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# A critical review of knowledge management models

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## Abstract

There is an increasing interest in the area of knowledge management (KM) within organisations and academia. Because of the emergent nature of the field there is a lack of classification of suitable knowledge management models to use in conducting further research, literature evaluation and organisational applications. This paper discusses the definitions and classifications of knowledge management, representing a wide spectrum of views from mechanistic to more socially orientated. An evaluative framework is established from which three knowledge management models can be critically discussed. Three KM model classifications are critiqued, namely knowledge category models, intellectual capital models and socially constructed models. Finally a modified KM model is tentatively suggested to act as a useful guide for further research and organisational application. This model takes a holistic approach to scientific and socially constructed knowledge, assuming the need for both emancipatory and business benefits from KM. The model represents KM as a highly recursive process, rather than sequential.

## Introduction

Throughout the 1980s and 1990s a new range of business improvement philosophies, approaches and methodologies have been continuously developed. This development has been largely based on various combinations of business practice and academic theory. Examples of these approaches are myriad and include organisational learning, the learning organisation, total quality management, business process re-engineering, to name but a few.

Of more recent times, especially in the past two to three years, knowledge management (KM) has started to emerge as an area of interest in academia and organisational practice. The literature reveals a rapidly increasing body of knowledge relating to KM which covers many different disciplines and areas of interest to academics and practitioners.

For example, a search of over 100 Web sites on knowledge management (Quintas *et al.*, 1997) revealed the following heterogeneous range of interests, perspectives and issues: economics, intellectual capital, engineering approaches (flexible manufacturing systems), aspects of computing and knowledge media, organisation studies (informed by anthropology, sociology etc.), epistemology (including learning, situated cognition and cognitive psychology), other aspects of classification and definition informed by artificial intelligence, human resource issues etc.

Many important questions and issues arise in regard to KM. For example, is it an emerging paradigm through which many existing strands of theory and practice can at last be beneficially integrated, or is KM a temporary aberration promising yet more false dawns in regard to organisation development and management learning?

Also, what is the underlying epistemology of knowledge management? As questioned by Richardson *et al.* (1987) – is knowledge based on scientific data or socially constructed or a mixture of both? The answer to this question has far reaching implications in choosing approaches to embody and disseminate knowledge within organisations as existing knowledge transfer approaches may not be sufficient to cover the diversity of knowledge classifications.

As well as issues relating to the emergence, definition and classification of KM there are unresolved conflicts in regard to the

emancipatory elements of KM (Nonaka and Takeuchi, 1995). Will the application of KM principles within organisations lead to the concurrent enhancement of business performance and employee emancipation or will it ultimately lead to employees giving more of their minds and bodies to further establish the existing status quo?

It is contended that given the continual change and emergent nature of the field over the past two to three years, it is now an appropriate time to try to have a more in-depth enquiry into the KM discourse to attempt to clarify how KM can be more beneficially researched and applied to organisations and those who work in them.

In initially attempting to address these questions and issues, this paper critically examines some of the existing models of KM which reflect the different viewpoints within the overall field. All of the KM models examined are built upon key philosophical assumptions and the critical discussion seeks to examine these assumptions and views.

Following a short description of the aims, perspectives and objectives of the paper there is a short discussion on the definition, classification and emergent nature of KM. This discussion is followed by the establishment of a critical framework through which to evaluate some of the key existing KM models, following which, the models are critically discussed. Finally some conclusions are made in regard to suggesting a suitable model through which to further investigate the field of KM.

### Aims, perspectives and objectives

The aim of this paper is to investigate the current understanding of the theory and practice of the emerging field of KM by critically evaluating existing knowledge management models, so that research and improved approaches in this area can be developed and applied to organisations and those who work in them.

Throughout the paper a critical perspective will be taken so that the underlying assumptions of KM can be revealed and questioned. Although, as pointed out by Burgoyne and Reynolds (1997), there are a number of approaches relating to “working out of a critical perspective”, the “critical reflection” approach is adopted throughout the paper.

Burgoyne and Reynolds (1997) summarise Kemmis’s (1985) account of the characteristics of a critically reflective perspective as:

- concerned with questioning assumptions;
- its focus is social rather than individual;
- it is concerned with emancipation.

