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The Effect of Knowledge Sharing on IS Outsourcing Success

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ABSTRACT

IS outsourcing is one of the major issues facing organizations in today's rapidly changing business environment. It is often presented as an attractive business proposition to improve productivity, reduce costs and increase competitiveness. This study examined the relationship between knowledge sharing and IS outsourcing success based on the social capital theory. It shows the knowledge sharing is critical factor for outsourcing partners to face potential changes and challenges over time to lead to IS outsourcing success. The research findings are depicted as following: Trust and shared vision are significant variables to knowledge sharing. The social interaction benefits in building trust and reaching shared vision. Knowledge sharing has a positive effect on IS outsourcing success and organizational learning capability moderates the relationship between knowledge sharing and IS outsourcing success especially for the lower learning capability company.

Keywords

Outsourcing, social capital, knowledge sharing, organizational learning.

INTRODUCTION

Information systems (IS) outsourcing means that the physical and/or human resources related to an organization's information technologies (IT) are going to be provided and/or managed by an external specialized provider (Gonzalez, Gasco, and Llopis, 2005a). Prior theories analyze IS outsourcing phenomena including transaction cost theory (e.g. Ang and Straub, 1998; Ngwenyama, and Bryson, 1999), resource-dependence theory (e.g. Grover, Cheon, and Teng, 1996; Han, Lee, and Seo, 2008), agency cost theory (e.g. Mitnick, 1975), and social exchange theory (e.g. Lee and Kim, 1999). These studies mainly fall under three broad categories: economic perspective, strategic perspective and social perspective (Lee, Huynh, Kwok, and Pi., 2003). While the nature of the relationships between the outsourcing service providers and the receivers has been changed from the contract-orientation to long term partnerships (Grover et al., 1996), using economic and strategic perspectives are limited in explaining the IS outsourcing phenomenon (Lee and Kim, 1999). Thus, the focus of study has shifted to IT outsourcing relationships from a social perspective (Chou, Chen, and Pan, 2006).

Organizations nowadays situates in rapidly changing business environment. The business needs may change over time. The better knowledge sharing between partners could help to face these challenges (Lee, 2001; Yli-Renko, Autio, and Sapienza, 2001). IS outsourcing practices require not only the transfer of IS artifact, technological knowledge, but also the transfer of non-technological business knowledge (such as business process knowledge or best practice). Thus, the relationship between outsourcing service providers and receivers constitute the form of social capital and can be viewed as conduits for knowledge exchange. Apparently, it is necessary to discuss the issue of knowledge sharing in IS outsourcing research. Yet, few studies have examined the role of social capital in facilitating knowledge sharing in interorganizational relationships. Owing to lacking of literature and empirical studies, we consider that it is essential to combine social and knowledge-based view to explore the qualities to encourage knowledge sharing and their impacts on outsourcing practice. Thus, we addressed the following research questions: 1. Does knowledge sharing between the outsourcing providers and receivers influence IS outsourcing success? 2. What factors will affect the extend of knowledge sharing between the outsourcing providers and receivers? 3. Will the effect of knowledge sharing on IS outsourcing success be moderated by the organizational learning capabilities ?

This study was conducted based upon the fact that knowledge sharing is important factor to lead to IS outsourcing success. We incorporate the constructs from a comprehensive but parsimonious perspective based on social capital theory as the antecedents of knowledge sharing, including structural, cognitive, and relational dimension. Besides, the effects of knowledge sharing on IS outsourcing success might be limited when organizations lacking for learning capability. The moderating effect of organizational learning capability on the relationship between knowledge sharing and IS outsourcing success was also investigated in this study.

LITERATURE REVIEW & HYPOTHESES

van den Hooff and de Ridder (2004) argued that the factors affecting knowledge sharing can be classified into soft and hard issues. The hard issues are devoted to find out a variety of new technologies and tools to assist knowledge sharing, such as the CMC (computer-mediated communication). On the other hand, the soft issues focus on the motivation factors that might affect the willingness of organization member to share with others the knowledge they have acquired or created. Moreover, organization climate and organization culture are often discussed along with motivation factors in organization knowledge sharing studies. Bock et al. (2005) found out that some antecedents such as extrinsic motivators, social-psychological forces and organizational climate are factors to affect knowledge workers' knowledge sharing intentions. Therefore, motivation factors and organizational context factors could have a significant influence on the knowledge sharing process. Differing from previous studies, this study attempts to explore the knowledge sharing between outsourcing service providers and receivers and its impact on IS outsourcing success from a perspective of social capital.

