

Employee Knowledge Sharing Capabilities in Public & Private Organizations: Does Organizational Context Matter?

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Abstract

Sharing knowledge and information is an important factor in discourses on e-governance, national security and human capital management in public administration. This article analyzes the influences of organizational culture, structure, and IT on employee knowledge sharing capabilities in five public and five private sector organizations in South Korea. According to the data, social networks, performance-based reward systems, and employee usage of IT applications are significant variables affecting employee knowledge sharing activities in the public and private organizations that were the focus of this study. Furthermore, the data show that while IT application usage is the most important factor determining employee knowledge sharing capabilities in the five government ministries, an end-user IT focus is the most important factor influencing knowledge sharing abilities in the five private-sector corporations. The results also indicate that the surveyed private sector employees have stronger perceptions of knowledge sharing abilities in their organizations compared to the surveyed public sector employees. Lessons and implications of this study for management leadership are presented.

Introduction

There is an increasing emphasis on the importance of knowledge sharing (KS) for organizational performance and effectiveness in both the private and public sectors. Beckman [10] has specifically argued that KS is one of the most important factors affecting organizational agility and performance. Argote, Beckman and Epple [6] and Baum and Ingram [9] are among several research teams observing that organizations with more effective knowledge transfer channels are more productive.

As knowledge is a central resource of government service, effective knowledge sharing among employees is a significant public management challenge for providing excellent government services to constituencies at all levels.¹

Creating KS requires the dissemination of individual employees' work-related experiences and collaboration between and among individuals and subsystems with an organization; collaboration with other

agencies and stakeholders is also required for improved KS [22], [29]. KS also entails storage and retrieval mechanisms for quick and easy access to information that is used for adjusting strategic direction, problem solving, and improving organizational efficiency[2].

In this article we analyze the influences of organizational culture, structure, and information technology (IT) on employee knowledge sharing (KS) capabilities in five public and five private sector organizations in South Korea (see Figure 1). We define the KS capability as the ability of employees to share experience, expertise, values, contextual information, and insight for the purpose of creating frameworks for evaluating and incorporating new experiences and information. In 2000 the South Korean government has established a special task committee on developing knowledge management (KM) system in the public sector and initiated KM strategies. In addition, a bill of e-government development passed by the national legislature in 2001 promotes knowledge management system development in government agencies[37]. Seven national and twenty-six local government agencies in South Korea are establishing a Government Knowledge Management System to facilitate employee KS [37]. Since 1997 major South Korean corporations have also developed knowledge management information systems to make employees quickly respond to complex and evolving domestic and international market environments. Some of KM practices effectively implemented in the corporations have been selected as benchmarks for developing the Government Knowledge Management System in the South Korean government.

Sharing knowledge and information is also an important factor in discourses on electronic government (e-government), national security, and human capital management in public administration. The Internet, the World Wide Web, and other ongoing advancements in information technology (IT) are supporting the efforts of public sector agencies to create, integrate, and transfer information and knowledge among agency networks[18], [50]. The 9/11 terrorist attacks have spotlighted the need to share intelligence within the American security community and between it and its international equivalents. The U.S. Departments of Homeland Security, State, and Justice are increasing their budgets for the purchase of knowledge management (KM) products and services for gathering, analyzing, and distributing data among federal agencies[48].

In terms of human capital management, Nonaka[41] has noted that knowledge is created and managed by individuals within organizations. Ageing civil servants and staff turnover across countries have created new challenges for the preservation of institutional memory and the training of new staff [44]. Remez[47] emphasized this idea when discussing KS in the public sector, especially in pointing out that over half of all federal workers in the United States will be eligible for retirement within the present decade, and that their knowledge and expertise must be replaced.

Currently, Public sector organizations are using state-of-the-art IT to create collaborative, knowledge-dedicated workgroups and communities for specific projects[17]. For example, the U.S. General Services Administration (GSA), the U.S. Army Corps of Engineers (US Army), the U.S. Departments of the Navy(US Navy) and Transportation are currently implementing KS systems at all levels of their respective organizations by adopting various technologies, including Internet, web-based Intranet and portals, databases, and teleconferencing [7]. The South Korean government has also established Government Knowledge Management Center, Government Knowledge Management Systems, knowledge mapping, and incentive systems to facilitate employee KS abilities[37].

