

The dual paradigm nature of knowledge management: implications for achieving quality outcomes in human resource management

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Abstract Two paradigm orientations exist in the emerging field of knowledge management (KM). In one paradigm, information technology predominantly influences ideas about knowledge management. In the other, organizational learning is the major influence. For KM to contribute effectively to organizational strategy, organizations must build and strengthen the linkages between KM, human resource management (HRM), and business development. The dual paradigm nature of KM suggests that strategies driven by information technology exhibit quite different characteristics to those driven by organizational learning, the former being driven by technology, while the latter is dominated more by a focus on people. It is important for HR practitioners to understand how certain paradigm orientations to KM can lead to very different paths into thinking about HRM practices and can result in a lack of continuity between various strategic initiatives in an organization. In turn, quality initiatives in HRM will be affected. Suggestions for dealing with the dual paradigm nature of KM are also offered.

Keywords Knowledge management, Paradigms, Quality, Intellectual capital, Learning organizations, Information technology

Introduction

The effective management and leveraging of all types of knowledge within organizations is one path to the creation of value and competitive advantage in today's global environment (Nevis *et al.*, 1997; Nordstrom and Ridderstrale, 2000; Quinn *et al.*, 1996). This leveraging of knowledge entails understanding the complex web of social, technical, financial, and human resources that must be tapped by organizations if any competitive advantage is to be derived (cf. Davenport *et al.*, 1998; Prusak, 1997). However, considerable confusion remains in the literature concerning precise definitions of terms such as data, information, and knowledge and the role of each factor in the process of managing knowledge, particularly intellectual capital (Joia, 2000). At a practical level, while both data and information can be seen as factual and objective resources, knowledge provides context in the form of "relevance and purpose" (Drucker, 1998), and in its broadest sense is a catalyst because it transforms data and information into a tangible asset (Sveiby, 1997).

Against this background, the difficulty of writing about knowledge without employing an elaborate metalanguage is evident. Notwithstanding this problem associated with conceptualizing knowledge, at a level of generality ideas about knowledge *per se* have moved well beyond those articulated in the organizational literature of the 1970s. For example, a cursory review of the general management literature of this period indicates that managing information was viewed as a relatively neutral and normative servicing system and its associated tasks were represented as somewhat mundane activities (Handy, 1976; McRae, 1971). Today, knowledge management (KM) has grown into a discrete area in the study of organizations and is demonstrably linked to increasing competitive advantage (Davis, 1998; Joia, 2000; Matusik and Hill, 1998; Miller, 1999; Moore and Birkinshaw, 1998; Nonaka, 1991; Nonaka and Takeuchi, 1995). Attesting to this new status of knowledge, organizations are now replete with new positions such as knowledge officer or knowledge manager (Earl and Scott, 1999; Davenport and Prusak, 1998). Large corporations like Skandia also produce formal accounts of their intellectual capital (Earl, 1997; Probst *et al.*, 2000).

Despite a proliferation of knowledge-based literature, we argue that in the case of the various approaches available to organizations to manage their knowledge resources, these generally remain rooted in one of two basic orientations. One orientation advances information management systems or information technology (IT) as the anchor for developing ideas about KM. The other promotes organizational learning or a humanist approach as a basis for action. Because each orientation engenders very different approaches to KM, the tools used and methods developed for KM will differ across and within organizations. Nevertheless, recent contributions to the literature also indicate that an organization's choice of strategies for KM, whether derived from IT or humanist inspired thinking should ideally reflect its competitive strategy.

By conducting a meta-analysis of the literature, this paper offers an abbreviated account of some main developments in conceptualizing KM as a discrete area of study. A model is then presented to indicate how basic organizational influences can be viewed in the context of the dual paradigm nature of KM. The implications of these different orientations in KM are discussed in the context of both strategic perspectives and quality outcomes in human resource management (HRM). It is suggested that particular orientations to KM will influence the HRM function of an organization, and that HRM has a significant role to play with regard to enhancing the overall effectiveness of KM strategies within organizations.

