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Factors Critical to Knowledge Management Success

Curtis A. Conley
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The problem and the solution. This article integrates literature on organizational factors that influence knowledge management (KM) effectiveness that have been identified in several bodies of literature: HRD, information technology, and management. A framework has been developed that categorizes the various organizational factors and their paths of influence on KM effectiveness. It advances knowledge in the field of HRD by summarizing existing knowledge, identifying gaps, and providing agenda for future research in KM. It also provides practitioners of KM a holistic understanding of how organizational context influences KM effectiveness. This knowledge may help them to (a) diagnose their organizational environment before launching KM projects, (b) communicate with stakeholders the importance of ensuring a KM-friendly environment, and (c) optimize their resources and strategies to remove organizational barriers and cultivate organizational enablers for KM.

Keywords: *knowledge management; human resource development; information technology; management; organizational performance*

Despite the best efforts of organizations, many face challenges implementing and sustaining successful knowledge management (KM) initiatives or processes. This may stem from a variety of reasons, such as unrealistic expectations, a one-size-fits-all approach to KM, lack of understanding of KM, overemphasis on technology, lack of strategic alignment, or information overload (Bergeron, 2003; Hariharan, 2005; Probst, Raub, & Romhardt, 2000).

Like any other organizational initiative, KM practices do not exist in a vacuum. They occur in complex organizational environments that have a significant impact on KM success. Myers (1996) posited that organizational performance is a result of the interaction of strategy, organizational context, and



FIGURE 1: Framework of Organizational Contextual Factors That Can Influence Knowledge Management

individual behavior. As an individual's actions are influenced by his or her environment (Myers, 1996), the significance of organizational characteristics becomes particularly prominent. Similarly, KM success is believed to be dependent on organizational characteristics as they provide a context within which knowledge flows among individuals, whose actions in turn are influenced by their environment. It is progressively more difficult to succeed in a knowledge-intensive economy without leveraging organizational design to enhance KM (Myers, 1996). Appropriate organizational context enables an organization to execute better, learn faster, and change more easily (Mohrman, Cohen, & Mohrman, 1995).

This article integrates literature on organizational factors that influence KM effectiveness that have been identified in several bodies of literature: HRD, information technology, and management. An exhaustive review of literature in HRD, information technology, and KM helped in the development of a framework that incorporates factors in the organizational context that can influence KM. Research published in high-quality journals in each of these fields were drawn from when examining the factors critical to the success of KM initiatives. Factors most frequently cited as being critical in each of these literature bases have been incorporated. The framework developed as a result of this research, as shown in Figure 1, incorporates these factors as a means of identifying what factors exist, highlights the interrelated nature of factors, and provides direction for future research.

Framework of Factors Critical to KM Success

The framework makes an initial attempt to categorize known factors and suggests that implicit interactions between factors of any KM initiative will result in the relative degree of success or failure of the initiative. The factors

discussed in the article are thematized into two categories, organizational factors and factors related to the KM initiative. Organizational factors capture the general characteristics of the organization, such as top management and leadership support, organizational culture, structure, technology infrastructure, and strategy. KM-initiative-related factors encompass those that are targeted to KM practices, including processes, training and education, measurement, and incentives. The implicit interactions between factors that have been identified in the framework are characterized by Akkermans and van Helden (2002) as virtuous and vicious cycles, which are formed by the interrelationships between factors that cause a ripple effect among all factors. King and Burgess (2006) provide an example of a virtuous cycle, stating that

an increase in top management support could lead to the appointment of a dynamic project champion who, in turn, encourages the project manager to introduce regular cross-departmental process redesign workshops involving a wide range of stakeholders. These workshops lead to greater interdepartmental communication and, consequently, to greater collaboration. (pp. 61-62)

Figure 1 incorporates the core reinforcing loops between factors identified by Akkermans and van Helden (2002) and applies them to factors critical to the success of KM. Based on Akkermans and van Helden's research, it is proposed that the KM factors discussed in the next section are interrelated, some more significantly than others, and that it is the nature of these interactions that create and maintain either a virtuous or vicious cycle that determines the relative degree of success or failure of the KM initiative. The framework proposed in this study posits that value in understanding whether a KM initiative will tend more toward success or failure is dependent on both the presence of individual factors and the quality of the interrelationships between said factors.

