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A Relationship Perspective to Investigate the Effect of Human Resource Capability on Information System Outsourcing Success

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ABSTRACT

The client vendor relationship has been deemed to be vital to Information Systems (IS) outsourcing success. In this paper, the impact of corporate human resource capability on IS outsourcing success is investigated. Using resource and capability theories, first the human resource capability factors that comprise corporate IT capabilities is identified, and then, with the premise that relationship intensity should be affected by the process of IS outsourcing, the interaction process of IS outsourcing as the first order impact of the human resource capabilities is defined. The research is distinguished by integrating corporate IT resource and capability theories with social exchange theory, which in most cases are treated separately in IS outsourcing research. The findings have significant implications for the management of human resources in IS outsourcing.

INTRODUCTION

Extensive research has been conducted on the effective use of Information Technologies (IT) to enhance a firm's competitiveness. IT in general and IS in particular, are the firm's core resources to cope with rapidly changing environmental threats (Barney 1991). Corporate IT capability is a comprehensive concept including a firm's IT infrastructure, the IT personnel resources, and intangible assets of the firm (Bharadwaj 2000). In addition, based on the resource based theory of firm, Wade and Hulland (2004) proposed managerial skills are an important factor required for IS development, operation, and maintenance in the organisation. Accordingly, human resource capability is viewed as the most critical asset of corporate IT capability (Lee, Trauth & Farwell 1995, Feeny & Willcocks 1998).

Capturing a firm's competitiveness through the strategy of 'make or buy' decision making has received focal attention. For instance, to define a firm's optimal boundary. Indeed, a classical supply chain perspective emphasises effective business expansion to either upward or downward proliferation of inter organisational information systems (enabled by cheaper IT costs) and this approach encourages firms to concentrate on core competences and to build trust relationships with business partners for effective collaboration. In a similar vein, IS outsourcing has become more popular as the scope and extent of IS outsourcing is continuously expanding. In fact, IS outsourcing is defined as handing over the management of IT/IS assets, resources, and/or activities for required

results to one or more third parties (Willcocks & Kern 1998). Over the last decade, one of the most widespread trends in meeting an organisation's IT needs is the growth of the IS outsourcing (Dibbern, Goles & Hirschheim 2004). Nowadays, IS outsourcing has become commonly accepted and is a growing practice as a means of meeting an organisation's IS needs.

Recently, an emerging stream of research has focused on managing the relationship between the outsourcing vendors and the client (McFarlan & Nolan 1995, Lee & Kim 1999, Kern & Willcocks 2002). Accordingly, the IS outsourcing relationship has already received considerable attention in the relevant literature (Klepper 1995, Willcocks & Kern 1998). Within this literature is promoted the contention that in spite of creating and sustaining a firm's competitiveness, by exploiting the gains from human resource capabilities of IT, ensuring the success of outsourcing is also important. Thus, management efforts are focused on securing proper IT assets through IS outsourcing and effectively managing outsourcing relationship, thereby leading to outsourcing success (Grover, Cheon & Teng 1996, Kern & Willcocks 2002).

In this paper, the effect of the corporate IT capabilities with a human resource focus, on outsourcing success through the enhancement of both client vendor interaction and relationship, is investigated. The motivation of the study stems mainly from the lack of literatures to link the corporate resource capabilities to outsourcing relationships, as the majority of the previous studies examined outsourcing relationships and success from the social and contextual aspects. Based on the premise that the relationship intensity should be affected by the process of IS outsourcing, this study emphasises the role of the interaction process of IS outsourcing as an intervening variable to link the causal relationship between corporate human resource capabilities of IT and relationship intensity. The paper is presented in four parts. Firstly, the previous literature related to corporate IT capability, resources, and IS outsourcing relationships are introduced; and secondly, a research model and hypotheses are proposed. In the third part of the paper research methodologies, statistical testing results and analysis are presented. Finally, the implications and limitations for HRM policies and practices for Korean as well as Asia Pacific companies are outlined.

RESEARCH BACKGROUND

IT capability is more than a specific set of sophisticated technological functionalities. Indeed, it is an enterprise wide capability to leverage technologies to gain and maintain competitive advantage. However, as IT capability is embedded within the fabric of the organisation, it can be tacit and difficult to identify. Yet, the presence and effectiveness of the IT capability is reflected in business performance (Bharadwaj 2000, Peppard & Ward 2004) as the capability includes organisation specific routines, processes, skills, and resources (Heijden 2001).

