HUMAN RESOURCE MANAGEMENT AND INNOVATION PRACTICES IN ORGANIZATION

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ABSTRACT

An overview shift in focus from traditional production in the companies to Knowledge-Intensive Firms (KIFs) poses challenges for academics and practionar alike. In particular, effective management of an organization's human resources has become a critical issue for ensuring sustained innovation capacity. The relationship between Human Resource Management (HRM) in Knowledge-Intensive Firms is however still aunexplored arena. The objective of this paper is to explore this relationship in an effort to identify the HRM practices that support innovation. Human resource management playing pivotal role in the modern management, to this end, the paper includes reviews of the literature relevant to HRM and innovation in Knowledge-Intensive Firms. On the basis of content analyses conducted on the case data, some preliminary conclusions are posited regarding the role of HRM in Knowledge-Intensive Firms. More specifically, the findings from this study suggest that while there are commonalities between HRM practices in traditional manufacturing companies and Knowledge-Intensive Firms, there are also important differences, especially in terms of staffing practices in the Organization. The paper contributes by offering recommendations for management of HRM in innovative Knowledge-Intensive Firms and potential avenues for research to further develop our understanding of how HRM can be more supportive to the innovations in Knowledge-Intensive Firms.

Keywords: *HRM,* ***innovation, knowledge intensive firms***

INTRODUCTION

Roberts in 1988 argued that the four dimensions of staffing, structure, strategy and system support were central to successful innovation, and that ensuring the organization had the right kind of people who were effectively managed were critical staffing issues. Still, there remain many questions regarding the relationship between HRM and innovation, especially in non-

manufacturing contexts such as service organizations, SMEs, and what are referred to as knowledge-intensive firms (KIFs). Although all types of organizations involve in the work processes that's when it involves knowledge, knowledge-intensive firms are generally considered to be diametrically opposite to traditional manufacturing firms in that the knowledge rather than physical or financial capital iscentral to the companies' existence (Starbuck, 1992). The outputs of manufacturing and even service organizations tend to be far more tangible than those of knowledge-intensive firms, which most often involve a form of knowledge or expertise (e.g. financial planning, research findings). Thus, knowledge-intensive firms derive their competitive advantage from intellectual capital, which is defined as knowledge, information, experience, and intellectual property secured through a highly-educated and experienced workforce (Alvesson, 2000). Bontisin 1998emphasizes that the quality of the workforce enables and supports innovation and strategic renewal.

The importance of innovation to knowledge-intensive firms cannot be overstated and may even be a defining factor of KIFs (Lei et al., 1999). Swart and Kinnie (2003) suggest that the concept of knowledge-intensive firms should be restricted to those companies that create market value through exploitation of tacit knowledge in novel circumstances via effective management of a highly qualified workforce. This focus on human and social capital inherent to KIFs creates unique challenges to HRM professionals, especially in terms of acquiring and sustaining qualified knowledge workers and supporting the exploitation of knowledge (Boxall and Purcell, 2003). The research presented in this paper aims to extend the knowledge of the relationship between HRM and innovation in general, and beyond the context of large manufacturing firms in particular, by focusing on knowledge-intensive firms (KIFs). Stated more formally, the objective of this paper is to identify and explore HRM practices of innovative, knowledge-intensive firms. The paper provides a briefsummary of the extant literature from the HRM and innovation domains, and specifically HRM and innovation in KIF's, before reporting on case study research conducted in knowledge-intensive firms that have been recognized for excellence in innovation.

HRM and Innovation

Human Resource Management (HRM) may be defined broadly in terms of all management activities impacting relationships between organization and employee or more specifically as a system of operational functions such as staffing, selection, job design, training and (career)

development, performance appraisal and compensation. Further, there is an increasing tendency to also consider more strategic level functions such as human resource planning and forecasting. Although there is considerable discussion regarding the relative importance of specific HRM practices and how they should be configured, there is general agreement concerning the importance of alignment between HRM practices and organizational strategy.

In recent years, the relationship between HRM and innovation has been explored from various angles. One direction this research has taken assumes that HRM systems in general or HRM systems comprised of specific practices that influence innovation capacity indirectly. For instance, empirical studies lend support for the contention that HRM influences mechanisms such as development and exploitation of intellectual capital (Wright et al., 2001), knowledge creation and new product development (Collinsand Smith 2006) and organizational learning (Snell et al., 1996) that in turn facilitate innovation.