To achieve the aim of the paper and apply a critical perspective, the following objectives have been defined:

- to clarify the definitions and classifications of KM;
- to establish a framework for critically evaluating existing KM models;
- to critically evaluate KM models which represent a wide spectrum of views within the field;
- to suggest a suitable framework for carrying out a further in-depth critique of the field of KM, leading to improved theory and practice within the field.

### Schools of thought within knowledge management

While definitions of any subject matter can be helpful in regard to clarifying the scope and depth of the subject under consideration, they can also be notoriously difficult to articulate. Definitions can often result in unwarranted simplistic reductionist arguments. When the subject which is being considered is in the management domain the difficulty is compounded even further due to the subjective and eclectic nature of the field. When the subject is not only in the management field but is also emerging rather than established, then the difficulty with definitions is even further magnified. Such is the case with the emerging subject area of KM, as pointed out by Quintas *et al.* (1997) who argued that “it is difficult to scope and define this disparate and emergent field and understand the processes involved to determine programmes/interventions”.

The following definitions, which are but a representative sample, are listed below and then discussed:

Knowledge management is ... knowledge creation, which is followed by knowledge interpretation, knowledge dissemination and use, and knowledge retention and refinement (De Jarnett, 1996).

Powerful environmental forces are reshaping the world of the manager of the 21st century. These forces call for a fundamental shift in organisation process and human resource strategy. This is knowledge management (Taylor *et al.*, 1996).

Knowledge management is the process of critically managing knowledge to meet existing needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities (Quintas *et al.*, 1997).

The crux of the issue is not information, information technology ... the answer turns out to lie more with psychology and marketing of knowledge within the family than with bits and bytes (Peters, 1992).

Knowledge management is the activity which is concerned with strategy and tactics to manage human centred assets (Brooking, 1997).

Firstly, a cursory reading of the definitions reveals that KM is seen as relating to both theory and practice – for example the definitions of De Jarnett (1996) and Quintas *et al.* (1997) respectively. Much of the existing literature on knowledge is highly theoretical and conceptual, especially in the field of cognitive psychology; however, broadly speaking, most of the reflective literature on KM combines both theory and practice in a fairly seamless and often recursive manner.

Secondly, the definitions are not predicated on information technology. For example, Peters' definition positively asserts that KM is not situated in the technology domain. This omission raises an important issue. Recent advances in technology have led to faster data transfer, but it remains a useful enabler rather than a central tenet at the heart of KM.

Thirdly, people and learning issues are central to KM (see the definitions of Quintas *et al.*). The vast majority of the existing literature on KM covers these two related issues, usually in an organisational context and covering both theory and practice.

The wide range of definitions also reflect the fact that those people working in the field of KM come from a wide range of disciplines, such as psychology, management science, sociology, strategy, production engineering etc. (Nonaka and Takeuchi, 1995). Thus KM not only combines theory and practice but is also multidisciplinary. Scarborough (1996) comments: "the sprawling and eclectic literature and the ambiguity and definitional problems ... allow different groups to project their own interests and concerns onto it".

In the literature there is a lot of confusion between the terms knowledge management (KM) and intellectual capital (IC); for example, EFQM (1997) and others use the terms interchangeably. However, it is contended that KM and IC are different but related issues. It was Drucker (1995) who

stated: "we are entering the knowledge society in which the basic economic resource is no longer capita ... but is and will be knowledge". This viewpoint effectively labels knowledge as a resource like land or oil which has independent existence outside human and social systems. Ultimately Drucker is considering knowledge as being capitalised – hence the term intellectual capital. This type of capital is seen as consisting of intangible assets not frequently recorded on the balance sheet and can include employee skills, information, patents, copyright, brands, R&D, licensing opportunities, innovative use of assets such as databases etc. Brooking (1997) suggests that KM is actively concerned with the strategy and tactics to manage IC or human-centred assets. KM from this standpoint is seen as leveraging IC (Peters, 1992), or as recognising or rediscovering assets that the organisation is not using to full potential, ultimately employees. This approach is similar to that of Handy (1990) who spoke of creating value from intangible assets. Thus these approaches imply that the key areas within KM are IC and the management of IC.