Social capital is the relational resources attainable by individual actors through networks of social relationships (Tsai, 2000). It has been applied to a wide range of organization studies, both in the context of intra-organizational (e.g. Nahapiet and Tsai, 2000) and inter-organizational relationship (e.g. Inkpen and Tsang, 2005). We adopted social capital theory to develop the model for demonstrating the nature of social relationships for outsourcing service providers and receivers. The research model is shown in figure 1. This model shows that the IS outsourcing success is mainly associated with the knowledge sharing between service providers and receivers and it will be moderated by the learning capability of an organization. It reflects that stable and sustain knowledge sharing is the key factor to lead to success in rapidly changing environment. Social interaction, shared vision, and trust derived from the social capital theory are the important variables to affect knowledge sharing. It shows that knowledge sharing between partners is under the social influence.

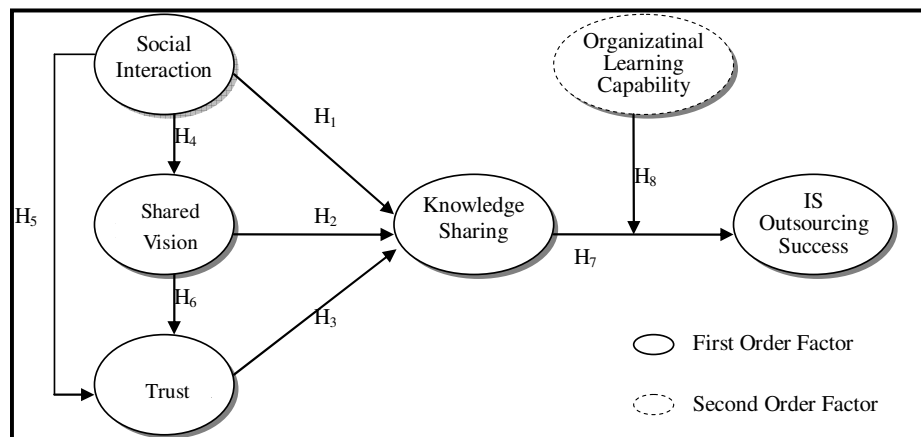


Figure 1 Research Model

Social interaction is the most important variable from structural dimension of social capital (Tsai and Ghoshal, 1998). Social interactions among different business units blur the boundaries of organizations. Members can gain access to other members' resources/knowledge through close and intensive interactions among individuals of partner firms (Tsai and Ghoshal, 1998; Yli-Renko et al., 2001). The definition of knowledge sharing here is that the extend of critical or proprietary knowledge is exchanged between the service receiver and the provider. Through close interaction, firm members are able to increase the depth, breadth, and efficiency of mutual knowledge exchange (Lane and Lubatkin, 1998).

H₁: The extent of social interaction between the focal firm and their service provider will be positively related to the degree of knowledge sharing.

Shared vision and collective goals are major manifestations of the cognitive dimension of social capital. Yli-Renko et al. (2001) indicated that shared goals and expectations between two firms can reduce the need for formal monitoring, allowing firms to invest more effort into knowledge assimilation and exploitation (Yli-Renko et al., 2001). Inkpen and Tsang (2005) also pointed out that when alliance partners have consistent goals in mind, it can act as a bonding mechanism between members. Such shared goals can reduce inter-partner conflicts and make them feel comfortable to share their resources with each other. Information and knowledge sharing will be facilitated by the shared goals among partners. Therefore,

H₂: The extent of shared vision between the focal firm and their service provider will be positively related to the degree of knowledge sharing.

Trust belongs to relational dimension of social capital. Trust is a critical factor affecting interfirm knowledge transfer and creation (Inkpen and Tsang, 2005). Larson (1992) argued that trust is one of social controls allowing firms to take risks with one another, to innovate, and to share information freely. Therefore, firms in an atmosphere of trust, they do not have to protect themselves from others' opportunistic behavior and should contribute to the exchange of knowledge (Miranda and Kavan, 2005).

H₃: The extent of trust between the focal firm and their service provider will be positively related to the degree of knowledge sharing.

