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# A critical review of knowledge management as a management tool

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## Keywords

Knowledge management, Knowledge, Strategy

## Abstract

Over the past several years there have been intensive discussions about the importance of knowledge management within our society. The management of knowledge is promoted as an important and necessary factor for organisational survival and maintenance of competitive strength. To remain at the forefront organisations need a good capacity to retain, develop, organise, and utilise their employees' capabilities. Knowledge and the management of knowledge appear to be regarded as increasingly important features for organisational survival. Explores knowledge management with respect to its content, its definition and domain in theory and practice, its use and implications, and to point out some problems inherent in the concept. The main contribution of this paper is an extensive literature survey on knowledge management.

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## Introduction

Over the past several years there have been intensive discussions about the importance of knowledge management (KM) within our society. Scholars and observers from disciplines as disparate as sociology, economics, and management science agree that a transformation has occurred – "knowledge" is at centre stage (Davenport *et al.*, 1998). KM and related strategy concepts are promoted as important and necessary components for organisations to survive and maintain their competitive keenness. It has become necessary for managers and executives to address "KM" (Goodman and Chinowsky, 1997). KM is considered a prerequisite for higher productivity and flexibility in both the private and the public sectors.

McKern (1996) argues that powerful forces are reshaping the economic and business world and many call for a fundamental shift in organisation processes and human resources strategy. The prime forces of change include globalisation, higher degrees of complexity, new technology, increased competition, changing client demands, and changing economic and political structures. Organisations are beginning to recognise that technology-based competitive advantages are transient and that the only sustainable competitive advantages they have are their employees (Black and Synan, 1997). This development has forced steep learning curves as organisations struggle to adapt quickly, respond faster, and proactively shape their industries (Allee, 1996).

To remain at the forefront and maintain a competitive edge organisations must have a good capacity to retain, develop, organise, and utilise their employee competencies (Grönhaug and Nordhaug, 1992).

The commonality of the above studies is that they all regard knowledge as a critical factor for an organisation's survival. However, knowledge has always been a valuable asset (Chase, 2000) and an important production component, but what is KM? Is it a new way to understand organising and organisations, is it a tool for exploiting knowledge, or is it just

another relabelling in the ceaseless flow of fashionable management concepts?

The purpose of this paper is to map the contents given to KM, its definition and domain in theory and practice, its use and implications, and to point out some problems inherent in the concept.

To determine what KM is, a review of the literature is necessary. Since it is not feasible to cover all the literature, the aim of the survey is not so much to summarise but to draw some conclusions about KM. The first step was to search for articles in databases using the keyword "knowledge management" and the combination "knowledge management" and "strategy". The literature review is narrow in the sense that only studies using these keywords were included. Most of the literature in this review is of practical nature rather than theoretical (i.e. knowledge-based theory and competence-based theory). The emergence of KM seems to a great extent to be business driven (Carrillo, 2000). The limited number of keywords probably accounts for the skewed distribution of articles in favour of the practical-oriented articles. Another limitation is related to how the concept of knowledge is regarded. What is found in the literature survey is of course just a fraction of what is written about knowledge; however, these are still the things that are pointed out in the literature. In describing knowledge, it is not my intention to give a complete overview of the concept; rather, the description of knowledge is used as a tool for describing the concept KM.

The paper is organised into three sections. The first section is devoted to the origins and domain of KM. The second describes KM as a tool for management, as an information-handling tool, and as a strategic tool. In the final section, a critical examination of the concept and its implications is presented. I try to determine whether the concept of KM is a necessary tool for more efficient management, or if it is just "the emperor in new clothes".

## Origins and domain of knowledge management

### Theoretical origins to knowledge management

The field of KM can be seen as an integral part of the broader concept "intellectual capital" (Roos *et al.*, 1997). Guthrie (2000)

make is the following distinction between KM and "intellectual capital" – KM is about the management of the "intellectual capital" controlled by the company. However, too often the delineation between the two terms is unclear and seldom adequately addressed (Guthrie, 2000). The problem of the management of knowledge is not new according to Roos *et al.* (1997). The authors use the concept "intellectual capital" as an umbrella term. "Intellectual capital" in Skandia, a major insurance company, is defined as "the possession of knowledge, applied experience, organisational technology, customer relationships, and professional skills that provide Skandia with a competitive edge in the market" (Edvinsson, 1997). Within this descriptive framework, Skandia, Dow Chemical (Petrash, 1996), and many other companies (e.g. Stewart, 1997) prefer to make an operational distinction between human, organisational, and customer capital.

Roos *et al.* (1997) suggest that "intellectual capital" can be traced to two streams of thought, strategy and measurement. Within the strategic area, the focus is on studying the creation and use of knowledge and the relationship between knowledge and success or value creation. Measurement focuses on the need to develop new information systems, measuring non-financial data alongside the traditional financial ones. The conceptual roots of intellectual capital are depicted in Figure 1.

With respect to this study, strategic planning and (operational) management of knowledge are important topics. The paper attempts to explore the creation and use of knowledge and the way it is leveraged into value. Key questions addressed include how is the use of knowledge translated into value? How can it be implemented? What important factors are needed for strategic management planning and implementation?

A firm's tangible and intangible resources, which are under the control of the firm's administrative organ (referred to as an organisation's condition in Rutihinda, 1996), may be grouped into two main categories: firm resources and firm capabilities (Grant, 1991). According to Grant (1991), this designation implies that resources are inputs into the production process and the capability of a firm is the capacity, what it can do, as a result of teams of resources working together.

