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Linking Knowledge Management and Organizational Performance

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Abstract

Over the last 15 years, knowledge management (KM) has generated huge interest from the actors involved in research and practice. The promise of increased organizational performance has contributed to the development of various aspects of KM. Limited successes in implementing strategic KM solutions and some frustrating experiences around practices have also been widely observed. In this article, we propose a multidimensional KM approach to support decision performance as a foundation for overall organizational performance. This approach is conceptualized considering technological tools adapted to the context, process and activities related to decision situations, organizational structure and culture that empower decision makers and recognize the value of knowledge. Our approach requires an alignment between KM initiatives and business process objectives based on the KM dimensions in order to improve of decision performance.

Keywords: knowledge management approach, organizational performance, decision performance, knowledge-based decision making

1. Introduction

We live in an era where knowledge plays a dominant role in our daily lives and in the business world. Knowledge has always been of paramount importance for humankind and its evolution, as well as for the management of organizations. What has changed in recent years however, is the fact that knowledge has been given value as an economic asset, a factor that is completely disruptive for organizations. According to Foray (2004), the manner in which knowledge is acquired, produced, disseminated and marketed, or in other words managed, cannot be compared to any other previously managed economic asset, because it possesses characteristics and dimensions that influence the manner in which it is managed (Foray, 2004).

Knowledge plays a central role in the differential competitive advantage of organizations and knowledge management (KM) helps them to deal with changes in the business environment (Hansen et al., 1999). Organizations need to use knowledge in order to improve their performance and to ensure long-term viability in the current business environment (Malhotra, 2001). The promise of increased organizational performance has contributed to the development of various aspects of knowledge management (Chua & Lam, 2005). These views have also contributed to the development of various aspects of KM, but have also emphasized a lack of holistic view in both practice and scientific literature (Quintas, 2008).

According to the Gartner Group (2007), approximately 80% of KM initiatives have not met all their objectives. Akhavan et al. (2005) studied some factors underlying these shortcomings, and concluded that the reasons could be related to a lack of: any connection between KM and the organization's strategic objectives; any knowledge-based strategies to manage content; any connection between KM practices and the daily work of individuals; familiarity of top management with the dimensions of KM and its requirements; improper selection of knowledge team members, etc.

According to these authors, these problems obstruct the effectiveness of KM efforts and any significant contribution they may make to business results (Akhavan et al., 2005). Tiwana has affirmed that "knowledge drives strategy and strategy drives KM" and has emphasized that "without a clearly articulated link between KM and business strategy, even the world's best KM system will deliver nothing. Strategists (strategic business

managers and knowledge managers) should therefore take note of the major impact of knowledge on the formulation of corporate strategy and organizational success" (Tiwana, 1999, p. 103).

Even though there have been a lot of effort in developing appropriate approaches to KM in the last decade, Quintas (2008) highlights the fact that in many cases, the links between KM goals and approaches and the organization's strategic objectives are not well-established, which leads to a poor return on KM investment. Perrin et al. (2006) state that "The difficulties encountered by practitioners like Knowledge Managers tempted by this adventure and by researchers seeking to identify these problems, or even hoping to propose improvements, can be explained by the parcelling out of the different approaches and the absence of an integrative vision" p. 33.

These observations, both from practice and research, highlight the need to better explain the connection between KM and organizational performance. Certain authors have suggested that this limitation requires an effort to define integrative frameworks that deal with an organization as a complete system (Earl, 2001; Hazlett et al., 2005; Martensson, 2000; Perrin et al., 2006). In addition, since KM holds a strategic role in organizational management, a proper understanding of how it can help improve the performance of organizations remains a priority for management research (Earl, 2001; Perrin et al., 2006; Quintas, 2008).

The issue concerning KM and its tangible contribution to organizational performance (OP) has been the basis of our work. In this article, we propose a multidimensional and integrative framework with the purpose of orienting KM towards decision performance (DP) and to contribute to minimizing the shortcomings reported in the previous literature.