Social interaction plays an important role in the shaping and sharing of common goals and values among organization members (Tsai and Ghoshal, 1998). IS outsourcing partners and the firm may have different goals in the outsourcing process. Social interactions were helpful for members to learn and adopt other organization's values (Tsai and Ghoshal, 1998). Therefore, we expect that shared vision between the firm and their outsourcing partner is established from prior social interactions.

H₄: The extent of social interaction between the focal firm and their service provider will be positively related to the degree of shared vision.

Previous studies have suggested that trust evolved and reinforced through repeat interactions among partners (Gulati, 1995). Gulati (1995) pointed out that through ongoing interactions, firms would like to learn about each other and develop emotional bases. Frequent and close social interactions between partners contribute to the development of trusting relationships over time (Collins and Hitt, 2006; Inkpen and Tsang, 2005). Thus, we infer that repeated social interactions between the firm and their outsource partner are essential characteristics to build trust-based relationships.

H₅: The extent of social interaction between the focal firm and their service provider will be positively related to the degree of trust.

Common values and a shared vision may encourage the development of trusting relationships (Tsai and Ghoshal, 1998). Because of their collaboration relationships, firm members and their service provider work under the same collective goals. With the same visions and goals, they tend to trust each other and expect that they will not be hurt by any other's self-interest behavior (Tsai and Ghoshal, 1998).

H₆: The extent of shared vision between the focal firm and their service provider will be positively related to the degree of trust.

KNOWLEDGE SHARING

Knowledge is the most important resources in firms (Spender, 1996). Knowledge is often tacit in nature and difficult to transfer. The interfirm cooperation can be an effective way to transfer knowledge across firms. In Lee's (2001) studies, the results showed that the extent of knowledge sharing between the firm and their service provider is significantly associated with outsourcing effectiveness. Besides, the continues knowledge sharing will be advantageous to ensure the firm's business conditions under control and keep up the technology requirement change over time (Gonzalez et al., 2005b). We assume that the higher the degree of knowledge sharing between the service provider and the firm, the greater the accomplishment of the firm's strategic, economic, and technical benefits of IS outsourcing.

H₇: The extent of knowledge sharing between the focal firm and their service provider will be positively related to IS outsourcing success.

The organizational learning capability here is a second order construct. Managerial commitment, the climate of openness, the systems perspective, and knowledge integration serve as the first order constructs. Managerial commitment is the clear recognition of the relevance of learning in the firm (Jerez-Gómez, Céspedes-Lorente, and Valle-Cabreba, 2005). If the firm places little value on learning, little learning is likely to occur (Sinkula, Baker, and Noordewier, 1997). The climate of openness prompt employees to accept diverse opinions and cultures both internal and external sources (Jerez-Gómez et al., 2005). Thus, the individual knowledge to be renewed and improved (Sinkual, 1994). Communicating with both individuals and work

groups with an open attitude are important to the IS outsourcing success (Tarricone, 1997). The organization with system perspective should be considered as a system that is composed of different functions but act in a coordinated manner. It is important for exchanging information and services (Jerez-Gómez et al., 2005). The knowledge integration leads to the creation of a collective corpus of knowledge and it may contribute to organizational memory. Even the firm has new employees, they still have effective ways to retain knowledge and educate newly personnel.

The organizational learning capability is important for successful knowledge management initiatives (Gold, Malhotra, and Segars, 2001) and it is a moderating factor for organizations to assimilate new knowledge (Cohen and Levinthal, 1997; Lane and Lubatkin, 1998). Lee (2001) also found that the service receiver's absorptive capacity moderated the effect of knowledge sharing and IS outsourcing success. Their results revealed that the service receiver's ability to acquire, assimilate and exploit knowledge is essential for IS outsourcing success. In sum, we postulated that firm's learning capabilities have influence on knowledge absorption and moderate the degree between knowledge sharing and IS outsourcing success. Therefore,

H₈: The moderate effect of organizational learning capability between knowledge sharing and IS outsourcing success will be different for the firm with higher or lower learning capability.

RESEARCH METHODS

Instrument Design

The measurement scales were adapted from previous studies but modified slightly to fit the research context. All items were measured with 7-point Likert scales, ranging from strongly agree to strongly disagree. A pretest of instrument was examined by two experts from academia. A pilot study was conducted before the formal survey. The reliability of each scale is examined to ensure the feasibility of instrument. The results showed the instrument was applicable for the formal survey. Table 1 provides operational definitions and sources of measurement for these constructs.

