Investigating the roles of interpersonal and interorganizational trust in IT outsourcing success

Cong Qi
Department of Management & Marketing,
The Hong Kong Polytechnic University, Hong Kong, Hong Kong, and
Patrick Y.K. Chau
School of Business, The University of Hong Kong, Hong Kong, Hong Kong

Abstract

Purpose – Trust, as one of the core components of a relationship, has attracted research attention from many disciplines. From the perspective of IT outsourcing, this paper aims to divide trust into two levels, interpersonal trust and interorganizational trust, and explore the effects of these two levels of trust on knowledge sharing and IT outsourcing success.

Design/methodology/approach – Based on social exchange theory and the theory of organization boundary systems, a theoretical model was developed and tested empirically with the responses to a cross-sectional survey. Data were collected from key informants of 143 firms that had outsourced at least part of their IT functions.

Findings – The data analysis results showed that interpersonal trust plays a more dominant role than does interorganizational trust in making IT outsourcing successful and the extent of knowledge sharing has a significant mediating effect between interpersonal trust and IT outsourcing success.

Originality/value – From the managerial perspective, findings from this study once again emphasize the importance of relationship management (trust and knowledge sharing) on overall IT outsourcing success. Paying attention to interpersonal trust is an effective way for an organization to build and maintain a successful IT outsourcing relationship with its service provider.

Keywords Interpersonal trust, Interorganizational trust, Knowledge sharing, IT outsourcing success, Offshoring, IT/IS management, Trust, Relational view of the firm, Outsourcing

Paper type Research paper

1. Introduction

IT outsourcing market is not downsizing even when facing the challenges of cloud computing services these years. The global IT outsourcing market grows by 7.8 percent from 2010, and has reached \$246.6 billion in 2011 (Gartner, 2012). IT outsourcing is still a major option for companies to handle some or most of their information systems and technology requirements. In the past 20 years, numerous studies have been conducted to answer "why," "what" and "how" to outsource, however, in the current years, the management issue, which focusses mainly on "how" to outsourcing, is becoming one of the most researched areas (Alsudairi and Dwivedi, 2010). The "how" question is becoming more important nowadays as many failures of IT outsourcing have come at the implementation stage (Dibbern *et al.*, 2004). A core problem of the "how" question in IT outsourcing is relationship building and management (Dibbern *et al.*, 2004), through which the client and the provider negotiate, communicate and interact with each other. However, according to Gonzalez *et al.* (2006) and Alsudairi and Dwivedi (2010), from 1989 to 2005, and from 2006 to 2008,

www.mana

outsourcing research that considered the client-provider relationship accounted for only 7.8 and 5.6 percent, respectively, of all research conducted on IT outsourcing. It is therefore important to expend more effort on research of these issues.

When it comes to trust, most prior organizational behavior studies have argued that trust is closely related to relationship and is in fact essential to sustaining relationship (Lewicki and Bunker, 1996). In the IT outsourcing context, previous studies have discussed the role of trust in successful relationship management (e.g. Kern and Willcocks, 2001; Klepper, 1995); however, when measuring trust, most studies considered trust at the organizational level rather than at the personal level. Prior organizational behavior research (e.g. Zaheer *et al.*, 1998; Rousseau *et al.*, 1998) has suggested that trust has a possible influence at the personal level on organizational-level outcomes. However, the possible effect of trust at the personal level on organizational-level outcome, e.g. IT outsourcing success has not been previously examined.

"Trust not only influences the nature of professional relationships (the relationship at work), but more importantly, the extent and nature of the knowledge shared" (Panteli and Sockalingam, 2005, p. 602). In Lee *et al.*'s (2008) work, knowledge sharing, the outcome of mutual trust (Mayer *et al.*, 1995), is also regarded as a determinant of IT outsourcing success. Aligning with Lee *et al.* (2008), knowledge sharing is taken into consideration as a significant mediator between trust at two levels and IT outsourcing success in the current study. The specific reasons of introducing knowledge sharing are: first, knowledge is a critical asset for companies. For outsourcers, IT outsourcing is a continuous process in the outsourcing lifecycle to acquire external knowledge that has to be integrated into their own routines and process (Dibbern *et al.*, 2004). The importance of knowledge sharing between the client and the service provider in IT outsourcing projects thus becomes salient, and it is a significant predictor of IT outsourcing performance (Blumenberg *et al.*, 2009); and second, trust alone is not sufficient to account for success in a knowledge-rich project such as software development or sourcing IT support abroad even though trust is influential in outsourcing performance (Atuahene-Gima and Li, 2002). Therefore, in the current research, the mediating effect of knowledge sharing will be tested in the relationship between interorganizational/interpersonal trust and outsourcing success.

The main purpose of this research is to explore the determinant effects of trust and knowledge sharing on IT outsourcing success. To be specific, this paper intends to augment our understanding of the antecedents of IT outsourcing success by answering the following three questions: first, what kind of effect does trust has on knowledge sharing and IT outsourcing success; second, are there any differences between the effects of interpersonal trust and interorganizational trust on knowledge sharing and IT outsourcing success?; and finally, does knowledge sharing mediate the relationship between interorganizational/interpersonal trust and IT outsourcing success? To address the above problems, a theoretical model is developed and empirically tested with the responses to a cross-sectional survey of 143 IT outsourcing clients.

The remainder of this paper is organized as follows. In Section 2, a review of the relevant literature is presented. Sections 3 and 4 describe the research theories related to the study and the research model and hypotheses thus derived. In Sections 5 and 6, the research methodology as well as the data analysis and results are discussed. Section 7 discusses the findings, research and managerial implications, and limitations and suggestions for future research. The paper concludes in Section 8.

2. Relevant literature

2.1 IT outsourcing relationship and trust

To date, most studies on IT outsourcing relationship involve the dimension of trust as either a component or an attribute of the relationship. For instance, Klepper (1995) stated that unidirectional trust, influence, functionality of conflict, cooperation and conflict were the major components of a relationship. Davis (1996) described three control mechanisms in an outsourcing relationship and included trust as one of the mechanisms. Kern and Willcocks (2001) offered a holistic model consisting of four dimensions of relationship: contract, structure, interactions and behavior. In the behavioral dimension, five major elements (dependence, power, conflict, cooperation and trust) were argued to have either a positive or negative influence on the IT outsourcing outcomes. Lee and Kim (1999) and Goles (2001) deemed trust to be one element or attribute of an outsourcing relationship. Han *et al.* (2008) proposed trust and commitment as two key attributes of relationship intensity and have a direct and positive influence on IT outsourcing success. To summarize, trust is always listed in the framework of IT outsourcing relationship, except a few studies with a specific focus on trust (e.g. Lee *et al.*, 2008; Bekmamedova *et al.*, 2008), little empirical research has been conducted to study "trust" independently and to explore the contribution of trust at different levels to IT outsourcing success.

2.2 Trust in the literature

Trust is elusive and exists in many facets and at different levels, making it a complex phenomenon to study (Gambetta, 1988). Owing to this, trust has received research attention from many disciplines. In the information systems literature, research on trust has been done in different contexts, e.g. trust in the e-commerce environment, especially online shopping (McKnight *et al.*, 2002; Ba and Pavlou, 2002), and trust in virtual communications (Paul and McDaniel, 2004; Panteli and Sockalingam, 2005). In the knowledge management domain, trust is a central requirement for knowledge sharing (Nelson and Cooprider, 1996). Likewise, in the marketing literature, trust has been perceived to be critical to a firm's relationship marketing strategy (Doney and Canon, 1997). In management, trust is considered important because it is a good predictor of satisfaction (Driscoll, 1978) and a transaction cost and uncertainty reduction mechanism (Mayer *et al.*, 1995). Trust also plays a key role as a foundation for effective collaboration (Mayer *et al.*, 1995; Rousseau *et al.*, 1998), engagement success (Gefen, 2002) and it is a salient factor in determining the effectiveness of many relationships (Paul and McDaniel, 2004).

In the IT outsourcing context, researchers mainly focus on trust at the organizational level. For example, Kern and Willcocks (2001) emphasized the significance of trust in client/vendor working relationships and argued that trust can help mitigate the extent of uncertainty that exists in interorganizational relationships by discouraging opportunistic behaviors. In their study, trust was regarded as one sub-dimension in inter-firm relationships, and was evaluated by whether the stakeholders in the relationship have fulfilled their obligations and commitments. Grover *et al.* (1996), Lee and Kim (1999) and Goles (2001) found that trust (to their partner firm), as an element of an interorganizational relationship, has a significant effect on outsourcing success; and Sabherwal (1999), in a series of case studies, showed that trust among stakeholders (the business partners) is a key success factor in outsourced information systems development projects.