**Figure 1** Conceptual roots of intellectual capital
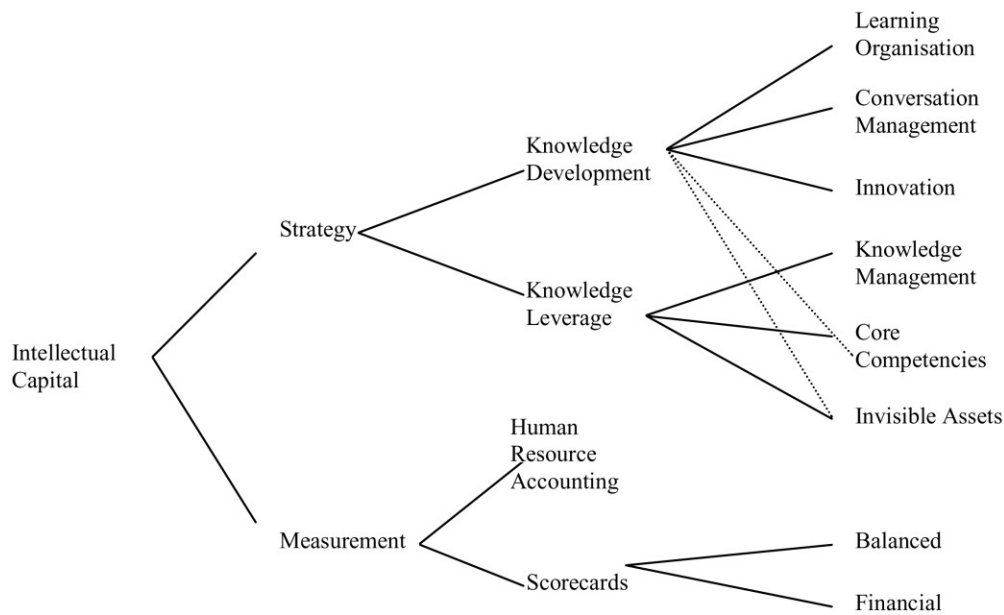


**Source:** Roos *et al.,* 1997

A differentiation between intangible and tangible resources, or an equivalent distinction, appears to be logically required. In a study by Johanson *et al.* (1998), the question of what is meant by intangibles was raised. The authors concluded that there is no generally accepted definition of intangibles. Intangibles can be studied from at least three perspectives (e.g. accounting, statistics, and managerial). The present paper defines intangibles from the perspective of managerial purposes, i.e. management on both the strategic and operational level.

To summarise, whereas a classification of intangibles in terms of R&D, software, marketing, and training appears to have been the dominant mode ten years ago, today's classification schemes are oriented towards distinguishing between external (customer-related) and internal structures, on the one hand, and human capital, on the other (e.g. Sveiby, 1997; Roos and Roos, 1997; Petrash, 1996; Skandia, 1995).

Influenced by the resource-based theory of the firm (e.g. Penrose), Løwendahl (1997) and Haanes and Løwendahl (1997) have classified a number of intangible resources from a strategic management perspective. Because there appears to be little consensus on the definition of "resources", Haanes and Løwendahl refer to Itami (1987). Resources consist of:

- physical, human, and monetary resources that are needed for business operations to eventuate; and
- information-based resources, such as management skills, technology, consumer information, brand name, reputation, and corporate culture.

After further elaboration on the concepts of intangible resources, intangible assets, capabilities, and competencies, Haanes and Løwendahl categorise intangible resources into competence and relational resources. The latter term refers to such intangibles as reputation, relations, and client loyalty, which are conceived of as being fundamental to the performance of the firm. Competence is defined as the ability to perform a given task and exists at both the individual and organisational level. Within the individual sphere, it includes knowledge, skills, and aptitudes; within the organisational sphere, it includes client-specific databases, technology, routines, methods, procedures, and organisational culture. The basic scheme is shown in Figure 2.

Løwendahl (1997) takes the division one step further, since he divides competence and relational categories into the subgroups individual and collective, depending on whether the employee or the organisation is accentuated:

Scholars of the "theory of the firm" have begun to emphasize the sources and conditions of what

**Figure 2** Intangible resources
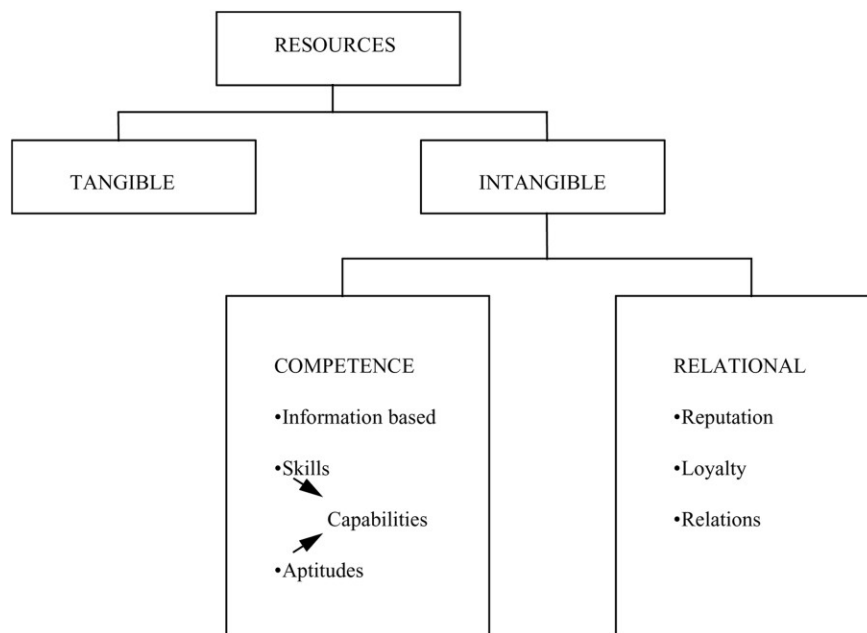


**Source:** Haanes & Løwendahl, 1997

have been described as "the organizational advantages", rather than focus on the causes and consequences of market failure. Typically, researchers see such organizational advantage as acquiring from the particular capabilities organizations have for creating and sharing knowledge (Nahapiet and Ghoshal, 1998).