Public and private organizations alike are finding it necessary to assess their internal knowledge sharing (KS) capabilities for organizational success. Despite the growing literature on KS, little attention has been paid on employee KS activities in organizations and little empirical research has been conducted on how organizational context affects employee KS activities in public and private sector organizations. While advanced IT applications and network systems facilitate employees' KS activities, employees are the main driver of sharing knowledge and information in organizations [8], [41]. Therefore, an important challenge for public and private sector organizations is how organizations can create the organizational context that enhances employees' knowledge sharing skills and activities in the organization.

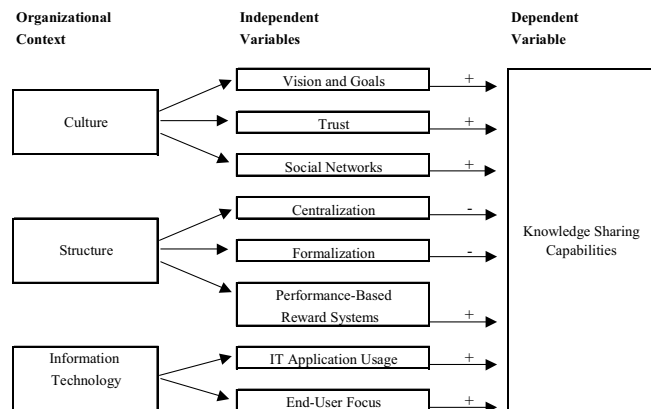
In the next section we review the current literature on variables associated with knowledge sharing for both private and public sector employees, and use the information to establish a conceptual research model. After presenting results from a multiple regression analysis and a t-test of the collected data, we discuss the major findings and their implications for knowledge sharing in organizations. In the final section we offer several suggestions for improving employees' knowledge sharing capabilities in the public sector.

Literature review

The literature contains numerous definitions of the term *knowledge*. Grant[26] has called knowledge "the most strategically-important resource that organizations possess," while others have referred to knowledge as a principal source of value creation [49], [53]. Davenport and Prusak

[20] define it as a fluid mix of framed experiences, values, contextual information, and expert insight that provide a framework for evaluating and incorporating new experiences and information. They noted that in many organizations, knowledge is often embedded in routines, processes, practices, and norms in addition to such obvious sources as documents.

Figure 1. Research Model



Knowledge can be categorized into explicit and implicit (tacit) categories[45]. It is much easier to use formal language to transmit explicit knowledge than tacit knowledge, since tacit knowledge is often viewed as being specific to an individual. Nonaka and Takeuchi[40] have noted that explicit knowledge is available in the form of files, library collections, or databases, whereas some types of implicit knowledge (which also serve as an organization's knowledge capital) are either difficult or impossible to access—for instance, the accumulated experiences, creativity, and skills that reside within individuals. Argote and Ingram[4] noted that a significant component of organizational (especially tacit) knowledge is embedded in individual members, and that knowledge can be embedded in various social networks.

Sharing knowledge (explicit or tacit) requires effort on the part of the individual doing the sharing. Bartol and Srivastava[8] have identified four mechanisms for the sharing of individual knowledge within organizations: a) contributing knowledge to organizational databases; b) sharing knowledge in formal interactions within or across teams or work units; c) sharing knowledge in informal interactions; and d) sharing knowledge within practice communities (i.e., voluntary forums created around a particular topic of interest). According to Kim and Nelson [31], KS occurs as a dynamic learning process involving organizational interactions with customers and suppliers that result in innovation or creative imitation. Because of advancements in information and computer technology, this process often entails increasingly differentiated knowledge that is shared between units and with outside partners and clients [13].

A study conducted by Bouthillier and Shearer [11] indicated that there are slight differences in KS practices between public sector and private sector organizations. They found that objectives of KS initiatives are more often smaller in scope and more precise in the private sector while public sector initiatives are more organization-wide. The study also found that private sector organizations use KM to facilitate the internal knowledge sharing process, while public sector organizations seek to share knowledge, acquired either internally or externally, with their external partners or with the general public[11]. This evinces the fact that public sector organizations' services to the public are interdependent among government agencies and networks. In order to improve government service quality to the public, government agencies need to collaborate to share best practices internally within an agency and across agencies with similar functions[38], [44]. Next section, we discuss organizational culture, structure, and information technology that affect employees' knowledge sharing activities.

Organizational Context and Knowledge Sharing Capabilities

Organizational Culture

Three components of organizational culture receiving consistent attention related to effective KS include clear organizational vision and goals[35], [30], trust [55], [43], [30] and social networks [34], [43]. According to Kanter, Stein & Jock[30], organizational vision leads to the generation of a clear organizational purpose that assists in goal achievement. Others have suggested that clear organizational vision and goals engender a sense of involvement and contribution among employees [22], [43].