Even though previous studies addressed the importance of trust in information systems, marketing, management and IT outsourcing, none of them have explored the role of interpersonal trust in the success of IT outsourcing. According to Zaheer *et al.* (1998), trust is inherently an individual-level phenomenon that has been translated into the organizational level of analysis. "Not clearly specifying how trust translates from the individual to organizational level leads to theoretical confusion about who is trusting whom because it is individuals as members of organizations, rather than the organizations themselves, who trust" (Zaheer *et al.*, 1998, p. 141). Thus, there is considerable ambiguity in the literature about the precise role of trust as it operates at different levels of analysis. In recent years, Bekmamedova *et al.* (2008) are among the few researchers who recognized the importance of trust at different levels in the IT outsourcing research context. However, no empirical studies were conducted based on their proposed trust model. To clarify this ambiguity and also to explore the influences of different levels of trust on overall outsourcing success, in the current research, a theoretical model is built based on social exchange theory (SET) and theory of organization boundary systems. IT outsourcing is not only a social/interorganizational exchange process (Kern and Willcocks, 2001) but also a boundary-spanning activity between organizations (Miranda and Kavan, 2005). The concept of the organizational boundary role person (BRP) shows why a person in charge of IT (client side) is competent to respond to the survey and how trust at personal level (as presented by the BRP) will influence knowledge sharing and IT outsourcing success. In addition, Lee *et al.*'s (2008) model of trust is considered as a major reference of the current study, since it is among the few studies that clearly specify knowledge sharing as a consequence of trust in IT outsourcing context. In the following section, the two major theories will be introduced.

3. Theoretical concepts
3.1 SET
SET is one of the most important theories in interorganizational relationship theories, which explains dyadic exchange relations between individuals and organizations (Blau, 1964; Cook, 1977; Morgan and Hunt, 1994). In the interorganizational context, SET focusses not only on the social process of give-and-take, but also aims to understand the behavior of each actor contributing to the exchange under social structures (Kern and Willcocks, 2000). The reason why social actors need to exchange is that resources are scarce; this prompts them to engage in the reciprocal process: the more rewarding reactions they got from the partner, the more likely they would provide resources to the other (Das and Teng, 2002). Trust and commitment are the core elements in SET (Blau, 1964); knowledge sharing is also an important factor that has been frequently mentioned in interorganizational research. This means if the exchange partners are more willing to behave vulnerable, benevolent, reliable, committed and willing to share, the more likely the relationship will become satisfactory since the partners got the benefits through contributing in the exchange relationships. Researchers from marketing, management and IS have identified them to be the components of interorganizational relationship and discussed their influences on the performance or success of interorganizational exchange (Anderson and Narus, 1990; Kern and Willcocks, 2000, 2001; Klepper and Jones, 1997; Lee, 2001; Mohr and Spekman, 1994). SET is used in the current research to explain the relationships between trust/knowledge sharing and outsourcing success.

3.2 Organization boundary systems theory and BRP

An organization boundary system is a special interorganizational sub-system that allows an organization to interact with its environment (Kahn *et al.*, 1964). The organization-environment interactions take place at organization boundaries. More precisely, they take place through the activities undertaken by persons in boundary roles (Adams, 1980). Such a person is called BRP (Adams, 1980) or boundary spanner (Katz and Kahn, 1978). BRPs provide the communication linkages that organizational members maintain to "monitor, exchange with, or represent the organization to its environment" (Monge and Eisenberg, 1987, p. 313). They are simultaneously exposed to competing expectations from their own and from the partner organization (Kahn *et al.*, 1964). Moreover, they are more closely involved in the interorganizational relationship and tend to interact with their counterparts to a greater extent than other members of the organization (Friedman and Podolny, 1992). Owing to these unique properties of boundary positions, BRPs play an active and important role in the interorganizational transactions as well as knowledge sharing between organizations.

In the current context, IT outsourcing can be regarded as a transaction activity between outsourcers and outsourcees (Miranda and Kavan, 2005) and there is a person in the boundary role in each organization that interacts most and thus is knowledgeable enough of the transaction history and relationship between the dyadic parties. In organizational practice, BRPs tend to occupy managerial positions (Wiesenfeld and Hewlin, 2003). They are usually the professionals who span inter- and intra-organizational boundaries (Pawlowski and Robey, 2004; Levina and Vaast, 2005). In IS field, BRPs are usually IT professionals, but the use of BRP in IS research is relatively rare. Most studies focussed on the role of BRPs in the intra-organizational context, especially for the purpose of knowledge sharing (Bassellier and Benbasat, 2004; Levina and Vaast, 2005). Relatively few researchers in IS field so far have addressed the importance of IT professionals as BRPs during the interorganizational transactions such as IT outsourcing. The current research tries to make a breakthrough on this perspective, the BRPs here are identified as the IT managers and account managers in the outsourcing client and service provider companies, respectively.

4. Research model and hypotheses

4.1 Research model

The research model is depicted in Figure 1, and the hypotheses are discussed in the following paragraphs.
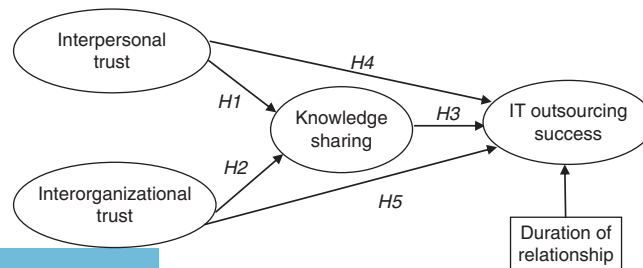

Figure 1.
Research model and hypotheses

4.2 Interpersonal trust and interorganizational trust
Emphasizing trust at multiple levels both in and between organizations is important
(Rousseau *et al.*, 1998). Zaheer *et al.*'s (1998) work is among the few studies that have
clearly distinguished trust at both the personal level and the organizational level.
Based on the organization boundary systems theory, the definition of interpersonal
trust and interorganizational trust is as follows: interpersonal trust refers to the
extent of a BRP's trust in his/her counterpart in the partner organization, while
interorganizational trust is defined as the extent of trust placed in the partner
organization by the members of a focal organization (Zaheer *et al.*, 1998). In this study,
interpersonal trust can be understood as the personal trust between the IT managers
(in the client company) and the account managers (in the service provider); and
interorganizational trust is the trust between client and service provider companies
as perceived by the members (may not be limited to the BRPs) of the companies.
The literature (Gulati, 1995; Zaheer *et al.*, 1998; Rousseau *et al.*, 1998) has suggested a
positive relationship between these two constructs.

4.3 Trust and knowledge sharing
Knowledge sharing in our research model is defined as activities that lead to transfer
or dissemination of knowledge between the service provider and the client company.
It involves the transfer of in-depth knowledge of both the client's business-specific
knowledge and the technology-specific knowledge from the service provider
(Blumenberg *et al.*, 2009). In this study, trust at both the interpersonal level (between
BRPs) and the interorganizational level will lead to knowledge sharing at the
organizational level for the following reasons: first, on the interpersonal level,
according to Adams (1980), knowledge sharing between the organizations happens
when BRPs begin to trust each other through ongoing communications.
The knowledge will be shared first by the BRPs, and then be spread across the
organization. Once the organizations have feedback information to share, BRPs will
become the agents to deliver the knowledge to their counterparts. In this process, the
more BRPs trust each other, the more knowledge the two organizations will share with
each other. The literature on knowledge management has emphasized the importance
of replying on BRPs to share knowledge and expertise under intra-organizational
context (e.g. Cross and Parker, 2004; Levina and Vaast, 2005). In recent
interorganizational studies, Janowicz-Panjaitan and Noorderhaven (2009) further
proved that operating-level boundary spanners are the primary agents of tacit
knowledge sharing, and interpersonal trust between these BRPs is the primary
determinant of knowledge sharing at that level. Second, on the organizational level, the
relationship between trust and knowledge sharing has been confirmed by many
studies. For instance, Mayer *et al.* (1995) found that trust is an antecedent of risk taking
and knowledge sharing is regarded as a risk-taking behavior in interorganizational
relationship research (Nelson and Cooprider, 1996; Lee *et al.*, 2008). Therefore,
interorganizational trust leads to knowledge-sharing behaviors. Similarly, Nelson
and Cooprider (1996) believed that trust, developed through repeated communication,
is demonstrated to be different from and a determinant of shared knowledge.
Sabherwal (1999) further mentioned that trust can mitigate perceptions of
opportunistic behavior between the service provider and client company, therefore
easing the transfer of knowledge and resources in the partnership. Lastly, Lee *et al.*
(2008), through an empirical study, proved that mutual trust between the service
provider and the client company is an important determinant factor of knowledge

sharing. To summarize, both interpersonal trust between BRPs and interorganizational trust will lead to knowledge sharing at the organizational level, which suggests the following hypotheses:

H1. A higher level of interpersonal trust between BRPs will lead to a higher degree of knowledge sharing between the service provider and the client company.

H2. A higher level of interorganizational trust will lead to a higher degree of knowledge sharing between the service provider and the client company.