Contextual Factors That Can Influence KM Success

The following sections provide a closer examination of each factor included in our framework. The factors in each theme are presented in descending order of the attention they receive in literature.

Top Management and Leadership Support

The support of top management and leadership for formal organizational KM initiatives is crucial, as it is with other organizational initiatives that involve changes in processes and employee behavior (Alazmi & Zairi, 2003; Artail, 2006; Davenport, De Long, & Beers, 1998). Hasanali (2002) suggested that the impact of top management and leadership support is greater for KM as it is an emerging discipline and employees may need the added incentive of a total commitment from their organizations top management and leadership. Top management support also influences other factors critical to the success of KM, such as organizational culture, as the top management is crucial in fostering trust and promoting a knowledge-sharing culture (Artail, 2006; Riege, 2005).

Wong (2005) suggested that it is critical for top management and leadership to support and model KM efforts within the organization as their behavior will influence the likelihood that other employees will engage in KM efforts. Similarly, Davenport et al. (1998) found that having the support of top management and, specifically, having the KM initiative championed by executives who model knowledge-sharing behaviors themselves fostered an organizational culture that was knowledge-oriented. The authors also found that the most helpful top management support came when top leadership articulated the correlation between KM and the organization's success, providing adequate resources and explicitly identifying the organization's most critical knowledge (Davenport et al., 1998).

This body of literature highlighting the importance of top management and leadership support indicates for HRD professionals that securing top management and leadership commitment and support should be the first step before launching KM initiatives. HRD professionals could help top managers and leaders understand that they need to be visible in terms of providing resources, engaging employees, and demonstrating the relevance of a new KM initiative. This is crucial as securing top management support emerged as the most frequently discussed success factor in the literature. It is crucial then that HRD professionals engage top leadership, as this factor is likely to heavily influence the quality of other interrelated factors. As expressed in Figure 1, the failure to secure top management and leadership support by HRD professionals may increase the likelihood of a vicious cycle affecting their KM initiative. As Akkermans and van Helden (2002) found in a case study of an ERP implementation with initially low support from top management, the implementation was salvaged and the vicious cycle reversed to a virtuous cycle once senior management became more involved, demonstrated engagement, and was visibly supportive. An implication for HRD professionals involved with poor or underperforming KM initiatives is that by increasing efforts to enlist top leadership support, the initiative may still be successful.

Organizational Culture

Organizational culture is a vital factor to an organization's ability to create value through leveraging knowledge assets (Cole-Gomolski, 1997; Ruggles, 1998). It is often cited as one of the most difficult factors to achieve as well as one of the biggest barriers to KM success. An organizational culture that encourages knowledge sharing, creation, and contribution to organizational knowledge structures is critical to the success of KM (Alazmi & Zairi, 2003; Davenport et al., 1998; Hariharan, 2005; Hasanali, 2002; Mathi, 2004; Wong, 2005). A wide range of cultural factors has been identified as conducive to different processes of KM, such as prioritization of knowledge, critical attitude toward existing knowledge, trust, care, openness, proactiveness, innovativeness, entrepreneurship, warmth, support, risk, reward, and so on (Zheng,

2005). For example, De Long and Fahey (2000) established four frameworks regarding the connection between organizational culture and KM. They conclude that organizational culture involves assumptions about what knowledge is important, defines the relationship between group and individual knowledge, creates a context for social interaction, and shapes the process by which new knowledge is created (De long & Fahey, 2000).

Some empirical studies confirmed the favorable contribution of certain cultural variables to KM effectiveness. Ruppel and Harrington (2001) studied intranet adoption. They found that in organizations whose culture displays a high concern for other people and an atmosphere of mutual confidence and trust, early adoption of intranet use is most likely to occur. Similarly, Politis (2003) found from his empirical study that interpersonal trust in one's peers facilitates open communication, the understanding of work-related problems, and the dissemination of knowledge. Furthermore, trust also encourages team members to gather new knowledge to develop useful decisions to solve problems (Politis, 2003). Simonin (2004) found that a culture that encourages discarding obsolete or misleading knowledge and challenging existing beliefs are contributive to KM.