Von Krogh[55] has argued that trust and openness in organizational culture promotes active KS behavior among employees, and that trustworthy behavior enhances communication speed by empowering members of an organization to freely share personal knowledge and concerns. Nonaka[42] observes that loyal and trusting relationships eliminate deception, cheating, and the tendency among employees to blame others for organizational failures. According to Cohen and Prusak [14], high levels of employee trust can lead to better knowledge sharing, shared goals, and lower transaction costs.

Social networks indicate communications, dialogue, and individual or group interactions that support and encourage knowledge-related employee activities[34], [36]. Both formal and informal relationships and contacts are considered important for sharing varying perspectives and knowledge within organizations[43]. Constant, Sproull, & Kiesler[15] and Faraj & Wasko[23] have discussed the emerging role of practice communities (voluntary employee forums built around specific topics of interest) as knowledge sharing networks. The following hypotheses address the

impact of organizational vision and goals, trust, and social networks on employee KS activities (see Figure 1):

Hypothesis 1: Clear understanding of organizational vision and goals exerts a positive effect on employee's activities of knowledge sharing in the organization.

Hypothesis 2: Increased trust among employees exerts a positive effect on employee's activities of knowledge sharing in the organization.

Hypothesis 3: Employees with higher levels of social networks are more likely to engage knowledge sharing activities.

Organizational Structure

The three variables used in the present study to consider the organizational structure dimension of KS were centralization, formalization, and performance-based reward systems (Figure 1). Despite limited research on the impact of organizational structure on KS, several scholars have emphasized the importance of the organizational structure for effective KS. For example, Creed and Miles[19] noted that the hierarchical structure that marks many government organizations limits KS activities and communication between employees or between employees and supervisors. O'Dell and Grayson[43] have suggested that organizational structures should be designed to promote flexibility as a means of encouraging sharing and collaboration within and across organizational boundaries and supply chains.

This study examines how organizational centralization, the degree of control that top managers enjoy[28], [46], affects employees' KS activities in the organization. It further explores the impact of formalization, defined as the degree to which organizational activities are manifested in written documents regarding procedures, job descriptions, regulations, and policy manuals[28], [46], on employee KS activities.

Performance-based rewards served as another variable. According to Leonard[35], organizational reward systems determine knowledge flow and access. Several researchers[5], [43] have noted the utility of incentive systems for motivating employees to generate new knowledge, to share existing knowledge, and to help employees in other divisions or departments. Szulanski [51] identifies the lack of motivation as an important impediment to transferring best practices within an organization, and identified common reasons for such reluctance as fear of losing the position or status tied to owning certain knowledge, lack of reward for sharing knowledge, and lack of time or resources to effect knowledge transfers.

Neely[39] has argued that the main functions of performance-based reward systems are to a) increase the involvement of and communication among all organizational units in a targeted setting; and b) to collect, process, and deliver information on the performance of organizational units, activities, processes, products, and services. Kogut and Zander[33] address the association between KS and human resource management practices and found that KS increases when employees understand that it

helps them to do their jobs more effectively, to retain their jobs, to develop personally and professionally, to earn performance rewards, and to earn personal recognition.

To further explore the impact of organizational structure on knowledge sharing capabilities, the following hypotheses are established and tested in this study:

Hypothesis 4: The degree of centralization is negatively associated with employee's activities of knowledge sharing.

Hypothesis 5: The degree of formalization is negatively associated with employee's activities of knowledge sharing.

Hypothesis 6: The level of performance-based reward system is positively associated with employee's activities of knowledge sharing.

Information Technology

Researchers who have emphasized the importance of information technology infrastructure and application for linking organizational information and knowledge integration include Alavi and Leidner[1], Grant[26], Leonard[35], and Teece[52]. Alavi and Leidner[1] note that IT increases knowledge transfer by extending an individual's reach beyond formal communication lines. For example, computer networks, electronic bulletin boards, and discussion groups facilitate contact between those seeking knowledge and those who control access to knowledge. According to Leonard, knowledge-mapping technologies allow organizations to track sources of internal and external knowledge that help individuals locate specific types of information. Wiig[56] extends this list to include Internet-based network systems, groupware systems, intranets, databases (DB), electronic data management systems (EDMS), and knowledge management information systems (KMIS). The study sample consists of ten organizations that have established at least several of these KM technologies. This study examined how employees' usage of IT application affects their KS activities in the organization.

