Knowledge Management: An *MIS Quarterly* Research Curation

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1. Focus of the Research Curation

The notions of knowledge and its management have been at the core of the information systems (IS) field almost since its inception. Knowledge has been viewed in several ways in the prior literature, including as a state of mind, an object, a process, access to information, and a capability. A commonly-used definition characterizes knowledge as a justified belief that increases an entity's capacity for effective action (Alavi and Leidner 2001, p. 109). Relatedly, knowledge management (KM) has been defined as a systemic process to acquire, organize, and communicate individual knowledge so that others may make use of it (Beck et al. 2014). Knowledge-management systems (KMSs) support these processes for creating, exchanging, and storing knowledge (Beck et al. 2014), and have been viewed as being either repository-based or network-based (Kankanhalli et al. 2005).

In an attempt to provide a useful resource for scholars interested in KM, we take stock of the pertinent research published in *MISQ*. More specifically, the goal of this curation is to serve as a living document that will offer a starting point for future KM research. This curation highlights the 49 articles with a primary focus on KM (Table 1). The articles address theoretical and conceptual issues, provide methodological guidance, and use a wide range of quantitative and qualitative research methods. To define the scope of this curation, we excluded: (1) articles in which KM is used as part of another construct; (2) some early articles that were practice-oriented with limited scholarly orientation; and (3) articles that focus on knowledge (such as the knowledge requirements of IS professionals) or student learning (Bauman and Tuzhilin 2018) but not on KM.

2. Progression of Research in MISQ

The first two research papers in *MISQ* on KM (Meyer and Curley 1991; Byrd et al. 1992) were published in the early 1990's. They focused on knowledge-based systems, or expert systems, and examined the management and development of these systems in organizations (Byrd et al. 1992; Meyer and Curley 1991). Research on KM processes also emerged during this initial period, including a study of the antecedents and outcomes of shared knowledge of IS units in organizations (Nelson and Cooprider 1996). KM research interest in IS started growing following two conceptual papers – one that presented knowledge, KM, and KMS definitions and classifications (Alavi and Leidner 2001), and the other that examined the scientific discourses in IS research on KM (Schultze and Leidner 2002). Other papers during this period advanced the notion that an excessive focus on technology in KM may not be useful (Markus et al. 2002; Massey et al. 2002). In sum, the initial KM publications focused almost exclusively on KM within organizations, and examined KM processes, the design of KM systems, and the antecedents of KM.

KM research gained momentum with the *MISQ* special issue on IT and KM published in 2005, which included twelve papers across two volumes. A third of the papers focused on knowledge sharing, KMS use, and their antecedents (Bock et al. 2005; Kankanhalli et al. 2005; Ko et al. 2005; Wasko and Faraj 2005). Several papers (Malhotra et al. 2005; Van de Ven 2005; Ko et al. 2005; Wasko and Faraj 2005) reflected a transition from the prior exclusive focus on KM within organizations to the consideration of KM beyond organizational boundaries. For example, Malhotra et al. (2005) examined knowledge creation in supply-chain relationships, while Wasko and Faraj (2005) investigated individuals' knowledge contribution in an online network of practice for legal professionals, and Ko et al. 2005 uncovered the antecedents of knowledge transfer between external consultants and clients during ERP implementations. Another third of the papers (Chen and Edgington 2005; Lin et al. 2005; Ryu et al. 2005; Tanriverdi 2005) in the special issue were the initial economics-based studies on KM and examined consequences of KM for the firm. Studies during the rest of the decade continued the shift towards examining the impacts of KM, such as in making complex decisions (Arnold et al. 2006) and on IT project performance (Mitchell 2006). They also continued the extension of KM research beyond traditional boundaries, such as in constructing knowledge alliances between multiple KMS for land management in India (Puri 2007) and in managing knowledge in offshore teams (Leonardi and Bailey 2008).

