

**WHAT ARE THE BEST STRATEGIES FOR MANAGING  
ORGANIZATIONAL KNOWLEDGE?: THE KEY ROLE OF  
HUMAN RESOURCE PRACTICES.  
QUALITATIVE RESEARCH EVIDENCE BASED ON  
KNOWLEDGE-WORK CONTEXTS**

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**ABSTRACT**

The key importance of cultural and human aspects as potential levers or inhibitors of the processes of knowledge creation and transfer is widely acknowledged today. However, the fit between, on the one hand, KM initiatives and, on the other, people-related issues, has so far been largely neglected in business practice. Besides, theory building efforts linking knowledge management (KM) and human resource management (HRM) are mostly rather generic, disconnected from each other, or specialized in a particular KM or HRM area. As a result, this investigation aims at contributing to theory building by inquiring into the key KM and HRM processes and practices determinant of eventual KM effectiveness.

Consistent with the emergence of this interdisciplinary field and the type of phenomena researched (i.e., processes, causal relationships and critical details), the methodological approach is based on qualitative data analysis and developed through a case study research strategy. Accordingly, two basic categories are presented in a preliminary framework as impacting upon KM effectiveness: critical KM characteristics and KM-related human resource (HR) practices. Three knowledge-intensive firms—all of them Spanish subsidiaries of multinational companies— were selected as the case-study settings. Each them belongs to a different industry (consultancy, railway maintenance services, electric equipment manufacturing), so theoretical replication was conducted as the basis of the process of collecting and analyzing empirical materials.

By means of analytic induction, systematic patterns were found as to the impact of critical KM characteristics and KM-related HR practices on KM effectiveness. As a result, the preliminary framework is extended into a more detailed induced framework, which encompasses a number of specific variables and propositions. Further research is needed in order to refine and/or test the theory development presented. Specifically, future quantitative-survey testing of the propositions would lead to answers about the generalizability of the results.

## 1. CONCEPTUAL FOUNDATIONS

The recognition of knowledge as a key strategic asset (e.g., Grant, 1996; Spender, 1995; Stewart, 1997; Teece, 2000; Tissen et al., 2000; Von Krogh, 1998) is very popular today. Hence, the topic of knowledge management (KM) has benefited from countless and highly varied contributions (e.g., Andreu & Sieber, 1999; Brown & Duguid, 1998; Davenport & Prusak, 1998; Grant, 1996; 2001; Leonard, 1995; Nonaka & Takeuchi, 1995; Quintas et al., 1997; Scarbrough & Swan, 1999; Sveiby, 1997; Swan & Scarborough, 2001; Wiig, 1997).

More specifically, consistent with the well-known limitations of those KM approaches too narrowly focused on information technology (IT), the key importance of cultural and human aspects as potential levers or inhibitors of the processes of knowledge creation and transfer is widely acknowledged (e.g., Brown & Duguid, 1998; Fahey & Prusak, 1998; Lank, 1997; Martiny, 1998; McDermott & O'Dell, 2001; Newell et al., 2001; O'Dell & Grayson, 1998; Ruggles, 1998; Storey & Quintas, 2001). Even so, as descriptive industry studies have shown (e.g., Almansa, Andreu & Sieber, 2002; KPMG Consulting, 2000; PwC, 2001), many KM initiatives tend to neglect human issues. Similarly, several academics have commented on the lack of consideration of cultural and people issues in the KM literature (e.g., Scarbrough & Swan, 1999; Soliman & Spooner, 2000; Swan et al., 1999). Despite that, the key obstacles being reported as knowledge-leveraging inhibitors —beyond IT tools— are invariably those related to the 'softer', non-technical side of KM.

Moreover, strategic human resource management (SHRM) deserves an explicit consideration in the people-centred KM debate. In leading organizations and industries, people management is assumed to be one of the top strategic priorities (e.g., Baron & Kreps, 1999; Mabey & Salaman, 1995; Mueller, 1996; Storey, 2001). It is worth mentioning the increase of research dealing with the relationship between human resource (HR) practices and organizational performance (e.g., Arthur, 1992, 1994; Becker & Gerhart, 1996; Delaney & Huselid, 1996; Delery & Doty, 1996; Huselid, 1995; MacDuffie, 1995; Pfeffer, 1994). Although from different perspectives and with noticeable differences as to specific practices, empirical support for the positive impact of human resource management (HRM) on organizational performance can be assumed.

