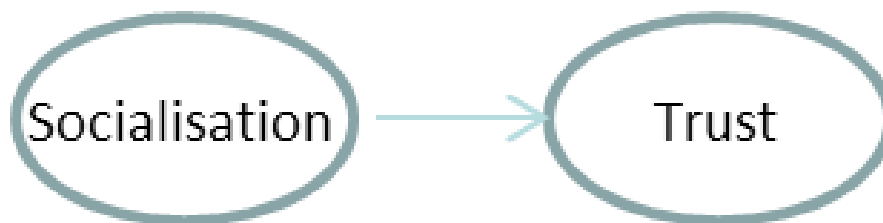
Figure 10. Socialisation and Trust

Trust will be explored with respect to the integrated model proposed in figure 7, and not just the four dimensions of trust presented by Mishra (1996): (a) competent at doing their job; (b) open and honest; (c) concerned about others' interests; (d) reliable in that they do what they say.

Section 3.2.2, Dispute Resolution, described the positive relationship between trust and the three behaviours of decentralised decision-making, open communications and collaboration (Mishra 1996) in dispute resolution (fig. 11). The context of dispute resolution is highlighted in italics for clarity.
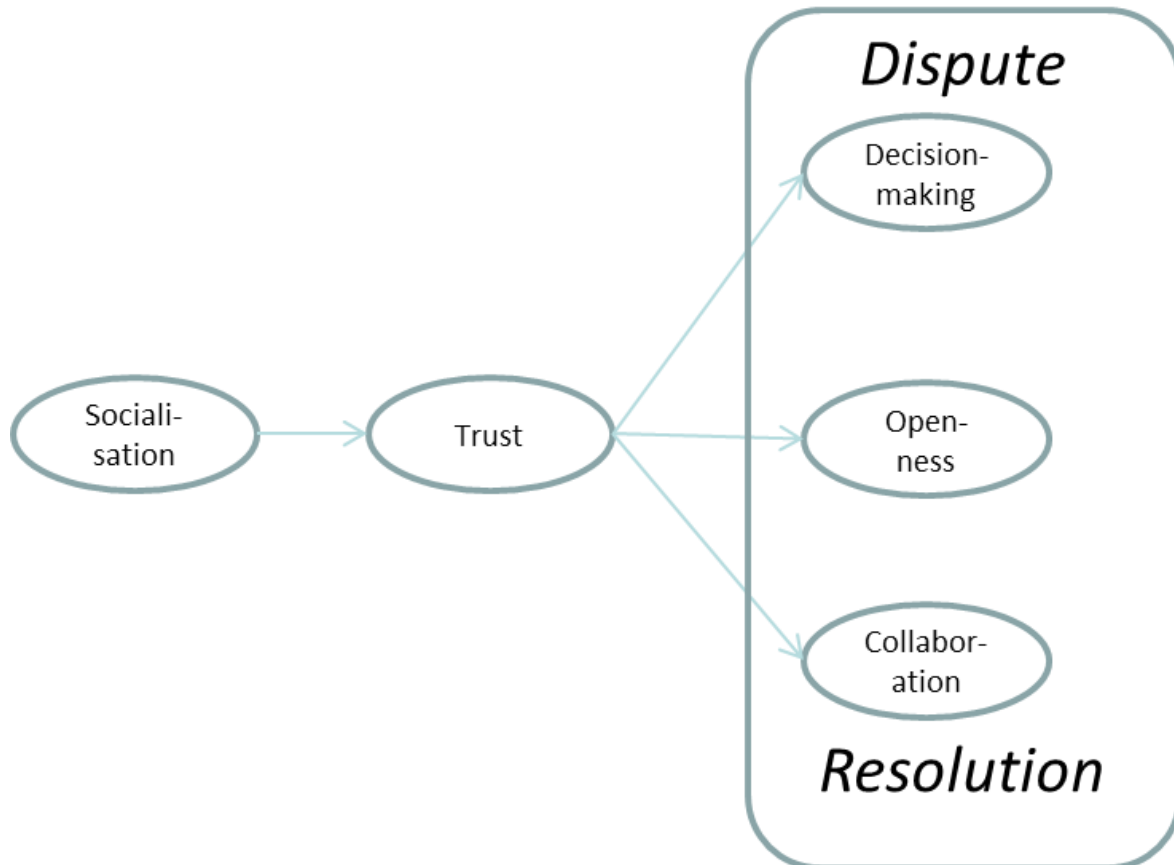
Figure 11. Trust and Dispute Resolution adapted from Mishra (1996)

Identified research has noted the drivers for deploying an OCT (Nikas, Poulymenakou & Kriaris 2007), and the work habit changes to ensure a successful introduction (Nikas & Poulymenakou 2008). There has been no research dedicated to questioning the influence of an OCT on the relationship management practices of individual project managers in construction supply chains, in the specific context of dispute resolution. Figure 12 details the proposed conceptual framework exploring the moderating influence of an OCT on the three posited behaviours with regard to dispute resolution, socialisation and trust.
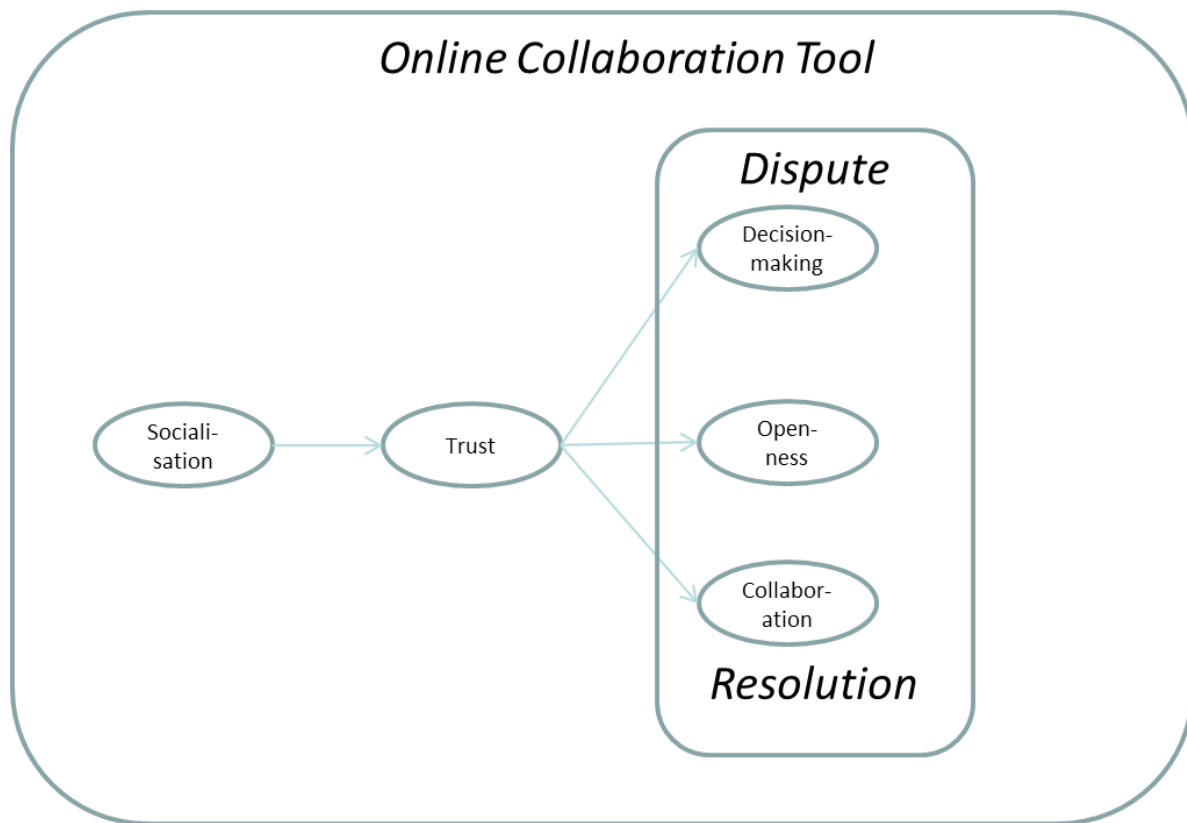
Figure 12. Influence of an OCT on Dispute Resolution adapted from Mishra (1996), Nikas, Poulymenakou et al. (2007), and Nikas and Poulymenakou (2008)

A qualitative approach is supported in order to capture the essence of the particular and recognise a universal understanding that may be generalised (Simons, H 2009). The context of dispute resolution between construction supply chain project managers and the influence of an OCT adds to the limited research into OCTs. It is worth noting that the Melbourne-based supplier of an OCT service, Aconex, has a main customer base which is mostly construction supply chains. Therefore, the research gap is to identify the influence of an OCT on the business relationships between the supply chain's project team members, from a project manager's perspective, in the context of dispute resolution. Hence, the question that requires attention and exploration is:

- How do online collaboration tools influence relationships in inter-organisational networks?

This is elaborated as:

- What creates trust (interpersonal and inter-organisational), and how is trust measured?
- What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?

- What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?
- What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?
- How does an OCT change the project manager's work practices, and how do these changes affect their relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?

3.4 Research Questions and Propositions

"How" and "why" questions lead to the use of case study, propositions point to the evidence to be collected to support the conceptual framework (Yin 1994). The use of propositions in a multi-case study allows for the testing of literal (predicts similar results) and theoretical (predicts contrasting results) replications (Yin 1994). Table 6 lists the research question with its associated proposition. The stated proposition is a reflection of the author's appraisal of the existing literature. For example, although an integrated model of trust has been presented (fig. 7) to capture the breadth of trust research, the contention is that trust is a much simpler construct (Mayer, Davis & Schoorman 1995; Mishra 1996) in the minds of practitioners. The integrated model of trust was developed to function as an aide-memoire for relating the research findings to the salient literature from noted writers, and for being a source of rival theories, or propositions, that may be required should the data not fit the stated proposition (Yin 1994).

Table 6. Research Propositions

Research question	Proposition
What creates trust (interpersonal and inter-organisational), and how is trust measured?	Trust is a multidimensional construct, consisting of ability, benevolence, integrity and communications, and applicable at the interpersonal, intergroup and inter-organisational levels (Mayer, Davis & Schoorman 1995; Mishra 1996).
	1. *Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.*

Research question	Proposition
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	Informal socialisation is more important than formal socialisation. Formal socialisation practices do not lead to relational capital, but may facilitate the informal patterns of socialisation required for the creation of relational capital (Cousins et al. 2006) 2. *Informal socialisation is more important than formal socialisation.*
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	Greater trust between stakeholders leads to improved decentralised decision-making, open communications and collaboration in issue resolution (Mishra 1996). 3. *In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.*
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	The use of an OCT realises improvements in communication, standardisation of communication, and cost reduction (Nikas, Poulymenakou & Kriaris 2007). Communication is a key item in the multidimensional construct of trust (Mishra 1996). 4. *Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.* As a project-wide system, lack of adherence to its use will be visible to all stakeholders, affecting one's reputation and inviting sanctions, in

| Research question	Proposition
	accordance with social capital theory (Burt 2005; Cook, Hardin & Levi 2005). In effect, an OCT is a catalyst for social capital formation, with the capability of ensuring closure and, by identifying who has what information, mediating brokerage opportunities (Burt 2005). Therefore, the following benefits of social capital could be expected to be realised by OCT users: a) Better knowledge sharing. b) Lower transaction costs. c) Low employee turnover rate. d) Greater coherence of action(Cohen & Prusak 2001). 5. *Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.*
How does an OCT change the project-manager's work practices, and how do these changes affect their relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	The introduction of an OCT requires a change in practices by team-members, especially for the project-manager who is no longer the hub of information flows, with the benefits being fewer meetings and less time resolving disputes. However, training of all team-members and acceptance of their new roles is essential for a successful deployment (Nikas & Poulymenakou 2008). 6. *A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes,*

Research question	Proposition
	assuming acceptance of the OCT by its users. OCT improves communication leading to greater trust (Mishra 1996). 7. *A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.* OCT improves efficiency (Nikas & Poulymenakou 2008) allowing greater time for socialisation. 8. *A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.*

3.5 Contribution

This research will contribute to the academic body of knowledge in relationship management by:

- Researching construction consortium project managers and the influence of an OCT on their role and relationships using the specific context of dispute resolution to elicit responses.
- Exploring the relationship between socialisation and trust with regard to relationships, and the outcome behaviours of decentralised decision-making, open communications and collaboration in the context of dispute resolution.
- Investigating the proposition that an OCT is a catalyst for social capital initiation and formation.

3.6 Summary

Trust has been shown to be at the forefront of relationship management and deserves its prominence in research (Arnott 2007), albeit there is a lack of widely-agreed measures of trust, necessitating a call for more qualitative research (Athanasopoulou 2009; Seppanen, Blomqvist & Sundqvist 2007). Using social capital as a theoretical lens, trust, shared information, shared practices, and shared values and goals were explored to confirm their relevance to modern research thinking on relationship management. Moreover, socialisation, or personal interactions, emerged as a topic requiring further investigation given its importance in garnering social capital. The difference between, and importance of, formal

and informal socialisation was noted as requiring further study (Cousins et al. 2006; Palmatier et al. 2006).

Whilst there has been plentiful IT-related research in respect to relationship management, very little has considered the influence of an OCT on inter-organisational relationships. The advantage of advanced communications (Carr & Kaynak 2007; Elmuti, Minnis & Abebe 2008), such as an OCT, to relationships without inhibiting social exchange (Bunduchi 2008; Cassivi 2006) in realising the initiation and acquisition of social capital has been mooted. Hence, it is proffered that there is a gap in the research in studying the consequences of using an OCT on inter-organisational relationships, from the project manager's perspective, in the context of dispute resolution.

It should be noted that an earlier case study approach to examining trust in five construction projects concluded the findings were consistent with much of the academic literature and noted honest communication, reliance and outcomes were the main determinants of trust (Khalfan, McDermott & Swan 2007). However, there is a body of research that questions the use of partnering in construction projects unless the consortium fulfils the prerequisites of a dominant buyer and a regular on-going business relationship (Cox 2004a, 2004b; Cox & Ireland 2002; Cox et al. 2004; Ireland 2004). The construction industry is considered to be adversarial in nature and is not conducive to social capital formation. However, the researcher supports the viewpoint that social capital is an important part of all business transactions, markets, hierarchies and networks (Granovetter 1985), with the cost of the practice of relationship management being the determining factor in its formation, confirming the need for a portfolio approach to relationships (Gadde & Snehota 2000). A construction case study has shown the importance of relationship management, using the principles of key account management, to improve a major contractor's performance (Smyth & Fitch 2009).

4 Research Method

4.1 Introduction

This chapter introduces the case study method and why it was chosen. The salient issues of case study research are discussed, followed by the case study protocol. The case study protocol defines the objectives of the case study, the field procedures, case study questions and the report's design guide. The aim is to provide arguments to reinforce the appropriateness of the chosen research method and approach.

4.2 Ontology, Epistemology and Paradigm

This section details the choice of a postpositivist qualitative stance by the author to address the need for greater qualitative research noted in the literature (Athanasopoulou 2009; Dainty 2008; Seppanen, Blomqvist & Sundqvist 2007), and to fit the author's experience and training in engineering and comfort with a scientific approach to research (Creswell et al. 2007).
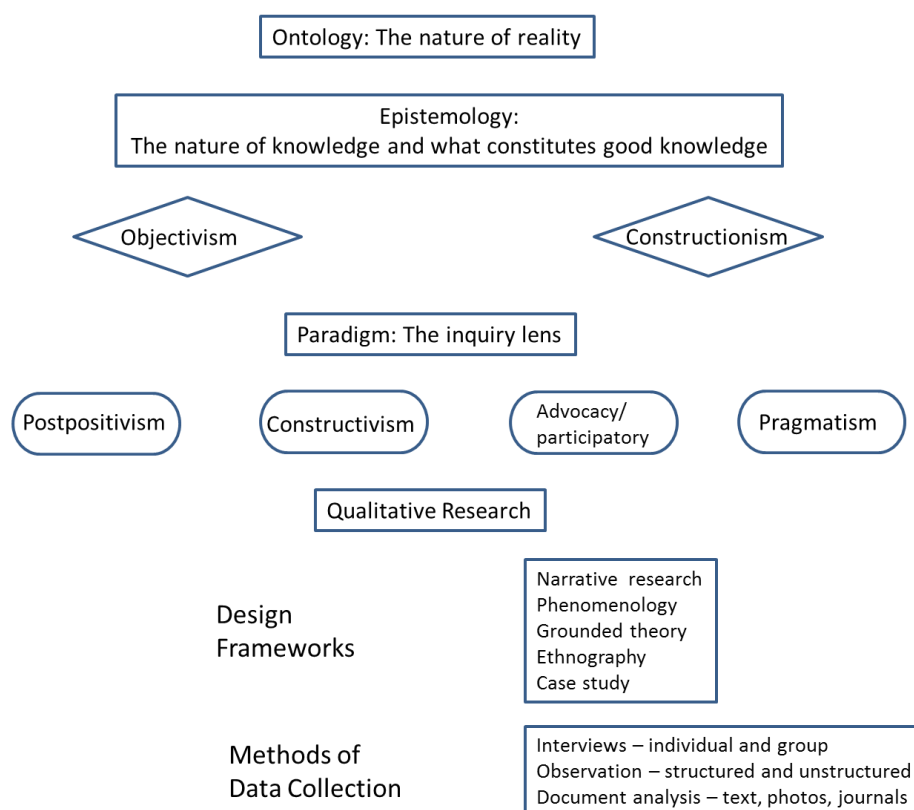
Figure 13. Elements of Qualitative Research Design (Creswell 2007; Goodrick 2010)

Figure 13 is a representation of the qualitative research design. Ontology is to do with our assumptions about the nature of reality, while epistemology is to do with our beliefs about how one might discover knowledge about the world. There are essentially two broad

epistemological stances echoing their respective ontologies: objectivism and constructionism (Goodrick 2010),

Objectivism asserts that research can attain objective truth and meaning as things exist independent of consciousness and experience (Crotty 1998), or separated from the social actors within it (Goodrick 2010). Constructionism refers to the collective generation of meaning, or culture, and shapes the way in which we see things (Crotty 1998) that are ever changing (Goodrick 2010). Crotty (1998) notes the important distinction between the epistemology of constructionism and the paradigm of constructivism. Constructionism is concerned with the collective, while constructivism focuses on meaning-making by the individual.

A paradigm is defined as, "a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, how results should be interpreted and so on (Bryman 1988, p. 4)." Creswell (2007) focuses on four paradigms relevant to qualitative research: postpositivism, constructivism, advocacy/participatory, and pragmatism.

Postpositivist researchers take a scientific approach to research (Creswell 2007). They view inquiry as a series of logically related steps, believe in multiple perspectives from participants rather than a single reality, and espouse rigorous methods of data collection and analysis. More importantly, they start with a theory or conceptual framework, use multiple levels of data analysis for rigour, and write their qualitative reports in the form of scientific reports (Creswell 2007). Constructivism acknowledges the uniqueness of the participant's interpretation of the event, and how interactions with others shape our meaning of the world (Creswell 2007). Constructivist researchers do not start with a theory but seek to inductively develop one, and recognise how their own background shapes their interpretation of the participants' views (Creswell 2007). Advocacy/participatory researchers have an action agenda for reform that may change the lives of participants (Creswell 2007). Their aim is to create a political debate and discussion so that change will occur by engaging the participants as active collaborators in their enquiries (Kemmis & Wilkinson, 1998 cited in Creswell 2007). Pragmatists focus on the outcomes of research rather than the antecedent conditions (Creswell 2007). They are not committed to any one system of philosophy and reality in answering the research question, and will use multiple methods of data collection to best answer the research question. The practical application of research methods is salient, and epistemology irrelevant (Patton 2002).

The author studied engineering at undergraduate level and is well versed with the objectivist/positivist approach to research. However, when it comes to relationship management research the author is answering the call of Seppanen, Blomqvist and Sundqvist (2007) and Athanasopoulou (2009) to conduct more qualitative research, the method of research oriented by constructionist epistemology (Goodrick 2010). A review of 107 papers published in *Construction Management and Economics* in 2006 identified only 9 out of 107 using qualitative methods (Dainty 2008), reflecting the dominance of objectivism and positivism in construction research.

The postpositivist paradigm has been employed as evidenced by the use of a conceptual framework derived from the literature review to structure data collection and analysis, and the use of multiple perspectives to triangulate for validity. Qualitative research was used to understand the specific context (Creswell 2007) of the influence of an OCT on a construction, project management team's relationship management, because interactions amongst people are difficult to capture with quantitative research (Creswell 2007). The five qualitative approaches to inquiry promoted by Creswell (2007) will be briefly discussed to ascertain the primacy of case study as the design framework.

4.3 Five Qualitative Approaches to Inquiry

The five qualitative approaches of narrative research, phenomenology, grounded theory, ethnography and case studies are briefly introduced to justify the use of case study as the design framework.

Narrative research consists of chronologically ordering the experience of a single individual, or a small number of individuals. It involves spending considerable time with them gathering their stories, specifically the context of the study. Participants are actively involved in research (Creswell 2007). The requirement to spend considerable time with the participant understanding their context negates this as a possible design framework, due to time constraints and participant acquiescence to intrusion into their working environment.

A phenomenological study describes the meaning for several individuals of their lived experiences of a concept, or a phenomenon. It involves collecting data from persons who have experienced the phenomenon, to develop a composite description of the essence of the experience for all individuals (Creswell 2007). There are essentially two types of phenomenology: hermeneutical involves the researcher in interpreting the meaning of the lived experience (Langdridge 2007; Smith & Osborn 2008); transcendental or psychological, which involves the researcher in bracketing out their experience so that they focus more on describing the experience with as little interpretation as possible (Langdridge 2007). Data

collection consists of in-depth interviews and multiple interviews with participants. It is recommended that researchers interview 5 to 25 individuals who have experienced the phenomenon (Polkinghorne, 1989 cited in Creswell 2007). It was decided that the topic of research was too broad to warrant such an approach.

Grounded theory study is concerned with generating a theory grounded in the data from participants who have experienced the process. The researcher typically conducts 20 to 30 interviews, and engages in an iterative process of data collection in the field followed by time in the office analysing data (Creswell 2007). As the literature review has generated a conceptual framework based on Mishra (1996), grounded theory is not appropriate as it assumes no preconceived hypotheses (Patton 2002).

An ethnographer is interested in studying the shared patterns of values, behaviours, beliefs and language (Creswell 2007). It involves studying more than 20 individuals, most often through participant observation, and immersing yourself in the day-to-day lives of the group participants (Creswell 2007). The research approach was thought not feasible due to time constraints and the concern of lack of participant acquiescence to intrusion into their working environment.

Case study research involves the issue explored through one or more cases within a bounded system, where the bounded system may be a context (Creswell 2007). It involves in-depth data collection involving multiple sources such as interviews, documentation and observation. A case study is a good approach where the inquiry has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases, or a comparison of several cases (Creswell 2007). With regard to multiple cases, the researcher typically chooses no more than four or five cases (Creswell 2007). Stake (2006) advises between 4 and 10 cases be studied for a multi-case study.

The research topic concerns the influence of an online collaboration tool on the relationships between project managers in a construction supply chain. Hence, the phenomenon of relationship management is studied in the context of a construction supply chain and the influence of an OCT. Further, there is a temporal (Seppanen, Blomqvist & Sundqvist 2007) comparison between a supply chain currently using an OCT, and a completed project that used one. Therefore, the design framework of case study is considered apt for answering the research question. Case study research and its application to answering the research question will be examined in-depth using, in particular, the influences of H. Simons (2009), Stake (2006), and Yin (1994).

4.4 Case Study

4.4.1 Context of Case Research

Tight (2010) in a commentary on case study deems it is as a small-sample, in-depth study, and that references to Stake (2006) and Yin (1994) add nothing to the claim that there is anything more to case study research than just that. He notes that advocates of case study produce books that are generic guides on how to do qualitative social research, and that most pieces of research may be called case study (Tight 2010). Case study is a convenient label to give research added respectability when one cannot think of anything better (Tight 2010). Hence, there is no universally accepted method to case study, or small-sample, in-depth study. As such, the research approach in this project empathises with H. Simons (2009), Stake (2006) and Yin (1994), in offering a methodical, postpositivist approach that draws on a mixture of their ideas.

H. Simons (2009) considers case study research the process of conducting systematic, critical inquiry into a phenomenon of choice, and generating understanding to contribute to cumulative public knowledge of the topic. H. Simons (2009) proceeds to define case study as an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution programme or system in a 'real-life' context. It is research-based, inclusive of different methods and is evidence-led. The primary purpose is to generate in-depth understanding of a specific topic, programme, policy, institution or system to generate knowledge and/or inform policy development, professional practice and civil or community actions (Simons, H 2009).

However, like any research methodology, case study has it strengths and limitations (Simons, H 2009). Its strengths are:

- Enables the phenomenon and context to be studied in-depth.
- It can explain how and why things happened from multiple perspectives.
- Case study is useful for exploring and understanding the process and dynamics of change.
- Case study is flexible, that is, neither time-dependent nor constrained by method.
- Case study reports allow audiences to vicariously experience what was observed and utilize their tacit knowledge in understanding its significance.
- Case study recognizes the importance of co-constructing perceived reality through the relationships and joint understandings we create in the field.

The potential limitations are:

- The subjectivity, which is the world view, predilections and values of the researcher need to be acknowledged to understand how they have affected the researcher's portrayal of the case study.
- The case study is historical. However, it can be written to convey the timing and context so that the reader can make their own judgements about the relevance and significance.
- The case study is particular to the phenomenon and context of the research. However, the reader may draw upon their own tacit knowledge to draw generalisations to other situations.
- The validity of the research may be questioned due to the small sample, but this can be managed by using different means to establish validity.

These limitations are addressed in section 9.3 with regard to this research.

Having argued the importance of case study research, and acknowledged its strengths and limitations, the types of case studies are explored, followed by an introduction to the salient issues of unit of analysis, evidence, triangulation and validity, ethics, reflexivity and generalisation.

4.4.2 Types of Case Studies

Stake (1998) identifies three type of case studies: intrinsic, instrumental and collective. Intrinsic case study research is undertaken because one wants a better understanding of a particular case. The purpose is not to understand a phenomenon, nor to build theory, but because of a particular interest in, for example, this particular child, clinic, conference or curriculum (Stake 1998). In instrumental case study research, a particular case is examined to provide insight into an issue, phenomenon, or refinement of theory. The choice of case is made to advance understanding by being looked at in-depth, particularly its context. A collective case study involves researchers studying a number of cases jointly in order to enquire into the phenomenon, population or general condition. It is instrumental case study extended to several cases that are chosen to lead to a better understanding about a still larger collection of cases (Stake 1998). Stake's (1998) types of case studies relate to the purpose of doing the case study (Tight 2010). The bulk of case study research is undertaken by people who have intrinsic interests in cases (Stake 1998).

Yin (1994) identifies four basic case study designs along the two dimensions: single or multiple cases, and holistic or embedded unit of analysis (fig.14).

	single-case designs	multiple-case designs
holistic (single unit of analysis)	TYPE 1	TYPE 3
embedded (multiple units of analysis)	TYPE 2	TYPE 4

Figure 14. Basic types of designs for case studies (Yin 1994)

A holistic case is concerned with the global nature of a programme or of an organisation, whereas an embedded case study design includes outcomes from individual projects within the programme. Studying a team accomplished by studying the team members is an embedded design. The holistic design, while advantageous when no logical subunits exist, allows a researcher to avoid examining any specific phenomenon in operational detail. Likewise, an embedded study may focus too much on the subunits and fail to investigate the programme. Hence, both types have a weakness that needs to be carefully monitored by the researcher. As described, Yin's (1994) distinction is whether the case's focus is on the overall programme itself, or through subunits within the programme (Tight 2010), and not the purpose (Stake 1998). Yin (1994) also differs from Stake (1998) in being specific about the five valid reasons for studying a single case: a critical case that meets all the conditions for testing a theory; a unique case that is so rare that it is worth documenting and analysing; the revelatory case that allows a researcher to document a phenomenon previously inaccessible to scientific investigation; a typical case; and a longitudinal study (Tight 2010).

Having introduced the types of case studies as proposed by the leading exponents of case study research (Stake 1998; Yin 1994), the salient issues are introduced to identify best-practice.

4.5   Salient Issues of Case Study Research

As a means of identifying best-practice in case study research, the following topics are explored: unit of analysis; evidence; triangulation and validity; ethics; reflexivity;

generalisation. These topics have been to chosen to represent the key issues a case study researcher is required to consider. The list is not exhaustive but representative in the author's opinion. The topic is formulated by amalgamating the views of noted academics.

4.5.1 Unit of Analysis

The key issue in choosing the unit of analysis is determined by what you want to say something about (Patton 2002). The author's interest is in the relationship management experience of an individual project manager in a construction consortium supply chain. Furthermore, data that has been collected at the lowest level allows for the nesting and layering of data for cross-case analysis (Patton 2002) at the team-level (on-going or completed project), of all cases together, and by function, for example, builders and consultants. This approach concurs with Stake's (1998) criteria of choosing cases that offer the greatest opportunity to learn.

Using the language of Yin (1994) and Stake (1998), it can be argued that the researcher, in exploring the influence of an OCT on a project management team, is undertaking an instrumental, embedded study. Instrumental, as the particular phenomenon under study is relationship management, and embedded as the project management team was studied using its members as the subunit of analysis. The context (Simons, H 2009; Yin 1994), or boundedness (Stake 1998), is that of a Melbourne-based construction sector, project management team.

4.5.2 Evidence

Yin (1994) refers to the six sources of evidence (table 7).

Table 7. Six sources of evidence: strengths and weaknesses (Yin 1994)

Source of Evidence	Strengths	Weaknesses
Documentation	stable – can be reviewed repeatedly unobtrusive – not created as a result of the case study exact – contains exact names, references, and details of an event broad coverage – long span of time, many events, and many settings	retrievability – can be low biased selectivity, if collection is incomplete reporting bias – reflects (unknown) bias of author access – may be deliberately blocked

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Source of Evidence	Strengths	Weaknesses
Archival Records	*same as above for documentation* precise and quantitative	*same as above for documentation* accessibility due to privacy reasons
Interviews	targeted – focuses directly on case study topic insightful – provides perceived causal inference	bias due to poorly constructed questions response bias inaccuracies due to poor recall reflexivity – interviewee gives what interviewer wants to hear
Direct Observations	reality – covers events in real time contextual – covers context of event	time-consuming selectivity – unless broad coverage reflexivity – event may proceed differently because it is being observed cost – hours needed by human observers
Participant-Observation	*same as above for direct observations* insightful into interpersonal behaviour and motives	*same as above for direct observations* bias due to investigator's manipulation of events
Physical Artefacts	insightful into cultural features insightful into technical operations	Selective availability

Documentation can take many forms: letters, minutes, reports, proposals, articles, newspaper clippings, and so on. The most important use of documentation in case studies is to corroborate and augment evidence from other sources (Yin 1994). However, it is important to consider who the document was written for, and with what purpose in mind, to correctly interpret its importance to the case study. That is, the documentation (evidence) was not acquired with the specific purpose of answering the research questions and needs to be interpreted accordingly (Yin 1994). Documents are useful in providing an understanding of the culture of the organisation and the values underlying policies (Simons,

H 2009). For example, promotional literature exemplifies an organisation's approach to relationship management and partnering. Archival records fulfil a similar function as documentation and will not be discussed further.

Interviews consist of asking open-ended questions of an informant to provide an insight into the research questions. However, they are subject to the common problems of bias, poor recall, and poor or inaccurate articulation (Yin 1994). As such, it is important to corroborate interview data with information from other sources (e.g., other informants, documentation). Interviewing has four main purposes: to document the interviewee's perspective on the topic; promote active engagement and learning in identifying and analysing issues; it offers flexibility to change direction to pursue emergent issues; and it has the potential for uncovering and representing unobserved feeling and events that cannot be observed (Simons, H 2009). Rapport is essential, although there may be no need to say a lot to get the interview going, other than a statement of the research focus (Simons, H 2009). H. Simons (2009) exhorts one to know when to listen and question, as one of the biggest faults in interviewing is to cut off informants before they get to the heart of their story. One to two hours should be allowed to create interpersonal trust and generate in-depth understanding (Simons, H 2009).

Group interviews have the advantage of being less threatening to any one individual,I and enable you to get a sense of agreement on issues and cross-check consistency of perspectives. However, there is the potential for 'group-think' or dominant individuals taking over the interview (Simons, H 2009), and they seldom provide good evidence for issues the researcher wants to talk about (Stake 2006). Note-taking, alongside audio recording, eases the social process by breaking sustained eye contact with the informant (Simons, H 2009). As Patton (2002) notes, the quality of the information obtained during an interview is largely dependent on the interviewer. An interviewer who has an interest in the thoughts and views of the informant, and the utmost respect for the people being interviewed (Patton 2002).

Observation can involve the researcher taking a passive or active role (Yin 1994). In passive mode, the researcher may engage in formal or casual observations. In formal observations, the researcher records the number of incidents of behaviour in a predetermined setting, where the setting could be a meeting, factory, office, classroom, and the like (Yin 1994). Casual observations may happen during a field visit to conduct an interview (Yin 1994). For instance, the friendliness of the secretary could indicate something about the friendliness of the organisation and its approach to relationship management. Participant-observation involves the researcher taking an active role within the case study. It has been most

frequently used in anthropological studies of different cultural or subcultural groups, but can be used in other settings, such as an organisation (Yin 1994). Through observing, you can tell if you are welcome, who is anxious, who the key players are in the informal structure, and whether there are any unspoken rules (Simons, H 2009).

H. Simons (2009) details five reasons why observation complements interviewing in case study research: you can gain a comprehensive 'picture' of the site; observations provides 'rich description' and a basis for further analysis; you can discover the rules and norms of an organisation; observation offers another method for capturing the experiences of the less articulate; observations provide a cross-check on data obtained in interviews. In summary, observation enables understanding and eliciting the nuances of incidents and relationships in the 'lived experience' of people in particular situations and contexts (Simons, H 2009), albeit that the social world may be changed by the introduction of an observer (Patton 2002). It is important to avoid importing into the observation pre-formed judgments that are not backed by evidence of direct observation (Simons, H 2009), and separate description from interpretation and judgement (Patton 2002).

The final source of evidence is the physical or cultural artefact. Typically collected or observed as part of a field visit, particularly in anthropological research (Yin 1994). Yin (1994) details the example of using a computer printout to supplement observation in a case concerning the use of personal computers in classrooms.

Case study is an exploration from multiple perspectives, with the methods of interview, observation and document analysis often used to facilitate in-depth analysis and understanding (Simons, H 2009). Triangulation tests for the consistency in results from the different perspectives and methods (Patton 2002).

4.5.3 Validation

There are two main strategies used in qualitative case study research to validate accounts and experiences: triangulation, which involves using different methods to see things from different angles; respondent validity, which is concerned with process (Simons, H 2009). Creswell (2007) reports on the many perspectives of validation in the literature. Hence, the objective is to explore the views on validation of a limited number of well-known writers on case study research.

There are four kinds of triangulation that can contribute to the verification and validation of qualitative analysis (Patton 2002):

- Methods triangulation: checking out the consistency of findings generated by different collection methods.

- Triangulation of sources: checking out the consistency of different data sources within the same method.

- Analyst triangulation: using multiple analysts to review findings.

- Theory/perspective triangulation: using multiple perspectives or theories to interpret the data.

The purpose is to test for consistency of results across the different data sources or inquiry approaches. However, inconsistency should be welcomed as an opportunity to search for deeper insight (Patton 2002). The four types are briefly introduced.

4.5.3.1 Methods Triangulation

Methods triangulation often involves comparing and integrating data collected from qualitative and quantitative methods. Patton (2002) gives an example of how qualitative data complements quantitative data in the issue of teenage pregnancy. Quantitative data provides a quantifiable picture of the issue, while case studies of a few teenagers can put faces on the numbers and illuminate the stories behind the quantitative data.

4.5.3.2 Triangulation of Sources

This involves comparing and cross-checking the consistency of information derived at different times and by different means within qualitative methods. For instance:

- Comparing observations with interviews.

- Comparing what people say in public with what they say in private.

- Checking the consistency of what people say over time.

- Comparing the perspectives of different stakeholders, for example, staff, customer and supplier.

- Checking interviews against programme documents and other written evidence (Patton 2002).

4.5.3.3 Analyst Triangulation

Triangulating observers or using several interviewers helps reduce the potential bias that comes from a single person doing all the data collection. A related strategy is having two or more persons independently analyse the same qualitative data and compare their findings (Patton 2002). Another approach is to use the participants to review the findings for accuracy, completeness, fairness and perceived validity of data analysis (Patton 2002). Similarly, audience review asks the primary intended users and readers of the report to ascertain whether it is believable (Patton 2002). Also, an impartial expert can be used to assess the quality of analysis and data collection (Patton 2002).

4.5.3.4 Theory/perspective Triangulation

Theory triangulation involves using different theoretical perspectives to look at the same data to understand how differing assumptions and premises affect findings and interpretations (Patton 2002). It could also involve looking at the data from the perspectives of various stakeholder positions, as it is common for stakeholders to have differing views on a programme's purpose, goals and means of attaining goals (Patton 2002).

4.5.3.5 Replication

In multiple case study design, Yin (1994) discusses the concept of replication to measure consistency. Field data confirmation of propositions derived from a rich, theoretical framework determines the existence of replication. There are two types of replication, literal and theoretical. Literal replication uses the theoretical framework to state the conditions under which a particular phenomenon is likely to be found. A literal replication predicts similar results. Theoretical replication uses the theoretical framework to state the conditions under which a particular phenomenon is not likely to be found. Therefore, a theoretical replication predicts contrasting results. Hence, a multiple case study design commences with the development of a theoretical framework with each case's conclusions considered as information needing replication by other cases. The case study report should indicate for each case, how and why a particular proposition was demonstrated (or not demonstrated). Across cases, the report should indicate the extent of the replication logic, be it literal or theoretical (Yin 1994).

4.5.3.6 Validation Best-practise

H. Simons (2009) highlights her advice for ensuring validity:

- Decide which criteria of validity you will use to assure and justify your findings.
- Remain aware of integrating data from different sources gathered at different times. Losing sight of this in the interpretation may pose a threat to validity.
- Interrogate the data for different interpretations until the 'significance' of the issue/finding is saturated.
- Do not dismiss negative instances when they appear not to add to your growing understanding as it may reveal a powerful relevant insight.
- Undertake respondent validation by checking with participants that your reporting of their perspectives accord with their 'telling' and their meaning.
- To establish external validity, check with a range of stakeholders whether they find the case study credible and useful.
- Triangulation of data does not guarantee validity, though it can contribute to it and help ensure the credibility of findings.

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- View triangulation as a process for exploring different perspectives and how they do or do not intersect in the particular context.
- Triangulation may be used to check for divergence, which may be equally important in understanding the case.
- In team research, cross-corroborate each team member's interpretation of the findings.
- Being aware of your subjectivity and being ethical is part of validity.
- Stay reflexive throughout. Note where an interpretation is a bias.
- See the process of validation as a dynamic one of gradually refining and corroborating evidence that is 'true, credible and right'.
- In presenting what you have found, do not over-claim; stay close to the evidence and demonstrate how finding and evidence were reached.

Miles and Huberman (1984) suggest other tactics for validation. For example:
- Make contrasts/comparisons between the results of two groups. In this research, the groups are an on-going and completed project teams (temporal difference).
- Weight the evidence from the client's project manager. The client's project manager is no longer at the hub of information flows (Nikas & Poulymenakou 2008), and should be influenced the most from the introduction of an OCT.
- Use extreme cases by identifying those with a strong bias for, and against, an OCT.
- Check out rival explanations. However, looking for the best of several alternative accounts (Miles & Huberman 1984) does not mean iterating forever.
- Look for negative evidence that is inconsistent with the conclusion, remembering that lack of negative evidence is not confirmatory of the conclusion (Miles & Huberman 1984).

Creswell (2007) offers some criteria for evaluating a "good" case study:
- Is there a clear identification of the "case" or "cases" in the study?
- Is the "case" (or are the "cases") used to understand a research issue or used because the "case" has (or "cases" have) intrinsic value?
- Is there a clear description of the "case"?
- Are themes identified for the "case"?
- Are assertions or generalisations made from the "case" analysis?
- Is the researcher reflexive or self-disclosing about his or her position in the study?

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This section has explored the importance of validating qualitative research, and suggested criteria for best-practice. Ethics and reflexivity have been identified as aspects of validity. The next section discusses the importance of ethics in case study research.

4.5.4 Ethics

This section is based on Simons, H's (2009) treatment of ethics, as her portrayal is in-depth yet succinct. Ethics is how we behave or should behave in relation to the people with whom we interact, observing the fundamental ethical principle to 'do no harm' (Simons, H 2009). H. Simons (2009) prefers the positive stance of working with people rather than avoid doing harm to them. Her approach is to take a democratic stance to ethics underpinned by principles of fairness, justice and equity, in finding an appropriate balance in research between the individual's right to privacy and the public's right to know. Negotiation is the means through which data that are not harmful to individuals can be released for public knowledge.

