

STANDARDIZATION AND KM: EVALUATING KNOWLEDGE QUALITY

Karen Druffel, kdruffel@framingham.edu, Bentley University and Framingham State College¹
Monica Garfield, mgarfield@bentley.edu, Bentley University²

Keywords: knowledge management, standardization, project management

1. ABSTRACT

Organizations often use standardized practices as a means to improve knowledge management. We suggest that the use of standardization for KM efforts can take on two different forms. In one form, standardization explicates tacit knowledge in order to more effectively transfer knowledge within the organization. In the second form, standardization provides a tool to evaluate and capture knowledge. The type of employee, the impact on the organization and the measurement of system effectiveness are contingent upon the form of standardization employed. This paper summarizes our preliminary findings from a case study exploring an implementation of a standardized project management methodology at a multinational technology services company.

2. INTRODUCTION

Knowledge management has become a central focus for a wide range of organizations within what is now termed the knowledge economy. Knowledge within the organization is a source of strategic competitive advantage, and organizational knowledge increases through knowledge creation and knowledge transfer (Zack, 1998). Knowledge and knowledge management (KM) are critical to the success of an organization, but the conditions that support or sustain KM within an organization are not well understood. Most KM systems recognize several activities central to organizational knowledge, which include those related to generating new knowledge to support innovation, capturing knowledge to support sharing it throughout the organization, and applying knowledge in practice (Nissen, Kamel & Sengupta, 2000). The KM activities represent different sources of value to the organization; innovation is generally considered strategic, whereas capture and reuse provide operational efficiency.

¹ Karen Druffel, 100 State Street, CR 306, Framingham, MA, USA, 508-626-4852, 508-626-4040(f), kdruffel@framingham.edu

² Monica Garfield, 175 Forest Street, Smith 409, Waltham, MA 02452, USA, 781-891-2910, 781-891-2949(f), mgarfield@bentley.edu

Organizations use several approaches to systematize KM, such as the use of knowledge repositories or expert networks, as well as the use of standardized practices or procedures. Each of these approaches has experienced limited success. Low or poor KM use in practice is often attributed to knowledge barriers related to culture and conditions affecting interpersonal relationships, such as trust (Staples & Webster, 2008). In regards to standardization, however, the explanation for failure is complicated by a tendency to conflate whether the standardization supports strategic or operational goals. Identifying the goals of standardization is critical because different standardization tools or procedures support different types of goals. For example, some standardization methods support deskilling by enabling workers with lower levels of expertise to make better decisions, resulting in the same level of performance as workers with higher skills or expertise. This paper suggests it is important to recognize that not all standardized methods support deskilling and that some methods in fact require workers to have higher skill levels to use them effectively. Different types of standardization provide different levels of benefits to the organization, whether strategic or operational, and perform different roles in the knowledge management cycle. The difference is important to practice, as each type requires different conditions for success and different measures of assessment; it is important to research, as each requires a different analytical frame.

One difficulty in evaluating the success of standardization is that the term is used to include methods having very different objectives. Attempts to implement standardized procedures can be perceived as failures when the goals driving the standardization do not match those supported by the specific standardization method. A poor match can result in assigning workers with the wrong skills required to use the method, or the use of inappropriate evaluation criteria. Standardized operating procedures are examples of standardization intended to improve efficiency. These methods represent captured know-how and support knowledge transfer to workers with lower skill levels. Standardized project management methodologies, on the other hand, are not primarily sources of know-how; rather they provide a uniform format to facilitate evaluation of knowledge quality. Our research used a case study of one organization whose KM system was focused on the use of standardized procedures and methods; this paper summarizes our findings.

3. TYPES OF KNOWLEDGE

3.1 Knowledge as practice

For an organization to manage knowledge, it first must determine what constitutes knowledge; this question includes both “what is knowledge”, and also “how do we know” (Cook & Brown, 1999). Using an epistemology of practice approach, knowledge is a combination of content, or knowledge artifacts, and action or the potential for action (Zack,

1999; Blair, 2002; McInerney, 2002). We can divide knowledge into content and action; we can further divide content into component parts. Content comprises both data and context that provides meaning to the data. Data is not meaningful without context; “it always needs a frame” (Spender, 2006, p. 13). The frame of context includes features of the external environment as well as internal characteristics of the individual actors or social group; knowledge can be individual or collective. Knowledge is information framed “within the context of experience, expertise and judgment” (Grover & Davenport, 2001, p. 6).