A firm's distinctive competence is based on the specialised resources, assets, and skills it possesses, and focuses attention on their optimum utilisation to build competitive advantage and economic wealth (Penrose in Rutihinda, 1996).

From the theory of the firm, two basic theories have emerged: resource-based theory and knowledge-based theory. Knowledge-based theory of the firm

postulates that knowledge is the only resource that provides sustainable competitive advantage, and, therefore, the firm's attention and decision making should focus primarily on knowledge and the competitive capabilities derived from it (Roberts, 1998).

The firm is considered being a knowledge integrating institution. Its role is neither the acquisition nor the creation of organisational knowledge; this is the role and prerequisite of the individual. Knowledge resides in and with individual people, the firm merely integrates the individually owned knowledge by providing structural arrangements of co-ordination and co-operation of specialised knowledge workers. That is, the firm focuses on the organisational processes flowing through these structural arrangements, through which individuals engage

in knowledge creation, storage, and deployment (Roberts, 1998; see also Grant, 1991).

## Empirical origins to knowledge management

DiMattia and Oder (1997) argue that the growth of "knowledge management" has emerged from two fundamental shifts: downsizing and technological development.

*Downsizing*

During the 1980s, downsizing was the popular strategy to reduce overhead and increase profits; however, the downside to being "lean and mean" soon became evident (*Forbes*, 1997). The downsizing strategy resulted in a loss of important knowledge, as employees left and took the knowledge that they had accumulated over the years with them (Piggott, 1997). With time, organisations had come to recognise that they had lost years of valuable information and expertise and were now determined to protect themselves against a recurrence (DiMattia and Oder, 1997).

This led management to undertake a "knowledge management" strategy in an effort to store and retain employee knowledge for the future benefit of the company (*Forbes*, 1997). Organisations are now trying to use technology and systems to capture the knowledge residing in the minds of their employees, so it can be easily shared within the organisation. When stored, it becomes a

reusable resource that can provide a wealth of competitive advantages, including enhanced organisational capacities, facilitating output, and lowering costs (*Forbes*, 1997).

*Technological development*
The technological development has heightened the interest in "knowledge management" through two main sources: the explosive growth of information resources such as the Internet and the accelerating pace of technological change (Hibbard, 1997; Mayo, 1998). The recent IT development has affected both the lives of people and organisations (Mayo, 1998). The continual flow of information leaves us feeling overwhelmed and in a general state of disquietude (e.g. that we are missing important details) (Hibbard, 1997). DiMattia and Oder (1997) postulate that "knowledge management" is an attempt to cope with the explosion of information and to capitalise on increased knowledge in the workplace.

The emerging technological development enables global sharing of information across platforms and continents (DiMattia and Oder, 1997) and can serve as a tool within an organisation to use knowledge more effectively. Capturing a company's collective expertise in databases can help organisations to "know what they actually know", and then marshal and exploit this knowledge in a systematic way (Blake, 1998).

**The domain of knowledge management**
An essential part of KM is, of course, knowledge. To map the domains of knowledge, traits of the concept knowledge have been put forward based on the stream of research reviewed.

The question of the nature of knowledge is extremely challenging. Although philosophers have been discussing the issue for several hundred years, the search for a formal definition continues (Emery, 1997). The definitions appearing in the literature range from studying knowledge from a broad perspective to more sophisticated definitions.

The present review has resulted in two definitions of knowledge.

*Characteristics of knowledge*
The following taxonomy of knowledge has been expressed in the KM literature:
- Knowledge cannot easily be stored (Gopal and Gagnon, 1995). Knowledge is something that resides in people's minds rather than in computers (*The Banker*, 1997). Unlike raw material, knowledge usually is not coded, audited, inventoried, and stacked in a warehouse for employees to use as needed. It is scattered, messy, and easy to lose (Galagan, 1997). Furthermore, Allee (1997a) has defined knowledge in terms of 12 qualities: knowledge is messy; it is self-organising; it seeks community; it travels on language; it is slippery; it likes looseness; it experiments; it does not grow forever; it is a social phenomenon; it evolves organically; it is multi-modal; and it is multi-dimensional.

To use the flow of data/information we must develop effective ways to make the input of and access to information easy (Mayo, 1998) and to sort the useful from the useless (Schaefer, 1998). We must develop systems where people are able to "navigate" effectively. This can be made by storing the information in different databases and make it possible for people to cross-reference and link documents speedily and easily (Mayo, 1998).
- Information has little value and will not become knowledge until it is processed by the human mind (Ash, 1998). Knowledge involves the processing, creation, or use of information in the mind of the individual (Kirchner, 1997). Although information is not knowledge, it is an important aspect of knowledge. The process begins with facts and data, which are organised and structured to produce general information. The next stage involves organising and filtering this information to meet the requirements of a specific community of users, producing contextual information. Next, individuals assimilate the contextual information and transform it into knowledge. This transformation process is affected by individuals' experiences, attitudes, and the context in which they work. The final stage of the continuum is behaviour; unless information and knowledge lead to an informed decision or action, the whole process becomes invalidated (Infield, 1997).
- Knowledge should be studied in context. Knowledge is information combined with experience, context, interpretation, reflection, and perspective (Davenport *et al.*, 1998; Kirchner, 1997; Frappaolo,

1997) that adds a new level of insight (Frappaolo, 1997). Allee (1997b) suggests that knowledge becomes meaningful when it is seen in the larger context of our culture, which evolves out of our beliefs and philosophy.

- The final characteristic is that knowledge is ineffectual if it is not used. Knowledge is a high-value form of information that is ready to be applied to decisions and actions (Davenport *et al.*, 1998). Sveiby (1997) has defined it as the capacity to act on information and thereby make it valuable.