2. Methodology

This study presents the results of a literature review conducted to identify KM dimensions that are likely to contribute to decision performance improvement. First, our examination of the literature pertaining to KM theory provides relevant documentation for the analysis and summary, as proposed by Ipe (2003). We began the literature analysis process by identifying publications that were relevant to the objectives of this article. The summarizing process focused on the KM reference framework, its main shortcomings and opportunities for improvement.

Our efforts were mainly put on understanding the reasons why KM projects fail. We also focussed our literature review on publications that make reference to KM and organizational performance, and mostly about integrative KM frameworks oriented toward organizational performance objectives.

3. Literature on Knowledge Management within Organizations

Knowledge is essential to the management of organizations and, over the last few years, it has been recognized as a strategic resource for their performance (Drucker, 1999; Hansen et al., 1999). Managing the knowledge resource has become an essential capability to create value within organizations (Marr et al., 2004). Despite the importance of this resource in the current business environment, the term "knowledge" is subject to multiple classifications and several interpretations. In order for knowledge to be effectively used in organizations, three components must be managed: data, information and knowledge.

3.1 Knowledge Continuum Value Creation

The literature on KM commonly refers to knowledge components with a hierarchical view, i.e., data, information and knowledge per se. Data are facts about activities. They consist of recorded observations and measures, which, in a given context, can be interpreted and organized, in a form that enables information to be extracted (Blackler, 1995). Data which are placed in context, categorized, classified, corrected and condensed constitute information (Bhushan & Rai, 2004). Information is a group of data that has meaning. When information is understood, interpreted and integrated, it can serve as an important reference point for the daily activities of an organization (Bhushan & Rai, 2004). Knowledge is linked to action, to the ability to generate, extrapolate and deduct new knowledge as a result of its use. In other words, knowledge differs from information in that it is rooted in the capacity to increase one's ability to understand information in a given context so as to be able to create new knowledge (Nonaka & Takeuchi, 1995).

In an organizational environment, knowledge takes these three forms, and must be mastered and managed in such a way that it can be read, interpreted, understood and applied to a function or a specific activity in an organization's business processes and particularly, in business decisions. However, mastering knowledge and its components requires consideration of its various characteristics in order to understand its dynamics in the organization. The characteristics of organizational knowledge are also useful to define initiatives and mechanisms, in order to better manage the knowledge that is available and required for business-oriented

decisions. Knowledge can thus become a veritable resource and help achieve an organization's strategic and performance objectives (Grant, 1996; Foray, 2004).

Knowledge, with its various characteristics, is a complex resource to manage. However, organizations view knowledge as a resource that can provide them with a competitive advantage (Grant, 1996). Knowledge is viewed as an unrivalled, intangible asset. Understanding the dynamics of knowledge characteristics in an organization is essential to the implementation of management initiatives and mechanisms to manage knowledge as a strategic resource for OP (Carlucci & Schiuma, 2006). Knowledge must therefore be managed from a strategic point of view in order to enable individuals, referred to by Drucker as "knowledge workers", to better accomplish their daily tasks and make better decisions to meet their strategic objectives (Drucker, 1999).

This view of organizations is based on the knowledge-based theory proposed by Grant (1996), and is founded on the resource-based view, put forward by Barney in 1991, but originally proposed by Edith Penrose in the 1950s. The resource-based view rests on the heterogeneous nature and lack of mobility of certain resources, which the organization recognizes as leverage points. These represent the organization's competitive advantage and are essential to performance (Grant, 1996). The value of knowledge for an organization is intrinsically related to the context in which it was created and its use. Organizations need to use their knowledge to perform better and innovate in order to ensure long-term viability in the current business environment (Malhotra, 2001). Organizations are thus supposed to manage their knowledge and link knowledge management to the individuals' daily activities, basically involving decision situations (Alenljung, 2008).

