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Abstract

This paper sets out, firstly, to analyse whether Knowledge Management (KM) requires a particular human resource strategy and, secondly to examine the basic components of Human Resource Management (HRM) in such a strategy. Finally, it looks at the probable behaviour effects of such a strategy in the creation, distribution and use of knowledge.

At least two HRM strategies are related to KM and these are determined as effective and creative strategies. Effective strategies aim at effectiveness and low cost, while creative strategies aim at innovation and new capabilities. The HRM strategy and the general strategy of a firm make up the general KM strategies. Two were identified in this paper. The main characteristics of effective KM are the codification of knowledge, a low-trust employment relationship, low risk-taking, specialisation, effectiveness, and a short-term commitment. The characteristics of innovative KM are the personalisation of knowledge, a high-trust employment relationship, risk-taking, co-operation, the exchange of ideas and a long-term commitment.

Both KM strategies have behaviour effects, which, generally speaking, have some impact on the knowledge management process. It was therefore hypothesised, that the effective KM would put greater emphasis on knowledge storage (capturing and packaging knowledge), as well as distributing explicit knowledge via IT solutions. This also included using already existing knowledge to lower the costs, and increase effectiveness and standardisation. Innovative KM, on the other hand, places greater weight on knowledge creation, as well as on human interaction to transfer tacit knowledge and use knowledge to create new knowledge, i.e. further increased innovation and new working practices.

Keywords: knowledge management, human resource management, effective and innovative KM

Introduction

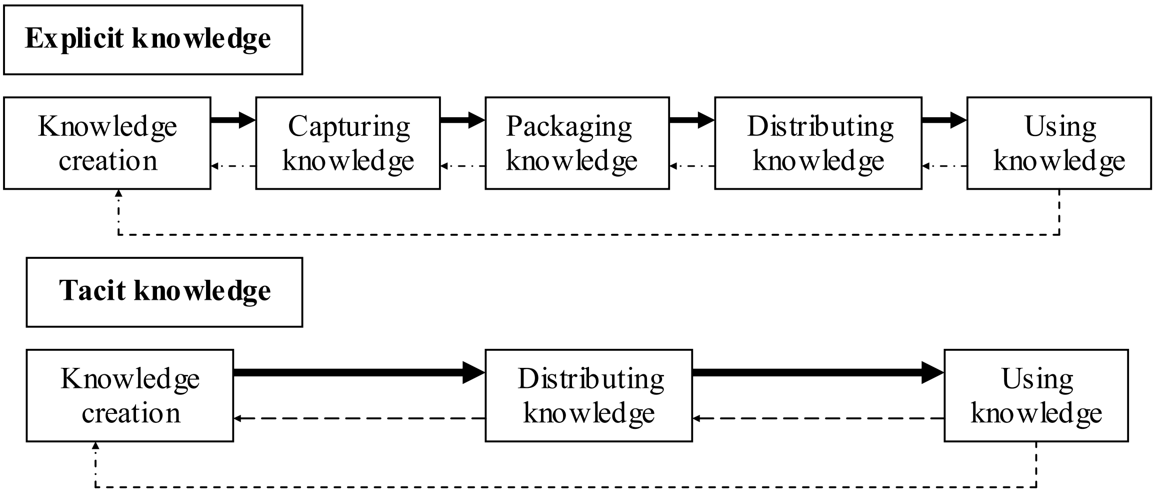
The popularity of knowledge management (KM) has increased rapidly, particularly since 1995, and it has become a central topic of management philosophy as well as a management tool. This popularity is reflected in the growing number of articles and books on the topic. Specialist journals have also been established on the subject, and conferences are held on KM every year. In addition, many organisations have introduced knowledge management programmes. A recent KPMG survey of 423 leading European and American companies found that 68 per cent of the respondents were undertaking some kind of KM initiative (KPMG Consulting, 2000). Another recent UK survey found that 64 per cent of responding firms had introduced KM while 24 per cent of them were at the introduction stage (Moffett, *et al.* 2003).

There is no agreed definition of KM, even among practitioners. One reason for this lack of agreement stems from the fact that people working in the KM field come from a wide range of disciplines, such as psychology, management science, organisational science, sociology, production engineering, to name but a few. However, some definitions are alike on one point, i.e. they take a very practical approach to knowledge, which is to say, how knowledge can contribute to organisational effectiveness (Hlupic, *et al.,* 2002). In most cases, the term is used loosely to refer to a broad collection of organisational practices and approaches related to generating, capturing, disseminating and using knowledge which is relevant to the organisation's business.