On the basis of a mixed sample of industrial firms in Spain, Jiminez-Jiminez and Sanz-Valle (2005) demonstrated a link between performance appraisal systems, incentive-based compensation, and internal career opportunities with innovation, speculating that it is the impact of the HRM practices on employee participation that provides opportunities for innovation. In a similar vein, Shipton et al. (2005) provided evidence that combining training, appraisal and induction influences different stages of the organizational learning cycle (i.e. creation, sharing and implementation of knowledge). Moreover, a study by Shipton et al. (2006) showed that not only do training, appraisal, and induction impact innovation, but that the influence of these practices may differ according to the types of innovation activities (i.e. exploitative vs. explorative). The contention that certain HRM practices impact different aspects of innovation has been conceptualized by de Leede and Looise (2005) and Jørgensen et al. (2008).

These findings contribute substantially to our understanding of the relationship between HRM and innovation, but they are also limited by having been conducted exclusively in manufacturing firms. According to contingency theory models developed by Miles and Snow (1984) and Schuler and Jackson (1987), characteristics of the organization (e.g. size, external market, industry) are critical factors in determining the appropriate HRM practices for an

innovation strategy; thus, research aimed at explaining and describing the relationship between HRM in non-manufacturing environments is clearly warranted.

In the next section of the paper, the rather sparse literature on HRM and innovation in KIFs is reviewed, prior to presentation of case studies that allow for examination of HRM practices in innovative knowledge-intensive firms

HRM and Innovation in knowledge-intensive firms

The relationship between innovation and HRM in knowledge-intensive firms has been largely unexplored despite calls for research in this area (Jackson et al., 2006). The studies that have been undertaken tend towards descriptive explanations of the HRM practices in KIF's, usually drawing on only one case (e.g. Swart and Kinnie, 2003; Verhaeghe and Kfir, 2002), or only address individual components of the equation. In a very recent literature review of research on HRM in KIFs and Multi-National Enterprises (MNEs), Majeed (2009) identified only 30 conceptual and empirical contributions related to knowledge-intensive firms from 2000-2006, and not all of the companies in the knowledge-intensive firms sample could be objectively characterized as such.

Laursen and Mahnke (2001) provided one of the few empirical contributions: On the basis of survey data that suggest that large Danish companies in the manufacturing and services sectors following innovation and knowledge strategies tend to use "new HRM" practices that include interdisciplinary work groups, quality circles, planned job rotation, delegation of responsibility, integration of functions, performance related pay, and internal and external training. By design, more traditional HRM practices such as staffing and career development were not included in the study. Furthermore, while efforts were made by the authors to further refine the service sector data to depict the degree of knowledge-intensity; this was done according to their estimated potential to develop new products and services rather than the degree to which they built competitive advantage on knowledge. It is likely that this concession was made as the analyzed data were collected in 1996 when interest in KIFs was only just emerging. Nonetheless, even companies rated as being relatively knowledge-intensive cannotnecessarily be characterized as knowledge-intensive firms according to current conceptualizations.

While these studies all provide a useful basis for exploration of the relationship between HRM practices and innovation in knowledge-intensive firms there are still numerous gaps yet

to be explored. In the following section of the paper, the research design and methods used to move a step further in this exploration process are described.

RESEARCH DESIGN AND METHODS

Given the relative paucity of research on HRM, innovation, and knowledge-intensive firms, we contend that a qualitative research design that allows a detailed exploration of the topic is most appropriate (Eisenhardt, 1989) for this study. Case studies were thus conducted in four firms in Denmark and Australia. To ensure an objective measure of innovation, these cases were selected on the basis of having been recognized nationally and/or internationally for their innovation performance. For simplicity's sake, data related to specific types of innovation and/or innovation activities were not included and innovative capacity is thus assumed from the companies' recognition for innovation excellence. Finally, to provide a basis for comparison, two of the firms are from the manufacturing sector, while two fulfill the characteristics of knowledge-intensive firms as described previously in this paper.