However the concept of knowledge as simply relating to IC or a manageable asset is a highly mechanistic view and is much criticised by those who see knowledge as socially constructed (Gergen, 1991; Alvesson and Willmott, 1996). This more social-orientated view focuses on knowledge construction as being a key area of KM.

### **KM as an emerging paradigm**

Is KM a passing fad, a significant trend or a paradigm in its own right? Answers to these questions will influence the investment of organisations in KM and its ultimate credibility in the academic literature. Ultimately there will be a reluctance to invest time and resources in ephemeral movements.

It is important to clarify what is implied by terms applied to emerging bodies of knowledge such as KM. Firstly, when a subject is written about and discussed the summation of all that is known about it is referred to as a body of knowledge. When this body of knowledge becomes sufficiently significant and influential on theory or practice it is then classified into what McLaughlin and Thorpe (1993) called, either a toolbox of techniques, or a philosophy. A toolbox of techniques is largely problem-solving methodologies in a subject area. A philosophy implies a set of

beliefs which provide those who subscribe to them with a distinct world view.

Secondly, the idea of views gives rise to the term paradigm. Kuhn (1970, 1974) and Clegg *et al.* (1996) defined paradigms as theories of world views that define legitimate problems, methods and solutions for a community. Typical components of a paradigm are laws and theoretical assumptions, principles and methodological prescriptions. A typical cycle in organisation study is where a paradigm and its associated laws and assumptions develops from a body of knowledge and acts as a guide to practice. Then ambiguities and novelties become apparent but are overlooked for as long as possible. Some dissipate (fads), but others become too important and influential to be denied and the paradigm is overthrown by a competing paradigm, which promises to solve the novelties or ambiguities. It is interesting to note that Kuhn concluded that there are no set standards for proving the superiority of one paradigm over another, rather the switch from one paradigm to another is akin to an act of conversion.

How is KM classified in regard to paradigms? Firstly, KM is more than a toolbox of techniques. Had it remained solely in the information technology domain then it could have been classified as another set of IT solutions to existing problems and hence a fad. Ramsay (1996) equates faddishness to superficial quick fixes which implies a much narrower viewpoint than that which currently exists for KM. But is KM a business or organisational paradigm in its own right? The work of Clegg *et al.* (1996) implies that paradigms can be large, all embracing, paradigms, or paradigms that relate to a particular part of a large paradigm. For example the large paradigm of postmodernism can include the paradigms of feminism and ecological views. Thus the possibility arises that KM could emerge into a large paradigm or be a paradigm which is a subset of a larger emerging paradigm. Clegg *et al.* (1996) define the current emerging large paradigm of organisation theory and practice in terms of Table I.

This representation puts Kuhn's work on succeeding paradigms in a current organisational context in that it shows the paradigm on the left-hand side of the table replacing the paradigm on the right-hand side.

**Table I** Old and new management paradigms

New paradigm	Old paradigm
Organisational learning	Organisation discipline
Virtuous circles	Vicious circles
Flexible organisations	Inflexible organisations
Management leaders	Management administrators
Open communication	Distorted communication
Core competencies drive product development	Strategic business units drive product development
Strategic learning capacities are widespread	Strategic learning occurs at the apex of the organisation
Assumption that most organisation members are trustworthy	Assumption that most organisation members are untrustworthy
Most organisation members are empowered	Most organisation members are disempowered
Tacit and local knowledge of all members of the organisation is the most important factor in success, and creativity creates its own prerogative	Tacit and local knowledge of most members of the organisation must be disciplined by managerial prerogative

**Source:** Clegg *et al.* (1996)

It is interesting to compare Table I with the current approaches to KM. Firstly there is a "knowledge is truth" view (Morgan, 1986) which represents approaches to KM which take a absolutist approach to knowledge construction, associating it with the assimilation of factual inputs. These "facts" are labeled as scientific and therefore cannot be disputed. Gergen (1991) describes such indisputability as "scientists adding sanctity to ideology". Richardson *et al.* (1987) describe these views of knowledge as enforcing "the removal of discriminatory power" and queries how ideas can be evaluated and critiqued with this approach. Overall, this positivist approach to knowledge and KM equates more to the right-hand side of Table I.