The following ethical procedures are recommended for the conduct of case study research (Simons, H 2009):

- The purpose of the study and the anticipated audiences for the information are made clear at the outset.
- Permission will be sought for access to documents, files and correspondence, these will not be copied without explicit permission.
- Informed consent will be sought for each person interviewed and observed. However, consent is not an excuse for raising issues which the participant finds sensitive to discuss (Langdridge 2007).
- Interviews will be conducted on the principle of confidentiality.
- Use of data will be negotiated with participants on specific criteria (for example, accuracy, fairness and relevance) and within specific timelines.
- Individuals will be asked at the time of the interview for permission to use the interview and if anything needs to be excluded.
- Interviewees will have an opportunity to see how their comments or observations about them are reported in the context of the case study and to edit and add in, if necessary, criteria of accuracy, relevance, or fairness.
- No data will be reported that a participant asks to keep in confidence.
- Direct quotation and attributed judgements in reports require the explicit permission of the respondent.
- Non-attributable information used in summarizing findings across projects or in raising general issues about the programme does not require specific clearance.

- Pseudonyms will be used in reporting individuals and institutions; staff may be referred to in role. While this does not guarantee anonymity, it reduces the likelihood that individuals and institutions will be identifiable.
- Where it is not possible to anonymize, clearance will be sought for comments that may be identifiable.
- Where difficulties arise, all parties should be open to apology and be prepared to negotiate an agreed way forward.

Hence, the democratic tradition means working with respondents to research with them. It involves working with stakeholders throughout the process, documenting their perspectives and judgements, negotiating meanings and interpretations with them, using accessible methods and language, and communicating to audiences and beneficiaries beyond the case (Simons, H 2009). While at the same time, it is important to admit our biases and how our affiliations and ideological commitments have influenced our interpretations (Stake 2006).

Having identified ethics best-practice, the importance of reflexivity is discussed, or the influence of our own biases, in interpreting research. Research is valued if it makes people powerful, not because it makes them wise (Stake 2006), amplifies the importance of reflexivity: the researcher being honest with the audience about his or her biases.

4.5.5   Reflexivity

Reflexivity emphasises the importance of self-awareness, political/cultural consciousness, and ownership of one's perspective. It reminds the researcher to be aware of their own perspective and voice, as well as the perspectives and voices of participants and readers (Patton 2002). It is no longer acceptable to be the omniscient, distanced qualitative writer; one also needs to acknowledge the impact of writing on the researcher, on the participants, and on the readers (Creswell 2007).

How we write is a reflection of our values that we bring to the research that have been shaped by our cultural, social, gender, class and personal politics; writings are co-constructed by the researcher and the researched (Creswell 2007). However, Langdridge (2007) observes that reflexivity is often mentioned as being crucial in qualitative research but rarely taken really seriously. He suggests questions to encourage a reflexive approach to qualitative research before, during, and before the research has been written up (Langdridge 2007):

1. Why am I carrying out this study?
2. What do I hope to achieve with this research?
3. What is my relationship to the topic being studied?

   a. Am I an insider or outsider?

   b. Do I emphasise with the participants?

4. Who am I, and how might I influence the research I am conducting in terms age, sex, class, ethnicity, sexuality, disability and any other relevant cultural, political or social factors?

5. How do I feel about the work?

   a. Are there any external pressures influencing the work?

6. How will my subjective position influence the analysis?

7. How might the outside world influence the presentation of findings?

8. How might the findings impact on the participants?

   a. Might they lead to harm and, if so, how can I justify this happening?

9. How might the findings impact on the discipline and my career in it?

   a. Might they lead to personal problems, and how prepared am I to deal with these should they arise?

10. How might the findings impact on wider understandings of the topic?

   a. How might your colleagues respond to the research?

   b. What would the newspapers make of the research?

   c. Does the research have any implications for future funding (of similar research and/or related organisations)?

   d. What political implications might arise as a result of the research?

The reader should be given enough information to be able to tune into the researcher's position, and identify how this may have influenced the researcher's analysis (Langdridge 2007).

Langdridge's (2007) advice is contrasted with that of Simons, H's (2009) as a case study of reflexivity in action. Langdridge is a phenomenological psychologist, who is clearly interested in the impact of research on his career by interested stakeholders. While H. Simons (2009) concurs with the general advice provided by Langdridge (2007) in questions 1-8, but with no assessment of the effect of research on power (Stake 2006). H. Simons (2009) observes that reflexivity is an active and intentional process of deliberation on the actions you took and the decisions you made, and how they influenced the study. It is a critical factor in ensuring the validity of the study (Simons, H 2009). Writing reflexively requires the researcher to demonstrate how his/her values have influenced the case's analysis and interpretation. H. Simons (2009) suggests a reflexive analysis as a separate chapter or as part of the methodology chapter in a thesis.

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Reflexivity has been explored as an important part of a qualitative research study, and general advice has been adjudged to encourage its uptake, particularly as it affects the validity of the analysis (Simons, H 2009). The next topic to be discussed is the issue of generalisation and its applicability to case study results given the small sample size.

4.5.6 Generalisation

Not being able to generalise the findings is considered one of the myths of case study research (Simons, H 2009). Yin (1994) exclaims that the case study is like an experiment and does not represent a sample. Hence, its purpose is to expand and generalise theoretical propositions, and not enumerate statistical significance (Yin 1994). Stake (1998) sees generalising as competing with learning about and from a particular case. He has noted that the bulk of case study research is conducted by people who have an intrinsic interest in the case, while the books on case study methods are largely by those who believe research should contribute to scientific generalisation. Stake (1998) urges researchers to write in sufficient detail that readers can vicariously experience the reported events, and draw their own conclusions. He further asserts that this transfers responsibility for making generalisations from the researcher to the reader (Stake 2006). In multi-case study research, the use of a control case, to examine how a case without the phenomenon is different, is cautioned against because there are too many ways in which the cases are different, regularly making the comparison fail (Stake 1998).

Patton (2002) suggests extrapolating (applying), instead of generalising, the findings to other situations under similar, but not identical, conditions. Extrapolations can be particularly useful when based on information-rich samples and designs, by researchers pointing out lessons learned and potential applications to future efforts. Information-rich samples allow for in-depth particularisation (Simons, H 2009; Stake 1998), while designs (conceptual frameworks) encourage cross-case generalisation through replication (Yin 1994). Cronbach and Associates (1980 cited in Patton 2002) suggest balancing depth and breadth to permit reasonable extrapolation, as too much depth results in an idiosyncratic case, and too little breadth reveals findings that are largely irrelevant beyond the tightly controlled conditions.

Barratt, Choi & Li (2011) provide an excellent list of criteria for evaluating case study best-practice. The following topics should be covered by the case study researcher: justification for case research; unit of analysis; theory vs. phenomenon; sampling strategy; number of cases; triangulated data sources; data analysis. Table 44 details the author's view of his compliance with the criteria.

Having discussed case study best-practice, the case study protocol (Yin 1994) is now developed to guide the reader in how the research was implemented to increase the reliability of the case study.

4.6 Case Study Protocol

The case study protocol contains the procedures and general rules to guide the researcher in carrying out the case study (Yin 1994). The protocol should have the following sections:

- An overview of the case study project.
- Field procedures.
- Case study questions.
- A design guide for the case study report.

Ordinarily, the protocol is written in the future tense as a how-to manual to guide the researcher and co-workers. However, the author has written it in the past tense to share with others the work undertaken so that another trained researcher may replicate the work (Perry 1998).

The overview considers: the project objectives; case study issues; a referral to pertinent sources of literature.

Field procedures are: how respondents were identified and sampling; how they were approached; how they were interviewed.

The case study questions section involves: introducing the conceptual framework and its relationship to the existing literature; relating the research questions to the conceptual framework; relating the interview questions to the research questions; and relating the propositions for replication to the research questions.

The report design guide introduces: coding and categorising, and the analysis plan; the format guide for reporting the case study findings.

4.6.1 Overview of the Case Study Project

The overview considers: the project objectives; case study issues; a referral to pertinent sources of literature.

4.6.1.1 Project Objectives

The influence of an OCT on relationship management, from the project-manager's perspective, was nominated as an area of research to address a gap in knowledge. This

research adds to the literature on relationship management by exploring the influence of an OCT on a project-team's relationships.

4.6.1.2 Delimitations of Research.

Delimitations are within the control of the author and define the boundaries of the research, while limitations are outside the control of the author (Perry 1998).

The research topic concerns the influence of an OCT on the relationships between project managers in the chosen network of a construction supply-chain. Hence, the phenomenon of relationship management is studied in the context of Melbourne-based construction supply chains and the influence of an OCT, particularly with regard to issue resolution. Further, there is a comparison between project managers from a project that had finished and one that had not.

4.6.1.3 Case Study Issues

A review of 64 papers on relationship quality (Athanasopoulou 2009) found only seven focused on the supplier, with three interviewing both the buyer and supplier, and only four studies were qualitative. Seppanen, Blomqvist and Sundqvist (2007) reviewed 15 empirical papers on inter-organisational trust. They noted: all the studies had a single key informant, presenting the problem of informant bias; empirical studies do not account well for the confusion with antecedents and consequences, as in the reciprocal loop of trust and communication; the majority of studies were in technology-intensive industries; the temporal element of trust has been given less attention. This research studied nine cases from two construction supply chains, differentiated by being completed and on-going projects. Hence, the research is qualitative and addresses the issues of informant bias and temporal element of trust.

The reader is referred to section 3.3 for a detailed introduction to the formulation of the conceptual framework, research questions and propositions, and interview questions.

Construction is the fourth largest sector in the Australian economy (ABS 2011), and OCTs are a recent, but growing service, hence, the research has the potential to generate significant theoretical and practical interest.

4.6.1.4 Literature Review

The reader is directed to chapters 2 and 3 for an in-depth study of the relevant literature. This summary presents a brief introduction to the pertinent articles as an exemplar of what should be contained in the protocol's literature review.

Research Method

Trust has been shown to be at the forefront of relationship management and deserves its prominence in research (Arnott 2007), albeit there is a lack of widely-agreed measures of trust, necessitating a call for more qualitative research (Athanasopoulou 2009; Seppanen, Blomqvist & Sundqvist 2007). Using social capital as a theoretical lens, trust, shared information, shared practices, and shared values and goals were explored to confirm their relevance to modern research thinking on relationship management, in conjunction with the topic of socialisation, otherwise referred to as personal interactions in the vernacular.

Whilst there has been plentiful IT-related research in respect to relationship management, very little has considered the influence of an OCT (Nikas & Poulymenakou 2008; Nikas, Poulymenakou & Kriaris 2007). Hence, it is proffered that there is a gap in the research in studying the consequences of using an OCT on inter-organisational relationships, from the project-manager's perspective, in the context of dispute resolution.

4.6.2   Field Procedures

This section discusses how the informants were identified, approached and interviewed.

The context of the research is relationship management between project managers in a construction supply chain. Section 3.2.1 introduced the construction supply chain of professional services firms and construction companies. Hence, target informants were the prime, construction company, project manager, and managers from the professional services firms, whose capabilities consisted of: project management, design and architecture, civil engineering, structural engineering, services engineering, quantity surveying and independent cost consultancy (Cox, Ireland & Townsend 2006).

The plan was to interview five project managers from two construction projects: one on-going and using an OCT; the other completed and had used an OCT. Stake (2006) proposes between 4 and 10 cases. Less than four cases will not show enough of the interactivity between the cases. Too many will provide more uniqueness of interactivity than the researcher or reader can come to understand. Creswell (2007) suggests four or five cases as too many cases reduces the depth of analysis in a particular case. The temporal difference was chosen to see whether it contributed anything significance to the research as it had been highlighted by Seppanen, Blomqvist and Sundqvist (2007) as lacking attention. The projects are buildings and, for confidential reasons, further information is restricted. Unfortunately, it was only possible to interview four managers from the on-going project due to a lack of volunteers. The individual interviews were supplemented with a group interview for the on-going project to determine the group's collective viewpoint. A group interview for the completed project was not undertaken as the project managers had moved on to new

projects. However, two members of the completed project were asked the group interview questions to ensure both teams had answers to all the questions.

The approach to finding a list of potential companies to aid with the research was to Google information about Melbourne-based, construction, project management companies. A list of project management companies that had recently submitted a quote for the $45M redevelopment of the Geelong Library Heritage Centre (Geelong Council 2011; Geelong Library 2011) was discovered on the internet. The list was culled to 10 companies based on their location relative to Melbourne Central Business District (CBD).

The companies were approached using an email asking for help with the research. The first email (Appendix A) was short and listed the research questions to inform interviewees of the research topic. About a week after sending the email, they were telephoned to gauge their interest. If their response was positive, an appointment was arranged to discuss the topic in detail and to clarify what was expected of them. Before attending the meeting, a second email (Appendix A) was sent giving them further information, particularly what was required with regard to their time. After a successful meeting and confirmation of their interest, an email (Appendix A) was sent that they could forward to their supply chain colleagues requesting their participation. This email contained a copy of the Plain Language Statement (PLS). The PLS acknowledges that the research has undergone an ethics approval process by the university, and informs the participant of the objectives of the research and guarantees the confidentiality of any data submitted by the participant.

Within two weeks of identifying the list of 10 companies, five managers from a construction project had been interviewed. Unfortunately, the project had just finished, and as it was Christmas it was impossible to bring the team together for a group interview post-Christmas as they had moved on to other projects. While one team was quickly recruited at the start of the process, it was a further five months before the next team was signed-on. In the intervening period, much research was conducted to identify prospects and many telephone calls made.

The participants were interviewed in their office at their earliest convenience. For each meeting a travel advisory was produced that displayed a map of their location, appointment time and travel instructions. It also included a checklist of things to take. The meeting was started by thanking the individual for their time and reminding them of the topic of the research. Before commencing with the interview questions they were asked to sign the PLS consent form. The informants were advised that the interviews were being recorded using a

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Livescribe pen. In alignment with H. Simons's (2009) democratic stance on ethics, the interviewees were assured that they would be given copies of the transcript for comment. A copy of the interviewer's notes with the attached audio was also offered.

Although it is helpful to submit the questions to participants in advance, especially if the researcher feels the participants will have little tolerance for unstructured questions (Simons, H 2009), the decision was taken not to for two reasons. First, it was decided that the subject-matter of relationships and trust was part of everyday living and did not require forethought for the interviewees to engage in discussion about the subject. The interviewees were aware of the research questions from previous correspondence, but not the interview questions. As such, even for an individual under strict time pressures, answering the questions should not prove cumbersome. Second, the purpose was to discover how their answers to the open-ended questions compared with previously reported research on trust that had used open-ended questions (Cousins & Stanwix 2001; Hawkins 2008a). The interviewees were told that their opinion was the right answer so that they did not see the interview as an examination with right or wrong answers. The interviews lasted for approximately one to one and a half hours. A similar approach was taken with the group interview, which lasted for one hour.

A few months after the interview, further pieces of evidence were to be collected from the participant by email:

- A half-page profile detailing: education and experience; major career decisions taken and why, with regard to becoming a project manager. This brief narrative of the individual is intended to set the scene and situate the individual in the research (Simons, H 2009).
- A half-page advisory to a graduate project manager on the essence of good relationship management in project management. What 3-5 things should a graduate focus on to maintain good relations with the stakeholders? This identifies the salient relationship issues the project manager determines key to successful relationship management.
- A half-page on whether their company has an ethos of relationship management, has any policies, follows a standard, etc., to correlate the project manager's views and their company's stated approach to relationship management.

However, due to experience with the completed project team, the imposition on the interviewee's time was apparent, so these requirements were changed to just collecting a verbal personal profile at the start of the interview from the on-going project team members. The completed project members presented a brief, written profile.

4.6.3 Case Study Questions

In this section the conceptual framework is presented along with its derivation from the existing literature. The conceptual framework leads to the research questions, which in turn guide the formulation of interview questions.

4.6.3.1 Conceptual Framework and Research Questions

The reader is referred to sections 3.3 to understand how, based on the conceptual framework, research questions were determined from a review of the literature to frame the study (Simons, H 2009), because questions that seek evidence provide a sharper focus that can facilitate later analysis and understanding (Simons, H 2009); theory development prior to the collection of any case study data is an essential step (Yin 1994).

4.6.3.2 Research and Interview Questions

Tables 8 and 9 relate the interview and group interview questions, respectively, to the research questions and relevant literature. During the completed project study it was deemed prudent to move the question, "Are you a naturally trusting person?" to the end of the trust-related questions as interviewees found the question confronting. Questions related to discovering a better understanding of the informant's attributional trust were added. Also, a decision was taken to use the word "issue" instead of "dispute", as dispute implies disagreement more so than issue and invokes legal connotations. In the author's experience, people are more willing to admit to project issues than disputes. It was considered that the use of the word "issue" would encourage better feedback. Plus, it was decided to enquire how the team interacted, instead of socialised, as informants needed guidance in identifying the difference between the academic term "socialising" and interacting. Hence, the completed project study proved useful in determining a better structured questionnaire.

Table 8. Interview questions

Research Question	Question Context	Interview Question & Prompts
	A brief narrative of the individual sets the scene and situates the individual in the research (Simons, H 2009).	1. Please give a brief career profile of your education and employment. Please start by introducing who you are and your role. P*rompt why*
What creates trust (interpersonal and inter-organisational), and how is trust measured?	The literature review highlights three types of trust: presumptive trust (Kramer 1999), knowledge-based trust (Lewicki & Bunker 1996; McAllister 1995), and identification-based trust (McAllister, Lewicki & Chaturvedi 2006). Burt (2005) and Cook, Hardin and Levi (2005) discuss the relational and structural embeddedness of trust. Cousins and Stanwix (2001), and Hawkins (2008a) asked an open-ended question on what trust means to participants. The participants' answers will be compared to the highlighted literature. Specific question context. 1. Explore presumptive aspects of trust. Prompt for previous experience of an OCT to establish participants' familiarity with the system. 2. With regard to a good relationship, explore participants' views. Prompt for use of trust and causes, and	1. Please describe your history of working with the other project-managers in the consortium and/or their companies? *Prompt OCT* 2. Please describe an anecdote of a good relationship management episode? *Prompt trust and causes, interpersonal, intra-organisational, inter-organisational* 3. Please describe an anecdote of a bad relationship management episode? *Prompt trust and causes, interpersonal, intra-organisational, inter-organisational* 4. Describe the level of trust between your company and other consortium

Research Question	Question Context	Interview Question & Prompts
	differences between interpersonal and intra/inter-organisational relationships. 3. With regard to a bad relationship, explore participants' views. Prompt for use of trust and causes, and differences between interpersonal and intra/inter-organisational. 4. Explore views of level of trust within consortium. Prompt for differences between interpersonal and intra/inter-organisational relationships. Explore ease of issue resolution within the consortium, and use of the change control board (CCB). Note: There are always issues between consortium members concerning cost, quality, delivery and scope. Most issues are resolved locally without recourse to the CCB. 5. Explore psychological aspects of trust (Cook, Hardin & Levi 2005). 6. Do they practise attributional trust?	companies? *Prompt interpersonal, intra-organisational, inter-organisational, issue resolution, CCB* 5. Are you a naturally trusting person? Why is that? 6. How important is it to show trust?
What is the importance of the different types of socialisation, formal and informal, to the	Socialisation has been studied extensively in buyer-supplier relationships (Cousins et al. 2006; Cousins, Lawson & Squire 2008; Cousins & Menguc 2006; Petersen et al. 2008). Cousins, Lawson and Squire (2008) define socialisation mechanisms as the means	1. By what means do you interact with other members of the supply chain? Prompt during working hours, outside working hours, office, off-site 2. How do you go about establishing a

Research Question	Question Context	Interview Question & Prompts
development of interpersonal and inter-organisational trust?	by which individuals in a buyer-supplier engagement acquire knowledge of the other enterprise's social values, and thereby establish interpersonal relationships. Informal socialisation has been suggested to be more important than formal (Cousins et al. 2006), where informal socialisation concerns interaction in a non-workplace environment. The importance of socialisation and norms, over trust, to information exchange has been noted (Denize & Young 2007; Patnayakuni, Rai & Seth 2006). Specific question context. 1. Explore the dominant modes of interaction. Prompt for participants' views on the difference between: working and leisure hours; and, office and off-site. 2. Explore how relationships are established. Prompt for participants' views on the difference between formal and informal socialisation. 3. Explore importance of establishing interpersonal relationships. Prompt for what outcomes are expected and is there a difference between interpersonal and intra/inter-organisational relationships. Where does trust feature as an expected outcome?	good, working, business relationship? *Prompt formal, informal means* 3. Why do you establish good, working, business relationships? *Prompt outcomes, interpersonal, intra-organisational, inter-organisational, trust*

Research Question	Question Context	Interview Question & Prompts
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	Having already ascertained the level of trust in the project-managers' relationships, we now proceed to explore the association between trust and behaviours. Hence, we expect a trusting relationship to exhibit greater decentralised decision-making, better communications and more collaboration. Mishra (1996), in a paper studying the relationship between trust and crisis resolution, posits three behaviours that are influenced by trust: • Decentralised decision-making: the extent to which decision-making is delegated to individuals at lower levels in an organisation. • Undistorted communications: the extent to which the person engages in undistorted, or open, communication. • Collaboration: the extent to which a party attempts to satisfy his/her own needs while satisfying another party's needs. The author's preference is to use the neutral term of "issue" as opposed to terms like dispute, conflict and crisis that have negative connotations when referring to business relationships. Hence, the researcher's	1. Please describe the issue resolution used for the project? How successful is it? *Prompt CCB* 2. With regard to issue resolution, how decentralised is the decision-making on the project? *Prompt critical issue* 3. With regard to issue resolution, how open is the communication on the project? *Prompt critical issue* 4. With regard to issue resolution, how good is the collaboration on the project? *Prompt critical issue*

Research Question	Question Context	Interview Question & Prompts
	experience is that practitioners tend to speak of issues. By using the word "issue" the hope is to empathise with the participant such that they can be funnelled (Smith & Osborn 2008) into questions regarding the use of the CCB. Earlier in the interview an interest in issue resolution and the CCB was alluded to. Now, the intention is to ask them to discuss a critical issue. Using the input from previous questions on trust, it can explored whether there is an association between trust and the three behaviours espoused by Mishra (1996). Specific question context. 1. How are issues resolved? When are issues put before the CCB? 2. Enquire about how decentralised the decision-making is, and prompt for a critical issue that warranted use of the CCB, as an example. 3. Enquire about how open the communication is, and prompt for a critical issue that warranted use of the CCB, as an example. 4. Enquire about how good the collaboration is, and prompt for a critical issue that warranted use of the CCB, as an example.	

Research Question	Question Context	Interview Question & Prompts
How does an OCT change the project-manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	The introduction of an OCT requires a change in practices by team-members, especially for the project-manager who is no longer the hub of information flows, with the benefits being fewer meetings and less time resolving disputes (Nikas & Poulymenakou 2008). Specific question context. 1. Participant briefly explains use of the OCT. Prompt for its usefulness in issue resolution. 2. How have his/her work practices changed due to the OCT? Prompt for specific changes with regard to issue resolution, socialisation, and interpersonal and intra/inter-organisational trust.	1. Please describe your use of the the OCT? *Prompt issue resolution* 2. How has the OCT affected your work practices and responsibilities?* *Prompt issue resolution, socialisation, trust, interpersonal, intra-organisational, inter-organisational*
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	Improvements in communication, standardisation of communication, and cost reduction are the drivers for adoption of such tools as an OCT (Nikas, Poulymenakou & Kriaris 2007). Specific question context. Funnelled from the previous questions regarding the use of an OCT and changes in work practices, ask participants to consider the specific context of issue resolution with regard to:	1. How has the OCT affected project decision-making? *Prompt decentralised* 2. How has the OCT affected project communications? *Prompt open* 3. How has the OCT affected project collaboration?

Research Question	Question Context	Interview Question & Prompts
	1. Project decision-making. Prompt for influence on decentralisation. 2. Project communications. Prompt for influence on openness of communications. 3. Project collaboration.	

Group Interview Questions

The purpose of the group interview (table 9) is to understand the consensus of opinion within the team. Due to a time constraint of one hour, only three of the five research questions were explored. For the sake of completeness, the research questions that were not covered are still listed.

Table 9. Group Interview Questions

Research Question	Question Context	Group Interview Question & Prompts
What creates trust (interpersonal and inter-organisational), and how is trust measured?	Specific question context. 1. Prompt for the differences between interpersonal and intra/inter-organisational trust.	1. What is trust? *Prompt interpersonal, intra-organisational, inter-organisational*
What is the importance of the different types of	N/A due to time constraint	N/A due to time constraint

Research Question	Question Context	Group Interview Question & Prompts
socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?		
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	Instead of asking the same questions regarding decentralised decision-making, open communications and collaboration (Mishra 1996) as were posed in the interviews, they have been changed for the group interview to reflect the essence of knowledge and identification-based aspects of trust (Lewicki & Bunker 1996; McAllister 1995; McAllister, Lewicki & Chaturvedi 2006). They have in common an association between behaviour and trust. The purpose is to engage the participants in discussing the causation of behaviours and trust, without using the same language, as repetition of the interview questions may hinder interest and engagement. Specific question context. With regard to questions 1-4 prompt for the differences	1. What is good information-sharing? *Prompt interpersonal, intra-organisational, inter-organisational* 2. What is good co-operation? *Prompt interpersonal, intra-organisational, inter-organisational* 3. To what extent do you have shared objectives? *Prompt interpersonal, intra-organisational, inter-organisational* 4. To what extent is there a shared culture? *Prompt interpersonal, intra-organisational, inter-organisational* 5. What is effective issue resolution?

Research Question	Question Context	Group Interview Question & Prompts
	between interpersonal and intra/inter-organisational evaluations.	
How does an OCT change the project-manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	Specific question context. 1. How does an OCT change how issues are resolved? 2. Prompt for whether the OCT increases/decreases socialisation. Is it easier to establish trust? Does the type of relationship matter? 3. Prompt for work practices and responsibilities change. Does the type of relationship matter? 4. What has the OCT influenced the most in respect to your role?	1. How has the OCT changed the way you resolve issues? 2. How has the OCT changed your relationship management practices? *Prompt socialisation, trust, interpersonal, intra-organisational, inter-organisational* 3. How has the OCT changed your business management? *Prompt work practices, responsibilities, interpersonal, intra-organisational, inter-organisational* 4. Overall, what has been the major influence of the OCT?
What is the influence of an OCT on decentralised decision-making, open communications	N/A due to time constraint	N/A due to time constraint

Research Question	Question Context	Group Interview Question & Prompts
and collaboration in issue resolution?		

4.6.4   Report Design Guide

This section introduces: the approach to coding and categorising the data; the plan for analysing the data; the format guide for reporting the case study findings.

4.6.4.1   Coding and Categorising

Coding and categorising are two processes adopted in analysing to make sense of the data (Simons, H 2009). Creswell (2007) recommends no more than 25-30 codes, which may be developed into five to six conclusions that form the case study narrative. The conclusions are detailed in section 4.4. In accordance with the existence of a conceptual framework, the codes have been precoded (Simons, H 2009). Whilst it may transpire during analysis that other codes are apparent, H. Simons (2009) cautions against introducing them midstream as this may cause you to lose part of the analysis and waste time.

Using the conceptual framework as a base, the following codes were developed for analysing the data. The process started with identifying high-level categories that were broken down into sub-levels to identify the component codes. The high-level categories were: networking; socialisation; trust; co-operation; issue resolution behaviours; alternatives to trust. They were chosen for being representative of the literature used to concoct the conceptual framework. The sections concerned with shared information and, shared values and goals, have not been referenced, as codes formulated from other sections were considered satisfactory: communications and shared values/goals coded from the trust literature.

4.6.4.1.1 Networking

Successful relationship managers have social competence, network knowledge, and a portfolio of good personal relationships (Walter 1999). Social competence includes communications skills, conflict management, empathy, flexibility and adaptability. Network knowledge involves knowledge of actors' goals, expectations, behaviours and their relationships with third-parties. An OCT is a catalyst for networking, with the capability of ensuring closure and, by identifying who has what information, mediating brokerage opportunities (Burt 2005). Social competence is coded by sociable. Networker represents network relationships and knowledge.

> (1) sociable, (2) networker, (3) broker,

4.6.4.1.2 Socialisation

How social capital develops through interactions is referred to as socialisation, which has been studied extensively in buyer-supplier relationships (Cousins et al. 2006; Cousins, Lawson & Squire 2008; Cousins & Menguc 2006; Petersen et al. 2008). Formal and informal

socialisation mechanisms are acknowledged, where informal socialisation is differentiated, as suggested by Cousins et al. (2006), as interactions in a non-workplace environment, or 'off-site'. Formal socialisation was coded as meetings to reflect formal meetings on-site during working hours. Informal socialisation was coded as socialising to identify informal meetings as off-site and out of working hours.

      (4) meetings, (5) socialising,

4.6.4.1.3 Trust

The integrated trust model (fig. 7) presents cognitive, emotional and attributional aspects of trust. The model assumes that generalised trust is the summation of all facets of a relationship (Lewicki & Bunker 1996), where a facet is a situation of trust (Cook, Hardin & Levi 2005). Generalised trust represents a rational-choice approach to trust development, whereby trust builds slowly and repeated, successful, on-going interactions allow the parties to increase the stakes with greater confidence

Prior to the relationship commencing, an evaluation of presumptive trust (Kramer 1999) is undertaken to determine whether the relationship should commence. As the relationship progresses and interactions accumulate, knowledge-based trust (Lewicki & Bunker 1996) forms from consistent behaviour. Eventually, the relationship may elevate to one of identification-based trust (Lewicki & Bunker 1996) consisting of shared values and goals. Underpinning the development of trust is open and honest information-sharing (Mishra 1996). The potential for the irrational impact of emotion, on the cognitive process of trust formation, is signified at all stages of trust's evolution (Jones, GR & George 1998). In the attributional model individuals attempt to influence others' attributions of their actions. In essence, by showing another trust we hope to be judged trustworthy (Murnighan, Malhotra & Weber 2004).

Presumptive trust consists of: psychological predisposition to trust of the truster, and the disposition of trust attributed to the trustee by the truster (Kramer 1999, 2009). Knowledge-based trust involves regular communication to exchange information about wants, preferences, and approaches to problem-solving, to establish behavioural consistency (Lewicki & Bunker 1996). With regard to Mishra, and Mayer, Davis and Schoorman, knowledge-based trust contains elements of ability (competent to perform the task), communication and integrity (agreement on a set of principles). Identification-based trust, shared values and goals, involves knowing and predicting the other's needs, choices, and preferences and identifying with them as one's own (Lewicki & Bunker 1996). Benevolence,

doing good for another, is incorporated into identification-based trust as it involves identifying with another's needs as your own. Hence, the following codes were adopted:

> (6) rational-choice, (7) predisposition, (8) disposition, (9) ability, (10) communication, (11) integrity, (12) shared values/goals, (13) benevolence, (14) emotion, (15) attributional,

4.6.4.1.4 Co-operation

Shared practices are essentially co-operation and adaptation, and in a relationship both firms make specific adaptations to an extent. The B2B-RELPERF relationship performance scale exemplifies the importance of shared practices by including two measures related to it: relationship policies and practices, defined as common beliefs about what behaviours and policies are important, appropriate and right, and mutual cooperation (Lages, Lancastre & Lages 2008). Relational governance involves communication, coordination and consensus (Wüllenweber et al. 2008). Kothandaraman and Wilson (2000) discussed the importance of the attitudes of relationship managers in their Alignment with Relationship Paradigm (ARP) model that calls for a strong attitude toward cooperation, trust and interdependence in business relationships. Hence, consensus represents common beliefs about behaviours and policies, while cooperation represents the joint action of shared practices, coordination, adaptation and interdependence. Communication has already been coded as number 10.

> (16) consensus, (17) cooperation,

4.6.4.1.5 Issue Resolution Behaviours

Mishra (1996) posits three behaviours, which could be considered norms important to the relationship (Denize & Young 2007), that are influenced by trust:

- Decentralised decision-making: the extent to which decision-making is delegated to individuals at lower levels in an organisation.
- Undistorted communications: the extent to which the person engages in undistorted, or open, communication. Covered by (9).
- Collaboration: the extent to which a party attempts to satisfy his/her own needs while satisfying another party's needs. Covered by (16)

Communication has already been coded, 10. Collaboration is subsumed by the code, cooperation, 17.

> (18) decentralised,

4.6.4.1.6 Alternatives to Trust

Trust has its alternatives in protecting a company against opportunism (Alvarez, Barney & Bosse 2003). These alternatives are bargaining power, contract and reputation. As a project-wide system, lack of adherence to use of the OCT will be visible to all stakeholders,

affecting one's reputation (Burt 2005; Cook, Hardin & Levi 2005). Although trust has been considered in-depth in relation to the integrated trust model, a code called "trust" has been included to capture general references to trust where the type or context of trust is not clear.

(19) power, (20) contract, (21) reputation, (22) trust.

The resulting 22 codes were used to examine the data using the analysis plan presented next.

4.6.4.2   Analysis Plan

The analysis consisted of two stages: single case and multi-case. A single case is an informant, and a multi-case is a number of cases less than nine, and is dependent upon the chosen nesting and layering of cases (Patton 2002).

For the single cases, the answers to the questions were analysed to identify which codes were applicable to each answer. The approach was to get a physical feel for the data by coding manually (Patton 2002), before using Leximancer software to identify any nuances not captured by the manual analysis. To make sense of the data and reduce the reliance on the reader to synthesise numerous quotes (Miles & Huberman 1984), the data were scored to portray the interviewees compliance with the propositions using a simple scale: comply=2, partial compliance=1, non-comply=0. The findings were related to the research questions and propositions to identify conclusions (Stake 2006), which are then detailed in the "Analysis Conclusions" section of each case. The identified conclusions are related to the themes of: trust and personality; being sociable and socialising; trust factors; trust and working together; impact of the OCT. In single case study the focus in on generating findings and conclusions particular to the case; the multi-case study is concerned with generalisations (Stake 2006).

The multi-case study was analysed using the cross-case procedure developed by Stake (2006). The process is as follows:

1. Determine the merged findings and relate them to the research questions and cases. Note the special findings that occur in one or few cases. Findings from each case should not exceed ten (Stake 2006).
2. Use the merged findings to compose conclusions. One to two conclusions per research question is ideal; too many would diminish the importance of individual conclusions, and be too many to discuss in the final report (Stake 2006).

Hence, the individual cases are presented in chapters 5 and 6, with the merged findings elicited in Chapter 7. Finally, the multi-case study conclusions are detailed in section 7.5.

4.6.4.3 Report Format Guide

There are two formats, single and multi-case. Creswell discusses the split between description, analysis and interpretation in a case, but offers no conclusive rule other than noting it is up to the writer to decide. However, the implication is that there should be some description of the case and its context amounting to at least a third of the report (Creswell 2007). Hence, the responses to the interview questions section are the major component of an individual case study, with the intention of giving the reader enough information to draw their own conclusions.

The structure of each single case study is:

- Brief project summary.
- Highlight the interviewee's company's relationship management ethos determined by studying the company's website.
- Introduce the interviewee.
- Summarise the interviewee's answers to the research questions.
- Coded tabular view of answers.
- Leximancer analysis to identify new themes.
- Propositions compliance
- Case analysis conclusions.

The structure of the multi-case study is:

- Determine merged findings.
- Conclusions drawn from multi-case study.

4.7 Summary

This chapter has determined multi-case study to be apt for answering the research questions. The salient issues of unit of analysis, evidence, validation, ethics, reflexivity and generalisation were studied, and rules for best-practice were formulated to guide the case description, analysis and interpretation. The case study protocol was developed to explain the rationale and method of research, and increase the reliability of the research (Yin 1994). The next three chapters discuss the findings from the research.

5 Analysis of Completed Project Case Studies

This section details the individual case studies from the completed project. Both teams used the Aconex OCT service. Aconex is a Melbourne-based supplier of OCT for construction and engineering projects. A case study is about the lived experience (Simons, H 2009); therefore, this chapter departs from the established convention of referring to the tool, OCT, instead of the product, Aconex, to acknowledge the language of the interviewees.

The construction supply chain and the roles of the various actors are explained in section 3.2.1.

It was not possible to arrange a group interview with the completed project team as they had moved on to other projects, so two members, Richard (CS4) and John (CS5), were asked the group interview questions to ensure both teams had answers to all the questions.

The project was a $20.5M construction of a coastal council's new office and associated roadways, landscaping and wetland construction. The interviewees consisted of:

- Mark (CS1), Builder's Building Coordinator
- Derek (CS2), Builder's Project Manager
- Roger (CS3), Project Architect
- Richard (CS4), Engineering Consultant
- John (CS5), Client's Project Manager

5.1 Completed Project Case 1 - Mark (CS1)

5.1.1 Company Relationship Management Ethos

The company is an established construction company that espouses collaboration and honesty, and values a partnership approach and a good reputation. They see themselves as a model corporate citizen and allow their staff to take two days paid leave to undertake charity work.

The interviewee was located in a small office in a regional town. It would be described as non-descript; one would not be compelled to tell one's friends about it. The other members of the completed project study were situated in modern offices in Melbourne; the differences between those offices and this one were palpable. The room they were based in was too large for three people, but it was good to see that they had not spread their desks out to take advantage of the space.

5.1.2   Personal profile

For the completed project study, interviewees provided a written statement of themselves. The written profile is produced verbatim with changes, if necessary, made to hide the identity of the interviewee. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Growing up I always had an interest in architecture/buildings. One of my favourite hobbies was drawing as a youngster, so as you can imagine the "dream home" featured prominently among those drawings. This interest stayed with me throughout my early education until deciding upon Architecture as a University course.

Two years into the course however, I found myself losing that feeling of enjoyment and becoming more and more frustrated with the mind-set that the lecturers seemed to have and tried to instil into the students. There was more of a philosophical basis to design that I wasn't previously aware of, nor was I interested in. My designs were being rejected on the basis that they were too "pragmatic" and too "buildable"… Basically they weren't 'out there' or crazy enough. That feeling of rejection aside, I agree in that I was basing my work on what I believed was realistic, functional and buildable, rather than trying to push the boundaries. It was at this point that I realised my creative mind wasn't as creative as I thought it was, and that I had more of the logical, analytical and objective way of thinking. I lacked the pure creativity and innovative way of thinking that was required.

As a result I decided to take the option of the double degree and added another course to my curriculum – Construction Management. I found that I enjoyed construction management more-so than the Architecture classes, as with construction management you can get to a point where you know you have a right or wrong answer, whereas with architecture there is always the frustration of your work being subject to opinion and personal bias. I graduated in 2010 (with Honours) from the Bachelor of Design/Bachelor of Construction management double degree, however decided that my career path was is Construction Management. During my final year of university I started the search for Graduate employment opportunities with some of the larger commercial builders in Victoria, and after having numerous interviews and multiple job offers I took the job offer with the company I currently work for, a decision which was based on the calibre of the people I met and now work with, and the knowledge that there are considerable opportunities in front of me for career advancement.

My experience is fairly minimal (I have only worked full time in the industry for around 18 months), however I've learnt that in this industry (which is becoming more and more

competitive) maintaining good relationships is crucial as reputations can make or break a construction company. I believe that being friendly, upfront and open with clients/consultants helps create a better team working environment. When working with people who are difficult and have no interest in helping, it has a flow on effect to not only the relationships but to the project itself.

5.1.3 Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 10). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 10. Mark's (CS1) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
Mark considers himself a naturally trusting person who initially bases trust on first impressions. He attributed this willingness to trust to his family upbringing. He was very concerned for me to note that this was his first job and that he had limited experience, and had no prior experience of the other supply chain companies.	7, 8
A good relationship is characterised by cooperation in solving issues. There are numerous issues on a construction project with some being caused by oversight. It is cooperation on the missed issues that sets apart the good relationships. Trust makes cooperation better, and the conduct of business is easier with "less headaches".	9, 14, 17, 22
The construction sector is "us and them", so there is more trust within organisations that Mark attributes to greater involvement and interaction with internal colleagues.	4, 6, 19
A bad relationship is caused by people jumping to conclusions without clarifying the situation. The problem of not conducting due diligence is more prevalent with sub-contractors than the consultants.	7, 10
The level of trust between the supply chain members was considered good due to cooperative issue resolution based on open communications. The issue resolution involves a contractor raising an issue with the consultants, with the client's project manager taking a decision based on advice from the consultants. There had been blowouts and finger-pointing, but overall it was a good relationship, "no-one wants to be seen as the person responsible".	10, 15, 17, 21
What is the importance of the different types of socialisation, formal and	

Research Question	Codes
informal, to the development of interpersonal and inter-organisational trust?	
Mark establishes interpersonal relationships as a norm of doing business, with the probability of formation based on frequency of interaction (meetings, telephone calls). The preference is for face-to-face meetings. However, socialising with colleagues from other companies is not the norm, although socialising within the company, particularly with his two office colleagues, does occur.	4, 5, 6
An interpersonal, working relationship is defined by Mark as the ability to have a chat. The simple reason for getting on with people is that bad relationships make you unhappy. It is better to get on with people, so "treat people as you would like to be treated". It depends on the personality of the individual; with some people it is always business and no concern for the feelings of others.	1, 14
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Issues are mostly dealt with by the team on an ad-hoc basis, although the client and client's project manager meet to resolve major changes.	4
Decentralised decision-making: Mark considers that the project has decentralised decision-making with the most able people being involved in resolving issues. Mark's company, the constructor, is involved in the decision-making except where they have no expertise.	9, 18
Open communications: There is an expectation that people will be open and honest to get things done, but there are some things that are not said because it is not in the company's interests.	10, 19
Cooperation: The cooperation has generally been good, but the constructor did not get it all their own way as the consultants have been uncooperative on some issues. It is accepted that there will be the odd disagreement, and these disagreements do not overly affect good relationships. The best outcome for the customer has been the prime concern of the team as it pays "not to burn your bridges".	6, 15, 17, 21
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Mark uses the OCT every day for correspondence, particularly the system's capability to provide an audit trail of who did what. He described it as the "post office" of correspondence concerned with issues, advisory notices, project	10

Research Question	Codes
manager instructions, claims progress, variation correspondence and tax invoices. At the start of the project the consultants were slow to respond in using the OCT, with telephone calls being needed for confirmation. Mark thinks mature professionals, more set in their ways, have more issues with an OCT than young people. (The customer decided to use an OCT two months into the project.)	9, 10, 16, 17
Without an OCT, Mark believes everything would take a lot longer. In fact, he thinks it would be a good idea to include sub-contractors on the OCT. The constructor manages sub-contractors using their own system.	10
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Decision-making is more efficient, and there is an easier trace of the audit trail to determine which decisions led to which actions. It is possible to identify who did not do as they were supposed; however, lack of inaction does not affect trust, it just creates frustration, provided it does not happen all the time: this would make you question their competency.	9, 11, 15, 18, 19, 20, 22
Open communications: Successful communications is dependent on people properly using the system. Some team members had difficulties using Aconex.	9, 10, 16
Cooperation: Marks thinks that the cooperation has been better; an OCT is better than email, makes it easier to trace documents and improves communication.	10, 17

5.1.4 Code Frequencies

To form a viewpoint on the salient issues of relationship management from Mark's perspective, those codes mentioned more than once are ranked from high to low frequency (table 11).

