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1. Introduction

Organizations experience the competitive advantage of innovation as they face a globalizing knowledge economy. In that regard, knowledge management has evolved as one of the most important sources of competitive advantage (Drucker 1988; Senge 1990; Davenport and Prusak, 1998; Srikantajah and Koenig, 2000; Tang, 2011). Many of the older companies remain on the forefront of their markets, and sustain their superiority over supposedly aggressive and nimble start-ups through their ability to manage knowledge and innovation in a steady and paced manner (Brand, 1998; McAdam, 2000; Swanborg, 2010). As concepts of the learning organization evolved over the last decades, knowledge management became synonymous to competitive advantage. Since knowledge is the catalyst to the development of core competences, it is a main driver of innovation in the organization. This is particularly important in the current globalization wave that is pressuring companies to go beyond traditional self-renewal techniques such as the acquisition of external technologies or the purchase of modern assets. Organizations are pushed to create an internal, self-propelling process for product innovation that would keep it steps ahead of competition (Ahuja, 2011; Yang 2007).

2. A typology of knowledge: Management choices

As the idea of knowledge management made it into corporate practice, processes were put in place to make the idea operational. The field then grew to include a typology of knowledge; namely two major types - codified knowledge and tacit knowledge (Handy, 1989; Millar, 1998; Chalhoub 1997; Senge, 1990). While codified knowledge lends itself to being embedded in repetitive processes within daily operations, tacit knowledge requires various types of direct interaction in between parties for knowledge to be exchanged and ideas to evolve (Wetlaufer, 1999; Adva 2011). Codified knowledge requires what is called extraction processes and mechanisms so that companies could use it in the form of intranets, electronic or traditional media, and signs and symbols that could be interpreted by anyone acting independently or with minimal interaction (Chalhoub, 2010; Hansen et al. 1999). Although codification techniques have proven to be helpful especially in cases of turnover,
tacit knowledge is favored by various schools of thought including Japanese corporate practice. Deeply rooted in Japan’s cultural environment, the exchange of knowledge between workers is based on a dynamic interaction that results in idea generation, experience sharing, and applied advice (Nonaka and Takeuchi, 1995). Tacit knowledge requires ways to be created, evaluated, monitored, and most importantly utilized by its human resources for company performance. Interestingly, this soft asset turns out to be the hardest to duplicate by competitors (Zhang and Kim, 2011).

Knowledge mobility poses a challenge in linking it to performance measurement. As one of the managers that we interviewed in Pasadena, California, put it when describing his company “95% of our company assets and financial worth leave the company everyday …” he said “only to get them back in-house the following morning” describing the thousand and some engineers working in the premises. While mobility contributes to competitive advantage, it puts the organization in a vulnerable position if the latter does not have the requisite culture that appreciates and retains knowledge workers (Theriou and Chatzoglou, 2008; Nonaka and Takeuchi, 1995). This is the type of culture that keeps senior managers fully aware of, and concerned about, the well-being of knowledge workers to manage a paradoxical relationship: mobility yet stability (Zheng et al., 2010). Tacit knowledge is also attributed to corporate entrepreneurship whereby a network of knowledge workers collaborate and launch entrepreneurial activity embedded in an established corporation (Floyd and Wooldridge, 1999).

3M is known for its philosophy of competition through continuous innovation. The company instilled policies that encourage managers to look for new ideas and launch new products. But the company goes well beyond policies and processes in its philosophy; 3M relies on tacit knowledge. For tacit knowledge to be effective in driving performance, the company culture must foster sharing and collaboration. Despite the common perception that start-ups are usually more aggressive than older industry counterparts in terms of innovation, older companies such as 3M, which was founded in the 1890s, can be a role model for self-renewal through knowledge management.

3. Analysis framework in knowledge management

The use of analysis frameworks provides a roadmap for the academian and the practitioner in pursuing an idea from concept to application. Analysis frameworks became an integral part of organizational strategies in order to provide fact-based and consistent policies (Yanga et al., 2010; Norton and Kaplan, 2001).