3.2 Knowledge Management in Organizations

KM is defined in the literature from several points of view and perspectives, as it appears at the intersection of several disciplines, including information sciences, strategic management, human resource management, information and technology systems management (Quintas, 2008). The management science perspective has benefited from advances in competency-based theory (Spender, 1996), resource-based theory (Barney, 1991; Amit & Schoemaker, 1993; Grant, 1996), as well as theories used in psychology and education regarding the cognitive aspects of learning (Wenger, 1998). With computer sciences, the debate has focused on the development of technological tools, integrative platforms such as portals, networks (intranet, groupware, etc.), decision aids or support and information analysis systems (data warehouse) (Tiwana, 1999; Hazlett et al., 2005).

For some authors, KM is a function which creates, identifies and manages organizational knowledge for long-term benefits (Darroch, 2003). Gold et al. (2001) consider that "KM is a complex undertaking involving the development of structures that allow the firm to recognize, create, transform, and distribute knowledge". KM is also a collection of activities that are organized and systematized to meet corporate objectives (Malhotra, 2001). Rivard and Roy (2005) define KM as "…the creation and organized use of knowledge held by members of an organization for the purpose of helping the organization meet its strategic objectives and to innovate" (our translation, p. 30). Many others have also considered KM as a set of activities for better OP (Balasubramanian et al., 1999; Zack, 1999; Holsapple & Singh, 2003; Holsapple & Joshi, 2003; Holsapple & Joshi, 2004; Kalling, 2007; Pee & Kankanhalli, 2009; Fugate et al., 2009).

OP, as well as KM, has numerous definitions, which implies many ways of evaluating it. Kaplan and Norton (2003) argue that financial and non-financial aspects must be considered in order to analyze OP, which depends on business objectives (Kaplan & Norton, 2003). Several elements, e.g., business processes, culture, image, policies, leadership, innovation are mentioned as ways to improve overall business outcomes and are founded on knowledge creation and decisions (Holsapple & Singh, 2003; Kalling, 2007; Holsapple, 2008).

A deeper examination of the literature on KM reveals that few studies propose an OP-oriented approach based on an integrative framework, despite the fact that reference is often made to OP in KM definitions (Ipe, 2003; Hazlett et al., 2005; Kalling, 2007). Furthermore, integrative frameworks that show links between the needs of the organization and the organization's strategic objectives are even more scarce (Hazlett et al., 2005; Rivard & Roy, 2005; Zack et al., 2009; Kuo & Ye, 2010).

3.3 Knowledge Management and Organizational Performance

Rivard & Roy (2005) propose an approach, which they call "strategic knowledge management". Their approach focuses on business performance, with an emphasis on processes, activities and technology to meet the organization's strategic vision, while "putting forward human creative and social capabilities in the creation and use of knowledge" (p. 29). In a more recent study Pee & Kankanhalli (2009) mention many studies which have investigated organizational dimensions and their influence on KM processes, but only two papers specify measures for OP (Gold et al., 2001; Chuang, 2004).

These studies consider more than one organizational dimension to define KM in order to contribute to OP (Chuang, 2004). For example these studies propose a multidimensional KM approach to demonstrate the relationship between resource-based perspective on KM capability and competitive advantage. However, this study does not consider strategic alignment or organizational goals to evaluate their relationship with OP and this aspect is also a limitation pointed out by the author Chuang (2004).

This gap between strategic alignment and OP in the KM approach was proposed by Zack (1999), and pointed out the relevance of the alignment of KM strategy and organizational strategy and the importance of defining actions and interventions in order to create value for organizations. Malhotra (2001) criticizes the exclusion of KM and its orientations to achieve organizational strategic objectives in organizational strategies. On this subject, Hazlett et al. (2005) and Quintas (2008) describe a lack of consideration of KM as a multidimensional concept and point out the value of actions and knowledge available to achieve the strategy. According to these authors, this is a major weakness found in most approaches proposed in the literature on KM. Moreover, organizations that excel in the areas of innovation and performance have generally adopted within their strategy a culture that encourages cooperation and knowledge sharing, since they have recognized the value of knowledge for OP (Malhotra, 2001; Martensson, 2000; Rivard & Roy, 2005; Kalling, 2007).