Methodology

Meta-analysis is used in this preliminary study as a method of reviewing and synthesizing previously published material in a field that is represented by a well established body of knowledge that can be accessed and used to enrich other disciplines (cf. Asher, 1990; Glass, 1976; Vockell and Asher, 1995). The goal of the meta-analysis used here is to identify major themes or discourses in the KM literature. In addition to meta-analysis, a semiotic method was also used to identify underlying ideas that implicitly sanction discourses on KM. This semiotic technique allows researchers to distil the underlying logic supporting dominant discourses. This is achieved by identifying key words in a discourse and positioning them within a set of structural oppositions. For example, a predominance of words signifying technical applications imply the legitimacy of technology when viewed in the context of a social relations versus technological relations opposition. In essence, the semiotic method helps unearth the broadest unit of consensus that propels the activities of a community of KM practitioners. Thus, it also begins the process of revealing the dual paradigm nature of KM discussed below. While this method is prevalent in the

humanities and social sciences, it has also recently been applied successfully to studies in management and allied fields (see Berrell and Gloet, 1999).

The evolution towards knowledge management

Franz Hayek (1945) and Fritz Machlup (1962) both began the task of articulating the significant role of knowledge in the economy with their pioneering work. Moreover, macro-level studies drawing heavily on the sociology of knowledge by George Gurvitch (1971) and Daniel Bell (1976) added to the growing body of post-industrial literature on the role of knowledge generally in the emerging information age and the consequences of this development for the wider society. However, at the same time, micro-level applications in business and organizational studies were generally more sympathetic to the view that the management of information was a relatively normative service function within an organization (Handy, 1976; McRae, 1971).

By the end of the following decade, Alvin and Hedi Toffler (1990) had aptly captured the powershifts in society that accompanied the increasing importance placed on knowledge as a fundamental economic and political resource. In particular, they emphasized the emerging political nature of intellectual capital. Not only had a new super-symbolic age truly emerged out of both the post-industrial (Bell, 1976) and post-service (Jones, 1984) societies, but the benefits of this age for knowledge workers were considered to be profound. By the mid-1990s intellectual and information processes accounted for almost 80 percent of jobs in the large service industries (Quinn *et al.*, 1996). In this period, the management literature also became more cognizant of the pivotal role of knowledge within organizations. Consequently, by the late 1990s, work of the type undertaken by Boisot (1998), Davenport and Prusak (1998), and Zack (1999a,b) allowed KM to fully emerge as a field of study in its own right. While KM brings people, physical systems, and processes together, the decidedly "fuzzy" aspect to its makeup was also recognized (McCune, 1999). Moreover, this level of complexity means that although organizations may utilize the same information, the outcomes may be very different.

There are many varied definitions of KM. For instance, Beckman (1999) asserts that KM concerns the formalization of and access to experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation, and enhance customer value. Coleman (1999) defines KM as an umbrella term for a wide variety of interdependent and interlocking functions, including knowledge creation; knowledge valuation and metrics; knowledge mapping and indexing; knowledge transport, storage, and distribution; and knowledge sharing. For purposes of this paper, KM is considered an organization wide strategy underpinned by various management practices and tools that combine to support and develop the knowledge assets of an organization.

The dual paradigm nature of knowledge management

Thomas Kuhn's (1970) notion of a scientific paradigm posits that any body of knowledge, which sustains a particular community of practitioners, also contains the epistemic means by which those practices can be altered or overturned. Paradigms are, therefore, the shared meanings of a community of practitioners and when organizations and economies run on knowledge, these communities tend to thrive (cf. Wegner and Snyder, 2000). Such meanings are continually represented and reinforced in the physical resources, approaches, and knowledge used by a community. However, Kuhn's original formulation of the structure of a scientific revolution occurred within a ubiquitous framework. Because of this potentially expansive environment, the paradigm concept has been applied somewhat

generously within the social sciences (Berrell and Macpherson, 1996). Despite the "embarrassment of riches" produced by such diverse applications (Gutting, 1984), the identification of paradigm orientations help explain how particular approaches to KM are developed and maintained within an organization.

For George Ritzer (1975), a paradigm is the broadest unit of consensus within a designated field of study. As such, paradigms are neither models or super theories, but simply standpoints from which models and theories might be generated (cf. Bell, 1976). Against this background, the tools and methods used for KM within an organization can be viewed as effects of the dominant ways of knowing that sustains an organization's community of practitioners. In many cases, however, these practitioners may be unaware of the subtle influences of the ways of knowing because they reside at the deeper level of an organization's culture. Following Levi-Strauss (1976), these ideas register as timeless truths upon which the basic ideas about KM rest. The roots of this governing knowledge and their effects on practice, nevertheless, can be unearthed in a meta-analysis of the literature on KM.