Adopting the theory of resource based view (RBV), IS researchers have identified various IT resources that served as potential sources of competitive advantage (Bharadwaj 2000). Bharadwaj (2000) defined a firm's specific IT resources as IT infrastructure, human IT resources, and IT enabled intangibles. Thus, IT is an enabler to achieve strategic objectives. This perspective has been advanced by Ross, Beath and Goodhue (1996), who classified the firm's IT capability into a reusable technology base (technical asset), competent IT skills (human IT asset), and an intimate relationship between a firm's IT and business unit management (relationship asset). Moreover, Lee, et al. (1995) found in their study on IS professionals that the industry would demand (in order to effectively lead organisational integration and process reengineering activities) a cadre of IS skills for the areas of technical knowledge and skills, business operations, management, and interpersonal qualities. They emphasised the importance of the IS managers' capability to understand and appreciate business needs, to co-work with functional managers effectively, to co-ordinate IS activities supporting other functional managers, and to anticipate future business needs. Other social scientists have endeavoured to clarify the numerous research findings.

Feeny and Willcocks (1998) characterised nine distinct IS functions as a set of core capabilities. They are IS/IT governance, business systems thinking, relationship building, designing technical architecture, making technology work, informed buying, contract facilitation, contract monitoring, and vendor development. Also, they mapped the nine capabilities with the skills and knowledge

requirements framework proposed by Lee, et al. (1995). Although there has been considerable research on IT resources and capabilities affecting business performance, only a few studies do reveal the importance of the corporate IT capabilities required to successfully engage the service providers (Feeny & Willcocks 1998).

Nevertheless, extensive research has been conducted to understand the outsourcing success by developing effective relationships between clients and their outsourcing vendors (Klepper 1995, McFarlan & Nolan 1995, Grover, et al. 1996, Lee & Kim 1999, Kern & Willcocks 2002). Klepper (1995) addressed the importance of development of long term relationships with good partnership building when he explored the mechanism enabling the development of long term relationship between clients and vendors. Using transaction cost and social exchange theories, Dwyer, Schurr and Oh (1987) also developed the sequential stage model for developing outsourcing partnership. In addition, Grover, et al. (1996) configured partnership as an intervening construct to ensure outsourcing success, and its measures were derived from the marketing applications (Anderson & Narus 1990). Furthermore, Willcocks and Kern (1998) used a case study approach to examine the causality of interaction process and outsourcing success. Using power political and social exchange theories, Lee and Kim (1999) suggested an extended view on the set of antecedents of partnership by distinguishing them into the determinants of partnership quality and the attributes of partnership itself.

A great deal of research has assessed IS outsourcing relationship and success (Henderson 1990, Lasher, Ives & Jarvenpaa 1991, Saunders, Gebelt & Hu 1997, Kern & Willcocks 2002). Overall, this literature emphasises that the relationship between clients and vendors plays a crucial role on IS outsourcing success. However, only a few studies capitalise the importance of the client firm's IT capability, more specifically the human resource capability, as an antecedent of the effective outsourcing relationship (Feeny & Willcocks 1998, Kern & Willcocks 2002). This study is an endeavour to meaningfully contribute to the relevant literature.

RESEARCH MODEL AND HYPOTHESES

Research Model

The concept of the process theory implies the set of causations consisting of necessary conditions in sequence. Indeed, chance and random events merely occur to enable the necessity of causal relationships (Markus & Robey 1988). Thus, the process theory ensures that this set of outcomes does not always occur unless all the specified set of events consisting of a causation chain is fulfilled. In case that some events necessary for the outcome may fail to occur at any point in the chain, it derails all or some of the desired outcomes (Soh & Markus 1995). The process theory is useful to precisely recognise and accept the complexity of the causal relationship (Markus & Robey 1988).

The process oriented approach is strongly supported by a growing number of researchers who advocate a 'process assessment' of IT business value. The theory is based on the argument that the 'first order' impact of IT investment is realised by improving either individual business processes or inter process linkages, or both. The greater the impact of IT on individual business processes and inter process linkages, the greater the contribution of IT to firm performance (Tallon, Kraemer & Gurbaxani 2000). In addition, Melville, Kraemer and Gurbaxani (2004) indicated that IT and complementary resources of the focal firm improve the performance of business processes, which ultimately affect organisational performance (Brynjolfsson & Hitt 2000).

Variables in the firms' human resource capability are extracted from the existing IS literature conducted mainly from the resource based view (RBV). The RBV provides a theoretical foundation to explain the firms' IT capability and resource. Based on the results of studies by Lee, et al. (1995), and Feeny and Willcocks (1998), three variables to reflect the client firm's human resource capabilities that affect outsourcing success through interaction process and relationship intensity are introduced. The variables are technical IT capability, managerial IT capability, and vendor management capability. Technical IT capability refers to the technical knowledge and skills needed to develop applications in the firm (Lee, et al. 1995). Managerial IT capability refers to where and