We propose an operation’s level framework of analysis in knowledge management. One of the advantages of the proposed framework is that it assists the analyst in using an organized and structured approach in dissecting and solving a problem. Before proceeding, we define performance in the context of work environment. Performance at work requires the ability to understand the process that you are driving, the content needed within that process to make decisions, the ability to distinguish between results that meet requirements from those that do not, and the ability to change the process under certain conditions (Liao and Wu, 2010). We identified four components of knowledge management that are operational performance drivers and we linked them through an analytical framework. Figure 1 shows the framework schematically and illustrates how the process steps, decision points, and
knowledge inputs and results (as outputs) are laid out. This is not to be confused with process reengineering or workflow design. It rather helps the analyst set the stage for building a learning organization. The main question becomes: how does the organization create, disseminate, and channel those knowledge elements in the third layer of figure 1 to drive faster and better decision-making, while performing daily processes and without disrupting operations?

Consider the framework in figure 1. The practitioner can now focus her workshop or focus interviews on key research questions. The first question is related to decision-making. No matter how detailed or long-drawn is the process laid out for a certain department or in a certain company function, the main challenging points are those key decisions that the knowledge worker is expected to make to run the business or perform within that process. For example, if a person is ultimately responsible for the purchasing and procurement processes, he will always face decisions related to supplier selection, quantities ordered, or the set of quality or technical specifications to be met. A CEO, who is ultimately responsible for company strategy, will always face decisions about the choice of the next country of physical expansion, decisions about market entry, market exit, choice of alliances or strategic partnerships. Therefore the first question that the knowledge worker needs to ask is: Q1: what are the key decisions that I need to make better and faster than in my existing performance level?

Note that the question is phrased in a way that the point of reference is the existing or current performance and the aim is to exceed it into a superior or desired performance level. It is therefore understood that comparative business analyses, benchmarking, competitor analysis, environmental scan and the like should be implicitly practiced by the organization a priori, and that the manager should already be aware of where the organization stands with respect to its competitors. Therefore, knowledge management practices should embed comparative analyses to track changes in performance. The analyst at this point needs to
identify and list those decisions in collaboration with the most relevant human resources to that particular decision process.

The second question is related to the support that the decision-maker needs in order to make decisions. This is where knowledge availability becomes an important determinant in the success of the decision-making process. Within this question, the analyst is advised to go through what is called knowledge extraction. The question is then:

Q2: what do I need to know to make faster and better decisions in relation to the particular business process at hand?

The third question is related to decision rules or a logical set of criteria that help the decision-maker reach a yes or no type of decision, or a certain choice among a set of choices. The yes or no types of decisions are encountered when a clear cut action is required after the decision is made. Consider for example the case of a defective component in a car that is causing or may cause accidents. The company would need to decide whether or not to recall the model completely from the market. To recall or not to recall is the nature of the decision. To make such decision, the decision-maker needs to know data about accidents, their nature, their gravity (a defect in the stereo system is of a different gravity from a defect in a gas pedal that gets stuck while driving), the credibility of the reports, the source of the reports, the impact of not recalling the model on the market and customer base, etc … The third question is:

Q3: What is the decision rule?

The fourth question is related to the sequence of process steps required before a decision can be reached. In this context, we are not looking for any sequence that works, especially that process design does not yield unique solutions. We are rather looking for an optimized sequence of steps that are minimized in terms of number and complexity, while maximized in terms of impact on the end result. For example, most screening activities that we normally do in a natural manner fall in this category. When looking for a home to buy, reading the police report about three neighborhoods where you may potentially buy should logically precede touring every house on the market in each of these neighborhoods. Narrowing the touring activity further by using a price bracket as decision rule, and looking at the proximity from a bus or metro station (especially if you do not like driving or owning a car in the city) would certainly precede physical visits to each property. Now these examples were chosen as somewhat trivial for illustrative purposes, but the same concept of optimization in sequencing and minimizing process steps applies to the most complex situations. In fact, the more complex the situation, the more the decision-maker would need to simplify the process schematics and keep things manageable. The fourth question is:

Q4: What is the optimal number and sequence for the process steps?