*Tacit and explicit knowledge*

Another way of defining knowledge is to make a distinction between "tacit" and "explicit" knowledge (Polyani, 1966). Nonaka and Takeuchi (1995) make the same point in more precise terms:

- Explicit knowledge is documented and public; structured, fixed-content, externalised, and conscious (Duffy, 2000). Explicit knowledge is what can be captured and shared through information technology.
- Tacit knowledge resides in the human mind, behaviour, and perception (Duffy, 2000). Tacit knowledge evolves from people's interactions and requires skill and practice.

Nonaka and Takeuchi suggest that tacit knowledge is hidden and thus cannot be easily represented via electronics. Tacit refers to hunches, intuitions and insights (Guth, 1996), it is personal, undocumented, context-sensitive, dynamically created and derived, internalised and experience-based (Duffy, 2000). Nonaka and Takeuchi mean that knowledge is the product of the interaction of explicit and tacit knowledge. The process of creating knowledge results in a spiralling of knowledge acquisition. It starts with people sharing their internal tacit knowledge by socialising with others or by capturing it in digital or analogue form. Other people then internalise the shared knowledge, and that process creates new knowledge. These people, with the newly created knowledge, then share this knowledge with others, and the process begins again. Hibbard (1997) articulated this process as innovation.
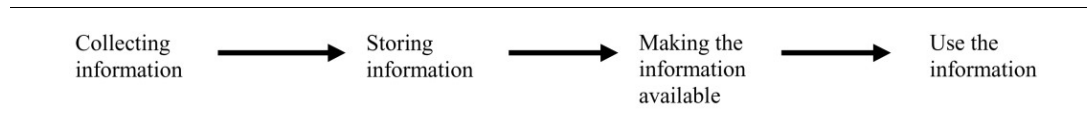
## Knowledge management as a management tool

KM is often described as a management tool. More precisely, it is described either as an operational tool or as a strategically focused management tool.

### Knowledge management as an information handling tool

Within the field of KM (Figure 3), knowledge is often regarded as an information handling problem. It deals with the creation, management and exploitation of knowledge. Some of the literature fits into a definition of KM that consists of separate but related stages.

The first two stages are invariably linked, both on abstract theoretical grounds and in practice. As the first step in the process, there is acquisition of information. In the second stage, the information is entered into a storage system and organised logically. Almost every definition of knowledge management includes the storage of knowledge (e.g. Yeh *et al.*, 2000; Blake, 1998, 2000; Mayo, 1998; Anthes, 1998; Cole-Gomolski, 1997a, 1997b, 1998; Symoens, 1998; Laberis, 1998; Nerney, 1997; Ostro, 1997; *InfoWorld*, 1997; Watson, 1998; LaPlante, 1997; Ash, 1998; DiMattia and Oder, 1997; Hibbard, 1997; Finerty, 1997; Bassi, 1997). KM is about acquisition and storage of workers' knowledge and making information accessible to other employees within the organisation. This is often achieved by using various technologies such as Internet and databases, and is a conversion of tacit knowledge to explicit knowledge (Papows, 1998). Once the information is stored in the various databases, the third stage is initiated. In this stage, the stored information is made accessible to as many employees as possible within the organisation (LaPlante, 1997). It is about distributing it into the hands of the right end users at the right time (Ostro, 1997) and where it can be of best use (Nerney, 1997). The final stage is about utilisation of information. This process begins with people sharing knowledge by talking and socialising with one another or by exchanging information in digital or analogue form (Laberis, 1998).

**Figure 3** The stages of knowledge management

Collecting information → Storing information → Making the information available → Use the information

### Knowledge management as a strategic management tool

KM and its implications are frequently discussed at seminars and conferences. The number of companies claiming to work with knowledge management is growing steadily. Several surveys have been conducted to determine how many organisations are working or planning to work with KM (Nerney, 1997; Hibbard and Carrillo, 1998; Cole-Gomolski, 1998). A recurrent problem with these studies is that the concepts (e.g. the use of KM) are seldom defined. This uncertainty has made it difficult to draw the desired inferences from the results of these studies. The surveys are attempts to either implement KM strategies or implement measurement systems on how to measure different intangible assets, or a combination of both.

The central idea underlying a strategy is that organisations must adjust their capabilities (i.e. their resources and skills) to a constantly changing complex external environment (Teece, in Grönhaug and Nordhaug, 1992). Gopal and Gagnon (1995) put it succinctly when they maintain that effective KM starts with a strategy. Within a KM strategy, knowledge is recognised as an organisation's most valuable and under-used resource and places the intellectual capital at the centre of what an organisation does (Ash, 1998). To start to create a KM strategy, an organisation needs to build systems for capturing and transferring internal knowledge and best practices (Allerton, 1998).

The purpose, goal and expected outcomes of an organisation's work with KM are many. For instance, KM can be seen as a way to improve performance (Ostro, 1997; Bassi, 1997), productivity and competitiveness (Maglitta, 1995), a way to improve effective acquisition, sharing and usage of information within organisations (Maglitta, 1995), a tool for improved decision making (*People Management*, 1998; Cole-Gomolski, 1997a, 1997b), a way to capture best practices (Cole-Gomolski, 1998), a way to reduce research costs and delays (Maglitta, 1995), and a way to become a more innovative organisation (*People Management*, 1998; Hibbard, 1997).

A study by the American Productivity and Quality Center shows that 89 per cent of the participants in the study said that the core goal for knowledge management is to capture and transfer knowledge and best practices (Allerton, 1998).

*People Management* (1998) reports on a survey in which individuals responsible for implementing KM strategy were interviewed. The results indicated that the main obstacles to implementation were lack of ownership of the problem (64 per cent), lack of time (60 per cent), organisational structure (54 per cent), senior management commitment (46 per cent), rewards and recognition (46 per cent), and an emphasis on individuals rather than on teamwork (45 per cent). Among "Fortune 1000" companies the main problems with KM projects are a lack of focus and a lot of reinventing the wheel (Coleman, 1998).