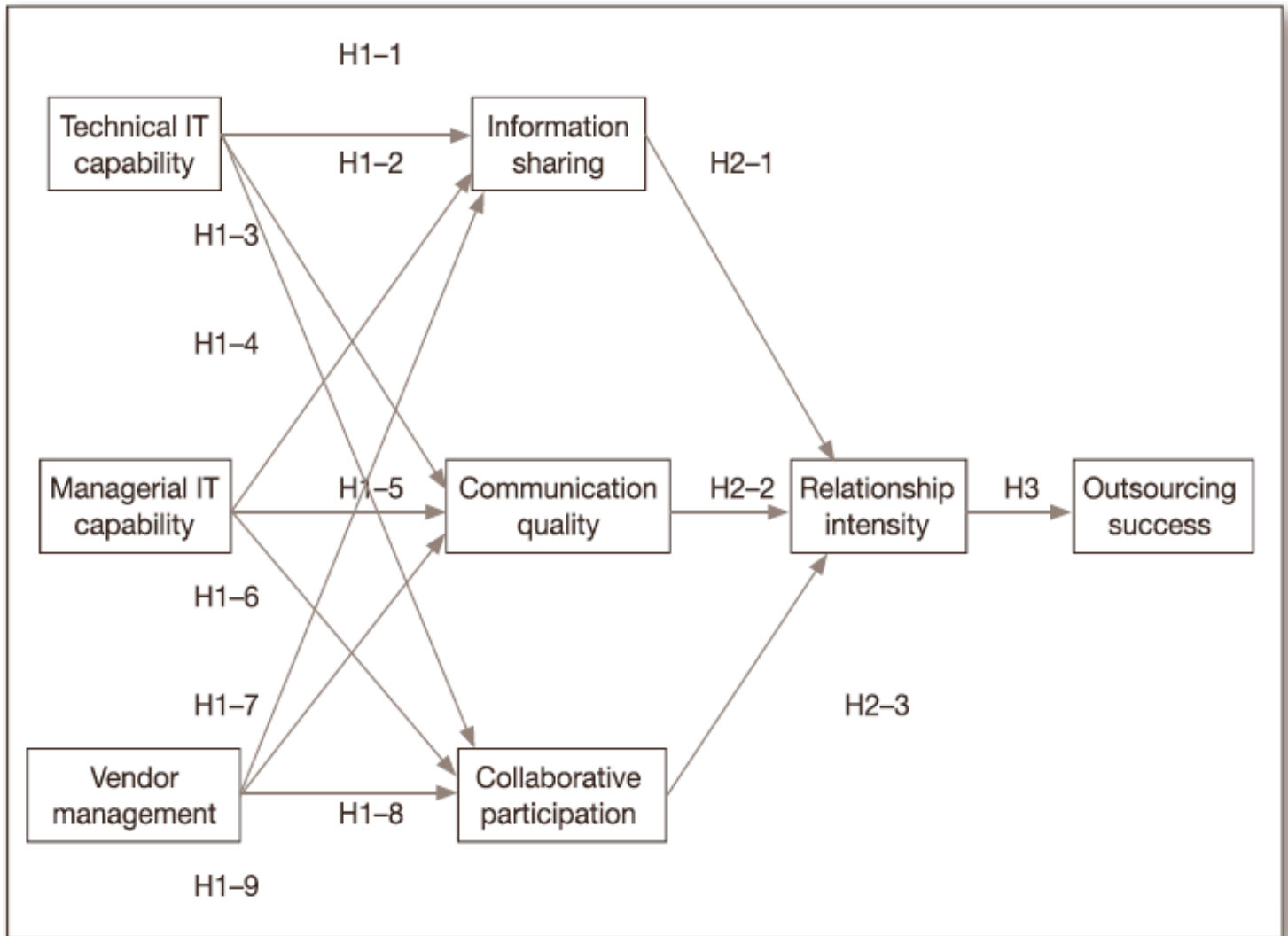
how to deploy IT effectively and profitably for meeting strategic business objective (Mata, Fuerst & Barney 1995), while vendor management capability refers to looking beyond existing contractual arrangement to explore the long term potentials for suppliers to create a win win situation (Feeny & Willcocks 1998).

Applying the Hakansson' s IMP group model (1982), Kern and Willcocks (2002) conducted a case study to reveal the interaction process mechanism in IS outsourcing. Lee and Kim (1999) distinguished partnership related factors as dynamic, static and contextual ones. The terms from the literature having similar meaning with interaction process variables are as follows: communication, information sharing, participation, cooperation, knowledge sharing, joint action, participation and conflict (Anderson & Narus 1990, Henderson 1990, Mohr & Spekman 1994, Morgan & Hunt 1994, Grover, et al. 1996). Among them, the three major variables of information sharing, communication quality and collaborative participation are selected to represent the degree of the interaction process.