Secondly, within the field of KM, there is a view that knowledge is socially constructed. Burgoyne *et al.* (1994) state that "philosophy of science has largely been replaced on the intellectual agenda by the history and sociology of knowledge which emphasises cultural and historical processes rather than rationally superior knowledge". This approach agrees with Habermass's view that knowledge constitutes human interest rather than being restricted to a functionalist science approach. Lave and Wenger (1991) conclude that

knowledge achieved in this way is cultural and is provided by a socio-historical context – usually made available through the everyday experience of individuals. Overall, this social constructionist view of KM equates more to the left side of Table I.

If KM is to continue as an emerging paradigm, and not simply be a convenient mechanistic tool, then the field must address the social side of knowledge construction (mainly the left side of Table I) in addition to the more scientific side of knowledge construction (right-hand side of Table I). By taking this more holistic viewpoint KM can play an important role in post-capitalist deregulated organisations which emphasise knowledge and learning (all of Table I). For example, KM plays a key role in facilitating communities of practice that form as learning groups within widely dispersed or virtual organisations (such as ABB and McKinseys).

The conception of KM as an emerging paradigm consistent with larger movements in organisational theory and practice has important implications. For example, Kuhn (1974) points out that when a paradigm is identified by the academic community then research is undertaken to articulate and fill out the paradigm. Perhaps this explains the phenomenal increase in academic research in the area of KM over the past few years. Also when a paradigm is identified (by conversion or otherwise) there is a wide range of organisational applications developed from the theory. Once again the literature reflects an enormous growth in the number of organisations of all types becoming involved in KM. As knowledge is fundamental to organisations, learning the potential implications of an emerging paradigm in this area has potentially enormous consequences for the field of management learning and organisational development.

## A critique of knowledge management

Many models of KM, covering a wide spectrum of viewpoints, are described in the literature. A critique of these models is helpful in that the underlying assumptions and reasoning can be revealed. In this section a number of KM models are critiqued and a preferred representative model is tentatively suggested as useful for further work on

structuring research and organisational applications of KM.

All models must be treated with caution. An example (Alvesson and Willmott, 1996) is the modelling of information systems which sometimes can be imposed on organisations from a technical viewpoint rather than asking the customers (internal organisational members) what actually happens or what is required. In commenting on the modelling of operations research, which assumes models are built on objective results, Alvesson and Willmott (1992) describe such assumptions as “naive realism”. Thus models must be treated with caution. It is suggested that they are useful so long as they are critiqued to understand the underlying assumptions in the representation, rather than accepting them as objective representations of reality.

Recognising these considerations and limitations, the following paragraphs give a critique of some typical models in the field of KM. The models have been selected as covering a range of KM views, rather than as an exhaustive list of KM models. Broadly, the literature identifies three categories of KM models, namely knowledge category models, intellectual capital models and social constructed models.

### Knowledge category models

These types of model categorise knowledge into discrete elements. For example, Nonaka’s model is an attempt at giving a high-level conceptual representation of KM and essentially considers KM as a knowledge creation process. In its simplest form it is shown in Figure 1 (Nonaka and Takeuchi, 1995).

As seen from Figure 1, knowledge is considered as consisting of tacit and explicit elements. Tacit knowledge is defined by Polanyi (1962) as nonverbalised, intuitive and unarticulated. Explicit or articulated

Figure 1 Nonaka’s knowledge management model

		to	
		Tacit	Explicit
from	Tacit	Socialisation	Externalisation
	Explicit	Internalisation	Combination

knowledge is specified as being in writing, drawings, computer programs etc. (Hedlund, 1994). However, is it appropriate to solely categorise knowledge in such a way? Where does the concept of P and Q knowledge (McLoughlin and Thorpe, 1993) fit with this view, where P is programmed knowledge and Q is knowledge gained by questioning insight. Tacit knowledge does not exactly map onto Q, neither does explicit knowledge exactly map onto P. Thus P and Q represent a different categorisation of knowledge. Therefore from a critical standpoint Nonaka's categorisation of knowledge is perhaps limited or unidimensional.