Although an organizational culture is influenced by top management and leadership, organizational culture is often studied as a separate construct because it is also a confluence of the assumptions and values of organizational members. This body of literature on culture–KM link directs HRD professionals to pay attention to assumptions, values, and artifacts in an organization's culture that could influence how people perceive knowledge, how they interact with one another, and how they use knowledge in their work. All the cultural factors mentioned above could be used as leverage points in an organization to foster a KM-friendly environment.

Strategy

The relationship between KM and strategy is often discussed in two separate, but connected ways within the literature. First, to be successful and truly meaningful to the organization, KM should support corporate and business strategies and be integrated within the strategic planning process of the organization. Second, to carry out these goals, there should be an identified KM strategy in place, for example, codification or personalization strategies (Alazmi & Zairi, 2003; Artail, 2006; Mathi, 2004; Wong, 2005).

Wong (2005) noted that numerous KM strategies have been suggested throughout the literature; however, the most appropriate KM strategy is one that is crafted on the basis of the highly contextual needs of each individual organization. In addition, for the KM initiative to have the most impact, the KM strategy should be aligned with the most imperative needs of the organization as well as the overall organizational strategy. Having researched KM initiatives with more than 25 organizations, Zack (1999) concluded that the

most critical factor related to the success of KM is its alignment and support of the organization's overall strategy. There is strong consensus in the literature that KM efforts not aligned or integrated with an organization's strategy and/or that do not have a strategy of their own will find it extremely difficult, if not impossible, to have a significantly positive impact on the organization (Akhter, 2003; Riege, 2005; Shih & Chiang, 2005; Snyman & Kruger, 2004; Zack, 1999).

What this means for HRD professionals is that the crafting and implementation of KM strategy should be carried out with explication and clear intention. HRD professionals should help managers understand that a KM strategy needs to be explicated and communicated to organizational members as well as help employees see the connection of KM strategy with the organizational-level strategy. HRD professionals are experts in organization development and change. They can use their knowledge and tools to help refine and communicate KM strategy to organizational members as well as obtain buy-in and enhance motivation of employees in helping execute KM strategy. Through the development of a KM strategy focused on the organization's most imperative needs, HRD professionals can deliver tangible value and increase their value proposition to the organization.

Organizational Structure

Organizational structure provides a snapshot of organizational life (Rapert & Wren, 1998). It indicates an enduring configuration of tasks and activities (Skivington & Daft, 1991) and it provides guidance in determining whom people interact with in conducting organizational tasks (Rapert & Wren, 1998). More formalized and centralized structure dampens KM success whereas a flexible informal structure facilitates it. Burns and Stalker (1961) as well as Damanpour (1991) found that mechanistic organizations were inferior to organic organizations in creativity and innovation. Kennedy (1983) argued that mechanistic structure does not give adequate opportunity for individual growth and advancement. Moreover, it induces conformity from organizational members that diminishes diffusion of creative behavior (Kennedy, 1983). Formal organizational structure inhibits interactions among employees, yet those interactions are vital in the effective management of knowledge (Gold, Malhotra, & Segars, 2001). Concentrated power arrangements are inclined to prevent imaginative solutions to problems (Deal & Kennedy, 1982), and formalized structures make it difficult to acquire and use knowledge (Zaltman, 1979).

Bennett and Gabriel (1999) explained that flexible and informal structures facilitate internal communication within an organization, enhance people's willingness to change, propel more adventurous activities in information-gathering activities, cultivate a critical attitude in interpretation of information, and encourage individual initiatives. Khandwalla's (1977) study of 65 Indian

companies yielded similar results. He found that more decentralized and flexible organizational structures were linked to higher levels of creativity in an organization. Along the same line, from his study of structure and innovativeness in 16 firms in the United States and European steel industries, Miller (1971) found that an organic organization adopted a significantly larger number of innovations than a mechanistic organization. Gronhaug (1975) studied what prompted organizations to adopt or not adopt a new internal communication device. He found that one of the most significant variables that discriminates between adopters and nonadopters was the type of organizational structure (Gronhaug, 1975)—adopters have less formalized relationships and less use of written job descriptions. Gold et al. (2001) studied 323 organizations from the perspective of their senior executives and found that a flexible KM structure leads to organizational effectiveness.

