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## 90. Knowledge Management Systems Diffusion in Chinese Enterprises: A Multi-Stage Approach with the Technology-Organization-Environment Framework

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### Abstract

*Many enterprises encounter difficulties during the process of KMS diffusion and thus fail to gain benefits from KMS adoption. This study aims to explain why some enterprises succeed while others fail in KMS diffusion. Based on technology diffusion theory and technology-organization-environment (TOE) framework, we propose an integrated model to examine the influence of factors from the technological, organizational, and environmental aspects on the three-stage KMS diffusion process, i.e., initiation- adoption/adaptation-acceptance /routinization /infusion. In particular, we incorporate social-cultural factors into our model to examine its effect on KMS diffusion, which has not been paid enough attention by prior KMS studies. For the specific research context, we choose China and examine how social-cultural factors influence KMS diffusion process in Chinese enterprises. This study benefits academics by providing a process perspective of KMS diffusion and also provides practical guidance for Chinese enterprises which are engaging in KMS implementation.*

**Keywords:** KMS Diffusion, TOE Framework, Social Culture, Chinese Enterprises

### Introduction

Organizational knowledge has been recognized as the primary driver of an enterprise's growth and its competitive advantage (Bock et al. 2005; Wasko et al. 2005). Hence, enterprises are becoming more interested in practicing knowledge management (KM) programs to manage their knowledge assets. In particular, these enterprises resort to knowledge management systems (KMS) to support and enhance the processes of knowledge creation, storage/retrieval, transfer, and application (Alavi et al. 2001). However, many of them fail to successfully initiate KMS adoption or fail to achieve employees' comprehensive usage beyond the initial adoption (KPMG 2000). To address this issue, this study investigates potential factors that can affect KMS diffusion within an enterprise. In particular, we believe that like other kinds of technology diffusion (Nilakanta et al. 1990; Rogers 1995), KMS diffusion is also a stage-based process (Xu et al. 2005a). However, overall KMS diffusion process has not been paid enough attention, since that most of prior studies on KMS have focused on one or two particular stages of the diffusion process, such as KMS adoption decision stage (e.g. Hasan 2001; Porcess-Edge 1997) and KMS usage stage (e.g., Bock et al. 2005; Huber 2001; Kankanhalli et al. 2005). Moreover, since organizational behaviors are closely influenced by social cultures (David et al. 2001), social-cultural factors may also affect KMS diffusion throughout the entire process. However, these factors have seldom been studied in prior studies (Chow et al. 2000; Ford et al. 2003). These deficiencies in the extant literature motivate us to develop an integrative model to investigate the entire KMS diffusion process with additional consideration on the social-cultural effect.

## **Theoretical Background**

This study draws upon three streams of research: technology diffusion process, technology-organization-environment (TOE) framework, and Chinese Confucian culture.

### ***Technology Diffusion Process***

Innovation diffusion is recognized as a stage-based process of spreading a new technology among potential adopters (Nilakanta et al. 1990; Rogers 1995; Talaysum 1985). From this technological diffusion perspective, Cooper and Zmud (1990) suggested a six-stage model of diffusion process, which consists of (1) initiation, a process of organizational problems/opportunities scanning and information collection and evaluation, (2) adoption, a process of negotiations to get organizational support and resource commitment for IT implementation, (3) adaptation, a process of IT application development and installation; both the organizational procedures and IT are modified to achieve a better fit.(4) acceptance, a process of encouraging employees to commit to using the IT application, (5) routinization, a process of routinized usage of the IT application, and (6) infusion, a process of integrating the IT application into the organization's work processes to fully utilize its potentials. According to Cooper and Zmud (1990) , this six-stage diffusion model corresponds to Lewin's (1952) three-stage change model, which includes unfreezing, change, and refreezing stages. Specifically, the initiation stage corresponds to unfreezing stage in Lewin's (1952) model, which refers to the comparison between the proposed system and the current one. The adoption and adaptation stages correspond to change stage, which encompasses development, adjustment, and modification of both the system and organizational procedures/policies. The acceptance, routinization, and infusion stages are associated with refreezing stage, which includes activities conducted to reinforce end users' usage (Cooper et al. 1990; Palvia et al. 1995).