Table 11. Mark's (CS1) Code Frequency

Code	Frequency
Communication	8
Ability	5
Cooperation	5
Attributional	3
Meetings	3
Power	3
Rationale-choice	3
Consensus	2
Decentralised	2

Code	Frequency
Emotion	2
Predisposition	2
Reputation	2
Trust	2

Hence, Mark's answers show a preference for communication, cooperation and ability as values worthy of study when discussing relationships. There is some acknowledgement of a rational-choice approach to trust based on repeated interactions, which is dependent on the individual's personality, or predisposition to trust. With regard to issues, Mark has a propensity to forgive (attributional trust), as conflict does not affect the fundamentals of the relationship provided it does not keep happening. Mark has a limited use of the intangible word "trust" and a preference for tangible signals (communication, cooperation, ability).

5.1.5   Leximancer Analysis

A Leximancer analysis of Mark's responses was undertaken to identify any nuances not captured by the manual analysis.

Mark has a propensity to "suppose" an answer. It is as though he is leaving the door open for a reply or a discussion, or maybe because he is admitting he is not a 100% sure about the answer. There were 31 hits for suppose. It is probably the latter as there were 15 hits for "obviously". However, whatever the reason, it exhibits sociable behaviour by entertaining the possibility of a better answer; in effect, it demonstrates empathy. Hence, Leximancer discovered a behaviour not identified by the manual analysis.

The top three themes identified by Leximancer were Aconex, project and work: representative of the areas of discussion and very focused on the project, team, work and time. The fourth theme was "people" highlighting concepts of people and relationships. Hence, Leximancer confirmed Mark's interest in tangible measures. All of these themes scored greater than 40% relevance.

5.1.6   Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 12). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

Analysis of Completed Project Case Studies

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Comply) and issue resolution behaviours (4, Comply).

Table 12. Mark's (CS1) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Mark believes a good relationship is characterised by cooperation, based on open communications, in solving issues, with trust making cooperation easier. The two individuals in the completed project study who were asked to identify trust, Roger and John, talked about open communication and meeting expectations, as did the group interview attendees. Therefore, it is ascertained that Mark judges relationships using a simple multidimensional construct: cooperation and open communications. Items that have been established by research as components of trust.
2. Informal socialisation is more important than formal socialisation.	Comply Mark acknowledged the importance of being sociable and establishing business relationships. Project meetings take place at the building-site. However, informal socialising at social events is not done with external stakeholders. Therefore, while it is true to say that informal socialisation is more important than formal socialisation; it is as a result of the working-place always being off-site, where Mark and the stakeholders have to attend to do their job.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and	Comply Mark stated that there is trust between the shareholders resulting in cooperative issue resolution, based on open communications

Proposition	Compliance
collaboration.	and decentralised decision-making.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Comply Mark thinks that the OCT, due to its document storage and retrieval capability, has improved decision-making, communications and cooperation. However, it should be remembered that this is Mark's first project.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply An OCT allows Mark to identify who did not do what they were supposed to do.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance Although this is Mark's first project, he indicated that he thought an OCT is better than using email for communicating and tracing documents. However, he cautioned that some stakeholders had issues using the OCT.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Mark's positive viewpoint of Aconex with regard to improved communications and cooperation, elements of trust, would indicate compliance. However, while the level of trust between the stakeholders has been stated as good, it is impossible to ascertain from Mark's answers how much this has been facilitated by Aconex.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Unknown It is impossible to ascertain from Mark's answers whether he believes there is greater socialisation, due to the presence of Aconex, as this was his first project. He has no prior experience of a project where Aconex was not used.

5.1.7 Analysis Conclusions

With Mark, first impressions are important as they set the tone of the relationship and whether it develops into something more sociable. He has a preference for getting-on with people as not getting-on makes him unhappy, and believes in treating people as you yourself would wish to be treated. Hence, it is not surprising to see him diligently placing emphasis on "suppose". Whether a business relationship becomes sociable is dependent upon the other person's personality, their desire to be sociable in return, and the frequency of engagement. He sees a distinct difference between being sociable, passing the time of day, and socialising outside working-hours in a pub, for example. The latter is something undertaken with the two colleagues in the office but not considered with colleagues from other companies.

While trust makes cooperation better, his attention is on the quality of communications and cooperation, rather than trust. It is important to be "open and honest" provided it is within the bounds of company confidentiality. Yet, he is rather forgiving of mistakes. There have been issues on the project that have resulted in finger-pointing and the blame-game, but within in the industry this is accepted as the norm and does not overly affect a relationship where goodwill has already been established. His concern is not to "burn bridges" with the customer due to the negative impact on his and the company's reputation.

The decentralised decision-making, open communications and collaboration on the project was good. Mark considers Aconex to be better than the previous method of using email to communicate with consultants as it helps to make things happen faster. The contractor has their own system for communicating with sub-contractors; Mark would be happy to see them on Aconex as it obviates the need to transfer documentation between Aconex and the in-house system. Aconex allows more efficient searching of documentation and provides an audit trail of who has, or has not, done something. However, for the system to be successful, people have to be trained to use the system. Initially, there were issues for some of the consultants which Mark put down to their age making them less tech-savvy.

5.2   Completed Project Case 2 - Derek (CS2)

5.2.1   Company Relationship Management Ethos

The company is an established construction company that espouses collaboration and honesty, and values a partnership approach and a good reputation. They see themselves as a model corporate citizen and allow their staff to take two days paid leave to undertake charity work.

The interviewee was located in a small office in a regional town. I would describe it as non-descript; one would not be compelled to tell one's friends about it. The other members of the completed project study were situated in modern offices in Melbourne; the differences between those offices and this one were palpable. In fact, I had to seek directions from a local to find this office, unlike with the others. The room they were based in was too large for three people, but it was good to see that they had not spread their desks out to take advantage of the space.

5.2.2   Personal Profile

For the completed project study, interviewees provided a written statement of themselves. The written profile is produced verbatim with changes, if necessary, made to hide the identity of the interviewee. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

I completed my Honours degree in Construction Management from Deakin University in 2000 and started part time work with Quantity Surveying firm, Bradford, during my final year to gain work experience. I transitioned into full time work with Bradford late 2000 and worked for 3.5 years as a QS (quantity surveyor). Most of this work revolved around preparing Cost Plans, measuring Bills of Quantities and assessing Progress Claims for various projects where we fulfilled the cost consultant's role. I moved from Bradford to another QS firm in 2003 and worked a further 1.5 years preparing capital allowance schedules (tax depreciation). Tiring of this I travelled for a year. Living in the UK for a time short time I worked for Tranmere as a client side Project Manager. We represented BigOil and managed the construction of a number of service stations through the country under BigOil's capital expenditure program. I returned to Australia in 2006 and was employed by Everton Construction. Having started as a Project Administrator I have worked on the Manchester ($23m), Benfica ($53m), Madrid ($24m), Bayern ($24m) and Watford ($28m) construction projects over the years with varying levels of responsibility.

Analysis of Completed Project Case Studies

5.2.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 13). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 13. Derek's (CS2) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
Derek considers he is a naturally trusting person outside work, but is sceptical about relying on people "when working in the building industry". However, he conceded that he does develop trusting relationships at work, albeit "you should be able to remove trust from the equation and just use the contract" to "rely on others to do their work".	6, 7, 9, 20, 22
Derek has no prior experience working with the consultants or their companies.	
A good relationship has many issues and is characterised by trust as in "being able to rely on somebody to do what they said", and "putting something in someone else's hands". Trust equals reliability, and allows open and honest communication between the parties. However, you need to be guarded and not "put all the cards on the table". Trust develops over time and "makes you feel more comfortable and more relaxed". You need time to assess the trust in a relationship, and it is not affected by on-going ups and downs.	6, 9, 10, 11, 14, 15, 19
A bad relationship is associated with "frustration, stress, annoyance…" and it's something "you take home" that "wakes you up at 3.00AM". They are like "a dog with a bone" and do not show flexibility.	14, 17
Derek would carry over the feelings of a good relationship with an individual to an expectation with others in the same company. However, that does not mean that he would automatically trust: trust needs time to develop.	6, 8, 14, 22
Derek considers the level of trust between his company (the builder) and the consultants to be moderate, although this does not apply to the client's project manager. His feeling is that the client's project manager may use information to make the builder look bad, thereby making himself appear good, so "we are very cautious about what we say and how we behave around him". Hence, he tries to solve issues with the other consultants without involving John (client's project manager).	9, 10, 11, 19, 22
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	

Research Question	Codes
Derek and his colleagues (2) within the office socialise, for example, play golf. Socialising with the client or consultants is not done except for an end of project dinner. Socialising with company colleagues is attributed to "working with the same guys", unlike the sub-contractors who are continually changing. There are also the issues of age and location: are their interests similar and is travelling doable? With third-parties it is about being "firm but fair" and letting a sociable relationship happen; this would entail chit-chat enquiring about "their plans for the weekend", for example. Derek considers the project a good example of how the consultants have become "mates". Whether a sociable relationship develops is dependent on the other's personality and time. The benefit of becoming "mates" is that it "makes our lives easy".	1, 4, 5, 6, 11
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
"There are always thousands of issues" and Aconex is used to communicate with the consultant team. A Request for Information (RFI) from the builder results in an Architect's Advice (AA) from the architect via the client's project manager in the form of a Project Manager Instruction (PMI). Ninety-nine times out of a hundred, the project manager passes through the AA to the builder as there are no time or cost concerns. A lot of RFIs were generated due to the quality of the design stage (If enough time and effort is not put into the design stage, the builder has to issue RFIs to get answers that are not in the drawings or specifications). Because the number of RFIs became onerous for the architect to administer, the consultant team copied in the builder on their responses so that they were not waiting for formal approval from the client's project manager.	9, 10, 13, 16, 17, 19
The customer requested Aconex be used so that they could have an "un-editable document retention system". Most sub-contractors were not "technical" enough to use Aconex; hence they were managed using the builder's internal system. Therefore, instructions from Aconex had to be transferred to the proprietary system for onward transmittal to a sub-contractor using a pdf file attached to an email.	
Decentralised decision-making: Derek considers the decision-making to be decentralised as they are allowed to identify solutions to the issues to expedite a resolution, although they have to wait for formal approval from the client's project manager to proceed. The formal approval, "the piece of paper", could arrive three days after the informal answer due to the sign-off process using Aconex.	9, 10, 18
Open communications: The communication is "pretty open" with the builder talking	10, 17

Research Question	Codes
to the client or consultants about issues, whether they be procurement or design related. Derek would "make it as open as necessary" to get the issue collaboratively resolved.	
Cooperation: Collaborating and agreeing responses are "time consuming" but "generally good natured".	1, 10, 17
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Derek uses Aconex to manage the project by monitoring project documentation, including variations, progress claims, extensions of time and general correspondence. Aconex makes his job "faster" as it is easier to communicate with the consultants. It also makes it obvious that someone is not doing their job as it is a very good tool for exception reporting to "get the actions and responses we want". However, this does not affect the general level of the relationship as "it's the nature of the industry and the people in the industry" for 'things to drag out'.	9, 10, 15, 16, 20, 21
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Decision-making has not improved; it has just become faster with Aconex relative to using another tool such as email, which means it is less frustrating. Derek gave the example of a consultant asking for a photograph in response to a RFI; he "can interact with the consultants almost in real-time" making decision-making faster.	10, 14, 18
Open communications: Open communications is easier with Aconex as copying somebody in is a pull-down menu. However, over-use of this facility can result in information overload for some. Derek's example was the carpet layer ending up with 400 drawings instead of 15. Hence, Aconex could increase disputes and conflict between the builder and its sub-contractors, which is the feedback Derek has had from other builders. Generally, with Aconex, there is less interaction face-to-face due to greater reliance on stakeholders having access to the documentation.	1, 4, 10, 11
Collaboration: Project collaboration has improved because the latest revision of a document or drawing is obvious on Aconex, making information retrieval a lot easier, thus facilitating collaboration. Previously, the distribution was manual, either physically or via email, allowing room for error and an increased possibility of	9, 10, 17

Research Question	Codes
stakeholders working from different document versions. With Aconex, the drawing is transmitted to the same server from which all stakeholders seek access, ensuring all have the same revision.	

5.2.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from Derek's perspective, those codes mentioned more than once are ranked from high to low frequency (table 14).

Table 14. Derek's (CS2) Code Frequency

Code	Frequency
Communications	9
Ability	6
Cooperation	5
Emotion	4
Integrity	4
Rationale-choice	4
Power	3
Sociable	3
Trust	3
Attributional	2
Consensus	2
Contract	2
Decentralised	2
Meetings	2

Derek's responses indicate a preference for communications to feed cooperation that gets the job done, while acknowledging the importance of softer issues to the relationship: expressing emotion, being sociable and trusting, and integrity. The importance of time (rationale-choice) to establish a good relationship is noted, as well as the need to forgive (attributional) for the sake of maintenance of the relationship.

5.2.5   Leximancer Analysis

A Leximancer analysis of Derek's responses was undertaken to identify any nuances not captured by the manual analysis.

Derek has a propensity to "suppose" an answer (30 hits). There were 23 hits for "obviously". It is thought that he is exhibiting sociable behaviour by entertaining the possibility of a better answer; in effect, it demonstrates empathy. The top three themes identified by Aconex were manager, suppose and Aconex. The theme "suppose" highlighted concepts of suppose, work, trust, relationship and person, confirming the identified interest in the relationship and softer issues. All of these themes scored greater than 40% relevance.

5.2.6   Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 15). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Comply) and socialisation (8, Non-comply), see table 16.

Table 15. Derek's (CS2) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Although asked what a good relationship was, Derek replied that it consisted of trust based on open communications and reliability (meeting expectations).
2. Informal socialisation is more important than formal socialisation.	Comply Derek appreciates the importance of socialising and becoming mates to make life easier. However, while he informally socialises at project meetings, attending a social event with stakeholders is not done except for the end of project dinner.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and	Comply The level of trust between Derek and the other consultants is moderate, except for the client's project manager, of whom he is

Proposition	Compliance
collaboration.	weary. Yet, the decentralised decision-making, communications and cooperation are considered good.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partial compliance With Aconex, relative to email, Derek considers: the decision-making to be faster but not better; communicating is easier but it can cause information overload; collaboration is better because you can be assured that everybody is working to the latest version of documentation.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply Derek thinks Aconex is a good tool for identifying who is not doing their job as it has very good exception reporting.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance Derek finds it easier to communicate with the consultants using Aconex, making his job easier. He also thinks there is less face-to-face interaction with Aconex. However, he cautions that Aconex has the potential to cause disputes if it used freely, by causing information overload.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Although not explicitly stated, Derek's answers imply that there will be greater trust due to better communicating with Aconex, provided there is no information overload. Communicating is a dimension of trust to Derek.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply Derek believes that using Aconex results in fewer meetings.

5.2.7 Analysis Conclusions

Derek considers he is a naturally trusting person, but labours the distinction between his personal and work life. He attributes the difference to working in the construction industry, which has made him sceptical about trusting others, although he does so in practice. In fact, he questions the necessity for trust when there is a contract. It is as though he finds it uncomfortable to rely on trust, and is really relying on the contract. Yet, at the same time, he acknowledges the importance of being sociable with stakeholders to make life easy, with the establishment of a good relationship dependent on the personality and desire of another, and on-going behaviour that is considered firm but fair by both parties. However, while he is happy to socialise (e.g., play golf) with office colleagues, he has no desire to socialise with other stakeholders other than attend the usual meetings.

Derek's view of a good relationship is being able to rely on, or trust, another to do what they said; in effect, make one vulnerable. The outcome is open and honest communications that makes you feel comfortable and relaxed, albeit one needs to be guarded about some things that should remain commercial-in-confidence. Trust needs time to develop, but once established it is not affected by ups and downs in the relationship. Conversely, a bad relationship is caused by lack of flexibility by others and results in stress and frustration. Positive feelings about an individual would be carried over by Derek to others in that company, but not trust as trust is about individuals and needs time to develop through on-going interactions.

The decentralised decision-making, open communications and collaboration on the project was good, with Aconex making communicating faster. Collaboration has especially improved with the use of Aconex, not just due to the faster retrieval of information but the surety of it being the current document/drawing revision. Although Aconex offers the ability to determine who is not doing their job, Derek does not use this to change his opinion of a person as it's the nature of the industry for things to drag out. However, he does have one major concern about Aconex: the ease with which information may be copied to others could result in information overload leading to disputes and conflict. Derek tries to keep solutions to issues off the record to reduce John's (CS5) ammunition.

5.3   Completed Project Case 3 - Roger (CS3)

5.3.1   Company Relationship Management Ethos

At the time of seeking information from the company's website the author was unable to click-through on any links. Hence, a view could not be formed on the company's relationship management ethos as they wish it to be projected. As Roger was subsequently retrenched by the company, it was determined inappropriate to approach them.

5.3.2   Personal profile

For the completed project study, interviewees provided a written statement of themselves. The written profile is produced verbatim with changes, if necessary, made to hide the identity of the interviewee. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Since graduating, Bachelor of Architecture (Hons.), Diploma Town and Regional Planning from University of Melbourne, Roger has worked predominantly in the private sector, including a period as principle of his own practice. In over forty years of practice he has played a pivotal architectural role in the design, documentation and delivery of a wide range of commercial, industrial, institutional and domestic projects in Australia, United Kingdom, United Arab Emirates and Sri Lanka.

Of the many projects in which Roger has been involved, the two that entailed his longest time commitments and, incidentally, were of the greatest value, were a Middle Eastern International Airport passenger terminal and ancillary buildings, and an Australian State's Supreme Court and Parliament House buildings. Roger's involvement in both of these projects was from inception, through all stages of project design, documentation and the construction phase including fit-out and final hand-over.

Similarly, most recently, as the Project Architect for a coastal council's new office, Roger fulfilled the principle co-ordinating role for the architectural and interiors design and documentation team, client, engineering consultants and other specialists through all stages of the project over the approximately one and a half years from project inception to final occupancy late in 2011.

5.3.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 16). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 16. Roger's (CS3) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
Roger considers he is a naturally trusting person until somebody demonstrates that they are not trustworthy.	6, 7
He has not worked with any of the other consultants before.	
A good relationship is characterised by good communication between the stakeholders, particularly talking to them. Robert gave the example of a previous project that had a "testy" relationship with the client. He was drafted in to help and used his usual modus operandi: keep the client informed. He has fond memories of the project and still maintains contact with the client. Unfortunately, on the current project Roger has received 800 requests for information (RFIs) from the builder and issued 1200 architect's advices (AAs). His view is that a significant number of those RFIs could have been resolved at meetings or "walking the project". He admitted to being "snowed under" with requests.	4, 10, 15, 16
In fact, a bad relationship is characterised by too many RFIs, and that is the underlying problem of systems like Aconex. If people "can't see something or it's not immediately jumping out at them, they bang off a RFI". Instead, "it could have been dealt with in 30 seconds if somebody had read the document or picked up the phone". The alternative is to use the Aconex process, "send it off to the project manager and he has to deal with it". This is sometimes a "deliberate ploy" by a contractor who is running behind so that they can "point the finger at everyone else". In effect, "slowing us down".	9, 10, 11, 16
While Roger has an issue with the contractor's use of Aconex, he stated that there was a trusting relationship with the other stakeholders. A trusting relationship is determined by "frankness and openness". In reality, one has to be open as "we eventually learn they are covering something up" and then "your trust starts to break down".	6, 9, 10, 11, 22
Roger sees trust as an individual's quality, although he admitted his company removed a supplier from their preferred supplier list because of an individual he did not trust.	8, 22
Roger described a trusting relationship as being able to rely on someone and "turn to them for things not directly related to the project". He specifically mentioned the electrical consultant on the project as somebody to whom he could turn for advice.	9, 11, 22
What is the importance of the different types of socialisation, formal and	

Research Question	Codes
informal, to the development of interpersonal and inter-organisational trust?	
While Roger admits to not being a "touchy-feely" person and prefers the relationship to remain professional, he acknowledges a relationship may become sociable over time. He would acquiesce to socialising, but would object to being forced to socialise, where socialising entails "having a cup of coffee". A sociable relationship "develops naturally".	1, 4, 6
To Roger, a professional business relationship encompasses a shared vision (as on the existing project), openness, "doing the best you can" and "feeling comfortable in their presence". The primary objective is to "deliver the project". He admits to having felt uncomfortable with only one or two individuals in his career. A not so good relationship results in Roger being more formal; "dotting the i's and crossing the t's" and less verbal communication. Roger starts a working relationship on a formal footing, relaxing into a more informal setting (greater verbal communication) as the relationship matures and he has proved his ability.	4, 9, 10, 12, 14
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
The issue resolution process requests from the builder or client coming to Roger via the project manager. Roger's preference is not to solely rely on Aconex for communicating, but go "informal" by picking up the phone or email. In effect, the decision-making is conducted off Aconex, with Aconex responsible for capturing the formal decision.	10
Roger gave the example of a problem with flooding that was resolved amicably at a project team meeting as a case of the good issue resolution on the project. Sometimes things get a "bit heated" but it always gets resolved.	4, 10, 15, 17
Decentralised decision-making: Roger gave the example of how the interior designer was involved with the decision regarding frosting on the internal glass, by liaising with the client's CEO and the project manager.	9, 10, 18
Open communications: "It's been quite open but Aconex works against it" as "it stops you being personal with each other". You need to go the site, and meet and walk with the stakeholders as this prevents misinterpretation.	1, 4, 10
Cooperation: Roger was praiseworthy of the builder for their exceptional cooperation in being open and "placing all the cards on the table". The builder kept things moving without waiting for detailed instructions from the consultants. The project team is like a football team "with all kicking in the same direction".	10, 11, 12, 16, 17
How does an OCT change the project manager's work practices, and how do	

Research Question	Codes
these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Roger explained how Aconex had "snowed me under". On one day he had 60 Aconex communiques, most of which required no action or were for information only. First thing in the morning, the receptionist would print off the Aconex communications and collate them for Roger to go through, as he is a traditionalist who cannot "stand sitting at a computer or staring at a computer screen". However,	10, 16
Aconex is "terrific" for keeping stakeholders in the loop, but this can result in information overload. This is a double-edged sword: the same tool that helps to keep people in-touch could also be used to erode trust by people sending out "mischievous information". The mischief would happen without Aconex; Aconex amplifies the effect.	10, 11, 19, 22
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: "It must have helped" as it is so easy to communicate. The relevant stakeholders are instantaneously aware that they should be doing something, unlike past times where you had to work at "the process of communication".	10, 18
Open communications: Aconex has "definitely" made communication more open and transparent. However, the decision-making can be become decision-making by committee and slow things down; on the whole "it speeds it up tremendously".	9, 10, 17
Collaboration: With Aconex, collaboration is much better as it "has kept the lines of communication open". Aconex was initially seen by Roger as a project manager's tool for tracking, but now he sees it as a tool for keeping everybody involved. However, he does not think it is for everybody: "horses for courses". It is a tool to support the "walking and talking", and not a replacement for establishing personal relationships. His biggest gripe is that some people use it as a tool to "shield themselves".	1, 4, 10, 11, 16, 19

5.3.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from Roger's perspective, those codes mentioned more than once are ranked from high to low frequency (table 17).

Table 17. Roger's (CS3) Code Frequency

Code	Frequency
Communications	14
Ability	6
Integrity	6
Meetings	6
Consensus	5
Trust	4
Cooperation	3
Rationale-choice	3
Sociable	3
Attributional	2
Decentralised	2
Power	2
Shared values/goals	2

Roger's coding analysis indicates a person who values communication above all else. His interview confirmed the value he puts on face-to-face meetings to resolve issues, as does the coding. The coding also indicates somebody who values integrity to achieve results based on consensus in behaviour and active cooperation. While coming across as a reserved individual, the coding suggests somebody who understands the importance of allowing time to develop sociable relationships to inculcate trust. Again, there is a predisposition to forgive to maintain the relationship.

5.3.5   Leximancer Analysis

A Leximancer analysis of Roger's responses was undertaken to identify any nuances not captured by the manual analysis.

Leximancer did not reveal anything that had not been discovered from the transcription and coding analyses. There were two themes that scored greater than 40% relevance: project and people. "Project" highlighted concepts of project, relationship, working, work, communication and team, with "people" based on people, talk, information, talking and

Richard (CS4). Richard is the electrical consultant on the project. Hence, Leximancer confirmed Roger's focus on communicating with people to make things happen.

5.3.6   Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 18). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Comply) and socialisation (8, Non-comply).

Table 18. Roger's (CS3) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Roger sees a good relationship as communications between the stakeholders, particularly talking, and a shared vision. He identified a bad relationship as too many RFIs, an underlying problem with Aconex. Communications and a shared vision are key components of trust.
2. Informal socialisation is more important than formal socialisation.	Comply As a matter of course, Roger attends project meetings on-site and believes face-to-face meetings are fundamental to solving issues. While he is a reserved person and does not want to socialise with other stakeholders, he tries to develop a sociable relationship over time.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Comply Roger considered there was trust between the stakeholders, although he had concerns over the builder's use of Aconex as it stops you being personal with each other. Overall, Roger was praiseworthy of the decentralised decision-making, open communications and

Proposition	Compliance
	collaboration on the project, even allowing for Aconex working against face-to-face communication.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partial compliance Rogers thinks that the use of Aconex by the builder worked against communication by negating face-to-face interactions. However, he conceded that Aconex's communications efficacy did help with decision-making and keeping everybody involved.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply Roger thinks Aconex is terrific for keeping stakeholders in the loop and keeping the lines of communication open.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance Roger complained of the over-use of Aconex by the builder to issue RFIs instead of resolving issues face-to-face. Hence, although Aconex increased the communication between the stakeholders and resulted in fewer meetings, this was not totally positive in Roger's mind. The builder used Aconex's communications efficacy to issue a greater number than normal of RFIs.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Although not explicitly stated, Roger's answers imply that there will be greater trust due to better communicating with Aconex, provided there is no information overload. Communicating is a dimension of trust to Roger.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply The use of Aconex resulted in fewer meetings to the detriment of communication. There needs to be a balance between using

Proposition	Compliance
	Aconex to communicate and talking.

5.3.7 Analysis Conclusions

Roger is a naturally trusting person who takes people at face-value until proved otherwise. He is not a touchy-feely person, and so does not consciously seek to develop professional relationships beyond more than just required to achieve objectives. However, while he is not interested in socialising with stakeholders, he is more than happy to be sociable. Roger's reserved nature sees him being formal with others until he gets to know them; when he believes that he has nothing to prove, only then will he relax and become informal.

A good relationship to Roger involves plenty of communication, particularly face-to-face. He acquaints a trusting relationship with openness, the quality of being able to tell a person that they are wrong without worrying about a detrimental impact on the overall relationship. However, should trust breakdown he may associate distrust of an individual with the employer; a company was removed from the preferred supplier list because of an issue with one individual. A bad relationship involves too much of the wrong communication: electronic. While having a positive view on the power of the Aconex system, he was critical about what he considered its inappropriate use. In Roger's mind, the builder has used Aconex to issue far too many unnecessary RFIs, which could have been obviated had the builder consulted the documentation or made a phone call.

Roger was positive about the decentralised decision-making and collaboration on the project, with particular praise for the builder whom he described as exceptional and open. The praise of the builder was all the more remarkable given his criticism of their use of the Aconex system. What is strikingly paradoxical is that he still praised Aconex as being terrific for keeping one in the loop. Hence, while Aconex may have faults, probably caused by its users, he still recognises the power of a system that makes it easier to communicate, albeit it has the potential to overload users and promote decision-making by committee. Roger admitted that he was now more positive about Aconex than at the start of the project, but stressed the need to balance Aconex with "walk and talk".

5.4   Completed Project Case 4 - Richard (CS4)

5.4.1   Company Relationship Management Ethos

Richard works for an established consulting company that has worked on some of Australia's iconic buildings. They are committed to working closely with stakeholders in a relationship based on trust and respect. They have a voluntary mentoring programme, primarily aimed at young graduates, which involves senior professionals offering professional guidance to encourage the highest level of professionalism and personal development. The work environment is described as family orientated and flexible, with numerous opportunities to socialise. The company is involved in an adventure holiday initiative to raise money for charity.

The interviewee was located in a modern, open-plan office located on the edge of Melbourne's Central Business District (CBD).

5.4.2   Personal profile

For the completed project study, interviewees provided a written statement of themselves. The written profile is produced verbatim with changes, if necessary, made to hide the identity of the interviewee. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Associate Diploma – Electrical Engineering
Graduate Diploma in Industrial Management
Fellow of Institution of Engineers Aust
Chartered Professional Engineer
Registered Building Practitioner

Following graduation, 2 years as a junior engineer with a consulting engineering practice.

3 years overseas working as a contract electrical engineer. Typically working 6 months and travelling 6 months.

Since returning to Australia, I have worked as an electrical engineer for
· *Sales engineer (not enjoyable)*
· *Environmental consulting engineers*
· *Chester, food company*
· *Newcastle, food company*

- *Architect/Consulting Engineering Practice*
- *Consulting Engineers (present)*

During my career I have worked on projects in Middle East, the Pacific region and most states and territories in Aust.

Projects vary from large to small in
- *Education from early learning to tertiary*
- *Hospital*
- *Aged care*
- *Residential,*
- *Commercial*
- *Industrial*
- *Sport and recreation*

Engineering doesn't run in family. I picked electrical engineering as I was reasonably good in science subjects at high school. I had no burning ambition to be an electrical engineer.
I have clocked up 40 years as an engineer, with the majority in the consulting field. On the whole it has been enjoyable and has provided great job satisfaction. A huge variety of projects. Last 10 to 15 years more in a management role rather than design.
Consulting is an industry where relationships are important for on-going work. I enjoy client contact.

In the final year of my diploma a well-respected lecturer offered the advice that as engineering is such a broad profession and there are many paths that can be taken he said try as many engineering paths as possible in the first 10 to 15 years of the career. By the age of 35 you should have a good idea what suits and what doesn't. I followed that advice and tried consulting, sales, manufacturing, environmental consulting. The one that suited me best was consulting engineering. Hence consulting has been my career for the best part of 40 years.

5.4.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 19). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature. Richard was given the group interview questions, section 4.6.3.2.

Table 19. Richard's (CS4) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
To Richard trust is about "honesty and being able to rely on others". It begins with a "gut-feeling" about somebody that is "proven over time". "People have to prove" that they can be trusted. The older you get," the wiser you are and you can pick the bullshit from reality" and see "their true colours".	6, 7, 8, 9, 11, 14
A trusting relationship is characterised by "the degree of openness" in communications that also involves letting others know something about you.	1, 10
Richard does not differentiate between trust in an individual and trust in an organisation, but he does measure them differently. While interpersonal trust is formed over the duration of a relationship, organisational trust is measured by the company's culture. Richard defined culture as primarily based on "how people are treated": "the work-life balance". Hence, he "gravitates towards the companies you believe have a good culture". Good people work for good companies, and good companies employ good people.	6, 12, 21
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Good information sharing: It is about "who gets the information and how it is distributed"; ensuring the right people are communicating the right things to one another. Richard believes that the more people are informed about a project, the better, within reason.	9, 10
The information-sharing cannot be fully transparent with outsiders as one has to "be very selective" about liability issues. However, this is dependent on the strength of the relationship with the stakeholder, because "if you have got an extremely good relationship with your client then there's no reason why that transparency can't exist beyond the company". In a trusting relationship you can be up-front about an issue and "you should be able to work out an issue together". He prefers to have direct access to the client without the project manager acting as an intermediary, as the project manager's interpretation may be incorrect. Roger described the project as great and was complimentary about the builder and consultants.	9, 10, 14, 15, 17, 19, 20, 22
When asked about bad information-sharing, Richard gave two examples: an architect who keeps changing their mind; a builder constantly after variations or issuing RFIs for information that is already in the documentation. Both could	8, 9, 10, 16, 20, 21

Research Question	Codes
involve a project running over time "so that we start to lose money". When there is a bad experience, it is typically down to the individual, who is "either inexperienced or won't take a decision", and not the company. However, there are companies in the industry that Richard would prefer not to work with as he knows it will be a "lousy job". Hence, in bidding for jobs they take into account what they know about the people and their companies, as it could affect "how difficult" the job is and when they get paid.	
Good cooperation: Involves proactivity, "thinking ahead and about working as a team". It is about recognising each other's skills in "working towards a common goal". Richard bemoaned the sub-contractors not being treated as equal. While "there are some builders out there that are very adversarial, and all they're out for is to pick holes in your documents no matter how tight your documents are, and go for variations and just not cooperate", Richard does not think the industry is unduly adversarial.	9, 11, 12, 16, 17, 20
Shared objectives: Richard stated that there had been 100 per cent agreement on the shared objectives. "It had its moments", but it was a good project and the client is extremely happy. At one stage, the builder was under pressure and started issuing lots of RFIs. Financially, for Richard's company, "it wasn't great" but it is a good case study for marketing.	9, 10, 12, 14, 15, 19
Shared culture: Richard thinks that the companies involved on the project had a shared culture built around being family oriented. There was a "team spirit" "focused on getting the project completed on time".	9, 12
Issue resolution: On the project, "it's bringing it out into the open quickly, discussing it with all parties and determining the best way to minimise the issue or eliminate it". Richard gave the example of a sub-contractor who installed a water harvesting system that was not to specification and had serious safety ramifications. At Richard's request, the builder insisted the sub-contractor replace the equipment at their expense ($50k).	4, 9, 16, 17
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Issue resolution: Richard does not believe that Aconex has changed the way they resolve issues, nor made the distribution of Project Advice Notices (PANs) quicker. Richard has used Aconex on four projects over the past few years. Aconex is	10

Research Question	Codes
better for big projects (>$5M) because "it's a good way of tracking documentation". Relationship management: Richard noted it is possible to see who is and is not responding, but also it is possible to "fool the system" by responding "with total crap"; the system will still flag that you have responded, irrespective of the utility of the information provided. Regardless, there is no change in a relationship from using Aconex, and there is no change in the amount of required discussions. Richard's preference is for face-to-face discussions as it "promotes communication".	1, 4, 10, 19
Business management: Aconex may save time "because you can easily track something"; sometimes "it takes more time". One of the disadvantages of Aconex is the ease with which documents may be distributed; it can be "an absolute pain" to receive documents that you do not need but "we're all used to it".	10, 16
Overall changes: The major influence of using Aconex has been the ability to track documents, and search the history.	10

5.4.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from Richard's perspective, those codes mentioned more than once are ranked from high to low frequency (table 20). The reader is reminded that Richard was given the group interview questions, section 4.6.3.2.

Table 20. Richard's (CS4) Code Frequency

Code	Frequency
Communications	9
Ability	8
Consensus	4
Shared values/goals	4
Contract	3
Cooperation	3
Emotion	3
Power	3
Attributional	2
Disposition	2
Integrity	2
Meetings	2
Rationale-choice	2

Code	Frequency
Reputation	2
Sociable	2

Richard's coding indicates a person who favours communication to ensure expectations are met. The codes show a predisposition to teamwork: common behaviours, shared values and goals, and joint-action. There is recognition that relationships develop over time through face-to-face meetings, and that forgiveness (attributional) is necessary to maintain the relationship.

5.4.5 Leximancer Analysis

A Leximancer analysis of Richard's responses was undertaken to identify any nuances not captured by the manual analysis.

The analysis highlighted 18 hits for "probably" and 10 hits for "obviously". It is thought that Richard is exhibiting sociable behaviour by entertaining the possibility of a better answer; in effect, he is demonstrating empathy. The themes that scored greater than 40% relevance were project, probably and people. The concepts listed in project are: project, architect, time, client, information, relationship, and focus on things that need to happen. People listed people, issue, and issues, demonstrating the importance of people in resolving issues. Hence, it is concluded that the Leximancer analysis is in agreement with the interview and coding analyses.

5.4.6 Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 21). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the proposition about socialisation (8, Non-comply).

Table 21. Richard's (CS4) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Trust is about being able to rely on another and open communications.
2. Informal socialisation is more important than formal socialisation.	Comply Richard's preference is for face-to-face discussions, which usually occur at the project site.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Comply Roger described the project as great and was complimentary about the builder and other consultants. He indicated his admiration of the shared objectives and culture in resolving issues. All the parties were quick to find the best solution.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partial compliance Aconex has not changed the way Roger resolves issues, but it has mostly made it easier to communicate and track documentation. Although there is a downside when Aconex is used to distribute too much information or RFIs.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Partial compliance Richard thinks that it is possible to see who is working using Aconex, but he tempered it was possible to fool the system by responding with a non-answer.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and	Partial compliance Aconex has made it easier to communicate but no change in the amount of discussions is expected. Aconex has not changed how

Proposition	Compliance
less time resolving disputes, assuming acceptance of the OCT by its users.	they resolve issues.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Although not explicitly stated, Richard's answers imply that there will be greater trust due to better communicating with Aconex, provided there is no information overload. Communicating is a dimension of trust, to Richard.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply Richard does not believe that using Aconex results in a difference in meetings, which usually take place at the project site.

5.4.7   Analysis Conclusions

To Richard, trust is about honesty and reliance. It starts with a good feeling about someone, and develops over time to an open relationship and being sociable. Good people work for good companies, and good companies have good people; culture, e.g., work-life balance, is the difference, implying a dependence on a company's reputation in forming an initial view of an individual.

Good cooperation involves proactivity, open communications, common goals and playing to your strengths. The cooperation on the project was "great" due to a sense of shared objectives and values: a family orientation. The garnered team-spirit encouraged openness and allowed issues to be discussed upfront without fear of retribution. Financially, for Richard's company, it could have been better, but the project is still an excellent case study for marketing purposes.

Aconex is a useful tool for tracking documentation and searching history. However, its use needs to be complemented by face-to-face meetings as undue reliance on the system results in information overload and time-wasting.

5.5 Completed Project Case 5 - John (CS5)

5.5.1 Company Relationship Management Ethos

John's company is a global professional services firm focused on property and infrastructure. They value a professional approach to client's success through collaboration and open communications. Their corporate responsibility has four pillars: employee well-being; environment; charitable causes; community volunteering. They endeavour to be an employee of choice, investing in the learning and development of all employees, practising open-door management, and a commitment to teamwork and enjoying oneself.

John is located in a modern office in Melbourne's CBD. A harbinger of their approach was the company's receptionist: just returned from her honeymoon, she was chatty and bubbly.

5.5.2 Personal profile

For the completed project study, interviewees provided a written statement of themselves. The written profile is produced verbatim with changes, if necessary, made to hide the identity of the interviewee. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

There was no family history in building but I identified in year 10 that I had a technical mind-set and engineering would suit my interests and that management of an engineering process would provide a reasonable income and be of interest.

Of the options available Building Engineering looked the most interesting. As a 16 year old I could identify better with managing the process of constructing a building as oppose to electrical engineering, mechanical etc. The course entry requirements were also less onerous than some other engineering disciplines. Being an engineering course the fact that there were 2 paths; engineering design or project management also appealed as opposed to a straight Building course.

I therefore chose the appropriate subjects, passed year 12 and got into Building engineering, I realised during the course that my initial guess was correct and I would much prefer project management over engineering design and I graduated in 1987.

My first job was arranged with the assistance of a lecturer at Uni and was as an assistant project manager at Vale Construction, a mid-size building firm. It was early 88 and the 87 stockmarket crash soon started to bite the building industry and I quickly learned that my

chosen industry was one of the most susceptible to economic downturn. Work at Vale's was valuable experience and within 2 years I was managing projects independently (although looking back I shouldn't have been). By the end of 89 we were in the recession we had to have and the industry collapsed and with most of my colleagues at Vale's I was retrenched.

I soon found that I was competing for graduate jobs with other out of work project managers with 10 years experience and a family to feed. I therefore looked at Local Government which was still hiring as if nothing happened and secured a job as a project engineer at Chelsea Council managing small building projects wrt kindegartens, childcare centres, neighbourhood houses, swimming pools etc. The projects were not as challenging as Vale's but the money was better than I could get in the Building industry at the time so I resolved to stay at Council until the building industry recovered.