In addition, ten years since his proposal, Zack et al. (2009) demonstrated that most KM frameworks do not take into consideration a multidimensional view and an orientation toward organizational strategy. However, in recent years, some authors have started to consider this aspect and four dimensions are the most studied in the context of OP. These dimensions of KM are shared by Roy & Rivard (2005) and many other authors that use different names to describe or consider similar aspects, i.e., "structure, process, organizational culture and technological tools" (p. 30). The goal of these authors was to demonstrate KM effectiveness within organizations. The authors discuss the limitations of existing approaches by raising aspects related to the nature of knowledge, cultural and systems barriers, as well as the measure of return on investment (Perrin et al., 2006). Thus, the authors introduce a KM model based on four dimensions. KM must be designed with the purpose of helping organizations to reap its benefits, especially from knowledge sharing, so that efforts and investments are not lost (Perrin et al., 2006).

Many studies mention that OP is an important aspect to be considered in the KM approach, especially founded on resource-based theory by considering firms' internal resources (Lee & Choi, 2003; Chuang, 2004; Tanriverdi, 2005; Pee & Kankanhalli, 2009; Fugate et al., 2009; Albers, 2009; Kuo & Ye, 2010). This suggests that the literature on KM, although it has evolved over recent years and makes significant contributions to management theory and practice, still does not provide an overall view of organizations and fails to establish direct links between KM and OP (Hazlett et al., 2005).

Recent studies have devoted efforts to understanding the underlying mechanisms through which KM influences OP, based on the concept of KM capability in different contexts (Pee & Kankanhalli, 2009; Fugate et al., 2009; Albers, 2009; Kuo & Ye, 2010). Holsapple & Wu (2008) mention this aspect as the "missing link" of KM; they concluded that financial performance is associated to excellence in KM practices, but the links that explain the entirety are still not really clear. However, the authors underlined that some findings are related to better decision results (Holsapple & Wu, 2008). Also, many researchers have mentioned KM's contribution to decision results (Yates et al., 2003; Raisinghani & Meade, 2005; Carlsson & Kalling, 2006; Poston & Speier, 2008; Alenljung & Persson, 2008; Holsapple, 2008)

3.4 Knowledge Management and Decision Performance

Holsapple (2008) underscores the fact that a decision encompasses a set of knowledge with multiple characteristics, i.e., explicit knowledge (data, information and structured information) and tacit knowledge (insight, judgment, decision). The result of the decision is therefore composed of the knowledge available in the organization and integrated by individuals. Moreover, the decision itself can result in new knowledge created during the decision-making process supported or not by a system.

This principle is founded on the author's idea that "Knowledge management and decision support have a common aim: to make the decisions and actions taken on the basis of information and knowledge more effective and efficient. This aim drives the intention to better manage knowledge and thus ultimately improves decision making in a knowledge-work context. A goal of KM is therefore to provide decision makers with necessary intelligent assistance, to access the right information and knowledge in the right forms, at the right times, and at the right costs" (Burstein & Carlsson, 2008, p. 106).

Moreover, Holsapple (2008) considers that KM is related to decision-making activities. Holsapple states that "To understand decisions and decision making, we need to understand knowledge and knowledge management" (Holsapple, 2008, p. 21). Holsapple and Wu (2008) conducted a study of 28 American businesses which had

achieved a high level of KM excellence, as recognized by MAKE (Most Admired Knowledge Enterprises). The authors reported a positive effect of KM on financial performance. However, they were unfortunately unable to objectively validate these statements by defining the determining factors. Despite the fact that several indicators were collected regarding the performance of decision-making, most mechanisms and initiatives are poorly understood and require further study (Holsapple & Wu, 2008).