There is also a lack of consensus on knowledge itself. Some see knowledge as a commodity like any other, which can be stored and made independent of time and place. Others see knowledge as social in nature and very dependent on context. The most fundamental and common classification of organisational knowledge is along the explicit-tacit dimension. In this classification, *explicit knowledge* is considered to be formal and objective, and can be expressed unambiguously in words, numbers and specifications. Hence, it can be transferred via formal and systematic methods in the form of official statements, rules and procedures and so is easy to codify. *Tacit knowledge,* by contrast, is subjective, situational and intimately tied to individual experiences. It is therefore difficult to formalise, document and communicate to others. Insight, intuition, beliefs, personal skills and craft, including using the rule-ofthumb to solve a complex problem are examples of tacit knowledge (Davenport and Prusak, 1998; Nonaka, *et al.* 2002; Hunter, *et al.,* 2002; Chua, 2002). These two categories are closely interlinked so a bipolar map is difficult to draw in practice. To completely understand a written document (explicit knowledge) often requires a great deal of experience (tacit knowledge): 'A sophisticated recipe is meaningless to someone who has never stood in a kitchen, and a legal text can be all but incomprehensible without some legal training' (Kluge, *et al.,* 2001, p 10).

Given the different nature of explicit and tacit knowledge, the knowledge management process varies for the two types of knowledge (see Figure 1).

Figure 1: Explicit and tacit knowledge management processes


Explicit knowledge
Knowledge creation
Capturing knowledge
Packaging knowledge
Distributing knowledge
Using knowledge
Tacit knowledge
Knowledge creation
Distributing knowledge
Using knowledge

The solid arrows in Figure 1 show the primary flow direction, while the broken arrows show the more recursive flows. The recursive arrows show that KM is not a simple sequential process. Thus it is likely that in the distribution phase some problems in the packaging stage might be discovered, leading to changes in the packaging of knowledge. Probably no company starts at square one, as it already has knowledge that is waiting to be distributed and used.

In the explicit knowledge management process, *knowledge creation* relates to innovative ideas regarding products, processes or organisation, while *capturing or documenting knowledge* can occur in at least four ways: (1) it can be a passive by-product of the work process of virtual teams or communities of practices, who automatically generate archives of their informal electronic communications which can be searched later; (2) it can occur within a structure such as that provided by facilitators using brainstorming techniques, and perhaps mediated by the use of electronic meeting systems; (3) documenting can involve creating structured records as part of a deliberate, before-the-fact knowledge re-use strategy; and (4) it can involve a deliberate, after-the-fact strategy for later re-use, such as learning histories, expert help files or the creation of a data warehouse. *Packaging knowledge* is the process of culling, cleaning and polishing, structuring, formatting or indexing documents against a classification scheme. *Knowledge distribution* can be as passive as sending mass mail, newsletters, or establishing a notice board. An active distribution of knowledge involves After Action Reviews, selective knowledge pushing and specialised conferences. In the end, *using knowledge* refers to the reuse of existing knowledge to produce commercial value for the customer, primarily by lowering costs and increasing efficiency and reliability (Markus, 2001; McAdam and Reid, 2001; Swan, 2003).

The tacit knowledge management process has fewer parts than the explicit one, and, although the knowledge creation process is similar in both cases, the main difference lies in the distribution of knowledge. Distribution of tacit knowledge has been most successfully achieved through apprenticeship, the communities of practices, dialogue, meetings, informal talks, conferences, and lectures and through mentors. The use of knowledge is first and foremost to create new knowledge, which provides innovation and new ideas to customers, and can mean an increased autonomy and the intrinsic benefit of improved learning for employees (McAdam and Reid, 2001; Swan, 2003).

Scholars have recently argued that knowledge is dependent on people. HRM issues like recruitment and selection, education and development, performance management, pay and reward, as well as the creation of a learning culture are vital for managing knowledge inside firms (Evans, 2003; Carter and Scarbrough, 2001; Currie and Kerrin, 2003; Hunter, *et al.,* 2002 and Robertson and O'Malley Hammersley, 2000). Stephen Little, Paul Quintas and Tim Ray go as far as to trace the origin of KM to changes in HRM practices:

> One of the key factors in the growth of interest in knowledge management in the 1990s was the *re*discovery that employees have skills and knowledge that are not available to (or ′captured′ by) the organisation. It is perhaps no coincidence that this rediscovery of the central importance of people as

> possessors of knowledge vital to the organisation followed an intense period of corporate downsizing, outsourcing and staff redundancies in the West in the 1980s (2002, p 299).

In order to illuminate the debate on knowledge management, this paper analyses the relationship between human resource management (HRM) and KM. This will be done by, first, assessing whether knowledge management requires a particular human resource strategy and, second, by examining the basic HRM components of such strategies. Finally, it analyses the probable behaviour effects of such strategies in the creation, distribution and use of knowledge.

The paper is based on a literature review. However, a synthesis of a number of previous debates, on the matter, is presented at the end of the paper to improve on the theoretical discussion.