Certainly, both knowledge and human resources are being increasingly regarded as key levers of competitive advantage in today's global, dynamic and complex business environment. Importantly, in the context of knowledge work (e.g., Alvesson, 1993; Davenport et al., 1996; Davis & Botkin, 1994; Edvinsson & Sullivan, 1996; Starbuck, 1992; Tampoe, 1993; Winch & Schneider, 1993; Ulrich, 1998), people and knowledge are two concepts inextricably joined. Individual human beings are the ultimate knowledge creators and bearers (organizations do not think by themselves, although they may have 'knowledge enabling' contexts and 'memory' systems). Accordingly, great care has to be taken so as to increase their capability as organizational knowledge enhancers and, as a result, the rigorous and strategic management of people can act as a trigger toward effective knowledge-leveraging processes. In fact, both people and knowledge are to be regarded as having a special potential as scarce and idiosyncratic resources, consistent with the premises of the resource-based approach to strategic management (e.g., Grant, 1991; Peteraf, 1993; Rumelt, 1991; Wernerfelt, 1984) and, especially, of important works which, related to a resource-capability perspective, deal with KM (e.g., Grant, 1996; Kogut & Zander, 1992; Spender, 1996; Tsoukas, 1996; Zander & Kogut, 1996) or HRM (e.g., Kamoche, 1996; Lado & Wilson, 1994; Mueller, 1996).

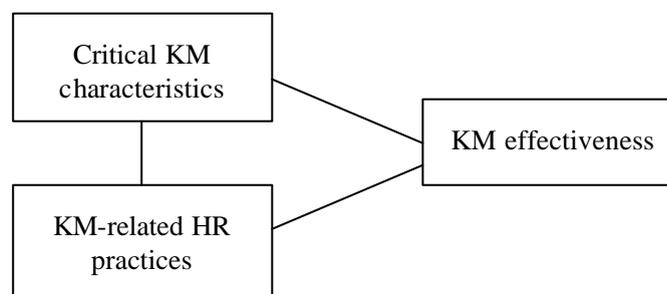
## 2. RESEARCH OBJECTIVES

However, the fit between, on the one hand, KM initiatives and, on the other, cultural and people-related issues, has so far been largely neglected in business practice. Also, academics are not rigorously taking systematic steps toward comprehensive theory building linking KM and HRM. Certainly, sound academic studies do exist, both empirical (e.g., Arthur & Aiman-Smith, 2001; Bontis et al., 2002; Edmondson, 1999; Inkpen, 1996; Inkpen & Crossan, 1995; Kusunoki et al., 1998; Lynn, 1998; Tampoe, 1993) and theoretical (e.g., Brown & Duguid, 1998; Hedlund, 1994; Kamoche & Mueller, 1998; Nerdrum & Erikson, 2001; Ryan, 1995; Starbuck, 1992; Storey & Quintas, 2001). Even so, most of them are mainly linked to (specific aspects of) one of the two main areas of discussion (i.e., KM and HRM).

In fact, human and cultural issues in the context of KM are often mentioned in very generic terms (e.g., cultural change, values of cooperation and trust, employee commitment, appropriate climate for knowledge sharing), fact that does not help much toward comprehensive theory building. So, more specific SHRM assumptions can provide a helpful framework in the theory-building effort of linking KM and HRM.

Specifically, the *research questions* that propel this investigation are:

- Why are knowledge management initiatives often not as effective as expected?
- Do human resource practices play a role in knowledge management effectiveness?
- How do human resource practices affect the effectiveness of knowledge management initiatives?
- What are the key human resource practices that best support knowledge management initiatives?



**Figure 1. The role of HR practices on KM effectiveness: Preliminary framework**

Taking into account the particular methodological strategy described below, a preliminary framework is proposed as the basis for the subsequent empirical study (see figure 1). Although the main focus of this study is on HR practices, other KM issues must be considered in order to obtain a more accurate picture of the processes involved in determining KM effectiveness. So, a category labelled critical KM characteristics also appears in the preliminary framework, along with the KM-related HR practices and KM effectiveness ones.