The action component of knowledge is more precisely practice, which is activity that is purposeful, deliberate and directed towards a specific goal. Practice is purposeful also in that it provides the opportunity for feedback from the physical or social world, resulting in better understanding of the limitations or reach of a specific approach or concept. The view of knowledge as process focuses on the relationship between data, meaning and practice (Spender, 2006). The view of knowledge as object and knowledge as process, work together and are both necessary to effectively manage and harness knowledge within an organization. The relationship between knowledge objects and knowledge processes is equally important as the components themselves. The content and action are mutually required and interdependent. Knowledge as practice requires both knowledge content and the action of “knowing” (Cook & Brown, 1999, p. 382).

Knowledge content can be categorized along two continuums of explicit/tacit and individual/social. The explicit/tacit description is based generally on how easily it is shared (Cook & Brown, 1999). Explicit knowledge is easily shared, difficult to protect and therefore considered “leaky”; tacit knowledge is difficult to share, personal in nature and “sticky” (Duguid, 2005). Assumptions about the nature of knowledge, the types of knowledge and their relationships to each other are central to expectations about how standardized procedures support knowledge management and specifically knowledge creation.

3.2 Tacit/Explicit

The categorization of knowledge content as explicit or tacit appears throughout knowledge management literature (Nonaka, 1996; McInerney, 2002; Spender 2006) and has its basis in early philosophical writings. In some work the two types of knowledge are seen as distinct categories (Nonaka, 1996) while in others it is viewed as a continuum in which specific knowledge includes elements of both types. In both views explicit and tacit knowledge are mutually dependent; their development or acquisition is iterative. Tacit knowledge provides the contextual knowledge necessary to understanding and integrating of new discrete explicit knowledge (Alavi & Leidner, 2001). Tacit knowledge has both

cognitive elements, such as mental models and viewpoints, and technical elements, such as skills (Schutt, 2003). Tacit and explicit knowledge each “does work the other cannot”; each type is mutually enabling and coequal (Cook & Brown, 1999, p. 383). Although tacit and explicit knowledge can each assist in acquiring the other, each is not sufficient on its own. Explicit knowledge is “know-what” or declarative knowledge and tacit is “know-how” or procedural knowledge (McCall, Arnold & Sutton, 2008). Procedural knowledge is required to use declarative knowledge in action or decision-making (McCall, Arnold & Sutton, 2008). Both tacit and explicit knowledge are necessary to develop expertise (Anderson, 1982). Tacit knowledge is required to integrate new explicit knowledge and conversely, explicit knowledge is required for the development of tacit knowledge (McCall, Arnold & Sutton, 2008). Individual knowledge acquisition involves two stages, the declarative stage and the procedural stage. Declarative encoding and interpretive problem solving are necessary for acquisition of declarative or explicit knowledge, which is an antecedent for the procedural stage in which procedural or tacit knowledge is acquired (McCall, Arnold & Sutton, 2008).

3.3 Knowledge cycle

Although organizations use different approaches to knowledge management, most assume knowledge is processed within an organization through several related activities. Most research defines these broadly in three to six phases or activities. Many variations of the knowledge cycle have been proposed, but the different models have significant overlap. In general, there is a need for knowledge creation or acquisition, knowledge capture or storage, knowledge transfer or collaboration, and knowledge exploitation or application. (Alavi & Leidner, 2001; Bhat, 2002; Gold et al., 2001; Lee & Choi, 2003; Lee & Yang, 2000; Nonaka & Takeuchi, 1995; Ruggles, 1998; Shin et al., 2001; Spender, 1996). Many models propose a similar sequencing of steps; most, but not all, begin with some form of knowledge creation and end with some form of knowledge use or application.

