

Association for Information Systems

AIS Electronic Library (AISeL)

ICEB 2011 Proceedings

International Conference on Electronic Business
(ICEB)

Winter 12-2-2011

The Strength Of Individual Relationships And Employee Knowledge Sharing Behavior

Jianping Peng

Jing Quan

Follow this and additional works at: <https://aisel.aisnet.org/iceb2011>

This material is brought to you by the International Conference on Electronic Business (ICEB) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICEB 2011 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

THE STRENGTH OF INDIVIDUAL RELATIONSHIPS AND EMPLOYEE KNOWLEDGE SHARING BEHAVIOR

Jianping Peng, Sun Yat-sen University, mnspjp@mail.svsu.edu.cn

Jing Quan, Salisbury University, jxquan@salisbury.edu

ABSTRACT

Firm's core competitiveness results primarily from its ability to innovate. Knowledge sharing plays an important role in promoting sustained innovation. This research examines the factors enabling knowledge sharing in a Research and Development (R&D) department of a Chinese commercial elevator firm. We find that the strength of individual relationships, contextual performance, and IT capability are positively correlated with the strong knowledge sharing behavior, while controlling for gender, education, and job tenure. Based on our findings, we draw both theoretical and managerial implications.

Keywords: Knowledge sharing, strength of individual relationships, contextual performance, and IT capability

INTRODUCTION

Firm's core competitiveness results primarily from its ability to innovate. Employee knowledge sharing plays an important role in promoting sustained innovation. Hence, it is important to encourage and foster knowledge sharing in the workplace. A great amount of research has examined the various enablers and barriers, such as organizational structure, technology, culture, management system, synergy, personal closeness to colleagues, and strategy on knowledge sharing in organizations [19][22]. Based on the existing literature, this research introduces two new variables, the strength of relationships and employee contextual performance, as the enablers for knowledge sharing and examines their relationships with employee knowledge sharing behaviors.

Social networking has recently made significant strides into the corporate intranets, and employee social networks become increasingly valuable assets to organizations. However, the mainstream of the existent research on knowledge sharing behaviors is mostly based on the traditional economics and focuses primarily on the impact of the individual attributes of employees. Little attention is given to examining the effects of employee social network structures and characteristics on employee knowledge sharing behaviors. In reality, knowledge

sharing must occur between at least two persons. Hence, the employee social networks must have influence on the way in which the employees share their knowledge.

Knowledge sharing has a pronounced aspect of human relationships [3] and is a selective interpersonal process [4]. Knowledge givers choose not only whom to share their knowledge with, but what knowledge to share based on whom the recipients are. Interpersonal interactions are a necessary condition for knowledge sharing and such interactions are always based on a certain level of interpersonal relationships [5][20]. Moreover, people share their knowledge when they are structurally embedded in the network [29]. Hence, the personal relationships have a profound connection to knowledge sharing. Lilleore and Hansen [19] show that personal closeness to colleagues is a key enabler for knowledge sharing in organizations. In this study, we propose a unique way of measuring the strength of relationships and investigate its correlation with employees' knowledge sharing behavior.

Knowledge sharing is mostly a voluntary act. No one can make someone share knowledge. For various reasons, individuals tend to hoard knowledge [1][2]. Hence, knowledge sharing can be considered as beyond one's normal job requirements, and individuals with a high level of job dedication and organizational commitment are more likely to share their knowledge to help others. Wasko and Faraj [29] find that people tend to share their knowledge when they perceive that it enhances their professional reputations. In this research, we examine the relationship between contextual performance and employee knowledge sharing behavior.

RESEARCH FRAMEWORK AND HYPOTHESES

Wasko and Faraj [29] argue that people contribute their knowledge when they are structurally embedded in the network, and when they perceive that it enhances their professional reputations. In our research framework, we relate 1) the embeddedness to the strength of relationships with the others in the social network; and 2) the perceived professional reputation enhancement to one's contextual performance. In addition, we believe one's IT capability also correlated positively with knowledge sharing.