Critical KM characteristics and KM-related HR practices are assumed to have an impact on KM effectiveness. Besides, it is necessary to consider the mutual influence that may act between KM-related HR practices and the critical KM characteristics.

### **3. METHODOLOGY**

Consistent with the above discussion, the theoretical framework resulting from the literature review is necessarily broad and open-ended (Maxwell, 1996). In this sense, it was considered unwise to formulate any hypotheses or propositions to be tested in the field study (Eisenhardt, 1989; Maxwell, 1996). Qualitative methods were therefore selected because they fitted well with both the nature (processes and causal relationships) and the theory-development maturity stage (embryonic) of the phenomenon under study. Accordingly, an in-depth case-study strategy (e.g., Bonache, 1999; Stake, 1995; Yin, 1994) was chosen. Taking the pre-empirical preliminary framework depicted in figure 1 as a guideline, three organizations were consciously selected taking into account their potential to shed light over the phenomenon researched (Stake, 1998). Each of the three cases was a Spanish subsidiary of a multinational knowledge-intensive company belonging to different industries: (i) consultancy, (ii) railway maintenance services, and (iii) electric equipment manufacturing.

In order to tackle the different elements of the preliminary framework, an agenda of interviews with a selection of members of the studied organizations was developed, complemented with the analysis of relevant corporate documentation. In each of the organizations people responsible of HRM and also of KM were interviewed. Where the latter position did not exist (i.e., in the railway services firm), the appropriate person in charge of KM issues was interviewed. Also, other people with managerial responsibilities at lower levels were interviewed, along with other 'plain' employees. By talking to people from different hierarchical levels and linked to a number of departments, a high accuracy and comprehensiveness of data was sought by means of triangulation. Besides interview triangulation, further cross interview-document triangulation helped to increase the validity and overall quality of the empirical materials.

### **4. RESULTS (I): OVERVIEW OF THE CASES STUDIED**

The empirical study was developed by means of a process of theoretical replication throughout the three cases under analysis. The preliminary framework was taken as a basis for data collection and analysis, from which relevant evidence was to be grasped and therefore a post-empirical framework could be analytically induced (Bonache, 1999; Johnson, 1998). According to the indications by qualitative methodologists (e.g., Maxwell, 1996; Miles & Huberman, 1984), collection and analysis of empirical materials followed a flexible pattern. The outcomes of this research process are posited through two sections: first, an account of the highlights of each of the cases (section 4); second, a presentation of the main elements of the induced framework (section 5).

#### **4.1. Consultancy firm**

The business setting studied in this first case was a consultancy division of the Spanish subsidiary of one of the largest global professional services organizations. In the late 90s, a KM project was launched worldwide as a way to optimize the utilization of a large number of

databases that, at the moment, were dispersed throughout different subsidiaries, associate companies and departments, resulting in not only many inefficiencies, but also not so evident opportunity costs. This KM project was one of the first attempts in Spain to tackle KM issues seriously. A KM corporate unit was created and a CKO appointed. The project had a strong initial technology-driven impulse, with the creation of a sophisticated and comprehensive corporate intranet as its cornerstone.

The KM department was aware of the importance of considering people and culture issues in order to guarantee the success of the KM programme. However, despite the technical soundness of the intranet developments, the obstacles to effective knowledge transfer were overwhelmingly dominated by cultural issues, such as low mutual trust and high fear to share—in the context of a fiercely competitive ‘up or out’ career system—, or the chronic employee turnover, which often impeded individual knowledge transfer into organizational memory. Nevertheless, despite the drawbacks, the great effort invested in the KM project paid off and can be assessed as highly successful, since the initial goals of database integration and widespread and versatile intranet-based information management were achieved.

#### **4.2. Railway maintenance services firm**

The case analyzed was a business unit which belongs to the Spanish subsidiary of a huge energy and transport multinational enterprise. Regarding KM, and prior to anything else, emphasis must be put on the fact that the firm does *not* have any formal KM policy (it was interesting and intellectually challenging, while researching about KM, to hear the head of HR saying ‘we do not believe in KM’). Still, since the evidence shows the existence of highly effective knowledge creation and transfer processes, it can be assumed that knowledge is indeed managed—though not explicitly recognized as any ‘KM policy’. Top management consciously rejected the KM ‘fashion’, too often introduced without a deep reflection about the current organizational situation and real needs.