In the following section, we provide an empirical application of the framework above.

4. Empirical applications

Once the theoretical framework is explained and practiced in workshop sessions, in executive seminars, or in the classroom (case of university instruction), we turn to empirical applications. Empirical applications typically bring into the discussion field observations that support (or not) the theory. Many empirical research projects published in literature confirmed the relationship between various aspects of knowledge management and organizational performance. The way tasks and roles are distributed in a knowledge-sharing
environment have a significant and positive effect on performance (DeGiovanni, 2010). Another research project examined a production management model applied to shop-floor automotive operations. The variables included production organization and work organization (type of groups) in the context of knowledge management. Floor personnel were interviewed to collect empirical data and it was found that these variables are positively related to performance (Muniz et al., 2010). Other researchers found empirical evidence about the importance of the process used to manage knowledge in driving innovation (Lin et al., 2010).

In our current project, primary data was collected from 323 business entities and was analyzed using linear regression models to test the following hypotheses:

H1: Managers who identify and manage key decisions in their processes reach higher performance levels than those who do not.

H2: Processes where knowledge requirements are identified and made readily available lead to higher performance than the ones that are not.

H3: Managers who clearly disseminate decision rules facilitate decision-making better than the ones who do not.

H4: Processes where number and sequence of steps are optimized perform better than the ones where they are not.

Primary data analysis and numerical calculations, which were left outside the scope of this chapter, showed that the four hypotheses above were accepted and that the independent variables representing each of the components were significantly and positively correlated with overall organizational performance. Performance is measured in interim process steps as well as the end result, or put differently, the extent to which the end result meets the initial requirements. Meeting initial, or agreed upon requirements, is a commonly used definition of the term quality. Analysis showed that quality is correlated with the way knowledge is created, disseminated, and managed.

Consider the case of the automotive industry, whereby companies compete on specific dimensions of competition. Kia Motors, for example, used external and internal knowledge to make decisions in the process of developing, manufacturing, and launching the Picanto model. Rise in gasoline prices, increased environmental awareness across all automotive buyer segments, change in attitudes towards driving, increased concern about safety in city streets, and other trends in consumer behavior were successfully translated by Kia Motors into clear operational and specific technical requirements. As a result, a small 1,200 cm³ engine was put together that has enough horse power to lift four or five passengers in steep slopes, or circulate in busy city streets. Kia Motors went eagerly after consumer feedback in 2009 and 2010 about weakness in the gear box, and about the mildly unattractive body shape. Shortly within 2011, the company launched its 2012 edition with an improved gear box, a more attractive body shape, dashboard, and optimal cabin room. In addition, internal knowledge components within the manufacturing process led to a fluid and efficient process that minimizes defects. Result: a successful product.

There are many cases where manufacturers and engineering entities create bonds that bridge across various organizations in search for external knowledge. This experience is enriching as it brings new input into the internal knowledge loop.

There is ample literature on the identification and use of components of innovation as drivers of performance. Many frameworks focus on implementation because they consider
that knowledge management theory has been overly addressed and that real effects start when those ideas are put to practice (Anantatmula and Kanungo, 2010).

5. **Role of culture in managerial decision-making**

Clarity in managerial decision-making mechanisms is often credited to hierarchy. This concept started with Max Weber’s administrative management theory (Weber, 1947). But clarity in lines of authority should serve another purpose; gravitating towards those who have the most relevant knowledge about the managerial or technical problem at hand. We coin this concept as knowledge-based role distribution. Although seemingly simple, it is not easy to apply. In most organizations, and in most national cultures, personal or prior social relationships, informal networks of friends and family, are a few examples of how appointments are made in many high level positions (McDermott and O’Dell, 2001). These appointments are often followed by exchange of favors. It is believed that such factors exist in many regional or national cultures and several models have been developed to account for power distance and its effect on behaviors in society and in business dealings (Hofstede, 1985). Hofstede (1985) uses five dimensions to describe the extent to which power differentials within society and organizations are accepted. More recent studies established some level of relationship between power distance, societal traditions, and personal value systems and beliefs (Basabe and Ros, 2005). Nevertheless, many studies have shown that the positive role of knowledge-sharing in employee growth and organizational performance transcends national boundaries and societal norms, is driven by globalization trends, and is influenced by a global convergence in the use of quality and business standards (Chalhoub, 2009). We propose that, for multinational organizations, knowledge creation and sharing be the prerequisite for business performance, while we maintain that these other relational factors – local societal traditions and national cultures – would certainly be important checkpoints.