In 94 Kennet reformed local Govt and retrenchment packages were available so I took a package which paid most of the rest of the mortgage and quickly secured a position with a Uni in the Buildings and Grounds Department as a Client side Project Manager managing large scale projects on behalf of the University. I was still concerned about the lack of job security working for a builder so the Uni offered job security, similar pay to Council and larger more interesting projects. I soon found that the University sector underpaid project managers so in 97 I went to work for BigGrocer refurbishing and building new Supermarkets etc again a relatively recession proof choice.

In 2005 my wife was getting crook and unable to work and it was clear we would soon be down to one wage. BigGrocer's pay had fallen behind the industry and I needed to improve my financial position so I starting working for Wolves Group as a Consultant Project Manager where I have remained. Better money but more risky in a building downturn.

5.5.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 22). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature. John was given the group interview questions, section 4.6.3.2.

Table 22. John's (CS5) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
To John, trust is about reliability – meeting commitments. The cornerstone of interpersonal trust is: "reliability; forewarning of issues; and not having to rely on the contract". Inter-organisational trust is pre-contract and involves taking a view on a "company's ability and experience". Post-contract the trust becomes "personal and focused".	8, 9, 11, 20, 21, 22
With people you trust less you are more careful: be specific about "what you want and when"; and chase them more often for updates. John is initially trusting of others with performance (meeting expectations) determining whether that trust grows, or he needs to be careful and request more updates. At the start, people are keen to develop relationships "to make the project as easy as possible for themselves and everyone else".	1, 6, 7, 9, 10, 22
Distrust is marked by people making exaggerated claims or "making out they are experts", when they are not. John extolled the project's builder as an example of a trustworthy supplier. The builder met their commitments, irrespective of the weather, and showed a flexible attitude in solving issues: a "give and take mentality towards difficulties and issues that crop up on both sides".	9, 12, 15, 16, 17, 19
John outlined a case study of distrust. A builder changed the design consultant on a project post-contract even though they had agreed to retain the existing design consultant during the tendering process. The project "got off to a negative start and it continued on a negative basis" and it has been clear that the builder "has been trying to do as little as possible for the maximum amount of money". John tried to get the builder back on-side by "putting carrots out" or the potential for further work with the client, but they wanted to "maximise their profit on this project and get out". The builder took the business by under-bidding by $1+M, and the client's decision was taken by somebody who retired soon after. Hence, there is "potential for conflict" in construction: "there's a lot of things that can and do go wrong through the process, there's a lot of unknowns, there's a lot of problems to solve"; it's important to work with reputable companies.	6, 8, 9, 11, 15, 19, 20, 21, 22
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Good information sharing: It's "better to get a phone call, rather than get something in writing". But, you need to back up the verbal communication with a	4, 10

Research Question	Codes
formal means, for example, email or Aconex.	
Good cooperation: John looks for a "solutions based mentality": a supplier who is proactive in suggesting solutions and work-shopping ideas. Hence, "a proactive type of response is pretty important".	4, 9, 16, 17
Shared objectives: The project team had shared objectives that John attributed to the attitude of the builder. The builder had opened a regional office and this was the first project to be managed by this office. John thinks that the builder "was very keen for the project to reflect well on the regional office". This meant that the builder "aligned (accommodated) more than other projects I have been involved in". John explained that there is always tension on a project as the builder is trying to maximise his profit, and the client is trying to "save money while adding scope".	12, 16, 17, 19
Shared culture: There was a "shared commitment to the project" because the builder wanted "to get a good reference on this to develop his business".	12, 21
Issue resolution: Effective issue resolution "is understanding the issue early, collaborative discussion about how the issue can best be resolved at minimum cost to the client, and then swift implementation of strategy to deal with that issue". However, there are always issues that "slip through the net".	4, 12, 16, 17
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Aconex is a tool that allows "easy access to documents and past decisions", and "probably assists quicker resolution of issues" than using a paper based approach. However, it has had no impact on relationships and management practices: there was no change in trust or socialising. Aconex has the advantage of "having the documentation and history of the project in one place" but "it's not easy to use in terms of key communication as Outlook (email)". It's particularly difficult if the stakeholders are using a mix of Outlook and Aconex; and "file management in Aconex is quite slow and cumbersome compared to file management in Outlook". Aconex is "not a particularly user friendly tool", albeit when you want to call up a drawing with Outlook it involves getting a disc out. John admitted this was his first experience with Aconex (In a later telephone conversation he stated that his company would not be pushing the use of Aconex).	9, 10
Aconex has not changed John's work practices, but if he used Aconex again he would use it in a different way to "make life easier", by using standard templates	10, 16

Research Question	Codes
instead of "repeating things". He thinks his efficiency would improve with experience. He described the training as OK, "but you don't know what you don't know". His major complaint is that Aconex "generated more communication", not "streamline it".	
The major advantage of Aconex, relative to Outlook, is the "ease of finding the history". He believes there would be a similar amount of talking to people, whether Aconex or Outlook was used. During the debate between the consultants and the contractor about whether to use the system, the constructor was hesitant about using Aconex as they had their own system. John stated he would have been happy to use the constructor's system if access could have been granted. The builder confided in John that having to use two systems "doubled some of his workload in terms of communication and file storage".	4, 10
John thinks it is becoming more prevalent to use Aconex, or a similar system, as it provides the client with an audit-trail. It cost about $30k to use Aconex on the project ($20M).	10, 19, 20

5.5.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from John's perspective, those codes mentioned more than once are ranked from high to low frequency (table 23).

Table 23. John's (CS5) Code Frequency

Code	Frequency
Ability	6
Communications	6
Consensus	5
Cooperation	4
Meetings	4
Power	4
Shared values/goals	4
Contract	3
Reputation	3
Trust	3
Attributional	2
Disposition	2
Integrity	2

Code	Frequency
Rationale-choice	2

With John it is important to achieve objectives by working together: cooperation through communicating shared goals in face-to-face meetings. The contract is there to complement relational governance, with the adverse effects of bad supplier selection mitigated by working with known entities. A good relationship is not a given and develops over time, with forgiveness acceptable to maintain the relationship.

5.5.5 Leximancer Analysis

A Leximancer analysis of John's responses was undertaken to identify any nuances not captured by the manual analysis.

Three themes scored greater than 40% relevance: Aconex, trust and project. Aconex has the following concepts: Aconex, Outlook, communication and system; these are in agreement with the interview analysis – the relative strengths of Aconex versus Outlook for communicating. The next theme, trust, was a surprise because John seemed more of a "management by objectives" (Drucker 1954) person than a trusting one. Based on the interview analysis, his style, in reality, is more monitoring than trusting. The third theme was, unsurprisingly, project (project, relationship, contract, builder, and client). Hence, the Leximancer analysis is broadly in agreement with the interview and coding analysis, albeit Leximancer overemphasised trust. Leximancer was correct in highlighting the importance of trust to the discussion, but the interpretation, from the author's perspective, is that it was more about monitoring than trusting. John's definition of trust revolves around the need for more, or less, monitoring.

5.5.6 Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 24). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged non-compliant, other than the proposition about visibility of work (5, Comply).

Table 24. John's (CS5) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply John thinks trust is about being to rely on others to meet their commitments and not having to rely on the contract.
2. Informal socialisation is more important than formal socialisation.	Comply John preference is for verbal, not written, communications and group meetings to workshop ideas. Meetings usually occur at the project site.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Comply John deemed the builder a trustworthy supplier and was complimentary about the shared objectives and commitment on the project. The builder was flexible in resolving issues. He believes the builder was more accommodating than usual as they were seeking a good reference for the new regional office.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Non-comply Aconex is a better tool for storage and tracking than using paper, however, John's preference is to use Outlook; because it is easier to use for communication. This was John's first use of Aconex. He noted that Aconex generated too much communications. He admitted in a telephone conversation that his company will not be pushing the use of Aconex.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing	Comply John commented that it was easier to see the history, or audit-trail, with Aconex.

Proposition	Compliance
and not performing.	
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Non-comply It is easier to communicate with Outlook and no change in the amount of discussions is expected when using Aconex. Aconex has not changed how they resolve issues.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Non-comply John's preference is to use Outlook, which he thinks is easier to use. Although he had positive things to say about Aconex: better storage and tracking; probably faster resolution of issues, he is not convinced of its efficacy.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply John does not believe that there has been any change in socialising or amount of discussions.

5.5.7 Analysis Conclusions

John's view on trust is that it is concerned with: meeting expectations, forewarning of issues, less use of the contract, and give and take. Conversely, distrust involves being more specific about what you require and undertaking more monitoring. Regarding organisations: pre-contract, his emphasis is on choosing reputable companies. However, once the work begins, he is more concerned with developing good relationships with stakeholders to make life easy.

The project was good, due in part to the builder's desire to attain a good reference; John attributed the builder's better than average attitude to the project to this. There was more give and take, and the builder was proactive in offering solutions to issues. John's preferred communication style is to meet to discuss before formally writing up.

He espoused Aconex's advantages as a tool for storing all project documentation, and ensuring fast searching of the database, but stated a preference for using Outlook as he considered Aconex cumbersome to use. He thinks Aconex generated more communications

instead of streamlining it. However, this was his first time at using Aconex and he admitted his efficiency at using Aconex could improve with its usage. Unfortunately, John stated that his company will not be pushing to use Aconex on future projects.

6 Analysis of On-going Project Case Studies

Based on the interviewing process with the completed project members, two changes were made to the process for interviewing the on-going team. First, the question regarding an individual's perspective of their trustworthiness was asked later on in the process as the interviewees found it too confronting as the first question. Second, it was decided to ask the interviewee for a career profile during the interview instead of asking them to submit one at a later date. They are busy people, so it was decided to make the best use of any time with them.

The project was a $15M building for a well-known private school. The interviewees consisted of:

- Catherine (OP1), Builder's Project Manager
- George (OP2), Site Architect
- Nigel (OP3), Quantity Surveyor
- Ronald (OP4), Client's Project Manager

6.1 On-going Project Case 1 - Catherine (OP1)

6.1.1 Company Relationship Management Ethos

Catherine's company is a medium-sized builder with a track-record of completing projects with a value of $10M to $25M. The company values integrity to build trusted relationships and cooperation through teamwork, by maintaining a professional and committed workforce. The company has compliance certificates for health and safety, environmentalism, quality assurance and risk management.

Catherine is located in a modern office in inner-Melbourne.

6.1.2 Personal profile

For the completed project study, interviewees provided a written statement of themselves. However, the on-going project study interviewees were asked to describe their career during the interview to reduce the burden of taking part; relevant parts of the transcript are reproduced to paint a picture of what they have done, and why. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Interviewer: *So if you can just give me a brief career profile of your education and employment? You know, like a two minute sort of career plan. What have*

you done and why? Try and sort of articulate to me the why of what your career path was and what made you take those decisions. 'Cause it's quite unusual actually having a woman in the construction industry.

Catherine: *It is.*

Interviewer: *Very unusual. So this will be good.*

Catherine: *Oh I was very interested in architecture and building at school, and I finished school and knew a building company and one of the directors, so I got some advice from him before I went to uni. Applied for building and property and construction as it was called at Melbourne University and it got me into that. So... and once I started just loved it, really enjoyed it. Got a part time job in a construction company and just continued to enjoy it really. So once I finished there I got the job at Brentford Group which is where I am now, and have been working here for six or seven years now, so.*

Interviewer: *That's OK. And what did you come in at Brentford? How did you...*

Catherine: *Contracts administrator.*

Interviewer: *So contract administrator. And then promoted to project manager?*

Catherine: *Yeah.*

Interviewer: *Yeah. So that's it? Is it standard for new graduates to come in as a contract administrator?*

Catherine: *Yes.*

Interviewer: *Yes.*

Catherine: *So all graduates start as a contract administrator, that's the title they get?*

Interviewer: *Yeah. OK. So it's... can you comment on the fact that it's unusual for a girl?*

Catherine: *Yes it is, very unusual.*

Interviewer: *How do people react to you taking the decision?*

Catherine: *Oh different people react differently. Contractors in particular can be a little bit threatened by it, so... but you just keep moving through it. I find that yeah, sub-contractors more so, clients and superintendents and consultants don't normally bat an eyelid over that type of thing.*

Interviewer: *How... what do you mean the... what exactly are the subbies doing? They're just sort of not recognising you as the project manager and as the boss?*

Catherine: *Yeah essentially. Yeah.*

Interviewer: *Sort of looking down on you or...*

Catherine: *Then they'll try and side step me and...*

Interviewer: *OK.*

Catherine: *... to get to somebody else. And it's just the things like that. So until they sort of realise that, yeah, I'm qualified, I know what I'm doing.*

6.1.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 25). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 25. Catherine's (OP1) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
Catherine is not a naturally trusting person "in this industry" and admitted to being a "control freak" due to being "let down in the past". She checks answers from consultants to ensure that they have not "misunderstood the question", as she is reporting on the project to her directors. Catherine is not a "post-box": she checks all the questions and answers. Hence, she will check a sub-contractor's question to make sure the sub-contractor is not being lazy in not checking a drawing for the	7, 9, 10,11, 16

Research Question	Codes
answer. Catherine believes that it is very important to show trust in others to encourage them to "have confidence" and not "doubt themselves". How much you check is dependent on "the experience level and strengths and weaknesses" of the person. When there is a problem it is usually down to a misinterpretation of the question. Her role as project manager is to get up to 50 individuals driving in the same direction because if "someone gets unnecessarily upset about something it can stop the project".	
Catherine has no prior working experience with the other individuals being interviewed, but she has worked with the client's project manager's company. Catherine has used Aconex on and off over the past five years. Initially, the project manager or the architect was responsible for using Aconex; nowadays, Catherine's company, the builder, has driven its use on the last four or five projects.	
A good relationship entails "open communications", "our history" of working together, and "speed of information" because "to have the answers and the solutions quickly is the key element to me as the builder". Also, it is important to explain the right answer in "a way that can be understood by everybody"; this means adapting your message to take into account the individual's experience and knowledge. For example, "you have to take a lot more time and effort" with graduates, whereas with upper management you can "shorthand". Communicating with internal colleagues is easier as you know them; with external stakeholders you need a few months "to gauge their experience, level of understanding": "you have to adapt". The output of open communications "would be completing the project early".	1, 6, 8, 9, 10
A bad relationship "often stems from frustration in our industry" caused "by not knowing what the question was". They provide the wrong answer so it "goes back and forth a few times". Written communication can come across not as you wanted, and it "can be perceived as aggro or threatening". Often, that can create a bad relationship without anybody noticing it. It's particularly important to adapt to the architect as architects "can get offended if you ask too many questions about their design". If they think "you are having a dig at their design" they take their time answering the question. Catherine finds that frustrating as she "just needs the answer very quickly to move on" and "don't mind what the answer is". Sometimes egos get bruised and you need to "fix it" by writing a nice email or calling them to clarify the misunderstanding. The "unspoken rule" is "move on and try to get the answer that you're looking for" even if this means "two days of unnecessary phone	1, 2, 9, 10, 11, 14, 15, 19

Research Question	Codes
calls and talking about something that's got nothing to do with me". Catherine prefers an independent project manager and not the architect as superintendent, because the architect has a conflict of interests in protecting their design and not admitting to mistakes that may require extra cash from the client (In the past, the architect was the project manager. The use of independent project managers, to whom the architect reports along with the other consultants, is a recent phenomenon).	
The level of trust between the supply chain companies and with the client is good. The formation of trust started with "rigorous tendering process" that engendered trust. The level of trust "probably changes through the cycle of the project" but there is a "common trust and understanding that we have all been doing this for a very long time". Trust is necessary, "we have to trust each other", as without it the project becomes "difficult to deal with". A breakdown in trust can start with a "personality clash" that can "spiral out of control". Sometimes this can be caused by questioning a consultant's ability by seeking a third-party opinion, as did happen on this project. The builder had a health and safety issue with a consultant's advice. A third-party confirmed the builder's fears. The relationship between the builder and the consultant broke down to the extent that the consultant was replaced. The issue should have been picked up in the design stage. Where the architect and consultants have prior experience of working together, "they can design it quicker and better".	6, 8, 9, 14, 15, 16, 17, 22
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	
There are weekly project meetings; fortnightly, the client attends. The meetings happen on-site and at the different offices. There is also communication via telephone, Aconex and email.	4, 10
To establish a good working relationship Catherine takes an interest in people, e.g., "how was your weekend?" However, she does not believe in being sociable as "I'm very focused on the task at hand", albeit she admits that she is learning to be sociable as it is good for business. "It can be quite intense always talking work" and when people are relaxed "you're able often to get the answers that you wanted". In short, "your life is easier if everyone's a bit happier and happy to talk to you", and you "achieve the project".	1, 9, 14
She does not believe in socialising, for example, dinner, as "we're all here to do a job" and "have contracts that we're working towards".	5, 20

Research Question	Codes
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Major issues on the project are resolved face-to-face with the other stakeholders, usually in the presence of Catherine's manager. Face-to-face allows "misunderstandings or different opinions" to come out allowing the issue to be resolved quicker. The aim is to avoid involving the lawyers in the dispute resolution.	1, 4, 15, 17, 20
Decentralised decision-making: Mostly the decision-making is decentralised, involving the key stakeholders in a meeting to "mesh it all together". Sometimes the issue is taken out of Catherine's hands if it involves a major financial impact. The discussion could get escalated to involve directors of the companies and Catherine is told the outcome, as "it's obviously a better solution not to go to the lawyers and pay all this money".	4, 17, 18, 20
Open communications: It is fairly open on the project but misunderstandings happen. For major issues, it would be better if the design team explained to the builder "the process that they went through to get to the answer" as "it would make it easier for us to assess what they have done". If the builder understood the process, they could be more proactive in using their experience to suggest a solution. Unfortunately, the design team sees the builder's involvement as nit-picking and resents what they see as criticism of the design.	9, 10, 12, 16, 17, 19
Collaboration: Catherine thinks that the consultants are trying to work together with each other as individuals, but the design team is not working well together: "parts of the jigsaw just don't fit together". Catherine believes that it is their lack of working together that is preventing them meshing and causing them to "point the finger at someone else".	6, 9, 11, 16, 17,
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Aconex is the "main line of communication" and used for everything to do with "questions, programme variations, document control, all those sorts of things". Five years ago it was hard to get the architect on to Aconex; nowadays, all consultants are fine with using Aconex. With sub-contractors it is hit and miss, "some of them are still on faxes (not even email)".	10
Aconex has made life easier for submitting RFIs. Before, a Word document was printed, scanned and attached to an email. Today, Catherine uses a template on	10

Research Question	Codes
Aconex. The RFI is distributed and stored by Aconex.	
It is obvious who is, or not, doing something on Aconex, but no more obvious than using email. The problem with Aconex is people starting a new thread instead of attaching information to the existing thread. Also, it allows the architect or project manager to act like a post-box and just forward a response to the builder without checking it. While Aconex makes it easy for a colleague to check the status of the project, older colleagues still prefer to get a face-to-face update from Catherine because "it's just that they find it easier to come to me" and also "it's probably their way of entrusting us", as using Aconex to check the project status without asking would signal distrust.	9, 11, 16, 22
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Aconex has not improved the decision-making as "it's just a tool". Relative to emails and manual storage, Aconex allows faster searching of archived documents.	10, 18
Open communications: Again, the communications is faster but not different. Catherine explained that "we still ask all the same questions" but "it's all on one system and everyone uses the one system". Aconex would be very useful if there was a change in personnel on the project, as the system would allow the new person to come up to speed quicker. However, it is not expected to make the project's completion quicker.	10
Collaboration: Aconex should help with collaboration as it makes it easier for people to see the same information and collaborate. But this only applies to those that know the information is on Aconex because "if you don't know it's there you don't go to look for it".	10, 17
The major advantage of Aconex is "records of what has happened". Aconex is an audit trail of decision-making and documentation on the project. If there is an issue with the client, Catherine can use Aconex to be precise in telling the client who took what decision and why. Accessing the same information using emails and printed copies would take weeks instead of a few days. Physical archives get disposed of after seven years; with Aconex, the duration could be indefinite.	9, 10, 19, 20

6.1.4 Code Frequencies

To form a viewpoint on the salient issues of relationship management from Catherine's perspective, those codes mentioned more than once are ranked from high to low frequency (table 26).

Table 26. Catherine's (OP1) Code Frequency

Code	Frequency
Communications	11
Ability	9
Cooperation	6
Consensus	5
Contract	4
Integrity	4
Sociable	4
Attributional	3
Emotion	3
Meetings	3
Power	3
Rationale-choice	3
Decentralised	2
Disposition	2
Trust	2

Catherine sees communication as key: the bedrock of cooperation to ensure performance according to the contract, as that is the right thing to do. While the coding indicates an awareness of soft issues, sociable and emotion, the interview shows an awakening appreciation of being personable for business efficacy. Again we see the mix of rational-choice and attributional: relationships take time to develop and sometimes forgiveness is necessary.

6.1.5 Leximancer Analysis

A Leximancer analysis of Catherine's responses was undertaken to identify any nuances not captured by the manual analysis.

Two themes scored greater than 40% relevance: Project consisting of the concepts of project, different, people, obviously, things, time, trust and design; guess that contained the concepts of guess, working, Aconex, company, everyone and consultants. It seems that Catherine is like other interviewees in exhibiting social behaviour by entertaining the possibility of a better answer: "guess" had 20 hits, and "obviously" had 17 hits. Also,

Leximancer identified 18 hits of "trust"; this prominence of trust in Catherine's thoughts is not apparent based on the interview and coding analyses.

6.1.6 Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 27). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Non-comply) and socialisation (8, Non-comply).

Table 27. Catherine's (OP1) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Open communications is important to a good relationship, with communications being a key factor of trust.
2. Informal socialisation is more important than formal socialisation.	Comply There are meetings that happen on-site and at different offices.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Comply Catherine thinks the level of trust between the stakeholders is good. Overall, the decentralised decision-making, communications and collaboration is good, although the design team could work better together.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partial compliance Aconex allows for faster searching and easier access to information, making it easier to collaborate. However, it has not improved the decision-making relative to emails and faster storage.

Proposition	Compliance
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Non-comply With Aconex it is obvious who is not doing something, but no more so than using email.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance Aconex has made it easier to submit RFIs to consultants. There is no change in communicating or a faster project completion.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance The benefit of Aconex to Catherine is its ability to provide an audit-trail of decisions and documentation on the project, should an issue arise later on. Hence, Catherine's over-use of Aconex is not being used to engender trust. However, there is faster communication between the stakeholders.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply Catherine reported no difference in communications, and a concern about a project manager acting as a post-box.

6.1.7 Analysis Conclusions

Catherine was refreshingly honest in admitting that she is not a naturally trusting person and is a control freak; an attitude she attributes to being let down in the past. Hence, while stating it is important to trust somebody to give them confidence, how much one trusts another is dependent upon their experience. Therefore, her trust is calculative, as is her idea of socialising. She conceded that while she did not feel she was that sociable as she is very focused on her work, she is learning the benefit of being sociable: it is good for business.

A good relationship is all about communication; ensuring the right person gets the right information. She is astutely aware of the need to tailor information to the needs and experience of the receiver in order to avoid the frustration that arises from misinterpretation and misunderstanding; and to massage somebody's ego, if necessary. Written

communication may not be best as it can appear, in some instances, as threatening. The level of trust, a necessary component to stop the project being difficult, is good; something she attributes to the relationships formed during the tendering process. However, while it is natural for it to change during the project life-cycle, its demise could be caused by a personality clash that spiralled out of control.

Overall, Catherine thinks the stakeholders are working well together, although the design team could share more information between themselves and with the builder. Aconex has made it easier to communicate with the consultants, e.g., submitting RFIs, but it requires discipline to use the tool effectively. The key advantage of Aconex is its ability to store documents and drawings for faster access by stakeholders, and to be able to search the documentation and communications to see who did what, when (although this is just as easy when using email); in effect, it is an audit-trail that would allow Catherine to defend her position.

6.2   On-going Project Case 2 - George (OP2)

6.2.1   Company Relationship Management Ethos

George works for a leading, Australian architect. The company espouses close client contact and collaboration with engineers and other allied professionals as fundamental to the way they work. They value innovation in design, whether internally evolved or in collaboration with research institutes. Co-incidentally, they are attentive to the deployment of information technologies that expedite non-personal communication when the need for face-to-face interactions seems even more increasingly vital.

George is located in an office in Melbourne's CBD. The company's floors are approached using an old-fashioned lift with a manual door. Beyond the door, one is met by a white, sterile, minimalist office-space with open-plan meeting rooms.

6.2.2   Personal profile

For the completed project study, interviewees provided a written statement of themselves. However, the on-going project study interviewees were asked to describe their career during the interview to reduce the burden of taking part; relevant parts of the transcript are reproduced to paint a picture of what they have done, and why. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Interviewer: *So thanks for seeing me George. What I would like you to do is just give me a brief career profile of your education and employment and what made you start to become an architect, what was your education, what sort of career changes have happened to you and why?*

George: *I guess I got into architecture because I picked drafting at school; I topped the State in New South Wales in drafting, so I guess that's led me into architecture. I also got a scholarship from Legacy, because I lost my father during the Second World War or just after the Second World War so that helped as far as getting me through uni etcetera, especially in those days. I've worked with aluminium companies for quite a number of years mainly developing windows, or things like that for various things. Then I sort of basically went out on my own doing extensions, renovations which I did for probably 25 odd years. At the time when GST was brought in in about 2000, about then I thought "My business is going to die because the GST added on to the cost of the home extension/renovation." It will probably kill that side of*

the business. I was totally wrong about that by the way, I just kept growing. And at the same time my daughters were finishing their education so my private school fees were coming to an end. So I decided to join the big companies when I joined Millwall to start with. So I was at Millwall for a few years and then came here. So yeah so that basically sums it up. I actually did extensions and renovations for 25 years for the aluminium companies and since then I've been working with the big boys.

Interviewer: How long have you been here now?

George: About eight years. Or nine years. And I was with Milwall for about three or four years; actually, since 2000. When the GST, that's when I bailed out of my own practice sort of thing and jumped into getting… and also I found that rather nice to sit back and do your work and the money was in the bank.

Interviewer: So it was also a lifestyle change.

George: Yes.

Interviewer: Take the pressure off.

George: That's right, yeah, exactly. Although having said that I feel sorry for people who work in this office in this industry because during that time I was able to go to sports day, go to excursions with my children which was a great…

Interviewer: You have the freedom to do that.

George: So I had the freedom to do that. So it's a great plus. So I'd just work harder on the weekend.

Interviewer: Yeah. OK. That's good.

George: Yeah, so I really enjoyed that, which has meant that I have a very close relationship with my daughters.

Interviewer: Oh OK. What about your education? Where were you educated?

George: In New South Wales. I went to tech school, not university.

Interviewer: A lot of the consultants around, quite a few of consultants I've talked did that, they sort of…

George: … well you've got to remember that university degrees, at that stage, were equivalent to an adult salary.

Interviewer: OK.

George: So I was the youngest of five children of a war widow. There was no way known you could go to university.

Interviewer: Because in the U.K, certainly when I went to uni, we didn't have fees so you've always had fees here?

George: They dropped them for a while. But, no, in my time yes it was, I think when I investigated, I was 17 years of age it was $2,000 a year and that's back in 1963/1964 which was… and as I said when I started work I wasn't earning that and I progressed to an adult salary pretty quickly. I was transferred to Melbourne when I was 22.

Interviewer: Oh OK. So you were fast tracked.

George: Yeah.

Interviewer: So it would've been pretty useless going to university.

George: Well yeah in a way sort of thing, although I don't call myself an architect because I'm not. I'm a draftsman, be it a draftsman diploma. But they call me an architect here sort of thing and I'm one of the senior members in regards to… not just age, in construction techniques sort of thing so I review all the documents for other projects. So people to come and discuss their individual construction issues and yeah I'm sort of known as the one to come to for that.

Interviewer: Oh OK. Good.

George: And I guess that's why I do mainly what I do which is site management, site architecture, site architect as opposed to the design architect.

6.2.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 28). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Analysis of On-going Project Case Studies

Table 28. George's (OP2) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
George has not worked with any of supply chain individuals before, but he has worked with the construction company on another project.	
George considers that he is a naturally trusting person and would trust a person "until they did wrong by me and then they would be in trouble". He is a "pretty easy going sort of person" with "no hang-ups about anything in life". As you "get to know each other both personally and professionally", you trust them more, and show "faith" in them meeting your expectations; that is, "I expect you will be doing that job and I'll work on the basis you are doing that job".	1, 6, 7, 22
A good relationship to George entails making friends. He described his relationship with the builder's site manager as a "couple of old farts putting up a building". His focus is on getting the job done and not playing "architect-architect". He believes that "you can't really work well with somebody until you do them favour or get them pissed". Not playing "architect-architect" means that he is willing to listen and take advice from others; he is not "going to tell the builder how to hold a hammer": he "doesn't care how they got it there" as he is not a "precious architect". A good relationship results in easier cooperation built on trust and respect that is built up over time.	1, 4, 5, 6, 9, 17, 19, 22
A bad relationship George associates with somebody that seeks too much clarification. His example was the builder's project manager, Catherine, who he thinks is issuing too many RFIs and seeking too many variations. George believes this is because Catherine "does not trust anybody". He attributes this to her young age and "lack of hands on building knowledge" making her over-cautious. However, he stressed that he has trained numerous architects and "young people come to me because they know I will help them". He thinks Catherine is over-concerned with being exposed to liabilities: he effused that "you're not going to be open to litigation because that's the wrong colour". He went as far as to say that "her approach is alienating everybody". Catherine's approach is not typical of George's experience with her company. It lacks the "give and take" he is used to on projects: Catherine will "take, take, take but she won't give a single thing". To George it is about getting on with people. His focus is on the individual whether they are a colleague or work for a third-party. He was hired because of his personality but he is not a "party-boy" and has few friends. Getting on with people	1, 4, 8, 9, 10, 13, 15, 16, 20, 22

Research Question	Codes
makes life easier and stops George taking an "angry attitude" home.	
George described the trust on the project as 'up and down" and "dependent on what you get". George explained the problem with a consultant who did not deliver and was fired. He was not impressed with the performance of the other consultants in the design stage, which he blamed on the inadequate price they had bid resulting in too few hours allocated to complete the work. George's view is that "it takes what it takes" to do the job right. Again he reiterated that it is about the individual, by telling me how he would use one structural engineer "in a heartbeat, but your colleagues can go jump". That engineer is the sort of person "he will have a beer with", and would provide a reference for a job application.	1, 5, 9, 11, 15, 22
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	
George is happy to socialise, as in go for a beer, but will not go out of his way to make it happen. The interactions with the project team are mainly in office hours. He likes to think he is fair and looks for reciprocation. His attitude is "let's work together", but would not stress out if they did not reciprocate. Being friendly "makes the job and life easier" and although "I'm very proud of my work … I'm not going to have a heart-attack over it".	1, 4, 5, 11, 14, 15, 17
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
The issue resolution process is to put your case to the client's project manager and then accept their decision; "don't take it personally" if they disagree with you. With regard to the issues with the builder, George admitted that he has a preference for dealing with the builder's site-manager, Edward, who works for Catherine. George has only worked with one other construction project manager who was like Catherine and chased cost variances. He extolled that "most of the time it's been let's work together, let's have a laugh together, let's get on together". George has had three or four stand-up arguments with Catherine where he will "draw the line". It's about fairness: "I'll give you some leeway just don't take the piss".	1, 4, 11, 15, 17, 19
Decentralised decision-making: George did not think that there was decentralised decision-making, which he blamed on the consultants under-pricing and having to go back to their superior for permission to do something. They also escalate liability issues in not accepting any of the blame, even though "we're all at fault here, we've made some errors, the builders made some errors, you've made some errors", so "you just put it up the tree and don't worry about it".	9, 11, 15, 17, 18, 20

Research Question	Codes
Open communications: George stated that was no open communication with Catherine. He thinks it is down to her attitude, and noted the only other person he has had issues with was a similar age to Catherine. He has good communications with Ronald, the client's project manager, and Edward.	1, 8, 10
Collaboration: George sees good cooperation with the builder's site-manager, Edward, whom he sees as a fellow site-person. There is also good cooperation with Ronald. Whatever is needed, George makes it work. Personality issues "can make and break jobs".	1, 8, 11, 15, 17
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
George has used Aconex on 12 projects. He is pro-Aconex because of its ability to store and search documents. Once a document is on Aconex, no-one can deny they received it. George's company requires a paper trail, hence he has a pile of paperwork that he is going to dump in an archive bin and not bother to file because he does not need to. Aconex is a much better tool than email. George has a preference for working with a company that has experience of Aconex. For this project, the builder requested to use Aconex, and George thinks this is becoming the norm.	8, 9, 10, 11, 19
The ability to see who responded and when, allows George to take a value judgement; "our consultants, they've been very slow in responding to RFIs". If it were to continually happen, then it would become a trust issue and George may ask for something to be done about that person. Although he has five days, according to the contract, he will respond that day if he can. Unfortunately, Catherine sent some RFIs with a request for response within two days.	9, 10, 11, 16, 20
The efficacy of Aconex is dependent upon the users ensuring an issue's information is stored in the same thread, and not creating new ones and dispersing the information.	
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Aconex has not affected George's decision-making, if "it's a delicate issue, I will type my response on either email or Aconex and then put it aside, come back and then I'll check it tomorrow, before I send it".	10, 18
Open communications: Aconex allows stakeholders to be easily circulated on	1, 10,

Research Question	Codes
advice from the architect to the client's project manager, giving them "a heads-up" and ensuring they receive the communication even if the project manager forgets to copy them in. There can be informal communication off the Aconex system using email, and only when a decision is taken is it formally placed on Aconex. This is because "there are some things you want this person to know, but not that person to know"; you cannot keep a conversation private on Aconex and "that's probably its downside".	13, 19
Collaboration: Aconex forces cooperation because it would be very visible who is not doing their work.	9, 17
In conclusion, the benefit of Aconex is the audit trail, the ease of searching and the exception reporting. On this project, George thinks the builder has inappropriately used Aconex in issuing 460 RFIs; on a similar project he has seen 80 RFIs because he mostly sorted out issues on-site, face-to-face. Catherine in using Aconex to protect her company is signalling to George that she distrusts him.	10, 11, 19, 20, 22

6.2.4 Code Frequencies

To form a viewpoint on the salient issues of relationship management from George's perspective, those codes mentioned more than once are ranked from high to low frequency (table 29).

Table 29. George's (OP2) Code Frequency

Code	Frequency
Sociable	9
Integrity	8
Ability	7
Communications	7
Attributional	6
Cooperation	6
Power	5
Trust	5
Contract	4
Disposition	4
Meetings	4
Socialising	3
Consensus	2
Benevolence	2

Code	Frequency
Decentralised	2
Rationale-choice	2

George's style is to make friends with co-workers; he places a greater emphasis than the other interviewees on being sociable. In return, he expects people to work with him to achieve results and do the right thing by him. The relatively high attributional trust score indicates somebody who is content to live and let live. Bargaining power and the contract are foremost in George's mind, alongside being sociable.

6.2.5   Leximancer Analysis

A Leximancer analysis of George's responses was undertaken to identify any nuances not captured by the manual analysis.

George's interview took place in an open-plan meeting-room; hence, the transcriber was unable to identify an abnormal part of the conversation. Therefore, it is not surprising to see one of the two themes, with a relevancy greater than 40%, identified as indistinct, which consists of the concepts of indistinct, project, things, people, office, projects and architects. The second theme was work determined by the concepts of work, site, time and doing. Leximancer correctly identified George's pre-occupation with people to get the job done, although it does not give enough emphasis to George's desire to be friendly with stakeholders to make life easier. The third and fourth themes were Catherine and Aconex, with relevancies of 24% and 23%, respectively. Catherine's use of Aconex was George's bugbear, and formed the basis of his interview; hence, it deserves more prominence than that allocated by Leximancer.

6.2.6   Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 30). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Comply) and socialisation (8, Non-comply). Proposition 3, issue resolution behaviours, was marked partial compliance due to the impact of Aconex and too many RFIs.

Table 30. George's (OP2) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply George believes a good relationship entails being sociable and making friends to inculcate cooperation, and showing faith in somebody meeting your expectations; both are factors of trust.
2. Informal socialisation is more important than formal socialisation.	Comply George wants a cooperative approach that is fair. His preference is to sort out issues face-to-face on-site.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Partial compliance George does not have a good relationship with Catherine, the builder's project manager, because of the number of RFIs she has issued. However, he enjoys working with Edward, the builder's site-manager, who reports into Catherine. Generally, trust on the project was up and down dependent on what he got. While noting the decentralised decision-making was not that great, he saw good communication and cooperation with Edward and Ronald.
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partially compliant Although the decision-making has not changed, there is better communications and cooperation due to easier information-sharing and visibility of responses.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply Aconex forces cooperation because it is very visible who is not doing their work.
6. A supply chain using an OCT, versus	Partial compliance

Proposition	Compliance
one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	The use of Aconex has resulted in more direct communication and fewer meetings. However, George was critical of Catherine's inappropriate use in issuing a greater number of RFIs.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Catherine's over-use of Aconex is signalling to George that she distrusts him. However, allowing for this, George acknowledges that there is better communication with Aconex. George prefers to work with companies that have experience of Aconex.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply The use of Aconex on this project resulted in not enough meetings, to the detriment of the relationship between George and Catherine. There needs to be a balance between using Aconex to communicate and talking.

6.2.7   Analysis Conclusions

George is a naturally trusting person who takes people at face-value until given a reason not to. If you say you are going to do something, he will progress on the assumption that this expectation will be met. George is sociable and is happy to socialise but will not go out of his way to make it happen. Being sociable makes life easier.

A good relationship to George involves making friends with co-workers and being open to advice from others. A good relationship results in easier cooperation built on trust and respect that is built up over time. Conversely, a bad relationship is working with somebody who always seeks clarification, because they do not trust you and do not practise give and take. George suggested Catherine as an example. To a sociable person like George, Catherine's perceived attitude is bewildering; because in George's mind we all need to get on to make life easier. A personality conflict can make or break a project.

George thinks the decision-making is not that decentralised as the other consultants have to rely on their managers to take decisions. George perceives good communication and

collaboration with the client's project manager, Ronald, and the builder's site supervisor, Edward. George is pro-Aconex because of its ability to store and search information better than email. However, for Aconex to be used effectively, users have to remember to keep to the same thread. Aconex allows George to see who is, or is not, doing something; lack of performance could become a trust issue. On the other hand, the existence of Aconex helps with collaboration due to the inactivity being so visible. Also, the ease with which others can be circulated improves communication, provided the system is not abused. George highlighted the 460 RFIs on the project; he expected about 80 if he had sorted most of the issues face-to-face instead of using Aconex. Over-use of Aconex by Catherine signals to George that she distrusts him. George noted that Aconex is a formal system as there are no private conversations on Aconex, unlike email.

6.3 On-going Project Case 3 - Nigel (OP3)

6.3.1 Company Relationship Management Ethos

Nigel works for a national group of quantity surveying practices. Their core purpose is to innovatively enhance their clients' business through integrity, effort and skilful execution of their services. They publicize their projects using the in-house produced newsletter, in which they acknowledge their clients and building partners, and introduce their people using brief resumes.

Nigel is located in a modern office in Melbourne's eastern suburbs. The company were preparing to celebrate the receptionist's birthday while the author was visiting.

6.3.2 Personal profile

For the completed project study, interviewees provided a written statement of themselves. However, the on-going project study interviewees were asked to describe their career during the interview to reduce the burden of taking part; relevant parts of the transcript are reproduced to paint a picture of what they have done, and why. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Interviewer: *We're now recording. So thanks for seeing me. So we'll start with the first question, please give a brief career profile of your education and employment, and really start by introducing who you are and your role and give me just sort of a logical time span as to what you did and why.*

Nigel: *I finished my VCE education in 98, and then I actually started working part time here straight from high school. My father was the Managing Director at the time.*

Interviewer: *That helps (laughs).*

Nigel: *Yes, still had to submit a resume, with the other four directors, and they took me on as a part time role in a cadetship while I studied the first year full time just at Box Hill TAFE doing the Diploma of Building. Certain things happened through my first year and I took on the responsibility of the IT as well as my job, which lead me to do the rest of my course part-time because they needed*

me here more full-time. So I've been working here for 13 years and am now the senior quantity surveyor and as well as IT manager.

