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The Role of Organizational Culture, Leadership, and Infrastructure in Knowledge Creation

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ABSTRACT

Knowledge management systems provide opportunities for organizations to obtain and manipulate their knowledge in order to impact their strategic initiatives. As these systems become more prevalent within organizational structures, the benefits of KM systems can be enhanced by reviewing the impact of organizational culture, organizational leadership, and organizational infrastructure components on the KM system and its processes. In this paper, the focus is on the current research regarding these components, their connection to the process of knowledge creation, and areas for future research agendas. Although there has been extensive research in knowledge processes, there is potential for researchers to continue contributing to future studies of the connection between organizational influences and the process of knowledge creation.

Keywords

Knowledge management, knowledge creation, knowledge management processes, culture, organization leadership, infrastructure

INTRODUCTION

Managing an organization's knowledge management processes is impacted by all organizational entities. Choi, Lee, and Yoo (2010) indicated organizations depend on the ability to effectively manage the KM processes of creating, capturing, retrieving, and applying knowledge. Knowledge serves as an organizational resource toward the achievement of the organization's success and competitive advantage (Chan and Chao, 2008). Further, knowledge management centers around the flow of knowledge across the organization and the knowledge processes of creation, sharing, and dissemination (Alavi and Leidner, 2001).

As found in the literature, promoting, encouraging, and supporting knowledge management processes can be based on three categories: (1) the organizational culture (Alavi, Kayworth and Leidner, 2005; Gold, Malhotra and Segars, 2001; Janz and Prasarnphanich, 2003; Kappos and Rivard, 2008); (2) the organizational leadership (Alavi and Leidner, 2001; Gold et al., 2001; Nonaka, 1994; Reich and Benbasat, 2000) ; and (3) the information infrastructure supporting the systems and processes (Chan and Chao, 2008; Chen, Liang and Lin, 2010b; Gold et al., 2001). While knowledge processes include multiple components, the specific emphasis of this review is centered on the initial stage of knowledge creation. With organizations seeking to enhance their knowledge processes related to knowledge management, the argument here is to review the impact these areas have on the knowledge creation processes. Given the perspective of Nonaka (1991; 1994) which indicated knowledge is continuously created through organizational interactions, it seems appropriate to provide a review of the organizational components which impact knowledge creation. Gold et al (2001) and Nahapiet and Ghoshal (1998) argued the process of knowledge creation can be further enhanced by identifying and building upon the connections between the three components. Further, Massey, Montoya-Weiss, and O'Driscoll (2002) and Nelson and Coopridge (1996) indicated organizational success is dependent on human relationships developed within the culture, established leadership, and the technologies supporting the organization.

The following paper focuses on these components and provides a perspective of how these areas impact the organizational strategies of knowledge creation. By developing a foundational perspective of these three areas, the organization can stimulate their own knowledge management strategies. As these strategies are explored, the organization can also evaluate the knowledge management processes which influence these three components.

METHODOLOGY AND ANALYSIS

The review included an analysis of the related literature within the scope of journals and books dealing with information systems and knowledge management. The approach to the literature search included the use of Web of Science, Business Source Premier and ABI-INFORM Complete databases. To gain a wider perspective, the general terms of "knowledge creation," "knowledge management," and "knowledge processes" were utilized. The articles were analyzed first through their given abstracts. Drawing from the abstracts, the full text was retrieved and reviewed to select a subset of articles which

focused on knowledge creation processes explicitly or related factors. Of the 70 articles reviewed, common themes such as organizational culture, leadership, and infrastructure emerged as areas for consideration. Key articles providing relevant information to the review were obtained through journals such as *MIS Quarterly*, *Journal of Management Information Systems*, and the *Journal of Computer Information Systems*. Overall, articles were selected across 15 different journals.

Nonaka (1991; 1994) and Alavi and Leidner (2001) provided a perspective of two forms of knowledge maintained by individuals and organizations. First, knowledge can be a tacit form which includes the individual's cognitive aspects. Second, knowledge can be expressed in an explicit form, which is a form of knowledge codified or communicated in a written form. It is the knowledge management system which serves a tool and resource for the creation, sharing, and applying these forms of knowledge across the organization (Yahya and Goh, 2002). In addition, Davenport and Prusak (1998) indicated KM processes have three main goals including enhancing the role of knowledge in organizations, developing a more knowledge-centered culture, and creating an infrastructure supportive of the knowledge connections within the organization.