However, since the firm had experienced a profound restructuring process during the last decade (an old-fashioned state-owned subsidized industrial setting was transformed into a competitive and flexible service supplier), a number of strategic programmes were implemented (a comprehensive TQM programme, a Leadership Project, an Employee Suggestion System, an integrated computer-based information management system, etc.)—some of them still active and linked to their own departments (e.g., TQM), and others evolving toward different initiatives due to changing business needs. Besides, organizational trust and commitment were effectively enhanced throughout the organization, along with a careful management of an organizational culture which emphasizes the values of creativity and innovation, coupled by a firm spirit of team work, openness and transparency. The somehow crude conclusion in this case is that the firm did not need a formal KM project. Otherwise, KM was already embedded in the existing activities and policies, especially taking into account the effectiveness of a carefully followed philosophy of cross-functional communication, policy design and policy implementation—with a strong emphasis on integration and interdisciplinarity across the organization.

#### **4.3. Electric equipment manufacturing firm**

The business setting analyzed is the Spanish subsidiary of a large multinational company specialized in manufacturing and maintenance of a vast array of electricity-related products

and industrial systems. The company is a truly global organization; production centres, dispersed worldwide, specialize on specific products which are then distributed to many countries. Nonetheless, KM in the Spanish subsidiary was launched in the late 90s as a strictly national project, developed thanks to the services of a KM-specialized consultancy. From the beginning, the KM project was identified as the implementation of a KM tool based on intranet technology. The corporate HR department was responsible for the initiative, and defined it (following the consultancy IT-package definition) as ‘a system to foster the sharing of critical knowledge by any employee across the organization’. In other words, the KM *software* (rather than a comprehensive KM *project*) aimed at incorporating into an intranet-supported database any kind of work-related relevant ideas and suggestions of employees that could be later retrieved by others to help them do their job better. After a pilot project limited to certain departments and hierarchical levels, the KM tool was progressively extended to other parts of the organization.

The HR department, in charge of the KM initiative, assessed it as a moderate success with a high potential of improvement. However, the views from other parts of the organization were mixed, and in some cases contradicted the official position. In a way, the KM tool was, *technically speaking*, a success. A different story would be the assessment of the extent to which it helped to improve day-to-day work. Certainly, many people were eager users of the KM tool (although with extreme differences among departments), but too often the ‘critical knowledge’ introduced into the database were irrelevant data, seldom retrieved —let alone applied— by anyone else than the initial creator of that ‘knowledge unit’ —apart from the hierarchical supervisor of the KM tool evolution. Knowledge creation and transfer processes did exist within the firm, but paradoxically they were quite independent from the dynamics of the ‘official’ KM policy. A number of reasons help to explain this odd (but quite probably not uncommon) situation. On the one hand, KM was narrowly identified as a ‘KM tool’, and business fashion had a lot to do with the decision to develop it. On the other hand, the responsibility for the process of KM design and implementation was given to a department (HR) that, in this particular case, had traditionally played a role (and had been viewed by the rest of the organization in such a way) that did not enhance trust toward the new project. In fact, most departments continued sharing knowledge through the old ways, such as the previously existing and quite successful corporate intranet (of which the KM tool was just an appendix, by no means an integration device), or simply by the relatively effective dynamics of informal communication existing within many departments and small teams.