Human Resource Management

The core business of the HR function is to develop employees in accordance with a business strategy. This also includes the selection and hiring of people, the training and developing of staff, evaluating their performance, rewarding them, and creating a culture of learning (Evans, 2003). The next section points to these issues and focuses upon their role in enhancing knowledge management.

KM and HRM strategies

Hansen, *et al.* (1999) argue that there are basically two strategies for managing knowledge and they term these strategies ‘codification’ and ‘personalisation’. The strategy of codification refers to the codification of knowledge and its storage in databases, where it can be accessed and readily used by anyone in the company. These organisations invest heavily in ICT for projects like intra-net, data warehousing and data mining, knowledge mapping (this involves identifying where the knowledge is located in the firm), and electronic libraries. This increases effectiveness and growth, as Hansen explains ‘The reuse of knowledge saves work, reduces communications costs, and allows a company to take on more projects.’ (Hansen, *et al.,*1999, p.110). It is then closely related to *exploitative learning,* which is inclined to refine existing capabilities and technologies and force through standardisation and routinisation, while it is, at the same time, risk-averse (Clegg and Clarke, 1999). The strategy of personalisation refers to personal development of knowledge and it is shared mainly through direct person-to-person contacts. Dialogues, learning histories, and communities of practice are among the techniques that have to be used in order to facilitate tacit knowledge sharing and are based on the logic of ‘expert economics’. These are used primarily to solve unique problems, where rich, tacit personal knowledge is needed, such as in strategy consulting. Personalisation and *explorative learning* are closely related, where explorative learning is associated with complex search, basic research, innovation, risk-taking and more relaxed controls. The stress is on flexibility, investment in learning and the creation of new capabilities (Clegg and Clarke, 1999). The codification and personalisation strategies help to frame the management practices of the organisation as a whole, as outlined in Table 1.

Table 1: Knowledge Management Strategies

	Codification Strategy	**Personalisation Strategy**
General Strategy	Develop an ICT system that codifies, stores, disseminates and allows re-use of knowledge	Develop networks for linking people so that tacit knowledge can be shared
Use of ICT	Invest heavily in ICT	Invest moderately in ICT
Human Resources: Recruitment and Selection	Hire new college graduates who are well-suited to the re-use of knowledge and the implementation of solutions	Hire MBAs who like problem-solving and can tolerate ambiguity
Training and Development	Train people in groups and through computer-based distance learning	Train people through one-to-one mentoring
Rewards Systems	Reward people for using and contributing to document databases	Reward people for directly sharing knowledge with others

Source: Hansen, Nohria and Tierney (1999).

As Table 1 indicates, Hansen, Nohria and Tierney’s study makes several useful contributions to HRM. First, it links both KM and HRM to the competitive strategy of the firm, that is to say, it is not knowledge in itself, but the way it is applied to strategic objectives which is the critical ingredient of competitiveness. Second, this account stresses the need for what best fits between HRM practices, such as reward systems, and an organisation's approach in managing knowledge work. According to Hansen, the appropriate fit is as follows:

> The two knowledge management strategies call for different incentive systems. In the codification model, managers need to develop a system that encourages people to write down what they know and to get those documents into the electronic repository… In fact, the level and quality of employees' contributions to the document database should be a part of their annual performance reviews … Incentives to stimulate knowledge sharing should be very different at companies that follow the personalisation approach. Managers need to reward people for sharing knowledge directly with other people (Hansen, *et al.,* 1999, p 113).

Hansen, *et al.* warn against mixing strategies. Instead they suggest using one predominant strategy and a second strategy to support the first: 'We think of this as an 80-20 split: 80 per cent of their knowledge sharing follows one strategy, 20 per cent the other' (Hansen, *et al.,* 1999, p 112). Other studies, however, have found that a mixture of strategies was the case in highly successful knowledge management companies (Davenport and Prusak, 1998 and Kluge, *et al.,* 2001). For example, as Davenport, *et al.* (1998, p 54) state, 'successful knowledge projects usually address knowledge transfer through various channels, recognising that each one adds value in a different way and that their synergy enhances use'.

Adler's (2001) study is also of interest when analysing the relationship between strategy, or organisational form, and HRM. He advances three ideal-typical forms of organisation and their co-ordinating mechanisms: market/price, hierarchy/authority, and community/trust. Adler argues that neither the market nor hierarchical form is well suited to the challenges of the knowledge economy. Accordingly, he reasons that as knowledge becomes increasingly important in our economy, we should expect high-trust institutional forms (communities of practice, informal organisations) to proliferate. This has an impact on employment relations, or contractual or other relationships between employers and employees. Although, there is a contradictory trend in the direction of employment relationships, such as increased control, and increasing market despotism (downsizing, outsourcing, using peripheral workforce), a tendency towards increased trust is emerging. Thus firms are trying to improve their knowledge management capabilities by strengthening employee trust (confidence in another's goodwill) through the means of communities of practice or relational teams. As the sources of trust are familiarity through repeated interaction; calculation based on interest, and norms that create predictability and trustworthiness, the employment relationship of the knowledge economy must be based on the antithesis of short-term economic rationality.