Another important component of information technology related to KS is the level of end-user focus of information system development. Regardless of the technology, IT system and software developers must create user-friendly products that promote their acceptance and use [12], [32]. King[32] also indicates that designing and delivering a knowledge management system that precisely addresses user needs is one of the most important factors affecting the benefit of the system. For this reason, this study also explores the impact of end-user friendly information systems on employees' KS capabilities (see Figure 1).

Based on these findings, the seventh and eighth hypotheses are established as:

Hypothesis 7: The level of employee's utilization of IT application has a positive effect on employee's activities of knowledge sharing.

Hypothesis 8: The degree of end-user focus of IT application has a positive effect on employee's activities of knowledge sharing.

Methods

Sample Selection and Survey Administration

The five government agencies and five private sector corporations in the sample were selected because of their well-established knowledge management systems and information technology infrastructures. According to a 2001 UN survey of international e-government activity, South Korea ranked 15th among 98 nations that are actively expanding their e-government capacities[54]. This trend reflects the increase in the percentage of South Korean citizens gaining Internet access between 1998 and 2001—from 6.8 to 51.5[24]. Since 1987 the South Korean government has created an information technology infrastructure that includes 3 national, 16 metropolitan and provincial, and 232 city, county, and district government networks. As a result of this IT infrastructure development, the national legislature passed a bill in 2001 promoting the establishment of e-government services.

The five public sector organizations whose employees were asked to complete surveys for this study were the South Korean Ministries of Government Affairs and Administration, Information and Telecommunication, Justice, Science and Technology, and Culture and Tourism. The five corporations were Samsung Data Systems; Lucky Goldstar; Daewoo Information Systems; Hyundai Information Technology; and IBM Korea.

All of the survey respondents indicated that their respective organizations used Internet-based services, Intranets, electronic data management systems (EDMS) and knowledge management systems (KMS). To better understand the KMS and KS policies of these organizations, phone interviews were conducted with KM administrators before the surveys were distributed. All of the organizations have designated Chief Knowledge Officer positions. With the exception of one private firm, all of the organizations use incentives and rewards to encourage KM practices.

The authors sent letters to each organization explaining the purpose of the study and requesting assistance in distributing the survey. Survey samples were constructed from information provided by our contacts at each organization, who helped us select 40 employees representing a diverse range of positions and age groups. As this study was focused on employee KS within the organization, the samples were selected from 2 or 3 divisions for each organization.

A total of 400 surveys were hand-delivered to the 10 organizations in August, 2003 by one of the authors. For the public sector organizations, 165 completed questionnaires were returned; 3 of those were discarded because they were incomplete. Among the private sector organizations, 163 completed questionnaires were returned; 3 were discarded as being incomplete. The final number of usable questionnaires was 322 (80% response rate).

Survey Measures and Items

The self-administered questionnaire was designed to elicit demographic data and information on employee perceptions of organizational culture, organizational structure, information technology, and knowledge sharing capabilities. The items used in this survey were adapted from previous studies. Multiple-item measures were used for all of the variables in the interest of improving reliability and validity. Responses were recorded along a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Cronbach alpha reliability estimates for all variables ranged from .75 (“formalization”) to .93 (“vision and objectives”) (Table 1). According to a factor analysis, the items designed to measure organizational variables and knowledge sharing capabilities loaded on nine separate factors. The factor loadings support the use of these items as indicators of the constructs they were designed to measure. The three demographic information questions focused on years of employment, current position, and education.

Vision and goals were assessed with a five-item scale adapted from research by Gold, Malhotra, and Segars[25]. The five items used to assess vision and goals were a) “My organization has an organizational vision”; b) “Top management leaders present a clear organizational vision and communicate it to employees”; c) “Overall, organizational vision and goals are clearly stated in this agency”; d) “I understand my organization’s vision and goals”; and e) “I can explain my organization’s vision and goals to others.” The Cronbach alpha reliability of the five items was measured as .93.

Four items taken from research by Cook and Wall[16] were included to measure trust and three items were developed to measure social networks. The trust items were: a) “I have full confidence in the skills of my co-workers”; b) “I trust the expertise of my co-workers”; c) “If face difficulties at work, I know my co-workers will try to help me out”; and d) “My co-workers do not try to deceive me for their own profit.” The social network items were: a) “I communicate with other employees through informal meetings within the organization”; b) “I interact and communicate with other people or groups outside the organization”; and c) “I actively participate in communities of practice.” Cronbach alpha reliability estimates for the trust and social network items were .81 and .85, respectively.

