The Confluence of Human Capital Management and Human Resource Management and the Benefits of Knowledge Engineering

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Abstract: - The practice of Human Resource Management has been in place within organizations for many years. As organizations continue to seek sources of competitive advantage, many organizations are looking to actively manage their human capital more effectively. This paper examines the application of knowledge engineering practices and knowledge management technologies as enabling factors in enhancing traditional human resource functions to increase the effectiveness of human capital within the organization. Eight different categories of knowledge management technologies are examined in the context of traditional human resource management functions.

Key-Words: Human Capital, Knowledge Engineering, Human Resource Management

1 Introduction

In this paper we examine the enabling capabilities of knowledge management technologies in enhancing resources that have traditionally been managed through the Human Resource Department (HR) of many organizations. Human Capital has become a focus for many organizations in recent years as a source of competitive advantage. Although human capital has existed in organizations as long as organizations have existed, the active management of human capital as a discipline with associated tools and techniques is relatively new in it's broad appeal. We shall examine the roll of these knowledge management technologies and specifically the application of knowledge engineering as a methodology of for enabling organizations to leverage knowledge that is explicit in that it is documented and available to the human resource department however remains tacit in nature to the rest of the organization. Selection, training, appraisal and rewards, the traditional domains of HRM, take a different color when we view them as contributing to organizational knowledge stocks [1].

2 Problem Formulation

The nature of information contained within the human resource department has traditionally been sequestered from most of the organization. This is primarily due to a number of factors:

- The confidential nature of the information managed by HR
- The format that much of this information has been maintained in – much of which is paper based
- The roll of the HR department as a support mechanism designed to serve the organization, not directly aligned with the achievement of organizational goals.
- Technological implementations designed to serve the traditional roll of the HR department as opposed to the greater knowledge requirements of the organization.
- The security implications of sharing information about individuals and their abilities

Human capital management, strategically, fits better with high levels of expert human-capital leveraging. While lateral hiring helps firms build new knowledge bases and take advantage of growth opportunities, pursuing high levels of both expert human-capital leveraging and lateral hiring of associates results in lower profitability. To fully capture the economic benefits from strategies of diversification, human-capital leveraging and lateral hiring, organizations should understand and manage the complex interdependencies among multiple levels of strategy [2]. In light of this, strategies to improve the management of human capital, where ever that human capital knowledge and information

may reside should improve the competitive stance of the organization.

3 The Confluence of HRM and Human Capital Management

Given the problems highlighted in Section 2. advances have been made towards leveraging the human capital that is maintained in tacit form within the HR department. Figure 1. illustrates the confluence between Human Resource and Human Capital management:
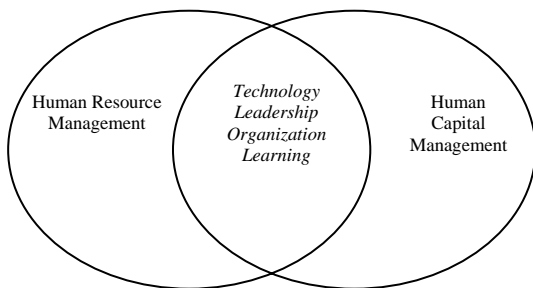

Figure 1: The Confluence of HRM and Human Capital Management

Specifically, there are commonalities between the two disciplines in terms of Technology, Leadership, Organization and Learning. From a knowledge engineering perspective, each of these specific elements may be enhanced in terms of functionality and effectiveness through the application of appropriate technological systems. From an outcomes perspective, human capital management may be improved through enhancements in human resource management in the areas of technology, leadership, organization or organizational learning. In this paper we focus on the technological advancements that may lead to improved human capital management, although there is certainly further opportunity for improvement in terms of the other 3 areas. The application of new technologies should o course be in line with the strategic objectives of the organization and take into consideration the leadership, organization and organizational learning as well.

In 2004, we conducted a survey of knowledge management technologies used in the management of human capital. The survey was conducted across 145 organizations globally of organizations ranging in size from 100 employees to over 10,000. Table 1

illustrated in order of success, the technologies in use in managing Human Capital.

