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The Role of Leadership: The Challenge of Knowledge Management and Learning in Knowledge-Intensive Organizations

Marta Mas-Machuca[1]

1) Universitat Internacional de Catalunya, Spain.

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Marta Mas-Machuca
Universitat Internacional de Catalunya

Abstract

Knowledge and learning are important driving forces for business success and competiveness, especially in the knowledge-intensive organizations (KIO's) whose core business is to create and sell knowledge (e.g. education, R&D units, and consultancy organizations, among others). Previous works suggested one of the Critical Success Factor (CSF) of Knowledge Management (KM) practices is leadership, but only few of them referred it in a quantitative way. This paper aims to explore and explain the link between leadership and KM success. Results show a positive relation between the strategic dimension of leadership and the success of KM practices. This model was tested using Structured Equation Model (SEM). With this study we contribute to recognize the importance of leadership in order to improve the creation and dissemination of knowledge in a KIO's. In this way, these findings will help managers and teachers to increase the effectiveness of learning.

Keywords: knowledge management, leadership, critical success factors, Knowledge-Intensive Organizations, strategy

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La función de Liderazgo: El Reto de la Gestión del Conocimiento y el Aprendizaje en las Organizaciones de Conocimiento Intensivo

Marta Mas-Machuca
Universitat Internacional de Catalunya

Resumen

El conocimiento y aprendizaje son importantes impulsores para el éxito empresarial y la competitividad, en especial en las organizaciones intensivas en conocimiento (KIO's) cuyo negocio principal es crear y vender conocimiento (por ejemplo, organizaciones educativas, centros de I+D, empresas consultoras, entre otras). Investigaciones previas indican que unos de los factores críticos de éxito (CSF) de las prácticas de Gestión del Conocimiento (KM) es el liderazgo, pero poco de ellos lo analizan de manera cuantitativa. Este artículo tiene como objetivo exploar y explicar la realación entre el liderazgo y el éxito de la KM. Los resultados muestran una relación positiva entre la dimensión estratégica del liderazgo y el éxito de las prácticas de KM. Este modelo está testado utilizando modelos de ecuaciones estructurales (SEM). Con este estudio se contribuye al reconocimiento de la importancia del liderazgo para mejorar la creación y diseminación del conocimiento en las KIO's. En este sentido, los resultados ayudarán a los directivos y profesores para incrementar la efectividad del aprendizaje.

Palabras clave: gestión del conocimiento, liderazgo, factores críticos de éxito, Organizaciones de Conocimiento Intensivo, estrategia

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Research on knowledge management (KM) has intensified in recent years because knowledge is considered one of the most important assets or organizations in the 21st century (Stankosky, 2005). To obtain sustainable competitive advantages, organizations must consider what everyone in the organization knows and how they use their knowledge (Albors-Garrigos et al. 2010). Drucker (1999) named current era as the knowledge era, referring to knowledge as the key factor for competitiveness in advanced economies.

Knowledge Management (KM) and Critical Success Factors (CSFs) are important issues in the current knowledge-based economies. There is a crucial need for a more systematic and thorough study of CSFs in order to carry out KM projects. Organizations' ignorance leads to inefficient projects that do not generate full benefits (Migdadi, 2009). Because CSFs are the driving force behind knowledge management projects, they not only generate knowledge in organizations but also stimulate the creation of knowledge and experience in all people, thereby allowing organizational knowledge to grow concurrently and systematically (Ichijo et al., 1998). According to McLaughlin et al. (2008), if one accepts the relevance of information access and sharing, and knowledge creation as part of an organizations ability to learn and be innovative then the interaction individual people have on core processes will have important impact on process performance. Nowadays, KIOs deals with the challenge of manage in an effective way the knowledge and learning.

The relevance of the idea of knowledge-intensive organizations (KIOs) as a knowledge company has increased in recent years (Alvesson 1993, Kärreman, 2010), even though there is still a lack of consensus on the definition of KIOs (Makani and Marche, 2010). According to the seminal work of Starbuck (1992) a KIO assumes knowledge as the more important resource, distinct from the labor- and capital-intensive organization. Nurmi (1999) consider KIOs as the "process what they know into knowledge products and services for their customers'', such as consulting, training, education, research or auditing.