Many organizational dimensions are determining factors for the success of KM initiatives, practices and approaches within organizations. Rivard and Roy (2005) state that when planning KM "the organization, culture and process are just as determinant as information management technological means and tools" (p. 30). This approach introduces activities and actions for KM implementation and analysis, which are oriented toward an organization's objectives. Perrin et al. (2006) present similar visions regarding KM shortcomings and propose initiatives, mechanisms in order to put KM into practice within the organization. They consider that KM should be based on the following dimensions:

- Culture: encouraging knowledge sharing.
- Strategy: determining the knowledge to be shared and protected within the organization.
- Structure: promoting or supporting the development of KM practices.
- Technology: developing a system that allows coding and the transfer of knowledge.

This approach integrates both organizational and technological dimensions in order to connect the KM approach to the organization's strategy or business objectives. Holsapple and Wu (2011) empirically justified the relevance and value of giving special attention to the business strategy and KM. However, details on which KM strategy the managers should adopt or how this strategy should be implemented to measure the performance are not given, but they mention improvements on decision results (Holsapple & Wu, 2011). In this sense, the authors put forward the relevance of KM to guide the organization's strategy and take into account dimensions that will promote the creation of value, as mentioned by Zack (1999), Rivard (2005) and Zack et al. (2009).

Our literature and argumentation illustrates the potential of KM to help organizations deal with changes in the business environment. These issues concerning KM and its tangible contribution have motivated our research and our efforts to clearly identify mechanisms in the missing link mentioned by Holsapple and Wu (2008). Our integrative KM framework is presented in the next section.

4. Multidimensional and Integrative KM Framework Proposal

Our integrative and multidimensional framework is founded on a set of factors in order to facilitate KM by individuals in the organizational environment and contribute to DP. This proposal for a conceptual reference framework thus encompasses the four dimensions, i.e., the means and tools, processes, structure and culture, described as follows:

- Processes and activities: actions that support knowledge creation and use for daily activities and decisions.
- Technology and tools: defined or adapted technological tools or means to sustain KM mechanisms and initiatives for daily activities and decisions.
- Structure: definition of roles to support knowledge creation and utilization, as well as all KM processes for daily activities and decisions.
- Culture: aspects of the organizational environment, which facilitate sharing based on confidence.

This integrative and multidimensional framework takes into account the knowledge available in an organization and its use in producing better decisions concerning business activities and processes. Knowledge must be created and used to improve the decision results in the daily tasks of individuals in order to achieve the expected KM benefits, based on decision results, or decision performance (DP). Decision performance is measured through quantitative and qualitative (subjective) indicators that contribute to OP (Yates et al., 2003; Carlsson & Kalling, 2006; Poston & Speier, 2008).

From this angle, we consider that KM helps individuals in their activities as managers and decision makers, who create, acquire, share and use their knowledge in their daily activities to improve DP. In this way, individuals must be supported by a culture that encourages the sharing and use of knowledge and plays a role in activities that support the KM process. Also, individuals must be supported by means and tools that make knowledge accessible and useable within the organization. In addition, individuals must be trained to understand the value of their daily activities and their contribution to the organization's strategic objectives.