The relationship intensity has been referred to as a number of diverse terms such as relationship closeness, relationship quality, relationship strength (Bove & Johnson 2001), and partnership quality (Lee & Kim 1999). In addition, Mohr and Spekman (1994) defined relationship as the purposive strategic relationship between independent firms who share compatible goals and strive for mutual benefits to acknowledge the high level of mutual interdependence. A variety of variables have been employed to measure the level of relationship intensity in the literature. For instance, Mohr and Spekman (1994) employed trust, dependence, commitment and coordination, while Lee and Kim (1999) used trust, business understanding, benefit and risk share, conflict, commitment, and Grover and colleagues (1996) assessed communication, trust, cooperation and satisfaction. Later, Bove and Johnson (2001) summarised the literature and proposed two key attributes of relationship intensity trust and commitment. Consequently, this study adopts trust and commitment as the core attributes of the relationship intensity.

IS outsourcing success was analysed from strategic, techonological and economic perspectives (Grover, et al. 1996). A conceptual model, presented as Figure 1, was generated from an integration of the relevant literature. This conceptual model depicts the successive causal relationships between the firm' s human resource capability, interaction process, relationship intensity, and outsourcing success.

Figure 1
Research Model



Research Hypotheses

Corporate IT capability includes comprehensive IT skills, inter-organisational communications, and management IS outsourcing functions. Rapid environmental changes are compelling firms to develop more diverse technical skills. Though the firm' s IS outsourcing could reduce the burden to maintain such a broad IS capability, the technical IT capability of the IS personnel could effectively leverage competence of the vendor firms (Feeny & Willcocks 1998, Kern & Willcocks 2002). For example, a client firm' s IT skill and knowledge on IT trends can encourage vendors to share valuable information with their partners. And it also makes sense that the firm having a clear IT standardisation and blueprint should be in a better position to communicate with its vendors. In turn, this can improve the communication quality and vendor' s collaborative behaviours. Consequently, the first set of hypotheses is shown in the conceptual model, Figure 1 can be expressed.

H1- 1: The technical IT capability positively influences the degree of information sharing.

H1- 2: The technical IT capability positively influences the degree of communication quality.

H1- 3: The technical IT capability positively influences the degree of collaborative participation.

Managerial IT capability refers to where and how to deploy IT effectively and profitably for meeting strategic business objective (Mata, et al. 1995). Also, the IS personnel managerial IT capability can guide the vendor' s outsourcing effort in a more business process performance enhancing direction. Since the success of IS outsourcing can be achieved eventually through business performance, IS personnel in-depth understanding of firm' s business needs and functional requirements can

encourage a vendor to actively engage in information sharing and communication activities with the client. That will necessarily increase the level of collaborative participation between the client and vendor. In sum, the existing literature suggests that a client firm' s managerial IT capability is associated with higher level of interaction process. Thus, the following hypotheses are shown in Figure 1.

H1– 4: The managerial IT capability positively influences the degree of information sharing.

H1– 5: The managerial IT capability positively influences the degree of communication quality.

H1– 6: The managerial IT capability positively influences the degree of collaborative participation.

Vendor management capability is one of the core human resource capabilities for facilitating outsourcing (Feeny & Willcocks 1998). In practice it helps vendors successfully implement their services to satisfy all user needs (Lacity, Willcocks & Feeny 1995). In addition to contractual obligations, formalised outsourcing management processes and work evaluation principles are required for better communication and information sharing. Also, the outsourcing vendor selected through well refined processes will be more reliable and qualified to share corporate information. In other words, a good relationship cultivated by effective vendor management will create the win win situation for future potential benefits (Feeny & Willcocks 1998). Accordingly, the effective vendor management capability may necessarily influence the degree of interaction process. From this theoretical understanding the following three hypotheses are generated and they are shown in Figure 1.

H1– 7: The vendor management capability positively influences the degree of information sharing.

H1– 8: The vendor management capability positively influences the degree of communication quality.

H1– 9: The vendor management capability positively influences the degree of collaborative participation.

Information sharing refers to the extent to which critical, often proprietary information is communicated to a partner (Mohr & Spekman 1994). Fundamental information sharing is ascertained by contractually agreed upon communication mechanisms such as regular meetings and report exchanges (Kern & Willcocks 2002). By sharing information and being knowledgeable business partners are able to act more productively to maintain the relationship over time (Mohr & Spekman 1994). That is, relationship intensity can create a competitive advantage through the strategic sharing of an organisation' s key information (Lee & Kim 1999). Thus, the information sharing is an important predictor of the relationship intensity (Mohr & Spekman 1994), which provides the foundation for the following hypothesis.

H2– 1: The information sharing positively influences the degree of relationship intensity.

Communication is defined as the formal as well as informal sharing of appropriate information between the parties. Moreover, communication quality represents the accuracy, timeliness, adequacy, and credibility of information exchange. Timely accurate and relevant information is essential to build a better partnership relationship (Mohr & Spekman 1994). Anderson and Narus (1990) addressed the importance of the effective communication between partners to achieve the intended objectives. Therefore, following hypothesis is proposed.