Interfirm and employment relationship

Various studies (Adler, 2001; Kluge, *et al.*, 2001; Davenport and Prusak, 1998 and Evans, 2003) have shown that trust, co-operation, teamwork, and personal communication are quite important for knowledge sharing and reuse. It is therefore obvious that the manner in which firms relate to employees, sub-contractors and other firms is essential for knowledge management. It has been argued that the employment relationship has undergone a fundamental change in recent decades (Bell and Henry, 2001; Boswell, *et al.*, 2001 and Littler and Innes, 2003). Due to globalisation, economic fluctuations, rapid technological changes etc., firms have been downsized, de-layered, and activities have been outsourced to other firms and sub-contractors. Employees have also been employed on a short-term or part-time basis on a much larger scale than before. The result has been less reliance on traditional promises of job security and long-term career development within single firms. This has meant that the employment relationship has become of a more short-term nature than previously, and employees are more dependent on the external labour market for future careers. A low-trust relationship has evolved as a consequence.

We have already seen, as Little, *et al.* (2002) argue, that downsizing and outsourcing has had serious negative effects for Western corporations' knowledge of core processes, and, as Adler (2001) points out, downsizing has the effect of undermining trust and teamwork.

Interfirm relationships have become ever more important for knowledge management according to Adler (2001). Where innovation is the critical task, the most effective approaches rely on long-term partnership-style relationships based on trust between firms. Thus, trust is at the heart of effective knowledge-intensive interfirm networks.

From the above, one may conclude that knowledge management is encouraged through repeated personal interaction of employees during a long period, their contribution to innovation and processes, and by a high-trust relationship between employers and employees. The same applies to interfirm relationships.

Below, recent research on the role of HRM practices for knowledge creation and sharing is presented.

Recruitment and selection

Given that knowledge management is often adopted by organisations in complex, unpredictable environments, traditional selecting and recruitment practices have more often than not to be modified. Scarbrough (2003), however, points out that in innovative organisations the selection of individuals, with both appropriate skills and appropriate attitudes, has been identified as crucial to the project team's ability to integrate knowledge from diverse sources. He stresses that conventional approaches to selection may need to be revised in the light of the unpredictable knowledge flows involved in innovation projects. In such settings, it may simply be too difficult to specify the requisite knowledge and expertise in advance. This view is closely related to the social process model of recruitment and selection deriving from social psychology. Its primary concern is to analyse the often immediate social context assessors use to make judgements and to show how those judgements are not the outcome of objective, quantifiable processes but the result of more complex social perceptions. The main assumptions of this model are: that people change constantly in the course of their careers in firms; that subjective self-perceptions are critical to people's work motivation and performance; that self-perception is influenced by assessment selection procedures; and that modern jobs tend to involve interaction, negotiation and mutual influence, often taking place in multi-skilled, flexible, self-directed work teams (Iles, 1999).

Currie and Kerrin (2003) argue that traditional recruitment and selection practices can block knowledge sharing between groups or departments in firms organised according to the functional principle. In their study of a pharmaceutical company, they found that assessment centres, through which graduates were selected, were functionally focused, with sales assessment centres and marketing assessment centres being run separately. This strengthened the sub-cultures of functions and made knowledge sharing between them very difficult. Currie and Kerrin stress that, in order to enhance knowledge sharing, employees with an appreciation of others' perspectives have to be preferred. In addition, they encourage the use of lateral career movement by employees, in order to develop the necessary appreciation of another's perspective.

Other studies highlight the importance of a meeting point between new recruits and the organisation's knowledge culture. These studies, therefore, are related to the 'person-organisational fit' literature within HRM, which stresses a fit between organisational culture and the hiring of a suitable personality, as well as the socialisation of individuals into the culture of the firm (see Kristof, 1996; Judge and Cable, 1997). For example, Swart and Kinnie (2003) describe the recruitment process in a software company in a niche market. The company had strict selection criteria, which served to strengthen knowledge integration. The most important element in the recruitment process was the culture of the company, not its technical ability. A senior software engineer was responsible for recruitment. He usually used his varied networks within the industry to identify possible candidates. At this stage, it was normally taken for granted that the employee would have adequate technical tacit knowledge, as technically competent employees are well-known within their industry, and only exceptionally talented software engineers were invited for an interview. Swart and Kinnie continue by saying (2003, p 67):

> The senior software engineer and some of the directors then conducted interviews, which were very informal and took the form of a 'communication of ideas or solutions' to a particular software problem. The ability to generate innovative thought and then to communicate these ideas were important criteria in the selection process. Recruits needed to show how they would share their innovative ideas and cutting-edge know-how within a project team.