Construct	Operational Definition	Source of Definition	Source of Measurement
Social Interaction	The extent of social relationships between the focal firm and the service provider.	Yli-renko et al.(2001)	Yli-renko et al.(2001) Violet et al. (2003)
Trust	The extent of confidence and willingness between the focal firm and the service provider that the other party would not act opportunistically.	Tsai and Ghoshal (1998) Lee and Kim (1999)	Yli-renko et al.(2001) Violet et al. (2003)
Shared Vision	The extent of goal congruence between the focal firm and the service provider.	Tsai and Ghoshal (1998)	Tsai and Ghoshal (1998) Young-Ybarra and Wiersema (1999)
Knowledge Sharing	The extent to which critical or proprietary knowledge is communicated between the focal firm and the service provider.	Lee and Kim (1999)	Lee and Kim (1999)
Organizational Learning Capability	The capability of an organization to process knowledge, including create, acquire, transfer, integrate knowledge, and to modify its behavior to reflect the new cognitive situation.	Gomez et al. (2005)	Gomez et al. (2005)
IS Outsourcing Success	The overall organizational benefits obtained from IS outsourcing, including the achievement of strategic, economic, and technologies benefits of outsourcing.	Lee and Kim (1999) Lee (2001)	Lee (2001)

Table 1. Operationalization of Constructs

Sampling

This research model was tested by conducting a survey study. The sampling frame was selected from "The Largest 1000 Firms in Taiwan" published by Commonwealth Magazine of 2006. The questionnaires were mailed to 940 firms with available contact information and the MIS department managers of each company were invited to participate in the survey. The respondents were asked to express their perceptions on their relationships with their IS outsourcing vendor/partner, the extent of knowledge sharing, firm's organizational learning capability and the effectiveness of IS outsourcing of the firm. Finally, a total of 179 usable responses were received, yielding a 19.0 % response rate after dropping 7 respondents which did not have

outsourcing activities.

The profile of the sample contained a wide range of industries, including manufacturing (62.01%), services (17.88%) and finance and Insurance (12.85%). The largest group of annual sales was 0.3-1.6 billion (21.28%). The majority function of outsourcing is application development and maintenance (53.63%). A total of 66 firms cooperate the current outsourcing partners for 1 to 3 years (36.87%).

Measurement Model Analysis

A two-stage methodology of structural equation modeling was adopted for data analysis. In the first step of measurement model evaluation, internal consistency, convergent validity, and discriminant validity were examined with a LISREL confirmatory factor analysis (CFA). In the second step of structural model estimation, the hypotheses were examined, and the goodness-of-fit of the overall model was assessed. Normality and multicollinearity of data were also checked. The results showed that there are no multicollinearity problems among variables.

The result of fit indices of the measurement model was mainly examined with the suggestion of Hair, Anderson Tatham, and Black (1998). The indices were within the threshold (χ^2 to degrees of freedom ration of 1:2.45, CFI=.96; NFI=.95; NNFI=.95, SRMR=0.052) after dropping the items which factor loadings below 0.6 (Nunnally 1978). All indexes reached satisfactory levels, except for GFI at 0.82 was slightly below the 0.90 benchmark. GFI value above 0.8 is still considered an acceptable value and indicating a good fit (Seyal Rahman, and Rahim, 2002).

The smallest composite reliability is 0.85 (suggestion value is above 0.7, Hair et al., 1998). The results show the instrument has satisfying reliability. The discriminant validity of model constructs was evaluated with the test suggested by Fornell and Larcker (1981). The test is supportive of discriminant validity if the average variance extracted (suggestion value is above 0.50, Hair et al., 1998) by the underlying construct is larger than the squared value of its correlation coefficient with other latent constructs. Comparing the values in Table 2, we obtained a good discriminant validity of each construct.