The knowledge of the organization is dependent on its context and is found within the organization's employees, groups, and overall routines and processes (Roth, 2003). Regarding knowledge creation, Nonaka (1994) discussed four different methods for consideration including socialization (interactions among individuals), externalization (conversion of tacit knowledge into explicit knowledge), internalization (conversion of explicit knowledge into tacit knowledge), and combination (creating new explicit knowledge based on explicit knowledge already obtained).

According to the framework of Nahapiet and Ghoshal (1998), organizations provide opportunities for knowledge creation based on their developed environment. Further, the organization's ability and effectiveness in knowledge creation is based on several factors including concepts related to culture, leadership, and infrastructure (Nahapiet and Ghoshal, 1998; Wasko and Faraj, 2005). Given the nature of these several factors, the primary focus of this review is to provide an analysis of how these three areas are connected to knowledge creation.

KNOWLEDGE CREATION AND ORGANIZATIONAL INFLUENCES

Within the organization, the need to efficiently manage the knowledge management systems is required to promote knowledge creation. To help leverage the benefits of knowledge management systems, three distinct areas of the organization can be reviewed: culture, leadership, and infrastructure. By effectively managing and supporting these areas, knowledge creation processes can be enhanced. Topics related to the three areas are presented in Table 1.

Organizational Influence	Topics	Authors
Culture	Knowledge sharing and application	Nishimoto and Matsuda (2007); Pee, Kankanhalli, and Kim (2010)
	Trusting relationships between groups; team-oriented environments	Nelson and Coopriider (1996)
Leadership	Articulating organizational vision and learning	Palanisamy (2007); Janz and Prasarnphanich (2003)
	Prioritizing individual competencies; leveraging existing knowledge; task assignments	Antonova, Csepregi, and Marchev (2011); Gold et al (2001); Chen et al (2010a)
	Alignment of knowledge management with business strategies	Yahya and Goh (2002)
	Implementing cultural changes and behavior	Palanisamy (2007)
Infrastructure	Establish organizational norms and mechanisms; knowledge storage	Bhatt and Grover (2005); Palanisamy (2007)
	Knowledge mapping and application technologies	Dalmaris et al (2007); Vail III (1999)
	Distribution of knowledge	Chen et al (2010a); Chen, Liang, and Lin (2010b)

Table 1. Knowledge creation topics

Organizational Culture

According to Alavi, Kayworth, and Leidner (2005), communicating the overall organizational values to those involved are an important aspect to help enhance knowledge creation processes. Communicating these values can be accomplished through a variety of methods such as communities of practice, collaboration opportunities, formal or informal social gatherings (Becerra-Fernandez, Gonzalez and Sabherwal, 2004). Culture within the organization is seen as an important aspect toward implementing successful knowledge creation strategies (Palanisamy, 2007).

As methods for the exchange or sharing of knowledge is presented, the methods themselves will not promote a knowledge-friendly culture. Fischbach, Gloor, and Schoder (2009) discussed how knowledge exchanges between employees becomes more productive when organizational leadership allows for more opportunities for these exchanges to occur. The organization's leaders need to demonstrate and clarify the value of these exchanges by effectively communicating their support of knowledge sharing (Gold et al., 2001).

Issues for future research agendas include the need to review how management can effectively communicate and support the exchanging of knowledge toward the facilitation of knowledge creation. With the further development of technologies which support virtual meetings or other collaborative efforts, studies related to how these additional methods impact an organization's culture would be beneficial.

Organizational Leadership

According to Fischbach et al (2009), knowledge creation can be more efficient through enhanced and improved organizational structures including organizational leadership. In essence, the organizational leadership needs to support and promote a knowledge-friendly environment. The organizational leadership needs to also be aware of their existing knowledge and seek the methods in which to leverage this knowledge toward the creation of new knowledge (Gold et al., 2001). Such activities can include assigning individuals to specific skills and tasks based on their current knowledge (Chen et al., 2010a).