The role of culture becomes even more important in fostering the use of objective and factual decision-making processes. It becomes a matter of culture and conviction to let problem-solving gravitate toward those best equipped with relevant knowledge (Hatch and Schultz, 1997). It is culture that presents knowledgeable people as an opportunity to the business owner or senior manager, and not as a threat. This approach provides access to different realms of ideas, different groups of people, and offers different opportunities for utilizing resources for the competitiveness of the firm. It was argued that culture makes a great difference as to how knowledge management initiatives evolve within the organization ranging on a spectrum of a simple repository of information all the way to a highly collaborative system among employees and across organizational boundaries including e-communities of practice (Leidner et al., 2006).

6. **Organizational thought leadership – A path of transformation**

The learning organization has moved from a concept, written and talked about in the 1980s, to a practical application based mostly on behavioral management theories (Drucker, 1995). Behavioral theories pioneered by Follett (1918) and developed further by other researchers and practitioners are mainly concerned with leadership behaviors, contingencies, and transformation. In order to develop sustainable competitive advantage, one needs to look at knowledge management as a long term transformation rather than just a simple daily
process. Designing and driving the knowledge management process in daily operations becomes part of a larger, strategic transformational program that can be amended and improved. Compare and contrast this concept to the Ford model mostly based on scientific management theory, on efficiency, and on applying process rules with little departure from the status quo (Taylor, 1911; Ford and Crowther, 1922). Scientific management surely has its advantages in terms of cost avoidance, risk minimization, reaching business targets quantitatively, and predictability of the final product. But it may be misused within the organization to a point where it stifles creativity. Further, processes and company policies could be used sometimes by those who do not encourage change, or who have reached a comfort zone, or those who have managerial power and do not wish to relinquish it.

This leads us to the second framework related to transformational leadership in the organization. The basic hypothesis that we test is that companies that approach knowledge management from a transformational leadership perspective are better positioned to innovate and launch new products successfully than the ones that do not.

Fig. 2. The manager as a leader: fostering a culture of exchange and learning.

Leadership behaviors result in very specific capabilities that are not easy to translate into a physical or codified form. The first reason is that such leadership capabilities require tacit knowledge. Tacit knowledge is demonstrated only in its direct use and application as opposed to representing it through media such as company intranet, e-mail, or technical reports. The second reason is that knowledge management is based on people (Drucker, 1999). Practically, you will always find a gap between what people actually do on the job to excel in fulfilling their roles, and what is documented in company manuals - if at all.
Further, this gap is often difficult to close. There are other reasons related to real life situations at work; employees with superior knowledge often get subjected to office politics. As a result, those who occupy positions of authority are not always those with the highest levels of knowledge. Literature makes a clear distinction among sources of power, namely the difference between position or legitimate power on one hand, and expert power on the other hand (Yukl, 2002). Simply put by one of the managers whom we interviewed in our sample, “those who are too busy with internal politics hardly have time to evolve intellectually … but those who are good at acquiring knowledge and excelling on the job, have too little time to engage in office politics.” As a result, those who are good at politics survive over those who are busy at work, unless there is transformational leadership that reestablishes the balance and sets direction. Yukl (2002) interprets Schein’s work on how a transformational leader influences organizational culture (Schein, 1992). Attention, reaction to crises, role modeling, rewards, and clarity of criteria for evaluation, are all measures that Schein (1992) presents as factors that influence culture. Whether instilling culture in a newly created organization, or changing culture in an existing organization, leaders would need a mechanism to embed knowledge transfer in daily operations and be able to dismantle dysfunctional and counterproductive styles of management (Kets De Vries and Miller, 1984).