The model assumes tacit knowledge can be transferred through a process of socialisation into tacit knowledge in others and that tacit knowledge can become explicit knowledge through a process of externalisation (top 2 squares of the model in Figure 1). The model also assumes (bottom 2 squares) that explicit knowledge can be transferred into tacit knowledge in others through a process of internalisation, and that explicit knowledge can be transferred to explicit knowledge in others through a process of combination. Therefore, the transforming processes are assumed to be socialisation (everyday comradeship), externalisation (formalising a body of knowledge), internalisation (translating theory into practice) and combination (combining existing theories). However, perhaps knowledge transfer in organisations is much more complicated and convoluted than this simple matrix suggests. Perhaps this model implies a mechanistic approach to knowledge categorisation more consistent with the right-hand side of Table I, although the four processes within the model, as described above, could be interpreted as largely consistent with the left-hand side of Table I.

A more elaborate version of Nonaka's model is shown in Figure 2 (Hedlund and Nonaka, 1993).

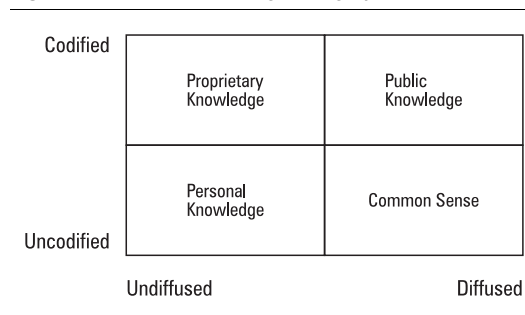
This model assumes there are four different levels of "carriers", or agents, of knowledge in organisations (ontological axis) – namely the individual, the small group, the organisation and the interorganisational domain (important customers, suppliers, competitors etc.). While the model is helpful in that it relates the carriers to the types of knowledge (albeit limited), it remains problematic in that it assumes the carriers, like the knowledge, can be simply segregated (more consistent with the right-hand side of Table I). An analogy is drawn with the management competency movement which assumes a simplistic desegregation of management tasks rather than a more representative holistic approach.

Another example of a knowledge category model is that of Boisot (1987). Figure 3 shows Boisot's model which considers knowledge as either codified or uncoded, and as diffused or undiffused, within an organisation. Boisot uses the term "codified" to refer to knowledge that can be readily prepared for transmission purposes (e.g. financial data). The term "uncoded" refers to knowledge that cannot be easily prepared for transmission purposes (e.g. experience). The term "diffused" refers to knowledge that is readily shared while "undiffused" refers to knowledge that is not readily shared.

If knowledge is categorised as both codified and undiffused (top left quadrant of Figure 3), then the knowledge is referred to as propriety knowledge. In this case, knowledge is prepared for transmission but is deliberately restricted to a selectively small population, on a "need to know" basis (e.g. projected profits, share price issues). The bottom left quadrant of Figure 3 covers knowledge that is relatively uncoded and undiffused, which is referred to as personal knowledge (e.g. perceptions, insights, experiences). The top right quadrant covers knowledge that is both codified and diffused and is referred to as public knowledge (e.g. journals, books, libraries). Finally,

**Figure 2** Hedlund and Nonaka's knowledge management model

	Individual	Group	Organisation	Interorganisational Domain
Articulated Knowledge	Knowing calculus	Quality circle's documented analysis of its performance	Organisation chart	Supplier's patents and documented practices
Tacit Knowledge	Cross-cultural negotiation skills	Team coordination in complex work	Corporate culture	Customer's attitudes to products and expectations

**Figure 3** Boisot's knowledge category model

the bottom right quadrant of Figure 3 refers to common sense knowledge which is relatively diffused but also uncodified. Such knowledge is considered by Boisot as being built up slowly by a process of socialisation, harbouring customs and intuition (more consistent with the left-hand side of Table I).