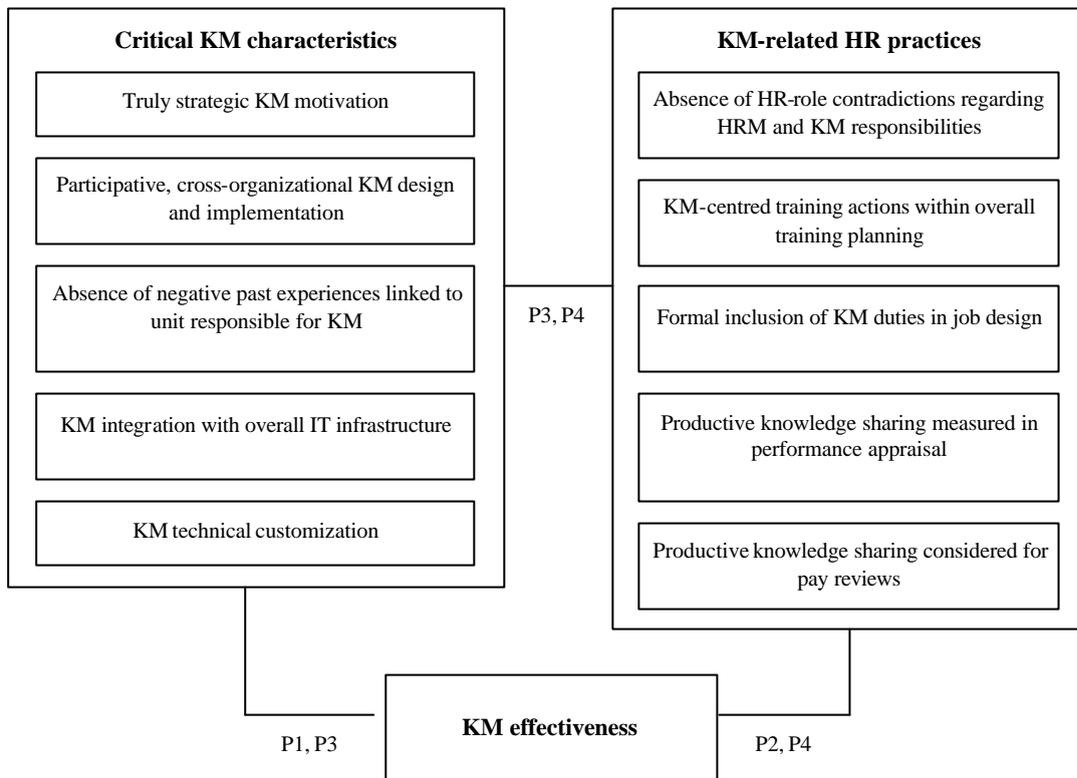
## 5. RESULTS (II): INDUCED FRAMEWORK

As a result of studying and interpreting the evidence collected through the analytical lens provided by the preliminary framework, its components can be re-shaped toward a more elaborate framework. Each of the two broad categories impacting on KM effectiveness can be developed into a series of specific variables (see figure 2); the connections between the evidence and the theory induced are explained below.

### 5.1. Critical KM characteristics

A first relevant aspect is about the reasons for the introduction of KM. Whilst the consultancy firm tried to address a well-defined cross-organizational strategic challenge (the global integration of thousands of databases), the electric equipment manufacturer was mainly

dragged by a superficial, fashion-lit enthusiasm which resulted in a narrow and suboptimized approach to KM. As a result, a first variable is named *truly strategic motivation for KM*.



**Figure 2. The role of HR practices on KM effectiveness: Induced framework**

Moreover, the way in which a KM initiative is designed and implemented can also make a big difference in its success. As regards the electric equipment manufacturer, a strictly pre-planned ex-post informational top-down approach jeopardized the acceptance of the project by many units and people. Conversely, although not having adopted KM officially, the railway maintenance services firm showed a higher interdisciplinary, cross-functional and participative approach to dealing with the different policies which, consciously considered as interrelated factors, would contribute to the management of knowledge (e.g., IT systems, culture management, HR issues, aspects of TQM, overall climate definition, etc.). Therefore, for a KM tool that is supposed to be aimed at fostering cross-organizational integration and synergy, its very design should involve representation from different organizational groups. The variable posited here is *participative and cross-organizational KM design and implementation*.

Also, the consideration of the organizational history of the unit responsible for implementing change programmes is highly neglected in business practice. For instance, sometimes management are surprised that KM is not successful, despite vast resources, technical expertise and keen effort are devoted to it. One fundamental aspect has been forgotten: *who* is responsible for KM and *how* they are perceived by the people supposed to accept KM.