Although HRD professionals may not be able to change an organization's structure directly, they can suggest ways for managers to build shorter and flatter paths of communication among employees and employee groups. HRD professionals can use social networks at the workplace (Salvatore, 2007) to help employees connect and make the actual communications more decentralized and less formal. Highlighting the interrelatedness of factors, HRD professionals can leverage a capable technology infrastructure (which will be discussed later in this article) to deliver tools that enable staff to communicate quickly, break down silos, and increase collaboration across teams, the organization, and the internal and external networks.

Processes

Processes must be established that capture or facilitate the building and dissemination of organizational knowledge (Davenport et al., 1998; Golet, 2006; Hariharan, 2005; Mathi, 2004; Wong, 2005). Processes should be implemented that support the organization's KM strategy (Wong, 2005). Without such systematic processes in place, the success of KM initiatives is left to chance (Hariharan, 2005). Hariharan (2005) concluded that it is vital to develop such processes that are known and articulated throughout the organization and that are tightly integrated within an organization's performance management system. Similar to an overemphasis on measurement, Davenport et al. (1998) also note that an overemphasis on developing intricately detailed processes for KM initiatives is also not advisable. The authors gave the example of an organization in their study that developed a comparatively extreme process-oriented approach to their KM initiative that had only implemented 5% of their KM processes by the end of the initiative's 1st year. The authors noted that this occurrence is a mistake that is consistent with previous studies. Mathi (2004) found that the most critical processes needed were those that eliminated the duplication of staff efforts and clearly defined for members of the organization what knowledge they were expected to share. Mathi concluded

that the development of systematic processes is the first step an organization should take in the creation of their KM initiative. Therefore, HRD professionals' attention should also be drawn to shape KM processes with KM strategy, through working with the leadership team to explore ways to better connect processes and strategic directions.

Technology Infrastructure

Although a capable technology structure is far from KM itself, technology is vital in enabling and facilitating many KM processes and initiatives (Alazmi & Zairi, 2003; Artail, 2006; Davenport et al., 1998; Golet, 2006; Hariharan, 2005; Hasanali, 2002; Wong, 2005). Hasanali warns that although technology is vitally important to enabling staff to collaborate, it can also be overemphasized to the detriment of the KM initiative as a whole, as the role of an organization's technology infrastructure should be seen as a tool in support of KM initiatives and not as the basis of the initiative itself. In a review of the literature, Alazmi and Zairi (2003) identified 15 recent studies that examined factors critical to the success of KM and found that a technology infrastructure was the second most frequently mentioned factor. Davenport et al. (1998) concluded that KM initiatives have the best chance for success when the organization's technology infrastructure is already in place, is robust, and is diversified enough to suit the differing needs of multiple audiences within the organization. Increasingly, the emphasis on an organization's technology infrastructure is shifting from a focus on the collection and codification of knowledge to enabling personal connections between employees (Riege, 2005). Consequently, the collaborative and communicative capabilities of an organization's technology infrastructure have become much more critical to the success of KM initiatives.

Technology can enable HRD professionals to facilitate knowledge flow in their organizations more efficiently. For example, communities of practice are usually used to facilitate knowledge sharing. With technological tools such as the intranet, virtual communities of practice could be formed that may increase the scope and timeliness of knowledge sharing (Ardichvili, Maurer, Li, Wentling, & Stuedemann, 2005). Furthermore, HRD professionals also need to help the organization focus on using technology to facilitate people's interactions and knowledge flow rather than focusing on technology per se (Ardichvili, 2001).