Strength of Relationships and Knowledge Sharing

Knowledge sharing is the dissemination of knowledge. That is, individuals, via various means, exchange and discuss knowledge within the organization. The purpose is to expand the value and use of knowledge through the exchange of knowledge. By arguing that knowledge is the source of power, French [8] concludes that one who is equipped with the knowledge is also equipped with power and an easier access to resources and to opportunities for advancements and bonuses. Rewards and evaluations can influence employee behaviors greatly. If knowledge sharing behavior enables them to get rewarded or promoted, employees are more willing to share knowledge with others. Equally, Stevenson [26] believes that knowledge sharing is the allocation of resources. If managers exhibit more trust toward the subordinates, the extent of knowledge sharing will be greater.

Knowledge sharing takes place between knowledge owners and receivers. New knowledge is sometimes generated during the knowledge sharing process. Senge [25] explains the knowledge sharing process from the point of view of "learning" in which knowledge sharing includes the willingness to help the receiver understand, or learn, the meaning and connotation of the information. Davenport [7] defines "knowledge sharing" as a voluntary act and differentiates it from "report." Reports are information exchange behaviors based on certain rules, but knowledge sharing implies a conscious exchange behavior. Hendriks [11, p92] describes knowledge sharing as a process of communication by stating that "Knowledge sharing presumes a relationship between at least two parties." The owner of the knowledge shares through the process of externalization, and the recipient internalizes knowledge.

There are no coherent, integrated, theoretical frameworks of the motivational factors that explain how knowledge is transferred between knowledge providers and recipients [24, p71]. For instance, researchers interested in predicting knowledge sharing have used concepts from social motivation theory, such as trust, to help explain knowledge transfer [e.g., 18], while others have relied more on reward and incentive theory to study the impact of incentives on knowledge sharing [e.g., 15]. But no systematic attempts have been made to either compare or integrate these different potential motivational mechanisms that explain knowledge sharing.

Knowledge sharing is based on human relationships [3]. Wasko and Faraj [29] find that people share their knowledge when they are structurally embedded in the network. Knowledge sharing behavior is a selective interpersonal process under specific circumstances [4]. Knowledge givers choose not only whom to share their knowledge with, but what knowledge to share. Scholars ([5][20]) believe that interpersonal interactions are a necessary condition for knowledge sharing and such interactions are always based on a certain level of interpersonal relationship structure. The strength of relationships reflects the scope of communication and frequency of interaction among the individuals in the social networks. The wider the scope of exchange and the higher the frequency of interaction are, the higher level knowledge sharing among the individuals is. At the individual level, the strong ties are considered relatively more conducive than weak links for share refined and deep level of knowledge among the individuals [16]. This is because the higher frequency of social interaction provides the participants with more awareness of and exposure to unique knowledge, while an extensive network contacts can increase the team members' understanding of their skills and knowledge and help individuals find relevant experts when in need of knowledge [17]. Moreover, Ke, et al. [17] show empirically that the strength of interactions among the individuals, trust of their colleagues and network density have a positive impact on the behavior of knowledge sharing.

Based on the discussion, we propose our first hypothesis:

H₁: The strength of employee personal relationships in the social networks and knowledge sharing are positively correlated.

Contextual Performance and Knowledge Sharing

Contextual performance refers to activities that contribute to the social and psychological core of the organization and are beyond the required job mandates. They are the activities conducive to achieving organizational goals and include spontaneous behavior, organizational citizenship, pro-social behavior, dedication to organization and voluntary effort for completing tasks outside formal job requirements.

Most of managers find that knowledge sharing is not an easy task. For various reasons, individuals are reluctant to

share what they know [2]. Knowledge sharing is largely a voluntary act and cannot be forced. Therefore, it is a challenge for managers to foster policies that encourage and promote knowledge sharing behaviors. Wasko and Faraj [26] find that people tend to share their knowledge when they perceive that it enhances their professional reputations. Knowledge sharing can be considered beyond one's assigned job requirement. To share their knowledge to help others to do their jobs better and more efficiently, individuals must be willing to go beyond their required job mandates. This type of individuals should have high levels of contextual performance.