	SV	TRU	KS	OSS	SOIN	MC	SP	OP	KI
SV	0.78								
TRU	0.21	0.77							
KS	0.16	0.23	0.76						
OSS	0.14	0.19	0.24	0.66					
SOIN	0.27	0.24	0.15	0.13	0.72				
MC	0.08	0.13	0.08	0.16	0.16	0.74			
SP	0.13	0.14	0.08	0.19	0.14	0.58	0.79		
OP	0.09	0.17	0.08	0.20	0.12	0.70	0.61	0.75	
KI	0.07	0.16	0.14	0.27	0.11	0.57	0.56	0.61	0.66

SV: shared vision; TRU: trust; KS: knowledge sharing; OSS: IS outsourcing success; SOIN: social interaction; MC: managerial commitment; SP: systems perspective; OP: openness; KI: knowledge integration

Table 2. The result of discriminant validity test

Structural Model Analysis

The structural model estimation was adopted for testing the significance and path coefficients between latent variables for the main model. The fit of overall model was examined first. The fit indices were within accepted thresholds: χ^2 to degrees of freedom ration of 1:2.49, SRMR= .079, NFI= .94, CFI= .96, NNFI= .95. Despite the GFI (= 0.81) was lower than the commonly cited threshold, but GFI values above 0.8 was still considered an acceptable value and indicating a good fit (Seyal et al., 2002). Therefore, the overall model still indicated an acceptable fit to the data.

Figure 2 shows the standardized LISREL path coefficient and the significant level of each path in the model. All the paths were significant except one path: the path between social interaction and knowledge sharing ($\gamma=0.10$, t-value=1.04). Trust ($\gamma=0.42$, t-value=4.61) was found to influence knowledge sharing within 0.001 significant level while the effects of shared vision on knowledge sharing was significant ($\gamma=0.22$, t-value=2.46) within 0.05 significant level. The effect of social interaction ($\gamma=0.62$, $\gamma=0.41$) (t-value=8.41, t-value=4.42) was significant effect on both constructs of shared vision and trust within 0.001 significant level. Shared vision ($\gamma=0.28$, t-value=3.20) has significant effect on trust within 0.01 significant level. At last, knowledge sharing ($\gamma=0.58$, t-value=7.23) had significant path to IS outsourcing success within 0.001 significant level. The explained degrees of variance were shared vision ($R^2=0.39$), trust ($R^2=0.39$), knowledge sharing ($R^2=0.41$) and IS outsourcing success

(R²=0.34).

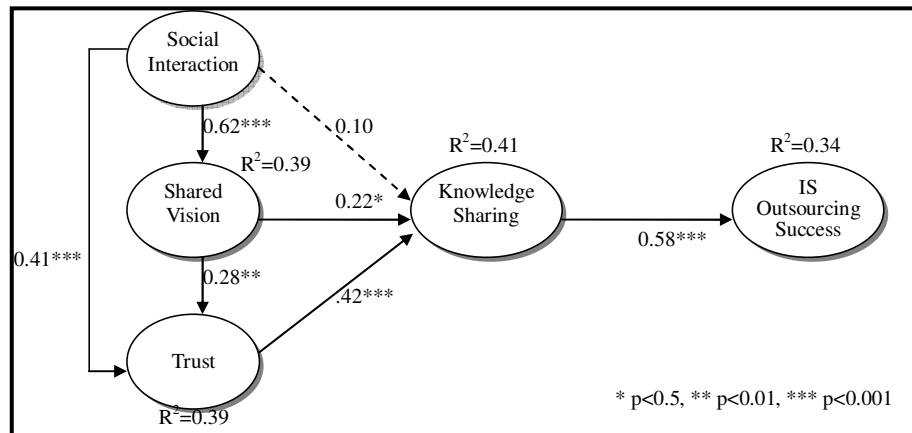


Figure 2 The result of SEM analysis

Moderation Analysis

In order to test the moderating effects of organizational learning capability, this study utilized hierarchical multiple regression to explore the moderating effects (Guimaraes, Igbaria, and Lu. 1992). We divided our sample into two groups according to the mean of Organization Learning Capability (OLC) constructs. The results of moderation analysis shown in Table 3, it shows that the interaction term Knowledge Sharing (KS)*OLC (X1X2) of the higher OLC groups did not reach a significant level (F change=2.323, p=0.131). So no moderating effect occurs. On the other hand, the interaction term KS*OLC (X1X2) of the lower OLC groups reached a 0.05 significant level (F change 6.874, p ≤ 0.05). The Standardized β coefficients of the interaction term KS*OLC (X1X2) is at -1.710, means that the impact of linkage on the relationship between knowledge sharing and IS outsourcing success will be negatively moderated by OLC. Thus, H₈ is supported.