Interviewer: *So the quantity surveying was the diploma, the qualification you needed to become to a quantity surveyor?*

Nigel: *It was a Diploma of, well, Diploma of Building is a very similar course to the degree that the directors have all done, and I was going to go on to further studies but just haven't got around to it, doing a degree in quantity surveying, but the practical experience was enough to satisfy.*

Interviewer: *So you're now a qualified chartered…*

Nigel: *No, well I don't think… we only have one or two chartered quantity surveyors here and the rest have done degrees. Half have done the course that I did, yeah. So just in speaking with directors in the past, they find that the university degree is producing some fine people but they're all coming into the industry expecting managerial positions.*

Interviewer: *(Laughs) typical kids.*

Nigel: *Yeah, and the guys who do the diploma, it's to the point where when I was first struggling I had an assignment to do, I came in and asked one of the directors, "Can you give me some time?" He pulled out his from 30 years ago and it was the exact same assignment. So the diploma that I did was almost in line with the degree that they did back then.*

Interviewer: *Gees, OK.*

Nigel: *Yeah, so I will eventually get there to do the degree, but family commitments and…*

Interviewer: *You're too busy.*

Nigel: *Yeah, yeah.*

Interviewer: *So basically you entered the industry 'cause it runs in the family?*

Nigel: *Yeah, exactly.*

Interviewer: *And was that your sort of… at what age did you sort of say to yourself, oh, I want to go and follow dad?*

Nigel: *When I was probably 18. I remember I was in Year 12, still not… I wanted to do something, I knew I was going to be a pen pusher but to what degree I wasn't sure. I had my name down for a few accounting and business and just general things 'cause I really wasn't sure, and then Pete said, well my father said, come around and have a look at a few buildings, sit with me for a few days, and I went with him and just had a look, and, yeah, yeah, I fell in love, so, yeah. So it's an interesting work environment. The four directors who remain, my father's retired, the four directors who remain I've known since I was born, so it's a very friendly oriented company. I think the shortest serving member here is four years and everybody else is anywhere up to 20 years or 30 years.*

6.3.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 31). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 31. Nigel's (OP3) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured? Nigel has no prior working experience with the other interviewees, but he has worked with the construction and architect companies before. Nigel explained that his company mostly works with universities and technical and further education colleges (TAFEs), and that he has used Aconex on 15 projects. He thinks that only five out of the twenty-two staff in the company have not used Aconex.	
Nigel is a trusting person, which he attributes to his upbringing and coming from a religious family. Until proven wrong, he trusts. He thinks that there is a general tendency to trust others based on comments passed round the office. Being positive about somebody is "kinda catchy". Showing trust in others helps in "building a positive relationship quicker".	6, 7, 15, 22

Research Question	Codes
Nigel's view of a good relationship is honest communications. If you do not have honest communications on a project "then things break down". Nigel differentiates between internal and external relationships. Relationships with office colleagues are "friendship oriented", whereas relationships with external people are "business first", albeit that a business relationship can develop into friendship. By "business first" Nigel meant "presenting yourself well" for "the sake of the company's image". If a project starts going bad, then "it will drag on" and "everything goes downhill". Communication "keeps everything in line". A good job positively affects "the company's possibility to get future work". A good relationship means that you can have disagreements with "no hard feelings". At the end of the project, "even if it's been shaky", if the client is happy then everybody is happy. He gave the example of client's project manager and builder who "were at each other's throats to the point where it was embarrassing to be around them". At the end of the project there was a happy client, and so the project manager wrote the builder a thank-you note; "this is something you see quite often": "everybody just kind of forgets the animosity".	1, 4, 6, 9, 10, 14, 15, 21
A bad relationship involves "a failure to recognise a mistake, which leads to the blame game being played". That is "bad business" and "leads to a waste of time". The issue is resolved by seeing who has the "documentation that holds the most water". The worst jobs "to drag back-up" are those where it is one person's word against another". Nigel gave the example of a breakdown in communication between a lead consultant and a builder's project manager, which led to the replacement of the project manager to overcome the impasse.	9, 10, 11
With regard to the level of trust on the project, Nigel was impressed by the builder's "level of openness" and proactivity in "letting the client and us know of upfront costs". He considered this rare for a builder. Based on his previous experience with the builder, he had high expectations and is pleased with his working relationship with Catherine; they bang heads every now and then, "but once the issue is talked about, we move on". While past experience with a company sets the expectation, he judges the relationship "person to person". However, while it is good with the builder, he saw the consultants "trying to pin the blame on others" with respect to a major problem on the project. The problem has resulted in the client demanding compensation from one of the consultants; the first time Nigel has seen this in 13 years. It will probably be settled out of court so that the consultant can "avoid a black-spot with the PI (public indemnity) on the insurance". The consultant	4, 8, 10, 11, 13, 15, 17, 20, 22

Research Question	Codes
eventually admitted blame and "everybody was proactive in trying to move forward". The general response was "let's move on", which Nigel credits to the open and "matter of fact" discussions, and also the client being unusual in being so "calm and open". Nigel said that everybody had worked together to reduce the consultant's liability by half to $75k. Outside the major problem, trust has been good with the consultants.	
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	
Nigel socialises with a few office colleagues, but believes business is about business and not socialising. The directors of the company take the staff away two weekends a year, and socialising between staff is encouraged. He noted that he had been invited to a football match by a client, and although he was happy to go, "he couldn't really say no to this client". Nigel feels he has a responsibility to go, "to show the company in a positive light".	1, 5, 10, 21
In establishing a good working relationship, Nigel adapts to the other person. If somebody is coming over as friendly, he would reciprocate. Likewise, if somebody is reserved, he respects their privacy. He thinks "he is trying to be all people to all people" to make a good relationship with all people. On the project, he shares a little bit, "but kind of keeps more to myself". It is important to establish a good working relationship because it helps to ease the communication flow despite the issue.	1, 6, 10
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Issues are mostly resolved at a site-meeting using a round-table discussion where everybody can contribute. Minor issues are taken off-line to be resolved by the relevant parties, with major issues involving everybody. If there is a strong disagreement between two parties, the issue may be raised at the site-meeting to encourage opinions from other stakeholders.	4, 10
Decentralised decision-making: Nigel explained that most of the decision-makers were around the table, and only one or two issues had been escalated. However, he did note that two directors from the client's project manager attended the meetings, and that the escalation involved the builder's two representatives, Catherine and Edward, seeking input from their directors.	10, 18
Open communications: "There's always a bit of cloak and dagger", but on this project the communication has been quite open. People being clever with the use	8, 9, 10, 11,

Research Question	Codes
of words in an email or contract clause are as bad as it has gotten. Nigel explained how the builder had refused to start work on a package and "put in a notice of delay" as the information from the consultants was arriving in "dribs and drabs". From his neutral perspective he understood why, but found the builder's lack of flexibility in being proactive out of character.	19, 20
Collaboration: The cooperation could be better. The builder believes that they are doing more than contractually required to fix what they perceive are design errors. The design team thinks "they are holding the builder's hands". It is not uncommon: "there are some cases where the architect probably should have been helping with things, and there are other times when the builder should use a bit of initiative".	9, 16, 17
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Nigel, as the quantity surveyor, uses Aconex to issue claims and variance recommendations, and monitor communications between the stakeholders "to keep tabs" on what may result in a cost. With issues, Aconex provides Nigel with an audit-trail that he can use to assess the validity of a variance claim. There has been no change in role or responsibilities; they just use Aconex instead of email. Aconex gives a "bit of clarity" about who is contributing.	10, 19, 20
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Aconex is a "convenient, organised way of showing information we already had" making it easier to access to give advice because the information is "linked" in threads. Hence, the decision-making "may be a bit quicker".	10, 18
Open communications: Aconex has made communications "more formal" and public, unlike email which is private and informal. People still use email to take the conversation "offline". While Nigel may be "light-hearted" when communicating with email, he is always formal when using Aconex. Email and, primarily, telephone calls are used for preliminary, informal discussions to determine somebody's "position" before going formal on Aconex.	1, 4, 10
Collaboration: Aconex helps cooperation as it makes it clear who is expected to do what.	10, 17
Nigel said that the decision to use Aconex lies with the client, the builder, or the	10, 19,

Research Question	Codes
client's project manager; being able to use it makes his company more marketable. The major benefit is the effect on ease of communication: all the documentation is stored in one place and "at everybody's fingertips". In essence, it's an audit trail. But, this is dependent on everybody using the system. Nigel has another Aconex project where the client is using email because they are not a "savvy user", and when you "lose one or two of the users, then it loses its power".	20

6.3.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from Nigel's perspective, those codes mentioned more than once are ranked from high to low frequency (table 32).

Table 32. Nigel's (OP3) Code Frequency

Code	Frequency
Communications	13
Ability	4
Contract	4
Meetings	4
Sociable	4
Attributional	3
Cooperation	3
Integrity	3
Power	3
Rationale-choice	3
Decentralised	2
Disposition	2
Reputation	2
Trust	2

As the project's quantity surveyor it is not surprising to see Nigel's emphasis placed on communications as the focus of his job is to ensure the financial integrity of the project, ensuring performance in-line with the contract, while being sociable. Nigel acknowledges that relationships take time to develop and sometimes forgiveness is necessary.

6.3.5   Leximancer Analysis

A Leximancer analysis of Nigel's responses was undertaken to identify any nuances not captured by the manual analysis.

Nigel's Leximancer analysis was unusual in that he had eight themes with a relevancy greater than 40%: builder, probably, guess, project, Aconex, information, work and people. As the project's quantity surveyor, he has to show empathy with all stakeholders; hence, it is not surprising to see communication (14 hits) and information (12 hits) figure prominently in the results, echoing the interview and coding analyses. Nigel is another person who shows humility in entertaining the possibility of a better answer: "probably" with 13 hits, and "guess" with 20 hits.

6.3.6 Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 33). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged partially compliant, other than the propositions about visibility of work (5, Comply) and socialisation (8, Non-comply).

Table 33. Nigel's (OP3) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply Nigel understands a good relationship to be about honest communications, with communications being a key factor of trust.
2. Informal socialisation is more important than formal socialisation.	Comply There are meetings that happen on-site and at different offices.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Comply Nigel was impressed with the builder's openness on the project. He was pleased with the decentralised decision-making and communication, but thinks the collaboration could have been better, which is not uncommon.

Proposition	Compliance
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	Partial compliance The decision-making may be a bit quicker due to easier access to the information; also, it is clear who is not doing something; however, the communications is more formal. Informal and more open communications is conducted using the telephone and email.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply Aconex helps cooperation as it makes it clear who is expected to do what.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance Aconex has not resulted in a change in Nigel's role or responsibilities; relative to email, it has provided a bit of clarity with the major benefit being ease of communication. Nigel commented on the need for all users to be proficient in the use of Aconex.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Partial compliance Aconex provides Nigel with an audit-trail that he can use to assess the validity of a variance claim. As the project's quantity surveyor, he is using it as a monitoring system to give advice. Aconex is better at organising information than email.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply Aconex has made the communications more formal, and there has been no change in role or responsibilities.

6.3.7 Analysis Conclusions

Nigel is a naturally trusting person, who trusts somebody until proven otherwise. He believes this predisposition is common-place as it helps in building a positive relationship. He tries to establish a good relationship with all stakeholders by adapting to their personality: if they are friendly, he is. However, while he is happy to be sociable, he is not keen on socialising as

business is about business. The benefit of being friendly with others is that it keeps the communication flowing when there is a problem.

A good relationship is all about honest communications between the stakeholders. Not just to keep the channels open to resolve problems, but more importantly to reinforce his company's reputation as a credible partner: communications ensures a good project, which means a happy client. Conversely, a bad relationship is caused by people not admitting to their mistakes and playing the blame-game: it is bad business and a waste of time. Nigel regarded the level of trust with the builder as high due to the builder's openness and proactivity, but witnessed the consultants trying to pin the blame on each other with regard to a major problem. However, he noted the problem has been resolved by a consultant admitting they were at fault, and that the supply chain had worked together to reduce the consultant's liability.

Overall, there has been decentralised decision-making and open communications, but the collaboration could have been better. Aconex provides Nigel with an audit-trail of documentation to assess the validity of variance claims (Nigel is the project's quantity surveyor). However, Aconex is a formal system and he prefers to use informal means, e.g., email, telephone, etc., to indicate his position before going formal. While the major benefit of Aconex is being a central depository of project documentation, its power is dependent on all stakeholders being adept users.

6.4   On-going Project Case 4 - Ronald (OP4)

6.4.1   Company Relationship Management Ethos

Ronald works for a company that has specialist consultants in strategic planning and project management. They see each client as being unique, and pay close attention to stakeholder management while emphasising excellent and appropriate communication. They have a particular interest in sustainability and the management of social, economic and environmental impacts. Many of the employees are Green Star Accredited Professionals. Green Star is a national environmental rating system.

Ronald is located in the company's building in Melbourne's CBD.

6.4.2   Personal profile

For the completed project study, interviewees provided a written statement of themselves. However, the on-going project study interviewees were asked to describe their career during the interview to reduce the burden of taking part; relevant parts of the transcript are reproduced to paint a picture of what they have done, and why. No comment is made on the profile as I am seeking to let the interviewee have a voice, free of the interviewer's bias, to let the reader draw their own conclusions.

Interviewer: *We're now recording. So thanks for seeing me. First question is can you just give me a brief career profile of your education and your experience, and particularly why you took decisions?*

Ronald: *Sure. I have an undergraduate degree in architecture, a Bachelor of Architecture, which I concluded in 1987 at the University of New South Wales in Sydney. Following which... I'd gone straight from school to university, and I was at university for seven years to get my degree, after which I was pretty sick of schooling, so an opportunity arose to go and work on a construction site, just ended up doing some labouring with a guy I went to uni with, who was also a graduate architect and qualified carpenter.*

So I did that for a while, and discovered that I actually enjoyed being on site doing building work, so I thought since I'm doing this I may as well go and do a trade, so I did carpentry, a trade course.

Interviewer: *Oh, so you... after the architecture you did carpentry?*

Ronald: *After the architecture.*

Interviewer: *That's interesting.*

Ronald: *I was sort of picking up clients for designs; I ran a small design and build business in Sydney, doing mostly domestic alterations and additions work. After... I seem to do things in five year blocks [laughs].*

Interviewer: *OK [laughs].*

Ronald: *So about ten years into this I took an opportunity to go and work with another friend in the architectural profession, in his small practice, which I then did for a few years desk side, I think making reasonable use of my hands-on construction knowledge and design education.*

Then I got another opportunity, which sort of came from left field, from another person who – another contact I had, to go and join the Commonwealth Government, so I became a client side project management bureaucrat working on heritage and development projects. During that time I did a Masters in Conservation, in heritage conservation, not environment conservation, which again I did that for about roughly a five year block, and another opportunity arose where I thought I might like to move to Melbourne.

And fortuitously as it was, I sat in this very room and got a job with projects.

Interviewer: *And how long ago was that?*

Ronald: *That was in the beginning of 2008.*

Interviewer: *OK. Can I ask what made you do architecture at uni; what sort of was behind that decision?*

Ronald: *That was a [laughs]... that was a spur of the moment decision I made between actually finishing my high school certificate and deciding what I was going to do.*

Interviewer: *So you had to take a decision, and lo and behold, architecture?*

Ronald: *To be honest I was planning not to go to university that first year after school. I was planning to work and think about what my options were, but architecture came along and I thought, yep, that's exactly what I'm doing; I want to do it now.*

Interviewer: *Oh, OK. Now next question, just based on your little history you've just given me, most people do a degree, especially something like architecture, and they started... they start down the chartered process, or whatever the... is it chartered in Australia?*

Ronald: *Yeah, it's chartered. Yeah.*

Interviewer: *Yeah? So were you sort of... frankly you went the other way around, because usually people... you'd say OK, people would get a trade, and then they'd think, "Oh well I'll go and do a degree in whatever" – you did a degree and then actually went and did a manual trade.*

Ronald: *Yeah. Yeah, to be honest, I mean it sounds unusual, but there are actually a few people like me out there.*

Interviewer: *OK.*

Ronald: *You know, a lot of architects like the business of actually putting buildings together, and like to get involved in doing that as well as designing them.*

Interviewer: *So you're hands-on?*

Ronald: *Yeah.*

Interviewer: *Yeah. Do you do renovations and things as well?*

Ronald: *I don't do them anymore, because you get sick of those. [Laughs].*

6.4.3   Responses to Interview Questions

Salient responses to the interview questions are presented as responses to the research questions (table 34). The response is manually coded to make sense of the data, thus allowing an easier interpretation of the data's alignment with the identified literature.

Table 34. Ronald's (OP4) Responses

Research Question	Codes
What creates trust (interpersonal and inter-organisational), and how is trust measured?	
Ronald has not worked any of the other interviewees before, neither has he worked with their respective companies. It is the third project on which he has used Aconex; the second time it was used only for the design and tendering stage. Ronald thinks he is more naturally trusting than most, although he thinks he would do his job better if he was more suspicious. It is important not just to show trust but demonstrate it: act in good faith. Over the course of the contract, the level of trust has increased because when there was a problem people reacted appropriately, apart from one case. There was a major problem with one of the consultants regarding their performance and not being open, and that affected Ronald's trust in him. Ronald judges people by "their ability to solve a problem of their own making"; not telling the stakeholders of the issue caused problems for the client, consultants and builder. The consultant who erred was fired, and his replacement's performance has re-built trust in the company.	6, 7, 9, 10, 11, 15, 22
A good relationship is signalled by people when they "prefer to talk to you, either by phone or face-to-face, rather than send you a written communication" particularly when it is about "something of consequence"; people do not avoid you. Written communications are important, but it's better when it is preceded by "a phone call or a meeting".	4, 10
Ronald differentiates between relationships with internal and external parties. The relationship with his director is excellent because it is open and supportive, and he can "bounce things off him". However, with the consultants there is less openness as there are obviously "certain things you can't talk to them about", and you spend half your time second guessing their position. Overall, Ronald thinks he has a good relationship with the other stakeholders because he works hard to maintain that. As you work with people, you get to know how "people want to play it". He does not like to communicate just via email, he needs physical contact. Ronald does not like to "rely on the hammer of the contract" and prefers to "solve a problem cooperatively". There had been issues on this project that have resulted in letters to	1, 4, 6, 9, 10, 15, 19, 20

Research Question	Codes
"put our position in contractual terms", but they have been resolved at "a sit down meeting" where "the hand had been shaken": "it's the face-to-face stuff that always works".	
A bad relationship is "when you avoid dealing with the problem"; when you keep finding reasons not to have to talk to somebody to solve the problem. Ronald was pleased that he has never been involved in a project relationship with irreconcilable issues. Again, he alluded to the problems on this project 'which could have gone that way" but have not, because people recognised that "if you push in a certain direction you end up with lawyers", which is "very expensive and also extremely difficult".	10, 16, 20
Without prompting, Ronald noted that he had had 3619 communications from Aconex, with about 80% demanding a response. It is easier to answer a question or solve a problem by face-to-face than using the "fairly tortuous process" of Aconex. However, the client attends the project meeting, which tempers discussion; hence, a further meeting takes place without client input to ensure robust debate. The debate is particularly important with regard to a "notice of likely delay" submitted by the builder. The discussion between Ronald and Catherine (OP1), builder's project manager, allows Ronald to discuss "the real implications" as you can sit down and do some "program analysis". You need the face-to-face as it would be impossible to conduct the implications discussion any other way.	4, 10, 17, 20
An inflexible approach is what would put Ronald off dealing with people. He referenced the relationship between George (architect) and Catherine, and thinks "it's not actually as bad as George thinks" as "they are going to be in conflict occasionally". He said George thinks the builder is doing a good job, and that George has a preference for dealing with Edward instead of Catherine. Ronald believes that the architect and builder are "really good". When asked about the level of trust between the consultants and builder, Ronald informed me of a commercial-in-confidence issue that had initially resulted in a waning in trust between the stakeholders. He described it as a "sharp dip", but "we had worked our way up and out of that". It was resolved by escalating the issue to senior management, who resolved it independently of the team. Ronald thinks that taking it away from the "day-to-day level" allowed them to get on with their jobs, without "the added burden of the other thing".	1, 4, 10, 15, 16, 17, 20, 22
Ronald was concerned that the builder's position was too contractual, forgoing the opportunity to talk about the problem. He thinks that Catherine's strength is	

Research Question	Codes
"operating within the contractual environment", whereas Ronald would prefer to "change the tone of the relationship" by increasing the face-to-face: "call me first". Talking first lets Ronald manage his boss and the client. Ronald thinks Catherine will "go a long way" if she develops her interpersonal skills.	
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?	
During working hours the contact is via telephone or face-to-face; "it's very business oriented, aside from the basic pleasantries". The choice of venue is usually neutral in anybody's office; although when he wants to be 'serious and business-like" he calls the builder or consultant to his office. Outside working hours there is no socialisation because nobody's "got time to do that". Ronald explained that he was in the office answering Aconex communications until six-thirty, and then doing more at home.	1, 2, 4, 5, 19, 20
Besides, you need to be careful that you do not get too friendly while 'the contract's on". After the project is over, Ronald expects to keep in-touch, e.g., coffee, beer, etc., "to keep the networks going". However, he is happy to be sociable with the others as he likes talking and is a reasonable listener. He knew Catherine was getting married in a few weeks. How sociable he is depends on the other person's personality as some people do not want to chat.	
A good relationship "makes it worthwhile coming to work"; "being part of a team working towards a common end"; working with people you like. Ronald informed me of a lower-level, client-side contact who has proved useful, so Ronald returns the favour by keeping him in the loop. Ronald re-iterated his preference for face-to-face as written communications are not clear, and used by people to protect "their own position".	4, 9, 10, 11, 12, 14, 17, 19
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?	
Ronald had previously described the issue resolution process involving team meetings, with and without the client.	4, 10
Decentralised decision-making: The team is responsible for all decisions, other than those deemed too major, which are escalated to directors within their respective companies (as noted previously). Ronald noted that the school principal had to sign-off any changes that affected the appearance of the building.	18
Open communications: The communications is generally open provided people are "making an effort to talk, and not just simply send Aconexs". Of course, there are	10, 19

Research Question	Codes
certain things that have to be held back for commercial confidentiality.	
Collaboration: Ronald thinks the collaboration from the architect is excellent, but some of the consultants "need a prod" to share information with the others. They have a tunnel-vision about what they are doing and forget about the impact on others; for example, if it has a visual implication they forget to mention it to the architect.	9, 10, 17, 20
Catherine rings Ronald more than she used to "rather than just Aconexing it out". He thinks Catherine and Edward (builder's site manager) complement each other as Catherine is the "new school, Aconex management, contractually focused expert", and Edward is "the guy with all the experience onsite". Nigel, the quantity surveyor, is "a good person to have on the team".	
How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?	
Ronald uses Aconex for the "formal stuff" such as issuing RFIs, but uses Outlook for informal communications. Aconex is useful for audit trailing (who did what, when) but it needs a complementary informal channel, as Aconex is about administering the contract when Ronald needs to "look professional". Outlook is also good because Aconex notifications are sent to Outlook, so Outlook "becomes the place where everything is, the informal and formal written communications". He is impressed with the performance of Aconex but thinks it needs some changes to the user-interface. On this project, with regard to Aconex, Ronald considered himself the "new guy" as the builder and consultants had more experience. He is self-taught with impressive help from the Aconex helpline.	10, 16, 19, 20
Aconex is a "great way to keep records" if "somebody wants to get legal", but he has "never seen a volume of communications on a project like this one before", and he "doesn't know how you'd stop it". He can remember managing projects with the occasional email. The builder is covering itself by putting everything on the record. Ronald explained that, according to Aconex, he has 237 unanswered communications but he knew that is not true. However, to clear those 237 it would take him three days and he is not prepared to do that.	10, 19, 20, 21
Ronald has found Aconex "enormously distracting" because Outlook keeps pinging him with incoming Aconex communications, which stops him concentrating on other projects. His solution is to turn off the PC or finds some quiet space. Given	4, 9, 10

Research Question	Codes
the volume of Aconex communications, he is reticent to add to them with follow-up requests for consultants to respond unless really necessary. Ronald uses flags on Outlook to tell him whether something is urgent that requires him to make a telephone call. His preference is for face-to-face to resolve issues, with only the resolution placed on Aconex as this would obviate the need for numerous Aconex communications.	
What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?	
Decentralised decision-making: Using Aconex has forced Ronald "to try and find ways to save time in other areas". Ronald's company had budgeted 2 days of his time on this project; in reality, he has been working 4½ days in the office, plus another day and a half outside the office, over the last eight weeks. Aconex is resulting in too many information requests from the builder, who wants to show compliance with the contract (Aconex may also be used in the design and tendering stage, which is about information gathering). The architect thinks the builder is issuing too many RFIs, whereas the builder thinks the architect is making too many design changes. If the architect had detailed everything that has subsequently been RFI'd, "they would have charged another half a million dollars". Upfront, the architect and builder need to agree how to manage the missing detail so "that we don't end-up with a RFI storm". Ronald intends to explore this at the post-project review. Unfortunately, the client is not on Aconex and does not see the amount of work involved in using Aconex.	9, 10, 16, 20
Open communications: see previous comments regarding decentralised decision-making.	
Collaboration: Aconex forces collaboration because action and inaction are visible on the system. However, Ronald has had to work to get the "face-to-face stuff happening away from Aconex". Ronald thinks the others would agree that it is at the face-to-face meeting that "you get a better outcome", and "people's moods are better" at the end of meetings.	4, 9, 14, 17
In theory, the idea of Aconex is good, but the practice needs work to balance face-to-face with Aconex: "it's a very demanding beast".	

6.4.4   Code Frequencies

To form a viewpoint on the salient issues of relationship management from Ronald's perspective, those codes mentioned more than once are ranked from high to low frequency (table 35).

Table 35. Ronald's (OP4) Code Frequency

Code	Frequency
Communications	14
Contract	9
Meetings	9
Ability	7
Power	6
Cooperation	5
Consensus	4
Attributional	3
Sociable	3
Emotion	2
Integrity	2
Rationale-choice	2
Trust	2

Ronald likes to see copious communications, particularly face-to-face meetings, between the stakeholders to ensure performance to the contract based on cooperation and consensus. Further, he shows an awareness of bargaining power and sociability to ensure compliance. Ronald acknowledges that relationships take time to develop and sometimes forgiveness is necessary.

6.4.5   Leximancer Analysis

A Leximancer analysis of Ronald's responses was undertaken to identify any nuances not captured by the manual analysis.

As Ronald is the client's project manager, it is not surprising to see Leximancer highlight the themes of project, Aconex, time and problems. The other theme with a greater than 40% relevancy is things, which reflects Ronald's use of two colloquialisms: "things" and "look"; "stuff" is another favourite. Leximancer captured the basics but did not detail the importance of face-to-face communications to Ronald.

6.4.6   Propositions Compliance

The proposition is stated along with evidence from the interview to form a view on the informant's compliance (table 36). Compliance may be one of three values: Comply; Partial compliance; Non-comply.

While there is general agreement with the propositions related to relationship management, the propositions pertaining to Aconex are judged non-compliant, other than the propositions about visibility of work (5, Comply) and direct communication (6, Partial Compliance). Proposition 3, issue resolution behaviours, was marked partial compliance due to the impact of Aconex and too many RFIs.

Ronald's propositions compliance scores, in portraying an individual with negative feelings towards Aconex, are at odds with his responses to the interview questions that acknowledge the need for Aconex to be complemented by face-to-face meetings to use it effectively. This disparity underscores the need to dance with the data (Simons, H 2009) and see the evidence from different perspectives.

Table 36. Ronald's (OP4) Propositions Compliance

Proposition	Compliance
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	Comply A good relationship is categorised by communication, particularly face-to-face. Communication is a factor of trust.
2. Informal socialisation is more important than formal socialisation.	Comply There are meetings that happen on-site and at different offices. Ronald's preference is for face-to-face communications, and he is open to socialising after the contract is finished.
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	Partial compliance The level of trust between the stakeholders is good. Only major issues are escalated to senior managers; communications is generally good when people are not just using Aconex; collaboration from the architect is excellent, but some of the other consultants need a prod; Catherine is ringing more instead of using Aconex.
4. Supply chains using an OCT exhibit	Non-comply

Proposition	Compliance
greater decentralised decision-making, open communications and collaboration, than one that does not.	The builder has used Aconex to release a greater than usual number of RFIs, resulting in Ronald having to spend twice the budgeted time on the project. While Aconex forces action due to the visibility of inaction, there needs to be more face-to-face meetings for better outcomes. Ronald likes the idea of Aconex in theory, but believes the practice needs work.
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	Comply Aconex forces action due to the visibility of inaction.
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	Partial compliance The use of Aconex may have resulted in greater direct communication between the stakeholders and fewer meetings, but this is to the detriment of the project: it has helped to fuel the conflict between Catherine and George.
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	Non-comply Aconex has encouraged the builder to issue more RFIs and reduce the face-to-face interactions. Catherine is too contractual.
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	Non-comply The use of Aconex needs to be complemented by face-to-face meetings, which did not happen.

6.4.7 Analysis Conclusions

While Ronald considers he is naturally trusting, he laments being so as he thinks he would do his job better if he were more suspicious. He thinks it is important not just to show trust but demonstrate it. His simple test to judge whether a person should be trusted is to see whether they solve a problem of their making. During the project, Ronald is not interested in socialising as he does not have the time and, besides, it would be inadvisable to get too

close. However, after the project, Ronald expects to socialise with the others as a normal part of networking; albeit he is sociable as it good to work with people you like.

A good relationship is signified by a person desiring to talk to you, instead of sending written communications. However, Ronald is mindful that openness in the communications is dependent on whether the relationship is internal or external: due to commercial reasons, some things cannot be said to external parties. He has a pragmatic attitude to resolving issues, preferring to rely on cooperation instead of the contract. A bad relationship would be typified by a preference not to talk to an individual to avoid dealing with a problem. Ronald noted that such a case would be highly unusual as it would presage the engagement of lawyers, a very expensive process. Generally, the trust between the stakeholders is good, although it had suffered when a major problem with significant liabilities was identified; this has proved to be a blip in the relationship with no on-going ramifications. While noting that there was an issue between Catherine (OP1), builder, and George (OP2), architect, Ronald, in sympathising with George, conceded that he would prefer Catherine to be less contractual and call him first.

Ronald's concern with regard to communication and collaboration was over-use of Aconex by Catherine, although he was also concerned with some of the consultants who needed a prod to share information. He has been encouraged by Catherine ringing him more often, rather than using Aconex. The decentralised decision-making was good with only major issues being escalated to senior management. Ronald uses Aconex for formal communications (e.g., issuing RFIs), preferring to use Outlook for informal communications. Although he is impressed with Aconex, Ronald thinks it needs some changes to the user-interface. However, he did admit to being a beginner at using Aconex. He re-iterated his main issue with Aconex was the amount of communication issued by Catherine, who he thought was covering herself by putting everything on the record. Ronald observed that although his budgeted time was two days, he was spending more than double that due to the flood of Aconex mail. Hence, while respecting the potential power of Aconex, there needs to be balance between the use of Aconex and face-to-face: it is at the face-to-face meetings where outcomes result faster and better.

7 Multi-case Study Analysis and Conclusions

The multi-case study analysis was undertaken by merging the results of the individual case studies from both groups. Hence, the interview, coding and propositions analysis were undertaken using the combined findings from each individual case to determine multi-case generalisations (tables 37, 38, 39, 40 & 41). This was followed by a group interview with the on-going project team to validate the multi-case generalisations and identify new insights. The group interview was not transcribed due to the ambient noise at the project's site office; therefore no Leximancer analysis was conducted. The analysis revealed consistency in viewpoints except for the disagreement between the builders and consultants over the number of RFIs issued using the OCT. Hence, where pertinent, the differences between the builder and the consultants are elaborated upon.

7.1 Multi-case Interviews Analysis

The findings from the individual cases were merged to present collective themes (table 37).

Table 37. Multi-case Interviews Analysis

Research Question
What creates trust (interpersonal and inter-organisational), and how is trust measured?
Good: Communications, particularly face-to-face, and meeting expectations. Bad: From the consultants' perspective: too many RFIs and not enough discussion. For the builders: frustration from inadequate communication with the consultants (Catherine (OP1)) and sub-contractors (Mark (CS1)), or lack of flexibility from others (Derek (CS2)).
What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust? It is important to be sociable and get on with others, however, there is no desire to socialise, as in interact outside working hours, e.g., have dinner.
What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution? Most of the decision-making is taken by team unless an issue arises that has major financial ramifications; then it is escalated to senior managers. The communications is open, albeit there is always information that has to remain commercial-in-confidence and is not shared. However, the consultants had issues with the builder's use of Aconex to create an audit-trail as an insurance policy against future liabilities. Overall, there was good cooperation with a collegiate attitude to solving problems.

> **How does an OCT change the project manager's work practices, and how do these changes affect his/her relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?**
>
> There was general acceptance of Aconex as a useful tool providing a database of documentation, drawings and communication on the project; but there were no changes in work practices identified: Aconex helps them to access information quicker. Unfortunately, the builder's over-usage of RFIs increased the consultants' time on the project and reduced the face-to-face communications.
>
> **What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?**
>
> Aconex allows for easier access of the information required to take decisions, but it has not changed how they take decisions.
>
> Aconex is a formal communications channel; there needs to be an informal channel to complement Aconex. Also, there needs to be agreement on its use to prevent what Ronald called the "RFI storm".
>
> The visibility of information on Aconex forces collaboration.
>
> In summary, the builder, in using Aconex as a database of everything that has happened on the project, sees the benefit of Aconex as an insurance policy against future liability claims. Unfortunately, this approach has a financial cost to the consultants as it requires more of their time, and leaves them feeling distrusted due to the reduction in face-to-face consultations.

7.2   Multi-case Coding Analysis

The top three trust factors from each individual are presented to give an indication of the relative importance to the individual. The two tables represent the completed (table 38) and on-going project studies (table 39), respectively.

Table 38. Completed Project Coding Analysis

Mark Builder	Derek Builder	Roger Consultant	Richard Consultant	John Consultant
Communication	Communications	Communications	Communications	=Ability, Communications
Ability	Ability	=Ability, Integrity, Meetings	Ability	Consensus
Cooperation	Cooperation		=Consensus,	

Mark	Derek	Roger	Richard	John
Builder	**Builder**	**Consultant**	**Consultant**	**Consultant**
			Shared values/goals	

Table 39. On-going Project Coding Analysis

Catherine	George	Nigel	Ronald
Builder	**Consultant**	**Consultant**	**Consultant**
Communications	Sociable	Communications	Communications
Ability	Integrity	=Ability, Contract, Meetings, Sociable	=Contract, Meetings
Cooperation	=Ability, Communications		

Hence, the importance of communications and ability to the builders and the consultants is underlined by the coding analysis. In the coding analysis, ability represented not just the quality of being able to perform, but also performance, as in the achievement of objectives; in other words, fulfilling expectations. The other major theme was working together: cooperation, consensus, shared values/goals and meetings.

7.3 Multi-case Propositions Analysis

The individuals' propositions were coded to deduce a collective viewpoint (Miles & Huberman 1984): Comply=2; Partial compliance=1; Non-comply=0. Then the average score was rounded. The following tables display the results for each proposition for: all interviewees (table 40); the builders and consultants (table 41).

Table 40, Multi-case Propositions Analysis – All Interviewees

	All Interviewees	
Proposition	**Score**	**Compliance**
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and		

	All Interviewees	
Proposition	**Score**	**Compliance**
Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	2	Comply
2. Informal socialisation is more important than formal socialisation.	2	Comply
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	2	Comply
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	1	Partial-compliance
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	2	Comply
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its		Partial-

	All Interviewees	
Proposition	**Score**	**Compliance**
users.	1	compliance
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	1	Partial-compliance
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	0	Non-comply

Focusing on the OCT results; an OCT is generally associated with better communication and enhancing trust and issue resolution, than the alternative, email. The over-issuance of RFIs by both builders, in response to incomplete design documentation, was the cause of the partial-compliance scores. Also, informal socialisation in this research refers to the managers meeting out of their respective offices at the project site. They have an aversion to socialising in the vernacular sense, for example, having dinner.

Table 41. Multi-case Propositions Analysis - Builders & Consultants

	Builders		Consultants	
Proposition	**Score**	**Compliance**	**Score**	**Compliance**
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	2	Comply	2	Comply
2. Informal socialisation is more important than formal socialisation.	2	Comply	2	Comply
3. In supply chains exhibiting	2		2	

Proposition	Builders		Consultants	
	Score	Compliance	Score	Compliance
trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.		Comply		Comply
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	1	Partial-compliance	1	Partial-compliance
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is performing and not performing.	1	Partial-compliance	2	Comply
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	1	Partial-compliance	1	Partial-compliance
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	1	Partial-compliance	1	Partial-compliance
8. A supply chain using an OCT has greater	0		0	Non-comply

	Builders		Consultants	
Proposition	**Score**	**Compliance**	**Score**	**Compliance**
socialisation between the stakeholders, relative to one that is not using an OCT.		Non-comply		

The key difference between the builders and the consultants is that the consultants see an OCT giving them greater visibility of what is happening on the project. It is not surprising that the consultants see greater visibility with an OCT, than the builders, as the consultants see a benefit in an OCT helping them to manage the builder. Neither builder used the OCT to manage their sub-contractors; hence an OCT would not be as helpful to them, in that respect.

In summary, trust is regarded as a simple construct to the supply chain stakeholders, and trust is a good thing to have around. However, with hindsight, it is not surprising to see a limited endorsement of OCTs due the use of an OCT by the builders to get everything on the record, by issuing a far greater than usual number of RFIs. The inference from the interview with Ronald (OP4) is that the design documentation is never perfect, as the cost of producing such documentation would be untenable to the client. Design issues should typically be rectified in face-to-face meetings and not the widespread issuance of RFIs, as far as the consultants are concerned.

7.4   Group Interview Conclusions

A group interview was run with the on-going project members to gauge the consensus of viewpoints, and explore existing themes in greater depth. The results are presented as: confirmations of individuals' answers; new information.

7.4.1   Confirmations

- Trust is about open and honest communications, and meeting expectations. The focus is on the performance of the individual, although initially there is an element of judging the person by the reputation of their company. It entails: being upfront with each other when solving problems; having a flexible approach; working together and bouncing ideas; showing a mutual understanding of others' positions; fairness.
- The strength of Aconex is it being the central repository of project information; hence you can be assured that everybody is working to the same version of a document or drawing. The weakness is its user-interface, particularly with regard to searching. The weakness could reflect the experience of the user: Catherine (OP1) explained to

the others how she searched using Aconex, while the others tended to use Outlook to identify pertinent Aconex threads.

- Aconex is a formal system. Users use telephone/email as informal ways to arrange meetings or pass some banter. Aconex has gravitas as a record-keeping system and should be respected as such.

- In the instances of the two projects studied, due to the builder's over-issue of RFIs to create an insurance policy, Aconex was more time-consuming for the consultants. The consultants would have preferred more discussion to resolve issues. It's good for ensuring RFIs are sequentially numbered, but it needs to be more user-friendly.

- Overall, the benefit of being a central repository and being easily accessible has to be balanced by the cost of use: time-consuming for the consultants; its clunky user-interface. Ronald (OP4) noted he always had Outlook and Aconex tabs open.

7.4.2 New Information

As a result of the group interview, greater emphasis was identified on issues already touched upon in the individual interviews.

- What binds them together as a team is the desire for a happy customer, because a happy customer is good for their reputation. It would not be good to be associated with a project that had difficulties that could not be overcome. Therefore, it is accepted that issues, no matter how big, will be overcome and discord muted for the greater good: the project's success. Culture is, essentially, an esprit-de-corps that is focused on a satisfactory conclusion to the product: a shared commitment to winning.

- Even the most Aconex experienced user, Catherine (OP1), complements Aconex with an Excel spreadsheet of outstanding RFIs, similar to Ronald using Outlook. In fact, the consultants were appreciative of Catherine's spreadsheet at the weekly meetings.

- The three consultants jointly expressed their concerns with the user-interface and its need to be more user-friendly. However, they did recognise that the tool's effectiveness depended upon all users having the training and experience to use it properly.

7.5 Conclusions

The multi-case study analysis synthesized with the group interview reinforced a number of findings from the individual case studies:

- The importance of communication, cooperation and expectation fulfilment to trust.

- The differences between the builders and the consultants with regard to their respective views on the use of Aconex.

- The mutual focus on attaining a happy customer because it is good for their company's reputation.

These findings form the bedrock of the chapter's conclusions. The purpose is to present conclusions that the reader may use, in conjunction with the detailed evidence, to seek generalisations based on their own experience (Stake 2006).

7.5.1 Lawyers and Mutual Assured Destruction

The supply chain relies on trust and reputation to maintain the relationship. Reputation plays an important part for two reasons: first, the reputation of company is used to make an initial judgement on how good an individual is and, hence, how much trust should be attributed at the beginning of an interpersonal relationship; second, during the contract, no matter what issues arise, the stakeholders are concerned to ensure a good outcome to consolidate their reputation within the industry as co-operative partners. Because of this concern with their on-going reputation, no threats to leave the project are issued; while a firm/individual may have the bargaining power to leave or force out another, it would be considered bad practice to do so. Hence, the interviewees displayed a stoic acceptance of having to work through issues without displaying on-going malice to the party at fault. Likewise, it is considered bad form to use legal remedies due to the cost of lawyers and threat to the firms' reputations. In essence, they are predisposed to put on a brave face and temporarily suffer in the interests of their company's reputation. This collective dependence makes them very forgiving when issues arise.

7.5.2 Do What You Told Me

Showing trust in others helps to build relationships; however, the builders, Catherine (OP1) and Derek (CS2), indicated this was not straightforward in the construction industry due to being wary of others. Trust results from on-going interactions, which is important in those instances where the parties have no prior experience of working together. A good relationship, as is trust, is simply determined by being kept informed about what is happening, or will happen, and cooperating to meet the expectations one has set. Trust waxed and waned during the projects but, overall, both teams considered their respective project team extolled trust, and this culminated in decentralised decision-making, open communications and cooperation to solve issues.

7.5.2.1 What's culture?

Two individuals in the completed project, and the on-going project, group interview participants were asked about the extent of the shared culture on their respective projects. The consensus was that a shared culture is about shared goals and commitment. Richard (CS4) mentioned a shared family culture existed between the companies and the promotion

of a work-life balance as examples of culture, but reverted to shared commitment to completing the project as the overriding measure. Likewise, George (OP2) referred to him and Edward being "a couple of old farts putting up a building", but his focus was on achieving the objective: completing the project.