One of the theories that shed light on click formation within the organization is the leader-member exchange (LMX) theory, rooted in the Vertical Dyad Linkage (VDL) theory (Dansereau et al., 1975). It describes the inner versus outer group within the organization whereby the inner group is formed based on the quality of the exchange between the leader and the follower. However, in most practical situations those high performers who, by nature, seek knowledge continuously could be part of the outer group for reasons other than performance. This is the critical point that upper management needs to carefully identify and handle (Truckenbrodt, 2000). Follett (1924) argued that organizational authority should gravitate towards those with knowledge. If this were to apply, then the organizational culture would be the integrator between expertise and authority rather than encourage click formation.

Figure 2 shows an expanded model that uses dimensions similar to the ones used in the LMX theory. The x-axis represents the employee’s eagerness to join the inner group, from low to high. Employees who rank high on the x-axis are typically interested in being part of an inner group close to the manager or the person in charge, try to influence outcomes, or be aware of decisions before they are announced. Managers who rank high on the y-axis are the ones interested in including an employee or a group of employees in that inner circle. One of the strengths of the LMX approach is that if the manager plays a leadership role, he or she becomes a facilitator and a coach who knows how to create a dynamic group exchange while moving employees to the upper right part of the model. In this case, individual knowledge creation becomes an integrated part of organizational knowledge management (Gao et al., 2008). One of the weaknesses of the LMX approach is that it may create uneven distances between the leader and the followers; the leader would not be at equal distance from his or her employees. Nevertheless, leadership has been often described as an organizational quality recognizing that leadership has to flow through networks of people, and would be carried through knowledge sharing (Ogawa and Bosser, 1995). In that regard, knowledge management is considered as a prerequisite for transformational leadership.
7. Conclusion and recommendations

For knowledge management to become a competitive edge, it requires a balance between creativity and systems-orientation at the same time. This paradoxical relationship, challenging as it may be, can be managed successfully in the presence of an organizational culture that is conducive to knowledge sharing.

A theoretical model is presented to describe the relationship between business performance and four innovation drivers. The model is then discussed in light of empirical evidence about the correlation between decision-making, intellectual capital, and leadership. It is also shown that managing internal knowledge systematically is critical to individual and organizational performance provided there is a company culture that encourages and drives participation. Therefore, it is important to reach a culture where employees pro-actively engage in knowledge sharing, and particularly exchange tacit knowledge, in a self-sustained manner. Processes that are designed for systematic intelligence gathering make it possible to create a balance between innovation and speed in moving in new directions, on one hand, and stable slower-paced movements on the other hand.

In organizations that are not culturally prepared, innovators may be perceived as causing disturbances or discontinuities. In such environments, managers that are often selected on the basis of hierarchy may engage in thwarting the innovators or causing them to flee the organization. If company culture is not ready for knowledge management, the more innovators contribute to radical departures from the status quo, the more they may be subjected to resistance and internal politics. This is where the role of transformational leaders comes in to protect and nurture innovation.

Establishing the culture of a learning organization is driven by transformational leadership behaviors to make deliberate decisions and take actions. An organizational leadership diagnosis could, in this case, be performed with a modified LMX model which would account for group dynamics rather than just inner and outer groups.

8. References


Due to the development of mobile and Web 2.0 technology, knowledge transfer, storage and retrieval have become much more rapid. In recent years, there have been more and more new and interesting findings in the research field of knowledge management. This book aims to introduce readers to the recent research topics, it is titled "New Research on Knowledge Management Models and Methods" and includes 19 chapters. Its focus is on the exploration of methods and models, covering the innovations of all knowledge management models and methods as well as deeper discussion. It is expected that this book provides relevant information about new research trends in comprehensive and novel knowledge management studies, and that it serves as an important resource for researchers, teachers and students, and for the development of practices in the knowledge management field.

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