Based on an extensive multi-firm study by the American Productivity and Quality Center, hurdles to KM include the lack of a commonly held model for knowledge creation and dissemination and the absence of systems or processes designed to support and evaluate the effectiveness of KM (Ostro, 1997). Most firms with a KM system based purely on a technology solution have found that such an approach fails. Though technology may be necessary for KM, it appears never to be sufficient (Warren, 1999; Bassi, 1997).

To successfully create and implement a knowledge management strategy, authors have suggested that certain critical elements must be included. The elements I have found to be of particular importance are the following:
- the "so what?" question;
- support from top management;
- communication;
- creativity;
- culture and people;
- sharing knowledge;
- incentives;
- time;
- evaluation.

*The importance of the "so what?" questions*
A KM strategy should be linked to what the organisation is attempting to achieve. It is also important to articulate the purpose of the KM strategy. What benefits does the organisation expect to gain from their work with KM? How will it affect the employees' work? (Klaila, 2000)

*The importance of support from top management*
The personnel function should focus on top management to encourage processes that will promote cross-boundary learning and sharing. This includes helping to set up and, possibly, fund knowledge networks, as well as defining and developing the skills of learning from other people (Mayo, 1998). Organisations that have achieved the greatest success in KM are those that have appointed a senior-level executive to assume the mantle of full-time chief knowledge officer (Gopal and Gagnon, 1995).

*The importance of communication*
Saunders (in Ash, 1998) found that the missing factor in strategic management texts was communication. According to the consultants, a large proportion of the organisations failed to implement the strategies because of a lack of communication. Only a few companies designed a "good" communication plan to follow through on business strategies.

After reviewing nearly 200 articles and conference proceedings on data warehousing, Keen (1997) was struck by how little is said about action – "real" people making "real" decisions to have a "real" impact. They do not look at how those real people become informed.

*The importance of creativity*
As Kao (1997) notes, a good strategy to work with KM issues is not enough. The author describes the link between strategy and creativity. A connection between these two allows organisations to survive in the future. The implications of business creativity will depend upon the type of fusion created between KM and the basic skills of creativity management (Kao, 1997).

*The importance of culture and people*
Successful implementation of KM is linked to such entities as culture and people. In a recent study where the importance of people, as opposed to technology and processes, was examined when implementing a KM strategy,

70 per cent reported that employees are the most important factor and 75 per cent reported that there should be an even greater emphasis on people (*People Management*, 1998). In the view of the best-practice organisations, people and culture are at the heart of creating a successful knowledge-based organisation. Several studies have shown that people and cultural issues are the most difficult problems to resolve, but produce the greatest benefits (*People Management*, 1998).

The biggest challenge for KM is not a technical one – it can be integrated into any number of IT systems – but a cultural one (*Forbes*, 1997; Koudsi, 2000). It is the difficult task of overcoming cultural barriers, especially the sentiment that holding information is more valuable than sharing it (Warren, 1999; Anthes, 1998). This is supported by Hadley Reynolds, at Delphi Group, in Boston who released a study demonstrating that corporate culture was cited by 53 per cent of the respondents as being the biggest obstacle to deploying KM applications (Cole-Gomolski, 1997b). In another study (*People Management*, 1998), culture was seen by 80 per cent of those surveyed as the biggest obstacle in creating a knowledge-based organisation.

*The importance of sharing knowledge*
The ability to share knowledge and collaborate are all too often missing in our organisations (Mayo, 1998). Efforts to deploy KM group-ware are frequently met with employee reluctance to share their expertise (Cole-Gomolski, 1997b). The likely reason for this is that employees are competitive by nature and may be more inclined to hoard than share the knowledge they possess (*Forbes*, 1997). On the other hand, a better process of sharing knowledge benefits the firm. This is shown in a study of 33 organisations conducted by the American Productivity and Quality Center (Alter, 1997).

Ostro (1997) reports the results of an extensive multi-firm study by the American Productivity and Quality Center. He found that the main reason why knowledge was not being shared was that employees did not realise their experiences would be valuable to others.

Mayo (1998) feels that recruiters should look for capabilities to share knowledge with

new employees, as well as assessing what new knowledge they can bring to an organisation. Part of the introduction process for recruits should involve "capturing" their knowledge and experience. Although most new employees bring useful specialist experience with them, few people tap this rich reservoir of information. Meanwhile, the introduction should also be about passing on the experience of predecessors to new employees. Mayo states that:

> When people leave, the HR department asks for their company car keys and so on. Why not conduct a recruitment interview in reverse to retrieve information?

He also points out that there is an unwillingness to trust employees with information. A favourite excuse given by organisations that withhold information is one of "commercial sensitivity", which reflects an unwillingness to trust employees with information. Salary surveys are a good example of this. In how many organisations are such data freely available to all interested employees?

*The importance of incentives*
One of the most important issues when working on a KM strategy is to create the right incentives for people to share and apply knowledge (*The Banker*, 1997). The personal reward systems must support the culture of sharing knowledge (Keeler, 2000; Mayo, 1998). To improve this process it is crucial to reward employees that contribute their expertise and to make sure employees understand the benefits of KM (Cole-Gomolski, 1997b). The organisations should ask themselves the following questions: Are the employees receiving signals that encourage the process of sharing knowledge? What criterion is used for promoting staff? Are instances in which the business has benefited from sharing learning publicly celebrated? Are mistakes made that could have been avoided if it had been known that similar errors had happened in the past (Mayo, 1998)?

A problem with many reward systems and incentives for sharing knowledge is that useful knowledge comes from relatively low down in the organisation, from people who are not on incentive systems and probably respond much more readily to the feeling that they belong to highly motivated, leading edge, innovative groups of people. This probably means in the

end that the pivotal role is played by culture; by an unquestioned, even unconscious, code that encourages knowledge sharing and co-operative behaviour (*The Banker*, 1997).