4. STANDARDIZATION

Standardization can support several activities within the knowledge management cycle. One of the most common reasons for using standardization in an organizational knowledge management system is to capture internal “best practices” or adoption of widely used industry practices (Alavi & Leidner, 2001). Organizations interested in this process often use standardized tools and processes to codify and share these best practices. In these cases standardized tools can capture organizational memory (sometimes both tacit and explicit knowledge) and support reuse of workable solutions.

There are different types of standardization which become evident when you evaluate the goals and the outputs of the standardization practices. Standardization varies from step-by-step procedures to complex methodologies. The term standardization is broadly used to encompass a variety of initiatives, from the use of common forms for recording and sharing information to expert systems. In both research and practice, standardization is implicitly categorized as either strategic or operational. Organizations adopt standardized procedures and tools to support various objectives related to operational efficiency, on the one hand, or effectiveness, increased customer value and competitive advantage, on the other. The term “standardization” then, does not clearly indicate whether it should provide a business advantage that is operational or strategic, nor whether its use will require higher skills or lower skills.

Standardization can be used to codify and capture knowledge content and allow it to be more easily accessed as the basis for routine decisions or processes. This type of standardization can be considered “explicating” standardization. Explicating standardization can bring about benefits at the operational level, such as increased efficiency and de-skilling, in which workers with low level skills can access and use knowledge that enables them to perform tasks typically performed by workers with high level skills.

Alternatively, standardization can be used to provide a common structure, format and language for peers, customers and managers to transfer knowledge. We consider these tools to be “evaluating” standardization. Unlike explicating standardization, evaluating standardization will not support deskilling, and in fact requires users with higher skill levels. Evaluating standardization can lead to innovation and knowledge creation, thereby providing strategic advantage.

The organizational effect of standardization differs greatly based upon whether the standardization practice is used to explicate knowledge or if it provides a format to facilitate evaluating knowledge. An organization should differentiate the type of standardization being implemented to accurately anticipate its benefits.

4.1 “Explicating” standardization

Standardization can be used to capture explicit knowledge and in the conversion of tacit knowledge to an explicit form, which is more easily shared. This type of standardization includes codification, which facilitates knowledge capture. It can also lead to knowledge creation when it is associated with conversion of one type of knowledge to another.

Nonaka suggests standardization can facilitate knowledge creation and transfer by converting tacit knowledge into explicit knowledge, or explicating knowledge. As an example of explication, Nonaka studied a bread-making machine that converted the tacit knowledge of a master baker to a form easily shared with people who did not have bread-making skills. To some extent, the machine is able to replicate the tacit knowledge of the master bread-maker because some actions and decisions are standardized. In this way, the machine explicates tacit knowledge. The machine ‘mimics’ specific human actions, and some of the tacit knowledge required from the master baker is made unnecessary through standardization of the shape and size of the bread, as well as the type and amount of specific ingredients, which precludes decisions that would otherwise require the baker’s tacit knowledge (Ribeiro & Collins, 2007). This example demonstrates how standardization can support deskilling; the bread-making machine allows a person with lower skills than a master bread-maker to replicate the work done by the master bread-maker.

Explicating standardization includes tools and methods that capture “know-how” and “know-what” knowledge within the tool or procedure, which allows users with lower skills to perform at a level comparable to someone with higher skill. While explicating standardization may lead to workers with less expertise being able to make decisions that are as good as those made by workers with higher levels of expertise; one study found that the less experienced workers did not develop their own expertise as quickly as workers who did not use the explicating standardization tools (McCall, Arnold & Sutton, 2008). In this case it enabled low skill workers to work at higher performance levels but it inhibited these workers from developing their own skills. The use of explicating standardization supports deskilling by increasing the performance among lower skilled workers, which in turn can improve operational efficiency.

4.2 “Evaluating” standardization

Not all standardized methods are designed to explicate knowledge by simplifying knowledge application or supporting routine decisions. A standardized methodology can also provide a format or structure for capturing and accessing complex knowledge context as well as content. These approaches are not designed as checklists or decision trees that embody or explicate “know-how”; the standardized formats instead require the user to supply both explicit and tacit knowledge, and further to express this knowledge within a prescribed structure. The primary purpose of the standardized structure is to facilitate understanding and assessment of the knowledge supplied by the user. In this sense, it is similar to the format used in an academic journal; the structure reflects common components and approaches accepted in the discipline. The format allows other experts to share knowledge by using the language common to the field. More importantly, the

structure makes it easier for other experts to assess and evaluate new knowledge. This type of standardization contributes to the quality of new or captured knowledge by facilitating peer assessment or review, which we term “evaluating” standardization.