Centralization was assessed with a five-item centralization scale described by Hage and Aiken[27]. The items measured the respondents’ perceptions of the degree to which power and authority were concentrated in the higher levels of their organizations. Formalization was assessed by a five-item scale adapted from research by Hage and Aiken[27]. Cronbach alpha reliability estimates for the centralization and formalization items were .85 and .75, respectively. Employee perceptions of performance-based reward systems were assessed with six items. The

Cronbach alpha reliability estimate for this section of the survey was .83.

Employee utilization of IT applications was measured in terms of a) Internet, e-mail, and electronic bulletin boards; b) Intranets; c) databases (DB) and electronic data management systems (EDMS); and d) knowledge management systems (KMS). Responses were measured along a seven-point frequency of usage scale, with 1 = “almost never use” and 7 = “almost always use.” Cronbach’s alpha for these items was .86.

Perceived ease of IT system use was measured with two items: a) “In this agency, information systems and software are designed to be user-friendly”; and b) “It is easy for me to use information systems without extra training.” The Cronbach’s alpha for the end-user focus items was .82.

Three items were developed to measure employee knowledge sharing: a) “I voluntarily share my know-how, information, and knowledge with other employees”; b) “I can freely access documents, information, and knowledge held by other divisions within the organization”; and c) “I cooperate or communicate with other employees in teams or groups for sharing information and knowledge.” The Cronbach alpha reliability estimate for these items was .89. Three personal characteristics were used as control variables: years of working at the agency or corporation, current position, and level of education.

Findings

Respondent Demographics and Mean Scores

Only 44 (13.7%) were female. Respondent ages ranged from early twenties to over fifty, with 36.4 percent over the age of forty. The distribution for work years was as follows: less than 5 years, 29.5 percent; 5-10 years, 34.2 percent; 11-15 years, 19.6 percent; 16-20 years, 9.3 percent; 21 years or more, 7.4 percent. All of the respondents had bachelor degrees; 19.3 percent held graduate or professional degrees. Position levels were low (grades 8 or 9 in public organizations), 29.8 percent; middle (grades 6 or 7 in public organizations), 48.4 percent; and high (grades 4 or 5 in public organizations), 21.7 percent.

Descriptive statistics, correlation coefficients, and reliability figures for the study variables are presented in Table 1. The majority of zero-order correlations were statistically significant at $p < 0.01$. All of the measures were relatively distinct, with the highest correlation measured at .60. Higher mean scores were noted for visions and goals (4.74), trust (5.13), IT application usage (5.40) and end-user focus (4.87); lower scores were noted for social networks (4.44), formality (4.30), centralization (3.73), performance-based reward systems (3.77), and knowledge sharing activities (4.24).

Table 1. Descriptive Statistics, Reliabilities, & Correlations

	Mean (s.d.)	1	2	3	4	5	6	7	8	9	10
1. Vision/goals	4.74 (1.16)	1.0	(.93)								
2. Trust	5.13 (0.96)	.56**	1.0	(.81)							
3. Social networks	4.44 (1.17)	.54**	.48**	1.0	(.85)						
4. Centralization	3.73 (1.16)	-.38**	-.33**	-.33**	1.0	(.85)					
5. Formalization	4.30 (0.95)	-.01	-.08	-.02	.39**	1.0	(.75)				
6. Performance-based reward systems	3.77 (1.05)	.60**	.41**	.60**	-.28**	-.02	1.0	(.83)			
7. IT application usage	5.40 (1.46)	.29*	.29**	.36**	-.15	-.01	.30**	1.0	(.86)		
8. End-user focus	4.87 (1.17)	.52**	.48**	.55**	-.28**	.03	.49**	.50**	1.0	(.82)	
9. Knowledge sharing	4.24 (1.28)	.47**	.37**	.57**	-.34**	-.07	.58**	.48**	.56**	1.0	(.89)

N=322; * $p < .05$, ** $p < .001$

Sector Differences

The data reflect significant differences in mean scores for each variable between the public and private sector organizations in our sample (Appendix I). The private sector corporations had higher mean scores than the public sector agencies for vision and goals, and performance-based reward systems. The public sector organizations had higher mean scores for centralization and formalization. These findings are consistent with previous research on the distinction between public and private[46]. Interestingly, the present study found that the public sector organizations had lower mean scores than the private sector corporations for employee trust, social networks, IT application utilization, and end-user focus. Regarding KS, the private sector corporations had higher mean scores than the public sector agencies for all three KS activities, including KS among employees, divisions within agency, and groups and teams. Mean differences between the two sectors were statistically significant for all variables (see Appendix I).