This line of discussion results in the following hypothesis:

H₂: The contextual performance of employees and knowledge sharing behaviors are positively correlated.

Individual IT Capability and Knowledge Sharing

In an environment of increasing complexity of work, fast changing organizational boundaries, the growth of virtual communities and geographically dispersed teams, it has become increasingly difficult to monitor and management knowledge [15]. IT can enhance knowledge sharing by shrinking temporal and spatial barriers between knowledge workers, and facilitating access to information about knowledge [12]. IT can support knowledge management in of the two ways: codification and personalization [10][11]. The former codifies and stores explicit and structured knowledge in knowledge bases. IT can be used to help people share and reuse knowledge through common storage. In personalization, tacit and unstructured knowledge is shared largely through direct personal communication. IT helps people locate each other and communicate to achieve complex knowledge transfer. In this context, we think an employee's ability to use various IT tools and applications is directly related to his knowledge sharing motivation [12] and behavior. Phang and Foong [22] find that information and communication technology (ICT) plays the critical role in facilitating and supporting the process of knowledge sharing in organizations.

By defining the ability of the employees to use the company's IT application platform and common IT software as IT capability, we propose our third hypothesis:

H₃: Individual IT capability and knowledge sharing behaviors are positively correlated

RESEARCH DESIGN

The main variables in this research are knowledge sharing behavior, employee relationships, contextual performance, and IT capability. For the contextual performance, we adopt the popular measurement model proposed by Van Scotter and Motowidlo [27]. Wang, et al. [28] translate this maturely established scale into Chinese and then back into English and empirically test it. For knowledge sharing behaviors, we use the measurement dimensions and scale proposed by Senge [25]. For employee IT capability, we adopt Peng [23] study, combined with the firm's demand for employee IT skills, to develop the scale for measurement.

For measuring the strength of employee relationships, we use both the frequency of interactions with the others and the degree centrality in the social networks. Granovetter [9] suggests that the relationships reflect the person-to-person and organization-to-organization exchange and contact ties. The relationship is different from the abstract relationships in the traditional sociological analysis. He was first to propose the concept of strength of ties and distinguish strong and weak ties. He suggests that the frequency of interaction is one of the main dimensions to measure the strength of ties. Alternatively, another approach for measuring the strength of relationships is to construct the network of relationships among the individuals and calculate the degrees centrality of the various social networks. The network centralities reflect the strength of individual ties. Practically, the social networks can be classified into advisory, informational, and emotional networks. By building three networks and extracting the degree centralities, the strength of the relationships can be measured. We adopt this principal by dividing the overall social networks of the focal firm into three relationship-based networks: emotional, advisory, and informational. We extract the individual degree of centralities as the second part of the measurement for the strength of the individual ties.

Data

From December 2010 to January 2011, we visited the R&D department of a commercial elevator manufacturer. It engages in design and development of commercial elevators. The R&D department has three offices with 80 employees. We distributed 80 questionnaires, of which 76 were returned, representing an effective rate of 95%. The individual attributes of the respondents are given in

Table 1. Based on the responses, we construct the entire social network in the department (see Figures 1a and 1b). We also extract the degrees centrality in the networks using software UCINET.