This paper aims to explore and explain the links between leadership and KM success in KIO's. The objective is to use structural equation modelling to measure the influence of leadership on the success of KM practices.

The remainder of the paper is structured in four parts. First, the literature on CSF in KM projects is reviewed. Second, scales and research method are presented. Third, main results are described. Fourth, discussion and future research directions are proposed.

The role of leadership in KM success

The success of KM implementation is determined by a group of CSFs that have been studied by several authors, including Davenport et al. (1998), Holsapple and Joshi (2000), Skyrme and Amidon (1997), and Alsadhan et al. (2008). Saraph et al. (1989) view CSFs as those critical areas of managerial planning and action that must be practised in order to achieve effectiveness. These practices need either to be nurtured if they already exist or to be developed if they are not yet in place. In summary, they are internal and controllable factors whose application helps companies to maximize the effectiveness of their projects (Mas-Machuca & Martinez, 2011; 2012). One of the most important CSF in in a learning organization is the strategic dimension of leadership.

Table 1.
Critical success factors in the literature
Source: Compiled by author

Author(s) and year	Publications	CSF
Skyrme & Amidon (1997)	"The Knowledge Agenda"	**Knowledge leadership** Creating a knowledge-sharing culture Well-developed technology infrastructure Strong link to a business imperative Compelling vision and architecture Systematic organizational knowledge processes Continuous learning

Author(s) and year	Publications	CSF
Trussler (1999)	"The Rules of the Game"	Appropriate infrastructure **Leadership and strategy (management commitment)** Creating motivation to share Finding the right people and data Culture Technology (network) Availability to collaborators (transferring) Training and learning
Liebowitz (1999)	"Key Ingredients to the Success of an Organization's Knowledge Management Strategy"	**KM strategy with senior leadership support and active involvement** A CKO or equivalent and a knowledge management infrastructure Knowledge ontologies and knowledge repositories Knowledge systems and tools Incentives to encourage knowledge sharing Building a supportive culture
APQC (1999)	"Knowledge Management: Executive Summary", Consortium Benchmarking Study/Best Practice Report	**Leadership** Culture Technology Strategy Measurement
Holsapple & Joshi (2000)	"An Investigation of Factors that Influence the Management of Knowledge in Organizations"	**Leadership** Coordination Control Measurement

Author(s) and year	Publications	CSF
Stankosky & Balzana (2001)	"A System Approach to Engineering a Knowledge Management System"	**Leadership** Organization Technology Learning
Wong (2005)	"Critical Success Factors for Implementing Knowledge Management in Small and Medium Enterprises"	**Management leadership and support** Culture IT Strategy and purpose Measurement Organizational infrastructure Processes and activities Motivational aids Resources Training and education Human resources management (HRM) 3
Hung et al. (2005)	"Critical Factors in Adopting a Knowledge Management System for the Pharmaceutical Industry"	A trusting and open organizational culture **Senior management leadership and commitment** Employee involvement Employee training Trustworthy teamwork Employee empowerment Information systems infrastructure Performance measurement Benchmarking Knowledge structure

Author(s) and year	Publications	CSF
Yeh et al. (2006)	"Knowledge Management Enablers: A Case Study"	**Strategy and leadership** Corporate culture People Information technology Content quality Collaboration Communication Formalization Budgetary support
Migdadi (2009)	"Knowledge Management Enablers and Outcomes in the Small-and-Medium Sized Enterprises"	The same 11 CSFs listed for Wong (2005)

Leaders can achieve the best climate and business performance (Goleman, 2000). They engange people to learning and change their ways. Previous research have shown that a climate of collaboration and ledearship are positively related to knowledge sharing (Srivastava et al., 2006). According to Merat and Bo (2013) for a KIOs it seems that participation of people in leadership activities goes hand in hand with KM practices goes that are primaly dependent on face-to –face sharing of knowledge within organization. Table 1 show a representative sample of authors that illustrate it.