Multivariate Analysis

Results from an ordinary least square (OLS) multiple regression analysis for the ten organizations appear in Table 2; statistical significance was achieved at $p < .001$. Among the organizational culture variables, social network was positively associated with KS activities—that is, employees with strong perceptions of available social networks reported higher levels of KS capabilities than employees who did not. Hypothesis 3 is therefore supported.

Table 2. Results of Regression Analysis for KS Capabilities

Organizational Dimension	Variable	Regression Coefficient (β)	Standard error	T
Culture	Vision and goals	.02	.06	.44
	Trust	-.04	.06	-.91
	Social networks	.20***	.06	3.70
Structure	Centralization	-.08	.05	-1.79
	Formalization	-.03	.05	-.81
Information Technology	Performance-based reward system	.28***	.06	5.23
	IT application usage	.22***	.04	4.86
Demographics	End-user focus	.19**	.06	3.45
	Years of work	.07	.04	1.51
	Position	.03	.04	.78
	Education	.00	.08	-.16
R^2		.531		
Adjusted R^2		.515		
F		31.968***		

N= 322; * $p < .05$; ** $p < .01$; *** $p < .001$

Statistical support was also found for hypothesis 6. Employees with strong perceptions of performance-based reward systems were more likely to express high levels of KS capabilities ($p < .001$). Furthermore, the regression analysis results show that employees who reported a high level of IT application utilization were more likely to express their KS capabilities at a statistically significant level ($p < .001$). Finally, the data show that employees who perceived ease of use of information systems were more likely to express knowledge sharing capabilities ($p < .01$). These serve as support for Hypothesis 7 and 8. On the other hand, no statistically significant associations were noted between either organizational vision or trust and employee KS capabilities (Hypothesis 1 and 2). Finally, No statistical support was found for centralization and formalization (Hypotheses 4 and 5), or any of the control variables (Table 2).

Results from separate OLS analyses for each sector are presented in Table 3. Both equations achieved statistical significance at $p < .001$. The results for the public sector agencies indicate that social networks ($p < .01$), performance-based reward systems ($p < .01$), and IT application utilization ($p < .001$) were all positively associated with high levels of KS capabilities. IT application utilization had the strongest association with employee KS activities in the public sector. However, end-user focus was not significantly associated with employee KS capabilities in public organizations, as it was for the private sector corporations (Table 3). The results also indicate a positive correlation between years of work and KS capabilities in the public sector organizations ($p < .05$). This evinces that the employees with many years of work in the organization might have diverse social

networks as well as work-related experiences within the organization. Accordingly, these social networks and experiences might positively influence their KS activities in the organizations.

Results from our regression analysis for the private sector organizations indicate that social networks ($p<.05$), performance-based reward systems ($p<.01$), IT application utilization ($p<.05$), and end-user focus ($p<.001$) were positively associated with high levels of KS capabilities. Compared to the regression analysis for the public sector, end-user focus had the strongest association with employee KS capabilities in the private sector (Table 3). In addition, compared to the public sector employees, years of work were negatively correlated with KS capabilities in the private sector organizations ($p<.05$).

Based on this study's findings, future researchers may want to examine variances in KS capabilities in public organizations in terms of social networks and performance-based reward systems. In public organizations that have already established KMS and updated their IT infrastructures, researchers will have opportunities to use social networks and performance-based reward systems as independent variables for explaining employee KS capability variances within and among agencies. A typology construction could be applied in order to analyze the current state of KS capabilities across a larger sample of public organizations.