*The importance of time*
It is important to create time and opportunities for people to learn. One successful approach is to create formal learning networks so that the identification and transfer of effective practices become part of the job (Galagan, 1997). The greatest enemies of knowledge sharing are the time that is required to input and access information and the lack of motivation among potential users (Mayo, 1998).

*The importance of evaluation*
It is important to create a system for evaluating the attempts that are made to use KM. The evaluation system can range from informal attempts, such as talking to people about how "best practice" is shared within the firm, or to the use of far more sophisticated tools to measure the outcomes.

To summarise, to implement a KM strategy successfully both the creation and the leverage of knowledge must be taken into account.

## Discussion

The literature and theories concerning the management of knowledge have grown remarkably during the past couple of years. Nevertheless, what is the contribution from KM? Is it business salvation or the "emperor's new clothes"?

Because of downsizing, organisations have been forced to create systems and processes that decrease the dependencies on the knowledge residing within the individuals. To exploit knowledge more efficiently organisations are now trying to codify and store the individual's knowledge, i.e. making tacit knowledge explicit and transposing individual knowledge into organisational knowledge. Those transformation processes have been made possible through the recent and fast development within IT.

Because knowledge is largely tacit and individually owned, it is difficult to have charge of and control over the course of knowledge. The literature review suggests that the major contribution from KM concerns the effort to transpose tacit knowledge into explicit information, which

will lead to greater possibilities to manage and control knowledge effectively. One major issue that has hardly been dealt with and, therefore, in need of further inquiry concerns how this process of translating tacit into explicit knowledge works.

The management of knowledge may be examined from two theoretical perspectives. One perspective involves theories where the focus is on the individual's knowledge; the second comprises theories wherein the knowledge itself is the centre of interest. Human capital is defined by Flamholtz (1985) as "the knowledge, skills and experience of people". Within human capital theories, the employee is regarded as the bearer of knowledge.

Another perspective, in which knowledge is the centre of interest, is the knowledge-based theory of the firm. In such theories, the individual exists but the focus is more on knowledge than the individual. The two perspectives could be described as being either individualistic or holistic. From a holistic view the sum of an organisation is more than the sum of the individuals, whereas from an individualistic view, the sum of an organisation is the sum of the individuals (Hollis, 1994). Within the recent theoretical development (i.e. knowledge-based theories of the firm), the focus has shifted from an individual perspective to an emphasis on knowledge residing in the organisation as a whole, i.e. a holistic approach.

Mayo (1998) noted that many companies have been managing knowledge for decades but that few companies, whether global or national, use these disciplines on a regular basis. One problem regarding knowledge and KM is to outline its content and domain.

This literature review highlights the need to better clarify what we mean when we are using concepts such as "knowledge" and "KM". Carrillo (2000) argues that one can often find the most diverse labels applied to KM. There are also those who believe that term to be inconsistent because knowledge as such cannot be managed (Carrillo, 2000). The lack of clearly defined concepts has been explored in closely related areas (Johanson *et al.*, 1998; Gröjer and Johanson, 1998; Power, 1997). Also the boundaries of KM are fuzzy. To illustrate, what are the differences between "competitive intelligence" (Fleicher, 1998), "intellectual capital" and KM? Sometimes knowledge is clearly defined in the original

source, but too often it is not. Because of the nature of knowledge, the attainment of a formal definition is unlikely. There is thus a need for clarification of what we are talking about whenever the word "knowledge" is used.

A large bulk of the present review is based on an IT perspective. The focus here is more on creating databases for storing information and making the information available, and thus the literature review focuses mainly on explicit knowledge (Warren, 1999). The first part of KM, the storage of information, is the one most often described. This is probably because the storage of information is the first and perhaps the easiest phase of KM. However, what is missing is how this information can be used and translated into knowledge and become a part of the organisation's knowledge base.

The ambiguity of the distinction between information and knowledge has been a major source of difficulty and, in many articles, the distinction between information and knowledge is not clearly articulated. Duffy (2000) argues that technology vendors have contributed to this confusion. Every technology that ever had anything to do with digitised information is now a KM product, or even a complete KM solution. Knowledge is often used as something similar to information, but information and knowledge are far from synonymous. Tacit knowledge might have begun as information, but because it is processed by the human mind, it can be translated into explicit knowledge. Explicit knowledge is identical to information; it can be easily stored outside the human mind (e.g. in databases), but nonetheless it cannot be described as knowledge until it has been processed.

The impact of KM is a complex field. If KM is used as a strategic tool the outcome is difficult to estimate. The problem to estimate the value of KM remains even if it is used as an operational tool. However, the operative perspective could be considered estimated by the organisation if the tool is used. If it had no value the organisations would not use it. Theoretically, it is easier to determine the value of KM. This is because knowledge, through downsizing, is a scarce resource.

Another pertinent topic missing when the value of KM is described in the literature is costs. None of the articles reviewed discussed the connection between the costs in the

organisation's work and KM. That is, the values created by the management of knowledge are not related to the costs connected to the work.

When analysing Roos *et al.*'s (1997, p. 15) model on the conceptual roots of intellectual capital (see Figure 1), we see that all the strategic contributions on knowledge zero in on two essential features: the way knowledge is created and the way it is leveraged into value. Some concepts focus almost exclusively on one point or the other; e.g. the learning organisation concepts mostly examine the mechanism of knowledge development. However, other concepts such as KM are more balanced, focusing on both. The knowledge leverage class is divided into three sub-classes: KM, core competencies, and invisible assets. Likewise, the knowledge development class is divided into three sub-classes: learning organisation, conversation management, and innovation. An organisation's work with KM should focus on transposing tacit knowledge into explicit knowledge and see to it that individual knowledge becomes organisational knowledge. This can be explained not only by a need for organisations to better manage knowledge by establishing core competencies for individuals, judging success and performance indicators via recognition of invisible assets, but also for organisations to strive to become an innovative organisation and a learning organisation with a knowledge sharing culture.