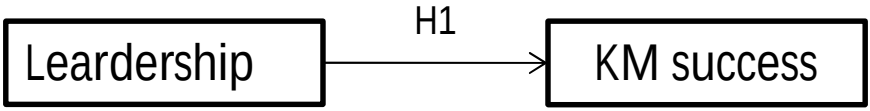

Figure 1: Link between leadership and KM
Source: Own elaboration

The hypothesis tested in our research is as follows:

H1: There is a positive relationship between the degree of leadership and KM success.

Scales and method

As we mentioned before, among all the CSF identified by academics, in this article we have considered the strategic dimesion of leadership. The role of leadership can contribute to improve effective learning (Leithwood et al., 2004). Our scale consist of four items. "Top management support, organizational structure, incentives to encourage knowledge sharing, and KM strategy aligned with strategy".

Top Management Support

If the management does not support the knowledge creation and dissemination in organizations, the effectiveness of KM practices will be low. There is not something spontaneous or related to a small group in the organization. It is important to define draft guidelines referred to the strategic plan. Onl in this sence, KM will be effective over time. Leadership and commitment are a necessary condition for success of KM (Davenport, 1998; Storey and Barnett, 2000; Sharp, 2003; among others).

In addition, top managament support must come from leadership within the organization. Leaders are important because they are exemples and patterns to be followed by people (Holsapple & Joshi, 2000).

Incentives to encourage knowledge sharing

Sharing information and knowledge is a question that depends on the people and their will. Leaders must motivate individuals to receive new knowledge and willing to share knowledge they have. Only if people are motivated and willing to work in a learning organization, will be achieved all the benefits. It is essential to establish incentives, rewards or recognition to encourage employees to share and apply new knowledge. Several studies as Yahya and Goh (2002) and Hauschild (2001) analyze how monetary and non-monetary incentives can be incorporated in the reward organization system.

The motivating factors are external (rewards such as money or grades) or internal (when you do something because it is inherently interesting or enjoyable). But currently, there are a new line of research that analyses the importance of prosocial motivation (Batson, 1987; Pérez-López, 1993; Grant, 2008). This motivation is generated by the personal satisfaction felt

when our actions meet the needs of others. Prosocial motivation is related to Maslow's superior motivation and could be included in what Herzberg refers to as non-hygienic factors. In order to share knwoledge in KIO's it is important to consider also this new kind of motivation.

Organization structure

Another key element to consider is the development of an appropriate organizational structure (Davenport, 1998). This implies a set of roles and tasks of KM (for example, Knowledge Manager or Chief Executive Officer, CKO) and multidisciplinary teams such as professional learning communities (PLCs). New forms of more flexible organizational structure that enable people to have more autonomy are needed. This is possible in a organization where the values that form the corporate culture are commitment, trust and collaboration. One of the best-known contributions in this field is the organizational structure of hypertext proposed by Nonaka and Takeuchi (1995).

KM strategy aligned with corporate strategy

Finally, an element that will affect the achievement of KM success is to have a well-considered and formulated mission, vision and strategy. This provides the company to develop their skills in the best way. Only if KM practice are aligned with the strategy, the expected results will be achieved. This clear link between strategy and KM is supported by several authors as Liebowitz (1999), Zack (1999) and Maier and Remus (2002), among others. In addition, KM can help to the leaders to reorient the right organization direction.

KM success

Researchers have long sought to define this concept by consensus, but it is difficult to do so because of the dynamic nature of knowledge. Still, defining KM success is crucial to understanding how these initiatives should be designed and implemented (Jennex et al., 2007). Jennex and Olfman (2006) define KM success as reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those who need it

when they need it. Although there are multiple approaches to identifying or measuring KM success, in this study we have considered KM success as an outcome measure because this is the most relevant approach for the applied methodology. KM success is seen as a measure of the various outcomes of the knowledge-process capabilities that exist within an organization as a result of KM projects (Jennex et al., 2007). Skyrme and Amidon (1997) identify what they believe to be the success factors that organizations are able to reach through successful KM implementation: competitive advantages, customer focus, improved employee relations and development, innovation, and lower costs.