“Evaluating” standardization does not support deskilling and in fact makes the lack of sufficient skill more apparent. It will not support operational efficiency, particularly if the organization does not recognize the additional effort required for knowledge evaluation. “Evaluating” standardization can provide strategic advantage when it is used to identify and reuse or disseminate higher quality knowledge. In order to benefit from this type of standardization, an organization must understand how to use it, have users with the proper skill levels and have the organizational structures in place to make best use of high quality knowledge. The two types of standardization differ in terms of organizational advantage, required skill level for users and its role within knowledge management (Table 1). Organizations should assess the success of each type of standardization based on different measures.

Table 1: Comparison of Explicating and Evaluating Standardization

	“Explicating”	“Evaluating”
Organizational Advantage	Tactical / operational	Strategic
User skill level	Low	High
Knowledge dimension	Codification	Common language
Organizational goal	Efficiency	Knowledge quality
Knowledge goal	Application	Evaluation
Assessment measure	Man hours	Decision effectiveness

5. METHODS

This study used a single case study to explore the assumptions of mid-level managers in an IT services organization about standardized project management methodology and project manager skills. This study uses qualitative research methods, which include case study method, and are among those used to study and understand behavior within a social context (Kaplan and Maxwell 1994). Case study method can be used as exploratory, descriptive or explanatory. This study is exploratory; it looks at the failure of a

standardized methodology implementation for suggestions about the relationship between standardized methodology and user skill. Empirical materials were collected through face to face interviews (Myers 2009). This case study uses grounded theory as its primary approach (Corbin and Strauss, 1990).

We interviewed four mid-level managers at TechCorp Corporation, a multinational corporation in the IT industry headquartered in the US. All four managers were involved in an implementation of a project management methodology which included standardized templates and forms. Two managers are assigned to the corporate headquarters PMO in the US; these managers developed the methodology and were responsible for compliance from field managers across the world, including around 800 project managers. Two of the people interviewed were field managers who were each responsible for approximately 50 project managers. One field manager is responsible for managing services delivery in southern Europe, the Middle East and Africa. The second field manager is responsible for services delivery in northern Europe. They had direct contact with corporate customers and managed the project managers who were expected to use the methodology.

One interview was conducted with each manager separately on different dates; in each interview the manager was asked for his/her perspectives on the introduction of the standardized project management methodology. The interviews were recorded and transcribed. A coding scheme was developed based upon themes in the transcripts and both members of the research team coded the transcripts using the coding scheme. Both coded versions were compared, differences were resolved and the revised version was coded into NVivo.

6. FINDINGS

6.1 Background

The company we worked with began as a hardware and software provider and has recently shifted to an IT services model. Changes in the competitive environment have resulted in increased concern about cost control and a desire to provide a more consistent customer experience. A project management methodology was introduced in 2006, but to date has had only limited use. The methodology was developed at the US corporate office and communicated to the field managers (who work in several different countries) through an email. It included standardized templates or forms which were developed internally based upon PMI standards. “Part of the methodology ... consisted of standardized work products, a template specifically.” According to one PMO manager responsible for the methodology, “The work products were standardized based on ... selecting what was considered the best at the time, so best practices, best internal practices.”

6.2 Reasons for implementing standardized project methodology

Two managers from the corporate US office work in the PMO and oversee the field managers. The senior level manager describes the reasons for the methodology in somewhat different terms from those in the field. He identifies the goals as “value added”, in terms of a consistent customer experience independent of geography, and the ability to “optimize” resources by sharing staff among projects independent of geography. “[T]he benefits are multiple. One, you don’t have to jumpstart the resource; two, we are saving jobs by taking a person from another district versus bringing on a services partner (subcontracting work), and three, the client sees everything the same way. Those are the central themes around value added.” To compete with industry leaders in the IT services space, the customer experience needed to match that of their competitors. “[Upper management] also wanted to standardize delivery methodology to be employed at a global level for the reason to look like our competition with the consistent standardized approach.”