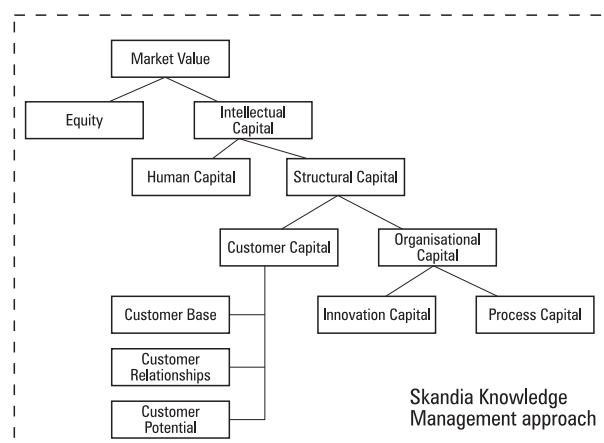
There are a number of parallels between Nonaka's model and that of Boisot. For example, Nonaka's categorisation of explicit and tacit knowledge has at least some degree of correspondence with Boisot's reference to codified and uncodified knowledge. Also, in both models the horizontal dimension relates to the spread or diffusion of knowledge across the organisation. Boisot's model suffers the same limitations as Nonaka's model in that codified and uncodified are but two discrete categories of knowledge (more relevant to the right-hand side of Table I). Also, the idea of diffused knowledge (less defined ontological axis than Nonaka's model) is rather general and it is not clear if it includes incorporating knowledge within the organisation, as well as spreading it.

In summary, knowledge category models of KM involve knowledge transforming processes of socialisation similar to the left-hand side of Table I. However, some of the categorisation of knowledge in these models is mechanistic and more consistent with the right-hand side of Table I.

### Intellectual capital models

A number of models in the literature represent KM as essentially intellectual capital (IC). A typical IC model is the Skandia IC model (Figure 4 from Chase, 1997; and Roos and Roos, 1997).

The model assumes IC or KM can be segregated into human, customer, process and growth elements which are contained in two main categories of human capital and structural/organisation capital. Lank's (1997) account of the Skandia approach to KM is

**Figure 4** Intellectual capital model of knowledge management (Skandia)

Source: Chase (1997)

predicated on this type of model. The model assumes a very scientific approach to knowledge and assumes it can be commodified – hence the link with organisational capital (this approach is consistent with the right-hand side of Table I). Skandia was the first company in the world to publish a supplement to its annual report on the company's intellectual capital philosophy and activities (Chase, 1997). However, this intellectual capital view of KM ignores the political and social aspects of KM. Also, like Nonaka's model, it assumes KM can be decomposed into objective elements rather than being a socio-political phenomenon. This mechanistic approach, more consistent with the right-hand side of Table I, can result in simplistic mechanised approaches to complex social-related issues (e.g. reward and recognition, power relations, empowerment etc.)

The Skandia example, as described by Lank gives a strong emphasis to measurement associated with each of these decomposed elements of KM assuming it can be tightly controlled, as is the case for tangible assets. Unfortunately this approach can result in attempts to fit objective measures to subjective elements. Once again this mechanistic approach to measurement is more consistent with the right-hand side of Table I.

In summary, intellectual capital models are mechanistic in nature, and assume that knowledge can be treated as an asset, similar to other assets. Such an approach is largely associated with the right-hand side of Table I.

### Socially constructed models of KM

This group of models assumes a wide definition of knowledge and views knowledge as



being intrinsically linked within the social and learning processes within the organisation. There is a large area of commonality between these types of models and those models seeking to represent the learning organisation and organisational learning (e.g. Burgoyne *et al.*, 1994). A typical example of these types of models is shown in Figure 5.

The model is Demerest's (1997) adaptation of Clark and Staunton's (1989) model of KM (Figure 5). Firstly, the model emphasises the construction of knowledge within the organisation. This construction is not limited to scientific inputs but is seen as including the social construction of knowledge. The model assumes that constructed knowledge is then embodied within the organisation, not just through explicit programmes but through a process of social interchange. Following embodiment there is a process of dissemination of the espoused knowledge throughout the organisation and its environs (this approach is consistent with the left-hand side of Table I). Ultimately the knowledge is seen as being of economic use in regard to organisational outputs. The solid arrows in Figure 5 show the primary flow direction while the plain arrows show the more recursive flows. The model is similar to that of Jordan and Jones (1997) who speak of knowledge acquisition, problem solving, dissemination, ownership and storage. There are also similarities with Kruizinga *et al.*'s (1997) model which includes knowledge policy, infrastructure and culture. There are also parallels with Scarborough's (1996) approach which covers strategic knowledge, structural and cultural knowledge, systems knowledge and communities of practice and routines. The model in Figure 5 is attractive in that it does not assume any given definition of knowledge but rather invites a more holistic approach to