KM Technology	Ranking
Data Warehousing	1
Intranet	2
Document Management	3
Extranet	4
Decision Support	5
Groupware	6
A.I. / Knowledge Agents	7
Internet	8

Table 1: Priority Ranking of KM Technologies in Managing Human Capital

It should be noted on Table 1 that there was no significant difference found in the success rates of A.I. / Knowledge Agents and Internet technologies at the bottom of the list across all organizations surveyed, however, Internet technologies did rank higher in organizations of 10,000 employees and larger. An explanation of this difference between organization technology utilization is offered later in the paper.

Data Warehousing and Intranet based technologies were especially seen as important in the management of human capital regardless of organizational size. These perceptions can be attributed to the need to store large quantities of documents for extended periods of time in terms of document management, and the ease of deployment in terms of a basic Intranet infrastructure.

A further consideration is the overall perceived success of the KM initiatives within the organizations surveyed should also be taken into consideration in terms of the results in the ranking of perceived success in increasing the effectiveness of Human Capital. Figure 2 illustrates the perceived levels of success within those organizations surveyed.
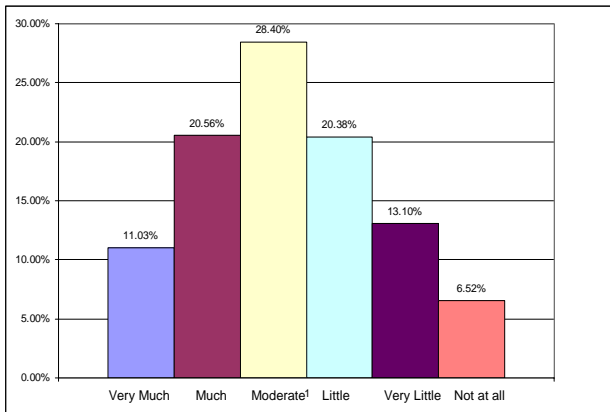
**Figure 2: Perceived level of success
in KM Deployments**

These technologies may be enhanced by integration with the existing HR Information Systems of the organization in managing the Human Capital of the organization.

The application of such KM based technologies may be applied to a number of HR based categories such as internal employee communications, training and employee learning, access to benefits information, location of qualified personnel within the organization, recruitment and performance appraisal.

We shall now examine each of these disciplines in terms of how knowledge management technologies and knowledge engineering practices may be applied to enhance human capital.

3.1 Communication
Given that many HR departments still communicate with employees in paper based media due to the confidential nature of memoranda, internal communication between the HR department and the employees of the organizations may be improved through the use of groupware technologies, WIKI's and Weblogs (BLOGS). Such technologies many be effectively deployed to enhance communication of knowledge between individuals and improve efficiency as well as reducing retention costs. Reduced costs and improvements in efficiency both in themselves are sources of competitive advantage, however the impact on Human Capital is also evident as the effect of increased communication and ease of communications tend to have positive effects on corporate culture allowing for a more fostering environment for human capital development.

3.2 E-Learning
Multimedia data and application systems accessible over the Web are valuable assets for developing instructional materials for teaching, training, problem solving, and decision support [3]. Increased human capital development is also enhanced through the application of active e-Learning applications through the use of Intranet, Extranet and Internet based technologies. E-Learning applications developed, deployed and managed by the HR department may include both general development courses such as personal development, orientation and internal systems training. Such systems may also be utilized to enhance innovation through the development of best practices libraries, business process review systems, team learning systems. The learning systems themselves may be developed internally, based on a subscription format utilizing extranet capabilities or facilitated through the participation in centers of expertise or centers of practice. The ability for employees to acquire new skills and capabilities in an efficient timely manner is a contributing factor to the level of innovation within the organization, innovation being an important factor in competitive advantage.

3.3 Expertise Locators
Expertise locators, although one of the most common knowledge management capabilities, have long resided in the domain of the IT department or for organizations so structured, in the Knowledge Management Department. Quickly locating the best available person for a job, project or team assignment is a top priority today, especially for multi-location or multi-national organizations[4]. In many such situations, the lack of input, or for that matter, sponsorship by the HR department has lead to missed opportunities. This is often the case when HR records, such as curriculum vitas and or resumes are stored in paper format. These documents, although explicit from the perspective that they contain codified knowledge, remain tacit to the rest of the organization where access to such information remains out of bounds. Access to such knowledge through groupware applications, intranet based applications or knowledge bases enables individuals or managers seeking specific talents or a combination of talents have the ability to easily locate them within the organization. This generally transcends the knowledge typically contained within an expertise locator in terms of detail and the richness of information. Such access to internal knowledge may lead to competitive advantage by

increasing the agility of the organization – improving its ability to react to opportunities and adapt to changes in the competitive environment.