4.4 Knowledge sharing and IT outsourcing success
Knowledge sharing is not only an internal activity that brings competitive advantage for the company, but also a resource or capability gained externally from interorganizational exchange (Lee, 2001). Effective knowledge transfer between client company and service provider is most important for the success of IT outsourcing (Chua and Pan, 2006). Supports could be found from a variety of studies that employed SET as the theoretical foundation in their studies. For instance, Klepper and Jones (1997) found that the ongoing exchange of knowledge and expertise between client and supplier is a trademark of successful outsourcing engagements and this process contributes to the success of IT outsourcing. Kern and Willcocks (2001) also claimed that pursuing a successful relationship requires investment (i.e. knowledge) by both client and supplier, while lack of knowledge transfer damages the relationship. Similarly, Lee and Kim (1999), Lee (2001) and Kern and Willcocks (2002) posited that information sharing/exchange is one of the key determinants of successful relationships/partnerships. Without effective sharing of information, projects might suffer from coordination problems leading to unsuccessful collaborations (Herbsleb and Moitra, 2001). Furthermore, Alborz *et al.* (2003) suggested that "the factor (knowledge sharing) is as important as any other in outsourcing, and deserves to be investigated thoroughly in order to explain how knowledge sharing influences both structure and management and the efficacy of the relationship" (p. 1306). Likewise, Quinn (1999) believed that IT outsourcing success depends on information exchange and knowledge transfer among partners that bring together good ideas and appropriate technologies to create new opportunities. The above findings suggest that knowledge sharing has a significant effect on IT outsourcing success. We therefore posit the following hypothesis:

H3. A higher level of knowledge sharing will lead to a higher level of IT outsourcing success.

4.5 Trust and IT outsourcing success
Trust, in any social exchange activity, always starts from the upper managers (BRPs) and then flows downward through each organization (Ring and Van de Ven, 1994). Closer social ties (trust and rapport) between managers (BRPs) from both sides are critical for attaining benefits and value added and developing a win-win scenario (Kotlarsky and Oshri, 2005). Kern and Willcocks (2002) regarded IT outsourcing as an interaction process, through which interpersonal trust between the key persons influences the process and outcome of interorganizational relationships. Levinthal and Fichman (1988) stated that relation-specific assets (gained from interorganizational exchange) are composed of well-grounded communication patterns, the development

of trust among those individuals involved in boundary-spanning roles, and the knowledge acquired during the process. All these assets lead to the continuation of the relationship (Klein *et al.*, 1978). In the resource-based view of the firm, relation-specific assets (including interpersonal trust) can generate competitive advantage for both parties (Wade and Hulland, 2004), which will reinforce interorganizational cooperation. In investigating the relationship between interpersonal trust and collaborative relationship performance, Paul and McDaniel (2004) demonstrated a strong causal effect between integrated interpersonal trust and virtual collaborative relationship performance. Based on the above discussion, we posit the following hypothesis:

> *H4.* A higher level of interpersonal trust between BRPs will lead to a higher level of IT outsourcing success.

When measured at the organizational level, trust does not simply influence the success of the partnership (Mohr and Spekman, 1994). It is also a criterion to evaluate relationship satisfaction and the success of the whole IT outsourcing project (Sabherwal, 1999). SET could be used as a theoretical support since SET originates from individual level of exchange but has been extended to organizational level of study (Cook, 1977; Morgan and Hunt, 1994). For example, in studying joint ventures and strategic alliances, Inkpen and Currall (1997) argued that trust ensures a sound and cooperative relationship in a dyad relationship, and it can contribute to the sustained continuation of cooperative relationships. Similarly, Lee (2001) believed that trust plays a critical role in the development of a long-term relationship and in facilitating an exchange relationship. Trust increases the confidence in which the exchange parties have for one another in performing the tasks and achieving the common goals. It allows a focus on long-term objectives, suppresses opportunism and increases cooperation; and entails reliable, stable and high-performing IT outsourcing activities (Klepper, 1995). Therefore, building a certain level of interorganizational trust is one of the key predictors of outsourcing success. Based on the above arguments, the following hypothesis is proposed:

> *H5.* A higher level of interorganizational trust will lead to a higher level of IT outsourcing success.

Beyond the constructs depicted in the research model in Figure 1, another contextual variable – duration of relationship could also influence the success of IT outsourcing (Goo *et al.*, 2008). Duration of relationship is the length of association with the specified service provider; it is usually taken as a control variable toward outsourcing outcomes (e.g. Goo *et al.*, 2007, 2008). It is assumed that relationships that have lasted a longer time are more likely to continue than younger relationships because participants have built mutual understanding and eliminated the need for detailed formal agreement through adjustment over time (Lee and Kim, 1999). The longer the duration of relationship, the greater the probability of a higher quality relationship (Levinthal and Fichman, 1988) and, thus, the more likely outsourcing success (Goo *et al.*, 2008).

5. Research methodology
5.1 Measures
To operationalize the constructs in the research model, wherever possible, measurement items were adopted from the literature and then modified to reflect the context of IT outsourcing. Table I presents the measures.

Measures	Sources
Interpersonal trust	Zaheer *et al.* (1998)
1. My contact person has always been fair in negotiations with me	
2. I always know how my contact person is going to act	
3. My contact person is trustworthy	
4. I have faith in my contact person to look out for my interests even when it is costly for him/her to do so	
5. I would feel a sense of betrayal if my contact person's performance was below my expectations[a]	
Interorganizational trust	Zaheer *et al.* (1998)
1. This service provider has always been fair in its negotiations with our company	
2. This service provider does not seek to profit at our company's expense[a]	
3. Based on past experience, we can rely on this service provider to keep promises they make to our company	
4. Our company is happy to give service orders to this service provider when the specifications are clear	
5. This service provider is trustworthy	
Knowledge sharing	Lee and Kim (1999)
In our relationship, our company and our service provider	
1. Share business knowledge of core business process if necessary	
2. Exchange information that helps business planning	
3. Share environmental information (e.g. economic, political and legal information) that affects each other's business	
IT outsourcing success	Grover *et al.* (1996), Goles (2001), Lee *et al.* (2008)
As a result of IT outsourcing with this service provider	
1. We have been able to refocus on our core business	
2. We have enhanced our IT competence	
3. We have increased access to skilled IT personnel	
4. We have achieved increased economies of scale in human resources	
5. We have achieved increased economies of scale in technological resources	
6. We have achieved improved control of IT expenses	
7. We have reduced the risk of technological obsolescence	
8. We have increased access to key information technology/IT services	
9. We are satisfied with our overall benefits from outsourcing with this service provider	

Table I.
Measures

Note: [a]The items were deleted from the final analysis

Interpersonal/interorganizational trust: in measuring the two types of trust, Zaheer *et al.*'s (1998) instrument was adopted, since it was among the first to measure interpersonal and interorganizational trust at the same time, and the items measuring trust are applicable to most types of interorganizational exchange. Two sets of questions (five items each) were used to measure trust at two levels and the measures reflected three forms of trust – cognitive, behavioral and emotional trust. For the construct of interorganizational trust, two items captured the fairness component of trust, one item directly assessed interorganizational trust, and the other two tapped the

reliability of trust. In contrast, the measure for interpersonal trust consisted of one item related to predictability, three items related to fairness and one item assessing interpersonal trust directly.

Knowledge sharing: in the context of IT outsourcing, knowledge sharing between the members of a dyad refers to the transfer of technologies, expertise and processes between the service provider and the client company through individuals (Lee and Kim, 1999). In this study, since the unit of analysis is "relationship" instead of "project," the questions related to knowledge sharing are more business specific and at the strategic level (Quinn, 1999). It involves the sharing of organizations' key information such as its core business process, its business planning strategy, and the information related to economic, political and legal environments (Lee and Kim, 1999). These key information were used to measure knowledge sharing activities in general.

IT outsourcing success: success in outsourcing refers to the overall organizational advantage gained from an outsourcing strategy. The original idea to measure this construct came from Grover *et al.*'s (1994) descriptive study in which the advantages of IT outsourcing were classified into three major categories: strategic, economic and technological. The conceptual idea was further operationalized and empirically tested by Grover *et al.* (1996), Goles (2001) and Lee *et al.* (2008), which evaluated outsourcing success by the strategic, technological and economic benefits the client company gains through outsourcing activities as well as the overall satisfaction with the service provider. This study measures IT outsourcing success by the nine frequently used items in the previous studies.

Duration of relationship: the duration of relationship was measured by directly asking the respondents "how long is the relationship between your company and the service provider."

5.2 Pilot test
A preliminary version of the questionnaire was evaluated by four IT professionals with outsourcing experience and two academics who had conducted research on IT outsourcing. Feedback was collected to revise the questionnaire. The revised questionnaire was further pilot tested with 14 IT professionals who were part-time masters' students in an IT management program and who were knowledgeable about the IT outsourcing activities of their companies. The content and face validity of the measures were confirmed.

5.3 Questionnaire design
To increase the validity of the measures, Zaheer *et al.*'s (1998) procedures were followed. Two separate questionnaires were developed: one for IT managers (the BRPs) and another for IT staff (a second informant) in the client company (Bagozzi *et al.*, 1991). The questionnaire for the second informant was identical to that for the IT managers with the exception that all items corresponding to the interpersonal trust between the BRPs in the client and service provider were eliminated. The reasons for employing the second informant include: first, because it is difficult for one single informant to distinguish trust at two levels in a cross-sectional survey (Zaheer *et al.*, 1998), the second respondent was used to distinguish the constructs of interpersonal trust and interorganizational trust; second, the second respondent was used to avoid common method bias by gathering multiple responses to the same question (Whitman and Woszczynski, 2004); and finally, the responses of the second respondent was suitable to measure interorganizational trust because interorganizational trust

was defined as trust to the partner organization as perceived by the members of the focal company; and the members may not be limited to BRPs.