KM publications since 2010 have been increasingly interested in strategies for managing knowledge, in the use of KM systems, and in the consequences of KM. For instance, studies have examined ways to enhance KM, such as through transactive memory systems (Choi et al. 2010; Majchrzak et al. 2013), social media (Leonardi 2015), metamodels (Kyriakou et al. 2017), network structures in crowdsourced communities (Lu et. 2017), and visual ontologies (Bera et al. 2011). There have also been studies of the drivers of use i.e., knowledge contributions in online communities (Chen et al. 2018; Huang et al. 2018), and the evaluation of contributions (Lee et al. 2019). Furthermore, the impacts of KM – such as on innovation (Carlo et al. 2012; Trantopoulos et al. 2017), individuals' careers (Huang and Zhang 2016), job performance (Zhang et al. 2017), team performance (Choi et al. 2010), and firm performance (Iyengar et al. 2015) – have also received considerable attention during this period.

In terms of methodology, we see a diverse range, including conceptual papers (e.g., Alavi et al. 2001; Griffith et al. 2003; Van de Ven 2005); case studies (e.g., Garud and Kumaraswamy 2005; Kotlarsky et al. 2014; Monteiro and Parmiggiani 2019); laboratory experiments (e.g., Poston and Speier 2005; Bera et al. 2011); field experiments (e.g., Arnold et al. 2006; Leonardi 2015; Lee et al. 2019); questionnaire surveys of individuals (Bock et al. 2005; Kankanhalli et al. 2005), matched pairs (e.g., Ko et al. 2005), and teams (Choi et al. 2010); analytical models (e.g., Cha et al. 2008; Ryu et al. 2005); objective data from organizations (e.g., Kim et al. 2016) and enterprise blogging messages (e.g., Beck et al. 2014); econometric modeling of longitudinal data from community networks (e.g., Huang and Zhang 2016; Huang et al. 2018); hidden Markov models (Chen et al. 2018); mixed-methods using qualitative and quantitative methods (e.g., Zhang 2017); and action research (Durcikova et al. 2018). Cumulatively, these articles have made significant contributions over time to our understanding of KM strategies, processes, antecedents and outcomes, and the design and use of KM systems, thereby enabling intellectual and practical progress in the field of KM.

3. Thematic Advances in Knowledge

Four broad themes emerge from our analysis of the articles in this curation: (1) the strategies for managing knowledge (KM Strategy); (2) the processes for knowledge management (KM Process); (3) the design considerations for KM systems (KMS Design); and (4) the use of KM systems (KMS Use). However, some articles (e.g., Alavi and Leidner 2001; Schultze and

Leidner 2002), with a focus on literature synthesis and theoretical development, could not be clearly classified as within one of these four categories. Moreover, the articles within each theme have been conducted with different units of analysis, such as individual/team, organization, or beyond organizational boundaries.

The first theme of KM research that we identified focuses on KM strategy. These articles examine various aspects of KM strategy and how they relate to organizational contexts as well as influence performance. As may be expected, most of these studies aim at gaining an understanding of KM at the organizational level. For example, Massey et al. (2002) developed insights regarding a KM strategy that involved elements of process, people, and technology, and explored how this strategy related to both the organization's context and performance. Van de Ven (2005) argued that for organizations seeking to develop and commercialize knowledge-intensive technologies, a strategy of "running in packs" may be more successful than "going it alone."

A second dominant theme of prior KM research has been the processes involved in KM, such as knowledge transfer, knowledge brokering, or knowledge conversion. Many of these studies have been conducted at the individual or team level. For example, Schultze (2000) found that knowledge workers employ three informing practices, i.e., expressing, monitoring, and translating, while striving to balance subjectivity and objectivity in the process of producing information. Nelson and Cooprider (1996) reported that the shared knowledge between IS and line groups mediates the effects of trust and influence on IS performance. More recently, Kyriakou et al. (2017) examined knowledge reuse by a community of product designers and identified reuse for customization as a new process that is distinct from knowledge reuse processes proposed previously, i.e., reuse for replication and reuse for innovation. Additionally, a few articles have pursued this theme at the organizational level. For example, in the context of real-estate franchising, Iyengar et al. (2015) found that IT use is an important learning mechanism for franchisees as it impacts knowledge transfer effectiveness and absorptive capacity, the latter of which affects financial performance. Another example is the study by Monteiro and Parmiggiani (2019), which explicates the concept of synthetic knowing in the context of IOT-rendered marine environmental monitoring by an oil and gas company.