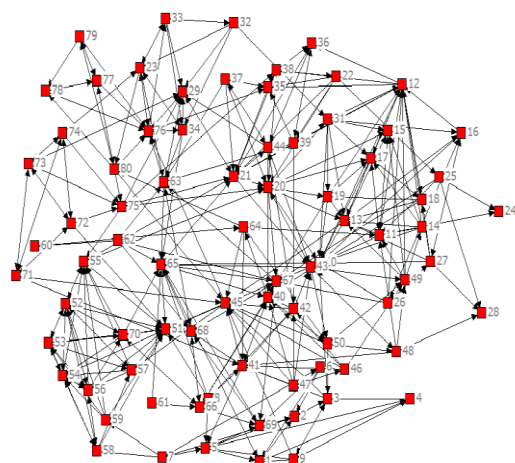


Figure 1a. Network for Help at Work

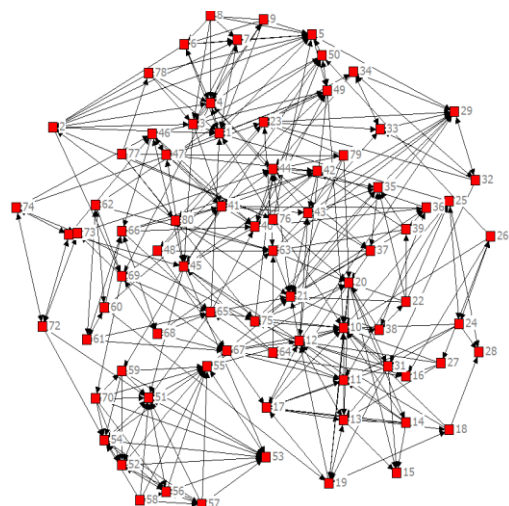


Figure 1b. Network for Work Discussion

Table 1. Employee Attributes

		Count	%
Sex	Male	60	79
	Female	16	21
Age (years)	<30	48	63.2
	30-35	23	30.3
	36-40	3	3.9
	41-45	2	2.6
	>46	0	0
Company Tenure (years)	<5	65	85
	5-10	1	1.5
	11-20	0	0
	>20	0	0
Work Experience (years)	<5	4	56.6
	5-10	26	3.2
	11-20	7	9.2
	>20	0	0
Education	Lower than	2	2.6

	Professional School		
	Professional School	6	7.9
	College	46	60.5
	MBA/MPM	22	29
Total		76	100

The tests for the reliability and validity of the degrees centrality and individual employee attribute measurement items are given in Tables 2 and 3. Table 2 shows that the reliability for the three measurement models are all greater than 0.6. For the validity, the Bartlett test of sphericity and the KMO test show that the measurement items are suitable for factor analysis with the KMO values greater than the threshold of 0.5 [13] and significant at the 0.000 level. The results indicate that the three constructs have good structural validity.

Table 2. The Reliability and Validity Tests

Knowledge Sharing	Item ¹	Construct		Reliability
		Factor1	Factor2	$\alpha=0.787$
	KS4	.820		0.79
	KS5	.819	-	
	KS7	.792	-	
	KS2	-	.868	0.658
	KS1	-	.741	
	KS3	-	.614	
	Eigenvalues after rotation	2.111	1.856	KMO=0.742
	Cumulative %	35.183	6.121	
Contextual Performance	Item ¹	Factor1	Factor2	Reliability
	CP15	.816	—	0.781
	CP14	.755	—	
	CP13	.753	—	
	CP12	.598		0.61
	CP3	—	.82	
	CP 1	—	.725	
	Eigenvalues after rotation	2.37	1.613	KMO=0.845
	Cumulative %	38.78	65.6%	
IT Capability	Item ¹	Factor1		Total
	IT3	.887	-	0.719
	IT2	.781	-	
	IT4	.29		
		Eigenvalues after rotation	1.98	
	Cumulative %	64.26%	-	

¹ the detailed description of each item can be found in Part 1 of the questionnaire in the Appendix.

Measuring the relationships among the employees in the R&D department is relatively more complex. The previous studies demonstrate that the level of degrees

centrality of the social networks can reflect one's prestige in the network and strength of the ties to colleagues. Based on the questionnaire, we constructed eight employee social networks in the R&D departments. They are B1: Entertainment, B2: Talk, B3: Complaints, B4: Help at Work, B5: Advice, B6: Work Discuss, B7: Chat and B8: Email Communication. We can further divide the networks into work-related (B4, B5, B6, B8) and emotion-related (B1, B2, B3, B7). In addition, we also measure the frequency of communication among the employees. The results are in Table 3.