The paradigm nature of KM begins to unfold when Ritzer's (1975) generic description of a paradigm is applied to this field of study. Ritzer (1975) indicates that consensus among a community of practitioners is reinforced through a paradigm's exemplars, images of its subject matter, and its distinctive practices. Within this analytical framework, one dominant way of doing things in KM is based on the idea that IT and its associated systems provide the ideal framework that circumscribes the principles and practices associated with KM. This is the point of consensus in what can be called the IT paradigm. In contrast, a competing view posits the social relations of organizational knowledge as paramount when deliberating on KM. While this latter humanist paradigm also recognizes the technical side of KM, it implicitly emphasizes the importance of interpretive elements in its practice. This interpretive understanding is the point of consensus in the humanist paradigm.

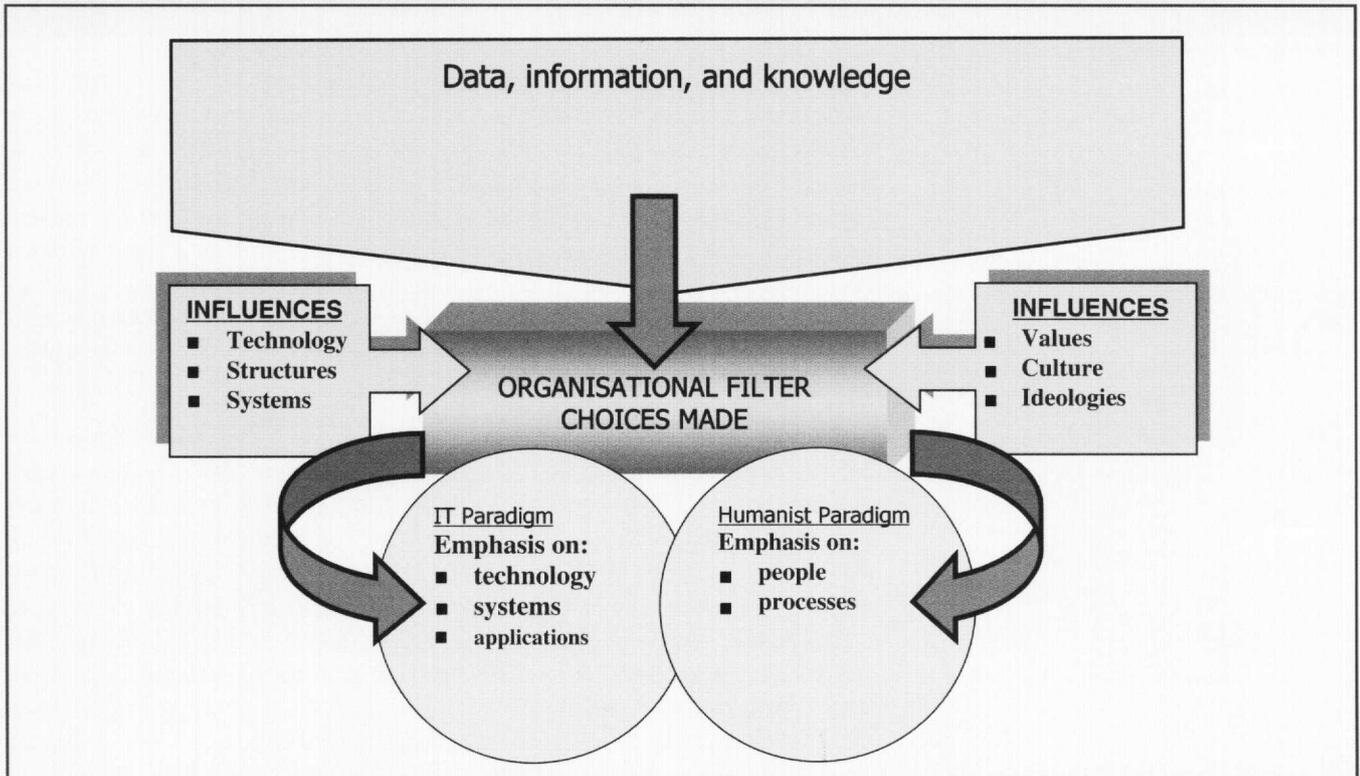
In terms of images of the subject matter, the literature consistent with an IT paradigm orientation focuses on the tangible aspects of KM. Consequently, topics of discourse include technology, technical applications, and the collection of data. The manipulation of information also appears in its content. This point of view also highlights various operating systems, reporting procedures, and financial planning (cf. Handy, 1976). In contrast, literature aligned to the humanist paradigm is more concerned with the nature of learning, the organizational processes of KM, and harnessing tacit forms of knowledge as an organizational resource. This standpoint accords more attention to organizational slogans, metaphors, and the symbols of KM (Nonaka, 1991).