As a third theme, researchers have investigated issues associated with the design of KMS, and suggested a set of design guidelines and principles. At the individual/team level, Bera et al. (2011) through experiments showed that the use of visual ontology enables users to learn about concepts and relationships relevant to the knowledge domain, and then proposed guidelines for designing visual ontologies for knowledge identification. As another example, Chen at al. (2018) focused on the design and evaluation of IT artifacts to motivate member contributions in online communities. At the organizational level, Meyer and Curley (1991) emphasized that expert systems usually involve two distinct types of complexity – knowledge complexity and technological complexity – and proposed specific variables to measure each. Finally, several studies have examined KMS design issues crossing organizational boundaries. For example, based on a field case study, Puri (2007) highlighted the importance of constructing knowledge alliances and the need to draw upon a multiplicity of knowledge systems to produce relevant 'hybridized' knowledge for supporting effective IS development and implementation.

The fourth theme reflects a significant research interest in the use of KMS by individuals, teams, and organizations. For instance, studies have investigated the factors affecting employee contribution to electronic knowledge repositories (Kankanhalli et al. 2005; Durcikova et al. 2018) and platform sponsors' investments to drive user contributions to online communities (Huang et al. 2018), as well as the conditions under which repository KMS use leads to superior job performance (Kim et al. 2016; Zhang 2017). Yet others have examined how identification

and internalization explain individuals' use of KMS (Wang et al. 2013) and how individuals' use, in terms of contribution to and learning from online communities, affects their job-hopping (or voluntary turnover) behavior (Huang and Zhang 2016). Additionally, for knowledge-based systems, prior research has explored how novice and expert decision makers use explanation facilities differently to make high-level, complex judgments within a cooperative problem-solving environment (Arnold et al. 2006).

4. Conclusion

This curation shows the breadth of coverage on the topic of KM, both thematically and methodologically. It also illustrates the rich phenomena and problems in this area. Going forward, we believe that KM and related systems will continue to be important topics of research interest, with knowledge-based economies becoming the engine of growth around the globe. As we see a greater amount of knowledge incorporated into IT (e.g., artificial intelligence systems that represent a significant evolution of earlier knowledge-based systems) and more knowledge being created by IT (e.g., knowledge discovery and data mining from big data), KM topics will continue to draw IS researchers' interest in the future. The contributions made by the articles in this curation provide a solid foundation for future research on this vitally important topic.