Table 3. Reliability and Validity Test for the Strength of Individual Relationships

Degree Centrality of the Social Networks ¹	Advisory Network	Emotional Network	Frequency of Communication	$\alpha=0.864$
B6	.924			0.922
B5	.914			
B4	.877			
B8	.766			
B1		.886		KMO=0.916***
B2		.878		
B3		.869		
Frequency of Interaction ²				
FI2			.880	0.820
FI1			.849	
FI3			.788	
Eigenvalues after rotation	3.239	2.647	2.292	KMO=0.822***
Cumulative %	32.3921	58.862	81.786	

*** Significant at the 1% level, suitable for factor analysis.

¹ the detailed description of each item can be found in Part 3b of the Questionnaire in the Appendix.

² the detailed description of each item can be found in Part 3a of the Questionnaire in the Appendix.

Correlation Analysis

The correlations between the non-network related variables are shown in Table 4, with gender, tenure and education being the control variables.

Table 4. Correlation Matrix

	Knowledge Sharing (KS)	Contextual Performance (CP)	IT Capability (ITC)	Strength of Relationships (SR)	Gender (G)	Tenure (T)	Education (EDU)
KS	1	-	-	-	-	-	-
CP	.392***	1	-	-	-	-	-
ITC	.207*	-.184	1	-	-	-	-
SR	.451***	.344**	.023	1	-	-	-
G	.024	-.208*	.115	.002	1	-	-
T	.196**	.081	-.075	-.102	-.018	1	-
Edu	.181	-.058	.069	.202*	.384***	-.344***	1

Two tail test. ***sig at the 0.01 level,**the 0.05 level,*the 0.1 level

Table 4 shows that the correlations of knowledge sharing with contextual performance and strength of relationships are positive and significant at the 1% level, indicating that better relationships with the others and more excellent contextual performance are associated with the stronger his knowledge sharing behavior. In addition, knowledge sharing is weakly correlated with IT capability and job tenure.

MODELS

Using knowledge sharing as the dependent variable, we present our model as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 Z_1 + \beta_5 Z_2 + \beta_6 D + \dots (1)$$

where x_1 is the strength of relationships (SR), x_2 is the contextual performance (CP), x_3 is the IT capability (ITP), Z_1 is tenure, Z_2 is education, and D is gender (1=male and 0=female). SPSS produces the following estimation results.

Table 5. Regression Results

Variable	Coefficient	VIF
Intercept	-1.293**	
SR	.457***	1.264
CP	.294***	1.334
ITC	.246**	1.114
Tenure	.308***	1.163
Education	.402**	1.265
Gender	-.006	1.141
Adj. R ²	0.424	
F-statistic	8.235***	

***sig at the 0.01 level, **the 0.05 level, *the 0.1 level

Table 5 indicates that the model is significant at the 1% level with the F-statistic being 8.235. The adjusted R square is 0.424 indicating a relatively strong goodness of fit. The variance inflation factor (VIF) for each of the independent variables is well below the threshold of 5.00, suggesting no evidence of multicollinearity. In addition, knowledge sharing is positively correlated with strength of individual relationships and contextual performance (both significant at the 1% level). For every unit increase in the relationship strength, there is a 0.457 unit increase in knowledge sharing. Similarly, for every unit increase in the contextual performance, there is a 0.294 unit increase in knowledge sharing. Individual IT capability is also positive and significant at the 5% level. A one-unit increase IT capability is associated with a 0.246 unit increase in knowledge sharing. With regard to the control variables, the results show that knowledge sharing is significantly related to tenure and education level, but not to gender. For every one year or one level increase in job tenure and education, knowledge sharing will be increased by 0.308 and 0.402 units, respectively.

Hence, our hypotheses H₁, H₂, and H₃ are fully supported.

DISCUSSION

The results from our study demonstrate that the strength of the individual relationships, contextual performance, and IT capabilities are the important knowledge sharing enablers. The strength of relationships results from the frequency of interpersonal interactions as well as the strong ties in the social networks. Our exercise

opens at least two new avenues for future research on knowledge sharing. First, the roles of the individual relationships and contextual performance in promoting and enabling knowledge sharing are established by this case study. Future framework for exploring the knowledge sharing may want to include these two dimensions or their extensions. Second, we propose an integrated measurement for the strength of individual relationships comprising the frequency of interpersonal interaction and the number of links incident upon an individual in the social networks. This novel way may provide some helpful insights for future efforts in the area.