H2– 2: The communication quality positively influences the degree of relationship intensity.

Participation refers to the extent to which partners jointly engage in planning and goal setting (Mohr & Spekman 1994). Indeed, collaborative participation between partners plays a significant role in enhancing the sustainability of their relationship over time (Henderson 1990). The collaborative

participation allows partners to establish mutual expectations and specifications of cooperative effort (Mohr & Spekman 1994). Moreover, effective working interactions are marked by collaborative actions directed at mutual objectives that are consistent across organisations (Anderson & Narus 1990), which lead to higher relationship intensity. This relationship is expressed in the following hypothesis, which is depicted in Figure 1.

H2– 3: The collaborative participation positively influences the degree of relationship intensity.

Much research indicates that the relationship between client and vendor influences the success of IT outsourcing (Klepper 1995, McFarlan & Nolan 1995, Grover, et al. 1996, Lee & Kim 1999, Kern & Willcocks 2002). Also, the importance of relationship intensity, including trust and commitment has been identified (Bove & Johnson 2001). Indeed, trust can be defined as a firm's belief that another company will perform actions that result in positive outcomes for the firm and not engage in unexpected behaviours with negative outcomes (Anderson & Narus 1990, Grover, et al. 1996). Elsewhere, commitment is defined as an exchange belief between partners that an ongoing relationship with another is so important as to warrant maximum maintenance. Moreover, many researchers have emphasised that the two variables in the relationship intensity are very important for outsourcing success (Grover, et al. 1996, Lee & Kim 1999, Kern & Willcocks 2002). Thus, the relationship intensity is associated with outsourcing success. These imperatives provide the foundation for the following hypothesis.

H3: Relationship intensity has a positive effect on outsourcing success

METHODOLOGY

Respondents and Site

The survey study was conducted with the IS outsourcing project teams in Korea. Twenty five IS outsourcing projects were selected, where there had been client firm information system developments (such as ERP, CRM, SCM, and KM) and systems maintenance activities are undergoing by outsourcing vendors. Instead of random selection, the project sites were chosen by the researchers with the help of the senior executives from the five major system integration companies in Korea. Respondents were chosen from diverse domains of the organisation cadres, and their job function, such as project team leader, task manager, and team members.

Procedure

This study was designed to explore the contributing effect of resource capability on IS outsourcing relationship and success. The relationship attributes and its antecedents were analysed from the previous literature, and the relationship has been shown to be crucial to IS outsourcing success. Also, the resource capabilities, mostly technically focused, have been known to be necessary to implement IS outsourcing successfully. However, the impact of the resource capability on IS outsourcing relationship has been seldom explored in the literature, and to contribute to the research endeavour, the conceptual model was developed for evaluating the relationships between the resource capability and relationship intensity. An interaction process was introduced as the critical mediating construct of intervening resource capability and relationship intensity, a feature that was based on the premise that the IS outsourcing process will necessarily effect the formation of relationship intensity and the process performance should be affected by the capability.

Exploring the associations between the resource capability and relationship, the sample survey method was adopted for the generalisability of the research. A complex questionnaire was designed by using the constructs that had already been used and validated by other researchers. They were drawn from the review of extensive relevant IS literature conducted mainly from the perspectives of resource based view (RBV), relationship. The initial version of the questionnaire was pre tested by faculty members, managers in IT organisations, and with IS staff members. Each item was reviewed by them to improve content and construct validity.

Data Collection

To enhance the questionnaire response rate senior executives of the five major system integration firms in Korea were involved. Each company was visited by the researchers who explained the nature of the study and asked these executive to help the collection of the completed questionnaires. Next, twenty five project teams and respondents were selected with the help of the firm' s director. The selected project teams included both type of IS outsourcing, that is SI (System Integration: the outsourcing for specific system development project) and SM (System Management: the outsourcing conducted with long term engagement with vendor). A total 250 questionnaires were distributed to 25 project teams including both the clients and vendors. After two weeks, the survey questionnaires were collected. A total 185 responses were collected from 20 outsourcing project teams, consisting of 84 from clients and 101 from vendors. Table 1 reports this data.

Table 1
Profile of Respondents

Sample	Response classification		Response frequency		Outsourcing type
20 projects	Client Firm	84	Team leader	9	SI: 12 SM: 8
			Project Manager	11	
			Team Worker	64	
	Vendor Firm	101	Team leader	14	
			Project Manager	19	
			Team Worker	68	
Total		185		185	20

Measures

This study adopted constructs that had already been used and validated by other researchers. A client firm' s human resource capability variables were measured (Lee, et al. (1995), Bassellier, Benbasat & Reich (2003), Nelson & Coopriider (1996), Feeny & Willcocks (1998)), the interaction process variables were developed by reframing the instrument proposed by Mohr and Spekman (1994), and Lee and Kim (1999). The measures of the relationship intensity variable were based on the commitment-trust theory (Morgan & Hunt 1994) and the relationship theory (Mohr & Spekman 1994). Finally, outsourcing success was measured in terms of strategic, economic, and technological outsourcing gains developed by Grover, et al. (1996). After pre test and refinement procedures, a five point Likert questionnaire was developed. The measures included 14 items for the client firm' s human resource capability, 13 items for the interaction process, eight items for the relationship intensity, and nine items for the outsourcing success measurement. In sum, the questionnaire consisted of 44 items for eight constructs.