The measures were assessed with a seven-point Likert scale (1 = strongly disagree and 7 = strongly agree), the interview feedback and the pilot test. To check the competency of the informant, two special questions (Kumar *et al.*, 1993) were included: I would describe myself as highly involved in my company's relationship with this service provider; and I am familiar with most aspects of our business relationship with this service provider. Any informants with responses of three or lower to these questions were removed from the respondent pool and their responses were not included in the further analysis. This competency check was used in both versions of the questionnaire. This ensured that both the first informant (IT manager) and the second informant (IT staff) were knowledgeable and thus qualified to answer the questions in the questionnaire.

5.4 Sample and data collection
Questionnaires were sent to 1,447 Hong Kong companies listed in the "D&B major corporations in Hong Kong," including companies across all major industries in Hong Kong. Two versions of the questionnaires were sent in one package to the person in charge of IT (usually the IT manager). The IT managers were asked to complete version 1 and to pass version 2 to an IT staff/colleague who was also involved in managing the outsourcing activities. In the end, the two questionnaires were mailed back together using the self-addressed, stamped envelope provided. To increase the response rate, Dillman's (2000) approach was followed, including: a carefully designed cover letter, personalized correspondence and follow-up phone calls. After two rounds of solicitation, a total of 208 companies responded to the survey (including both versions of the questionnaire per each) representing a response rate of around 14.4 percent. Among them, 47 responses from companies that had never outsourced were discarded; 18 responses were eliminated from the analysis due to lack of competence among the key informants or less than one year experience with outsourcing (companies that have less than one year outsourcing experience do not have the ability to describe long-time relationships between dyadic parties[1]). After removing the rejected responses, a final data set consisting of the responses from 143 companies was used for the final analysis. Non-response bias was checked by comparing the early and late wave of respondents (Sivo *et al.*, 2006; Kim *et al.*, 2010). Results of *t*-tests did not show any statistically significant differences in total sales revenue and number of employees (Saeed *et al.*, 2005). This therefore confirmed that non-response bias was not an issue in our sample.

The profile of the responding companies is summarized in Table II. It indicates that nearly half of the companies belonged to manufacturing, finance, insurance, real estate, transportation and logistics industries; more than 50 percent of the companies had employees fewer than 200 employees; nearly 70 percent of the companies had IS/IT budgets that were equivalent to 3 percent or less of total sales; 90 percent of the companies chose to outsource <60 percent of their IT functions; 44 percent of the relationship sustained more than five years; and the two IT functions most frequently outsourced were application development and hardware support/maintenance.

6. Data analysis and results
6.1 Data analysis strategy
Structural equation modeling (SEM) was used to examine the measurement and structural models. Partial least squares (PLS), as implemented in SmartPLS

	Frequency	%
(a) *Industry*		
Industry type		
Manufacturing	25	17.5
Finance, insurance, real estates	25	17.5
Transportation and logistics	19	13.3
Wholesale trade	12	8.4
Services	8	5.6
Multiple[a]	12	8.4
Others	42	29.4
Total	143	100
(b) *Number of employees in Hong Kong*		
Range		
Less than 100	45	31.5
100-199	31	21.7
200-599	26	18.2
600-999	11	7.7
1,000-1,999	9	6.3
2,000-2,999	9	6.3
3,000 and above	12	8.4
Total	143	100
(c) *IT/IS budget as percentage of total sales*		
Range		
Less than 0.5%	37	25.9
0.5-less than 1.0%	27	18.9
1.0-less than 2.0%	21	14.7
2.0-less than 3.0%	18	12.6
3.0-less than 4.0%	6	4.2
4.0-less than 5.0%	6	4.2
5.0% and above	19	13.3
Missing	9	6.3
Total	143	100
(d) *Percent of IT functions outsourced*		
Range		
Less than 20%	64	44.8
20-less than 40%	39	27.3
40-less than 60%	26	18.2
60-less than 80%	9	6.3
80% or more	5	3.5
Total	143	100
(e) *Percent of IT functions outsourced*		
Range		
1 year to less than 2 years	23	16.1
2 years to less than 3 years	28	19.6
3 years to less than 5 years	29	20.3
5 years or more	63	44.1
Total	143	100
(f)*Type of IT outsourcing*[b]		
Type		
Application development	78	54.5
Hardware support/maintenance	74	51.7
Application operation and maintenance	47	32.9

(*continued*)

Table II.
Profile of the responding
organizations

	Frequency	%
Data communication network	47	32.9
Data center operation	36	25.2
Help desk	31	21.7
Disaster recovery	30	21
Desktop	26	18.2
Others	3	2.1

Notes: [a]Multiple means the company does business in multiple industries; [b]respondents can tick more than one choice

Table II.

(Ringle *et al.*, 2005), was used to perform confirmatory factor analysis (CFA) and to test the measurement model and the structural model. The reason to select PLS is that it is more prediction oriented, and allows smaller sample size (Fornell and Bookstein, 1982), which describes the current research context. The mediating effect of knowledge sharing was tested by using a series of regression models (Baron and Kenny, 1986). When measuring constructs in the research model, the following principles were followed: interorganizational trust was measured using the responses from the IT staff/colleagues and the remaining constructs were measured using the responses from the IT managers (BRPs). In other words, interpersonal trust was measured by the BRPs' perceptions of their personal relationships with their counterparts in the provider company; knowledge sharing and outsourcing success were measured when the BRPs take their role of key informants to reflect organizational-level issues; responses from IT staff/colleagues were used as the source to measure trust at the organizational level.

6.2 Structural equation model
6.2.1 Measurement model. The psychometric properties of all scales were first assessed using CFA. Item loadings > 0.70 were considered acceptable (Fornell and Larcker, 1981). The first-round CFA demonstrated that loadings of two items – IOT_2 (0.54) and IPT_5 (0.33) – were lower than the recommended value, and the composite reliability scores if these items were deleted were much higher than the overall reliability scores of the two constructs. After double-checking with the questionnaire, responses to the two problematic items were discarded from further analysis. The new composite reliability, factor loadings and average variance extracted (AVE) for each construct are shown in Table III. As can be seen, all items had significant loadings of at least 0.70. The composite reliability scores were at least 0.91 and the square roots of the AVEs were at least 0.79, which exceeded the recommended thresholds of 0.7 (Nunnally, 1978) and 0.5 (Hair *et al.*, 1998), respectively. The CFA results thus demonstrated good reliability, internal consistency and convergent validity of the data.

Discriminant validity was assessed by determining if first, the indicators loaded more strongly on their own constructs than on other constructs in the model; and if second, the constructs shared more variance with their own measures than they shared with the other constructs in the model (i.e. the square roots of the AVEs were larger than the inter-construct correlations) (Fornell and Larcker, 1981). Results from the CFA in Table IV showed that all indicators had higher loadings on their own construct than on any other construct and the square root of the AVE for each construct was larger than its correlation with other constructs (shown in Table V). These results indicated adequate discriminant validity.

Constructs	Items	Loadings	t-statistics	Composite reliability	AVE	Square root of AVE
IPT	IPT_1	0.86	31.61	0.91	0.70	0.84
	IPT_2	0.82	24.18			
	IPT_3	0.91	56.49			
	IPT_4	0.77	14.90			
IOT	IOT_1	0.75	10.60	0.91	0.73	0.85
	IOT_3	0.88	35.55			
	IOT_4	0.86	20.14			
	IOT_5	0.92	54.65			
KS	KS_1	0.89	41.32	0.92	0.80	0.89
	KS_2	0.93	78.92			
	KS_3	0.87	29.35			
ITOS	ITOS_1	0.74	16.86	0.94	0.63	0.79
	ITOS_2	0.86	32.60			
	ITOS_3	0.76	13.68			
	ITOS_4	0.76	17.27			
	ITOS_5	0.85	29.51			
	ITOS_6	0.77	18.55			
	ITOS_7	0.70	13.12			
	ITOS_8	0.80	18.67			
	ITOS_9	0.86	31.24			

Notes: IPT, Interpersonal trust; IOT, interorganizational trust; KS, knowledge sharing; ITOS,
IT outsourcing success

Table III.
Measurement model
statistics

	IPT	IOT	KS	OS
IPT_1	*0.86*	0.43	0.44	0.53
IPT_2	*0.82*	0.27	0.36	0.52
IPT_3	*0.91*	0.39	0.47	0.53
IPT_4	*0.77*	0.34	0.42	0.47
IOT_1	0.34	*0.75*	0.13	0.29
IOT_3	0.34	*0.88*	0.11	0.38
IOT_4	0.35	*0.86*	0.13	0.33
IOT_5	0.43	*0.92*	0.14	0.37
KS_1	0.50	0.09	*0.89*	0.41
KS_2	0.46	0.17	*0.93*	0.48
KS_3	0.38	0.13	*0.87*	0.38
OS_1	0.49	0.32	0.28	*0.74*
OS_2	0.60	0.28	0.45	*0.86*
OS_3	0.39	0.31	0.26	*0.76*
OS_4	0.42	0.29	0.35	*0.76*
OS_5	0.48	0.30	0.39	*0.85*
OS_6	0.39	0.38	0.36	*0.77*
OS_7	0.40	0.24	0.43	*0.70*
OS_8	0.49	0.32	0.43	*0.80*
OS_9	0.63	0.44	0.43	*0.86*

Table IV.
Confirmatory factor
analysis

6.2.2 Structural model. After confirmation of the psychometric properties in the
measurement model, PLS was used to assess the structural model. A bootstrapping
procedure generating 250 random samples of a size of 143 was used to estimate the
significance of the path coefficients of the constructs. The path coefficients and

explained variances (R^2 values) for the model are shown in Figure 2. Each hypothesis is plotted as a specific path in the figure. The R^2 values of the dependent variables are shown below the two constructs. The path coefficients of all the paths were significant at either the 0.05 or 0.01 level except the one between interorganizational trust and knowledge sharing. The R^2 values for the two dependent variables (knowledge sharing and IT outsourcing success) were 0.26 and 0.48, respectively. This means trust at two different levels explained 26 percent of the variance in knowledge sharing; and trust, knowledge sharing and the duration of relationship together accounted for nearly half of the variance in IT outsourcing success.