Imagine an HR department that had been previously in charge of a reengineering effort, which provoked a strong negative response by employees. Unsurprisingly, *anything else* coming from these HR people will be sceptically received, no matter how attractively it is presented. Details reported as to consultancy firm customers' experiences, some of the reasons for the creation of the new KM unit, and the electric equipment manufacturer's opposite case, support the introduction of another variable: *absence of negative past experiences linked to the organizational unit responsible for KM*.

On the other hand, both in the consultancy and the railway maintenance firms KM was highly integrated with the rest of the IT infrastructure. In the first case, through a deliberate KM project functionally operational within the corporate intranet. In the second case, as part of the 'unofficial' KM efforts, the different components of the firm's IT infrastructure were highly integrated and interdependent, playing a relevant role in knowledge creation and sharing efforts. Conversely, although the electric equipment manufacturer did have a formal KM tool, this was basically independent from the rest of the IT infrastructure of the firm; it was 'built from scratch', ignoring potential synergies stemming from an integration with corporate IT systems and, particularly, with the intranet. A variable that encompasses this issue is labelled *KM integration with overall IT infrastructure*.

Finally, the extent to which KM was customized in the three companies studied was highly diverse. From a complete internal development of the KM project in the consultancy company, totally adapted and idiosyncratic to the firm's own processes and context, to a rather standard IT package developed by external consultants regarding the electric equipment manufacturer. The evidence observed suggests a positive relationship between customization and success of the KM initiative. The relevant variable here is *KM technical customization*.

## **5.2. KM-related HR practices**

In the consultancy firm, with a highly idiosyncratic and strategically integrated HR system, but in some aspects not especially KM friendly, the choice was to establish a 'brand new' KM corporate unit. Thus, the HR department would not interfere with KM developments, but cooperate with the CKO in order to optimize the HR-KM synergy and, if appropriate, cautiously introduce some changes in HR practices (e.g., appraisal and reward systems more open to include knowledge sharing considerations). Regarding the electric equipment manufacturer, the corporate HR department had a seat on the top management board, and so did the specific industrial setting HR units regarding their respective factory boards. Although corporate HR directions were generally strong and consistent, HR sub-units at the industrial settings were mostly devoted to administrative personnel management and technical support to HR processes —these latter ones highly de-centralized to line management. As a result, an atmosphere of inconsistency as to the role played by HR specialists regarding KM was (unconsciously) propelled. In other words, industrial setting HR units were leading the persuasion process for the KM tool to be accepted and utilized by as many people as possible; however, these HR units had been rarely perceived as 'strategic leaders', so scepticism toward the KM initiative was reinforced. The relevant variable here is named *absence of HR-role contradictions regarding HRM and KM responsibilities*.

On the other hand, the specific features of the HR systems of the three firms under study were analyzed. Although none of the companies had undergone specific changes in their HR systems in order to make them more suitable for optimizing the creation and sharing of

knowledge, systematic patterns were found in the relationship between HR systems and KM developments in each firm. For instance, the consultancy firm had a typical professional services industry 'up or out' system, which encouraged and rewarded individual merit and promoted fierce internal competition. Although these characteristics are assumed, in principle, to act as obstacles for knowledge sharing, they were effectively integrated into a coherent HR system, highly accepted by employees. In fact, the direct impact from HR practices themselves on organizational performance, under the specific circumstances of this company, can be regarded as highly positive. Moreover, intrinsic requirements of the type of (knowledge) work developed by consultancy employees are: (i) intensive information exchange (with heavy use of IT), what incorporates a collective dimension in the apparently heavy individualistic atmosphere; (ii) interpersonal dynamics, both within (e.g., collective desks where junior consultants work physically close to each other with their laptops) and externally to the company (e.g., high proportion of work at the clients' premises), thanks to which tacit knowledge is often shared and eventually optimized to the firm's advantage. As a result, HRM relatively positive impact on KM effectiveness, rather than due to any 'ideal' individual HR practices, was strongly driven by complex processes involving the way people used information and related to each other, within an HR system highly consistent with the industry requirements, business strategy (Miles & Snow, 1984) and (knowledge) worker characteristics (Lepak & Snell, 1999). However, serious training efforts related to KM diffusion throughout the organization deserve mention as a practice that in the consultancy firm has been indispensable for KM success. Although this specific HR practice would (apparently) seem an exception to the above comments, it ought to be understood as: (i) a core and intrinsic part of the overall corporate training strategy, and (ii) part of a consistent and smooth HR system —conditions accomplished in the consultancy firm. Conversely, the electric equipment manufacturer, although did engage in training activities related to KM, narrowly focused them on *technical* skills related to the utilization of the KM *tool*, rather isolatedly from the whole of training planning. Consequently, a new variable is proposed: *KM-centred training actions within overall training planning*.