7.5.3 Be Nice

There is more of an emphasis on being sociable than socialising. During the normal course of the project they regularly meet on-site and at each other's offices, and during this time the importance of being sociable, e.g., passing the time of day, to make life easier is acknowledged. However, there is no interest in socialising, as in having dinner.

7.5.4 All Things Are Not Equal: We Have To Talk

Aconex was recognised by all as a powerful tool for being the central repository of project information, and allowing ease of communication between the supply chain; albeit no change in work practices were reported, and Aconex was seen as a formal system that needed to be complemented by other informal means of communication, e.g., face-to-face, email. However, two things counted against its widespread acceptance: first, the tool itself was considered to have usability issues, not helped by an inconsistent standard of training and experience amongst the stakeholders; second, the builders and the consultants had different aspirations.

The builders saw Aconex offering them easy connectivity to the consultants to request information and record the history of the project (an insurance policy against future liabilities). Hence, relative to previous projects, from the consultants' perspective, they issued a far larger number of RFIs to seek design clarifications. This had a major corresponding impact on the consultant's time, who found themselves doubling their budgeted time in one instance. The consultants perceived a lot of the issued RFIs had already been answered by the existing documentation, or could have been more efficiently handled in a face-to-face meeting. Some perceived the builders signalling distrust. The consultants' disquiet was more pronounced in the on-going project, rather than the finished project, probably due to the completed project consultants having moved on to another project: out of sight, out of mind.

Also, the evidence suggests the issuing of too many RFIs accentuated a personality conflict between the builder (OP1) and the architect (OP2) in the on-going project. However, even the most strident critics of the issuance of too many RFIs had something positive to say about Aconex improving communication and cooperation. In fact, the one person, John (CS5), a first-time user, who said he would not recommend using Aconex again, also noted

the potential efficacy of Aconex. Hence, the evidence shows, from the consultants' perspective, that the issuance of too many RFIs is due to the behaviour of the builders and not a shortcoming of Aconex. Furthermore, even allowing for the consultants' issues with too many RFIs, they still reported good and trusting relationships, suggesting that too many RFIs did not overly affect the strength of the relationships.

Therefore, while the research suggests that Aconex has enhanced the communication and cooperation in the relationships with regard to resolving issues, it has to be considered in light of the change in behaviour induced by the ease of connectivity and record-keeping. All things were not equal due to the dramatic increase in RFIs. Hence, it is not surprising that the better communication promised by Aconex did not culminate in a resounding affirmation of Aconex, due to its guilt by association with the increased number of RFIs. For the sake of their company's reputation, a happy customer is the desired outcome; irrespective of the motive for the increased RFIs (inadequate design or insurance policy against future liabilities), the builder's aim was to fulfil the primary objective, even if using Aconex, and not more face-to-face, was considered inefficient by the consultants. Hence, given the strength of relationships reported by the interviewees, it is surmised that the greater than usual number of RFIs was an attempt by the builders to cover themselves, and more a cause of frustration to the consultants than the perceived signal of distrust indicated by George (OP2). However, the consultants' acquiescence is probably a one-off. Next time, it would be surprising not to see them tackle the problem of the RFI storm upfront in a project kick-off meeting.

Likewise, although the amount of face-to-face communication, or opportunities to be sociable, was considered less than ideal by the consultants, the researcher perceived sociable relationships between the interviewees, even between that of Catherine (OP1) and George (OP2), to be professional. Even if they did not like each other, it was not allowed to get in the way of the project. The researcher believes that the good relationship between George (OP2) and Edward, the builder's site supervisor, compensated for the issues between George (OP2) and Catherine (OP1) in maintaining a good working relationship between both companies.

7.5.5 I Can See You

Aconex, as the central repository of project information, ensures all users are using the same revision documentation, and communicates who has, or has not, done something: it enforces collaboration.

8 Discussion of Research Results

8.1 Introduction

This chapter discusses the research results. The development of the conceptual framework is briefly discussed to set the scene for the use of deductive and inductive approaches to analyse the data, followed by a statement of the theoretical and managerial contributions.

8.1 Conceptual Framework Brief

An integrated trust model was developed based on cognitive, emotional and attributional aspects of trust explored in the literature review (section 3.1.1.1). The purpose was to summarize the current thinking on trust to aid the author in identifying aspects of trust reported in the field research, and formulate codes to make sense of the data.

Using Mishra's (1996) work as the basis, a conceptual framework was formulated (section 3.3). Trust in the conceptual framework is represented by the integrated trust model. Mishra's framework was developed with regard to research into the automotive sector; however, the author considers it just as applicable to other sectors and functions that involve people working together. Hence, while the area of interest for this research is the construction-sector, it is considered just as applicable to other sectors, particularly with regard to the functions of SCM, product development and project management.

8.2 Evaluation of Deductive Analysis Results

The conceptual framework proposes a positive impact of socialisation on trust that aids dispute resolution through: more decentralised decision-making; open communications; better collaboration. The purpose of this research is to confirm the positive impact of trust and explore the influence of an OCT on relationship management in a construction supply chain, particularly with regard to dispute resolution. To explore the research question of how do online collaboration tools influence relationships in inter-organisational networks, a number of propositions (section 3.4) were deduced based on the existing literature.

To present a collective viewpoint of the interviewees, their individual propositions scores were aggregated to systematically analyse the data (Miles & Huberman 1984). The evidence (table 42) showed an agreement with existing research with regard to the positive impact of trust on dispute resolution, with open communications and cooperation being both antecedents and consequences of trust. Decentralised decision-making was judged to be adequate by the interviewees; major decisions with financial ramifications were pushed up the tree to be taken by senior executives, thus allowing the team to continue with their day-

jobs and distance themselves from any fallout associated with the decision. However, with regard to an OCT, the evidence was not as compelling due to the over-issuance of RFIs by both builders in response to incomplete design documentation and the ease with which RFIs may be issued using an OCT.

Table 42. Propositions Compliance

	All Interviewees	
Proposition	**Score**	**Compliance**
1. Trust is defined by practitioners as a simple multidimensional construct in line with Mayer, Davis and Schoorman (1995) and Mishra (1996), that is equally applicable to interpersonal, intergroup and inter-organisational relationships.	2	Comply
2. Informal socialisation is more important than formal socialisation.	2	Comply
3. In supply chains exhibiting trust, issues are more easily resolved due to better decentralised decision-making, open communications and collaboration.	2	Comply
4. Supply chains using an OCT exhibit greater decentralised decision-making, open communications and collaboration, than one that does not.	1	Partial-compliance
5. Supply chains using an OCT, due to the better knowledge sharing, find it easier to identify who is		

Discussion of Research Results

Proposition	All Interviewees	
	Score	Compliance
performing and not performing.	2	Comply
6. A supply chain using an OCT, versus one that does not, has greater direct communication between the stakeholders, fewer meetings and less time resolving disputes, assuming acceptance of the OCT by its users.	1	Partial-compliance
7. A supply chain using an OCT has greater trust between the stakeholders, relative to one that is not using an OCT.	1	Partial-compliance
8. A supply chain using an OCT has greater socialisation between the stakeholders, relative to one that is not using an OCT.	0	Non-comply

The research findings as discussed in section 7.5, Conclusions, portended a reliance on attributional trust not overly portrayed in the literature. However, the research questions were originally explored using a deductive approach by using propositions generated from the existing literature to test the evidence against, in common with a scientific postpositivist inquiry (Creswell 2007). Therefore, given the emergent importance of attributional trust, a topic not covered by the deduced propositions, an inductive approach was undertaken to see what assertions evolved from the data, without making prior assumptions (Patton 2002). In practice, the deductive and inductive approaches are often combined; deductive analysis, aimed at confirming and/or generalising exploratory findings, is followed by inductive analysis to look for rival hypothesis and unanticipated or unmeasured factors (Patton 2002). Hence, the conclusions were inductively dissected to allow the importance of attributional trust and other factors to the workings of the supply chain to emerge.

8.3   Evaluation of Inductive Analysis Results

The results are presented as assertions drawn from the conclusions (section 7.5) with accompanying referrals to notable cases. Further, the assertions are explored with regard to the literature to warrant them as existing or new findings. This analytical approach is consistent with modified analytic induction (Patton 2002), in that the propositions were supplemented by assertions, that consequently resulted in the deductive realisation of a relationship between the assertions to proffer the Simplified Trust-Reputation Model (section 8.4.1.1).

The assertions are presented in two sections: those related to relationship management; those concerned with an OCT. The relationship management assertions were derived from the following conclusions:

- Lawyers and mutual assured destruction (section 7.5.1)
- Do what you told me (section 7.5.2)
- What's culture (section 7.5.2.1)
- Be nice (section 7.5.3)

Whereas the OCT assertions were derived from:

- All things are not equal: we have to talk (section 7.5.4)
- I can see you (section 7.5.5)

8.3.1   Relationship Management

The assertions relevant to relationship management are stated, and each one's relevance to the existing relationship management literature explored.

8.3.1.1   Lawyers and Mutual Assured Destruction

Assertion 1: Corporate reputation is important

Evidence	Mark (CS1) stated reputation could make or break a construction company, with being able to maintain good relationships being salient to corporate reputation. While Richard (CS4) associates good people with working for good companies, and good companies employ good people. However, the most poignant comments came from Nigel (OP3). Nigel is conscious of representing his company and being associated with a good job as that affects the company's future work. The on-going project's group interview confirmed the team's desire for a successful project outcome and happy client to maintain and enhance their respective companies' reputations.
Literature	Typically, due to the one-off nature of projects in the construction industry (Cox, Ireland & Townsend 2006), firms have little experience of working

	with each other, so a company's reputation is important; with a reputation for being non-adversarial becoming more important (Khalfan, McDermott & Swan 2007). Companies will seek a close relationship with firms that have an excellent reputation, with trust significantly dependent on the buyer's working experience with the supplier and the latter's reputation (Bennett & Gabriel 2001). Hence, a company with limited working experience of the suppliers will be more likely to trust the supplier with a high reputation. Closeness is typified by the exchange of technical and commercial information, joint problem-solving activities and relationship-specific adaptations (Bennett & Gabriel 2001).
	However, with regard to this research, the author believes that concern for partnership reputation is more apt. The concept of partnership reputation proposes that it will encourage positive behaviour towards the partnership and each partner from potential and existing suppliers, and stakeholders (Money et al. 2010). It is the successful completion of the project by the supply chain, the partnership, which enhances their respective corporate reputations. Hence, without mutual understanding, flexibility and synergy shown to each other, there would not be a positive outcome: unilateral action counts for nothing in a construction supply chain. Corporate reputation is enhanced by partnership actions.
	Working with partners that have a high reputation creates trust at both personal and organisational levels. The high level of trust leads to a low coercive strategy (Lui, Ngo & Hon 2006). A coercive strategy involves high-pressure influence in the form of threats and promises (Fraser et al. 1989 cited in Lui, Ngo & Hon 2006). Helm (2011) found that perceived corporate reputation has a positive effect on employee's pride in being affiliated with the firm, and it is this, not job satisfaction and commitment, that is a strong driver of employee performance.
Remarks	The findings echo the literature in noting the importance of a company's reputation to future work, and trust and performance of the organisation and employee.

Assertion 2: Corporate reputation is presumptive trust

Evidence	The interviewees initially use a company's reputation to judge the

	trustworthiness of its employees. John (CS5) referred to his pre-contract focus on the company's ability and experience, which becomes personal and focused during the implementation stage. Richard (CS4) stated that they take into account what they know about companies and people when bidding for jobs, as it could affect how difficult the job is and when they get paid. Derek (CS2) would carry-over good feelings gained from working with an individual from another company to others in that company, but would not automatically trust them as trust takes time to develop. Conversely, while corporate reputation can affect trust in an individual, Roger (CS3) admitted to having a company removed from the preferred supplier list based on a bad experience with one individual. The on-going project's group interview confirmed the importance of corporate reputation to take an initial judgement on an individual's trustworthiness.
Literature	The interviewees' behaviour is consistent with presumptive trust (Kramer 2009). Category-based trust, a form of depersonalised trust, allocates trustworthiness based on the trustee's membership of a social group or organisation (Kramer 1999). Because of an in-group bias, fellow members are attributed positive characteristics such as honesty, cooperativeness and trustworthiness (Kramer 1999). This confirmation bias results in individuals seeking evidence that confirms their decisions and judgments of others, instead of taking a more rational approach to the evidence (Wilson, 1960 cited in Cook, Hardin & Levi 2005). Khalfan, McDermott and Swann (2007) determined that people were trusted more than organisations, with reputation used to judge organisations. An organisation's reputation clouded the decision as to whether its employee was to be trusted on the project (Khalfan, McDermott & Swan 2007); an example of "generalised" trust (Cohen & Prusak 2001). Hence, while an individual's reputation is the prevalent consideration in social capital theory (Burt 2005), it is the company's reputation that dominates in reality, based on this research.
Remarks	It seems that reputation manages the threat of opportunism before the exchange commences, and trust manages the threat after the exchange has begun (Alvarez, Barney & Bosse 2003). Therefore, reputation is salient before the relationship commences, with trust becoming salient as the parties' knowledge of each other increases, with a favourable trusting experience increasing the level of a company's reputation for consideration on future projects (Wagner, Coley & Lindemann 2011). Hence, the findings

| | are in-line with the existing literature. |

Assertion 3: Corporate reputation trumps bargaining power and the contract

Evidence	The interviewees' concern is with their company leaving the project with their reputation intact, if not enhanced. Both clients' project managers, John (CS5) and Ronald (OP4), expressed a desire not to rely on the contract. Catherine (OP1) was adamant about avoiding using the lawyers, which are very expensive and extremely difficult (Ronald, OP4), in any dispute resolution. Nigel (OP3) explained how a serious problem on the project, which could have resulted in legal action by the client, was amicably resolved by the team to reduce the liability of one of the consultants by half. John (CS5) lamentably discussed a project with a non-compliant builder that may have benefited from legal action, yet his response was to try to win the builder over.
	The group interview found a happy customer to be paramount for the sake of their corporate reputation. Difficulties that cannot be overcome are not what a customer wishes to know about. The situation would never become so bad that a company would use its bargaining power to leave a contract as it would be detrimental to its reputation as a good partner.
Literature	Bargaining power, contract and reputation are alternatives to trust for dealing with opportunism (Alvarez, Barney & Bosse 2003). Social behaviours (social interaction, open communications, customer orientation) dominate the trust building process (Doney, Barry & Abratt 2007), with customer orientation being the strongest contributor to a trusting experience as it increases the level of a company's reputation for consideration on future projects (Wagner, Coley & Lindemann 2011). Hence, a happy customer is of paramount concern for a company's reputation.
	Where there is a high potential for opportunism, such as the construction industry, due to the one-off nature of projects (Cox, Ireland & Townsend 2006), goal congruence is a powerful safeguard (Heide & John 1992), and flexibility, a bilateral expectation of a willingness to make changes as circumstances change, information exchange and solidarity (co-commitment), a bilateral expectation that a high value is placed on the

	relationship, are valued to ensure a successful completion of the project (Heide & John 1992). Therefore, a close relationship is warranted and working to build a trusting relationship, irrespective of the interdependence structure, is a useful exercise (Geyskens et al. 1996).
	However, there exists a U-shaped effect: being too close to a supplier, as well as not being close enough, encourages opportunism (Wuyts & Geyskens 2005), as the perceived benefits of acting opportunistically outweigh the benefits of sustaining the relationship. It is important not to take a trusting relationship for granted and to continually monitor the relationship for changes in the environment that may change a partner's predisposition to be trustworthy (Blois 2003). Wuyts and Geyskens (2005) advise managers to choose between drafting detailed contracts and selecting a close partner. The combination of both triggers rather than reduces opportunism (Wuyts & Geyskens 2005) as they act at cross-purposes: detailed contracts signal distrust. The need to issue RFIs and resolve design issues face-to-face indicates the ideal combination of a close relationship without a sufficiently detailed design.
Remarks	The findings concur with the existing literature, which calls for customer orientation through close working together to ensure a successful project, to enhance their respective company's reputation. The contract was given less weight because it was not congruent with a stakeholder's desire to maintain their reputation as a good partner. Likewise, bargaining power to enforce a change in personnel on the on-going project was not used; the change in consultant in the on-going project occurred at the behest of his director, due to a perceived breakdown in faith in his ability by the supply chain.

Assertion 4: Trust is attributional, not rationale-choice

Evidence	Attributional trust is different to rationale-choice trust in that stakeholders are forgiving of mistakes by others and do not allow issues to cause a breakdown in the relationship. Blowouts and finger-pointing (Mark (CS1)) are the nature of the industry (Derek (CS2)) and things get a bit heated (Roger (CS3)), but usually there is a give and take mentality (John (CS5) & George (OP2)) and people move on (Catherine (OP1)). Ronald (OP4) said there had been issues, which had required letters to put their case in

	contractual terms, but they had been solved cooperatively at sit-down meetings. So, while give and take is the norm, it's not just the norm with run-of-the-mill issues. John (CS5) worked with his non-compliant builder, and the on-going project's stakeholders cooperated to solve a safety issue that nearly resulted in the client suing one of the consultants. Nigel (OP3) told me that this would have been the first time in 13 years he had seen this had the claim gone ahead. However, in this instance there was a casualty, with the consultant, but not his company, who had erred being fired. Nigel (OP3) informed me that it was very common for a client's project manager and a builder to be at each other's throat during the project, but to forget the animosity at the end because everybody is happy the client is happy. The group interview vindicated this emerging finding in highlighting that a happy client requires a successful project, which is good for their companies' reputations. Nothing gets in the way of that.
Literature	The trust literature presents two models of trust: rationale-choice and attributional. In the rational-choice model, a trust violation results in a dramatic reduction or disappearance of trust, with the reestablishment of trust considerably more difficult than the task of initial trust establishment (Murnighan, Malhotra & Weber 2004). Attributional trust is associated with major risk-taking and a focus on the future, and perceived benefits of cooperation guiding the decision to trust, unlike rationale-choice where previous history determines the stakes (Murnighan, Malhotra & Weber 2004). The supply chain members are dependent on each other to promote the reputation of their respective companies and realise financial benefits, a dependency even more pronounced by their limited or lack of working together. As happens in a hostage situation, "Stockholm Syndrome", the hostage's anxiety, through dependence on the hostage-taker, draws them to trust the hostage-taker more than the police. Similarly, individuals in the newly conceived supply chain reduce the anxiety of dependence by trusting each other (Weber, Malhotra & Murnighan 2005), irrespective of the lack of working together. The act of trusting should be accompanied by face-to-face communication that clearly articulates one's reasoning and expectations, to ensure the act

of trust is not attributed to the contract, social sanctions or self-interest (Weber, Malhotra & Murnighan 2005). However, the saliency of face-to-face communications in a world where technology increasingly mediates interactions needs to be considered (Weber, Malhotra & Murnighan 2005).

The other difference between the rational choice model and the attributional model is the reaction to trust violations. The rational choice model suggests a trust violation will result in a decrease in trust that will take time to resolve; attributional trust forecasts that trust will not be negatively affected in return for a simple apology (Murnighan, Malhotra & Weber 2004). Elangovan, Werner and Erna (2007) suggest two violations will be tolerated, especially when trusters perceived the trustees could not, as opposed to would not, fulfil the trust-expectations. Khalfan, McDermott and Swann (2007) refer to this as "people make mistakes" and "circumstances beyond our control".

Ronald's (OP4) discussion of a serious issue with major financial ramifications is a case in point. He described how the issue caused a waning in trust that was quickly rectified by passing the problem to senior managers for resolution, allowing the team to get on with the job. Nigel described how once the erroneous consultant had admitted his error, the team had worked together to reduce the consultant's liability by half to $75k. There are always issues, but they are not allowed to impede the project's progress. At the extreme, John (CS5) outlined the case study of a builder that changed the design consultant post-contract, even though they had agreed to retain the design consultant used during the tendering phase. He demurred that the builder sought to maximise the profits from the job, and a job that got off to a negative start, stayed negative. John concluded that it is important to work with reputable companies. But, yet again, the project was seen through to completion due to the need to maintain a reputation as a cooperative partner. Hence, the dependency on each other for a good reputation made the supply chain members forgiving of each other's mistakes, even when the relationship had deteriorated.

Moreover, the evidence suggests that the level of trust is not fixed as indicated by Murnighan, Malhotra and Weber (2004). Trust does modulate,

	but not to a breakdown in the relationship. Attributional trust theory (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005) represents a floor in the level of trust to which trust may fall before a complete breakdown occurs; in the meantime, trust fluctuates in response to on-going issues. Jarvenpaa, Shaw and Staples (2004) proved that the level of trust does not affect the project outcome, albeit other empirical studies have observed weak and inconsistent effects of trust on work performance (Jarvenpaa, Shaw & Staples 2004), but it does affect the efficiency of working together. Therefore, a major issue, such as a personality conflict, for example, Catherine (OP1) and George (OP2), may negatively affect the level of trust between two individuals but, in accordance with attributional trust theory, there is no breakdown in trust. There remains sufficient trust to ensure a positive outcome: the project's completion to the delight of the client. This point was illustrated by Ronald (OP4) when explaining the major dip in trust that occurred as a result of a serious design issue with the building. He drew a significant dip in trust in his diagram but showed how it quickly recovered. Therefore, it is concluded that the level of trust does not affect the outcome but, in accordance with Jarvenpaa, Shaw and Staples (2004), it does affect the ease of doing business.
Remarks	Hence, the predilection for a good corporate reputation imbues the supply chain with an atmosphere of trust and a positive disposition to resolving issues, thus validating the attributional model of trust. While the evidence may be, at first sight, supportive of encapsulated interest trust (Cook, Hardin & Levi 2005), it is not. There are issues on which they differ, which should result in a breakdown in trust. However, due to the shared concern for a good reputation, the breakdown in trust does not happen. This is a new finding with regard to the application of attributional trust.

8.3.1.2 Do What You Told Me

Assertion 5: Individuals have a predisposition to trust

Evidence	There is a natural predisposition to trust admitted by all the interviewees. Roger (CS3), George (OP2) and Nigel (OP3) highlight this presumptive trust to get the relationship moving by acknowledging the importance of a good, on-going experience, or until proven otherwise. Richard (CS4) refers to people having to prove themselves. Both builders, Derek (CS2) and

	Catherine (OP1), cite the building industry for making them question their predisposition, while Ronald (OP4) thinks he is too trusting for his own good. The youngest interviewees, Mark (CS1) and Nigel (OP3), attribute their predisposition to trust to their family upbringing.
Literature	There is a propensity to trust that is psychological and reflects a general belief by an individual that another can be relied upon. High trusters are more trustworthy, find it difficult to lie, and are generally more likeable (Cook, Hardin & Levi 2005). More importantly, as demonstrated by the interviewees, high trusters have the social intelligence to differentiate whom to trust from whom not to trust on the basis of cues, or dispositions of trustworthiness (Yamagishi, 2001 cited in Cook, Hardin & Levi 2005), particularly corporate reputation, until they have the evidence from on-going interactions to justify their initial viewpoint. Hence, prior to the relationship commencing, trusters rely on presumptive trust, a mixture of their own disposition to trust and dispositions of the trustee, to determine whether the trustee's perceived trustworthiness warrants trusting.
Remarks	This finding concurs with the literature.

Assertion 6: Trust is dependent on on-going interactions

Evidence	George (OP2) said that trust is built up over time as you get to know each other, echoing Ronald's (OP4) viewpoint. Catherine (OP1) noted that the trust building process started during the tendering period. However, she did not think the consultants were working well together because of their lack of experience of working together, which is preventing them meshing. John (CS5) pointed to trust building being dependent on somebody fulfilling their objectives. While Nigel (OP3) suggested a business relationship could mature into friendship with time.
Literature	Hurley (2006) cautions that one should be patient as trust takes time, especially with poorly adjusted persons who see threats everywhere. While Lewicki and Bunker (1996) suggest that, over time, a relationship will develop from one formed by calculus-based trust to one based on the knowledge of consistent behaviour, to one based on shared values and goals. Murnighan, Malhotra and Weber (2004) note that the rationale-choice model encourages a slow build-up of trust by gradually increasing the stakes based on evidence from on-going interactions. Similarly, the attributional trust model posits that initial trusting acts accelerate the

	likelihood of reciprocity and accelerate the development of mutual trust (Weber, Malhotra & Murnighan 2005).
Remarks	Hence, while trust is dependent on on-going interactions with regard to rationale and attributional forms, it is the use of attributional trust to explain the results that is new.

Assertion 7: Trust is a simple, multi-dimensional construct

Assertion 7a: A trusting relationship equals a good relationship, and vice-versa

Evidence	The project managers were asked to describe a good relationship and explain what trust meant to them. In the group interview they were asked what characterised trust. The factors that they associate with both are the same: communications; cooperation; and fulfilling expectations.

The main reasons for distrust given by the interviewees were:

Name	Reason	Type
Mark	Jumping to conclusions	Behaviour
Derek	Lack of flexibility	Communication
Roger	Too many RFIs	Communication
Richard	-	-
John	Exaggerated claims, claiming to be an expert	Behaviour
Catherine	Bad communication causing frustration	Communication
George	Too many RFIs	Communication
Nigel	Blame-game	Behaviour
Ronald	Avoiding dealing with a problem	Behaviour

Therefore, the reasons for distrust are also concerned with communication and working together, or behaviour, as is trust. |
| Literature | Analyses of the findings demonstrate the importance of communication to aid working together to ensure expectations are met. Furthermore, when asked about trust or a good relationship, the same findings emerged. Hence, trust and a good relationship are one and the same in their minds.

Khalfan, McDermott and Swann (2007) in a UK study of trust in construction projects, determined honesty, reliance and delivery of |

outcomes to be the three main factors of trust, which was built up over the course of the project, or many projects in some cases. Similar to Khalfan, McDermott and Swann's (2007) findings that information is reliable, people stand by their promises, and the outcomes match or exceed expectations, this research found that communication was important to aid working together to ensure expectations are met. Moreover, Khalfan, McDermott and Swann (2007) determined building trust was a matter of:

- Experience: working with people in on-going, repeated interactions.
- Problem-solving: working as a team to solve problems.
- Shared goals: a joint understanding of the aims and goals of the project.
- Reciprocity: team members returning favours in rewarding each other's trusting behaviour.
- Reasonable behaviour: working fairly and professionally with people in the project team.

Khalfan, McDermott and Swann (2007) were very explicit about what caused distrust: not meeting expectations and telling lies. They concluded that a good team will have:

- Openness: to ensure issues are quickly identified and resolved.
- Forgiveness: we are all human and mistakes happen.
- Fair representation: Open access to information for all.

In essence, the main issue is to maintain communication (Khalfan, McDermott & Swan 2007).

The participants in this research highlighted the following consequences of trust:

- Openness: being upfront with each other when solving problems.
- Flexibility: having a flexible approach to resolving issues.
- Cooperating: working together and bouncing ideas.
- Empathy: showing a mutual understanding of others' positions.
- Reasonable behaviour: acting fairly.

Where trust resulted from communication, cooperation and meeting expectations.

Again, we see congruence in thinking in stressing the importance of relational governance to financial performance in the construction sector

	(Cox, Ireland & Townsend 2006; Eriksson, Atkin & Nilsson 2009; Khalfan, McDermott & Swan 2007; Stephen & Coote 2007), with the findings from this research resonating with those from Khalfan, McDermott and Swann (2007).
Remarks	Assertion 7 is consistent with knowledge-based trust (Lewicki & Bunker 1996): regular communication to exchange information about wants, preferences, and approaches to problem-solving, to establish behavioural consistency (Lewicki & Bunker 1996), which, in turn, is expressive of other operationalisations as detailed in section 3.1.1.1. It should be noted that the importance of shared values and goals, identification-based trust (Lewicki & Bunker 1996), emerged in discussions about culture, not trust (Assertion 15). The importance of meeting expectations in sharing information, cooperating and meeting objectives vindicates Gillespie's (2012) Behavioural Trust Inventory (BTI), as does the disclosure of sensitive information, whether company or personal related (see Assertions 8, 9 and 10). Although, only Richard (CS4) and Nigel (OP3) intimated that they would reveal personal information as a consequence of getting to know a colleague better. Athanasopoulou (2009) recommends that trust be one of many variables used to measure relationship quality, whereas Assertion 7a suggests that it is more important to measure the three factors (communication, cooperation and meeting expectations) that may be used as a proxy for a trusting or good relationship.

Assertion 8: Communication is important

Evidence	Trust and a good relationship are about open and honest communications. However, one needs to be guarded and selective about not revealing commercial-in-confidence information (Derek (CS2) and Richard (CS4)). Roger (CS3) gave the example of a client they were having problems with until he started giving the client more information about what was happening. He made the point that there can be too much information from over-use of Aconex and not enough face-to-face communicating. Ronald (OP4) referred to this as avoiding the RFI storm and talking more. Catherine (OP1) noted that written communications could be perceived as

	threatening. To Roger, a bad relationship is signalled by not wanting to talk to each other, causing a breakdown (Nigel (OP3)). While a good relationship requires less monitoring (John (CS5)).
Literature	Underpinning the development of trust is open and honest information-sharing (Mishra 1996). Information sharing has a primary impact on reducing uncertainty in relationships, thereby increasing trust (Kwon & Suh 2005). However, actions speak louder than words: the buyer has to demonstrate their commitment to the supplier by enhancing cooperation and problem-solving, as well as expressing their desire for a long-term relationship (Prahinski & Benton 2004). But, the importance of trust in the information exchanged between relationship partners is not as important as the socialisation and norms followed in the process of communication (Denize & Young 2007). Norms include keeping each other informed, having confidence in the accuracy of information provided by each other, and searching for solutions to any joint problems that emerge as part of the long-term interactions within the relationship (Denize & Young 2007; Patnayakuni, Rai & Seth 2006).
Remarks	In a successful partnership characterised by improved communication, trust and satisfactory performance, good communications negates the need for formal conflict resolution (Tuten & Urban 2001): proactive problem-solving suffices. In fact, communications quality, a measure of timeliness, completeness, credibility, accuracy and adequacy, can be used to differentiate between strong and weak relationships (Holden & O'Toole 2004). This finding concurs with the literature.

Assertion 9: Cooperation is important

Evidence	Richard (CS4) thinks good cooperation involves proactively working together to solve issues. His estimation is that adversarial builders do not cooperate, or are not flexible (Derek (CS2)). Mark (CS1) highlights the importance of working together on the issues that have been missed and crop up towards the end. Sometimes it gets heated, but they always get resolved (Roger (CS3)). John (CS5) espoused a give and take mentality and being proactive with solutions. It is about working together (George (OP2)) to resolve issues in face-to-face meetings (Catherine (OP1)). A good example was given by Nigel (OP3), who recalled how the team had

	worked together to reduce a consultant's liability by half.
Literature	As well as communication, cooperation is an important contributor to the strength of the relationship. To assure a buyer's satisfaction, a supplier needs to adapt to the customer's needs, cooperate to meet mutual needs/goals, communicate to exchange detailed relevant information, and build trust to reduce perceived uncertainty (Cambra-Fierro & Polo-Redondo 2008). Service provider flexibility is an important determinant of customer satisfaction, trust, and commitment (Ivens 2005). Even for firms with standardised processes, frequent communication and the ability to adapt are necessary, due to possible changes in the environment (Polo-Redondo & Cambra-Fierro 2008).
Remarks	This finding concurs with the literature in highlighting the importance of cooperation.

Assertion 10: Achieving objectives is important

Evidence	John (CS5) thinks trust is dependent on the other party meeting their objectives. Derek (CS2) phrased this as relying on somebody to do as they said they would, or being reliable. People have to prove that they can be trusted (Richard (CS4)). People are happier when the project is being achieved; when it is not, there is a breakdown in trust (Catherine (OP1)) and the blame-game is played (Nigel (OP3)). Derek (CS2) stated that resolving issues is time consuming but generally good-natured. The overall objective is to deliver the project (Roger (CS3)). It's like being part of a football team (Mark (CS1)) working to a common end (Ronald (OP4)). John (CS5) and Richard (CS4) thought there were shared objectives on their project, which John attributed to the builder being more accommodating than usual as they wanted a good reference for their new, regional office.
Literature	Shared vision and focusing on mutual needs, aspirations and values promotes commitment in relationships (Hult et al. 2000). Team interorganisationality, represented by equal representation from the partners and a shared approach to setting and attaining team goals, influences team performance, particularly when uncertainty is high (Stock 2006). While the sharing of goals, skills and tasks, and the positive attitude of the relationship manager towards trust, cooperation and interdependence, improve relationship performance (Kothandaraman & Wilson 2000), because in a competitive market, the buyer relies more on

	performance than on trust (Walter et al. 2003).
Remarks	As the relationship progresses and interactions accumulate, knowledge-based trust (Lewicki & Bunker 1996) forms from consistent behaviour. Hence, performance leads to trust, which in turn leads to performance. This finding is consistent with the literature.

Assertion 11: Trust is interpersonal, not inter-organisational

Evidence	The interviewees answered the questions on trust and good relationships with reference to individuals before being prompted to consider trust as an inter-organisational measure. Roger (CS3) and George (OP2) were adamant that trust was an individual quality. John (CS5) explained that trust was interpersonal during the project, but pre-project, during the contracting stage, it was inter-organisational and concerned with the company's reputation. Derek (CS2) said he would carry over good feelings garnered from an interpersonal relationship to another in the same company, but this would not extend to trust as trust takes time to develop. Similarly, Nigel (OP3) observed that while a company's reputation sets his expectation, the relationship is person to person. Richard (CS4) thought trust to be both interpersonal and inter-organisational, yet noted interpersonal trust was formed over time, with inter-organisational trust being dependent on the company's reputation for how well they treated their people.
	The individual answers supported the researcher's contention that there was confusion between the interplay of interpersonal trust and corporate reputation. Hence, the question was explored further in the on-going project's group interview. It was confirmed that trust was interpersonal, with corporate reputation acting as a harbinger, or presumptive trust.
Literature	Lewicki and Bunker (1996) discuss trust from the interpersonal perspective, and Mishra (1996) and Mayer, Davis and Schoorman (1995) identify with trust at the interpersonal, intergroup and inter-organisational levels.
Remarks	The interviewees predominantly see trust as being about individuals, with reputation reserved for evaluating companies.

Assertion 12: The trust factors are inter-organisational

Evidence	While the interviewees agree that trust is interpersonal, the trust factors of

	communication, cooperation and fulfilling expectations are more inter-organisational than interpersonal.
	Each of them represents a company and has a team of people interacting with people from other teams in the supply chain. Hence, when looking at the trust factors with respect to others they are gauging the overall quality of communication, cooperation and consistency from another supply chain company. It cannot be interpersonal trust because in the majority of instances they will have had no direct contact or knowledge of the individual whom they have relied upon. For example, the builder's project manager represents to the consultants the endeavours of many people from the builder and the sub-contractors. Therefore, a consultant may be associating the builder's project manager with the activity, but the majority of the activities will have been undertaken by somebody else in the builder's team. In effect, the builder's project manager's trustworthiness is recognition in most cases of what another person has done.
Literature	Although the interviewees stated that trust was interpersonal, the factors identified by them as indicative of a trusting or good relationship are inter-organisational. Hence, the researcher's contention is that the interviewees' perception of trust being interpersonal is based on inter-organisational behaviour. That is, interpersonal trust is based on the individual being made accountable for inter-organisational behaviours, because as the project manager he/she is the face of the company. Seppanen, Blomqvist and Sundqvist (2007) allude to an "inter-level generalisation problem" (Medlin & Quester, 2002 cited in Seppanen, Blomqvist & Sundqvist 2007) with regard to specifying the firm but measuring the person, which seems to feature in almost all studies on inter-organisational trust (Seppanen, Blomqvist & Sundqvist 2007). In this instance, the person is specified but the actions of others in the project manager's firm are measured and associated with the project manager.
Remarks	It is difficult to measure interpersonal trust in a construction supply chain because others' behaviour is accrued to the project manager. In effect, another take on the inter-level generalisation problem, with this research suggesting a project manager's trustworthiness is a perception based on the behaviour of colleagues.

Assertion 13: Trust improves issue resolution

Evidence	The issue resolution process involves the builder issuing a RFI for discussion between the relevant consultants, the architect and the client's project manager. The client's project manager has the final say as to whether to take the architect's advice. In the past, the architect acted as the client's project manager. However, due to the perceived self-interest of the architect in protecting their design and not admitting to mistakes, independent project managers are increasingly being used (Catherine (OP1)). Both projects had good levels of trust as specifically reported by Mark (CS1), Derek (CS2), Roger (CS3), Richard (CS4), John (CS5), Catherine (OP1) and Nigel (OP3). Roger (CS3), John (CS5), Nigel (OP3) and Ronald (OP4) were praiseworthy of their respective builders. Richard (CS4) commented on his project having an extremely happy client, and it being a good case study for marketing. John (CS5) thought the builder was overly accommodating in order to ensure a good reference for its new, regional office. Moreover, good cooperation was reported on both projects in resolving issues. The salient example of good issue resolution was the major problem reported in the on-going project, which was resolved amicably at half the cost to the incompetent consultant (Nigel (OP3)).
Literature	Mishra (1996) highlighted the importance of trust to crisis resolution; the evidence points to a similar proposition: trust improves issue resolution. Dietrich et al. (2010) suggest formalising roles and responsibilities, trust, conflict resolution, and expectation fulfilment as some of the antecedents of collaboration quality.
Remarks	This finding concurs with the literature.

Assertion 14: There is decentralised decision-making, to some extent

Evidence	Overall, the completed project interviewees considered that there was decentralised decision-making on the project. However, the on-going project's findings were not as succinct. Catherine (OP1) said that there was decentralised decision-making provided there was no financial impact; at which point, directors from the supply chain companies were involved in the decision-making. Ronald (OP4) thought this was a good thing as it allowed the supply chain to get on with their day-to-day jobs. Conversely, George (OP2) disagreed that there was decentralised decision-making as the other

	consultants would not admit liability, which coupled with them under-pricing the job, meant they were always seeking guidance from their respective directors. However, Nigel (OP3) noted that there had only been one or two escalations to involve others in the round-table discussions.
Literature	Mishra (1996) interviewed 33 managers at CEO, COO, or heads of major operating units, in concluding trust, in a crisis, increases decentralised decision-making. The evidence suggests that there was decentralised decision-making on the projects until there were major financial ramifications; at which time, the decision was escalated to senior management. Hence, even though the interviewees were not as senior as the those in the Mishra study, there is evidence that trust increased the decentralised decision-making, as hypothesised by Mishra (1996), as the interviewees were mostly satisfied with the level of decision-making under their control.
Remarks	It is probably better to conclude that an environment of trust is associated with satisfactory, decentralised decision-making from the teams' perspectives. In fact, escalating major issues to senior management was seen as a good thing as it allowed them to get on with the day-to-day business, and remain aloof from any fallout. This finding concurs with the literature.

8.3.1.3 What's culture

Assertion 15: Culture equates to shared goals

Evidence	Richard (CS4) defined culture as the team-spirit focused on getting the project completed on time. John (CS5) referred to it as a shared commitment to the project. In the group interview, Ronald (OP4) said everybody was good to deal with because they had the same objectives. George (OP2) considered Evan and himself as two old farts putting up a building. Hence, culture to the interviewees is concerned with commitment to getting the job done.
Literature	Cognitive capital is a measure of parties sharing goals and visions (Krause, Handfield & Tyler 2007), and shared cultures (Inkpen & Tsang 2005), particularly one that supports the right attitudes towards cooperation, trust and interdependence (Kothandaraman & Wilson 2000). Trust is dependent upon a construction company having a non-adversarial culture, led from the top (Khalfan, McDermott & Swan 2007). However, personal chemistry is not dependent on a similar culture of organisational norms and values, but

	compatibility caused by shared values, or trust resulting from a shared understanding of the differences (Beugelsdijk, Koen & Noorderhaven 2009).
Remarks	Culture is not about how they do things, as in the norms of behaviour, it is very simply a shared commitment to achieving the shared goals, or getting the job done. In the literature, culture is concerned with what we do and how we do. To the project teams it is what we do.

8.3.1.4   Be Nice

Assertion 16: Socialisation is meeting out of the office

Evidence	Socialising to the interviewees is meeting out of the office and does not entail socialising as in having dinner, for example. Catherine (OP1) reported that she attends weekly project meetings, but was too busy, as was Ronald (OP4), to have dinner as they have a contract to fulfil. Mark (CS1), Derek (CS2) and Nigel (OP3) said they socialised (having dinner, playing golf) with office colleagues, with Nigel admitting he would have dinner with a client because he could not say no. Derek (CS3) foresaw an end of project dinner but nothing else. Ronald (OP4) expected to keep in touch, e.g., coffee, beer, after the project has finished to keep the networks going. He was keen not to seem overly friendly during the contract stage. Hence, socialising to the interviewees should consist of meeting at each other's offices or at the site-office. Having dinner with each other is seen as frivolous and, possibly, shifty.
Literature	Cousins, Lawson and Squire (2008) define socialisation mechanisms as the means by which individuals acquire knowledge of the other enterprise's social values, and thereby establish interpersonal relationships. The act of socialisation establishes relational capital which is assessed by the degree of mutual respect, trust and close interaction between the partner firms (Cousins et al. 2006). In a survey of the relationship between contractors and sub-contractors in the construction industry, socialisation consisting of supportive leadership and supplier feedback was shown to be associated with the relational behaviours of flexibility, solidarity, trustworthiness, and information exchange (Stephen & Coote 2007).
	For the project teams, socialisation occurs at the weekly meetings held at the building-site. However, socialisation as in having dinner is to be avoided as it could be construed as shifty behaviour. Yet, such social

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	events are deemed informal socialisation (Cousins et al. 2006), while making the customer feel special is financially rewarding to the supplier (Palmatier, Gopalakrishna & Houston 2006). Informal (outside the workplace) socialising with the formal leaders of other groups increases group effectiveness (Oh, Chung & Labianca 2004) and serves to consolidate the professional personal relationship (Lian & Laing 2007). Ghosh, B and Scott (2009) recommend funds be provided for social capital building activities.
Remarks	It was surprising to hear that the interviewees do not socialise, as in having dinner, due to having a negative attitude to such behaviour. The evidence is not consistent with the literature and requires further investigation.