Given the subtle influence of each paradigm among the community of KM practitioners, researchers in the IT paradigm implicitly accept the various extensions of information processing and business information systems as appropriate roads into understanding the nature and structure of KM as a discrete area of study. Therefore, their research focuses on the collection, storage, and manipulation of essentially objective or explicit data and employing methodologies that astutely construct an organization as akin to an information processing system. In this hard environment, less attention is accorded to the human side of processing, collecting, and storing data (Lado and Zhang, 1998). This implicit focus in the IT paradigm suggests that most KM tools will revolve around information storage and retrieval systems and their associated software (Fusaro, 1998).

Within the humanist paradigm, researchers have highlighted the role of individuals and groups in the processes of knowledge sharing and manipulation, particularly concerning highly interpretive forms of knowledge. In this paradigm, researchers implicitly accept the phenomenology of the individual as an appropriate path into understanding KM. Studies here have also examined the distinctions between tangible and intangible knowledge, or explicit versus tacit knowledge. In addition, other studies explore the role of knowledge and learning at the systems, organizational, and cultural level of an organization (Nevis *et al.*, 1995).

At a practical level, all organizations deal in knowledge on a daily basis. Clearly, various organizational stakeholders constantly choose between competing systems and processes to acquire, manage, and disseminate knowledge. In this process, personal preferences, organizational values, and management ideologies come into play. While personal preferences introduce bias into KM, the internal systems of an organization also filter knowledge with varying degrees of bias. For example, an organizational culture that supports a devolved structure in KM might implicitly encourage communication that is more open. Another organizational culture may choose a more centralized system with subsequently more closed forms of communication. In one organization, information and communication technologies will drive KM while in another, the humanist approach will be more readily accommodated. Consequently, as knowledge moves through the various stages of an organization, explicit and implicit choices govern its flow. In essence, organizations constantly filter data, information, and knowledge of all kinds. This filtering process is strongly influenced by the values of the organization, its community of practitioners, and wider stakeholders. A generic model of these influences and their relation to the dual paradigm nature of KM is set out in Figure 1.

Figure 1 Influences of KM within an organization



From a theoretical viewpoint, we might expect a normal distribution of KM outcomes along the IT-humanist paradigm continuum. In reality, however, the juxtaposition of these paradigm orientations results from very different epistemological and philosophical assumptions about the very nature of KM. Residing at the deep level of an organizational culture, the axial principles that drive each community of practitioners, by definition, require no elaborate rationales. While the two paradigm orientations can be seen as mutually exclusive constructs, at the present time we argue that the distribution of outcomes will be skewed, and in most cases, will be skewed positively in favor of outcomes consistent with thinking in the IT paradigm. It may be argued that because an IT orientation ostensibly offers more structure and precision by dealing in explicit rather than tacit knowledge, people feel more at ease in this environment (Gloet, 2000, 2001; Haldin-Herrgard, 2000).

Hansen *et al.* (1999) allude to the dual paradigm nature of KM in aspects of their research. They indicate that most organizations approach the tasks associated with KM by using two distinct strategies. A codification strategy is one centered on IT and its associated resources. A personalization strategy is one centered on managing people. Their findings also suggests that in those rare circumstances when an organization attempts to combine elements of both the IT and the humanist approaches in KM, the resulting problems are serious enough to undermine profitability (Hansen *et al.*, 1999). Clearly, using codified and personalized strategies in KM have significant implications for HRM within an organization because a KM strategy emerging from within the IT paradigm will differ considerably from one originating within the humanist paradigm. The consequences of such divergence, grounded in the dual paradigm nature of KM, can be observed in several areas pertinent to achieving quality outcomes in HRM (Dale and Cooper, 1992).