We integrated Cooper and Zmud's (1990) model and Lewin's (1952) model to develop a KMS diffusion model. For parsimony, our model integrated and simplified the process into three stages: initiation, adoption/adaptation, and acceptance/routinization/infusion. Firstly, KMS initiation stage incorporates the activities of information gathering, synthesizing, and KMS evaluation. Secondly, KMS adoption/adaptation stage includes decision making on KMS adoption, allocation of the necessary resources for KMS, KMS development, adjustment of organizational procedures, and employee training. Thirdly, KMS acceptance/routinization/infusion stage involves operating KMS and inducing employees to use the system as a part of their work process.

### ***Technology–Organization–Environment (TOE) Framework***

To define the factors that may affect the multiple stages of KMS diffusion, we rely on the TOE framework suggested by Tornatzky and Fleischer (1990). TOE framework suggests investigating the effects of technology itself, organizational characteristics, and the external environment on adoption and implementation of technological innovation. This framework has been widely adopted by IS researchers and found useful in understanding the adoption behavior and diffusion process of technology innovation (e.g. Charalambos et al. 1995; Chau et al. 1997; Cooper et al. 1990; Kuan et al. 2001; Premkumar et al. 1995; Thong 1999; Zhu et al. 2003). Within the KMS literature, several studies have also attempted to partially consider the influences from three aspects, i.e., technological, organizational, and environmental aspects (Al-Busaidi et al. 2005; Davernport et al. 1998; Gold et al. 2001). Thus, it deems to be appropriate to apply the TOE framework to study KMS diffusion process.

## China Society and Confucian Culture

Confucianism is a Chinese philosophy which regards appropriate human relationships as the basis of the society (Yun 2001). Although new to IS research, it has been widely studied in the organizational behavior research to explain various phenomenon (e.g. Kim et al. 1998). Confucianism regulates human relationships by the Five Code of Ethics. Specifically, these Five Ethics are affection between father and son; righteousness between rulers and subjects; distinction between husband and wife; order between older and younger brothers; faithfulness between friends (Chen et al. 1994; Liu 2003). When this Five Code of Ethics is applied to organizational and social life, it presents as several ordering relationships, which include *hierarchical relationship* and *social reciprocal relationship* (Chen et al. 1994; Yum 1988). Influenced by these culture value, Chinese enterprises are known for their hierarchical structure (Sheh 2001), and the reciprocal obligation embedded in interpersonal relationships (Chen et al. 1994; Liu 2003).

## Conceptual Development

When we adopt the TOE framework to study KMS diffusion in Chinese enterprises, we need to be cognized to the specificity of China and identify variables to cater to the specific context. Figure 1 shows our research model.