The second PMO manager considers the methodology as evidence of high quality or skill. His description referred to “best practices” and “best of breed”. He agrees the standardized project documents provide customer “value” by ensuring project manager competence. He stated, “The methodology is a way of keeping clients comfortable; they don’t want to think project managers are just ‘winging it.’... Compliance with the methodology allows us to infer the project managers have competence and knowledge.” In addition, the methodology provides a method for the organization to capture and transfer knowledge through a “repeatable” process.

One of the field managers echoed the theme of customer value. “It’s a worldwide recognized standard. Customers recognize PMI and consider it respectable; [our major competitors] follow this standard. It has value for customers. It’s important for big customers; our sales department includes our use of a PMI methodology in our marketing materials.”

The field managers considered standardization necessary to manage increased complexity; however, field managers tended to frame the goals in terms of control and efficiency. One field manager stated, “In terms of upper management, they just want consistency because that makes control much easier. But the more context you have, the less value for consistency.... Even at a local level, management wants consistency....” Another noted, “Standardization saves time and energy.”

One manager considered the standardization important in overcoming differences in organizational culture for employees acquired from other companies, and national culture for staff outside the US. “When we acquire a new business, we need to integrate that new

piece to our way of doing things.” “[S]tandardization helps bridge the differences in culture It really becomes a sense making device....”

6.3 Users of the system

The project management methodology is designed for use by project managers in the field. All four managers whom we interviewed described the field project managers as comprising two groups with different levels of project management skill and areas of expertise. Some project managers had joined TechCorp Corporation before it had shifted to a services focus and developed expertise as technologists before becoming project managers. “The company has had an evolution of project management and of project managers...our project managers were technical experts who had moved into project management.”

One field manager noted that those project managers who started as technologists were trained to a lower skill level than the other group of project managers, and had skills less suited to the current needs of the organization and its customers. He observed that these managers resisted using tools that required written descriptions or communication because they had poor writing skills. The field manager noted, “For one thing the company is getting bigger and we cannot use our more technical project managers because their expertise is too narrow.” Technical project managers have different skills than do project managers who joined the company more recently; these are more likely to have been trained in project management and have certification from an organization like PMI. He stated that now 65% of his project managers have PM certification, compared to 25% three years earlier. Several managers interviewed indicated the more technical project managers were less likely to use the methodology. One of the PMO managers linked a project manager’s failure to use the methodology to his or her lack of certification, “A number of the field managers in 2006 were still what I call homegrown service managers, which means they neither had professional accreditation nor did they find a need for it. Because of that mindset, which I called deep level I CMM, they would be anywhere from resistance to not interested in the methodology.”

One of the field managers disagreed. “[E]ven when the line manager began as a PM and was trained in the value of the methodology, he or she still doesn’t support the methodology. It’s really a question of how PMs are appraised.” Our interviews also revealed other factors that may have contributed to the limited use of the methodology, including lack of a champion, the fact that the templates were only available in English, and inappropriate measurement of success of the methodology implementation.

6.4 Measures of success

The initiative for the project management methodology appraised project managers based upon whether they completed the computer based training for the methodology. There was no formal process to determine whether and to what extent the project management tools and templates were used, although the PMO checked project documents for larger projects. “The PMO checks compliance through delivery assurance reviews, in other words, audits.”

Corporate oversight of projects had historically occurred only if the local office had been the subject of customer complaints or had trouble meeting the sales margin. Corporate pressure to use the new project management methodology followed a similar pattern. “If the business unit is making money and the customers are happy, they can choose not to use the methodology and nothing happens. If, on the other hand, the business unit is losing margin and customers are complaining, then they have to use the methodology.”

This policy suggests the PMO considered the methodology as explicating standardization in that the methodology was expected to improve a struggling project team. All four managers interviewed believed the methodology required some level of skill to use, but one PMO manager believed the methodology enhances the project manager’s skill. “The methodology assumes certain expertise. It takes some level of skill to use, but the methodology scales the skill. The tools and procedures will make the project manager more successful than he or she would be without it.”