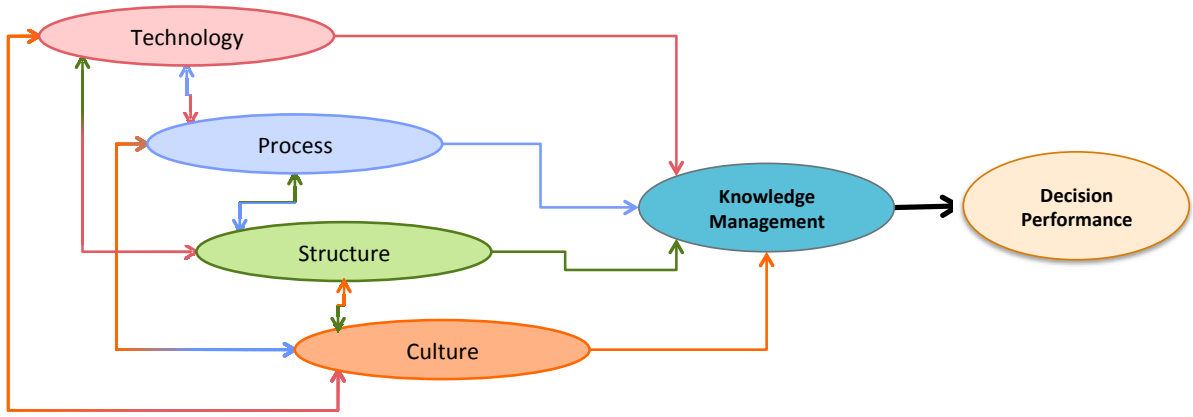

Figure 1. Integrative and multidimensional framework as a support to OP improvement

In this KM approach, our framework gives significant value to the strategic orientations or business objectives of the organization, which serves to guide KM initiatives. Moreover, it supports an organization's adaptation to the changes required for a strategic vision of knowledge that is fundamental and essential to the development and to the long-term viability of the organization, as proposed by Rivard & Roy (2005). Our framework therefore constitutes an integrative approach that allows an all-encompassing vision of knowledge within an organization in order to evaluate and guide KM strategic orientation for DP.

All of these dimensions are important for an effective KM approach which supports DP improvement since individuals interpret opportunities and threats, and make decisions based on their understanding of the context, their definition of the problem, their knowledge, and the knowledge available in the organization. In addition, in our integrative and multidimensional framework we consider that all KM dimensions influence each other. Technological dimensions need to be supported by activities and processes that affect the role of people. In addition, all choices in KM depend on the support of organizational culture. Then, all KM mechanisms and initiatives need to be defined from a holistic viewpoint, taking into account decision needs founded on business objectives.

5. Conclusion

The issue regarding KM and its tangible contribution to OP has served as the motivating force behind this article. Knowledge recognized as a strategic resource for OP must be managed as an essential capability for the creation of value. However, most proposals have failed and have not brought forth any real benefits with regard to effort in terms of performance improvement, but are all based on decision results.

We identified an approach that enables the value of knowledge to be incorporated into the organization to improve decision performance. This approach is based on the use of organizational knowledge to improve the quality of the decisions made in the daily practices of individuals. These individuals interpret opportunities and threats and make decisions based on their understanding of the context, their definition of the problem, their knowledge and the knowledge available in the organization.

The various organizational, technological and human dimensions are essential to maximize the creation and use of the "knowledge" resource. Furthermore, they also contribute to task achievement and the decision-making required for DP. In an organization, the ability of individuals to identify relevant knowledge that can be used to create value is essential, as suggested by Holsapple (2008).

Our integrative framework proposes a new stream of research for understanding KM and DP. Future research should examine factors that are related to each dimension of KM in order to support DP. First, this framework enables us to link the daily activities of individuals and the "knowledge" resource used to produce the results of the decisions. This is an opportunity to give value to the knowledge available in an organization and to the knowledge held by individuals, which is used in daily activities and decisions, as argued by Drucker (1999). Also, our integrative framework considers the recommendation of Zack et al. (2009) about improving the measurement of KM practices and pratical implications by focusing KM initiatives on specific intermediate performance outcomes. Furthermore, future work can examine how a multidimensional approach of KM can support DP based on business objectives.

Additional research, especially empirical, can shed light on the "missing link" mentioned by Holsapple & Wu

(2008) identifying mechanisms and initiatives to guide implementation of the multidimensional KM approach based on business objectives for better DP. These are all ways that can contribute to improve the quality of the decisions as a whole, which should in turn help improve OP.

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