Achieving quality outcomes in human resource management

HRM concerns the policies, practices, and systems that influence employees' behavior, attitude, and performance. Moreover, it is generally accepted that the more strategic the approach to HRM, the greater the contribution of HRM to organizational performance (Noe *et al.*, 2000). While in some organizations, KM will be developed and sustained under the umbrella of the HRM function, this would appear to be the exception rather than the rule, as KM may be an organization wide initiative, or it may come under the auspices of areas such as IT. In other cases there may be a shared responsibility for KM activities (Gloet, 2001). As such, the relationship between KM and HRM is a complex one; the more aligned the strategies underlying both of these areas, the more contribution both can make to quality practices and overall organizational performance. In any event, HRM practitioners need to be cognisant of the dual paradigm nature of KM and the ways in which this duality may be manifested.

Dale and Cooper (1992) propose seven imperatives linked to achieving quality outcomes in HRM within organizations. To summarize, these imperatives are related directly to ideas about:

- (1) Management support.
- (2) Organizational culture.

“ A codification strategy is one centered on IT and its associated resources. A personalization strategy is one centered on managing people. ”

- (3) Planning and structure.
- (4) Education and training.
- (5) Measuring outputs.
- (6) Involvement by stakeholders.
- (7) Recognizing the contributions of stakeholders.

The general literature on HRM indicates that the unequivocal commitment of the chief executive officer (CEO) and the senior management team of an organization are necessary for quality outcomes in areas related to education and training, communication, selection, recruitment, improvement, and performance. The literature also indicates that the involvement of organizational stakeholders in management, planning, and decision making concerned with resource allocation, education, and training also increases the likelihood of quality outcomes (Davenport *et al.*, 1998). The overt recognition of contributions of this type is also a necessary component of quality. In addition, quality outcomes also require the active involvement of middle level managers as well as people at the workplace. Appropriate systems of motivation and rewards are, therefore, indispensable to achieving quality outcomes. Benchmarking improvement and performance is also a key to quality. The ramifications of the organizational choices made in relation to the above areas of HRM are discussed below in the context of the dual paradigm nature of KM.

Knowledge management and the pursuit of quality

In most organizations, a variety of views exist about how best to manage people, finances, and physical resources; plan and organize; educate and train; tap organizational processes; develop systems; and implement policies in the pursuit of quality. If KM is regarded as a long-term organizational strategy, HR practitioners can play an important role in building and strengthening the linkages between overall business strategy, KM strategy, and HRM strategy. However, KM strategies driven by the IT paradigm will exhibit quite different characteristics to those driven by the humanist paradigm. Thus, competing choices about KM generally make the area a strategic consideration within any organization. Moreover, given the complex relationship between overall organizational strategy, KM strategy, and HRM strategy, the intersection between these three areas will constitute a site of competing ideologies. The tensions related to these frequently competing ideologies will often manifest themselves in confusion or a lack of continuity between various strategic approaches. This in turn will have an adverse effect on quality initiatives.

In the area of management support, the role of the CEO effectively means that decisions originating from this senior level will have a significant impact on an organization. When a CEO actively supports activities that are compatible with the organization's goals, strategies, products, and services, there is the likelihood that positive results will ensue. However, a CEO influenced by the IT paradigm will tend to accentuate the primacy of explicit knowledge, the importance of hard communication and information technologies, and the strategic nature of roles associated with the management of IT resources in developing HRM practices. In a similar vein, a CEO influenced by the humanist paradigm will tend to emphasize the value of tacit knowledge, the power of people as opposed to information, and the importance of managing people rather than systems in developing HRM practices. Senior management support for KM initiatives also need to be reinforced by middle level managers in order to articulate these initiatives successfully across an organization (Gloet, 2001).

“ The relationship between KM and HRM is a complex one. ”

In the realm of organizational culture, approaches aligned with thinking in the IT paradigm are more likely to support sub-cultures that not only value technology in all its guises but also technological solutions to problems in HRM. In this environment, a culture of technological relations is dominant, and IT is seen as a key to developing a culture of continuous improvement. On the other hand, aspects of an organizational culture propelled more by the humanist approach will more likely to place added value on people as agents of continuous improvement. In a softer environment where social relations prevail, IT is viewed more as a management tool rather than as an intrinsic element for success. Of course, irrespective of the subtle influence of each paradigm orientation in conceptualizing knowledge in all its forms, understanding the existing organizational culture and its underlying values is a mandatory consideration in developing quality practices in HRM. Continuous learning, knowledge sharing, and teamwork are valuable organizational assets. However, the benefits each brings to an organization should be measured using qualitative as well as quantitative data.