3.4 The Benefits Center

Among the advantages of using technology to communicate benefits information is that it can transform HR into a 24-hour operation. The system should be interactive and use personal data so that employees can do modeling and projections, which will enable them to make better benefits decisions [5]. The access to benefit information in a timely accurate manner has long been seen as a vital aspect of the function of the HR department by employees. Enhancing this access through the use or Intranets, Portals, WIKI's and BLOGS enables the HR department to deliver required information to the employee in a personalized manner in real time. The analysis of requests for information posted through such a system may allow the organization to refine educational programs, orientation programs and general communication strategies from the HR department to the employees of the organization. For large organizations, this may be accomplished through the use of A.I / Knowledge Agents that allow the organization to evaluate trends in the access of such information. Similarly, through the use of BLOGS and WIKI's, information disseminated once may be accessed repeatedly over time. As situations change, the information contained in the WIKI or BLOG may be updated, while maintaining a historical record of how, when and why changes have been made. Such systems may lead to competitive advantage by increasing staff retention and improved understanding by employees of past current and to a certain extent future work environments. Similarly, the ability of employees to submit suggestions in either a stated or anonymous way may have positive effects on corporate culture, fostering a more participative environment.

3.5 Recruitment

The online recruiting market is one of the most rapidly growing e-commerce areas. Since the mid-1990s, a number of e-recruiting methods such as job boards, corporate career web sites, and e-recruiting consortia have been introduced into the labor market. Among them, e-recruiting with the use of a corporate career web site has been touted as the most efficient and cost-effective recruiting method [6]. Lee suggests a 5 stage approach to enhancing the effectiveness of e-recruiting [7].

- Information Delivery
- Search Engine e-Recruiting System
- Search Agent e-Recruiting System
- Decision Support e-Recruiting System
- Holistic e-Recruiting System

These 5 stages closely correlate to the knowledge management technologies discussed in our article. Information Delivery through a combination of Groupware, Intranet, Internet and Extranet technologies, Search engine e-Recruiting through the use of Internet Technologies, Search Agents through the use of Knowledge Agents and Internet technologies, Decision Support e-Recruiting through he use of Decision Support Systems. The holistic approach entails utilizing all tools available in recruiting new employees. This approach entails the use of customer capital, structural capital and relationship capital. Given that these different capital classifications, to include human capital, are all elements of the broader category of Intellectual Capital, it becomes obvious that all KM technologies may be utilized in the improved efficiency of such a recruiting system.

3.6 Performance Appraisal

Self-efficacy increases when an individual takes control of generating his or her own feedback via technology rather than cedes this function to a supervisor. Experiencing enhanced control over one's work by receiving feedback directly from system is preferable for the employee rather than relying on a supervisor to manage the feedback process in an intermediary role [8]. Through the use of Intranet based technologies and specifically portal technologies, employees may be able to view ongoing performance appraisals. This is an especially valuable tool in the use of management by objectives as the employees may view their status in real or near real time. Once again, this is an empowering capability that may be used in the development of human capital within the organization.

We have described above the major functions of functions of the human resources department typical of most organizations. There are of course specific functions that are unique to specific organizations, however, given the desire to enable as much competitive advantage as possible within the organization, it is likely that knowledge management technology and knowledge management practices may be applied to even unique situations.

4 Conclusion

Our research shows that the overall implementation of knowledge management technologies to manage human capital has met with moderate but favorable success with 59% of those surveyed signifying that the implementation has met with a moderate to high success rate. Bridging the gap between human resource management and human capital management is enhanced through the application of knowledge management technologies and knowledge engineering practices. In an environment of increased competitiveness, bringing all of the organizations capabilities to bear on improving the organizations competitive advantage continues to be a strategic objective of most organizations. The leveraging of existing human resource management capabilities to enhance human capital is an obvious source of such competitive advantage given the transition of many knowledge management technologies into the mainstream.

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