Upon further examination, however, the PMO review appears to serve two purposes. It functioned as an audit to determine level of compliance, and also to evaluate knowledge and identify internal “best practices.” The manager described the audit process for project documents and later added, “The PMO evaluates the documents and selects which will be shared with the delivery piece of the organization.” By identifying documents to share within the organization, the PMO seems to be using the project management methodology as “evaluating” standardization.

The managers we interviewed believed the implementation of the project management methodology, despite meeting its defined goals related to training project managers in the methodology, had failed to meet its intended objectives in terms of utilization. Several factors were suggested to have contributed to the failure, including lack of a champion and a corporate culture that encouraged local offices to retain independence from the corporate model. One PMO manager also cited the design of the template as unappealing, and suggested the failure to provide foreign language versions of the template discouraged their use. Common to all the interviews is the observation that lack of use is more apparent in one group of project managers than in the other.

7. Discussion and conclusion

The managers' accounts of the standardization system introduced to the organization that embedded a PM methodology and the templates to capture knowledge suggest that there is a potential conflict between the necessary skills required to use the system and the current project manager's skill set. The system was introduced in such a way that the expectation was for all project managers to be able to use the system in comparable manners and that those project managers with lower level skills could use the system for improved performance. However, we found that the rate of adoption is lower among the technical managers than it is among those managers trained in PM techniques. The technical managers are characterized as having narrow technical expertise, little training in project management and poor writing skills. Both these technical project managers and the more managerially focused project managers received the same training for the knowledge management system and the embedded methodology; therefore we do not believe the difference in adoption rate is related to knowledge specific to the KM tools.

The managers we interviewed attribute resistance to the tools to several factors; however, many of the factors would be expected to apply equally to both groups of project managers. The managers we interviewed suggest one factor influencing a low rate of adoption is the method that was used to measure compliance. This factor should affect both groups equally. Another proposed factor was attributed to having only English language templates. Both field managers we interviewed represented geographies which are predominantly not English-speaking; however, they reported the same general difference in adoption between the two manager groups as did the global PMO managers. It appears that language is not sufficient explanation for the difference in adoption. Therefore, although this issue likely contributed to the lack of adoption of the KM standardization system it does not explain why one group of managers had a higher rate of adoption than the other.

One reason the technical managers may have had a lower rate of adoption is that they represent a group that has a longer history with the company and therefore might identify more strongly with the organizational culture. The managers noted that local offices have historically been free to forego corporate initiatives as long as the office remained profitable and had few customer complaints. Most of the managers considered the failure to adopt the project management methodology as consistent with this history. We need to extend our data collection to gain insight into the roles of organizational culture and the governance structure in the adoption of this project management methodology.

Our current findings strongly suggest that the lack of system adoption was related to skill difference between the two project manager groups. If the standardized forms are "evaluating" standardization, managers with lower skill levels will have difficulty using the tools. The technical managers' low adoption of the methodology and the PMO

manager's comments that the completed forms are evaluated to find "best practices" suggest that the standardized tools are "evaluating" standardization tools.

Standardized tools can be categorized as either explicating or evaluating. KM theory suggests that standardization can facilitate knowledge generation and knowledge transfer, increasing the knowledge assets in an organization. "Evaluating" standardization is a form of interaction with the social world, defined by Cook and Brown as necessary for knowing, which can contribute to knowledge creation and provide strategic value to the organization. As a means of identifying "best internal practices" it contributes to knowledge assets. Although it can be used to capture knowledge, it is distinguishable from "explicating" standardization in that the knowledge is not easily utilized by workers with less skill.

Nonaka's bread-making machine is an example of using standardization to explicate tacit knowledge, effectively substituting for the judgment of an expert. One result is deskilling; a person with lower level skills can complete a high skill task using the standardized practices, without the direct involvement of a person with higher level skills. Based on the McCall study, it is not clear if deskilling is a form of knowledge transfer, in that the person using the standardization utilizes the captured knowledge effectively but does not retain the knowledge or develop increased skill. Knowledge transfer as a result of explicating standardization appears to be temporary. "Explicating" standardization likely supports knowledge utilization and therefore efficiency, without providing strategic value to the organization. "Explicating" standardization is more transferable, although on a temporary basis, and is difficult to protect; it is "leaky."