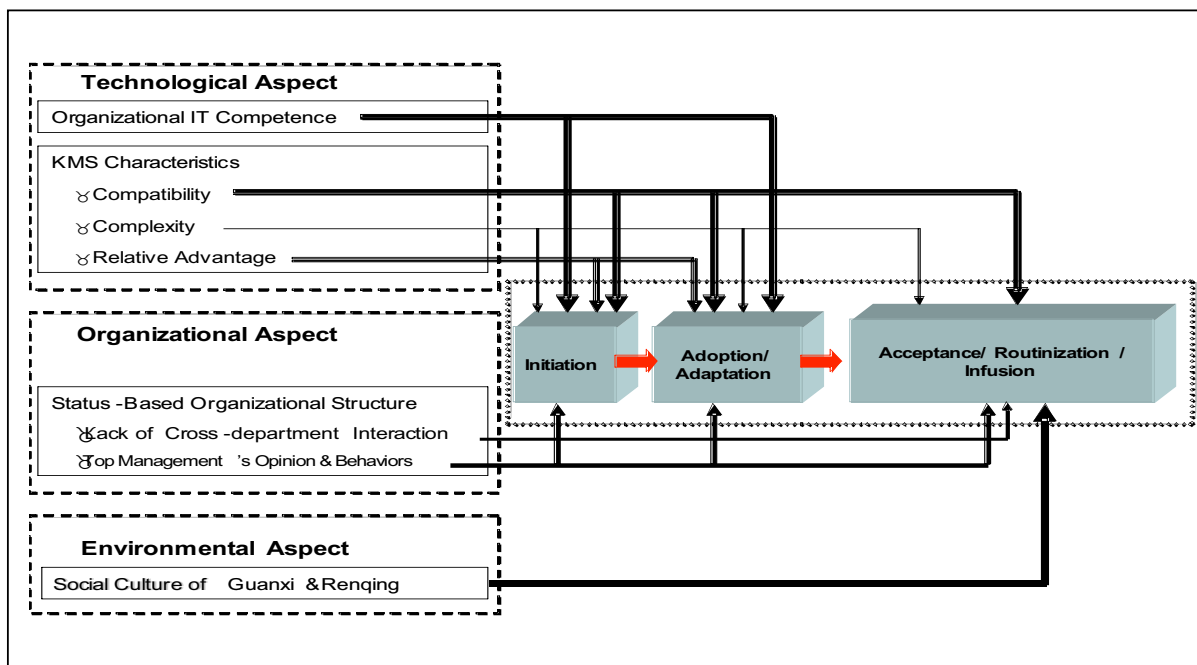


Figure 1: KMS Diffusion Model for Chinese Enterprises

### Technological Aspect (T)

We examine the effect of the technological aspect in terms of organizational IT competence and KMS characteristics.

#### Organizational IT Competence

IT competence is defined as an organization's capacity for IT-based innovation (Sambamurthy et al. 2003). Prior studies have identified several important elements of IT

competence, which include IT infrastructure, human IT resource (both technical and managerial skills), IS/business partnerships, and the level of overall IT investment (Bharadwaj 2000; Feeny et al. 1998; Henderson 1990; Ross et al. 1996; Sambamurthy et al. 2003; Weill et al. 1998). These elements have been proven as critical factors for an organization to launch, deploy, use, and manage technologies and IT-based systems (Bharadwaj 2000; Ross et al. 1996; Wade et al. 2004). Organizations with a flexible IT infrastructure can rapidly adopt new technologies with lower risks and cost (Bharadwaj 2000; Premkumar et al. 1995). Organizations with strong human IT resources may have advantage in terms of integrating IT and business resources more effectively (Bharadwaj 2000; Piccoli et al. 2005). Organizations with strong partnership between IS and business units can smooth IT projects diffusion by greatly reducing resistance from business units (Feeny et al. 1998; Ross et al. 1996). In particular, we believe that IT competence plays an important role in the process of KMS diffusion in Chinese enterprise when considering that technical deficiency and immaturity are two of the biggest barriers for Chinese enterprises to conduct KM activities (China KM & Innovation Summit Forum 2005). However, the influence of IT competence may vary throughout the entire diffusion process. In the first two stages, an organization's IT competence may have a strong effect on how the organization evaluates certain KMS. It may also influence whether and how resources would be made available and allocated for the KMS implementation, procedural adjustment, and employee training. On the other hand, since organizational IT competence may not have relationship with employees' personal motivation to accept and continuously use the KMS, it may not influence the last stage of the process. Thus, we propose that

- *P1: IT competence has positive relationships with KMS initiation and adoption/adaptation but not acceptance/routinization/infusion.*

### *KMS Characteristics*

In the literature, the influence of the perceived characteristics of a specific innovation on its adoption has been widely studied (Rogers 1995). According to Tornatzky et al. (1982), three characteristics of an innovation, *compatibility*, *relative advantage*, and *complexity*, are usually associated with adoption of an innovation. Adopting this perspective, we examine how KMS compatibility, complexity, and relative advantage influence the diffusion processes. Drawing from prior studies (Kuan et al. 2001; Rogers 1995; Thong 1999), we define KMS compatibility as the extent to which KMS is consistent with an enterprise's existing values, needs, and work practices; KMS complexity as the extent to which KMS is difficult to use; and KMS relative advantage as the degree to which KMS can provide benefits to the organization. We believe that these three characteristics are important in China context. Several China-based studies (e.g., Chinamc 2005; Tian 2004) have found that failed adopters only considered what benefits the system could bring but failed to identify whether or not the system was actually compatible with their business practices. As a result, their KMS could not achieve continuous usage. In addition, the complexity of KMS is also a major concern for potential adopters, because it affects how much effort should be paid in the adaptation stage, and eventually influences whether or not employees can incorporate KMS into their daily work. Thus we propose that

- *P2: KMS compatibility has positive relationships with KMS initiation, adoption/adaptation, and acceptance/routinization/infusion.*
- *P3: KMS complexity has negative relationships with KMS initiation, adoption/adaptation, and acceptance/routinization/infusion.*

On the other hand, since KMS relative advantage is the potential benefits which KMS can bring to the organization, its effect may exist mainly on the first two stages which emphasize the organization's behavior and effort. For the last stage, however, if employees find that