The direct, indirect and total effects of each construct based on the path coefficients in the PLS analysis are presented in Table VI. The total effect of interpersonal trust (0.52) on IT outsourcing success is much higher than that of interorganizational trust (0.15), and knowledge sharing has a direct effect on IT outsourcing success (0.25).

6.3 Mediating effect of knowledge sharing

The mediating effect of knowledge sharing was tested using a series of regression models. Following Baron and Kenny's (1986) approach, a construct is believed to be a mediator when the following conditions hold: the independent variables affect the mediator in the first regression; the independent variables are shown to affect the dependent variable in the second regression; the mediator affects the dependent variable in the third regression; and the effect of the independent variables on the dependent variable must be less in the third equation than in the second. A full mediation effect is demonstrated when the independent variable has no effect on the dependent variable due to the involvement of the mediator. Otherwise, the mediator is believed to have a partial mediation effect (Baron and Kenny, 1986). The results of the multiple regressions are presented in Table VII.

	IPT	IOT	KS	OS
IPT	*0.84*			
IOT	0.43	*0.85*		
KS	0.51	0.15	*0.89*	
OS	0.61	0.41	0.48	*0.79*

Note: The diagonal elements are the square roots of AVEs

Table V.
Construct correlations
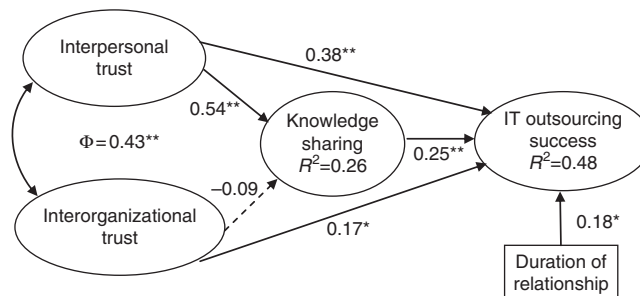and the square roots
of the AVEs

Figure 2.
Model testing results

Notes: Hypotheses with solid lines are supported while that with the dotted line is not supported. *$p<0.05$; **$p<0.01$

Independent variables	Effect	Mediating variable Knowledge sharing	Dependent variable IT outsourcing success
Interpersonal trust	Direct	0.54	0.38
	Indirect	–	0.14
	Total	0.54	*0.52*
Interorganizational trust	Direct	−0.09	0.17
	Indirect	–	−0.02
	Total	−0.09	*0.15*
Knowledge sharing	Direct	–	0.25
	Indirect	–	–
	Total	–	*0.25*

Table VI.
Direct, indirect and
total effects

| | | Dependent variable | |
| | Mediating variable | IT outsourcing success | |
Independent variables	Knowledge sharing	Model 1	Model 2
Independent variables			
Interpersonal trust	0.55**	0.54**	0.40**
Interorganizational trust	−0.09	0.18	0.20**
Mediating variable			
Knowledge sharing			0.25**
R^2	0.27	0.40	0.45
Note: **$p < 0.01$			

Table VII.
Test results of
mediating effect

In Table VII, the path coefficient (−0.09) between interorganizational trust and
knowledge sharing is not significant. This means that one of the independent variables
(interorganizational trust) does not affect the mediator (knowledge sharing) and
therefore condition one does not hold for this path. For the path of interpersonal trust-
knowledge sharing-IT outsourcing success, the path coefficients for interpersonal
trust-knowledge sharing (0.55), interpersonal trust-IT outsourcing success (0.40) and
knowledge sharing-IT outsourcing success (0.25) are all significant at the 0.01 level,
which means that conditions one, two and three hold for this path. In Model 2, the path
coefficient of interpersonal trust-IT outsourcing success (0.40) is significantly lower
than that of Model 1 (0.54). Therefore, condition four also holds. Meanwhile, the path
coefficient of interpersonal trust-IT outsourcing success (0.40) is significant after
involving the mediator (knowledge sharing) in the regression equation. This means
that knowledge sharing has a partial mediation effect between interpersonal trust and
IT outsourcing success. To further assess the significance of the mediating effect of
knowledge sharing, Sobel test (Sobel, 1982) was conducted. The *Z*-value (2.84) is
significant at 0.01 level, which confirmed the mediating effect of knowledge sharing
in the path.

6.4 Common method bias
As with all self-reported data, there is a potential for common method bias (Podsakoff
et al., 2003). Though interorganizational trust in the research model was captured from
the second informant, other constructs (interpersonal trust, knowledge sharing and IT
outsourcing success) were still captured by the same respondents. To test the potential

existence of common method bias, Harman's one-factor test (Podsakoff *et al.*, 2003) was performed on the four crucial variables in our theoretical model. Results from this test showed four factors are present and the most variance explained by one factor is 43 percent (<50 percent), indicating that common method biases are not a likely contaminate of the results. Another way to check the common method bias is to follow Podsakoff *et al.* (2003), Williams *et al.* (2003) and Liang *et al.*'s (2007) approach. A common method factor was included in the PLS model. The common method factor included all the principal constructs' indicators and we calculated each indicator's variances substantively explained by the principal construct and by the method. In Table VIII, the squared values of the method factor loadings ($R2^2$) were interpreted as the percent of indicator variance caused by method, whereas the squared loadings of substantive constructs ($R1^2$) were interpreted as the percent of indicator variance caused by substantive constructs. If the method factor loadings are insignificant and $R2^2$s are substantially lower than $R1^2$s, we can conclude that common method bias is unlikely to be a serious concern. Table VIII demonstrates that the average substantively explained variance of the indicators is 0.717, while the average method-based variance is 0.019. The ratio of substantive variance to method variance is about 38:1. In addition, most method factor loadings are not significant. The small magnitude and insignificance of method variance further reduced the concern about common method bias.

6.5 Results

The results support four of the five hypotheses in the research model. The correlation coefficient (0.43, significant at the 0.01 level) between interpersonal trust and

Construct	Indicator	Substantive factor loading ($R1$)	$R1^2$	Method factor loading ($R2$)	$R2^2$
Interpersonal trust	IPT_1	0.813**	0.661	0.052	0.003
	IPT_2	0.849**	0.721	−0.035	0.001
	IPT_3	0.951**	0.904	−0.048	0.002
	IPT_4	0.732**	0.536	0.036	0.001
Interorganizational trust	IOT_1	0.748**	0.560	−0.001	0.000
	IOT_3	0.868**	0.753	0.009	0.000
	IOT_4	0.874**	0.764	−0.022	0.000
	IOT_5	0.914**	0.835	0.013	0.000
Knowledge sharing	KS_1	0.868**	0.753	0.010	0.000
	KS_2	0.897**	0.805	0.051	0.003
	KS_3	0.922**	0.850	−0.066	0.004
IT outsourcing success	ITOS_1	0.738**	0.545	0.005	0.000
	ITOS_2	0.786**	0.618	0.079	0.006
	ITOS_3	1.035**	1.071	−0.284	0.081
	ITOS_4	0.884**	0.781	−0.130	0.017
	ITOS_5	1.000**	1.000	−0.157	0.025
	ITOS_6	0.835**	0.697	−0.065	0.004
	ITOS_7	0.679**	0.461	0.018	0.000
	ITOS_8	0.724**	0.524	0.081	0.007
	ITOS_9	0.469**	0.220	0.408**	0.166
Duration of relationship	Duration	1.000**	1.000	0.291**	0.085
Average		0.837	0.717	0.012	0.019

Table VIII.
Common method
bias analysis

Note: **$p < 0.01$

interorganizational trust confirms a positive relationship between these two constructs. This result is consistent with the literature (i.e. Gulati, 1995; Zaheer *et al.*, 1998; Rousseau *et al.*, 1998) showing that interpersonal and interorganizational trusts are theoretically distinct but related constructs.

H1, *H2* and *H3* consider the mediating effect of knowledge sharing in IT outsourcing success. The structural model analysis showed that interpersonal trust can lead to knowledge-sharing behavior between companies (*H1* supported), while interorganizational trust will not have the same effect on knowledge sharing (*H2* not supported). This result highlights the significance of interpersonal trust in the interorganizational knowledge-sharing process. Simultaneously, the path coefficient between knowledge sharing and IT outsourcing success is positive and significant, which indicates support of *H3*. The results of the multiple regressions further confirmed that knowledge sharing is a mediator between interpersonal trust and IT outsourcing success, but there is no evidence for the same mediating effect between interorganizational trust and IT outsourcing success.