The final question raised in this paper concerns whether knowledge is always something good? Knowledge is assumed to be generally positive. However, it is untenable to assume that knowledge is always positive and good. Within the framework of knowledge-based theory, it is claimed that the only resource that provides an organisation with sustainable competitive advantages is knowledge. Nonetheless, knowledge as such will not have much value for the organisation in building its competitive advantages since only relevant knowledge can function in such a capacity.

To see that the concept of KM will not just vanish as so many other management concepts have done over the years, it is important that KM is not regarded as "the Jack of all trades". If this happens, there is the risk that it will probably become "the master of none".

## References

Allee, V. (1996), "Adaptive organizations", *Executive Excellence*, Vol. 13 No. 3, p. 20.

Allee, V. (1997a), "Knowledge and self-organization", *Executive Excellence*, Vol. 14 No. 1, p. 7.

Allee, V. (1997b), "12 principles of knowledge management", *Training & Development*, Vol. 51 No. 11, pp. 71-4.

Allerton, H.E. (1998), "News you can use", *Training & Development*, Vol. 52 No. 2, pp. 9-10.

Alter, A.E. (1997), "Know-how pays off", *Computerworld*, Vol. 31 No. 2, p. 72.

Anthes, G.H. (1998), "Learning how to share", *Computerworld*, Vol. 32 No. 8, pp. 75-7.

Ash, J. (1998), "Managing knowledge gives power", *Communication World*, Vol. 15 No. 3, pp. 23-6.

(The) Banker (1997), "CSFI knowledge bank", *The Banker*, Vol. 147 No. 862, December, p. 15.

Bassi, L.J. (1997), "Harnessing the power of intellectual capital", *Training & Development*, Vol. 51 No. 12, pp. 25-30.

Black, D.H. and Synan, C.D. (1997), "The learning organisation: the sixth discipline", *Management Accounting*, Vol. 75 No. 10, London, pp. 70-72.

Blake, P. (1998), "The knowledge management expansion", *Information Today*, Vol. 15 No. 1, pp. 12-13.

Blake, P. (2000), "The future of knowledge management", *Information Today*, Vol. 17 No. 3, pp. 14-15.

Carrillo, J. (2000), *Managing Knowledge-based Value Systems*, http://www.cestec1.mty.itesm.mx/~laava/sdsit...ag_base/legados/sc-112_oct98/mono_x2.htm

Chase, R.L. (2000), *Knowledge Navigators*, http://www.sla.org/pubs/serial/io/1998/sep98/chase.html

Cole-Gomolski, B. (1997a), "Chase uses new apps to ID best customers", *Computerworld*, Vol. 31 No. 35, pp. 49-50.

Cole-Gomolski, B. (1997b), "Users loath to share their know-how", *Computerworld*, Vol. 31 No. 46, p. 6.

Cole-Gomolski, B. (1998), "Vendors cram knowledge-ware market", *Computerworld*, Vol. 31 No. 5, pp. 55-6.

Coleman, D. (1998), "Learning to manage knowledge", *Computer Reseller News*, Vol. 775, pp. 103-04.

Davenport, T.H., De Long, D.W. and Beers, M.C. (1998), "Successful knowledge management projects", *Sloan Management Review*, Vol. 39 No. 2, pp. 43-57.

DiMattia, S. and Oder, N. (1997), "Knowledge management: hope, hype, or harbinger?", *Library Journal*, Vol. 122 No. 15, pp. 33-5.

Duffy, J. (2000), "Knowledge management: to be or not to be?", *Information Management Journal*, Vol. 34 No. 1, pp. 64-7.

Edvinsson, L. (1997), "Developing intellectual capital at Skandia", *Longe Range Planning*, Vol. 30 No. 3, pp. 366-73.

Emery, P. (1997), "Knowledge management", *Inform*, Vol. 11 No. 10, p. 2.

Finerty, P. (1997), "Improving customer care through knowledge management", *Cost & Management*, Vol. 71 No. 9, p. 33.

Flamholtz, E.G. (1985), *Human Resource Accounting – Advances in Concepts, Methods, and Applications*, 2nd ed., Jossey-Bass Publishers, San Francisco, CA.

Fleicher, C. (1998), *Competitive Intelligence*, Seminar held at Graduate School of Management, Macquarie University, Australia, 18 June 1998.

*Forbes* (1997), "Knowledge management: the era of shared ideas", *Forbes*, Vol. 160 No. 6, p. 28.

Frappaolo, C. (1997), "Finding what's in it", *Document World*, Vol. 2 No. 5, pp. 23-30.

Galagan, P.A. (1997), "Smart companies", *Training & Development*, Vol. 51 No. 12, pp. 20-24.

Goodman, R.E. and Chinowsky, P.S. (1997), "Preparing construction professionals for executive decision making", *Journal of Management in Engineering*, Vol. 13 No. 6, pp. 55-61.

Gopal, C. and Gagnon, J. (1995), "Knowledge, information, learning and the IS manager", *Computerworld*, Vol. 29 No. 25, pp. SS1-7.

Grant, R.M. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation", *California Management Review*, Vol. 30 No. 3, pp. 114-35.

Gröjer, J.E. and Johanson, U. (1998), *Human Resource Costing and Accounting Time for Reporting Regulation*, Workshop Summary, No. 7. Work Life 2000, National Institute for Working Life, Stockholm.

Grönhaug, K. and Nordhaug, O. (1992), "Strategy and competence in firms", *European Management Journal*, Vol. 10 No. 4, pp. 438-44.

Guth, R. (1996), "Where IS cannot tread", *Computerworld*, Vol. 30 No. 4, p. 72.

Guthrie, J. (2000 forthcoming), "Intellectual capital review: measurement, reporting and management", *Journal of Intellectual Capital*, Vol. 1 No. 1.