Training and Education

The role of ongoing training and education in a successful KM program is also an important consideration (Alazmi & Zairi, 2003; Artail, 2006; Golet, 2006). Although some members of an organization may have an understanding of what KM is and the benefits that can be had from its adoption, it is crucial to educate all employees on what KM is, why an explicit program has been

developed, how employees can contribute, and what they can expect from the KM efforts. Moreover, as the KM program develops, ongoing training and education should take place to keep employees abreast of how they can contribute and how they can take advantage of the new tools and processes that have been put in place. The more employees know about and are aware of how they can improve their day-to-day tasks by means of engaging in KM efforts, the more likely they are to use and contribute to organizational knowledge structures (Wong, 2005).

Training and development is in essence the transfer of knowledge. They are HRD professionals' forte. For the purpose of facilitating KM, HRD professionals need to use their expertise in training and development to identify employees' needs to know how they can contribute to KM efforts, to provide them with knowledge and resources for adopting KM tools and systems, and to ensure their continued engagement in KM-related activities.

Measurement

Measurement provides milestones and benchmarks from which targets, goals, and improvements can be calculated. For a KM initiative, measurement of a defined set of criteria is important as it allows those responsible for KM efforts to evaluate the impact of KM and also provides evidence of value to top management and other stakeholders (Golet, 2006; Hariharan, 2005; Wong, 2005). As KM efforts often deal with intangible and nonfinancial measures, it is also important to examine how KM efforts are affecting these areas (Hasanali, 2002; Mathi, 2004; Wong, 2005). Wong (2005) warned that KM initiatives have the potential to be seen as a management fad within an organization, unless the initiative efforts are measured and can clearly demonstrate value to the organization and its members.

As a result of the often intangible benefits associated with KM, Wong (2005) suggested that measurement of KM initiatives is best done with both quantitative and qualitative means. And Hasanali (2002) noted that identifying a return on investment is often the key deliverable of KM measurement efforts; however, proving that KM efforts were the cause of an organizational outcome can be difficult. The author suggested that rather than focusing solely on measurements that demonstrate causation, measurements should be developed that demonstrate correlation between KM efforts and favorable business outcomes over time. Similarly, Hariharan (2005) suggested that developing measurement efforts focused on identifying KM's impact on the organization's most critical business processes is key to demonstrating value. In an organization studied by Hariharan, KM was measured in the same way as overall business performance. The author concludes that by measuring KM success in this way, organizations are in the position to best be able to demonstrate value to the business as well as keep those responsible for the implementation and execution of KM efforts focused on strategic contributions to the business (Hariharan, 2005).

Despite the debate on measurement and evaluation in the HRD field, measurement and evaluation are gaining prominence among HRD professionals (Spitzer, 2005). The increasing focus on measurement of KM coincides with the growing attention to measurement in HRD. HRD professionals can learn and apply different models of measurement, qualitative or quantitative, in KM initiatives. Like any other organizational intervention, KM may be evaluated on the basis of HRD evaluation models, such as Kirkpatrick's (1994) or Holton's (1996) evaluation models.

Incentives

Encouraging employees to contribute to and participate in KM efforts is an important step in developing a knowledge-sharing culture. Both financial and nonfinancial rewards are often suggested as means of encouraging employees to participate in KM efforts (Davenport et al., 1998; Hariharan, 2005; Hasanali, 2002; Wong, 2005). Davenport et al. (1998) stated that offering incentives as a means of enticing staff to engage in KM activities is one of the most common success factors; however, it is also one of the most difficult factors to sustain during the lifetime of a KM initiative. The authors stated that in multiple studies they have conducted, they have found that although trivial incentives may initially increase employee participation in organization KM initiatives, they did not sustain participation over time. Riege (2005) suggested that incentivizing knowledge-sharing behaviors should be done by integrating the desired behaviors within the organization's performance and compensation system. In studies where this is the case, Davenport et al. (1998) found that organizations that recognized this and offered both financial and nonfinancial incentives to employees that were of greater or lasting value have met with greater sustained participation and engagement in organizational KM initiatives.

HRD professionals have focused on employee motivations and incentives that fuel employee learning and performance since its inception. HRD professionals' knowledge of the motivation to learn, transfer training, and improve work through learning (Naquin & Holton, 2003) could be applied in KM because KM is also concerned with knowledge transfer and learning.