Data collection involved accessing organizational documents and conducting semi-structured interviews with managers directly involved with planning and implementing HRM. The interviews were designed to identify specific HRM practices used by these firms. These practices were explored to identify how they are implemented, and the perceived impact of these practices on building innovation capacity. The interviews lasted approximately 2 hours each and were tape recorded and later transcribed. Content analysis of the data was conducted to identify issues common to all companies and to contrast different approaches. A summary of these cross-case findings follows a presentation of the four cases

CASE DESCRIPTIONS

Discussion

In the summary of the findings from the data analyses shown in Table 1, a number of similarities between the case companies can be seen. For instance, the CEO's and/or senior managers are all exclusively or heavily involved in selection practices at all four of the companies and Scientifics, Gaming Co, and Architectural Doors purport using specialized selection criteria (i.e. "fit" with organizational culture, desire for challenges) to aid in attaining an appropriately focused workforce. In addition, these three companies all utilize team structures and learning and development appears to be linked to the team structures (e.g. learning through challenging projects). Further, these companies offer extensive training and

development opportunities for their R&D and executive staff, practice performance management that provides employees with frequent feedback related to goal attainment, and link recognition and rewards to organizational, team, and/or individual performance to varying degrees,. Thus, the HRM practices used at Scientifiks and GamingCo, which are KIFs, are quite similar to those used at Architectural Doors, which is characterized as a manufacturing firm. Moreover, HRM practices in these three firms differ considerably from those at Nature's Brew.

	Scientifiks (KIF)	GamingCo (KIF)	Nature's Brew (Manufacturing)	Architectural Doors (Manufacturing)
HR Strategy & Structure	CEO & Senior managers manage "HRM"; frequent use of consultants for T&D;	CEO heavily involved but HR department of 6, including a T&D officer;	No dedicated function; responsibility of general manager	Responsibility of CEO & Senior Managers; No dedicated HR function
Workforce planning	High priority but nothing currently in place; primarily ad hoc	Keep quality people employed with work – offers job security in fast changing often contract market	No formal plan	Workforce employed as new offices are established; principle of "Local companies run by local people"
Recruitment & Selection	International consulting agency + ads in trade journals + seminars at local universities; selection focuses on previous experience within + desire to be part of a dynamic environment	International recruitment for top staff; via industry contacts, entry level via universities and internships; many applicants for positions;	Internal recruitment (posted bulletins, word of mouth); announcements on job-search websites/job banks; no formal selection criteria	Internal or recruitment agencies, websites; recommendations ; Message given during recruitment: " If you want to take on challenges and do things differently you will love it here"
Work design	All team structure with exception of administrative staff	Teams an integral part of the structure (30-80 members); Projects from 6 months to up to five years; project cycles generates variety	Highly automated production with individual responsibility for specific aspects of production process	Team based multi-size projects; generating new products and solutions
Learning & Development	Developers encouraged to participate in "Lifelong Learning" & international courses/seminars; Consultants used frequently (>6 times per year); newly organized "knowledge center"	Learning by doing; self-directed experimentation and learning encouraged; Opportunities for skill development; attending international conferences between projects;	OTJ training ("mentor" program); mandated safety and food service related courses for all employees; specialized food service courses for R&D	Encourage learning through challenging projects; ongoing skill and knowledge development; Formal education possibilities for Exec. Team R&D staff, largely OTJ training for operational staff
Performance management	Annual performance reviews (individual) conducted by CEO and Senior Managers	Ongoing annual performance reviews, linked with salary review and training programs; also reviewed by key people with 360 degree feedback	No formal procedures	Company goal setting translated into "achievable outcomes" for CEO, senior managers and cascaded down to employees at all levels; annual reviews with quarterly feedback
Recognition & Reward	Quarterly bonuses linked to company performance; ad hoc bonuses tied to individual and/or team performance (no formal system)	Formal/informal on team & milestone basis; rewards usually the end of the project – celebrate success	No formal bonus/recognition program—occasional annual performance bonus paid annually on the basis of company performance	Informal to celebrate successes; Formal awards such as 4 Employee of the Year Awards around company's core values;
Remuneration	Industry standard; stock options (new in 2008); private health insurance (new in 2008)	Salaries at industry level; "We try and say we hope never to make you redundant"	Union standard for operators and administrative staff; industry standard for R&D and sales and marketing.	Profit sharing bonuses end of year profit sharing, performance pay for middle managers and above