In our measurements of KM success, we have drawn on the quantitative studies of KPMG (1999), Chourides (2003), Choy (2006) and Jennex et al. (2007) and the qualitative studies of Allee (1997), Ruggles (1998), Wiig (2000) and Egbu (2005). Thus, we consider typical outcomes in terms of organizational performance: innovative ability and activity, customer satisfaction, competitive capacity and position in the market, service and process quality, productivity and sales, and employee satisfaction and skills.

Table 2.
Cronbach's alpha and factor loading of leadership and KM success

Construct	***Cronbach's alpha***	***Item***	***Factor Loadings Component***
Leadership	0.779	Top management support	0.786
		Organizational structure	0.701
		Incentives to encourage knowledge sharing	0.871
		KM strategy aligned with corporate strategy	0.735
KM success	0.802	Innovation	0.649
		Employee satisfaction	0.698
		Capabilities	0.715
		Quality	0.824
		Productivity	0.757

The empirical analysis considered a sample of consulting companies that work in the region of Catalonia (Spain). To carry out this study, we collaborated with the Catalan Association of Consulting Companies (ACEC), which represents more of 65% of the entire consulting sector in Catalonia. The data were collected by means of a questionnaire sent, in most cases, via e-mail. A total of 110 responses were received, of which only 100 were completed correctly. These 100 questionnaires corresponded to 23 consulting companies. Respondents were considered knowledge workers or KM project managers. The survey items were taken from the literature review. For each question, respondents were asked to indicate the extent of their agreement on a five-point Likert scale (1=strongly disagree; 5=strongly agree).

The companies can be classified into two groups by volume of turnover: small or medium-sized consulting organizations (invoicing <€50 million), which account for almost 40% of the responses, and large consulting organizations, mostly subsidiaries of multinational companies, which account for more than 60% of the responses. Similarly, the companies can be classified by number of employees. Nine percent of the consulting organizations analysed had fewer than 10 employees, more than half had between 10 and 250 employees, and the rest (38%) had more than 250 employees.

The data were analysed using SPSS Amos, a software package based on structural equation modelling (SEM) techniques (Arbuckle, 1996). The SEM approach was used to assess the proposed causal model. This technique makes it possible to use multiple indicators to measure constructs and account for measurement errors. The dimensional scales for each of the two constructs (leadership and KM success) were first assessed by using exploratory factor analysis and, following this, the hypothesis was tested.

Results

We tested our measurement model for three aspects: internal consistency, convergent validity and discriminant validity. Internal consistency was examined using Cronbach's alpha. Nunnally (1978) recommended using a cut-off criterion of 0.70. The values of Cronbach's alpha for two scales (see Table 1) were 0.779 (leadership) and 0.802 (KM success). The second

aspect, the reliability of the latent construct was assessed by a factor analysis of the items by means of principal component analysis with Varimax rotation. All the items loaded quite well on their respective factors.

According to Hair et al. (2006), convergent validity was evaluated with the factor loadings of all the items ≥0.7 (see Table 2), and average variance extracted (AVE) > 0.5 (see Table 4). AVE measures the amount of variance that a latent variable component captures from its indicators related to measurement error. Finally, to assess discriminant validity, we used the correlation matrix of all of the constructs and the square root of the AVE (see Table 2). The square root of the AVE for each construct should be greater than the level of correlations involving the constructs (Fornell & Larcker, 1981; Hair et al., 2006).

Table 3.
Means, standard deviations, average variance extracted (AVE), and correlations.

Variable	***Mean***	***SD***	***Average variance extracted (AVE)***	***Leadership***	***KM success***
Leadership	*4.23*	*1.095*	*0.789*	***0.888***	
KM success	*3.79*	*0.908*	*0.743*	*0.308*	***0.862***

Note: The bold numbers in the diagonal row are the square root of the average variance extracted.

A structural model analysis was conducted to examine the hypothetical relationship among the constructs. Figure 2 shows the results from the structural model used to test the hypothetical research model. The results support the hypothesis that leadership are positively related to the success of a KM practices.