Results testing *H4* and *H5* were significant at the 0.01 and 0.05 level, which means that both interpersonal trust and interorganizational trust have strong and direct effects on IT outsourcing success. In terms of total effects, as reported in Table VI, interpersonal trust has a stronger effect on IT outsourcing success than interorganizational trust. This result highlights the role of interpersonal trust in successful IT outsourcing arrangement. As proposed, the control variable – duration of relationship has a significant and positive impact on the outsourcing success. The R^2 value for the dependent variable – IT outsourcing success – was 48 percent. This means that the predictive variables (trust at two levels and knowledge sharing) and control variable in the model explained nearly half of the total variance in the dependent variable. The proposed model thus has good explanatory power.

7. Discussion
7.1 General discussion
This study investigated the importance of trust and knowledge sharing in IT outsourcing success. It also examined whether trust as operationalized at two levels of analysis would have equivalent influence on IT outsourcing outcomes and whether knowledge sharing would mediate this process. The results from the data analysis support most of the hypotheses.

First, the results are consistent with the findings by Zaheer *et al.* (1998) and Inkpen and Currall (1997) that interpersonal trust and interorganizational trust are two different but interrelated constructs. Thus, when investigating trust between the members of a dyad (e.g. IT outsourcing partners, joint venturers, buyers and sellers), it is not enough to explore the role of interorganizational trust alone while ignoring interpersonal trust.

Second, our findings suggest a significant mediating effect of knowledge sharing between interpersonal trust and IT outsourcing success. The SEM results reveal that the level of interpersonal trust heavily influence the level of knowledge sharing, which is also a critical factor in IT outsourcing success. This result highlights the important role of interpersonal trust in knowledge sharing and is consistent with prior research (e.g. Lee and Kim, 1999) that knowledge sharing is one of the key determinants of successful outsourcing relationships. However, the same mediating effect between interorganizational trust and IT outsourcing success is not found. This result is inconsistent with the literature on trust and knowledge sharing in interorganizational

relationships (e.g. Nelson and Cooprider, 1996), which shows that interorganizational trust is a significant determinant of knowledge sharing. One possible explanation is that in a culture with strong collectivism like Hong Kong (Hofstede, 2003) (where the data of this study were collected), knowledge is more easily to be shared within groups rather than outside groups (Shin *et al.*, 2007). BRPs consider each other as "insider" within the organization boundary system, and other members of the company take the members in the counterpart as "outsiders." Therefore, interorganizational trust as measured by the perceived trust of the members of the focal company may not show a significant path toward knowledge sharing. Another possible explanation is that, in most interorganizational exchanges, knowledge sharing only happens when sufficient communication is in place (Nelson and Cooprider, 1996; Davenport *et al.*, 1999). The members of the focal company may have trust on the counterpart, however, the non-BRPs may not have enough time and resources to communicate with the members of the other company as the BRPs do (though the non-BRPs are knowledgeable enough on the relationship issues between the dyads). Therefore, the interorganizational trust as perceived as the second informants may not have a significant impact on interorganizational knowledge sharing as what BRPs have perceived.

Third, interpersonal trust and interorganizational trust have significant direct effects on IT outsourcing success. This means that trust (at both levels), when investigated independently, can lead to benefits and satisfaction of IT outsourcing. The results of the total effects also suggest that the impact of interpersonal trust overweighs that of interorganizational trust on IT outsourcing success. This finding is interestingly opposite to that of Zaheer *et al.*'s (1998), which found that interorganizational trust played a more dominant role than interpersonal trust in buyer-supplier dyads. A possible explanation may lie in the different contexts between the two studies. In Zaheer *et al.*'s study, the dyad was between buyers and suppliers, in which the interaction was more transaction oriented and a major part of trust might be more on the company and its products and services than between BRPs. In our current study, IT outsourcing involves people from two companies working together as a team, in which trust at the personal level might be more important than that at the organizational level. Therefore, those rules that apply and govern some of the interorganizational relationships in the buyer-supplier dyad relationship may not work in the IT outsourcing context.

Lastly, in this study, trust and knowledge sharing explained nearly half of the variance in IT outsourcing success. This result shows that, among all the factors leading to IT outsourcing success (e.g. trust, commitment, knowledge sharing, communication, culture fit, contract, etc.) (Lee and Kim, 1999; Kern and Willcocks, 2002), trust and knowledge sharing are essential factors in IT outsourcing success. Also, since trust and knowledge sharing are both relationship-related factors, this result further emphasizes the significant position of relationship-related factors in IT outsourcing success.

7.2 Research implications
While the general literature in the area of relationship issues of IT outsourcing has often focussed on the effect of trust at the organizational level on IT outsourcing outcomes, our study makes a contribution by extending the exploration of the impact of trust on IT outsourcing processes and results to the personal level (interpersonal trust between BRPs). The distinction between interpersonal trust and interorganizational

trust is found to be important as they exert different degrees of influence to IT outsourcing success. The different mediating roles played by knowledge sharing on the relationships between these two types of trust and outsourcing success further confirm the significance of such distinction at the theoretical/conceptual level.

Introducing the concept of organization boundary systems and BRPs to study IT outsourcing is new in the IT adoption literature. This study has made an attempt and found it useful. BRPs are indeed important persons in interorganizational transactions. Coupling with the two types of trust, we do see different results when comparing to those studies in dyad relationships such as buyer-and-seller relationships. Findings from those studies on interorganizational relationships may not be applicable in the IT outsourcing context. In other words, it highlights the importance of "contextualizing theory" or "theories in context" (Whetten, 2009).

Third, findings of the study suggest a new line of research – to explore the effects of the relationship-related issues at two levels (trust, knowledge sharing and communication, etc. at personal and organizational levels) on IT outsourcing outcomes. A further exploration of the causal relationships between these constructs (at two levels) would be meaningful to the existing IT outsourcing research.

7.3 Managerial implications
Prior studies in IT outsourcing have suggested that relationship management is essential for the IT outsourcing success. From the managerial perspective, findings from this study reemphasize this significance, especially the elements of "trust" and "knowledge sharing" in successful IT outsourcing. In particular, the results highlight the success of outsourcing activities through the parties' conscious management and control of the significant "soft factors" involved. Building a strong interpersonal trust with the key contact person in the service provider is essential to sustain a long-term relationship, and to achieve the final IT outsourcing success. Knowledge sharing between organizations works well when the key contact persons trust each other. However, a trust between IT outsourcing dyads does not necessarily lead to the sharing of knowledge between the two organizations. All these imply the significant position of interpersonal trust in IT outsourcing relationships.

Furthermore, the findings draw management's attention to the importance of selecting the right BRP in managing their IT outsourcing projects. It might be even more important in a global IT outsourcing environment when at least one party is from a culture that emphasizes more on collectivism. In such cases, management might need to go beyond the trust built on the relationship of two organizations to ensuring good relationship between the BRPs on both sides. With deep trust between the key contact persons, the two organizations will share knowledge and hopefully arrive at IT outsourcing success.

7.4 Limitations and future research
Like all other studies, the study has its own limitations which on one hand make the interpretation of the results and implications obtained with caution, and on the other hand, suggest future areas of research in the topic.

First, the survey-based and cross-sectional nature of the research design makes it prone to common method bias and limits the ability to draw causal inference. Our design using multiple informants, rather than single informants, helps reduce this threat. Nevertheless, to further reduce the common method bias and enhance the causal inference ability, two other data collection strategies are useful: obtaining multiple

types or sources of data and gathering data over multiple periods (Rindfleisch *et al.*, 2008). Therefore, future investigations may consider conducting in-depth case studies so as to get multiple informants and multiple types/sources of data or employing longitudinal research design with data collected over multiple periods. A longitudinal study would also help to understand the role change of the BRPs in different stages of IT outsourcing lifecycle.

Second, our study was conducted in Hong Kong. The effects of soft factors, such as "trust" and "knowledge sharing," may be different from those in the western world. Caution must therefore be exercised when generalizing the findings to organizations in different cultural environments. We also used this cultural difference as a plausible explanation to our finding of insignificant influence from interorganizational trust to knowledge sharing. However, whether this is a good explanation needs to be reconfirmed by future studies. When conducting such studies, it may also be important to distinguish national cultural orientation from personal cultural orientation as cautioned by many scholars in cross-cultural research (Sharma, 2010).

Third, our focus on trust was limited. Trust is a crucial element in relationship management of IT outsourcing; however, it only explains a portion of IT outsourcing success. Future research may extend to investigate possible effects of other soft and hard factors (Barthélemy, 2003), such as commitment, communication, cultural fit and contractual issues, on IT outsourcing outcomes. It might also be possible to further test the determinant effects of all these factors on IT outsourcing outcomes under the global IT outsourcing context (e.g. offshore vs inshore IT outsourcing). We might also further explore the effects and relationship of these factors at both personal level and organizational level on IT outsourcing success.

Lastly, we looked at only one side of the dyad (the service receivers), and in some places ask questions mainly from the perspective of the client side (e.g. the measures of knowledge sharing). The success of IT outsourcing depends not only on the perception and work of the service receivers but also on those of the service providers. Besides, the background information of the service provider could also extend our understanding on the cultural and contextual explanations to the research results.