KMS is not compatible with their work or is too complicated to use, they may not continue to use the KMS regardless of their organization's benefits. Hence, we propose that

- *P4: KMS relative advantage has positive relationships with KMS initiation and adoption/adaptation but not acceptance/routinization/infusion.*

### ***Organizational Aspect (O): Status-Based Organizational Structure***

Influenced by the Confucian cultural value, Chinese enterprises are characterized as having a strong hierarchical structure, in which there are many hierarchical levels in management and communication (Sheh 2001). Salient features of this hierarchical structure are the decision is always passed to high levels and information is delivered and transferred in a top-down way (Hong et al. 2004; Martin 1988; Tjosvold et al. 2004). Usually, top management makes decisions; then these decisions are handed down to department heads; finally individual employees accept these decisions and behave accordingly (Jiang et al. 2005).

With regards to KMS diffusion, we believe that such hierarchical organizational structure can influence KMS diffusion in two aspects. First, employees in different departments seldom have the chance to interact and communicate with each other. Thus, they may not realize the value of organizational interaction, sharing, and cooperation. Hence, though KMS might have been well implemented, it may not facilitate actual sharing of knowledge. As Long and Fahey (2000) pointed out, new technology adoption can facilitate communication only if organizational practices support higher levels of interactivity among concerned individuals. Thus, we propose that

- *P5: The lack of cross-department interaction shaped by organizational hierarchical structure has a negative relationship with KMS acceptance/routinization/infusion.*

Second, such a hierarchical structure may generate a specific behavioral tendency between top management and employees, in which top management always behaves as an authority and employees need to show obedience and respect for their superiors (Li et al. 2006). Therefore, the opinion and behavior of top management may have a strong effect on the entire diffusion process. Starting from the initiation stage, top management' opinions and behaviors directly dictate how the organization perceives organizational opportunities and problems, and how the organization evaluates KMS. For the second stage of adoption/adaptation, if top management does not show a favorable opinion or behavior, it is impossible for an organization to make an adoption decision, allocate required resources, and make adjustments of procedures. For the last stage of acceptance/routinization/infusion, top management' opinions and behaviors will greatly influence how the organization introduces KMS to end users and whether employees would like to continue using KMS and further incorporating it into their work. Thus, we propose that

- *P6: The opinion and behavior of top management affect KMS initiation, adoption/adaptation, and acceptance/routinization/infusion.*

### ***Environmental Aspect (E): Social Culture of Guanxi and Renqing***

China is a relation-centered society, in which *guanxi* and *renqing* dominate interpersonal relationship (Fan 2002; Farh et al. 1998; Hwang 1987; Ramasamy et al. 2006). *Guanxi* refers to "the establishment of a connection between two independent individuals to enable a bilateral flow of personal or social transactions" (Pun et al. 2000 pp. 331). *Renqing*, which is perceived as a prerequisite of *guanxi* (Yun 2001), can be defined as "a resource that an individual can present to another person as a gift in the course of social exchange" (Hwang 1987, p. 954). The Chinese phrase "sending *renqing*" neatly captures the practice of building and maintaining a *guanxi* in Chinese society. "Sending *renqing*" means that when a person has happy occasions or runs into difficulties, another person should use his/her resources to give a gift or help that person (Hwang 1987). In this mutual relationship, the receiver is

obligated to repay while the provider also expects payback in the future (Farh et al. 1998; Hwang 1987). Guanxi and renqing are recognized as part of the social norm of the Chinese society (Wang 1997; Yun 2001). They are based on the traditional Confucian culture which views interpersonal relationship as reciprocally obligatory and social interaction as a process of give-and-take (Chen et al. 1994; Liu 2003; Yum 1988). Based on the understanding of the guanxi and renqing culture in China, we argue that they would inhibit KMS diffusion in Chinese enterprises. Implementing KMS, to a large extent, aims to reduce the communication barriers and further facilitate organization-wide knowledge transfer and sharing. However, influenced by such cultural values, i.e., guanxi and renqing, employees are more likely to “give” their knowledge to colleagues who are perceived as valuable resources of future help. If they do not share their knowledge publicly, they can retain it as a gift and send it to a particular person. Particularly, the negative effect of “guanxi” and “renqing” culture would be salient in the last stage of KMS diffusion which emphasizes continuous and routinized usage of KMS by individual employees. Thus we propose that

- P7: *The “guanxi” and “renqing” culture have a negative relationship with KMS acceptance/ routinization/infusion.*

### **Potential Contributions and Conclusion**

This study aims to provide an integrative process model to examine how the factors from the technological, organizational, and environmental aspects influence various stages of KMS diffusion. In the current status of research development, we mainly focus on cultural specific factors in this study. However, in our on-going study, the suggested model can be extended by considering additional factors, such as reward scheme (an organizational factor) (Gold et al. 2001) and competition intensity (an environmental factor) (Chau et al. 1997; Thong 1999; Zhu et al. 2003).