Table 1. *MIS Quarterly* Papers on Knowledge Management

ID	Author(s)	Title	Year	Vol.	Iss.
1	Marc H. Meyer and Kathleen Foley Curley	An Applied Framework for Classifying the Complexity of Knowledge-Based Systems	1991	15	4
2	Terry Anthony Byrd, Kathy L. Cossick, and Robert W. Zmud	A Synthesis of Research on Requirements Analysis and Knowledge Acquisition Techniques	1992	16	1
3	Kay M. Nelson and Jay G. Cooprider	The Contribution of Shared Knowledge to IS Group Performance	1996	20	4
4	Ulrike Schultze	A Confessional Account of an Ethnography about Knowledge Work	2000	24	1
5	Maryam Alavi and Dorothy E. Leidner	Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues	2001	25	1
6	M. Lynne Markus, Ann Majchrzak, and Les Gasser	A Design Theory for Systems that Support Emergent Knowledge Processes	2002	26	3
7	Anne P. Massey, Mitzi M. Montoya-Weiss, Tony M. O'Driscoll	Knowledge Management in Pursuit of Performance: Insights from Nortel Networks	2002	26	3
8	Ulrike Schultze and Dorothy E. Leidner	Studying Knowledge Management in Information Systems Research: Discourses and Theoretical Assumptions	2002	26	3
9	Terri L. Griffith, John E. Sawyer, and Margaret A. Neale	Virtualness and Knowledge in Teams: Managing the Love Triangle of Organizations, Individuals, and Information Technology	2003	27	2
10	Suzanne D. Pawlowski and Daniel Robey	Bridging User Organizations: Knowledge Brokering and the Work of Information Technology Professionals	2004	28	4
11	Gee-Woo Bock, Robert W. Zmud, Young-Gul Kim, and Jae-Nam Lee	Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces, and Organizational Climate	2005	29	1
12	Raghu Garud and Arun Kumaraswamy	Vicious and Virtuous Circles in the Management of Knowledge: The Case of Infosys Technologies	2005	29	1
13	Atreyi Kankanhalli, Bernard C.Y. Tan, and Kwok-Kee Wei	Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation	2005	29	1
14	Dong-Gil Ko, Laurie J., and William R. King	Antecedents of Knowledge Transfer from Consultants to Clients in Enterprise System Implementations	2005	29	1
15	Arvind Malhotra, Sanjay Gosain, and Omar A. El Sawy	Absorptive Capacity Configurations in Supply Chains: Gearing for Partner-Enabled Market Knowledge Creation	2005	29	1
16	Molly McLure Wasko and Samer Faraj	Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice	2005	29	1

17	Andrew N.K. Chen and Theresa M. Edgington	Assessing Value in Organizational Knowledge Creation: Considerations for Knowledge Workers	2005	29	2
18	Lihui Lin, Xianjun Geng, and Andrew B. Whinston	A Sender-Receiver Framework for Knowledge Transfer	2005	29	2
19	Robin S. Poston and Cheri Speier	Effective Use of Knowledge Management Systems: A Process Model of Content Ratings and Credibility Indicators	2005	29	2
20	Chungsuk Ryu, Yong Jin Kim, Abhijit Chaudhury, H. Raghav Rao	Knowledge Acquisition via Three Learning Processes in Enterprise Information Portals: Learning-by-Investment, Learning-by-Doing, and Learning-from-Others	2005	29	2
21	Huseyin Tanriverdi	Information Technology Relatedness, Knowledge Management Capability, and Performance of Multibusiness Firms	2005	29	2
22	Andrew H. Van de Ven	Running in Packs to Develop Knowledge-Intensive Technologies	2005	29	2
23	Vicky Arnold, Nicole Clark, Philip A. Collier, Stewart A. Leech, and Steve G. Sutton	The Differential Use and Effect of Knowledge-Based System Explanations in Novice and Expert Judgement Decisions	2006	30	1
24	Anne P. Massey and Mitzi M. Montoya-Weiss	Unraveling the Temporal Fabric of Knowledge Conversion: A Model of Media Selection and Use	2006	30	1
25	Victoria L. Mitchell	Knowledge Integration and Information Technology Project Performance	2006	30	4
26	Satish K. Puri	Integrating Scientific with Indigenous Knowledge: Constructing Knowledge Alliances for Land Management in India	2007	31	2
27	Prasert Kanawattanachai and Youngjin Yoo	The Impact of Knowledge Coordination on Virtual Team Performance Over Time	2007	31	4
28	Hoon S. Cha, David E. Pingry, and Matt E. Thatcher	Managing the Knowledge Supply Chain: An Organizational Learning Model of Information Technology Offshore Outsourcing	2008	32	2
29	Paul M. Leonardi and Diane E. Bailey	Transformational Technologies and the Creation of New Work Practices: Making Implicit Knowledge Explicit in Task-Based Offshoring	2008	32	2
30	Sue Young Choi, Heeseok Lee, and Youngjin Yoo	The Impact of Information Technology and Transactive Memory Systems on Knowledge Sharing, Application, and Team Performance: A Field Study	2010	34	4
31	Palash Bera, Andrew Burton-Jones, and Yair Wand	Guidelines for Designing Visual Ontologies to Support Knowledge Identification	2011	35	4