"Evaluating" standardization supports knowledge transfer among a community of practice. It provides a common structure and platform which facilitates knowledge comparison and the assessment of knowledge quality or value. Knowledge transfer in this sense adds strategic value for the organization by increasing the total knowledge assets. Because of its roles in knowledge generation and transfer, evaluating standardization can add value which is difficult for competitors to replicate; it is "sticky."

"Evaluating" standardized practices do not have a de-skilling effect and require high levels of skill to use. Organizations will not benefit from evaluating standardization unless the employees using the methodology have high level skills and the organization has processes, communication and internal relationships necessary to make use of high quality knowledge. It is important for organizations to be aware of the differences in types of standardization in order to effectively determine which type of standardization fits the organizational objective, whether the conditions for success are in place, and they must set appropriate assessment measures to evaluate the standardization systems success. Organizations that implement evaluating standardization tools with the expectation of reducing the need for higher skills will likely consider the implementation a failure.

In this pilot study we believe that the mismatch of the standardization methods deployed and the skill level set of the system users as well as the metrics used to establish successful implementation of the system is what has led to the failure to adopt the standardization KM system at TechCorp Corporation. The results of the study to date are preliminary, but suggest further study is warranted. As we continue this study we will revise our interview questions to more narrowly examine the perceived standardization method the system aims to provide, its fit with the users skill set and the metrics that enable the corporation to assess the successful implementation of the system.

References

Alavi, M. & Leidner, D. "Review: knowledge management and knowledge management systems: conceptual foundations and research issues", *MIS Quarterly* (25:1), Mar 2001, pp. 107-135

Attewell, P. "Technology diffusion and organizational learning: the case of business computing," *Organization Science* (3:1), Feb 1992, pp. 1-19

Blair, D. "Knowledge management: hype, hope or help?" *Journal of American Society for Information Science & Technology*, 53 (12) 2002, pp. 1019-1028.

Boland, R., Tenkasi, R. and Te'eni, D. "Designing information technology to support distributed cognition," *Organization Science* (5:3), 1994, pp. 456-475

Brown, J.S. and Duguid, P. "Organizing knowledge," *California Management Review*, 40 (3) 1998, pp. 90-111.

Butler, T. and Murphy, C. "Understanding the design of information technologies for knowledge management in organizations: a pragmatic perspective," *Information Systems Journal* (17), 2007, pp. 143-163

Cook, S.D. and Brown, J.S. "Bridging epistemologies: the generative dance between organizational knowledge and organizational knowing", *Organization Science*, 10(4) 1999, pp. 381-400.

Corbin J and Strauss A. "Grounded theory research: procedures, Canons, and evaluative criteria", *Qualitative Sociology* 13(1), Spring90 1990, pp. 3-21.

Duguid, P., "The art of knowing": social and tacit dimensions of knowledge and the limits of the community of practice", *The Information Society* (21), 2005, pp. 109-118.

Faniel, I. "Enhancing perceived value of cross-departmental knowledge on innovation via KM technology features," *Academy of Management Proceedings* (0896-7911), Aug 2005, pp. 11-16

Grover, V. and Davenport, T. "General perspectives on knowledge management: fostering a research agenda", *Journal of Management Information Systems*, 18(1) Summer 2001, pp. 5-21

Hislop, D. "Mission impossible? Communicating and sharing knowledge via information technology", *Journal of Information Technology*, 17(3) 2002, pp 165-177.

Hurt, M. and Hurt, S. "Transfer of managerial practices by French food retailers to operations in Poland," *Academy of Management Executive* (19:2), 2005, pp. 36-49.

Jenson, R. and Szulanski, G. "Stickiness and the adaptation of organizational practices in cross-border knowledge transfers," *Journal of International Business Studies* (35:6), 2004, pp. 508-523.