8. Conclusions

This research enhances our understanding of how trust operationalized at two levels of analysis influences the processes and outcomes (knowledge sharing and IT outsourcing success) of IT outsourcing. Based on SET and the theory of organization boundary systems, a conceptual model was proposed and empirically tested using a cross-sectional survey involving key informants from 143 companies in Hong Kong. Our findings demonstrate that interpersonal trust plays a more important role than interorganizational trust in successful IT outsourcing arrangements and knowledge sharing has a significant mediating effect on the path between interpersonal trust and IT outsourcing success. The findings are believed to be helpful to direct future IT outsourcing research and practice.

Note

1. The length of the trust-based "long-time relationship" in western countries is four to seven years (Lacity and Willcocks, 1998); however, in Hong Kong, around 98 percent of the companies are SMEs, and outsourcing contract duration is usually short. A contract more than one year may be called a "long-time" contract in the current research context.

References

Adams, J.S. (1980), "Interorganizational processes and organization boundary activity", in Staw, B. and Cummings, L.L. (Eds), *Research in Organization Behavior*, Vol. 2, JAI Press, Greenwich, CT, pp. 321-355.

Alborz, S.P., Seddon, B. and Scheepers, R. (2003), "A model for studying IT outsourcing relationships", *Proceedings of the 7th Pacific Asia Conference on Information Systems, Adelaide, South Australia*, pp. 1297-1313.

Alsudairi, M. and Dwivedi, Y.K. (2010), "A multi-disciplinary profile of IS/IT outsourcing research", *Journal of Enterprise Information Management*, Vol. 23 No. 2, pp. 215-258.

Anderson, J.C. and Narus, J.A. (1990), "A model of distributor firm and manufacturer firm working partnerships", *Journal of Marketing*, Vol. 54 No. 1, pp. 42-58.

Atuahene-Gima, K. and Li, H. (2002), "When does trust matter? Antecedents and contingent effects of supervisee trust on performance in selling new products in China and the United States", *Journal of Marketing*, Vol. 66 No. 3, pp. 61-81.

Ba, S. and Pavlou, P.A. (2002), "Evidence of the effect of trust building technology in electronic markets: price premiums and buyer behavior", *MIS Quarterly*, Vol. 26 No. 3, pp. 243-268.

Bagozzi, R.P., Yi, Y. and Phillips, L.W. (1991), "Assessing construct validity in organizational research", *Administrative Science Quarterly*, Vol. 36 No. 3, pp. 421-458.

Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.

Barthélemy, J. (2003), "The hard and soft sides of IT outsourcing management", *European Management Journal*, Vol. 21 No. 5, pp. 539-548.

Bassellier, G. and Benbasat, I. (2004), "Business competence of information technology professionals: conceptual development and influence on IT-business partnerships", *MIS Quarterly*, Vol. 28 No. 4, pp. 673-694.

Bekmamedova, N., Prananto, A., McKay, J. and Vorobie, A. (2008), "Towards a conceptualization of trust in IS outsourcing", proceedings of the 29th International Conference on Information Systems (ICIS), Paris, December 14-17.

Blau, P.M. (1964), *Exchange and Power in Social Life*, Wiley, New York, NY.

Blumenberg, S., Wagner, H.-T. and Beimborn, D. (2009), "Knowledge transfer processes in IT outsourcing relationships and their impact on shared knowledge and outsourcing performance", *International Journal of Information Management*, Vol. 29 No. 5, pp. 342-352.

Chua, A.L. and Pan, S.L. (2006), "Knowledge transfer in offshore insourcing", *Proceedings of the 27th International Conference on Information Systems*, pp. 1039-1054.

Cook, K.S. (1977), "Exchange and power in networks of interorganizational relations", *The Sociological Quarterly*, Vol. 18 No. 1, pp. 62-82.

Cross, R.L. and Parker, A. (2004), *The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations*, Harvard Business School Press, Boston, MA.

Das, T.K. and Teng, B.S. (2002), "Alliance constellations: a social exchange perspective", *Academy of Management Review*, Vol. 27 No. 3, pp. 445-456.

Davenport, S., Davies, J. and Grimes, C. (1999), "Collaborative research programmes: building trust from difference", *Technovation*, Vol. 19 No. 1, pp. 31-40.

Davis, K.J. (1996), "IT outsourcing relationships: an exploratory study of interorganizational control mechanisms", DBA thesis, Graduate School of Business Administration, Harvard University, Boston, MA.

Dibbern, J., Goles, T., Hirschheim, R. and Jayatilaka, B. (2004), "Information systems outsourcing: a survey and analysis of the literature", *The DATA BASE for Advances in Information Systems*, Vol. 35 No. 4, pp. 6-102.

Dillman, D.A. (2000), *Mail and Internet Surveys: The Tailored Design Method*, John Wiley, New York, NY.

Doney, P.M. and Canon, J.P. (1997), "An examination of the nature of trust in buyer seller relationships", *Journal of Marketing*, Vol. 61 No. 2, pp. 35-51.

Driscoll, J.W. (1978), "Trust and participation in organizational decision making as predictors of satisfaction", *Academy of Management Journal*, Vol. 21 No. 1, pp. 44-56.

Fornell, C. and Bookstein, F.L. (1982), "Two structural equation models: LISREL and PLS applied to consumer exit-voice theory", *Journal of Marketing Research*, Vol. 19 No. 3, pp. 440-452.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.

Friedman, R.A. and Podolny, J. (1992), "Differentiation of boundary spanning roles: labor negotiations and implications for role conflict", *Administrative Science Quarterly*, Vol. 37 No. 1, pp. 28-47.

Gambetta, D. (1988), *Trust: Making and Breaking Cooperative Relations*, Basil Blackwell, Oxford.

Gartner (2012), "Global outsourcing market grows almost 8% in 2011", available at: www.theoutsourceblog.com/tag/global/ (accessed August 19, 2012).

Gefen, D. (2002), "Nurturing clients' trust to encourage engagement success during the customization of ERP systems", *Omega*, Vol. 30 No. 4, pp. 287-299.

Goles, T. (2001), "The impact of the client/vendor relationship on outsourcing success", PhD dissertation, University of Houston, Houston, TX.

Gonzalez, R., Gasco, J. and Llopis, J. (2006), "Information systems outsourcing: a literature analysis", *Information and Management*, Vol. 43 No. 7, pp. 821-834.

Goo, J., Huang, C.D. and Hart, P. (2008), "A path to successful IT outsourcing: interaction between service-level agreements and commitment", *Decision Sciences*, Vol. 39 No. 3, pp. 469-506.

Goo, J., Kishore, R., Nam, K., Rao, H.R. and Song, Y. (2007), "An investigation of factors that influence the duration of IT outsourcing relationships", *Decision Support Systems*, Vol. 42 No. 4, pp. 2107-2125.

Grover, V., Cheon, M.J. and Teng, J.T.C. (1994), "A descriptive study on the outsourcing of information systems functions", *Information and Management*, Vol. 27 No. 1, pp. 33-44.

Grover, V., Cheon, M.J. and Teng, J.T.C. (1996), "The effect of service quality and partnership on the outsourcing of information systems functions", *Journal of Management Information Systems*, Vol. 12 No. 4, pp. 89-116.

Gulati, R. (1995), "Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances", *Academy of Management Journal*, Vol. 38 No. 4, pp. 85-112.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis With Readings*, 5th ed., Prentice Hall, Englewood Cliffs, NJ.

Han, H.-S., Lee, J.-N. and Seo, Y.-W. (2008), "Analyzing the impact of a firm's capability on outsourcing success: a process perspective", *Information & Management*, Vol. 45 No. 1, pp. 31-42.

Herbsleb, J.D. and Moitra, D. (2001), "Global software development", *IEEE Software*, Vol. 18 No. 2, pp. 16-20.

Hofstede, G. (2003), "Geert hofstede™ cultural dimensions", available at: www.geert-hofstede.com/hofstede_dimensions.php (accessed August 19, 2012).

Inkpen, A.C. and Currall, S.C. (1997), "International joint venture trust: an empirical examination", in Beamish, P.W. and Killing, J.P. (Eds), *Cooperative Strategies: North American Perspectives*, New Lexington Press, San Francisco, CA, pp. 308-334.

Janowicz-Panjaitan, M. and Noorderhaven, N.G. (2009), "Trust, calculation, and interorganizational learning of tacit knowledge: an organizational roles perspective", *Organization Studies*, Vol. 30 No. 10, pp. 1021-1044.

Kahn, R.H., Wolfe, D.M., Quinn, R. and Snoek, D.J. (1964), *Organizational Stress: Studies in Role Conflict and Ambiguity*, Wiley, New York, NY.

Katz, D. and Kahn, R. (1978), *The Social Psychology of Organizations*, Wiley, New York, NY.

Kern, T. and Willcocks, L. (2000), "Exploring information technology outsourcing relationships: theory and practice", *Journal of Strategic Information Systems*, Vol. 9 No. 4, pp. 321-350.

Kern, T. and Willcocks, L. (2001), *The Relationship Advantage*, Oxford University Press Inc, New York, NY.