Systematic planning and organization involves decisions and deliberations concerning management tools and infrastructure to allocating resources, fostering commitment, and encouraging participation. HRM activities such as human resource planning, recruitment, and selection also occur in this wide-ranging area. However, decisions relating to HRM in this realm that are influenced by an IT orientation have quite a different flavor when compared to those decisions influenced by humanist thinking. In recruitment and selection, for example, IT inspired thinking leads to the development of technological solutions, especially the use of sophisticated software packages, electronic recruitment and psychometric testing. The IT paradigm also favors technology in the management of employment relations. Computer hardware and software are both seen as integral components of a planning environment in which databases dominate. In this type of environment, tactical strategies, underpinned by explicit forms of knowledge are dominant. In contrast, humanist approaches place more value on the intuitive dimensions of human nature and the greater emphasis on less tangible organizational processes. Thus, the role of people seeking solutions to problems through formal and informal communication exchanges are valued. This softer environment induces development strategies underpinned by tacit forms of knowledge.

Education and training plays a significant role because in appropriate circumstances, it can provide a platform for organizational change. However, the direction and substance of organizational change motivated within the IT paradigm is likely to take on a systems and technology focus in human resource development. Consequently, an emphasis on knowledge acquisition, manipulation, and storage as well as a focus on the technology will dominate here. The IT perspective is heavily committed to the development of technological expertise. In contrast, education and training within the humanist paradigm will focus less on systems and tools and more on people and processes, being oriented toward learning, team based structures, and the sharing and dissemination of knowledge. The humanist perspective is concerned with developing and maintaining a culture that values and supports learning.

Quality outcomes certainly demand the interest, involvement, and participation of people at all organizational levels. However, the IT paradigm educes a focus on people-technology relations in a landscape dominated by systems and technology. In

the humanist paradigm, people-people relations emerge as a priority. Consequently, while systems and technology abound, people still dominate this latter environment. Nevertheless, in both paradigm orientations, motivation and appropriate reward systems are major challenges for HRM professionals in sustaining the interest and participation of stakeholders in organizational life. Within the IT paradigm, efforts associated with systems and technology are more likely to be recognized and rewarded accordingly. In contrast, activities that centre more on activities engaging people will gain recognition and rewards within the humanist paradigm. While monitoring and measuring performance against relevant indicators has the potential to enhance organizational performance, the dual paradigm nature of KM makes measurement a challenging proposition (cf. Joia, 2000) (Figure 2). While the IT paradigm implicitly directs its efforts primarily on achieving performance in key indicators related to technology, technological applications, and the volume of data, the humanist paradigm directs efforts to achieving performance in key indicators related to people, tacit forms of knowledge, and the quality as opposed to quantity of data. Depending on the orientation to KM, rewards and other forms of recognition will reflect underlying values and assumptions.