This study has several implications. Firstly, by reflecting on the technology and innovation diffusion models, we reconceptualize KMS diffusion process into a three-stage model. This would serve as a foundation for future study in this field. Secondly, we specify the effect of factors from technological, organizational and environmental aspects on each stage of KMS diffusion. This approach will provide a more comprehensive understanding of KMS diffusion process. Thirdly, we incorporate social-cultural dimension into our model. This will enrich our practical understanding of the focal phenomenon by considering the specific context which a KMS diffusion project is involved. Finally, this study can benefit practitioners by providing guidelines and specific areas for management attention in each stage of the KMS diffusion process.

Future research could extend our conceptualization of KMS diffusion by developing testable hypotheses with the theorization and framework provided. We also intend to validate the proposed conceptual framework by collecting data using a multi-case study. Case study is believed to be especially appropriate when the phenomenon under investigation is contemporary and when the study addresses the “how” and “why” questions (Benbasat et al. 1987; Zhang et al. 2005). It is used widely by previous information systems implementation research (e.g. Xu et al. 2005b; Zhang et al. 2005). Since it is an organizational level study, we will select our research sites according to the criterion that the enterprises must have been involved in certain stages of the diffusion of a KMS. Specifically, in each of these enterprises, we will collect our data by interviewing key persons who have a good understanding of KMS implementation in their respective organizations.

### **References**

Al-Busaidi, K.A., and Olfman, L. "An Investigation of the Determinants of Knowledge

- Management Systems Success in Omani Organizations," *Journal of Global Information Technology Management* (8:3) 2005, pp 6-27.
- Alavi, M., and Leidner, D.E. "Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues," *MIS Quarterly* (25:1) 2001, pp 107-136.
- Benbasat, I., Goldstein, D.K., and Mead, M. "The Case Research Strategy in Studies of Information Systems," *MIS Quarterly* (11) 1987, pp 369-386.
- Bharadwaj, A.S. "A Resource-Based Perspective on Information Technology Capacity and Firm Performance: An Empirical Investigation," *MIS Quarterly* (24:1) 2000, pp 169-196.
- Bock, G.-W., Zmud, R.W., Kim, Y.-G., and Lee, J.-N. "Behavior Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate," *MIS Quarterly* (29:1) 2005, pp 87-111.
- Charalambos, L.I., Benbasat, I., and Albert, S.D. "Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology," *MIS Quarterly* (19:4) 1995, pp 465-485.
- Chau, P.Y.K., and Tam, K.Y. "Factors Affecting the Adoption of Open Systems: An Exploratory Study," *MIS Quarterly* (21:1), March 1997, pp 1-24.
- Chen, G.-M., and Chung, J. "The Impact of Confucianism on Organizational Communication," *Communication Quarterly* (42:2) 1994, pp 93-105.
- China KM & Innovation Summit Forum "2005 China Knowledge Management Survey Report," CEO&CIO Magazine; China Computer World Magazine; CFO World Magazine; Guang Dong Landray Information Technology Co.,Ltd.
- Chinamc "Zhi Shi Guan Li Zhong De Kun Huo Yu Si Kao," (available online at <http://www.chinamc.org.cn/pages/717/38717.htm>), 2005.
- Chow, C.W., Deng, F.J., and Ho, J.L. "The Openness of Knowledge Sharing within Organizations: A Comparative Study in the United States and the People's Republic of China.," *Journal of Management Accounting Research* (12:winter) 2000, p 65?65.
- Cooper, R.B., and Zmud, R.W. "Information Technology Implementation Research: A Technology Diffusion Approach," *Management Science* (36:2) 1990, pp 123-139.
- Davernport, T.H., and Prusak, L. *Working Knowledge: How Organizations Management What They Know* Boston, Mass.: Harvard Business School Press, 1998.
- David, J.H., and Derek, S.P. *Management Worldwide: Distinctive Styles Amid Globalization*, (2nd ed.) Penguin Books, 2001.
- Fan, Y. "Questioning Guanxi: Definition, Classification and Implications," *International Business Review* (11) 2002, pp 543-561.
- Farh, J.-L., Tsui, A.S., Xin, K., and Cheng, B.-S. "The Influence of Relational Demography and Guanxi: The Chinese Case," *Organization Science* (9:4), July-August 1998, pp 471-488.
- Feeny, D.F., and Wilcocks, L.P. "Core IS Capabilities for Exploiting Information Technology," *Sloan Management Review* (39:3) 1998, pp 33-50.
- Ford, D., and Chan, Y. "Knowledge Sharing in a Multi-Cultural Setting: A Case Study," *Knowledge Management Research and Practice* (1:1) 2003, pp 11-27.
- Gold, A.H., Malhotra, A., and Segars, A.H. "Knowledge Management: An Organizational Capabilities Perspective," *Journal of Management Information Systems* (18:1) 2001, pp 185-214.
- Hasan, H. "Knowledge Creation in Organizations: the Role of Computer-based KMS," 2nd Europe Conference on Knowledge Management, IEDC Bled School of Management, Bled, Slovenia, 2001, pp. 231-242.
- Henderson, J.C. "Plugging into Strategic Partnerships: The Critical IS Connection," *Sloan Management Review* (31:3) 1990, pp 7-18.