Assertion 17: Being sociable is more important than socialising

Evidence	Although the interviewees may not be interesting in socialising (having dinner) with their supply chain co-workers, they are interested in being sociable with each other. However, being sociable with another person is dependent on that person's personality; private individuals may not be receptive (Mark (CS1), Derek (CS2) and Nigel (OP3)). Being sociable with each other is good for business (Derek (CS2), Catherine (OP1), Nigel (OP3) and Ronald (OP4)). Roger (CS3) starts formal but relaxes into a more informal (more talk, less written communications) as the relationship matures; the relationship may bloom into friendship over time (Derek (CS2)). While Catherine (OP1) admits she is not predisposed to be sociable but is learning it is good for business. Everyone's a lot happier, which helps to achieve the project's objectives. Nigel (OP3) thinks it helps to keep the communication flowing despite on-going issues. Therefore, business benefits accrue from being sociable.
Literature	The interviewees acknowledged the importance of being sociable to make life easier. Helfert and Vith (1999) concluded that social competence in a team was important to task performance, due to improved communication, coordination and cooperation. Socialisation leads to the building of personal familiarity, improved communication, and problem solving (Gupta & Govindarajan, 2000 cited in Cousins et al. 2006). Successful relationship managers have social competence (Walter 1999), which includes communications skills, conflict management, empathy, flexibility and adaptability. It has been referred to as the human element and

	acknowledges the value of trust, communication, courtesy and impartiality in the relationship (Handfield & Nichols 2004).
	Čater and Čater (2009) signify the importance of affective commitment, as defined by a general positive feeling toward the relationship partner based on trust and social bonding. They found customer loyalty to a professional services firm was more dependent on affective commitment than relational benefits, where relational benefits include co-operation and knowledge transfers.
Remarks	While the interviewees may have qualms with some aspects of socialising, they all recognise the importance of being sociable. This finding concurs with the literature.

8.3.1.5 Relationship Management Conclusions

While Cox, Ireland and Townsend (2006) and Eriksson, Atkin and Nilsson (2009) stress the importance of trust in long-term relationships to cultivate collaborative innovation, this research, and that of Khalfan, McDermott and Swann (2007), encountered trust in the temporary, one-off nature of projects that encourages opportunism (Cox, Ireland & Townsend 2006). Khalfan, McDermott and Swann (2007) concede that their research, to a large extent, is consistent with much of the academic literature relating to trust. The author concedes that this research project has also derived findings consistent with the existing literature.

Evidence suggests consistency is widespread. An Australian study of success factors in construction projects by Love, Mistry and Davis (2010) concluded that successful cooperation requires mutual trust, commitment and active exchange of information. Whereas, a Delphi study of Australian relationship-based construction projects by experts from industry and academia highlighted eight key performance indicators (KPIs) (Yeung, JFY, Chan & Chan 2009), of which effective communications, and trust and respect, were two. Hence, trust is prevalent in the construction relationship literature, and one of three variables that consistently appear in a relationship approach to the construction supply chain: commitment, trust and performance satisfaction (Davis 2008), with the strength of trust influenced by open communications, working together and performance satisfaction (Cox, Ireland & Townsend 2006; Davis 2008; Eriksson, Atkin & Nilsson 2009; Khalfan, McDermott & Swan 2007; Love, Mistry & Davis 2010; Yeung, JFY, Chan & Chan 2009). Trust is about behaviour: being reliable in meeting expectations and sharing information (Gillespie 2012). Xue et al. (2012) concluded that human factors, e.g., trust, are important

but neglected issues that influence the success of IT supported collaboration in construction projects.

However, where this research differs is in postulating the importance of attributional (irrational) trust (Murnighan, Malhotra & Weber 2004). The stakeholders' concern for a good, corporate reputation makes them very forgiving. Hence, issues which would affect the level of trust, according to the rationale-choice model, do not. This dependency on each other for a good reputation makes them trust and forgive.

8.3.2   OCT: Aconex

The assertions relevant to Aconex are stated and each one's relevance to the information systems literature is discussed.

8.3.2.1   *All Things Are Not Equal: We Have To Talk*

Assertion 18: Aconex did not change the work practices. Or did it?

Evidence	The builders, in using Aconex to issue a greater number than usual of RFIs, resulted in the consultants spending more than the budgeted time working on the project. Other than that, the general consensus was that Aconex had not involved any change in their work practices, nor how they resolved issues. Aconex was associated with making communications easier (Derek (CS2)), particularly submitting RFIs (Catherine (OP1)), the over issuance of which became the bane of the consultants' lives. Hence, although no change in work practices was described, some were reported to the researcher: more RFIs issued by the builders; greater time than budgeted spent by the consultants; the continuing use of email to complement Aconex; not enough face-to-face communications. But from all the interviewees' perspectives, they were doing the same as before while using a tool that improved their communication, notwithstanding the over issuance of RFIs. However, while Mark (CS1) and Derek (CS2) thought that everything would take longer without using Aconex, Catherine (OP1) did not expect the project to be completed any faster. Hence, faster and easier access to information did not translate to different decision-taking.
Literature	The introduction of an OCT requires a change in practices by team-members, especially for the project-manager who is no longer the hub of information flows, with the benefits being fewer meetings and less time resolving disputes (Nikas & Poulymenakou 2008). Nikas and Poulymenakou are referring to the new social structure that emerges,

	whereby the client's project manager is bypassed on some of the decision-making. However, the interviewees reported no change in work practices; yet, there patently were, especially with regard to the over-issuance of RFIs. The evidence suggests that the consultants' major issue was not enough time was spent resolving issues face-to-face, due to the perceived blithe usage of Aconex by the builders. Although Derek (CS2) alluded to solving some of the issues without involving John (CS5), the client's project manager, it is not surprising that most issues are resolved with his involvement: the standard contract calls for decisions to be signed-off by the client's project manager (Standards SA 1997).
Remarks	The evidence suggests that the consultants want to spend more time resolving a greater majority of issues face-to-face, only resorting to using Aconex for major issues. In their eyes, the majority of issues are more efficiently resolved around the table than using the formal, Aconex procedure. The findings contradict Nikas and Poulymenakou (2008).

Assertion 19: Ease of use and user training are important to the adoption of Aconex

Evidence	Nigel (OP3) stated that you need everybody using the system or it loses its power. Mark (CS1) thought it would be better to include the sub-contractors; the problem is that some of the sub-contractors are still using faxes, never mind email (Catherine (OP1)). John (CS5) does not think Aconex is as easy to use as Outlook. In the group interview, the consultants jointly expressed their concern with the user-interface and recognised the tool's effectiveness depended upon all users having the training and experience to use it properly. Also, Aconex needs to be complemented by Excel (Catherine (OP1)) and Outlook (Ronald (OP4) to offset perceived shortcomings with Aconex. Mark (CS1) noted that some of the consultants took time to get used to it and wondered whether this was to do with their age.
Literature	The UTAUT that integrates elements from eight prominent IT acceptance models, portends the important aspects of its acceptance, that is, performance expectancy (meets requirements), effort expectancy (ease of use), social influence (pressure to use the system) and facilitating conditions (supportive organisational and technical infrastructure)

	(Venkatesh et al. 2003).
	Nikas and Poulymenakou (2008) confirmed that training of all team-members and acceptance of their new roles is essential for the successful deployment of an OCT. However, there is a need to complement Aconex with traditional communications, such as telephone, email, face-to-face, etc. (Babar, Verner & Nguyen 2007; Bouchlaghem, Kimmance & Anumba 2004; Carr & Kaynak 2007; Elmuti, Minnis & Abebe 2008).
Remarks	This finding concurs with the reported literature.

Assertion 20: Builders and consultants had different aspirations for Aconex, inducing a behavioural change from the builders that caused frustration for the consultants

Evidence	The builders saw Aconex as a tool to help them communicate with the consultants, particularly for issuing RFIs (Derek (CS2) and Catherine (OP2)). Communications was a lot faster and easier than using email. Previously, a Word document was printed, scanned and attached to an email. Today, Catherine uses a template on Aconex and the RFI is distributed and stored by Aconex. The consultants' aspirations involved the storage and searching of documents (George (OP2)) and audit trailing of who did what (Richard (CS4), John (CS5), Nigel (OP3) and John (OP4)). Hence, from the consultants' perspective, the builders used Aconex's efficacy to issue too many RFIs and that caused frustration through increased time and cost for the consultants, who would have preferred more discussion to resolve issues. Alongside verbal communications, Outlook was also seen as an informal, off-the-record system to complement Aconex. In the on-going project, the over issuance of RFIs exacerbated the personality conflict between George (OP2) and Catherine (OP1).
Literature	Just as the builder and the clients have incommensurable objectives preventing a 'win-win' outcome (Cox, Ireland & Townsend 2006), we see the same thing happening with respect to the use of Aconex. From the consultants' perspective, the builders have committed four of the six identified problematic behaviours in using IT for information exchange in construction projects: forwarded information to irrelevant parties; ignored information; not checked the latest drawings and documentation; input irrelevant information (Lam, PTI, Wong & Tse 2010). Some have suggested

	that the builders abuse the system to buy time, leaving by-passing established procedures as the only behaviour not considered questionable (Lam, PTI, Wong & Tse 2010).
Remarks	The induced behavioural change on the builders in issuing a greater number of RFIs indicates different perspectives on the usefulness of an OCT. This is a new finding that requires further exploration.

Assertion 21: The consultants, even though they had issues with the builders' usage of Aconex, were positive about its benefits

Evidence	Even though the consultants were not subject to a wholly positive experience of Aconex, their comments reflect a positive attitude to it. Roger (CS3) remarked that Aconex was terrific for keeping stakeholders in the loop even though he had been snowed under by the amount of RFIs. Richard (CS4) and John (OP4) said it was easier to track who was doing what, but was a pain because it was also easier to distribute documents, which led to an information overload. George (OP2) thought it was difficult for anyone to deny they had received a document. While Nigel (OP3) appreciated the extra clarity, relative to emails, that Aconex gave him for assessing the validity of variance claims. Even John (CS5), who preferred email over Aconex, offered some praise of Aconex. Therefore, it would seem that the consultants differentiated between the builders' use of Aconex and the power of Aconex. They did not blame Aconex for the over-issuance of RFIs, although its presence was a major factor given its efficacy in aiding communication. Catherine (OP2) described how issuing RFIs was a lot faster with Aconex than email.
Literature	Improvements in communication, standardisation of communication and cost reduction are the drivers for the adoption of an OCT (Nikas, Poulymenakou & Kriaris 2007). However, internet-based tools should be regarded as a complement, rather than as a substitute to personal interactions (Rao, Perry & Frazer 2003).
Remarks	The interviewees acknowledged the communications potency of an OCT and the need to complement it with face-to-face communications. Hence, although there were issues on the project caused by the builders taking advantage of Aconex's communications efficacy, the consultants' ability to differentiate between the tool and the user as the problem saw them identify the potential benefits, in line with the literature.

8.3.2.2 I Can See You

Assertion 22: Aconex enforces cooperation

Evidence	Generally, Aconex provided the means to see who was doing what and exception reporting, and this visibility enforced cooperation. However, Catherine (OP1) thought this was no more obvious than using Outlook.
Literature	Lack of adherence to its use will be visible to all stakeholders, affecting one's reputation and inviting sanctions, in accordance with social capital theory (Burt 2005; Cook, Hardin & Levi 2005).
Remarks	This finding concurs with the literature.

8.3.2.3 OCT: Aconex Conclusions

An OCT allows project information to be shared through electronic means, instead of paper-based methods, thus enhancing collaboration and knowledge integration (Anumba, Pan et al. 2008; Eriksson, Atkin et al. 2009 cited in Dietrich et al. 2010). To facilitate a collaborative spirit, Eriksson, Atkin and Nilsson (2009) recommend using collaborative tools such as; a shared IT database to facilitate information exchange between all parties; teambuilding events for staff at all levels; the adoption of joint objectives; joint review workshops; establish a shared project office. They caution that the tools only work with people who have a collaborative attitude and unsuitable persons should be screened out. Eriksson, Atkin and Nilsson's (2009) recommendations are in accordance with the research findings already discussed.

While the limited research to date suggests that an OCT will cause fewer meetings due to a greater reliance on the OCT to communicate, this research indicates that such a broad-brush conclusion is misconceiving. The consultants wanted to avoid using Aconex for the majority of RFIs, which can be resolved around the table, as Aconex is not the most efficient way for resolving minor issues. The builders, on the other hand, believe Aconex to be the most efficient way to issue RFIs, and to get issues on the record as insurance against future liabilities. Hence, there is a clash in ideology on the use of Aconex due to different requirements from the tool by the stakeholders. However, even though the consultants had a bad experience with Aconex, they had a positive attitude to its potential benefits.

8.3.3 Attributional Trust: Case Examples

The importance of attributional trust is highlighted in these final assertions, which explore two major issues additional to those discussed in Assertion 4, that indicate the presence of attributional trust, as opposed to rationale-choice.

Assertion 23: Concern for corporate reputation prevented consultants' frustration negatively affecting the project's outcome

Evidence	The builders' use of Aconex to issue too many RFIs, from the consultants' perspective, caused frustration for the consultants in the form of increased time and cost spent on the project. Richard (CS4) said the project was not great, financially, for his company. While Ronald (OP4) thought he was spending more than double the budgeted time on the project. In both instances, notwithstanding the issue with too many RFIs, the consultants complimented the builders. Richard (CS4) observed that there were some builders out there that were adversarial and go for variations no matter how tight your documents are. He did not associate the builder with that attitude. Hence, even though the builders' actions caused the consultants frustration and cost them money, good relationships were maintained. The contention of the researcher is that the concern for the corporate reputation made the stakeholders very forgiving, and in effect, portrayals of the importance of attributional trust to business relationships.
Literature	This assertion is a practical example of attributional trust, Assertion 4, whereby the predilection for a good corporate reputation imbues the supply chain with an atmosphere of trust, and a positive disposition to resolving issues.
Remarks	The interaction between corporate reputation and attributional trust, in preventing the consultants' frustration adversely affecting the project's outcome, is a new finding.

Assertion 24: Concern for corporate reputation prevented the personality conflict between Catherine (OP1) and George (OP2) negatively affecting the project's outcome

Evidence	The interview with George (OP2) revealed George's dislike of Catherine's (OP1) issuing of too many RFIs, which George put down to Catherine's concern for being exposed to liabilities and her lack of give and take attitude. George admitted to having had three or four stand-up arguments with Catherine. This personality issue was addressed by the other two on-going project interviewees, Nigel (OP3) and Ronald (OP4), without prompting. Ronald thought Catherine was too contractual and would go a long way if she developed her interpersonal skills. Therefore, Ronald (OP4) shared George's dislike of the "RFI storm" and Catherine's approach. Hence, too many RFIs exacerbated the personality differences between

	George and Catherine. However, as with Assertion 23, the researcher contends the concern for corporate reputation prevented a complete breakdown in their relationship.
Literature	Being sociable, Assertion 17, is acknowledged as being important in business relationships (Handfield & Nichols 2004), with social competence in a team being important to task performance (Helfert & Vith 1999). This assertion is a practical example of attributional trust, Assertion 4, whereby the predilection for a good corporate reputation imbues the supply chain with an atmosphere of trust, and a positive disposition to resolving issues.
Remarks	The interaction between corporate reputation and attributional trust, in preventing a personality conflict adversely affecting the project's outcome, is a new finding.

8.3.3.1 Attributional Trust: Case Examples Conclusions

Both examples highlight how the desire for a good, corporate reputation made the interviewees forgiving, thus exhibiting behaviour associated with attributional trust theory. The misuse of Aconex and the personality conflict were not allowed to interfere with their prime objective: a successful completion of the project to ensure a happy customer. The author believes that this is the first time that the interplay between attributional trust and corporate reputation has been applied in explaining the forgiving behaviour of stakeholders in a real-world example.

8.4 Contribution

8.4.1 Theoretical Contribution

The theoretical findings are presented, noting their relationship with relevant assertions and associated theory. The contributions are:

- A Simplified Trust-Reputation Model (section 8.4.1.1)
- Trust is Interpersonal (section 8.4.1.2.1)
- Inter-level Generalisation Problem (section 8.4.1.2.2)
- Culture is a Shared Commitment (section 8.4.1.2.3)
- Being Sociable Counts, Not Socialising (section 8.4.1.2.4)
- The OCT Induced a Behavioural Change (section 8.4.1.2.5)

While the contributions are based on evidence from research into Melbourne-based, construction supply chains, they are considered to be applicable to different industrial sectors and business functions that involve people working together. Collaborations

involving different companies (SCM, product development, project management) are potential applications of the theory.

8.4.1.1 A Simplified Trust-Reputation Model

Based on the multi-case study findings a Simplified Trust-Reputation Model (fig. 15) is presented.
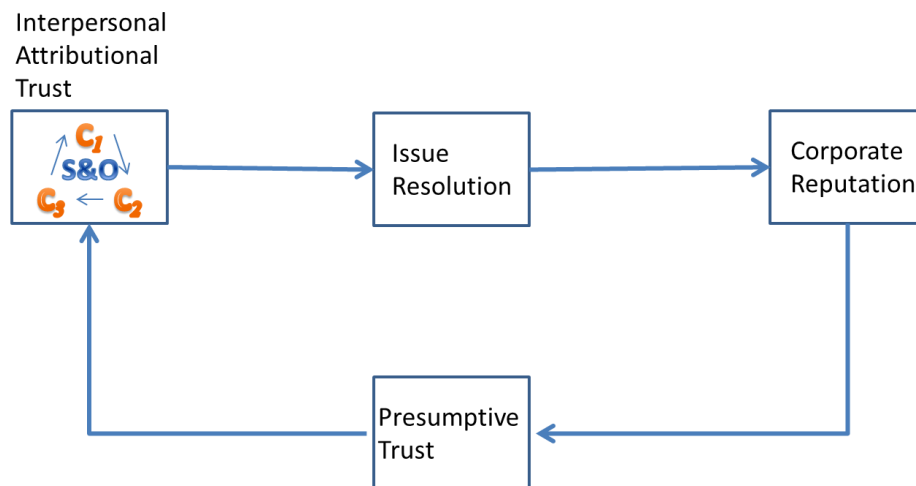

Figure 15. Simplified Trust-Reputation Model

The basis of the model is that interpersonal, attributional trust between the stakeholders ensures effective issue resolution in order to safeguard their respective company's reputation. Further, a company's reputation is used to presumptively trust an employee of that company until on-going interactions provide conclusive evidence. The contribution consists of the application of attributional trust to explain the findings, and the relationship between attributional trust and corporate reputation. Further, attributional trust theory is developed by making the case for there being a floor, but no ceiling, on the level of trust, hence preventing the breakdown forecast by the rationale-choice model. Each variable in the model is now discussed with regard to the relevant assertions. Hence, the variable is stated followed by a list of relevant assertions and an overview of the relevant literature.

8.4.1.1.1 Interpersonal Attributional Trust

Assertion 4: Trust is attributional, not rationale-choice

Assertion 7: Trust is a simple, multi-dimensional construct

Assertion 7a: A trusting relationship equals a good relationship, and vice-versa

Assertion 17: Being sociable is more important than socialising

Assertion 21: The consultants, even though they had issues with the builders' usage of Aconex, were positive about its benefits

Trust, as is a good relationship, is a simple, multi-dimensional construct that is measured by: open communication (C_1); cooperation (C_2); and consistency (C_3) in meeting expectations.

Discussion of Research Results

This finding is consistent with knowledge-based trust (Lewicki & Bunker 1996): regular communication to exchange information about wants, preferences, and approaches to problem-solving, to establish behavioural consistency (Lewicki & Bunker 1996). It is also consistent with Gillespie's (2012) work in highlighting the importance of being reliable and disclosing information. However, there is no evidence of the team members disclosing personal information of a sensitive nature.

Moreover, while the interviewees concurred with Helfert and Vith (1999), who concluded that social competence (S) in a team was important to task performance, due to improved communication, coordination and cooperation, they were at pains to dispute the importance of socialising (Cousins et al. 2006) off-site and out-of hours, as in having dinner. While the consultants had a far from beneficial experience with Aconex (O) due to the perceived over-issuance of RFIs by the builders, they were generally optimistic about its potential for improving communication (Nikas, Poulymenakou & Kriaris 2007), provided it was used as a complement, rather than as a substitute to personal interactions (Rao, Perry & Frazer 2003). Hence, trust, determined by the degree of open communication, cooperation and consistency, is aided by a convivial atmosphere and the mutually beneficial application of an OCT.

But, trust is attributional and not rationale-choice, as evidenced by their dependency on each other to fulfil the contract and the willingness to forgive (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005). The dependency is major as the parties have no prior experience of working together, yet they function using a contract that is not perfect, hence the issuing of RFIs. The prime concern of this dependency is their respective corporation's reputation. Hence, they forgive to ensure a positive outcome for the client, in the interests of their company's reputation, not just their financial performance.

Jarvenpaa, Shaw and Staples (2004) proved that the level of trust does not affect the outcome, albeit other empirical studies have observed weak and inconsistent effects of trust on work performance (Jarvenpaa, Shaw & Staples 2004), but it does affect the efficiency of working together. This suggests that there is a floor, but no ceiling, on the level of trust between the stakeholders. Hence, a major issue, such as a personality conflict, may negatively affect the level of trust between two individuals but, in accordance with attributional trust theory, there is no breakdown in trust. There remains sufficient trust to ensure a positive outcome: the project's completion to the delight of the client. This point was illustrated by Ronald (OP4) when explaining the major dip in trust that occurred as a result of a serious design issue with the building. He drew a significant dip in his diagram,

but showed how it quickly recovered. Therefore, it is concluded that the level of trust does not affect the outcome but, in accordance with Jarvenpaa, Shaw and Staples (2004), it does affect the ease of doing business. Hence, attributional trust theory (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005) represents a floor in the level of trust to which trust may fall before a complete breakdown occurs.

The following figures are a graphical representation of the differences between rationale-choice trust, attributional trust and modified attributional trust. Figure 16 is a representation of rationale-choice trust. A decidedly negative reaction, according to the rationale-choice model, would have disastrous consequences for the team, resulting in a breakdown in the supply chain or a re-negotiation of the contract.
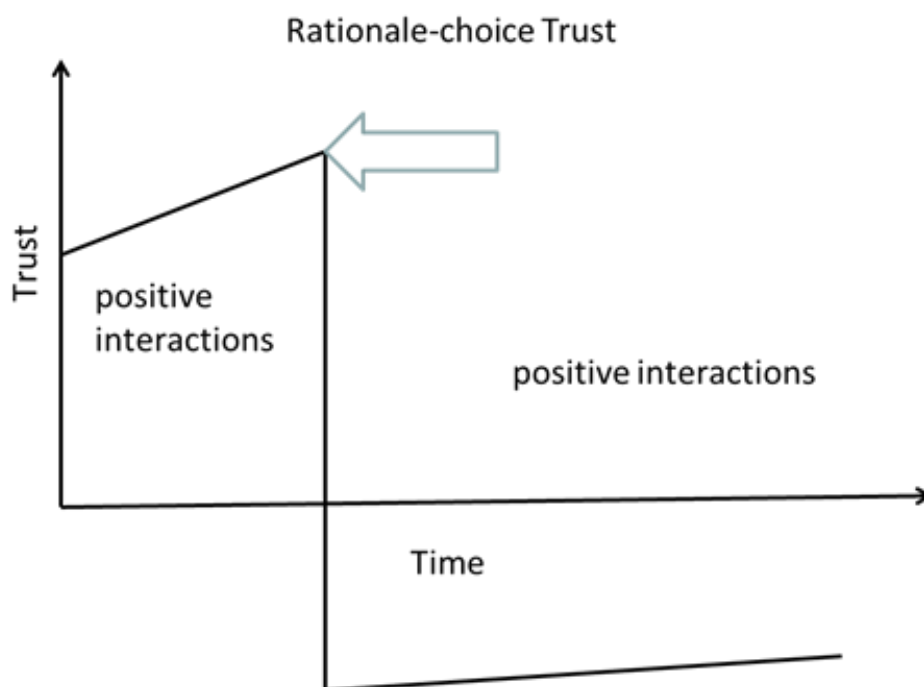
Figure 16. Rationale-choice Trust (Murnighan, Malhotra & Weber 2004)

In the attributional trust model (fig. 17), Murnighan, Malhotra and Weber (2004) predict that there will be no impact on trust due to the dependency between the stakeholders, with a simple apology sufficing. Elangovan, Werner and Erna (2007) suggest two violations will be tolerated, especially when trusters perceived the trustees could not fulfil the trust-expectations: it helps if you can pass the blame.
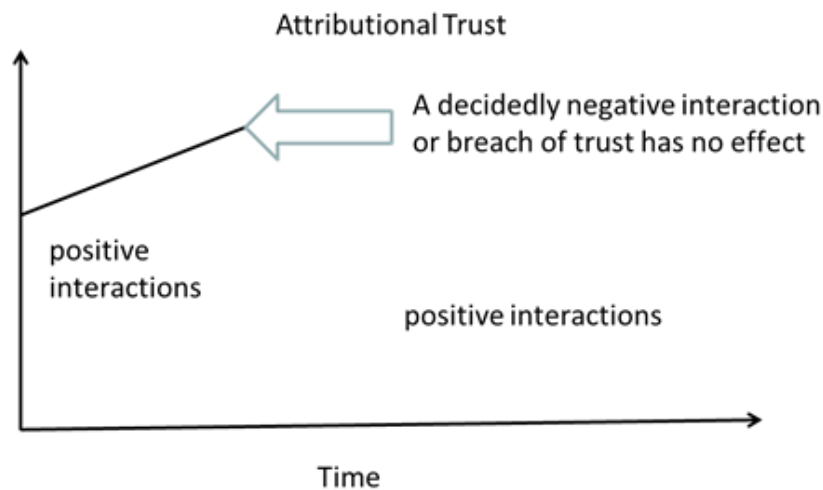
Figure 17. Attributional Trust (Murnighan, Malhotra & Weber 2004)

However, the evidence in this research indicates that trust does falter (fig. 18), hence, the attributional trust model has been modified to allow for trust and interactions remaining positive, and for trust to recover to preceding levels, eventually. It is as though there is a floor below which trust does not fall, thus preventing a breakdown in the relationship in accordance with attributional trust theory. The floor is caused by the stakeholders having a shared interest in maintaining their corporate reputations.
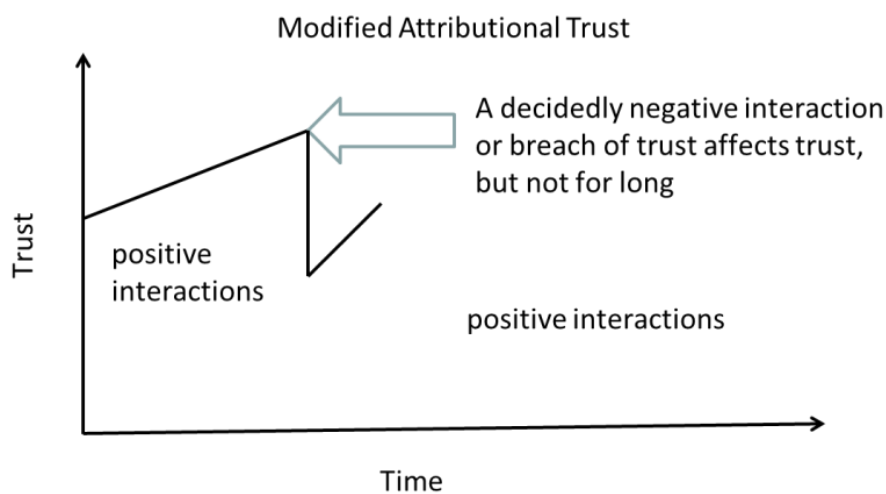
Figure 18. Modified Attributional Trust

Further, it is proposed that the research findings support two other relationships. First, in accordance with Jarvenpaa, Shaw and Staples (2004), the level of trust does not affect the outcome, provided the level of trust is positive and above the floor. Second, also in accordance with Jarvenpaa, Shaw and Staples (2004), trust affects the ease of doing business: the greater the trust, the easier it is to conduct business (fig. 19).

Discussion of Research Results
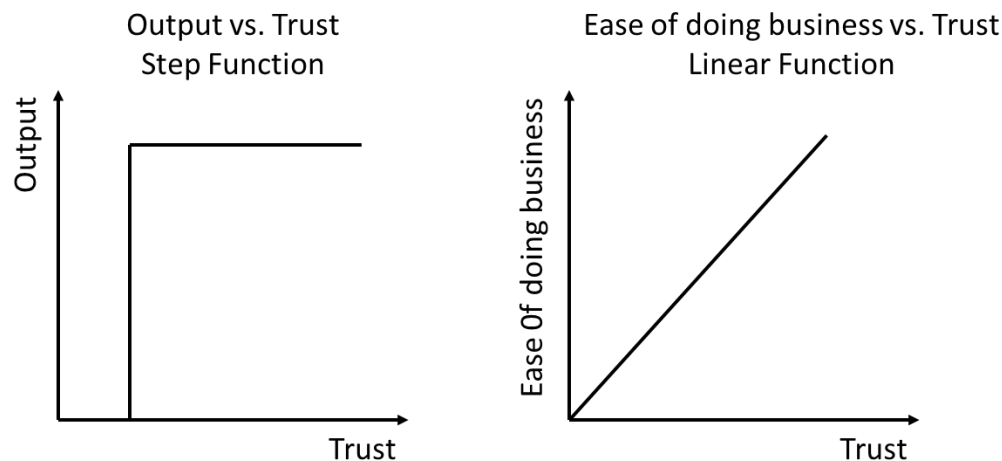
Figure 19. Output & Ease of Doing Business vs. Trust (Jarvenpaa, Shaw & Staples 2004)

A recent survey of international development projects noted delays concerned with negotiating the contract and procurement were responsible for the greatest project delay (Ahsan 2012). Hence, process inefficiency, or ease of conducting business, is an issue that may be solved by greater relational governance in the project relationships (Das & Bing-Sheng 1998; Handfield & Nichols 2004; Jarvenpaa, Shaw & Staples 2004; Poppo & Zenger 2002).

Introducing a floor to the level of trust in attributional trust theory, and accepting trust fluctuates, hints of a rationale-choice approach to trust. However, there are three important differences. This is not rationale-choice trust because:

- The stakeholders are engaged in major risk-taking and dependency, and a focus on the future, with the perceived benefits of cooperation guiding the decision to trust, unlike rationale-choice where previous history determines the stakes (Murnighan, Malhotra & Weber 2004).

- Trust does fluctuate, as with rationale-choice; however, there is a floor below which trust does not fall, as this would signal a breakdown of the project and the consequent negative impact on corporate reputation. Failure is not an option due to the concern over their corporate reputation.

- While the fluctuations in trust do not affect the output, the evidence suggests that it does impact the ease of doing business.

A recent paper (Day et al. 2013), using qualitative research, examines the negative outcomes associated with trusting relationships. Two retailers, Coach and Colleague (employee rewards company) expressed a preference for trusting relationships; Colleague emphasised a relationship based on mutual appreciation and respect; Coach sought

collaboration and supplier development. Unfortunately, Colleague's suppliers bemoaned the company's inability to develop the relationship to one of value co-creation; whereas Coach's suppliers considered the company was unwilling to equitably invest in supplier development, unfairly expecting too much from the suppliers. In both instances the buyers espoused the benefits of a trusting relationship, which had not been followed through according to the suppliers (Day et al. 2013). However, while the paper was written as an example of why good intentions are not enough, to highlight the negatives aspects of trust in a business relationship, it could be construed as an example of attributional trust.

For instance, the relationship was formed with an expectation of future mutual benefits. Also, it is assumed that the buyers promoted their desire for a trusting relationship in the tendering process. Second, the suppliers' comments report uneasiness with the relationship that affected the level of trust; however, this was not allowed to affect meeting the buyers' expectations to the extent that it resulted in the relationship being terminated. The paper does not allow the reader to discern whether this was due to suppliers' concern for their respective corporate reputations, although follow-on reputation as a good partner is mentioned as a concern in the literature review. Third, the lack of expected trusting behaviour experienced by the suppliers indicates uneasiness with the relationship, which affected its efficient undertaking. Fourth, some Coach suppliers suggested the company shared confidential product innovations with foreign suppliers to get reduced costs. On the other hand, Colleague was perceived as too secretive and not trusting of its suppliers (Day et al. 2013).

While the topic of this research considered the stakeholders in two construction supply-chains to postulate the Simplified Trust-Reputation Model, Day et al. (2013), in researching buyers and suppliers in the retail sector to examine the negative effects of trust, inadvertently portrayed findings that go some way to confirming the viability of the model. Day et al. (2013) suggest why trust faltered, attributional trust suggests why there was no breakdown in the relationship, which may have been due to the supplier's concern for their corporate reputation. Unfortunately, Day et al.'s (2013) research is concerned with supplier dissatisfaction with the buyer, hence it is not possible to postulate whether the buyers exhibited attributional trust without the original data.

Very little research (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005) has been found with regard to the study of attributional trust; its application to a real-world context, a construction supply chain, is new, especially the dependent factor being corporate reputation. Highlighting the importance of corporate reputation differentiates this

research from that of Murnighan, Malhotra and Weber (2004) and Weber, Malhotra and Murnighan (2005), and Jarvenpaa, Shaw and Staples (2004). Also, the suggestion of a floor to the level of trust is an extension to the theory.

In summary, the construction teams showed a willingness to put up with issues as an industry norm: stuff happens! Murnighan, Malhotra and Weber (2004) propose that the level of trust does not change in return for a simple apology. However, the evidence from this project suggests that while trust suffered due to an issue, it did not fall below a level that precipitated an irrecoverable breakdown in the relationship, due to concern for their respective company's reputation. Furthermore, the level of trust did not affect the project's outcome, but did affect the ease of doing business. Therefore, the relationship between output and trust is a step function: a level of trust above the breakdown value results in the same result, the project's completion. However, trust affects the efficiency of working together (Jarvenpaa, Shaw & Staples 2004), and is the human element that acknowledges the value of trust, communication, courtesy and impartiality in the relationship (Handfield & Nichols 2004). Getting on with others is good for business as it makes life easier was acknowledged by the interviewees.

8.4.1.1.2 Issue Resolution

Assertion 13: Trust improves issue resolution

While Mishra (1996) highlighted the importance of trust to crisis resolution, the evidence points to a similar proposition: trust improves issue resolution. Dietrich et al. (2010) suggest trust and conflict resolution as some of the antecedents of collaboration quality. Hence, a relationship imbued with trust should find resolving issues easier. Tuten and Urban (2001) believe that in a successful partnership characterised by improved communication, trust and satisfactory performance, good communications negates the need for formal conflict resolution, where open communications is a fundamental factor of trust identified by the interviewees.

8.4.1.1.3 Corporate Reputation

Assertion 1: Corporate reputation is important
Assertion 3: Corporate reputation trumps bargaining power and the contract.
Assertion 23: Concern for corporate reputation prevented consultants' frustration negatively affecting the project's outcome
Assertion 24: Concern for corporate reputation prevented personality conflict between Catherine (OP1) and George (OP2) negatively affecting the project's outcome

The on-going project's group interview confirmed the team's desire for a successful project outcome and happy client to maintain and enhance their respective company's reputation, because clients and partners will seek a close relationship with firms that have an excellent reputation (Bennett & Gabriel 2001). Closeness is typified by the exchange of technical and commercial information, joint problem-solving activities and relationship-specific adaptations (Bennett & Gabriel 2001).

However, while the companies have a concern for their respective corporate reputation, it is only as a result of a successful outcome by the supply chain that it is enhanced. Hence, it is more appropriate to consider partnership reputation as an antecedent of corporate reputation (Money et al. 2010). Although not explicitly stated, the interviewees' pre-occupation with enhancing their corporate reputation as a result of a successful project implicitly acknowledges the co-dependency of the supply chain members; partnership reputation is precedent and paramount over corporate reputation. Therefore, the goal of an enhanced corporate reputation flows from the partnership reputation created by a successful project.

The relationship between attributional trust and corporate relationship was evidenced by the examples discussed in assertions 4, 23 and 24.

8.4.1.1.4 Presumptive Trust

Assertion 2: Corporate reputation is presumptive trust

Category-based trust, a form of depersonalised trust, allocates trustworthiness based on the trustee's membership of a social group or organisation (Kramer 1999). Khalfan, McDermott and Swann (2007) found that an organisation's reputation clouded the decision as to whether its employee was to be trusted on the construction project. However, the interviewees were keen to observe that presumptive trust had a minor influence on their views of an individual, as what counted was actual experience working with an individual.

8.4.1.1.5 Simplified Trust-Reputation Model Summary

The evidence makes the case for a simplified trust reputation model based on the relationship between interpersonal attributional trust and corporate reputation. Further, it is proposed that it is important to consider attributional trust as having a floor below which trust does not fall. Trust falters but does not result in a breakdown of the supply chain. Also, while the output is not affected by the level of trust, the ease of doing business is a function of the level of trust.

8.4.1.2 Other Related Contributions

8.4.1.2.1 Trust is Interpersonal

Assertion 11: Trust is interpersonal, not inter-organisational

Although Lewicki and Bunker (1996) discuss trust from the interpersonal perspective, and Mishra (1996) and Mayer, Davis and Schoorman (1995) identify with trust at the interpersonal, intergroup and inter-organisational levels, this research shows that construction project team members see trust as being interpersonal. The literature is divided on seeing trust as solely an interpersonal measure or a factor that is equally applicable to organisations. However, this research confirmed trust to be an interpersonal factor in the minds of these informants from the construction sector, with companies being measured by reputation.

8.4.1.2.2 Inter-level Generalisation Problem

Assertion 12: The trust factors are inter-organisational

While they view trust as being interpersonal, the factors they use: co-operation, communication and consistency in meeting expectations, are essentially inter-organisational metrics, and an example of the "inter-level generalisation problem" (Medlin & Quester, 2002 cited in Seppanen, Blomqvist & Sundqvist 2007). The person is specified, but the actions of others in the project manager's firm are measured and associated with the project manager. The project manager from the builder or the professional services firm is representing their firm to the other stakeholders; they are the face of a team of individuals from their company. As such, in most instances, they will be representing the actions of others from their company when reporting to the supply chain. Hence, while the interviewees associate trust with people, the opinion they form of a fellow project manager is determined by how well their colleagues perform. The project manager is being judged by how well he/she marshals the resources under their command to advance the project: it is the cumulative actions taken by their team-mates that determine the trustworthiness of the project manager.

8.4.1.2.3 Culture is a Shared Commitment

Assertion 15: Culture equates to shared goals

Culture in the literature is concerned with what and how. The what of sharing goals and visions (Krause, Handfield & Tyler 2007), and the how to do, or behaviour that supports the right attitudes towards cooperation, trust and interdependence (Kothandaraman & Wilson 2000). In this research, culture is about what they achieve, and not how they achieve: culture is a shared commitment to the project's success. They are not dependent on a similar culture of organisational norms and values, but compatibility caused by a shared value of commitment (Beugelsdijk, Koen & Noorderhaven 2009). Hence, although the evidence in the

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individual case studies shows that they were concerned with others exhibiting behaviour commensurate with the right attitudes towards cooperation, trust and interdependence (Kothandaraman & Wilson 2000), they did not see this behaviour as part of the team's culture. With hindsight, this is not surprising. The interviewees accept that issues will arise and, in the interests of a successful outcome, indifferent behaviour is tolerated. What binds them together is a shared interest in achieving the project, as this is what affects their corporate reputation (section 5.5.1.1.3).

8.4.1.2.4 Being Sociable Counts, Not Socialising

Assertion 16: Socialisation is meeting out of the office

Assertion 17: Being sociable is more important than socialising

The importance of being sociable has been discussed in section 8.4.1.1.1. However, social events, such as having dinner, which are an important part of socialising (Cousins et al. 2006), are shunned for being frivolous and, possibly, shifty. Hence, while they may well socialise in meeting off-site in the project office as a matter of course, they are forgoing the opportunity to engage in off-site, out-of-hours socialising, even though the literature reports it is beneficial to relationships (Lian & Laing 2007; Oh, Chung & Labianca 2004; Palmatier, Gopalakrishna & Houston 2006). Particularly the building of personal familiarity (Gupta & Govindarajan, 2000 cited in Cousins et al. 2006) and affective commitment (Čater & Čater 2009), that general positive feeling toward the relationship partner based on trust and social bonding.

Therefore, the question remains as to whether social bonding, by socialising off-site and out-of-hours, would increase the level of trust and affective commitment, with a corresponding impact on the ease of doing of business (Jarvenpaa, Shaw & Staples 2004).