KM Team

Although KM initiatives often require the involvement and engagement of every individual in an organization, it is important to develop positions whose primary roles and responsibilities are related to the organization's KM program. Davenport et al. (1998) suggested that creating a core team with specialized skills in KM is critical, as they then have the skills to most effectively promote and drive KM throughout the organization. Although the most frequently discussed role is that of the CKO, positions responsible for KM can include nonsenior management or a team of individuals charged with leading

the KM program (Davenport et al., 1998; Golet, 2006; Hariharan, 2005; Hasanali, 2002; Wong, 2005). Furthermore, each organization should establish a structure that best suits its needs and overall KM strategy; Hasanali (2002) noted that KM organizational infrastructure is commonly composed of a hybrid centralized–decentralized approach and often includes “a steering committee, a central KM support group, and stewards/owners throughout the organization who are responsible for KM” (p. 2). Hariharan (2005) asserted that KM is a specialized organizational role and advocates that organizations invest in roles that focus directly on KM efforts as they would be in a unique position to ensure the success of a KM initiative. Hariharan asserted that organizations that make the investment in specialized KM roles will derive much greater benefit from their KM initiative than they otherwise would without the roles in place.

HRD professionals acknowledge that team-based activities have become commonplace in the workplace (Hall, 2007). HRD professionals have been exploring ways to work effectively with teams. Tools and methods developed in the organization development area can be applied to create and enhance the effectiveness of KM teams. In addition, HRD’s focus on developing the learning organization could also benefit the mobilization of organizational members to participate in building the KM infrastructure.

Summary

Key organizational contextual factors that can influence KM success have been reviewed. Without these critical factors, KM practices within an organization ultimately will flounder and fail. This article synthesized research on factors that may affect KM initiatives as well as addressed a gap in the literature by providing a definition and review of each factor. The success factors identified by various authors are often similar, yet numerous differences and discrepancies exist (Alazmi & Zairi, 2003). What is missing from the KM literature base is a framework that incorporates these factors and identifies the interrelationships between them. With few exceptions, the KM literature base has yet to evolve past discussing factors critical for the success of KM and move toward the creation of holistic and explanatory frameworks. The work of Holsapple and Joshi (2000) has established a positive direction for work on critical success factors for KM; however, further work must be done to advance the understanding of what factors exist and how they affect the success or failure of organizational KM initiatives. This article moves the literature forward by developing a proposed framework of interrelated KM factors; however, future studies should be undertaken to improve on and validate the framework proposed in this study. In this respect, research on success factors for KM must work toward the goal of developing and validating a robust and holistic framework, building on what is currently known and drawing from more thoroughly researched disciplines such as IT and project management.

Implications for HRD

KM as a component to a holistic HRD system in the workplace is capable of supplementing other components of the HRD system such as training and learning initiatives. HRD professionals charged with understanding the needs and challenges of learning in the workplace are increasingly turning to KM as a means of complementing other HRD practices and facilitating both individual and organizational learning (Ardichvili, 2002). As the function of KM in HRD systems continues to grow and become more vital to HRD efforts, it is imperative that HRD professionals have a firm and holistic understanding of the most critical factors that may result in either the success or failure of KM initiatives (Gourlay, 2001; Oh, 2000).

The framework developed as a result of this study categorized the various factors. It can provide scholars and practitioners of KM an insight into what factors exist. Recognizing that practitioners operate in unique organizational contexts is something the proposed framework recognizes, as it does not attempt to prescribe a list of factors with a ranked level of criticality. Whereas previous studies on critical factors for KM have primarily focused on providing a checklist of factors, this framework may provide HRD practitioners with a tool that both highlights what critical factors exist and emphasizes the importance of accounting for the interrelationships between factors that were not obvious in previous studies. This knowledge would help them (a) diagnose their organizational environment before launching KM projects, (b) communicate with stakeholders the importance of ensuring a KM-friendly environment, and (c) optimize their resources and strategies to remove organizational barriers and cultivate organizational enablers for KM.

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