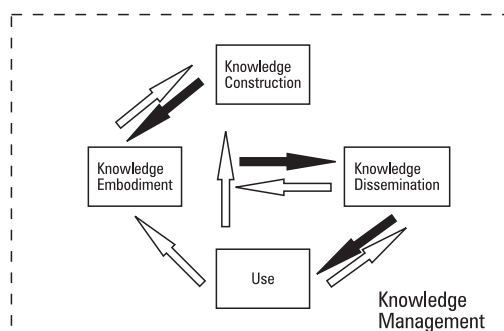
knowledge construction. Perhaps the solid arrows or main flow is a limitation in that it implies that recursive flows are less important. It also implies a simplistic processual approach (mechanistic and hence akin to the right-hand side of Table I) while, in reality, the flows of knowledge transfer may be extremely rapid and circulatory, as in the case for some forms of action learning.

The "use" box in the model is limited to organisational outputs and does not include emancipatory enhancements (hence, it is more orientated towards the right-hand side of Table I). These factors can be seen as complementary rather than mutually exclusive.

Figure 6 is a slightly modified version of Demerest's model which seeks to address these limitations by explicitly showing the influence of both social and scientific paradigms of knowledge construction (hence both sides of Table I). The model also extends the "use" element to cover both business and employee benefits. If KM is to have the support and commitment of all stakeholders in an organisation then employee emancipation must be addressed along with the business benefits. These issues should not be seen as mutually exclusive but as complementary. Also more recursive arrows are added to Figure 6 to show that KM is not seen as a simple sequential process.

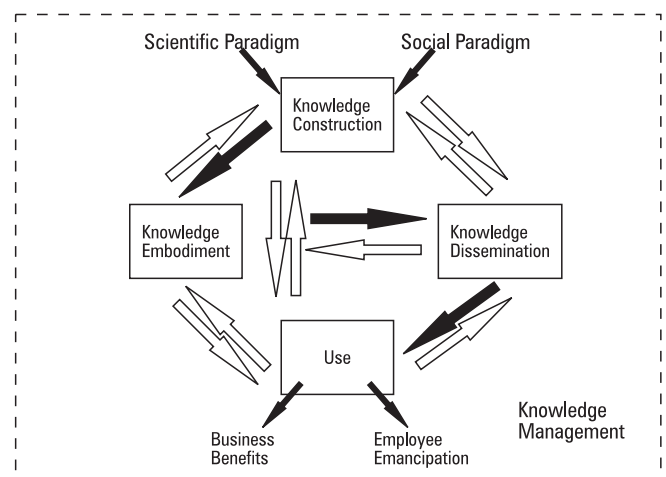
It is suggested that the model of Figure 6 is a useful means for structuring further research into the field of KM as it represents a balanced view of Table I. It allows KM to be associated with the emerging social paradigm while at the same time contributing to the current paradigm (Table I).

**Figure 5** Knowledge management model



Source: Demerest (1997)

**Figure 6** Modified version of Demerest's knowledge management model





## Conclusions and recommendations

The examination of existing definitions and classifications of KM show a wide spectrum of viewpoints. These range from the more mechanistic to more socially orientated. The mechanistic type of definitions and classifications assume an intellectual capital approach (knowledge viewed as an asset) while the social type assumes a social constructionist approach where knowledge is constructed in the social relationships within organisations.

Clegg *et al.*'s (1996) classification of old and new paradigms enabled Table I to be constructed which was found to be a useful evaluative framework for examining KM models and their associated assumptions.

Three broad classifications of models were identified and critiqued. Firstly, knowledge category models made reference to social processes for transforming knowledge; however the categorisation of knowledge in these models was somewhat mechanistic. Secondly, the intellectual capital models were found to be more mechanistic, assuming that knowledge can be treated similarly to other assets (right-hand side of Table I). Thirdly, socially constructed models were found to give a more balanced approach between the scientific and social approaches to KM.

Finally, Figure 6 was constructed, a suggested approach to KM (based on socially constructed models – Figure 5). This model takes a balanced approach between scientific and socially constructed knowledge. Also the “uses/benefits” of KM are viewed as both emancipatory and as business oriented. Throughout the model, knowledge flows are seen as highly recursive rather than as sequential. It is suggested that this model could act as a useful guide for further research and literature evaluation in the area of knowledge management.

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