- Hong, J., and Engestrom, Y. "Changing Principles of Communication Between Chinese Managers and Workers," *Management Communication Quarterly* (17:4) 2004, pp 552-585.
- Huber, G.P. "Transfer of Knowledge in Knowledge Management Systems: Unexplored Issues and Suggested Studies," *European Journal of Information Systems* (10:2) 2001, pp 72-79.
- Hwang, K.-k. "Face and Favor: The Chinese Power Game," *The American Journal of Sociology* (92:4), Jan 1987, pp 944-974.
- Jiang, Y., and Liang, L. "The Study on the Relationship between Chinese Traditional Culture and Knowledge Management," *Science Research Management* (26:3) 2005, pp 116-120.
- Kankanhalli, A., Tan, B.C.Y., and Wei, K.-K. "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation," *MIS Quarterly* (29:1) 2005, pp 113-143.
- Kim, J.Y., and Nam, S.H. "The Concept and Dynamics of Face: Implications for Organizational Behavior in Asia," *Organization Science* (9:4) 1998, pp 522-534.
- KPMG "Knowledge Management Research Report 2000," KPMG Consulting.
- Kuan, K.K.Y., and Chau, P.Y.K. "A Perception-Based Model for EDI Adoption in Small Businesses Using a Technology-Organization-Environment Framework," *Information & Management* (38:8) 2001, pp 507-521.
- Lewin, K. "Group Decision and Social Change," in: *Readings in social psychology*, G.E. Swanson, T.M. Newcombe and E.L. Harterly (eds.), Henry Holt and Company, New York, 1952, pp. 459-473.
- Li, S., and Scullion, H. "Bridging the Distance: managing Cross-Border Knowledge Holders," *Asia Pacific Journal of Management* (23) 2006, pp 71-92.
- Liu, S. "Cultures within Culture: Unity and Diversity of Two Generations of Employees in State-owned Enterprises," *Human Relations* (56:4), April 2003, pp 387-417.
- Long, D.W.D., and Fahey, L. "Diagnosing Cultural Barriers to Knowledge Management," *The Academy of Management Executive* (14:4) 2000, pp 113-127.
- Martin, L. "Culture and the Problems of Chinese Management," *Organization Studies* (9:4) 1988, pp 475-496.
- Nilakanta, S., and Scamell, R.W. "The Effect of Information Sources and Communication Channels on the Diffusion of Innovation in a Data Base Development Environment," *Management Science* (36:1) 1990, pp 24-40.
- Palvia, S., C., and Chervany, N., L. "An Experimental Investigation of Factors Influencing Predicted Success in DSS Implementation," *Information & Management* (29:1) 1995, pp 43-53.
- Piccoli, G., and Ives, B. "Review: IT-Dependent Strategic Initiatives and Sustained Competitive Advantage: A Review and Synthesis of the Literature," *MIS Quarterly* (29:4) 2005, pp 747-776.
- Porcess-Edge "Building Knowledge Management Systems," Process-Edge, 1997.
- Premkumar, G., and Ramamurthy, K. "The Role of Interorganizational and Organizational Factors on the Decision Mode for Adoption of Interorganizational Systems," *Decision Sciences* (26:3), May/June 1995, pp 303-336.
- Pun, K.-F., Chin, K.-S., and Lau, H. "A Review of the Chinese Cultural Influences on Chinese Enterprise Management," *International Journal of Management Reviews* (2:4) 2000, pp 325-338.
- Ramasamy, B., Goh, K. W., and Yeung, M.C.H. "Is Guanxi a Bridge to Knowledge Transfer," *Journal of Business Research* (59:1) 2006, pp 130-139.
- Rogers, E.M. *Diffusion of Innovations*, (4 ed.) Free Press, New York, 1995.
- Ross, J.W., Beath, C.M., and Goodhue, D.L. "Develop Long-Term Competitiveness through