Similarly, Robertson and O'Malley Hammersley (2000) describe the selection process in a consulting firm, where candidates were screened in two interviews. These interviews involved different consultants from a number of disciplines, including the HR manager. The overriding factor was the candidate's ability to 'fit in' with the firm's distinctive way of working, which involved the willingness and the ability of the candidate to work in groups and share knowledge. Moreover, psychometric tests were used but little weight was placed on their results. Usually, the majority of the candidates were rejected. On this finding, they write, '...atypical approaches to recruitment and selection have also be noted by other researchers in KIFS ... highlighting what Keegan terms the misfit between these practices and those within mainstream HRM literature'(Robertson and O'Malley Hammersley, 2000, p 246).

However, the adherents to psychometric testing (the Five Factor Model of Personality) argue that the openness to experience by imaginative, original, unconventional, and independent individuals would fit quite well into an innovative and knowledge sharing organisational culture. In addition, these qualities could be codified and measured (Judge and Cable, 1997; Mount, *et al*., 1998). Gloet and Berrell (2003) point out that in firms which adopt the codification strategy the development of technological solutions is encouraged, particularly in electronic recruitment and psychometric testing.

Training and development

Robertson and O'Malley Hammersley (2000) point out that continuous professional development is considered essential for professional and knowledge workers. In order to stay at the forefront of their professional fields, they must be constantly aware of developments within their specific disciplines and professions and they also need to participate in activities which offer opportunities to further their own professional development. Many researchers on knowledge management take this as given, but do not devote much time to it.

As has already been noted, Hansen *et al.* (1999) dispute that codification and personalisation strategies require organisations to hire different types of people and train them accordingly. Codification firms, on the one hand, have a tendency to hire undergraduates and train them into groups to be implementers, who can develop and implement change programmes and information systems. Personalisation firms, on the other hand, hire MBA graduates to be inventors, i.e. use their analytical and creative skills in solving unique business problems. Once on board, the most important training comes from working with experienced consultants who act as mentors. Gloet and Berrell (2003) also show that the KM strategies have an impact, on the training process. As a result, an emphasis on knowledge acquisition, manipulation and storage, including a focus on technology, will dominate within a codification paradigm, while a personalisation paradigm will be directed towards learning, team based structures and the sharing and dissemination of knowledge.

Performance management

Performance management identifies who, or what, delivers the critical performance with respect to business strategy and objectives and ensures that performance is successfully carried out (Roberts, 2001). On the basis of ‘what gets measured normally gets done’, as Evans (2003) suggests, it is important that firms consider the knowledge component in their performance management systems. Moreover, Evans recommends that a balance scorecard approach should be adopted if employees are to realise that the firm is taking knowledge management seriously.

In their study of a pharmaceutical company, Currie and Kerrin (2003) found out that the performance management system inhibited knowledge sharing because much of the conflict between the different functions was due to the diverging objectives set out for employees in the performance agreements. For example, objectives were volume focused for sales employees while focusing upon brand profitability for marketing employees. The objectives, moreover, were short-term and mostly measurable in nature. Any long-term considerations, such as the development of a learning capability, were, therefore, marginal and considered ‘merely nice to do’ (Currie and Kerrin, 2003, p 1037). Nevertheless, the opposite was found within a software company. Swart and Kinnie (2003) argue that a long-term development focus on performance management was one of the central factors in integrating knowledge within the organisation. The company had a complex performance management process, which evolved around the suggestions and practices of the software engineers. At the first stage, project performance reviews conducted by the project manager focused on project efficiency and the technical ability of the employee in the project. Here, three forms of reviews were implemented. Firstly, self-appraisal, which centred on jointly set objectives, project performances, technical abilities and self-management, as well as team contribution and customer satisfaction, followed by a peer review of the same dimensions and, lastly, a management review of the employee. A direct link was established between project performance reviews and annual increases. At the second stage, a mentor assessed a ‘performance appraisal’, which was done every two years. The mentor focused on employee development and spanned project boundaries, thereby ensuring that the practice was shared throughout the organisation and also collated all the project performance reviews, completed a protégé appraisal on overall performance areas and conducted a performance discussion.

With regard to performance management, according to Evans (2003), managers need to consider the different ways in which individuals contribute knowledge. They need to consider what knowledge the individual has brought into the organisation, for instance how the individual has applied his knowledge to help others to develop.

Finally, Gloet and Berrell (2003) emphasise that the KM strategies see effort, measurement and rewards differently. As a result, within the codification strategy, efforts associated with systems and technology are more likely to be recognised and rewarded. Inside such a paradigm, key performance is related to technology, technology application and the volume of data. The personalisation paradigm focuses more on people, where key performance indicators are related to people and tacit forms of knowledge as well as the quality of data.