Table 1. Summary of Findings

Team structures may facilitate learning, collaboration, and knowledge sharing in these companies. Jackson et al. (2006) posit that knowledge-intensive teams (KITs) may provide organizations with strategic advantage, as they can provide an arena for knowledge-centered activities (e.g. acquisition, sharing, combining, creation, and revision of knowledge). Further, the use of knowledge-intensive firms is consistent with the literature that proposes that KIFs are often characterized by team communities)that offer dynamic interaction. The role of HRM is important in supporting knowledge-intensive firms, according to Jackson et al. (2006), in order to ensure that the available knowledge and teamwork competencies are available within the firm, to provide opportunities for knowledge-centered activities (e.g.

shared learning, challenging work), and by rewarding team performance. From this, specific HRM practices may be construed:

1) HRM should utilize thorough selection criteria and processes that secure a workforce with a desire for challenging work and a willingness and ability to work in a collaborative environment (perhaps versus technical skills alone);

2), training and development opportunities at the individual and team level; performance management systems that help align individual, team and organizational goals; and

3) Performance based pay. The three firms—Scientifics, Gaming Co, and Architectural Doors—all prioritize these HRM practices.

Even though it is characterized as a manufacturing company, the Architectural Doors' integration of R&D and operational functions in teams may signal a less traditional manufacturing environment that may explain their use of "selective" selection practices, teams, performance management, and performance-based pay for (some) employees. On the other hand, teams are certainly not a foreign concept in manufacturing firms and have been linked to innovation; thus, the lack of a team structure at Nature's Brew may be attributed to the company's small size and/or its industry affiliation rather than differences between manufacturing firms and knowledge-intensive firms. The lack of focus on selection, training and development, and performance management, as well as the standard remuneration practices, may also be related to size and industry; however, the clear segmentation of knowledge-centered (i.e. R&D) and operational activities may translate into Nature's Brew being much more typical of traditional manufacturing companies than Architectural Doors.

There are also HRM practices common to Scientifics and Gaming Co that are not shared by the Nature's Brew and Architectural Doors that may well be related to the knowledge - intensive vs. manufacturing environments. Specifically, while both Scientifics and Gaming Co rely at least partially on international recruitment, Nature's Brew and Architectural Doors recruit internally and/or via local agencies. Although not specifically addressed in the literature, outsourcing of recruitment to international agencies and/or via university alliances may be a way in which knowledge-intensive firms increase the quality of their selection pools to ensure a highly qualified workforce. Moreover, due to their reliance on a highly qualified workforce, staffing may be of more importance to knowledge-intensive firms than to manufacturing firms, which may explain why staffing was not included in any of the HRM systems.

Conclusions

The objective of this paper was to identify and explore HRM practices in innovative, knowledge-intensive firms. The findings from this research provide some initial indications about HR practices in knowledge-intensive firms, particularly in organizations that are recognized as leaders in innovation. Although there were differences in the national context, size and industry, there were also some similarities between the companies, which may be attributed to the fact that all four of cases drew from organizations that had excelled in the development of new products for an ever-changing marketplace. It was clear that all four firms acknowledged the key importance of knowledge, and its retention, for their organizations' competitive advantage, although there were differences in the way the firms managed knowledge. For example, the two knowledge-intensive firms used knowledge-intensive technologies to facilitate knowledge exploitation and hence, innovation capacity and cross-functional teams were also used in the largest of the manufacturing firms, which may signal a more modern approach to production that incorporates characteristics of knowledge-intensive firms. Linked to the issue of knowledge development and retention was the way these organizations chose to approach learning and development in their organization. It was evident that the organizations provided less formal or traditional off-the-job training and were more likely to involve employees in development activities such as experimentation, networking, mentoring, or assignment to challenging projects. Moreover, these companies attempted to provide individuals and teams with opportunities for development.

Due to the small sample used in this study, it is not feasible to draw generalizable conclusions. Still, the common features among the KIFs (as well as the more "modern" manufacturing concern) may have implications for management in terms of the recognizing the importance of HRM, and more specifically, selection, training and development, performance management, and performance based pay, to facilitate innovation in non-manufacturing environments. The findings also highlight future avenues for research, including how HRM systems should be developed for companies focusing on both knowledge -intensive activities and production. Further, given the inclusion of only two cases in each country, future research with a much larger sample—perhaps from countries that differ considerably in terms of labor force demographics—would provide insight as to how

characteristics of an organization's external environment influence HRM strategy and practice, as suggested by the contingency approach to HRM.

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