- IT Assets," *Sloan Management Review* (31-45) 1996.
- Sambamurthy, V., Bharadwaj, A., and Grover, V. "Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," *MIS Quarterly* (27:2), June 2003, pp 237-263.
- Sheh, S. "Chinese Cultural Values and Their Implications to Chinese Management," *Singapore Management Review* (23:2) 2001, pp 309-342.
- Talaysum, A.T. "Understanding the Diffusion Process for Technology-Intensive Products," *Research Management*, (July-August 1985). 22-26. (July-August) 1985, pp 22-26.
- Thong, J.Y.L. "An Integrated Model of Information Systems Adoption in Small Businesses," *Journal of Management Information Systems* (15:4) 1999, pp 187-214.
- Tian, Z. "Zhong Zhi Zi Xun Gong Si De Zhi Shi Guan Li Zhi Lu," KMC Center, 2004.
- Tjosvold, D., Yu, Z.-y., and Liu, H. "Traditional Values for Applying Abilities and Leader Effectiveness in China," *Leadership & Organization Development Journal* (25:3/4) 2004, pp 318-331.
- Tornatzky, L.G., and Fleischer, M. *The Processes of Technological Innovation*, Lexington, Mass., 1990.
- Tornatzky, L.G., and Klein, L. "Innovation Characteristics and Innovation-implementation: A Meta-analysis of Findings," *IEEE Transactions on Engineering Management* (29:11) 1982, pp 28-45.
- Wade, M., and Hulland, J. "Review: The Resource-Based View and Information Systems Research: Review, Extension, and Suggestions for Future Research," *MIS Quarterly* (23:1) 2004, pp 107-142.
- Wang, M. *Culture and Power from the Vision of a Village San Lian Shu Dian*, Beijing, 1997, pp. 172-177.
- Wasko, M.M., and Faraj, S. "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly* (29:1) 2005, pp 35-57.
- Weill, P., and Broadbent, M. *Leveraging the New Infrastructure: How Market Leaders Capitalize on Information Technology* Harvard Business School Press, Cambridge, MA, 1998.
- Xu, J., and Quaddus, M. "From Rhetoric towards a Model of Practical Knowledge Management Systems," *Journal of Management Development* (24:4) 2005a, pp 291-319.
- Xu, J., and Quaddus, M. "Exploring the Perceptions of Knowledge Management Systems," *Journal of Management Development* (24:4) 2005b, pp 374-389.
- Yum, J.O. "The Impact of Confucianism on Interpersonal Relationships and Communication Patterns in East Asia.," *Communication Monographs* (55) 1988, pp 374-388.
- Yun, G. "Personal Relations in Chinese Enterprise Reforms: The Interaction between Formal-Impersonal Structure and Informal-personal Power in the Process of Transforming State-owned Enterprise Property Rights," Temple University, 2001, pp. 1-206.
- Zhang, Z., Lee, M.K.O., Huang, P., Zhang, L., and Huang, X. "A Framework of ERP Systems Implementation Success in China: An Empirical Study," *International Journal of Production Economics* (98) 2005, pp 56-80.
- Zhu, K., Kraemer, K., and Xu, S. "Electronic Business Adoption by European Firms: a Cross-country Assessment of the Facilitators and Inhibitors," *European Journal of Information Systems* (12:4), Dec 2003, pp 251-268.