Reward and recognition

Reward systems indicate which qualities the organisation values and accordingly shape the behaviour of individuals. Evans (2003) argues that there are mixed views as to whether organisations need to introduce separate rewards to encourage knowledge building and sharing. Nevertheless, there is no need for separate rewards in theory, if organisations have introduced a competency framework which includes knowledge building and sharing behaviours, and is linked to the performance management system. Even so, another school of thought argues that rewards for knowledge sharing and reuse should be more immediate and also of a public nature, as this type of behaviour is important to the organisation.

Studies on knowledge workers have found that they tend to have a substantial need for autonomy, a significant drive for achievement, as well as a stronger identity and affiliation with a profession than a company, and a keen sense of self-direction. These characteristics make them more likely to resist the authoritarian imposition of views, rules and structures (Despres and Hiltrop, 1995; Hertzberg, 1997; Horwitz, *et al.,* 2003). Accordingly a mixture of rewards is needed to motivate knowledge workers. These include: equitable salary structures; profit-sharing or equity-based rewards; a variety of employee benefits; flexibility over working time and location, as well as being given credit for significant pieces of work. A reward is also needed in those cases where the participation of knowledge workers in communities of practice is expected. This is needed for their motivation and also to keep the community alive. Non-financial rewards can also create incentives for knowledge workers and for many it is incentive enough to have free time to work on knowledge-building projects or to go to conferences, or spend time on interesting projects, as it is for monetary rewards (Evans, 2003; Despres and Hiltrop, 1995). In their study of the ways in which companies in Singapore attract, motivate and retain knowledge workers, Horwitz, *et al.* (2003, p 34) found that in 'terms of motivating strategies which may reduce knowledge worker turnover, it appears that non-financial strategies may have had a relationship with lower turnover. These included leadership, fulfilling work and participation in key decisions.'

It has already been noted that Hansen, *et al.* (1999) have argued that the two KM strategies call for a different incentive system, which encourages people to document their knowledge to databases, as opposed to rewarding people for sharing knowledge directly with others. Furthermore, it is worth recalling that Gloet and Berrell (2003) emphasise that within the codification strategy, efforts associated with systems and technology are more likely to be recognised and rewarded, while the personalisation paradigm focuses more on people.

Career management

Currie and Kerrin (2003), in their study of a pharmaceutical company, observed that through the different job placements during their training period, or more generally through their career, graduates and a limited number of senior staff built up an informal network of contacts, which they trusted and who trusted them. This was then beneficial in the sharing of knowledge. Others have also noted how career systems are important in shaping the flow of employees over a period of time, and the way these interact with the acquisition and exchange of knowledge (Evans, 2003; Scarbrough, 2003; Swart and Kinnie, 2003).

General KM strategies

This paper has concentrated on how HRM practices can encourage knowledge sharing and re-use. Table 2 summarises some of the many possible relationships between

HRM and KM. It shows the main characteristics of the two ideal-typical KM strategies adopted by firms: effective and innovative. More importantly, the table illustrates that management practices do not operate alone, divorced from the rest of the organisation. Practices are, instead, interrelated and require a degree of compatibility and careful co-ordination. The general strategy of a firm and the HRM strategy, therefore, make up the general KM strategy.

Table 2: General KM strategies

	Effective KM	**Innovative KM**
General strategy	Effectiveness, low cost	Innovation, new capabilities
KM Strategy	Codification of knowledge	Personalisation of knowledge
Employment Relationship	Market despotism, low-trust	Community, high-trust
HRM practices:		
Recruitment	Psychometric testing, job descriptions, electronic recruitment	Social process, fit into knowledge sharing culture, personal recruitment
Reward	Varied rewards for people for documenting knowledge, following standard routines, using technology, volume of data	Varied rewards to people for sharing knowledge, developing new ideas, creative failures, quality of data
Performance Management (control)	Hard objectives, result-oriented, short-term, functionally specific goals	Developmental objectives Balance scorecard, 360º, group-orientation, long-term
Training	At start, specific skills, implementer mentality	On-going, broad skills, inventor mentality
Career Management	Individual advancement	Integrated part of organisation knowledge development and transfer
Desired Behavioural Outcomes	Documenting knowledge, low risk-taking, specialisation effectiveness, short-term	Risk-taking, exchange of ideas, co-operation, long-term commitment

The KM and HRM strategies presented above have many things in common. The codification strategy and low-cost strategy, for instance, both focus on effectiveness, lowering cost and standardisation. Similarly, personalisation strategy and innovative HRM centre on new capabilities, innovation and new ways of working. The general strategy has an overall impact on HRM policy, as stressed in the table. It is not necessary to mention every item in the table, but what is interesting is that the effective KM strategy does stress a low-trust employment relationship (downsizing, outsourcing and peripheralisation). This fosters the following behavioural outcomes: people document their knowledge to databases, low risk-taking is preferred and there is a specialisation of tasks, effectiveness and short-term commitment between employers and employees. This is similar to Adler's (2001) market ideal type. In essence, this knowledge strategy attempts to mechanise knowledge. The innovative KM strategy, conversely, encourages high-trust employment relationships and the following behavioural outcomes: risk-taking, co-operation, the exchange of ideas and long-term commitment. This is similar to Adler's trust ideal type.