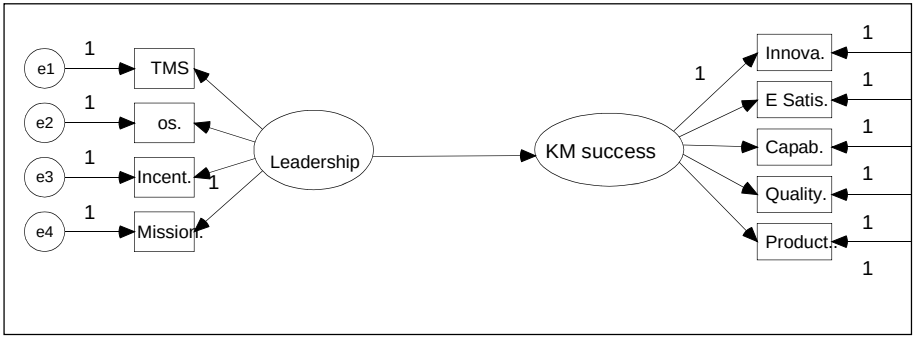

Figure 2. Path diagram of the proposed model

The overall validity of the model's results was evaluated with respect to best-fit indices: GFI (0.759), RMR (0.081), NFI (0.875) and CFI (0.810). These ratios reflect a moderate (due to the sample size) but acceptable level of overall model fit.

Discussion and new lines of research

KM is still a relatively new field, and the empirical research related to design and implementation is not very extensive (Alsadhan et al. 2008). In this study, we have identified the CSFs of KM projects related to leadership and proposed a theoretical link. We measured the scales for leadership in relation to the success of the KM practices. The data were obtained by means of a survey of consulting organizations in Catalonia. While this method has a considerable disadvantage—the subjectivity of the person who completes the questionnaire—it also has the major advantage of being able to thoroughly address the subject of analysis.

A review of the literature on CSFs in KM projects found that only a few studies have employed empirical research in order to validate the relationship between CSFs and KM success (Alsadhan et al., 2008). We therefore made an effort to measure the CSFs and KM success using multi-

item scales. The contribution of this study is the use of a quantitative method (structural equation modelling) to generate more empirical support for the CSFs of a KM project.

Leadership has also been shown to be positively related to KM success and its adoption will increase the effectiveness of KM projects. At a company where top management provides support, where there is a suitable organizational structure, where incentives for sharing knowledge are in place and where the KM project forms part of the corporate strategic plan, there is a greater chance of success than in an organization that does not consider these factors.

Leadership must create a specific culture based on values such as trust, transparency or honesty for the sharing of knowledge and information.Also, these values will enhance the sense of belonging to the organization and foster the ability to learn and interiorize new practices. Flexibility and commitment are also important. Each organization should be aware of the degree of flexibility it can sustain in accordance to the people who works on it. The greater the people's commitment to the company, the greater the degree of flexibility will be. To sum up, the values of corporate culture are the basis for building KM in an organization. Leader in KIO's have to share these values because of people have a clear vocation to learn, to improve and to innovate. Only an organization with these values (trust, transparency, honesty, collaboration, professionalism, flexibility and commitment) are one which is based on knowledge and has a very great potential for growth and learning.

The present study has several implications for management and education. The leadership role within a KM practices is mandatory in order to motivate employees to share knowledge. In addition, managers must incorporate KM into their mission and vision in order to compete in the knowledge economy.

The results of this research may show some avenues for further research. First, a plan to include more elements for expanding the model should be in place. For example, we can include more items to assess KM success from the customer's point of view. Second, both this study and the model are limited to the consulting industry in Catalonia (Spain). In order to expand upon this model and its explanatory capacity, it is necessary to conduct similar research in different types of KIO's others countries. For example, a similar study aplied in schools or universities can be carried out in order to

improve the learning and KM practices. In this sense, new lines of research points out that successful school leadership must include a core of leadership practices that we may term educational, instructional, or learning-centered (Hallinger, 2009). All these new lines of future research will foster a better understanding of the relevance of KM for improving knowledge in all kind of organizations.

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Marta Mas-Machuca is Lecturer at Faculty of Economics, Universitat Internacional de Catalunya, Spain

Contact Address: mmas@uic.es