Analysis

Data were analysed using the confirmatory approach by maximum likelihood estimates of the LISREL 8.54. Before analysing the structural model, the validity of the measurement model was examined. Among 44 items, four were discarded due to lower consistency between measurement items. Finally, 40 items were used for the final analysis. The reliability was then estimated by examining composite reliability. The value of composite reliability ranged from 0.85 to 0.92, as shown in Table 2, which is higher than a commonly used threshold for acceptable reliability of 0.7. Three types of validity were assessed: content validity, convergent validity, and discriminant validity. Content validity was established by ensuring consistency between measurement items and the extant literature. This was done by interviewing the faculties and practitioners and during the pilot testing of the instrument. Convergent validity was assessed by examining composite reliability and average variance extracted (AVE). The AVE measures ranged from 0.55 to 0.69, while the threshold for acceptable convergent validity is 0.5 (Hair, Anderson, Tatham & Black 1998). Discriminant validity was assessed by examining the square root of the average variance extracted, which was greater than the correlations between all other constructs.

Table 2

Measure	Items		Standard loading	Composite reliability	AVE
	Initial	Final			
Technical IT capability	5	4	0.68, 0.80, 0.87, 0.83	0.874	0.637
Managerial IT capability	4	4	0.75, 0.82, 0.76, 0.81	0.866	0.617
Vendor Management capability	5	5	0.78, 0.83, 0.84, 0.85, 0.86	0.919	0.693
Communication quality	4	4	0.77, 0.85, 0.89, 0.82	0.901	0.695
Information sharing	4	4	0.79, 0.73, 0.73, 0.83	0.854	0.595
Collaborative participation	5	5	0.78, 0.84, 0.74, 0.79, 0.82	0.895	0.632
Relationship intensity	8	6	0.70, 0.77, 0.84, 0.72, 0.73, 0.70	0.882	0.555
Outsourcing Success	9	8	0.77, 0.75, 0.79, 0.71, 0.79, 0.81, 0.80, 0.71	0.925	0.578

Statistical assumptions of SEM, such as the linearity and the normal distribution of the data, were satisfied. The linearity was analysed using the method of scatter plot method (Hair, et al. 1998). Examination of scatter plot reveals apparent linearity. The normal distribution was analysed by the derivation of normal probability plot, and the kurtosis and skewness (Hair, et al. 1998). Results showed that means (2.865– 3.714), standard deviations (0.664– 0.865), skewness Z score (-1.25– 0.35), kurtosis Z score (-0.43– 0.816) were acceptable. The data were significant at the 0.05 level ($1.96 < |Z \text{ score} |$).