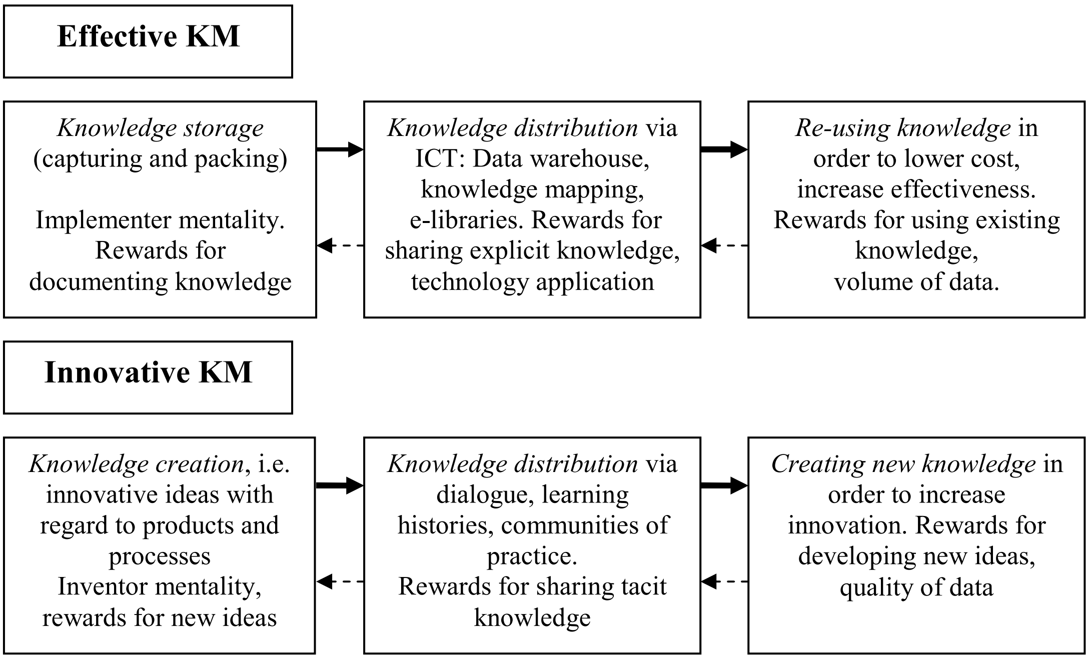
Behaviour effects and KM

It has been argued so far that the codification strategy towards KM tends to foster effective HRM, while the personalisation strategy is more related to creative HRM. This has an impact on the KM process in general. Accordingly, the hypothesis is that effective KM, with its desired behavioural outcomes of documenting knowledge, low risk taking, specialisation and efficiency will place the main emphasis on knowledge storage (capturing and packaging knowledge). This also includes distributing knowledge via heavy IT solutions, and using already existing knowledge to lower costs, and increase effectiveness and standardisation. It appears that very little emphasis is placed on creating new knowledge.

On the other side, there is a hypothetical argument that innovative KM will place greater weight on knowledge creation (innovative ideas in the product, processes and organisation), human interaction to transfer tacit knowledge and using knowledge to create new knowledge, i.e. further enhancing innovation and new working practices.

As has already been noted, the general strategy of the firm has a significant impact on both KM and HRM strategies. However, there can be tensions as well as contrasting ideologies related to the general strategy and both KM and HRM strategies (Gloet and Berrell, 2003). It is possible, in the end, to draw up broad KM processes, which are based on the general strategy of the firm. These I term, as already noted, effective KM and innovative KM. These incorporate both the HRM and KM strategies which have been analysed in the paper (see Figure 2).

Figure 2. Effective and Innovative KM processes.