Haanes, K. and Løwendahl, B. (1997), "The unit of activity: towards an alternative to the theories of the firm", in Thomas, H. *et al.* (Eds), *Strategy, Structure and Style*, John Wiley & Sons Ltd.

Hibbard, J. (1997), "Knowing what we know", *Information Week*, Vol. 653, 20 October, pp. 46-64.

Hibbard, J. and Carrillo, K.M. (1998), "Knowledge revolution", *Information Week*, Vol. 663, 5 January, pp. 49-54.

Hollis, M. (1994), *Philosophy of Science*.

Infield, N. (1997), "Capitalising on knowledge", *Information World Review*, Vol. 130, November, p. 22.

*InfoWorld* (1997), "Knowledge equals power", *InfoWorld*, Vol. 19 No. 46, 17 November, p. 116-19.

Itami, H. (1987), *Mobilising Invisible Assets*, Harvard University Press, Cambridge, MA.

Johanson, U., Eklöv, G., Holmgren, M. and Mårtensson, M. (1998), *Human Resource Costing and Accounting versus the Balanced Scorecard*, a Report to OECD, Working paper.

Kao, J.J. (1997), "The art and discipline of business creativity", *Planning Review*, Vol. 25 No. 4, July/August, pp. 6-11.

Keeler, J. (2000), "Track 5: social, behavioural, cultural and ethical factors, part 2", American Society for Information Science.

Keen, P.G.W. (1997), "Let's focus on action not info", *Computerworld*, Vol. 31 No. 46, 17 November, p. 100.

Kirchner, S.R. (1997), "Focus on: database integration and management for call centers", *Telemarketing*, Vol. 16 No. 2, August, pp. 22-4.

Klaila, D. (2000), "Knowledge management", *Executive Excellence*, Vol. 17 No. 3, pp. 13-14.

Koudsi, S. (2000), "Actually, it is like brain surgery", *Fortune*, Vol. 141 No. 6, pp. 233-4.

Laberis, B. (1998), "One big pile of knowledge", *Computerworld*, Vol. 32 No. 5, 2 February, p. 97.

LaPlante, A. (1997), "Sharing the wisdom", *Computerworld*, Vol. 31 No. 22, 2 June, pp. 73(2).

Løwendahl, B. (1997), *Strategic Management of Professional Service Firms*, Handelshojskolens Forlag, Copenhagen.

McKern, B. (1996), "Building management performance for the 21st century", *Practising Manager*, Vol. 17 No. 1, October, pp. 13-18.

Maglitta, J. (1995), "Smarten up!", *Computerworld*, Vol. 29 No. 23, 5 June, p. 84(3).

Mayo, A. (1998), "Memory bankers", *People Management*, Vol. 4 No. 2, 22 January, pp. 34-8.

Napahiet, J. and Ghoshal, S. (1998), "Social capital, intellectual capital, and the organisational advantage", *Academy of Management Review*, Vol. 23 No. 2, pp. 244-66.

Nerney, C. (1997), "Getting to know knowledge management", *Network World*, Vol. 14 No. 39, 29 September, p. 101.

Nonaka, I. and Takeuchi, H. (1995), *The Knowledge-Creating Company*, Oxford University Press, Oxford.

Ostro, N. (1997), "The corporate brain", *Chief Executive*, Vol. 123, May, pp. 58-62.

Papows, J. (1998), "The rapid evolution of collaborative tools: a paradigm shift", *Telecommunications*, (Americas edition), Vol. 32 No. 1, January, pp. 31-2.

*People Management* (1998), "The people factor", *People Management*, Vol. 4 No. 2, 22 January, p. 38.

Petrash, G. (1996), "Dow's journey to a knowledge value management culture", *European Management Journal*, Vol. 14 No. 4, pp. 365-73.

Piggott, S.E.A. (1997), "Internet commerce and knowledge management – the next megatrends", *Business Information Review*, Vol. 14 No. 4, December, pp. 169-72.

Polyani, M. (1966), *The Tacit Dimension*, Routledge & Kegan Paul, London.

Power, M. (1997), *The Audit Society – Rituals of Verification*, Oxford University Press, New York, NY.

Roberts, H. (1998), "The bottom-line of competence-based management: management accounting, control and performance measurement", presented at EAA Conference, Antwerp.

Roos, J., Roos, G., Edvinsson, L. and Dragonetti, N.C. (1997), *Intellectual Capital – Navigating in the New Business Landscape*.

Roos, R. and Roos, J. (1997), "Measuring your company's intellectual performance", *Longe Range Planning*, Vol. 30 No. 3, pp. 413-26.

Rutihinda, C. (1996), *Resource-based Internationalization*, Akademitryck AB, Stockholm.

Schaefer, M. (1998), "Eight things communicators should know and do about knowledge management", *Communication World*, Vol. 15 No. 2, February/March, p. 26.

Skandia (1995), *Value Creating Processes*, Supplement to 1995 Skandia Annual Report.

Stewart, T.A. (1997), *Intellectual Capital – The New Wealth of Organizations*, Nicholas Brealey Publishing.

Sveiby, K.E. (1997), *The New Organizational Wealth. Managing & Measuring Knowledge-Based Assets*, Berrett-Koehler Publishers, Inc.

Symoens, J. (1998), "Site server is a fine set of tools for Web site building", *InfoWorld*, Vol. 20 No. 4, 26 January, p. 128.

Warren, L. (1999), "Knowledge management: just another office in the executive suite?", *Accountancy Ireland*, December.

Watson, S. (1998), "Getting to 'aha'!", *Computerworld*, Vol. 32 No. 4, 26 January, pp. S1-2.

Yeh, J.-H., Chang, J.-Y. and Qyang, Y.-J. (2000), "Content and knowledge management in digital library and museum", *Journal of the American Society for Information Science*, Vol. 51 No. 4, pp. 371-9.