Our findings offer several managerial implications. First, management should encourage active interpersonal interactions among employees in the workplace. This can strengthen knowledge sharing. Second, attentions should be given to the key personnel with the most ties in the various social networks because they can help the spread of new knowledge. Management should also focus on guiding employees to construct highly effective social networks. Third, employees who are willing to volunteer for additional work and help and cooperate with co-workers are important links in knowledge sharing. Proper incentive and reward systems should be set up to encourage employee to go beyond the regular job requirements and assist co-workers even when it is personally inconvenient. Fourth, enhancing employee IT capabilities play a positive role in promoting knowledge sharing. Fifth, the effects of the individual characteristics of the employee (seniority and education) are also positive enablers. This shows that the company should encourage employees with more seniority, who have higher level of project experience and the accumulation of knowledge, and with higher level of education to actively engage in sharing knowledge with the other employees. Forming teams with rational combinations of new and old employees, and those with different levels of education can promote interactions among the employees. Moreover, encouraging employees to be involved in different projects can help the rapid spread of organizational knowledge and provide efficient mechanisms for knowledge sharing. Finally, management should examine the synergies between the knowledge-sharing enablers and find the most efficient and effective way to promote the sharing of organizational knowledge.

CONCLUSION

Based on the data collected through the questionnaires, we construct the social networks in the R&D department of a Chinese elevator manufacturer and measure the strength of individual relationships, contextual performance, IT capability, and knowledge sharing behaviors. We analyze the correlations of knowledge sharing behaviors with the employee relationship characteristics as well as the individual attributes. Our results reveal that the strength of employee relationships and knowledge sharing are positively correlated. In other words, the employees with strong relationship ties in the social networks and more frequent interactions with the others have strong knowledge sharing behaviors. In addition, employee contextual performance and IT capability also positively correlated with knowledge sharing behavior.

This study has both theoretical and practical significance for examining and promoting knowledge sharing. However, the literature shows that many factors affect knowledge sharing behavior. Different corporate cultures may result in differences in the structures of social networks. This may lead to different mechanisms for the correlation between the strength of relationships and knowledge sharing behavior. To enrich and expand the research on knowledge sharing behavior, other variables, such as corporate culture, industry type, and firm location, may be needed to include in the model. In addition, more data should be collected to allow both longitudinal and cross-sectional analyses. In the future, we will conduct our research at multiple firms hoping to make our conclusions more general and practical.

REFERENCES

- [1] Bock, G.M. and Kim, Y.G. (2002). Breaking the Myths of Rewards: An Exploratory Study of Attitudes about Knowledge Sharing. *Information Resources Management Journal*. 15(02):14-21.
- [2] Bock, G.W. Zmud, R.W, and Kim, Y.G. (2005). Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate, *MIS Quarterly*, 29(10), 87-111.
- [3] Chang, H-T., Liou, S-N. (2002) Exploring Employee's Knowledge Sharing: The Social Network Approach. *Human Resource Management Research*, 2(3), 101-113.
- [4] Comming J N. (2004). Work group structure diversity and knowledge sharing in a global organization. *management science*, 50(3):352-364.
- [5] Connelly C, Kelloway E. (2004). Predictors of employees' perceptions of knowledge sharing cultures. *Leadership and Organization Development Journal*, 24(5 /6): 294-301
- [6] Cross, Rob and J. N. Cummings. (2004). Tie and Network Correlates of Individual Performance in Knowledge Intensive Work. *Academy of Management Journal*. 47(6) : 928-937
- [7] Davenport T. H and Prusak L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- [8] French, J.R.P, Jr, and Raven, B. (1968). The bases of social power. In D. Cartwright, *Studies in Social Power*, 120:150-167
- [9] Granovetter M S. (1973). The Strength of Weak Ties. *American Journal of Sociology*. 78(6) : 1360-1380.
- [10] Hansen, M.T, Nohria, N. and Tierney, T. (1999). What's Your Strategy for Managing Knowledge? *Harvard Business Review* 77(2): 106-116.
- [11] Hansen, M.T. (1999). The search transfer Problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*. 44(1):82-112
- [12] Hendriks, P. (1999). Why share knowledge? The influence of ICT on the motivation for knowledge sharing. *Knowledge Process Management*, 6(2):91-100
- [13] Humphrey, W.S. (1988). Characterizing the software process: a maturity framework, *IEEE Software* 56(2): 73-79.
- [14] Huysman, M and Wulf, V. (2006). IT to support knowledge sharing in communities, towards a social capital analysis, *Journal of Information Technology*, 21, 40-51
- [15] Kalman, M. E., Monge, P., Fulk, J. and Heino. R. (2002). Motivations to resolve communication