Within the organizational leadership, a key to effective decision-making processes is the ability to give users an effective means of acquiring knowledge (Chen et al., 2010a). To achieve these goals, Kappos and Rivard (2008) stated the need for organizations to make adjustments to current KM practices. These changes are also dependent on the organization's cultural and acceptance perceptions among the users. Conducting process analysis to better understand and develop strategic alignments within the organizational environment is essential to improve workflows and support structures (Massey et al., 2002). Strong and Volkoff (2010) addressed the importance of having an organization's system and artifacts fit into their strategic goals in order to have these components be applicable to the organization as a whole. Through the support of organizational leadership, knowledge sharing can be more efficient and help provide opportunities to explore the knowledge process further (Fischbach et al., 2009).

Based on the analysis of the literature, future research agendas could include studies within organizations to determine how to best monitor and facilitate the exchange of knowledge to influence knowledge creation. Although new knowledge can be created from a variety of sources, the organization will need to review which knowledge has a greater impact on strategic and financial values.

Infrastructure

The information infrastructure provides the foundation from which the organization can manipulate and disseminate knowledge across the organization. According to Choi et al (2010), organizations utilize information technology infrastructures to support communications aspects such as discussion boards, groupware, and other collaborative initiatives. In addition, organizations rely on data repositories to store data and information. Due to this requirement, adequate infrastructures are needed to support the flow and representation of data and information across the organization (Neaga and Harding, 2005). Further, the organization's infrastructure can also include the technology and processes supporting data mining and knowledge discovery objectives which depend on the repositories.

Even with an infrastructure in place, potential concerns need to be addressed. As stated by Bhat and Grover (2005), information technology departments and organizational executives need to coordinate their efforts regarding knowledge management systems. Without common goals aligning organizational and information technology strategies, infrastructures needed to support these areas will not be beneficial to their full potential.

Given the review of the literature, one topic for future studies would include an analysis of how the organization can maintain appropriate structures for knowledge creation. These structures include both the physical components (hardware, software, and networks), but also the collaborative efforts between IT departments and other executive departments.

CONCLUSIONS

This paper provided a review of the current literature to evaluate the connection between the three organizational aspects of culture, leadership, and infrastructure and the process of knowledge creation. Although the total number of articles reviewed was limited, the analysis indicated the importance of these three areas on knowledge creation. The goal of this paper was to provide a foundation in which future research could be established; therefore, an expansion on this research could include a more in depth analysis of how these components impact the knowledge creation process with organizations.

The contribution of this review is an analysis of three key areas which impact the process of knowledge creation. By providing a foundational perspective on these areas, organizations can envision how their own culture, enterprise, and infrastructures impact their current knowledge creation processes. First, by understanding the organizational culture, knowledge creation can be enhanced by effectively exchanging tacit and explicit knowledge. Second, the organizational leadership can be reviewed in order to promote the alignment of organizational strategies with the organizational culture and infrastructure requirements. Finally, the infrastructure of the organization also needs to be supported in a manner which allows for the knowledge to be created and utilized effectively.