In this context, the consultancy firm management were aware that, although the broad targets of the KM project were being achieved quite satisfactorily, there was still a long way to go in order to synergize the HR system with KM requirements. Specifically, KM tasks beyond intranet information retrieval for daily work and, particularly, KM involvement in knowledge feed forward (e.g., Crossan et al., 1999), were not considered as part of the formal job descriptions. Therefore, employees did not have a sense of responsibility in the development of the KM initiative. Besides, personal devotion to KM (e.g., by inputting project results with specification of obstacles, drawbacks, solutions to contingencies, etc.) demanded time and effort that were not considered as part of the appraisable individual performance. In other words, employees were not keen on investing time and effort (and therefore subtracting it from other more 'productive' activities) in tasks seen neither as part of their jobs nor as having any impact on their individual performance. Top management acknowledged this situation and, at the moment of this research, were making preliminary plans for —leaving intact the HR philosophy and making only minor changes in the HR practices— extending some HR system elements to take into account KM needs. As to the electric equipment manufacturer, the above mentioned inconsistencies between the roles played by the HR functions as to HR and KM responsibilities, along with the firm's situation regarding the critical KM characteristics depicted in the induced framework (see figure 2), would jeopardize the credibility of any initiative of changing HR practices to make them more KM-focused. In

fact, there were contradictory explanations by interviewees: from those (especially in the HR function) who believed in an early introduction of a financial incentive scheme related to knowledge sharing (measured by 'knowledge unit' inputting into the KM database), to those plainly sceptical about the appropriateness of paying for 'typing anything' into a database which, although formally a KM tool, had not proved to have any bottom-line positive impact. This discussion leads to the assumption that three other variables may have a relevant impact on KM effectiveness: (i) *formal inclusion of KM duties in job design*, (ii) *productive knowledge sharing measured in performance appraisal*, and (iii) *productive knowledge sharing considered for pay reviews*.

The case of the railway maintenance services firm showed evidence consistent on the whole of the above discussion regarding KM-related HR practices. Despite the inexistence of an 'official' KM policy, the HR function at this company played a highly strategic and consistent role, both as part of top management and also as a close partner of line management. Moreover, all the processes and systems which contribute toward an effective management of knowledge (e.g., productive team-work philosophy, conscious maintenance of a climate of trust, IT-based information management) received relevant support by the HR function; that is, HR practices were formulated and implemented taking into account the organizational needs to optimize knowledge creation and sharing. Indeed, despite not having a formal KM policy, not only does not the railway maintenance firm situation contradict the above assumptions about the KM-related HR practices, but also perhaps that very fact helps the HR function to be aware of the real meaning and needs of KM —beyond the often narrow conceptions of many project- and tool-based approaches.

### **5.3. KM effectiveness**

A number of items were taken into account to evaluate the relative extent to which KM was successful. A comprehensive case-study design and analysis helped to systematize qualitative assessments of: (i) different kinds of knowledge-leveraging processes —thus combining a number of theoretical frameworks (e.g., Nonaka & Takeuchi [1995], Crossan et al. [1999] or Argyris & Schön [1978, 1996]); and (ii) internal assessments by the firms about the KM project (if appropriate) outcomes (e.g., scope, growth, use by employees, bottom-line impact, etc.), and also about eventual results related to knowledge creation and sharing issues (e.g., creativity, innovation, flexibility, adaptability, etc.).

### **5.4. Propositions**

Four basic propositions synthesize the induced framework. Although each of them could be split into a number of more detailed propositions (taking into account the individual variables involved), only the basic ones are formulated —since this investigation has an exploratory aim and the propositions may need further refinement and testing. The first two introduce the impact of each of the independent variable constructs (i.e., critical KM characteristics and KM-related HR practices) on KM effectiveness.