Effective KM
Knowledge storage (capturing and packing) Implementer mentality. Rewards for documenting knowledge
Knowledge distribution via ICT: Data warehouse, knowledge mapping, e-libraries. Rewards for sharing explicit knowledge, technology application
Re-using knowledge in order to lower cost, increase effectiveness. Rewards for using existing knowledge, volume of data.
Innovative KM
Knowledge creation, i.e. innovative ideas with regard to products and processes Inventor mentality, rewards for new ideas
Knowledge distribution via dialogue, learning histories, communities of practice. Rewards for sharing tacit knowledge
Creating new knowledge in order to increase innovation. Rewards for developing new ideas, quality of data

Discussion

It is clear then, that there are at least two strategies associated with knowledge management. As with all other strategies, these can be combined in various ways within the firms. Creative HRM strategy, for instance, can be dominant within R&D, while effective HRM strategy may be common in production departments. Hansen, *et al.* (1999) emphasise that general investment in ICT, i.e. the hiring of particular staff, training and job design, usually means that there is one strategy which becomes dominant within firms. Hansen, *et al.* also argue that firms that offer standardised and mature products and services tend to choose the effective KM strategy (documentation strategy and effective HRM). Firms offering customised and innovative products tend to choose innovative KM strategy (personalisation strategy and creative HRM). Given the move to globalisation, rapid technological changes, shifting markets and the ever more complex organisational environment, the innovative strategy and creative HRM will probably be adopted by an ever-growing number of organisations in the near future. My argument here is similar to Adler's (2001) position that as the knowledge-intensity of the economy increases, firms will be drawn to higher-trust forms of employment relations. However, Gloet and Berrell argue that there is a tendency for a positive curvature toward effective KM (or codification strategy), because people feel more at ease in such an environment. It is also argued that this approach offers more structure and precision by dealing with explicit rather than tacit knowledge. Littler and Innes (2003), however, warn against such a simplistic strategic image. In their study of the impact of downsizing on skill and knowledge in Australian firms in the 1990s, they identified three different patterns. 'Knowledge-intensive growers' are firms in communications, finance and insurance sectors that appear to upsize their workforce, do not use peripheral workers, and tend to deskill the least. 'Casualizing growers' are concentrated in wholesale and retail businesses and are dominated be female employment. These firms tend to upsize their workforce, use peripheral workers and are twice as likely, as non-peripheralising upsizers, to deskill. Finally, 'dumb downsizers' are firms likely to be in manufacturing and emphasise the downsizing of the workforce. Independent of whether they use a periphery workforce or not, they deskill at the highest level and skill the least. On these findings, Littler and Innes (2002, p. 93) write: 'We can see from the comprehensive analysis of a population of larger firms across one economy that the story-line cannot be represented by one job image.' Their study, as well as those by others (Dobbin and Boychuk, 1999; Edvardsson, 1994, Lane, 1989), indicate that HRM strategies and work organisation in general, are dependent on national cultures, sectors of industry, professional norms, levels of unemployment and management culture, as well as employee organisation and conflicts.

Knowledge management and human resource management within it are still in their infancy. Most of the research conducted so far is based on case studies and interviews. Thus a generalisation of the results is problematic. Earlier studies reveal that HRM strategies may differ, depending on mediating variables, such as, industry type, ownership structure (multinational-domestic) and cross-cultural factors (Horwitz, *et al.,* 2003). Future research, it can be said, would benefit from longitudinal studies, cross-national comparisons, as well as industrial sector differences. In addition, basic concepts in the debate have to be clearly defined and the theories more fully developed. Future research should address these shortcomings and I have, in this paper, attempted to propel this theoretical framework further ahead.

Conclusions

In order to enrich the discussion surrounding knowledge management, this paper has analysed the relationship between Human Resource Management (HRM) and Knowledge Management (KM). This was done, first, by assessing whether knowledge management requires a particular human resource strategy and, second, by examining the basic HRM components of such a strategy. Finally, it looked at the probable behavioural effects of such a strategy for the creation, distribution and use of knowledge.

Today, KM has become a central topic of management philosophy as well as a management tool. This popularity is reflected in the growing number of articles and books on the topic and KM programmes within firms. KM is about developing, sharing and applying knowledge, within the organisation, to gain and sustain competitive advantage. Therefore, the question can be asked, what is the role of HRM in enhancing this knowledge management? Research in areas such as strategy, recruitment, training, performance management, reward systems, and career was analysed to attempt to answer this question.

At least two HRM strategies are related to KM: Effective and creative strategies. The former aims at effectiveness and lower costs, while the latter aims at innovation and new capabilities. The HRM strategy and the general strategy of a firm make up the general KM strategies. Two were identified in the paper. The main characteristics of effective KM are the codification of knowledge, a low-trust employment relationship, low risk-taking, specialisation, effectiveness, and a short-term commitment. The characteristics of innovative KM are the personalisation of knowledge, a high-trust employment relationship, risk-taking, co-operation, the exchange of ideas and long-term commitment.

The KM strategies have behaviour effects, which do have a probable impact on the knowledge management process in general. The hypothesis is that effective KM will place more emphasis on knowledge storage (capturing and packaging knowledge), distributing explicit knowledge via IT solutions, and using already existing knowledge to lower costs, and increase effectiveness and standardisation.

Innovative KM, it is thought, will place more weight on knowledge creation, human interaction to transfer tacit knowledge and using knowledge to create new knowledge. This, it is believed, will further increase innovation and new working practices.

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