8.4.1.2.5 The OCT Induced a Behavioural Change

Assertion 18: Aconex did not change the work practices. Or did it?

Assertion 20: Builders and consultants had different aspirations for Aconex, inducing a behavioural change from the builders that caused frustration for the consultants

Nikas and Poulymenakou (2008) propose that the introduction of an OCT, such as Aconex, should result in fewer meetings. On both projects, the builder and the consultants had incommensurable objectives preventing a 'win-win' outcome (Cox, Ireland & Townsend 2006) with respect to their use of Aconex. The builders took advantage of Aconex's efficacy to efficiently issue RFIs and get them on the record. The consultants would have preferred more face-to-face time to resolve issues and less use of the OCT. Hence, the implication is that the OCT reduced the face-to-face time and inhibited social exchange (Bunduchi 2008),

which could have meant fewer meetings. Therefore, Aconex changed the interviewees' work practices, but not in a beneficial way from the consultants' perspective, by inciting the builders to over-issue RFIs. The consultants saw Aconex being used to resolve minor issues that could have been decided quickly at a meeting. In this instance, the combination of too many RFIs and less decision-taking at meetings was not good, causing the consultants to spend more than their budgeted time working on the project. A situation caused by the differing objectives of the builders and the consultants.

8.4.2   Managerial Implications

This research has highlighted the importance of strong relationships and reputation to the construction supply chain. Moreover, it has indicated the possibility for a negative effect of an OCT on relationships. Hence, the recommendations concern these topics.

8.4.2.1   Agree How RFIs Are Issued

A major issue was caused by the builders issuing a greater than expected number of RFIs, from the consultants' perspective, in order to take advantage of the OCT's ease of use. This caused the consultants frustration due to having spent a greater than budgeted time on the project, thus reducing their corporate profitability. The consultants' preference was to spend more time discussing issues face-to-face instead of resorting to issuing RFIs. Hence, before a project commences, it is recommended to hold a kick-off meeting with all the stakeholders to make sure everyone is on the same page (Mulcahy 2009). To the usual meeting topics of introductions, project risks, communications plan, meetings schedule and formal agreement to the project plan, it is recommended agreement be reached on when to issue RFIs by the OCT. For instance, the parties could agree not to formally issue the RFI by Aconex until the issue has been addressed at a face-to-face meeting.

8.4.2.2   Use a Relationship Status Indicator

Relationships have their ups and downs, as described by the interviewees. The literature shows the importance of the human element (Handfield & Nichols 2004) to task performance, due to improved communication, coordination and cooperation (Helfert & Vith 1999). Jarvenpaa, Shaw and Staples (2004) deem that, while the project outcome is not dependent upon the level of trust, consistent with attributional trust theory (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005), it does affect the efficiency of working together; or makes life easier in the language of the interviewees. Therefore, on a monthly basis, each project manager should complete a relationship status checklist to indicate their general feeling on the strength of relationships within the supply chain. The Trust Index (Hawkins 2008b) is a good example. A simpler way would be to score, on a scale of 1-10, their satisfaction with communications, cooperation and consistency of

meeting expectations across the project. Scores below an agreed value would trigger a special meeting to determine what corrective action is required.

8.4.2.3 Socialise

The project teams met weekly on the project site as a natural consequence of doing business, hence socialising (Cousins et al. 2006) by default. However, this did not extend to socialising off-site and out-of hours, even though the academic literature points to tangible benefits from attending social events (Palmatier, Gopalakrishna & Houston 2006). Hence, it is suggested that the team has dinner, or lunch, every quarter to take issues offline, build interpersonal relationships (Cousins, Lawson & Squire 2008) and develop relational capital (Cousins et al. 2006).

8.4.2.4 Blow Your Trumpet

Reputation is very important to the stakeholders. It is the glue that binds them together in seeking a successful outcome for the client, and because clients and partners seek a close relationship with firms that have an excellent reputation (Bennett & Gabriel 2001). Reputation is important as it tells the industry what to expect from the company, and is used to form an initial view of an employee's trustworthiness (Khalfan, McDermott & Swan 2007; Kramer 1999). Therefore, companies should actively promote case studies, e.g., website and newsletters, which inform potential clients and the industry about the contracts they have completed, and with which companies they successfully partnered.

8.4.2.5 Get Some Partnership Credentials

Wagner and Johnson (2004), in their study on supplier portfolio management, acknowledge that its strategic importance to the supplier has been recognised but report the "how-to" question has been widely neglected. Eriksson, Atkin and Nilsson (2009) observe that the chance of true and deep cooperation can be increased by putting formal partnering procedures in place, and by adopting a long-term perspective on partnering implementation. Day, Magnan and Moeller (2010) observe the importance of soft skills as a basis of segmentation. Strategic supply relationship management (SSRM) requires companies to invest in people to develop their soft skills and identify the appropriate relationship structure (Day et al. 2008), as a strategic relationship requires close bonds, not an arms-length approach. Unfortunately, Day et al. (2008) found that 60% of respondents had had no training in strategic relationship leadership.

Given the importance of partnering and relationship management, companies should consider attaining certification to a relationship management standard. The first standard in collaborative business relationships has just been released (BSI 2010), and there are plans

to migrate it to an international standard in the near future. Alternatively, work with an organisation such as Institute for Collaborative Working (ICW) or the local university to develop collaborative working skills. However, Lockamy III and McCormack (2004) note the supply chain planning practices as defined by SCOR (Supply-Chain Operations Reference) model lack broad implementation by supply-chain partners. Moreover, there is not a common view of SCM by members of the Purchasing Management Association of Canada (PMAC), although relationship building is regarded as a core skill along with communication and leadership (Larson 2008). Therefore, as research into market researchers' practices and education (Jobber & Horgan 1987, 1988) and other functions (Cox et al. 2005) has confirmed, it is important to focus on the basics to encourage adoption.

8.4.2.6 Opportunism Will Be Tolerated

The Simplified Trust-Reputation Model indicates that opportunism will be tolerated, to an extent, even though it is one of the main causes of disputes in the construction sector along with possessing a blame culture (Love et al. 2011). Concern about their corporate reputation makes companies tolerant about others' mistakes, whether accidental or wilful. However, to what extent a company can be opportunistic has not been established by this research. In a world of give and take, there will be a limit to the take.

8.4.2.7 OCT Suppliers

Concern with the user interface was expressed by the consultants, who found using Aconex time-consuming due to the overload of RFIs. They were also concerned with the differences in competency between group members. OCT suppliers could do a number of things to assuage these issues: in the training, advise what should constitute a RFI issued by the OCT; to ensure the team members have the same competency, associate online training modules with a level of competency so that team members can attain the level of OCT knowledge expected of them; conduct market research into improving the user interface. The OCT has gained acceptance as an important tool to aid productivity, but it needs tweaking to ensure its on-going adoption.

8.5 Industry Expert Comments

An impartial expert was used to assess the quality of analysis and data collection (Patton 2002). The expert's comments are summarised before being contrasted by the researcher with the contributions expressed in section 8.4.

8.5.1 Summary of Comments

To validate the conclusions, an impartial expert was used to assess the quality of analysis and data collection (Patton 2002). The expert is the Technical Director of the division of a

global, construction, professional services company. His comments are presented below with regard to their respective theoretical contribution or managerial implication:

- A Simplified Trust-Reputation Model (section 5.5.1.1):
    - The desired outcome is a happy client provided it does not happen at the expense of the supplier.
    - Trust has a considerable impact on efficiency, but the relationship to output is not so clear. In the majority of cases, trust does not affect output because the requirements are straightforward. However, in complex projects, low trust levels stop people thinking out of the box.
- Trust is Interpersonal (section 5.5.1.2.1):
    - It is about the individual, not the company, irrespective of whether an OCT is being used, or not. Hence, while an OCT may streamline communications, it does not affect trust: people do. Personal interactions make relationships.
- Culture is a Shared Commitment (section 5.5.1.2.3):
    - Culture concerns working in an efficient, open, positive and collaborative way to engender high-performance. It is easier said than done, and requires the right sort of people and the right contractual framework.
- Being Sociable Counts, Not Socialising (section 5.5.1.2.4)
    - Socialising can be beneficial, but can come across as contrived and not everybody is comfortable mixing work and pleasure.
- The OCT Induced a Behavioural Change (section 5.5.1.2.5)
    - Most RFIs do not need to go back to the designer, and of those that do, many can be solved by a brief face-to-face meeting. On small-scale projects, the old method of email is more efficient than Aconex; the client does not appreciate the time in using Aconex. However, on large projects an OCT is commonplace. Furthermore, the question as to whether the designer gets paid for the extra work becomes a discussion about the RFI being an error, omission or fault of the designer. The issue of payment can cause the project relationships to sour, which is compounded by too many RFIs and the inefficient use of time facilitated by Aconex.
    - There is usually a provision for the client or builder to provide a copy of all Aconex project records at completion to the consultants. In the expert's opinion, this is always difficult to obtain and remains a concern to consultants.
- Agree How RFIs Are Issued (section 5.5.2.1)
    - It is very important early on to establish the rules for issuing RFIs.
- Use a Relationship Status Indicator (section 5.5.2.2)

- o The expert's organisation uses a relationship status indicator, but the expert's preference is to rely on the Project Director or Key Client Manager to manage and maintain the relationship.
- Blow Your Trumpet (section 5.5.2.4)
  - o This is the way to build on your reputation and showcase the company's skills and expertise.

8.5.2 Expert's Comments Comparison with Contributions

The expert, while generally in agreement with the contributions stated in section 8.4, made some noteworthy comments which have added to the analysis.

- Trust does have an effect on output in complex, or heavily dependent on innovation, projects. Gillespie's (2012) work highlights the importance of being reliable and disclosing information, or meeting behavioural expectations. On straightforward projects, irrespective of issues, the stakeholders engage auto-pilot to finish the project for the sake of corporate reputation. On complex projects there is no roadmap to follow, hence the uncertainty may cause issues that change the scope (output) or cause a breakdown in the contract.
- To the expert, possibly more so than the interviewees, the crux of a relationship involves personal interactions that establish trust and cause issues to go away. Even though his organisation uses a relationship status indicator, he would rather listen to what the Project Director or Key Client Manager has to say. Furthermore, he acknowledges that socialising can be good for business, but it is not for all as some individuals feel uncomfortable.
- In the interviews, it was just the builders who showed an interest in using Aconex to safeguard against future liabilities. However, the expert clearly identifies that consultants have this in mind but usually find it difficult to obtain the OCT project records.
- Culture is concerned with high-performance (what) and the right behaviours (how). However, he states it is also dependent on having the right people and a contract that encourages collaboration.

The expert differentiates between straightforward and complex projects, where complex could be partnering (Cox, Ireland & Townsend 2006) or alliance contracting (DIT 2011). The difference between straightforward and complex revolves around the degree of risk caused by the uncertainty of requirements and process innovation to satisfy the customer. Unfortunately, innovation, the very thing that requires relational embeddedness (Moran 2005), causes the uncertainty that affects the quality of relationships (Leonidou, Barnes &

Talias 2006). Hence, you need the right types of people: people with a collaborative attitude (Eriksson, Atkin & Nilsson 2009).

8.6 Summary

The outcome of the research was the salience of attributional trust in guiding relationship management between the project's team-members. There was a focus on forgiveness to resolve issues for the sake of a corporate reputation as a good partner. It is believed that this is the first time that research has associated attributional trust with an inter-organisational supply chain, with regard to the importance of corporate reputation.

Also, the OCT inducing a change in behaviour by the builders and the reaction from the consultants is a new phenomenon to the literature. The importance of attributional trust to resolving the consultants' frustration and a personality conflict was highlighted. Moreover, the evidence shows that the level of trust did not affect the project's outcome, but it did make the project easier to work on. Finally, a simplified trust-reputation model was proposed to capture the application of new and existing concepts.

In practice, the analysis evolved from considering the temporal difference of an on-going versus completed project teams, to one that explored the differences between builders and consultants using a combination of deductive and inductive approaches, as this captured the difference in attitudes to using the OCT to issue RFIs.

9 Conclusions

This final chapter is a summary of the thesis and encapsulates the essence of the approach and the findings. It starts by setting the scene by identifying the rationale of the research questions and method of research. Hence, the literature review, research gap, conceptual framework, research questions, research methodology and field study are summarised. Next, the contributions are detailed with respect to the literature, managerial implications and research process. These include, for example: a simplified trust-reputation model that details the relationship between individual attributional trust and corporate reputation; the importance of holding a kick-off meeting to agree what constitutes a RFI that should be issued by the OCT; studying cases from the same construction supply chain team when the norm is sole informant quantitative research. Finally, research limitations that address the weaknesses of case study research (Simons, H 2009) are highlighted, and future research ideas are proposed.

9.1 Research Background

The theoretical lens of social capital was used to explore the literature by focusing on the four key constructs: trust; shared information; shared practices; shared values and goals, to provide a general view of the existing literature. In addition to SCM, the literature pertaining to the marketing, management and IS fields was explored before considering the construction sector and OCT literature. The purpose was to seek generalisations for contrast with the construction sector literature in order to identify topics identified in the general review that are missing in the construction sector literature. The literature review revealed a gap in researching the influence of an OCT on business relationships. Therefore, the research question is: how do online collaboration tools influence relationships in inter-organisational networks?

Theory development prior to the collection of any case study data is an essential step (Yin 1994), hence a conceptual framework focused on issue resolution, described in section 3.3, was developed based on the work by Mishra (1996). The framework proposed socialisation should lead to greater trust within the supply chain, which would have a positive impact on decentralised decision-making, openness and collaboration in resolving issues. To address the gap in the literature, propositions were derived that contended a corresponding positive influence of an OCT on the process of resolving issues. Hence, the propositions considered an OCT having a positive influence on socialisation, trust, decentralised decision-making, openness and collaboration in resolving issues, and performance auditing. Therefore, this research addressed the dearth of research into OCTs, particularly with regard to its influence on relationship management and issue resolution.

A case study approach was chosen as the research has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases (Creswell 2007). With regard to multiple cases the researcher typically chooses no more than four or five cases (Creswell 2007). Stake (2006) advises between 4 and 10 cases be studied for a multi-case study.

Two teams of four and five cases, respectively, were chosen from Melbourne-based, construction supply chains that used an OCT to satisfy the requirements of Creswell (2007) and Stake (2006). The teams were differentiated by coming from completed and on-going projects to address the temporal element of trust that has been given less attention (Seppanen, Blomqvist & Sundqvist 2007). A project manager was chosen as the unit of analysis because data that has been collected at the lowest level allows for the nesting and layering of data for cross-case analysis (Patton 2002) at different levels; for example, at the team-level (on-going or completed project), all cases together and by function, for example, builders and consultants. The salient difference was between the builders' and consultants' attitudes to using the OCT: the consultants thought the builders used the OCT to issue far too many RFIs instead of resolving issues around the table.

9.2 Summary of Contributions

The theoretical, practical and research process contributions are now considered.

9.2.1 Theoretical Contributions

Khalfan, McDermott and Swann (2007) concede that their research, to a large extent, is consistent with much of the academic literature relating to trust. Similarly, the author believes that this research project has also derived findings consistent with the existing literature, as detailed in section 8.3. The following assertions are considered to be consistent with the literature:

Assertion 1: Corporate reputation is important.
Assertion 2: Corporate reputation is presumptive trust.
Assertion 3: Corporate reputation trumps bargaining power and the contract.
Assertion 5: Individuals have a predisposition to trust.
Assertion 6: Trust is dependent on on-going interactions.
Assertion 7: Trust is a simple, multi-dimensional construct.
Assertion 8: Communication is important.
Assertion 9: Cooperation is important.

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Assertion 10: Achieving objectives is important.

Assertion 13: Trust improves issue resolution.

Assertion 14: There is decentralised decision-making, to some extent.

Assertion 17: Being sociable is more important than socialising.

Assertion 19: Ease of use and user training are important to the adoption of Aconex.

Assertion 21: The consultants, even though they had issues with the builders' usage of Aconex, were positive about its benefits.

Assertion 22: Aconex enforces cooperation.

Hence, while a majority of the assertions are considered consistent with the literature, the reasons the others are considered original are now discussed.

The major contribution is the simplified trust-reputation model (section 8.4.1.1) that relates attributional trust (Murnighan, Malhotra & Weber 2004; Weber, Malhotra & Murnighan 2005) and issue resolution to corporate reputation, with enhanced corporate reputation being a by-product of partnership reputation (Money et al. 2010). In effect, individuals on the project are very forgiving of others with regard to issues because of concern for their company's reputation; the desired outcome is a happy client, which is good for the company's reputation because of the positive impact on future business. Hence, while trust varied during the project, there is a floor below which trust did not fall, a floor associated with avoiding a breakdown in the relationship, in accordance with attributional trust theory. Furthermore, while the level of trust did not affect the project's outcome (Jarvenpaa, Shaw & Staples 2004), it did affect the ease of doing business (Handfield & Nichols 2004). The importance of corporate reputation to presumptive trust, trustworthiness allocated based on an individual's company reputation (Khalfan, McDermott & Swan 2007; Kramer 1999), is also highlighted.

A subsidiary contribution is the contention that trust and a good relationship are measured by the same three factors: communications, cooperation and meeting expectations. Therefore, instead of measuring relationship trust (Seppanen, Blomqvist & Sundqvist 2007), satisfaction (Cambra-Fierro & Polo-Redondo 2008), commitment (Zhao et al. 2008), quality (Athanasopoulou 2009) or strength (Donaldson & Toole 2000), a simple proxy for the state of the relationship may be achieved by aggregating measures of the three factors using a scale of 1-10.

Another significant contribution is how the introduction of an OCT induced the builders (section 8.4.1.2.5) to issue an inordinate amount of RFIs, from the consultants' perspective, in the interests of getting everything on the record as an insurance against future liabilities. It

is taken for granted by the stakeholders that the building design does not cover all eventualities, and that RFIs are needed to clarify what is expected from the builder. Usually, the majority of RFIs would be discussed and resolved at a team meeting. However, the efficacy with which RFIs are distributed by Aconex encouraged the builders to formally issue more than they would normally issue, with the added bonus of getting the issue on the record as a safeguard against future liabilities. Incommensurable objectives between the builder and consultants preventing a 'win-win' outcome (Cox, Ireland & Townsend 2006) are not unusual.

However, the introduction of an OCT cultivating a behavioural change in meeting different expectations has not been stated in the literature. In fact, the literature has determined the importance of an on-going, strong relationship to garner benefits from the introduction of IT (Byrd & Davidson 2003; Chae, Yen & Sheu 2005; Klein, Rai & Straub 2007). This research indicates that there is the potential for an OCT to negatively affect a relationship and inhibit social exchange (Bunduchi 2008) if its use is not considered to be mutually beneficial, which requires a need to balance the use of an OCT with traditional communications such as telephone, email, face-to-face, etc. (Babar, Verner & Nguyen 2007; Bouchlaghem, Kimmance & Anumba 2004; Carr & Kaynak 2007; Elmuti, Minnis & Abebe 2008)

The other contribution of note is their unwillingness to engage in social events (section 8.4.1.2.4), such as having dinner, even though the literature shows informal socialising to be beneficial to business relationships (Lian & Laing 2007; Oh, Chung & Labianca 2004; Palmatier, Gopalakrishna & Houston 2006). In fact, their comments indicate that they believe there are disincentives, such as a frivolous waste of time or being shady, to socialising out-of-hours. It could also be that they found the weekly meetings off-site in the project office sufficient for resolving issues and, hence, saw no need for socialising out-of-hours. However, they were happy to acknowledge the importance of being sociable (Helfert & Vith 1999) to make life easier, due to improved communication, coordination and cooperation. As one has to socialise, as in interact, to be sociable, it is the form of socialising that requires investigation.

The other contributions listed in section 8.4.1, Theoretical Contribution, are observations of how the teams differed from the theory, and not considered as generalizable as those listed above.

Trust is interpersonal (section 8.4.1.2.1) acknowledges the ambivalence towards trust as an interpersonal and/or inter-organisational factor by different researchers. For instance,

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Lewicki and Bunker (1996) discuss trust from the interpersonal perspective, while Mishra (1996) and Mayer, Davis and Schoorman (1995) identify with trust at the interpersonal, intergroup and inter-organisational levels. The informants consider trust to be about people, with reputation reserved for gauging companies.

Inter-level generalisation problem (section 8.4.1.2.2) is a comment on how the actions of others in the project manager's firm are measured and associated with the project manager (Medlin & Quester, 2002 cited in Seppanen, Blomqvist & Sundqvist 2007), when considering the trustworthiness of the project manager. Although trust is viewed as being interpersonal, the factors they use: co-operation, communication and consistency in meeting expectations, are essentially inter-organisational metrics, as the project manager is responsible for making things happen and not personally doing them.

Culture is a shared commitment (section 8.4.1.2.3) to what is required: a successful outcome. Usually, culture in the literature is concerned with what and how (Kothandaraman & Wilson 2000; Krause, Handfield & Tyler 2007). Hence, although the evidence in the individual case studies shows that they were concerned with others exhibiting behaviour commensurate with the right attitudes towards cooperation, trust and interdependence (Kothandaraman & Wilson 2000), they did not see this behaviour as part of the team's culture. Commitment is more important than behaviour as things are expected to go wrong; therefore, having good intentions is what matters.

In conclusion, the majority of this research's outcomes are considered to be consistent with the literature, a situation shared by another piece of research into relationships in the construction sector (Khalfan, McDermott & Swan 2007). Fortunately, the findings point to a relationship between attributional trust and corporate reputation as exemplified by the Simplified Trust-Reputation Model, and is the major finding of this thesis. Paradoxically, although the research questions consider the influence of an OCT, the relevant findings, other than one, are concerned with relationship management. The one OCT finding highlights how the introduction of an OCT induced a behavioural change in the builders to the frustration of the consultants, who observed a greater than usual number of RFIs being issued by the builders as an unforeseen consequence of differing expectations from the tool. Hence, there needs to be a mutually acceptable balance between the use of Aconex and face-to-face communications.

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9.2.2 Managerial Implications

The main practical recommendation is to have a project kick-off session (section 8.4.2.1) at which agreement is reached on when to use the OCT to issue RFIs. Determine at a weekly meeting whether there is a requirement to formalise a particular RFI via the OCT instead of using the OCT by default, thus forestalling frustration to the consultants. It is also suggested that:

- Stakeholders keep each other informed of the general state of relationship health on the project by using a relationship indicator (section 8.4.2.2).
- Stakeholders socialise at off-site, out-of-hours events, e.g., dinner (section 8.4.2.3).
- They establish their partnering capability and commitment within the industry by actively promoting case studies of successful projects (section 8.4.2.4).
- Companies seek partnering credentials by working with a third-party, e.g., university, to identify and educate key personnel in relationship management (section 8.4.2.5).
- Controversially, the research suggests that companies may be opportunistic without worrying about a breakdown in the relationship, although Love et al. (2011) indicate opportunism is one of the main causes of disputes. How opportunistic a company may be has yet to be established (section 8.4.2.6).
- OCT suppliers should try to ensure users on the project have the same competency in using the tool. This could be achieved by offering online training modules that certify different levels of competency for users to complete. Given the general consensus with concern over the user interface, OCT suppliers should conduct on-going market research to check the tool's acceptance and user-friendliness (section 8.4.2.7).

These recommendations re-affirm the importance of strong relationships with a firm's stakeholders and a commitment to getting the job done, the paramount findings of this research.

9.2.3 Evaluation of Research Process

Recent meta-research into business relationships (Athanasopoulou 2009; Dainty 2008; Seppanen, Blomqvist & Sundqvist 2007) has called for more qualitative research, while noting the dominance of single key informant research and little attention to the temporal element of trust. Therefore, it was decided to undertake qualitative research into a specific segment: construction supply chain. The major segment of OCT users is the construction sector. To avoid informant bias, two supply chain teams were recruited. The supply chain teams consisted of four and five cases, respectively, to gather multiple perspectives on the workings of the team. To explore temporal differences, one team had recently finished their

project, while the other team was six months from completion at the time of interviewing. The interviewees were asked open-ended questions to explore reciprocal loops. Breeman's (2012) definition of trust as an intentional status of favourable expectations, or performance satisfaction, when people act as if they are certain when they know they are not, confirmed the importance of qualitative research to identify reciprocal loops. People act on a favourable expectation, ignoring the underlying risk (antecedent), and judge the level of trust by the performance fulfilment (consequence), which reinforces the on-going cycle of expectation and fulfilment.

The analysis determined the key differentiation was that between builders and consultants because of the differing attitudes to issuing RFIs, and not the temporal difference of an on-going versus finished project.

The decision to interview teams, as opposed to individuals, was taken in response to the analysis by Athanasopoulou (2009), who reported a scarcity of dyadic research (three out of 64 papers). With hindsight, this proved to be a good decision, as the multiple perspectives on the same project allowed the author to build a complete picture of the issues.

The research was conducted following the guidelines established in section 4.5:

- Evidence was collected from multiple sources: personal interviews, at which the interviewee was requested to give a brief summary of their career and motivations; the company's website was analysed to indicate the company's relationship management ethos; a group interview was held with members of the on-going project team to gauge the consensus of viewpoints.
- The credibility of the findings was improved by using interviewees from the same team. The cases were analysed and reported according to sections 4.6.4.2 and 4.6.4.3. Additionally, an impartial industry expert was used to check the validity of the findings.
- The findings, individual and overall, were distributed to the interviewees for their comments. Pseudonyms have been used for the interviewees and their companies, and the description of the project is brief and general to avoid identification.
- To establish a rapport with the interviewees, two changes were made. First, although the conceptual framework is based on dispute resolution, issue resolution was used in the field research questions as, in the author's mind, dispute implies disagreement more so than issue; dispute has legal connotations, which could have inhibited the interviewee's openness. Second, during the on-going project study the question, "Are

you a naturally trusting person?" was moved to the end of the trust-related questions as interviewees in the completed project found the question confronting as a first question.

The research was initially conducted using a deductive approach in exploring how the findings concurred with the propositions, which were elicited from the research questions as a consequence of the literature review. However, when the importance of attributional trust emerged, a topic not covered by the generated propositions, an inductive approach was undertaken to generate assertions based on the findings, which were then contrasted with the existing literature using an approach consistent with modified analytic induction (Patton 2002).

Barratt, Choi & Li (2011) provide an excellent list of criteria (table 43) for evaluating case study best-practice, which is presented here as validation of the author's approach.

Table 43. Case Study Evaluation Criteria (Barratt, Choi & Li 2011)

Item	Rationale
Justification for case research	Case study research involves the issue explored through one or more cases within a bounded system, where the bounded system may be a context (Creswell 2007). It involves in-depth data collection involving multiple sources such as interviews, documentation and observation. A case study is a good approach where the inquiry has clearly identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases (Creswell 2007).
	The research topic concerns the influence of an online collaboration tool on the relationships between project managers in a construction supply chain. Hence, the phenomenon of relationship management is studied in the context of a construction supply chain and the influence of an OCT. Further, there is a comparison between a project that had finished and one that had not. Therefore, the design framework of case study is considered apt for answering the research question.
	In exploring the influence of an OCT on a project management team, the researcher is undertaking an instrumental, embedded study. Instrumental, as the particular phenomenon under study is relationship

Item	Rationale
	management, and embedded, as the project management team was studied using its members as the subunit of analysis. The context (Simons, H 2009; Yin 1994), or boundedness (Stake 1998), is that of a Melbourne-based, construction sector, project management team.
Unit of analysis	Two construction supply chain teams, consisting of four and five cases, respectively, were recruited, where a case is a project manager. Multi-case analysis was undertaken at function (builder/consultant), team (completed/on-going) and aggregate levels. The most useful results emerged from undertaking a builders and consultants analysis due to their different attitudes to the use of Aconex to distribute RFIs.
Theory vs. phenomenon	The research questions were originally explored using a deductive approach by using propositions generated from the existing literature to test the evidence against it, in common with a scientific postpositivist inquiry (Creswell 2007). However, given the emergent importance of attributional trust, not covered by the deduced propositions, an inductive approach was also used. The outcome of the inductive approach was a Simplified Trust-Reputation Model, which detailed the relationship between interpersonal attributional trust and corporate reputation.
Sampling strategy	The cases were Melbourne-based members of two construction supply chains which used an OCT. The author is Melbourne-based, and used convenience sampling based on the experience of other researchers having had difficulty recruiting dyads (Athanasopoulou 2009).
Number of cases	Stake (2006) proposes between 4 and 10 cases. Less than four cases will not show enough of the interactivity between the cases. Too many will provide more uniqueness of interactivity than the researcher or reader can come to understand. Creswell (2007) suggest four or five cases as too many cases reduces the depth of analysis in a particular case. Nine cases were studied: five members from the completed project; four from the on-going project. Hence, each team consisted of four or five cases (Creswell 2007), with an aggregate number of nine cases in total (Stake 2006).
Triangulated data sources	The data was triangulated in a number of ways. • Interviewing members from the same team to ensure narrative

Item	Rationale
	consistency.
	• Interviewees were asked to validate the results.
	• An industry expert was asked to validate the results.
	• Interviewees offered a personal profile that helps the reader form a picture and add validity to what was reported.
	• The company's website was visited to determine the relationship ethos of the firm.
	• Deductive and inductive methods of investigation were used.
	• The teams were at different stages of project completion: on-going and finished.
	• A bias against using an OCT was equally represented.
	• Weight was given to the clients' project managers by interviewing them last, to validate the overall picture formed from interviewing the other team members.
	The triangulation methods chosen reflect the advice of Miles and Huberman (1984) and Patton (2002).
Data analysis	Within and cross-case analysis was undertaken. The cross-case analysis was initially conducted at the team-level of on-going and completed projects. However, the more fruitful analysis proved to be between the consultants and builders.

9.3 Research Limitations

The potential limitations of the research are now explored using the limitations listed by H. Simons (2009) in section 4.4.1, those being subjectivity, significance, generalisation and validity.

Leadbetter (2012), in a booklet written for the Institute of Public Policy Research, adds to the identified importance of norms of reciprocity, communication, reputation, trust and shared values: fairness, because fairness breeds cooperation. The outcome and the rules have to be fair, and communications, particularly face-to-face, makes cooperation real and personal. Leadbetter (2012) cites Sally's (1995) meta-study of social dilemma experiments that found levels of cooperation rose by more than 45% when people were allowed to communicate face-to-face. The author's view is that good relationship management is about fairness and empathy, with judicial use of an OCT fermenting efficient communications.

Conclusions

Another limitation is the question of reflexivity (Patton 2002) by the interviewees. Some of the informants may have been guarded in their response because of commercial sensitivities and concern about rocking the boat. To counter this, informants were given the option to discuss their viewpoint from the aspect of an anecdote not related to the current project.

Given the small sample and specific context of Melbourne-based construction supply-chains, some may argue that generalisations may not be drawn from the data. The author, in agreement with noted researchers (Simons, H 2009; Stake 1998, 2006; Yin 1994), believes this is a myth of case study research, as elucidated in section 4.5.6. H. Simons (2009) states that we have an obligation to demonstrate how and in what ways our findings may be transferred to other contexts, or used by others, by writing in sufficient detail that readers can vicariously experience the reported events and draw their own conclusions (Stake 1998). While this thesis cannot capture the reality as lived (Simons, H 2009), it is hoped that the reader has been given enough information to make up their own mind about the research's significance. The personal profile provided by each case and the researcher's use of quotes to project the interviewee's thoughts situates the interviewee in the research in an effort to communicate the 'lived experience' (Simons, H 2009).

The data was gathered from two construction supply-chain project teams, and the cross-case evidence suggests generalisation across construction teams is applicable, although it should be noted both teams were constructing a building, as opposed to a road, tunnel, etc. The consistency of this research's findings with the relationship management literature concurs with Khalfan, McDermott and Swann (2007), who also concluded that their findings were consistent with much of the academic literature on trust. With regard to the relationship between attributional trust and corporate reputation, the concept is generalizable to other sectors but needs to be tested using qualitative and quantitative methods. It is considered to be especially applicable to the supply chain, product development and project management functions, where external partners are involved. It may well be applicable to activities that only involve internal personnel, where corporate reputation is replaced by concern for the group's reputation, e.g., a regional sales team during a new product launch.

To validate the reported findings they were discussed with the informants before publication to review for accuracy, completeness, fairness, and perceived validity of data analysis (Patton 2002). Also, an impartial industry expert commented on the findings. While the two projects may not be representative in any formal, statistical way, it was satisfying to see the same issue regarding the over-issuance of RFIs occurring with both teams. Unfortunately, the completed project team members quickly moved onto other projects, hence it was not

possible to bring them together for a group interview due to their busy schedules. The on-going project's group interview proved to be incisive in confirming findings identified in the individual interviews and highlighting new information. Hence, there is the possibility that something important was missed by not running a group interview with the completed project.

The author acknowledges that acquiring teams to interview was not an easy task. The usual excuse was that they were too busy to take part, which is very understandable given the hectic nature of their work. Also, the author believes that some prospects were concerned about upsetting the team dynamics by revealing information that they should not.

9.4   Future Research

A number of research ideas flow from this study:

- Is attributional trust applicable to other sectors, particularly with regard to the importance of corporate reputation? Does it apply to internal, as well as external, teams? This study was concerned with construction sector supply-chains based in Melbourne, which were using an OCT. Further research is required to explore how generalizable the results are to other sectors.

- How general is it to state that the level of trust does not affect output? Does trust affect output more so in partnering (Cox, Ireland & Townsend 2006) or alliance contracting (DIT 2011)? What diminution of trust would cause an irretrievable breakdown in the relationship? Where is the trust floor, and how does one identify it?

- Does a good partnership reputation (Money et al. 2010) require an understanding and flexible attitude from all the partners? This research implies that the shortcomings of one will be forgiven. Hence, is the reality of a bad partnership hidden by a publicity spin by the more conducive partners, who are worried about being tainted by association with a dysfunctional partner? Is partnership reputation a case of moral hazard as a partner may benefit even when being opportunistic?

- How general is the relationship between trust and process efficiency on a project? A recent survey of international development projects stated that delays concerned with negotiating the contract and procurement were responsible for the most project delay (Ahsan 2012). How much was the level of trust a factor in affecting the ease of doing business (Das & Bing-Sheng 1998; Handfield & Nichols 2004; Jarvenpaa, Shaw & Staples 2004; Poppo & Zenger 2002)?

- Do the factors of communication, cooperation and meeting expectations adequately measure trust and relationship quality?

- How important is it to have a kick-off meeting where the use of the OCT is agreed? Is there a difference in the efficacy of a team that has agreed how an OCT is to be used, versus one with no agreement? What is the mutually acceptable balance between the use of an OCT and face-to-face communications?

- Is a relationship status indicator useful? Does it help the on-going workings of a team by highlighting a relationship issue needs to be addressed?

- Does socialising, as in attending social events, e.g., dinner, affect trust on a project? Does it increase disclosure of sensitive personal information, a behaviour considered important to the development of trust (Gillespie 2012)?

- How does an OCT influence power relations? Nguyen et al. (2006) found that the virtual life of online communities imitates real life with people trying to impose the real world power in cyber world. It seems the builders are using an OCT to exert greater influence by exercising their right to issue a greater number of RFIs.

- This study focussed on relational governance formed by interpersonal relationships. What is the effect on a project of using a social enterprise network, e.g., Yammer, alongside an OCT?

9.5 Summary

This research, in studying the influence of an OCT on business relationships, has highlighted the relationship between attributional trust, a topic with little exposure in the academic literature, and corporate reputation. Hence, while the over-issuance of RFIs induced by the builders' use of an OCT (Aconex) is a new finding, the author believes the attributional trust findings are more relevant. The majority of the findings are consistent with the academic literature, and while not original contributions they confirm previous work based on relationship management research in the construction sector and others.

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Appendices

Appendix A

First Email

Hi ???,

I'm a PhD student researching relationship management between a construction consortium's project-managers.

My research is qualitative and involves interviewing five project-managers from the consortium. Interviewees will be the professional services project-manager representing the client, and project-managers from the prime construction company and sub-contractors.

I need two consortia. One consortia will be using an online collaboration tool (OCT), such as Aconex or Prolog Converge, the other will not be using an OCT.

The research questions are:

In the context of inter-organisational networks:

•	What creates trust (interpersonal and inter-organisational), and how is trust measured?

•	What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?

•	What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?

•	What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?

•	How does an OCT change the project-manager's work practices, and how do these changes affect their relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?

Would ABC be interested in participating? You can volunteer as one or both of the consortia.

Kind regards,

Ian

Second Email

Hi ???,

That sounds great. Your help is gratefully appreciated.

Here's a bit more information on what I'm after. I'll ring you this afternoon to discuss.

- Firstly, and most importantly as a KSF, a friendly professional services firm project manager. Having been around the block a few times I know that organising the interviews will be difficult without the support of this person. In fact, I honestly think that without the support my fieldwork could drag on for six months. With it, I am hoping to complete the field work by end-Feb at the very latest, the sooner the better. I can probably do 2-3 interviews a day. That would leave my final academic year to focus on analysis and writing.

- I'm looking to interview a working team of five project managers from a construction consortium (supply-chain). One from each of the professional services firm, the prime contractor, and three sub-contractors. There will be a 1:1 interview and a group interview, each lasting for about an hour. There are two teams: one that uses an online collaboration tool (OCT); and, one that doesn't.

- The questions concern relationship management between the project managers, and how an OCT influences the relationship management and changes the role of the project managers. Members of the non-OCT team will be encouraged to answer questions on the use of an OCT if they have experience of using one.

- The interviews will be transcribed but the interviewees identity will not be revealed in the research.

- About a month after having conducted the interviews, and the interviewee having reflected on the interview and the group interview, I will email the respondents to ask for:

  o A half-page profile: what's your education and experience; what major career decisions did you take and why with regard to becoming a project manager. I love reading papers where you get a feel for the subjects. They come alive! Each person will be a mini-case study in my thesis, so a brief narrative of the individual sets the scene.

  o A half-page advisory to a graduate project manager on the essence of good relationship management in project management.

  o A half-page on whether their company has an ethos of relationship management, has any policies, follows a standard...I want to see whether there is any correlation between the project managers' views and their companies' stated approach to relationship management.

Kind regards,
Ian

Appendices

<u>Third Email</u>

Hi ???,

Thanks for the meeting - appreciate your time.

Please find detailed an introduction to my research, for submission to potential interviewees, under the sub-headings of Objectives, Process and Timing.

<u>Objectives</u>

The research concerns relationships in the context of a project management team, and the influence of an online collaboration tool (OCT), such as Aconex, on the relationships and working practices of a project manager. The purpose of the research is to explore the following questions.

In the context of inter-organisational networks:

- What creates trust (interpersonal and inter-organisational), and how is trust measured?
- What is the importance of the different types of socialisation, formal and informal, to the development of interpersonal and inter-organisational trust?
- What is the influence of trust on decentralised decision-making, open communications and collaboration in issue resolution?
- What is the influence of an OCT on decentralised decision-making, open communications and collaboration in issue resolution?
- How does an OCT change the project-manager's work practices, and how do these changes affect their relationships (internal and external) with regard to socialisation processes, norms and trust, in the context of issue resolution?

<u>Process</u>

I'm looking to interview a working team of five project managers from a construction supply-chain. One from each of the professional services project management firm and the prime contractor, and three from other noteworthy companies of the supply-chain. My background isn't construction so I will bow to your recommendations. My only requirement is that they are considered a main player in the project.

There will be a 1:1 interview and a group interview, each lasting for about an hour. There are

two teams: one that uses an OCT; and, one that doesn't. The focus is on getting the practitioner's viewpoint. The vast majority of recent relationship management research has been quantitative resulting in a call for more qualitative research to capture the essence of the 'lived' experience.

The questions concern relationship management between the project managers, and how an OCT influences the relationship management and changes the role of the project managers. Members of the non-OCT team will be encouraged to answer questions on the use of an OCT if they have experience of using one.

The interviews will be transcribed but the interviewee's identity will not be revealed in the research as stated in the attached Plain Language Statement (PLS), unless you decide otherwise. A signed PLS is a formal requirement of the university's ethics process for the interviewee's response to be eligible for inclusion in the thesis.

About a month after having conducted the interviews, and the interviewee having reflected on the interview and the group interview, I will email the participants to ask for:

- A half-page profile: what's your education and experience; what major career decisions did you take and why with regard to becoming a project manager. I love reading papers where you get a feel for the subjects. They come alive! Each person will be a mini-case study in my thesis, so a brief narrative of the individual sets the scene.
- A half-page advisory to a graduate project manager on the essence of good relationship management in project management. What 3-5 things should a graduate focus on to maintain good relations with the stakeholders.
- A half-page on whether their company has an ethos of relationship management, has any policies, follows a standard...For instance, in the Values section of the introduction to ABC brochure: "We aim to forge long-term, successful relationships with all stakeholders in the property and infrastructure industry." I want to see whether there is any correlation between the project managers' views and their companies' stated approach to relationship management.

Timing

As soon as possible is fantastic. I would like to complete the interviews and group interview over a two week period. My diary is mostly free so I will be able to fit-in with the interviewees' timetables quite easily. Over the next month I have three days that I can't make: 06/12 pick-

up daughter from airport; 14/12 daughter's graduation ceremony; 16/12 pick-up son from Pucka. Studying for a PhD is a solitary, monastic existence - getting out to meet people is quite exciting!

Look forward to working with you.

???, I'll give you a buzz later this afternoon to discuss.

Kind regards,
Ian