Model	Standardized β coefficients	R ²	Adjusted R ²	R ² change	F change
Higher organizational learning capability					
1. KS (X1)	0.384	0.147	0.139	0.147	17.807***
2. KS (X1) OLC (X2)	0.324 0.191	0.180	0.164	0.033	4.094*
3. KS (X1) OLC (X2) KS*OLC (X1X2)	-1.882 -0.553 2.543	0.199	0.175	0.018	2.323
Lower organizational learning capability					
1. KS (X1)	0.487	0.237	0.227	0.237	22.419***
2. KS (X1) OLC (X2)	0.457 0.211	0.281	0.261	0.044	4.316*
3. KS (X1) OLC (X2) KS*OLC (X1X2)	1.732 1.155 -1.710	0.345	0.317	0.064	6.874*

Table 3. The result of moderation analysis

CONCLUSION

This study provides empirical evidence of how social capital facilitates knowledge sharing, which in turn results in IS outsourcing success. The firm’s organizational learning capability would moderate the effect of knowledge sharing on IS outsourcing success for lower learning capability firms. Several contributions to the outsourcing literature can be derived. First, the results of this study provide support that knowledge sharing between outsourcing service providers and receivers is one of important predictors of IS outsourcing success. The needs and knowledge of service receivers and providers may change over time. The close cooperation and knowledge sharing between outsourcing service providers and receivers is helpful to achieving the strategic, economic, and technologies benefits of outsourcing, especially in the rapid and high competition environment.

Second, among the three dimensions of social capital, trust and shared vision are the significant variables to knowledge sharing. This result reveals that trust minimizes the worry of likelihood that partner will engage in opportunistic behavior and increases the willingness to engage knowledge sharing with outsourcing partners. The outsourcing partners might not be willing to share critical or proprietary knowledge when trust between outsourcing service providers and receivers is not strong enough. Thus, building trust helps partners to share knowledge. On the other hands, when outsourcing service providers and receivers have shared vision, they would have common goals or interests that help to share their knowledge. The shared vision could be thought as a bonding mechanism that helps different firms to integrate their knowledge. It hints that it would be better for the company to find a service provider who has similar business goals when considering outsourcing. The shared vision increases the willingness to share knowledge for one another to combat the potential changes in the future.

Third, one of important and essential methods to increase the trust and shared vision is the social interaction between outsourcing service providers and receivers. IS service providers and receivers may often have different goals and values in mind when they enter the relationships. Social interactions help both of them arrive at the common goals and values. These results indicate that shared vision and trust could be built through direct, intimate, and intensive interaction (formal or informal interaction) to avoid the goal conflicts and reduce the worry of the opportunistic behavior of the other partner.

The non-significant finding also brings some implications. The hypothesis of social interaction does not confirm a significant relationship on knowledge sharing. A possible explanation is that the social interaction serves as the indirect factor on knowledge sharing. Knowledge sharing is a critical decision for companies because it may expose the companies in danger if they share their knowledge with an inadequate partner. The social interaction could only increase the understanding between service providers and receivers. However, it does not mean the social interaction is not important. On the contrary, the deeper understanding between partners through frequent social interaction with each other benefits to increase trust and build shared vision to lead to knowledge sharing.

Fourth, maintaining high organizational learning capability also appears important in this study. Our results indicate that the company with lower organizational learning capability might reduce the benefits of knowledge sharing on IS outsourcing success. The company with lower organizational learning capability might not be able to absorb the knowledge from other companies. It hints that elevating the learning capability is especially important for knowledge sharing activities. Otherwise, the effect of knowledge sharing on IS outsourcing success may lower than the company expectation.

Finally, little research has been conducted to theorize the relationship between social capital dimensions and knowledge sharing in the context of IT outsourcing. However, given the imprecise nature of the services being rendered, the difficulty in assuring consistent quality and the often incomplete contracts existing in IT outsourcing projects, good relationships may act as substitutes for formal institutional support (Chou et al., 2006). The social capital dimensions were therefore expected to facilitate the knowledge sharing activities between outsourcing service providers and receivers. The results of this study can provide insights in addressing IT outsourcing issues from the social capital and knowledge sharing perspectives.

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