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REFERENCES

1. Alavi, M., Kayworth, T., and Leidner, D. (2005) An empirical examination of the influence of organizational culture on knowledge management practices, *Journal of Management Information Systems*, 22, 3, 191-224.
2. Alavi, M., and Leidner, D. (2001) Knowledge management and knowledge management systems: Conceptual foundations and research issues, *MIS Quarterly*, 25, 1, 107-136.
3. Antonova, A., Csepregi, A., and Marchev, A. (2011) How to extend the ICT used at organizations for transferring and sharing knowledge, *IUP Journal of Knowledge Management*, 9, 1, 37-56.
4. Becerra-Fernandez, I., Gonzalez, A., and Sabherwal, R. (2004) Knowledge management: Challenges, solutions, and technologies, Pearson Education, Inc., Upper Saddle River, New Jersey.
5. Bhatt, G., and Grover, V. (2005) Types of information technology capabilities and their role in competitive advantage: An empirical study, *Journal of Management Information Systems*, 22, 2, 253-277.
6. Chan, I., and Chao, C.-K. (2008) Knowledge management in small and medium-sized enterprises, *Communications of the ACM*, 51, 4, 83-88.
7. Chen, A., Hwang, Y., and Raghu, T. (2010a) Knowledge life cycle, knowledge inventory, and knowledge acquisition strategies, *Decision Sciences*, 41, 1, 21-47.
8. Chen, D.-N., Liang, T.-P., and Lin, B. (2010b) An ecological model for organizational knowledge management, *Journal of Computer Information Systems*, 50, 3, 11-22.
9. Choi, S., Lee, H., and Yoo, Y. (2010) The impact of information technology and transactive memory systems on knowledge sharing, application, and team performance: A field study, *MIS Quarterly*, 34, 4, 355-870.
10. Dalmaris, P., Tsui, E., Hall, B., and Smith, B. (2007) A framework for the improvement of knowledge-intensive business processes, *Business Process Management Journal*, 13, 2, 279-305.
11. Davenport, T. H., and Prusak, L. (1998) Working Knowledge, Harvard Business School Press, Boston.
12. Fischbach, K., Gloor, P., and Schoder, D. (2009) Analysis of informal communication networks - A case study, *Business & Information Systems Engineering*, 1, 2, 140-149.
13. Gold, A., Malhotra, A., and Segars, A. (2001) Knowledge management: An organizational capabilities perspective, *Journal of Management Information Systems*, 18, 1, 185-214.
14. Janz, B., and Prasarnphanich, P. (2003) Understanding the antecedents of effective knowledge management: The importance of a knowledge-centered culture, *Decision Sciences*, 34, 2, 351-384.
15. Kappos, A., and Rivard, S. (2008) A three-perspective model of culture, information systems, and their development and use, *MIS Quarterly*, 32, 3, 601-634.

16. Massey, A., Montoya-Weiss, M., and O'Driscoll, T. (2002) Performance-centered design of knowledge-intensive processes, *Journal of Management Information Systems*, 18, 4, 37-58.
17. Nahapiet, J., and Ghoshal, S. (1998) Social capital, intellectual capital, and the organizational advantage, *Academy of Management Review*, 23, 2, 242-266.
18. Neaga, E., and Harding, J. (2005) An enterprise modeling and integration framework based on knowledge discovery and data mining, *International Journal of Production Research*, 43, 6, 1089-1108.
19. Nelson, K., and Coopriider, J. (1996) The contribution of shared knowledge to IS group performance, *MIS Quarterly*, 20, 4, 409-432.
20. Nishimoto, K., and Matsuda, K. (2007) Informal communication support media for encouraging knowledge-sharing and creaton in a community, *International Journal of Information Technology & Decision Making*, 6, 3, 411-426.
21. Nonaka, I. (1991) The knowledge-creating company, *Harvard Business Review*, 96-104.
22. Nonaka, I. (1994) A dynamic theory of organizational knowledge creation, *Organization Science*, 5, 1, 14-37.
23. Palanisamy, R. (2007) Organizational culture and knowledge management in ERP implementation: An empirical study, *Journal of Computer Information Systems*, 48, 2, 100-120.
24. Pee, L., Kankanhalli, A., and Kim, H.-W. (2010) Knowledge sharing in information systems development: A social interdependence perspective, *Journal of the Association of Information Systems*, 11, 10, 550-575.
25. Reich, B., and Benbasat, I. (2000) Factors that influence the social dimension of alignment between business and information technology objectives, *MIS Quarterly*, 24, 1, 81-113.
26. Roth, J. (2003) Enabling knowledge creation: Learning from an R&D organization, *Journal of Knowledge Management*, 7, 1, 32-48.
27. Strong, D., and Volkoff, O. (2010) Understanding organization-enterprise system fit: A path to theorizing the information technology artifact, *MIS Quarterly*, 34, 4, 731-756.
28. Vail III, E. (1999) Knowledge mapping: Getting started with knowledge management, *Information Systems Management*, 16, 4, 16-23.
29. Wasko, 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.
30. Yahya, S., and Goh, W.-K. (2002) Managing human resources toward achieving knowledge management, *Journal of Knowledge Management*, 6, 5, 457-468.