*Proposition 1. A set of five critical KM characteristics (truly strategic KM motivation, participative and cross-organizational KM design and implementation, absence of negative past experiences linked to unit responsible for KM, KM integration with overall IT infrastructure, and KM technical customization) have a positive impact on KM effectiveness.*

*Proposition 2. A set of five KM-related HR practices (absence of HR-role contradictions regarding HRM and KM responsibilities, KM-centred training actions within overall training planning, formal inclusion of KM duties in job design, productive knowledge sharing measured in performance appraisal, and productive knowledge sharing considered for pay reviews) have a positive impact on KM effectiveness.*

Propositions three and four emphasize the fact that, according to the case-study evidence, both independent-variable constructs are believed to be strongly linked to each other regarding their impact upon KM effectiveness. In other words, KM-related HR practices need the existence of the critical KM characteristics in order to be fully effective, and the other way round.

*Proposition 3. The strength of the impact of any of the critical KM characteristics on KM effectiveness is positively related to the existence of KM-related HR practices.*

*Proposition 4. The strength of the impact of any of the KM-related HR practices on KM effectiveness is positively related to the existence of critical KM characteristics.*

## **6. CONCLUSION**

The field study carried out in this investigation strongly supports the much-acclaimed human and cultural issues as the key basis for the success or failure of KM initiatives. Specifically, this investigation adds value to previous literature and research by identifying a number of concrete elements which, within an empirically induced theoretical framework, provide a systematic picture of the impact that, on the one hand, a set of critical KM characteristics, and, on the other hand, another set of KM-related HR practices, have upon KM effectiveness. This investigation has an exploratory aim, so further empirical studies could improve the outcomes of this line of study, using a variety of methodological approaches: on the one hand, qualitative methods would be helpful for explanatory framework refinement; on the other hand, quantitative surveys would be the way to undertake proposition testing and to assess the statistical generalizability of the results.

Although specific HR practices have been assumed to have a direct impact on KM effectiveness, the broader discussion about the relationship between HRM and KM is highly complex. Accordingly, HRM has to be assessed on the basis of, on the one hand, the HR system internal and external consistency and, on the other hand, the existence of the set of critical KM characteristics regarded as a key requirement for KM success. In other words, the case-study evidence strongly supports the conclusion that there is little to talk about the role of HR practices in KM, unless both HRM and KM have been taken seriously by management.

Also, the KM-related HR practices are believed to optimize the effectiveness of the 'strict' KM features, so a mutual reinforcement is assumed between KM-related HR practices and critical KM characteristics regarding their respective impacts upon KM effectiveness. However, the critical KM characteristics might even be more important than the KM-related HR practices for KM effectiveness, as long as the HR system is internally and externally consistent (let us recall the consultancy firm, where a knowledge-sharing hostile but strategically consistent HR 'up or out' system coexisted with relatively effective KM). This observation, which goes beyond the induced framework proposed, could be an interesting extension of this investigation. Other issues have arisen throughout this paper that deserve

further discussion. For instance, the fact that a firm officially refusing KM was indeed quite good at this task, or the situation in which a technically impeccable and carefully implemented KM tool did not lead to any significant improvement in the creation and sharing of knowledge. Academics and practitioners alike are invited to reflect critically upon these (and other) issues, which may bring meaningful implications for a serious rethinking of both theory development and business practice.

Finally, the researcher is aware of some of the limitations of this investigation. For instance, a longitudinal study would have been helpful to identify changes in time regarding the overall KM and HRM situation and, specifically, the evolution of KM effectiveness. However, the recent introduction of KM initiatives (or KM-equivalent practices) by the firms studied, along with the non-immediate effects that they have on organizational performance, somehow would mitigate this limitation. On the other hand, the methodology utilized does not tackle the empirical generalizability of the results—a limitation intrinsic to these methods, unavoidable until others (e.g., industry survey) are used. Nevertheless, it has been such a methodology, qualitative and case-study driven, what has helped to pay detailed attention to organizational dynamics, leading to a careful formulation of variables and propositions—as well as to other reflections—in a way that it expectedly helps to a rigorous understanding of KM issues and, particularly, human and cultural ones through an HRM approach.

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