Kern, T. and Willcocks, L. (2002), "Exploring relationships in information technology outsourcing: the interaction approach", *European Journal of Information Systems*, Vol. 11 No. 1, pp. 3-19.

Kim, G., Shin, B. and Grover, V. (2010), "Investigating two contradictory views of formative measurement in information systems research", *MIS Quarterly*, Vol. 34 No. 2, pp. 345-365.

Klein, B., Crawford, R.G. and Alchian, A.A. (1978), "Vertical integration, appropriable rents, and the competitive contracting process", *Journal of Law and Economics*, Vol. 21 No. 2, pp. 297-321.

Klepper, R. (1995), "Outsourcing relationships", in Khosrowpour, M. (Ed.), *Managing Information Technology Investment With Outsourcing*, Idea Group Publishing, Harrisburg, PA, pp. 218-243.

Klepper, R. and Jones, W.O. (1997), *Outsourcing Information Technology, Systems and Services*, Prentice Hall, Englewood Cliffs, NJ.

Kotlarsky, J. and Oshri, I. (2005), "Social ties, knowledge sharing and successful collaboration in globally distributed system development projects", *European Journal of Information Systems*, Vol. 14 No. 1, pp. 37-48.

Kumar, N., Stern, L.W. and Anderson, J.C. (1993), "Conducting interorganizational research using key informants", *Academy of Management Journal*, Vol. 36 No. 6, pp. 1633-1651.

Lacity, M. and Willcocks, L. (1998), "An empirical investigation of information technology sourcing practices: lessons from experience", *MIS Quarterly*, Vol. 22 No. 3, pp. 363-408.

Lee, J.-N. (2001), "The impact of knowledge sharing, organizational capability and partnership quality on IS outsourcing success", *Information and Management*, Vol. 38 No. 5, pp. 323-335.

Lee, J.-N. and Kim, Y.-G. (1999), "Effect of partnership quality on IS outsourcing success: conceptual framework and empirical validation", *Journal of Management Information Systems*, Vol. 15 No. 4, pp. 29-61.

Lee, J.-N., Huynh, M.-Q. and Hirschheim, R. (2008), "An integrative model of trust on IT outsourcing: examining a bilateral perspective", *Information Systems Frontiers*, Vol. 10 No. 2, pp. 145-163.

Levina, N. and Vaast, E. (2005), "The emergence of boundary spanning competence in practice: implications for implementation and use of information systems", *MIS Quarterly*, Vol. 29 No. 2, pp. 335-363.

Levinthal, D.A. and Fichman, M. (1988), "Dynamics of interorganizational attachments: auditor-client relationships", *Administrative Science Quarterly*, Vol. 33 No. 3, pp. 345-369.

Lewicki, R.J. and Bunker, B.B. (1996), "Developing and maintaining trust in work relationships", in Kramer, R.M. and Tyler, T.R. (Eds), *Trust in Organizations: Frontiers of Theory and Research*, Sage Publications Inc, Beverly Hills, CA, pp. 114-139.

Liang, H.G., Saraf, N., Hu, Q. and Xue, Y.J. (2007), "Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management", *MIS Quarterly*, Vol. 31 No. 1, pp. 59-87.

McKnight, O.H., Choudhury, V. and Kacmar, C. (2002), "Developing and validating trust measures for e-commerce: an integrative typology", *Information Systems Research*, Vol. 13 No. 3, pp. 334-359.

Mayer, R.C., Davis, J.H. and Schoorman, F.D. (1995), "An integrative model of organizational trust", *Academy of Management Review*, Vol. 20 No. 3, pp. 709-734.

Miranda, S.M. and Kavan, C.B. (2005), "Moments of governance in IS outsourcing: conceptualizing effects of contracts on value capture and creation", *Journal of Information Technology*, Vol. 20 No. 3, pp. 152-169.

Mohr, J. and Spekman, R. (1994), "Characteristics of partnerships success: partnership attributes, communication behavior, and conflict resolution techniques", *Strategic Management Journal*, Vol. 15 No. 2, pp. 135-152.

Monge, P.R. and Eisenberg, E.M. (1987), "Emergent communication networks", in Jabin, F.M., Putnam, L.L., Roberts, K.H. and Porter, L.W. (Eds), *Handbook of Organizational Communication: An Interdisciplinary Perspective*, Sage Publications, Beverly Hills, CA, pp. 304-342.

Morgan, R.M. and Hunt, S.D. (1994), "The commitment-trust theory of relationship marketing", *Journal of Marketing*, Vol. 58 No. 3, pp. 20-38.

Nelson, K.M. and Cooprider, J.G. (1996), "The contribution of shared knowledge to IS group performance", *MIS Quarterly*, Vol. 20 No. 4, pp. 409-429.

Nunnally, J.C. (1978), *Psychometric Theory*, 2nd ed., McGraw-Hill, New York, NY.

Panteli, N. and Sockalingam, S. (2005), "Trust and conflict within virtual inter-organizational alliances: a framework for facilitation knowledge sharing", *Decision Support Systems*, Vol. 39 No. 4, pp. 599-617.

Paul, D.L. and McDaniel, R.R. (2004), "A field study of the effect of interpersonal trust on virtual collaborative relationship performance", *MIS Quarterly*, Vol. 28 No. 2, pp. 183-227.

Pawlowski, S.D. and Robey, D. (2004), "Bridging user organizations: knowledge brokering and the work of information technology professionals", *MIS Quarterly*, Vol. 28 No. 4, pp. 654-672.

Podsakoff, P.M., MacKenzie, S.B., Jeong-Yeon, L. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903.

Quinn, J.B. (1999), "Strategic outsourcing: leveraging knowledge capabilities", *Sloan Management Review*, Vol. 40 No. 4, pp. 9-21.

Rindfleisch, A., Malter, A.J., Ganesan, S. and Moorman, C. (2008), "Cross-sectional versus longitudinal survey research: concepts, findings, and guidelines", *Journal of Marketing Research*, Vol. 45 No. 3, pp. 261-279.

Ring, P.S. and Van de Ven, A.H. (1994), "Developmental processes of cooperative interorganizational relationships", *The Academy of Management Review*, Vol. 19 No. 1, pp. 90-118.

Ringle, C.M., Wende, S. and Will, S. (2005), "SmartPLS 2.0 (M3) Beta, Hamburg", available at: www.smartpls.de (accessed August 19, 2012).

Rousseau, D.M., Sitkin, S.B., Burt, R.S. and Camerer, C. (1998), "Not so different after all: a cross-discipline view of trust", *Academy of Management Review*, Vol. 23 No. 3, pp. 393-404.

Sabherwal, R. (1999), "The role of trust in outsourced IS development projects", *Communications of the ACM*, Vol. 42 No. 2, pp. 80-86.

Saeed, K.A., Malhotra, M.K. and Grover, V. (2005), "Examining the impact of interorganizational systems on process efficiency and sourcing leverage in buyer-supplier dyads", *Decision Sciences*, Vol. 36 No. 3, pp. 365-396.

Sharma, P. (2010), "Measuring personal cultural orientation: scale development and validation", *Journal of the Academy of Marketing Science*, Vol. 38 No. 6, pp. 787-806.

Shin, S.K., Ishman, M. and Sanders, G.L. (2007), "An empirical investigation of socio-cultural factors of information sharing in China", *Information and Management*, Vol. 44 No. 2, pp. 165-174.

Sivo, S.A., Saunders, C., Chang, Q. and Jiang, J.J. (2006), "How low should you go? Low response rates and the validity of inference in IS questionnaire research", *Journal of the AIS*, Vol. 7 No. 6, pp. 351-414.

Sobel, M.E. (1982), "Asymptotic confidence intervals for indirect effects in structural equation models", in Leinhardt, S. (Ed.), *Sociological Methodology*, American Sociological Association, Washington, DC, pp. 290-312.

Wade, M. and Hulland, J. (2004), "Review: the resource-based view and information systems research: review, extension, and suggestions for future research", *MIS Quarterly*, Vol. 28 No. 1, pp. 107-142.

Whetten, D.A. (2009), "An examination of the interface between context and theory applied to the study of Chinese organizations", *Management and Organization Review*, Vol. 5 No. 1, pp. 29-55.

Whitman, M.E. and Woszczynski, A.B. (2004), "The problem of common method variance in IS research", *The Handbook of Information Systems Research*, in Whitman, M.E. and Wosczynski, A.B. (Eds), Idea Group Publishing, Hershey, PA, pp. 66-79.

Wiesenfeld, B. and Hewlin, P. (2003), "Splintered identity and organizational change: the predicament of boundary spanning managers", in Mannix, E., Neale, M.A. and Plzer, J.T. (Eds), *Research on Managing Groups and Teams*, Elsevier Science Ltd, Oxford, pp. 27-52.

Williams, L., Edwards, J. and Vandenberg, R. (2003), "Recent advances in causal modeling methods for organizational and management research", *Journal of Management*, Vol. 29 No. 6, pp. 903-936.

Zaheer, A., McEvily, B. and Perrone, V. (1998), "Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance", *Organization Science*, Vol. 9 No. 2, pp. 141-159.

Corresponding author
Cong Qi can be contacted at: cong.qi@polyu.edu.hk

www.manaraa.com