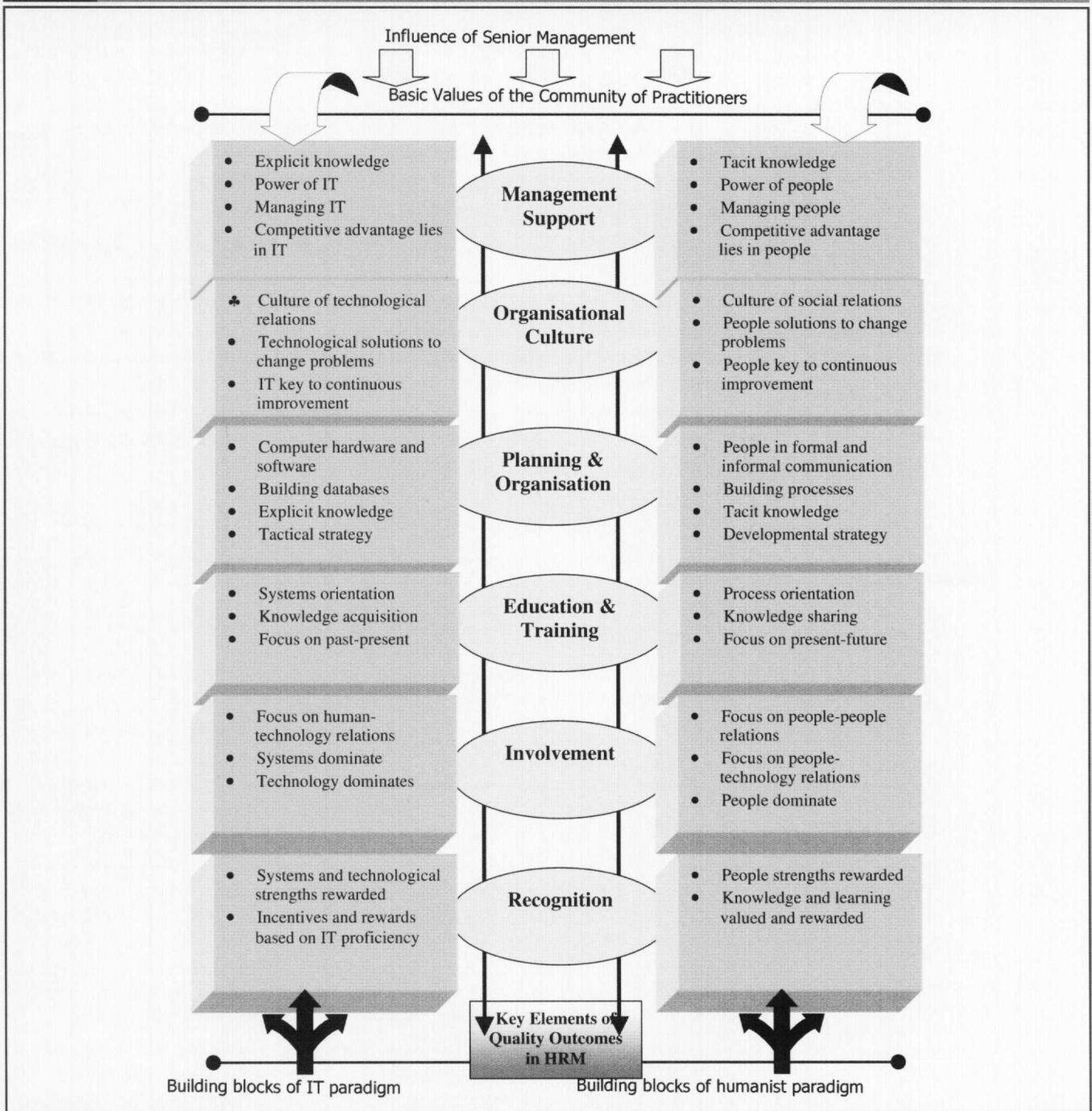
Conclusion

The dual paradigm nature of KM has significant implications for the development of HRM strategy and its associated functions due to the pervasive nature of knowledge within an organization. It is fundamental that HRM practitioners demonstrate an awareness of the potential impact of the dual paradigm nature of KM on HRM strategy and functions. This awareness of the scope of KM provides HRM practitioners with opportunities to build linkages and relationships between overall business strategy, KM strategy, and HRM strategy. Since the intersection between overall strategy, KM strategy and HRM strategy are often the site of competing ideologies, or the site where differing discourses collide, without an understanding and awareness of the subtle relationship between various strategic initiatives, overall organizational performance may be seriously hindered. Developing an awareness of the tension and stresses that may result at the intersection of competing discourses, and encouraging a dialogue based on understanding and awareness of these processes can certainly add value.

Since human and intellectual capital are indeed the core focus of HRM, practitioners can play a key role in building and sustaining a dialogue based on understanding and awareness of the discourses underpinning various approaches to KM. Advocating this cause, however, does not necessarily mean championing one approach to KM over another; rather, it entails developing and sustaining more integration between approaches to KM. This involves recognizing the important role of technology and the tools of IT, but recognizing the fundamental role played by human and intellectual resources.

While some research suggests that IT and humanist based strategies in KM may be mutually exclusive (Hansen *et al.*, 1999), the field of study is young and other preliminary research suggests that competitive advantage lies in an integration of the two approaches (Gloet and Terziovski, 2001). Nevertheless, while we recognize that fundamental differences exist between the two main approaches to KM described above, there is no one best way. In fact, the key to maximizing the contribution of KM to an established management practice such as HRM is to promote awareness and understanding concerning the implications of these essential, deep-seated, and often obscure differences in the approaches to KM. Indeed, the deeper the understanding of the dominant KM approaches and their underlying values and assumptions, coupled with an appropriate alignment between overall strategy, KM and HRM, the better a contribution both KM and HRM can make to organizational performance.

Figure 2 Impact of the dual paradigm nature of KM on HR



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