Table 3. Results of Regression Analyses Comparing Public & Private Sector Organizations

Organizational Dimension	Variable	Public Sector	Private Sector
		Regression Coefficient (β)	Regression Coefficient (β)
Culture	Vision and goals	-.02	.09
	Trust	-.08	-.04
	Social networks	.23**	.17*
Structure	Centralization	-.07	-.11
	Formalization	-.08	-.00
	Performance-based reward system	.25**	.24**
Information Technology	IT application usage	.27***	.14*
	End-user focus	.12	.29***
Demographic data	Years of work	.17*	-.16*
	Position	-.04	.23
	Education	.01	-.00
	<i>R</i> ²	.471	.592
	<i>Adjusted R</i> ²	.374	.562
	<i>F</i>	9.745***	19.558***

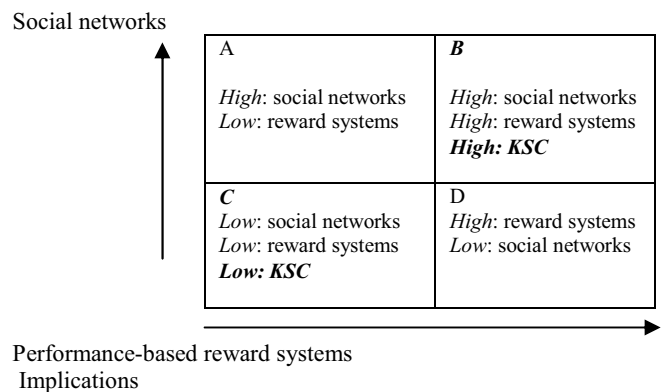
Public organizations, n=162; private organizations, n=160;

* $p<.05$; ** $p<.01$; *** $p<.001$

A summary of the intersection of the social network and performance-based reward system variables

and how they affect KS capabilities is presented in Table 4. According to this typology, all of the organizations represented in the four cells are assumed to have upgraded their IT infrastructures and established IT applications. The organizations in cell B have a high number of active employee social networks and strong performance-based reward systems; those in cell C have neither. The organizations in cells A and D are strong in one area and weak in the other. According to our findings, cell B organizations will have the highest degree of KS capabilities and cell C organizations the lowest—even if they have established IT infrastructures and IT applications. Confirming or refuting these relationships requires further empirical evidence.

Table 4. Knowledge Sharing Capabilities in Public Organizations—Social Networks and Reward Systems



Implications

According to the data, social networks, performance-based reward systems, and employee usage of IT applications are significant variables affecting KS capabilities in the 10 public and private sector organizations that were the focus of this study. Furthermore, the data show that while IT application usage was the most important factor determining employee KS capabilities in the five South Korean government ministries, an end-user IT focus was the most important factor influencing KS abilities in the five private-sector corporations. Furthermore, the results indicate that the surveyed private sector employees had stronger perceptions of KS abilities in their organizations compared to the surveyed public sector employees.

The findings hint at several strategies that organizational leaders in government agencies might consider for enhancing their employees' KS skills. Examples include the use of employee assessments regarding internal and external social networks. These assessments should focus on communications, contacts, and interactions between employees in the same division and between work divisions and agencies. The initial purpose of these assessments should be to introduce employees to the idea that their departments/organizations are interested in

improving their formal and informal networks, communication flow between and among teams, and better access to inter-division information and knowledge. Furthermore, managers can create formal or informal mentoring programs that involve employees who are on the verge of retirement. Similar mentoring programs may be used to create communities of practice to facilitate KS among all employees. In addition, executives, managers, and supervisors may want to develop action plans that include incentives and channels for recognizing excellence in KS activities.

The study results show that investment in IT applications and KS systems is an important factor affecting employee KS capabilities. By making such an investment, executive leaders and managers can enhance employee perceptions of supportive interest in their KS skills. The study results also imply that public sector organizations can benefit from an idea that the private sector organizations that participated in this study have already accepted—an end-user IT focus can improve employee KS capabilities. The level of user-friendliness in IT tools can benefit from employee participation in the design process as well as by well-designed training programs.

All of these suggestions for improving the knowledge sharing capabilities of employees in the public sector require organization leaders to commit to promoting informal and formal networks and knowledge-oriented management practices. Especially considering the emergent emphasis on e-government and human capital management, agency leaders, IT managers, and human resource managers must collaboratively respond to fundamental environmental changes in order to encourage employees' commitment to KS activities and organizational performance.

Despite considerable research interest in KS in both the private and public sectors, there is clear sense that there are many unresolved issues, challenges, and opportunities in this area with important implications for both research and practice in public administration. For example, how specific knowledge is used in a specific agency? How organizations make the connection between shared knowledge and the organizational structure to put the knowledge into action? Is there any particular way to manage knowledge use in the agency, or method for assessing if all KS activities led to appropriate use of knowledge? Does agency provide training regarding employees' appropriate use of knowledge in particular organizational processes? Some of the perspectives that are of future research interests include: 1) KS as a lens for the creation of organizational capabilities and performance; 2) managerial leadership for creating KS cultures; 3) legal and structural barriers to KS in the public sector; 4) best practices of KS in e-government services; 5) comparing KS activities among the public, private, and non-profit sectors; 6) knowledge use and its impact on policy decision-making processes; and 7) human resource management practices for encouraging employee KS activities.