Kaplan, B. and Maxwell, J.A. "Qualitative Research Methods for Evaluating Computer Information Systems," in *Evaluating Health Care Information Systems: Methods and Applications*, J.G. Anderson, C.E. Aydin and S.J. Jay (eds.), Sage, Thousand Oaks, CA, 1994, pp. 45-68.

Lee, A. "A scientific methodology for MIS case studies," *MIS Quarterly*, Mar 1989, pp 33-50.

Lin, C-P. "To share or not to share: modeling tacit knowledge sharing, its mediators and antecedents," *Journal of Business Ethics* (70), 2007, pp. 411-428

Martin, P.Y. and B.A. Turner. "Grounded Theory and Organizational Research," *The Journal of Applied Behavioral Science*, (22:2), 1986, pp. 141-157.

McCall, H., Arnold, V. and Sutton, S. "Use of knowledge management systems and the impact on the acquisition of explicit knowledge," *Journal of Information Systems* (22:2), Fall 2008, pp. 77-101.

Mooradian, N. "Tacit knowledge: philosophic roots and role in KM," *Journal of Knowledge Management* (9:6), 2005, pp. 104-113

Myers, M.D. *Qualitative Research in Business & Management*. Sage Publications, London, 2009.

Nambisan, S., Agarwal, R. and Tanniru, M. "Organizational mechanisms for enhancing user innovation in information technology," *MIS Quarterly* (23:3), September 1999, pp. 365-395

Nambisan, S. and Wilemon, D. "Software development and new product development: potentials for cross-domain knowledge sharing," *IEEE Transactions on Engineering Management* (47:2), May 2000, pp. 211-220

Nambisan, S. and Wang, Y-M. "Web technology adoption and knowledge barriers," *Journal of Organizational Computing and Electronic Commerce* (10:2), 2000, pp. 129-147

Nissen, M., "Knowledge-based knowledge management in the reengineering domain," *Decision Support Systems* 27, 1999, pp. 47-65

Nissen, M., Kamel, M. and Sengupta, K., "Integrated analysis and design of knowledge systems and processes," *Information Resources Management Journal* (13:1), Jan-Mar 2000, pp. 24-43

Nonaka, I. and Takeuchi, H. *The Knowledge Creating Company*, Oxford University Press, New York, 1995.

Pudelko, , M. and Harzing, A., "The golden triangle for MNCs: standardization towards headquarters practices, standardization towards global best practices and localization." *Organizational Dynamics* 37.4 (2008): 394-404.

Ravishankar, M. "Rewarding end-users for participating in organizational KM: a case study," *Journal of Organizational and End User Computing* (20:1), Jan-Mar 2008, pp. 35 - 49

Smart, G. "Mapping conceptual worlds: using interpretive ethnography to explore knowledge-making in a professional community," *Journal of Business Communication* (35:1), Jan 1998, pp. 111-127.

Sorenson, O. and Sorensen, J. "Finding the right mix: franchising, organizational learning, and chain performance", *Strategic Management Journal*, (22.6:7), 2001, p. 713.

Spender, J. and Tsoukas, H. "Method, philosophy and empirics in KM and IC," *Journal of Intellectual Capital* (7:1), 2006, pp. 12-28.

Staples, D. and Webster, J., "Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams," *Information Systems Journal* (18), 2008, pp 617-640

Subramaniam, M. "Integrating cross-border knowledge for transnational new product development." *Journal of Product Innovation Management* 23.6 (2006): 541-555.

Szulanski, G., "Exploring internal stickiness: Impediments to the transfer of best practice within the firm", *Strategic Management Journal* (17), 1996, p. 27

Yakhlef, A., "Knowledge transfer as the transformation of context", *Journal of High Technology Management Research* 18 (2007) pp. 43-57.

Yin, R. K. *Case Study Research, Design and Methods*, 3rd ed. Newbury Park, Sage Publications, 2002.

Standardization and KM: Evaluating Knowledge Quality
Karen Druffel and Monica Garfield, Bentley University

Zack, M. "Managing codified knowledge", *Sloan Management Review*, 40(4) 1999, pp 45-48.