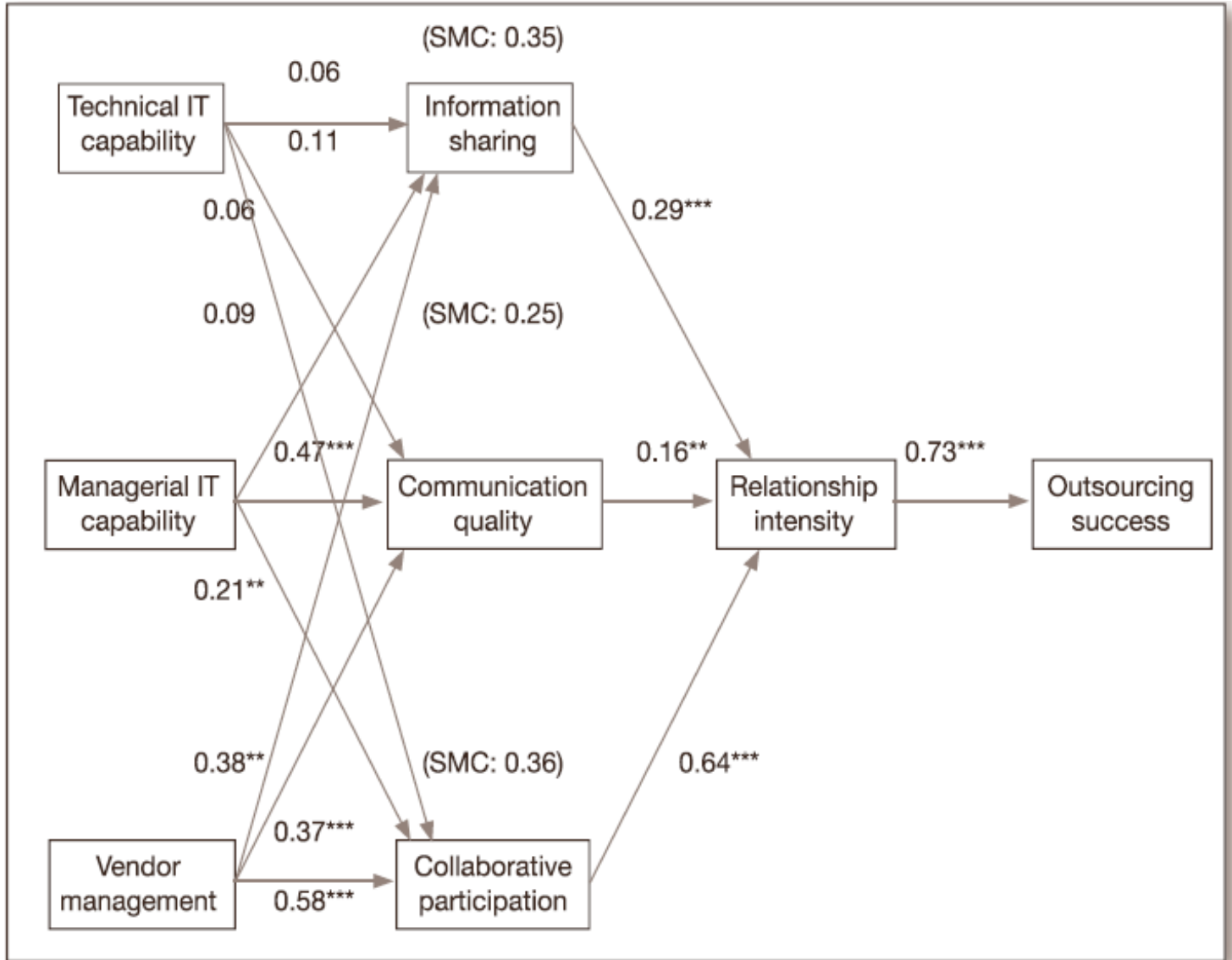
RESULTS

The overall fit of the model was expressed to ensure that it is an adequate representation of the entire set of relationships. The three types of goodness of fit measures; absolute fit measures, incremental fit measures, and parsimonious fit measures (Hair et al. 1998). The chi-square result was non significant ($\chi^2_{(707)} = 1327, p=0.00$), the GFI (0.80), and the AGFI (0.76) was lower than recommended level. But, the incremental fit measures and parsimonious fit measures indicate that the model is marginally acceptable (chi-square (1.87) for the model was found to be within acceptable threshold limits (1.0– 2.0 or 3.0). Thus, the overall model fit measures indicate that this model is acceptable.

Table 3
Indices of Model Fit

Measures	Recommended level	Research model
Absolute fit Measures		
Chi-Square/df (p-value)	$p > 0.05$	1327/707(P=0.00)
Goodness of Fit Index (GFI)	Higher(>0.9)	0.80
Root Mean Square Residual (RMSR)	Lower	0.08
Root Mean Square Error of Approximation (RMSEA)	<0.08	0.06
Incremental fit Measures		
Non-Normed Fit Index (NNFI)	>0.9	0.96
Adjusted Goodness of Fit Index (AGFI)	>0.8	0.76
Normed Fit Index (NFI)	>0.9	0.93
Parsimonious fit Measures		
Normed Chi-Square	1.0~2.0/3.0	1.87
Comparative Fit Index (CFI)	High value(>0.9)	0.96
Overall model fit Measures		
Normed Chi-Square	1.0~2.0/3.0	1.87

Figure 2
Results of the Model Analysis using LISREL



Note: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$

The impact of client's firm's human resource capability on interaction process, managerial IT capability (H1-5~H1-6) and vendor management capability (H1-7~H1-9) are significantly related to information sharing, communication quality and collaborative participation, respectively. Only the managerial IT capability impact on information sharing (H1-4) is non significant, and the technical IT capability has non significant relationships with information sharing, communication quality, and collaborative participation. The constructs consisting of interaction process, information sharing, communication quality, and collaborative participation are significantly related to relationship intensity (H2-1, H2-2, and H2-3). Finally, the relationship intensity has a significant positive impact on outsourcing success (H3). Also, there was a significant indirect effect of managerial IT capability and vendor management capability on outsourcing success which shows that the interaction processes and relationship intensity are meaningful intervening variables. The first order impact of human resource capability on interaction processes and subsequent relationship intensity effect is also confirmed by the significant indirect effect of capability and relationship intensity. These results are presented in Figure 2 and Table 3.