32	Jessica Luo Carlo, Kalle Lyytinen, and Gregory M. Rose	A Knowledge-Based Model of Radical Innovation in Small Software Firms	2012	36	3
33	Yinglei Wang, Darren B. Meister, and Peter H. Gray	Social Influence and Knowledge Management Systems Use: Evidence from Panel Data	2013	37	1
34	Anne Majchrzak, Christian Wagner, and Dave Yates	The Impact of Shaping on Knowledge Reuse for Organizational Improvement with Wikis	2013	37	2
35	Julia Kotlarsky, Harry Scarbrough, and Ilan Oshri	Coordinating Expertise Across Knowledge Boundaries in Offshore-Outsourcing Projects: The Role of Codification	2014	38	2
36	Roman Beck, Immanuel Pahlke, and Christoph Seebach	Knowledge Exchange and Symbolic Action in Social Media-Enabled Electronic Networks of Practice: A Multilevel Perspective on Knowledge Seekers and Contributors	2014	38	4
37	Kishen Iyengar, Jeffrey R. Sweeney, and Ramiro Montealegre	Information Technology Use as a Learning Mechanism: The Impact of IT Use on Knowledge Transfer Effectiveness, Absorptive Capacity, and Franchisee Performance	2015	39	3
38	Paul M. Leonardi	Ambient Awareness and Knowledge Acquisition: Using Social Media to Learn "Who Knows What" and "Who Knows Whom"	2015	39	4
39	Seung Hyun Kim, Tridas Mukhopadhyay, and Robert E. Kraut	When Does Repository KMS Use Lift Performance? The Role of Alternative Knowledge Sources and Task Environments	2016	40	1
40	Peng Huang and Zhongju Zhang	Participation in Open Knowledge Communities and Job-Hopping: Evidence from Enterprise Software	2016	40	3
41	Harris Kyriakou, Jeffrey V. Nickerson, and Gaurav Sabnis	Knowledge Reuse for Customization: Metamodels in an Open Design Community for 3D Printing	2017	41	1
42	Konstantinos Trantopoulos, Georg von Krogh, Martin W. Wallin, and Martin Woerter	External Knowledge and Information Technology: Implications for Process Innovation Performance	2017	41	1
43	Yingda Lu, Param Vir Singh, and Baohong Sun	Is a Core-Periphery Network Good for Knowledge Sharing? A Structural Model of Endogenous Network Formation on a Crowdsourced Customer Support Forum	2017	41	2
44	Xiaojun Zhang	Knowledge Management System Use and Job Performance: A Multilevel Contingency Model	2017	41	3
45	Wei Chen, Xiahua Wei, and Kevin Xiaoguo Zhu	Engaging Voluntary Contributions in Online Communities: A Hidden Markov Model	2018	42	1
46	Peng Huang, Ali Tafti, and Sunil Mithas	Platform Sponsor Investments and User Contributions in Knowledge Communities: The Role of Knowledge Seeding	2018	42	1

47	Alexandra Durcikova, Allen S. Lee, and Susan A. Brown	Making Rigorous Research Relevant: Innovating Statistical Action Research	2018	42	1
48	Eric Monteiro, and Elena Parmiggiani	Synthetic Knowing: The Politics of the Internet of Things	2019	43	1
49	Shun-Yang Lee, Huaxia Rui, and Andrew B. Whinston	Is Best Answer Really the Best Answer? The Politeness Bias	2019	43	2

All errors remain with the curation team.