- dilemmas in database-mediated collaboration. *Communication Research* 29(2) 125–155
- [16] Kang, S.C., Morris, S.S. and Snell, S.A.(2003). Extending the Human Resource Architecture: Relational Archetypes and Value Creation, CAHRS' Working Paper Series: 3-13.
- [17] Ke, J., Sun, J., Shi, J., and Gu, Q. (2007). The Empirical Research on the Relation between Social Capital and Team Performance in the R&D Department: The Mediating Role of Knowledge Sharing and Knowledge Integration. *Management World*, 3: 89-102
- [18] Levin, D. Z. & Cross, R. (2004). The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer. *Management Science*, 50(11), 1477-1490.
- [19] Lilleoere, A. M, and Hansen, E. H. (2011). Knowledge-sharing enablers and barriers in pharmaceutical research and development, *Journal of Knowledge Management*, 15(1), 53 - 70
- [20] Makela K, Kalla H K, Piekkari R. (2007). Interpersonal similarity as a driver of knowledge sharing with in multinational corporations. *International Business Review*. 16(1): 1-22
- [21] Motowidlo S J, Van Scotter J R. (1994). Evidence that task performance should be distinguished from contextual performance. *Journal of Applied Psychology*, 79(4): 475-480
- [22] Phang, M. S. and Foong, S. Y. (2006). Enhancing knowledge sharing with information and communication technology. in *Proceedings of 3rd International Business Research Conference 2006*, World Business Institute, Melbourne, Vic.
- [23] Peng, J. Zhang, G. Chen, R. and Tan, Y. (2011). Impacts of Essential Elements of Management on IT Application Maturity-A Perspective from Firms in China, *Decision Support Systems*, 51(1):88-98.
- [24] Quigley, N.R., Tesluk, P. E., Locke, E. A. Bartol, K.M. (2007). A Multilevel Investigation of the Motivational Mechanisms Underlying Knowledge Sharing and Performance. *ORGANIZATION SCIENCE*, 18(1), 71-88
- [25] Senge, P. (1997). Sharing knowledge, *Executive Excellence*, 14(11):17-18
- [26] Stevenson, M. A. (1997). The Antecedents and consequences of interpersonal trust in mixed-motive dyadic negotiation, Doctoral Dissertation. The Ohio State University
- [27] Van Scotter, J. R., and Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of Applied Psychology*, 81(5): 525-531
- [28] Wang Duanxu, Guo Weixiao, Liu Xiaoli. (2009). Study on the Impact of Group Internal Social Network on Group Creativity. *Management Science*, (9): 25-28
- [29] Wasko, M.M. and Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 29(1), 35-57

Appendix: Questionnaire

Part 1 Personal Information

1. Name : _____ Department : _____
 Position: _____
 2. Total years of working: _____ Length with the company: _____
 Gender: Male Female
 3. Age: Below 30 Between 30 and 35 Between 36 and 40 Between 41 and 45 Above 46
 4. Education Level: Below college college Bachelor Master MBA/MPM

Part 2 IT capability, contextual performance, knowledge sharing and individual relationships

IT1. Your familiarity of using the information system provided by your company:

- Very unfamiliar Not familiar Generally familiar familiar proficient

IT2. Your familiarity in using office software:

- Very unfamiliar Not familiar Generally familiar familiar proficient

IT3. Your familiarity of using the operation system:

- Very unfamiliar Not familiar Generally familiar familiar proficient

IT4. Your understanding of computer hardware:

- Very unfamiliar Not familiar Generally familiar familiar proficient

IT5. Which of following tool do you usually use to communication at work?(Please select all that apply)

- A、Company email B、MSN C、QQ D、Short Message E、Telephone/Mobile phone F、Others _____

IT6. How many hours, on average, do you spend on the Internet at work?