Conclusion

In conclusion, the results suggest that organizational culture, structure, and information technology all exert significant influences on the KS capabilities of the employees of five South Korean government ministries. In addition, public employees scored lower than their private-sector counterparts on KS skills. The findings imply a need for greater effort and commitment on the part of public sector leaders and managers to building KS capabilities via the establishment of stronger informal and formal networks, reward systems for KS activities, improved IT infrastructures, and increased end-user support.

The associations among organizational culture and structure, IT, and South Korean public employees' KS capabilities that were the focus of this study can serve as the starting points for research projects involving public sector employees in other countries. An assessment of the validity of our findings would be especially valuable. Future researchers may also want to focus on a) KS capabilities across organizations; b) organizational factors affecting the acquisition, storage, and application of knowledge within organizations; c) the impact of KS capacity on organizational effectiveness; or d) comparisons of private and public sector KM processes, including acquisition, storage, and application.

At least several study limitations should be noted. First, the measures used here were perceptual rather than objective; a more complete analysis would require additional data from employee interviews and longitudinal data on KS dynamics and patterns within certain types of organizations. Second, the survey response rate was high but the sample size was relatively small. Finally, the present study did not analyze specific organizational processes for putting shared knowledge into action in the organizations surveyed.

Appendix I: Comparison of Knowledge Sharing Activities and Organizational Context between the Public and Private Sector Organizations in the Sample

Variable	Sector (N)	Mean (s.d.)	T
<i>Organizational Culture</i>	Public (162) Private 160 Total (322)	4.50 (1.20) 4.99 (1.07) 4.74 (1.16)	3.81***
Vision			
Trust	Public (162) Private 160 Total (322)	4.95 (1.00) 5.33 (.89) 5.14 (.97)	3.56***
Social networks	Public (162) Private(160) Total (322)	3.93 (1.21) 4.96 (1.07) 4.44 (1.17)	8.70***

<i>Organizational Structure</i>			
Centralization	Public (162)	3.94 (1.21)	3.16**
	Private 160	3.53 (1.07)	
	Total (322)	3.73 (1.16)	
Formalization	Public (162)	4.51 (.95)	4.19***
	Private 160	4.08 (.91)	
	Total (322)	4.30 (.95)	
Reward systems	Public (162)	3.30 (.87)	8.86***
	Private 160	4.24 (1.01)	
	Total (322)	3.77 (1.05)	
<i>Information Infrastructure</i>			
IT application usage	Public (162)	4.98 (1.49)	5.39***
	Private 160	5.82 (1.31)	
	Total (322)	5.40(1.46)	
End-user focus	Public (162)	4.53 (1.11)	5.58***
	Private 160	5.23 (1.13)	
	Total (322)	4.87 (1.17)	
<i>Knowledge Sharing</i>			
Among employees	Public (162)	3.87 (1.26)	5.56***
	Private (160)	4.68 (1.36)	
	Total (322)	4.27 (1.37)	
Among divisions within agency	Public (162)	3.83 (1.42)	5.35***
	Private (160)	4.68 (1.43)	
	Total (322)	4.25 (1.49)	
Among groups and teams	Public (162)	3.77 (1.32)	5.64***
	Private (160)	4.61 (1.32)	
	Total (322)	4.19 (1.38)	

N=322; * $p < .05$, ** $p < .001$

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¹ Many industrialized countries have been responded to the emergent demand of KM in the public sector. A survey research of 132 central government agencies from 20 countries conducted by the OECD (2003) found that a good majority of central government organizations across the OECD member countries have devised KM strategies and ranked KM as one of the top five future internal management priorities. Almost 80% of organizations of the survey (106 agencies) say that the total budget allocated to KM practices has been increased in the last five years. According to the survey, France, Sweden, Finland, Iceland, and Canada have higher scores of KM practices than the OECD average KM score. Countries whose scores are significantly lower than the OECD average include Portugal, Belgium and Poland. Countries whose scores are close to the average OECD member countries are South Korea, England, Norway, the United States, Denmark, Germany, Hungary, Ireland, Greece, and Slovak Republic.