DISCUSSION

Arguably, this study contributes to the development of a relationship model that encompasses the effect of a client firm's human resource capability on outsourcing success through interaction process and relationship intensity. By adopting the process theory, the resource based firm's IT capability theories with outsourcing relationship from human resource perspective could be evaluated. The empirical testing results indicate that managerial IT capability and vendor management capability are critical antecedents to influence the outsourcing interaction process,

whereas technical IT capability does not show statistically significant relationships. The plausible reason of the insignificant relationships is that in most sampling projects, the vendor firm' s competence, such as technical skills and business domain knowledge might be sufficient so that less significant attention was paid to the client firm' s technical IT capability. A further plausible explanation is that a vendor' s relatively long prior engagement with the client could let the vendor take over the client' s roles related to technical IT capabilities. All associations between three variables of interaction process (i.e., information sharing, communication quality, and collaborative participation) and relationship intensity have strong statistical significance. Finally, the relationship intensity has strong influence to the outsourcing success.

Table 4
Results of Hypothesis Testing

Path	Hypothesis	Estimate	T-value	Result
Technical IT capability → Information	H1 - 1	0.06	1.06	Reject
Technical IT capability → Communication	H1 - 2	0.11	1.26	Reject
Technical IT capability → Participation	H1 - 3	0.06	0.97	Reject
Managerial IT capability → Information	H1 - 4	0.09	0.53	Reject
Managerial IT capability → Communication	H1 - 5	0.47	2.60***	Support
Managerial IT capability → Participation	H1 - 6	0.21	1.97**	Support
Vendor management → Information	H1 - 7	0.38	2.98***	Support
Vendor management → Communication	H1 - 8	0.37	5.50**	Support
Vendor management → Participation	H1 - 9	0.58	6.62***	Support
Information sharing → Relationship intensity	H2 - 1	0.29	3.39***	Support
Communication → Relationship intensity	H2 - 2	0.16	1.96**	Support
Participation → Relationship intensity	H2 - 3	0.64	6.63***	Support
Relationship intensity → Success	H3	0.73	5.33***	Support
Indirect Effects				
Technical IT → Success		0.06	1.05	
Managerial IT → Success		0.17	1.77*	
Vendor management → Success		0.39	5.97***	
Technical IT → Relationship intensity		0.08	0.54	
Managerial IT → Relationship intensity		0.24	1.76*	
Vendor management → Relationship intensity		0.53	5.80***	
Information → Success		0.21	4.43**	
Communication → Success		0.12	1.88*	
Collaboration → Success		0.47	6.92***	

Note: *p<0.10, **p<0.05, and ***p<0.01.

The model provides a paradigm for understanding the outsourcing relationship and how they can be managed to ensure outsourcing success. Indeed, this observation could be the first empirical test to investigate the impact of a client firm' s human resource capability on IS outsourcing relationship. Nevertheless, a limitation of this study is the composition of the sample, as it lacks randomness in the sense that the number of project units is limited, and they are selected mostly via personal acquaintances. However, it is to be noted that the data were collected from random distribution. Also, this study was conducted as a snapshot research without considering the dynamic nature of outsourcing relationship. On the basis of the findings of this study, further research is recommended to specifically examine vendor capability and contextual situations of IS outsourcing environment.

CONCLUSION

Corporate human resource capabilities are a necessary asset to ascertain IS outsourcing success. The results of this study suggest that the client companies should keep cultivating managerial IT and vendor management capabilities even when the company outsources most of the IS functions. That is, a human resource management focus should be on managerial skills facilitating interactions rather

than technical IT capability, which will lead to enhanced relationship intensity.

Though the survey respondents and sites were restricted to Korean organisations, the research findings could be generalised to other IS outsourcing environments in Asia Pacific countries. The insights for human resource management and policies could be summarised as follows. The first is the importance of managerial efforts on interaction processes with vendors. Though formal contract specifies regular progress control meetings and output reviews during the project, managerial emphasis should also put on interaction processes such as information sharing, communication quality, and collaborative participation. Especially in Korea and/or Asia Pacific countries where informal contact is prevalent in addition to formal contract, the IS outsourcing success will be more dependent on relationship. The second is the implication on the corporate IT asset outsourcing boundary decision. Human resource asset related to technical IT skills could be outsourced, but necessary management skills are to be encouraged to enable greater exploitation of vendor competence through effective interaction. Generalising the results to other Asia Pacific countries is based on the foundation the Korean outsourcing projects where in most cases vendors who possessed considerable technical skills. In different situations such as vendors resort to client' s technical IT skills for outsourcing project implementation, client firm' s technical IT capability could be significant antecedent to affect interaction processes. However, in sum, the research findings indicate that managerial IT capability including vendor management is necessary, though not sufficient, to ensure IS outsourcing success through enhancing relationship.

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