- A、1-2 hours B、3-4 hours C、5-6 hours D、above 7 hours E、don't use Internet

<p>Please circle the degree that you agree with the following sentences.</p> <p>1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree</p>					
	1	2	3	4	5
Contextual Performance					
CP1. I give compliments to my colleagues when they succeed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP2. I will give support and inspiration to my colleagues when they encounter personal troubles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP3. If something I do would affect my	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

colleagues, I will inform them beforehand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP4. I only talk about something that benefit my colleagues and group.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP5. I will encourage others to overcome interpersonal obstacle to get along with each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP6. I treat others equally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP7. I am proactive to help others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP8. I will spend my break time working in order to guarantee the completion of my task on time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP9. I care about the important details at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP10. I work extra hard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP11. I pursue challenging job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP12. I am self-disciplined at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP13. I am proactive to solve problems at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP14. I am insisted on overcoming difficulties to complete tasks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CP15. I am active and enthusiastic to complete the difficult tasks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge Sharing					
KS1. I usually provide others with the internal materials of my organization, including documents, manuals, technical reports, methods, modes, patents and so on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KS2. I usually provide others with the regulations and the standard operational rules of working made by the company, such as employees' code of conduct, operating principles and strategy of my enterprise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KS3. I usually provide others with knowledge acquired from the Mass media (such as website, news, magazines, broadcasting, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KS4. I usually provide others with the locations of the knowledge they need. For example, when someone inquires about certain knowledge, although I have no idea of it, I know the place he/she can find it, such as, the document that he/she needs is located in the file cabinet of one specific department, or the program needed is stored in some databases, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KS5. I usually provide others with the person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

who has the knowledge they need. For example, when someone inquires me about some certain knowledge, although I have no idea of it, I know who he/she can inquire about it, such as, who is the expert in CRM(customer relationship management), or who is strong in multimedia network technology, etc.					
KS6. I usually provide others with specific working experience and professional knowledge that I have gained from the previous tasks in this company or other places I worked.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
KS7. I usually provide others with specific knowledge and skills I have gained from the training courses held by the company and other advanced seminars, such as, knowledge management, CRM symposium, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3. Strength of relationships

Part 3a. Frequency of Interactions (Wang, 2009)

Instructions: Please use the following scale to indicate the degree of agreement with the items below:

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

	1	2	3	4	5
FI1. I keep constant contacts with my colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FI2. I have frequent communications with my colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FI3. I have good relationships with my colleagues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FI4. I often go out with my colleagues after work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FI5. The colleagues in my department have a strong solidarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3b. Social Networks

Instructions: The following questions are intended to collect data by using the employees' names who keep frequent contacts with the others in different contexts.

	Fill in at least 5 names according to the questions.
--	---

With whom do you usually discuss the working issues?	
From whom do you usually ask for advices before you making important decisions at work?	
With whom do you usually go out after work?	
To whom you turn for help when having non-work related hardships?	
With whom do you usually chat?	
To whom would you complain when you meet setbacks at work or are blamed by your supervisors?	
To whom would you turn for help when facing work related problems?	
With whom do you usually communicate via Email?	

Instructions: Please fill in, not more than 5, the employee IDs for each of the following questions.

		Employee IDs (not more than 5)
Emotional network	B1: with whom you usually do entertainment activities after work	
	B2: to whom you turn for help when having non-work related hardships	
	B3: to whom you complain when facing setbacks at work or blamed by supervisors	
Advisory Network	B4: to whom you turn for help when facing work related problems	
	B5: with whom you consult before making important decisions at work	
	B6: with whom you often discuss work related issues	
Information Network	B7: with whom you usually chat	
	B8: with whom you usually email communicate and exchange	