Knowledge management issues in knowledge-intensive SMEs

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Abstract

Purpose – The purpose of this paper is to present a study of knowledge management understanding and usage in small and medium knowledge-intensive enterprises.

Design/methodology/approach – The study has taken an interpretitivist approach, using two knowledge-intensive South Yorkshire (England) companies as case studies, both of which are characterised by the need to process and use knowledge on a daily basis in order to remain competitive. The case studies were analysed using qualitative research methodology, composed of interviews and concept mapping, thus deriving a characterisation of understandings, perceptions and requirements of SMEs in relation to knowledge management.

Findings – The study provides evidence that, while SMEs, including knowledge intensive ones, acknowledge that adequately capturing, storing, sharing and disseminating knowledge can lead to greater innovation and productivity, their managers are not prepared to invest the relatively high effort on long term knowledge management goals for which they have difficulty in establishing the added value. Thus, knowledge management activities within SMEs tend to happen in an informal way, rarely supported by purposely designed ICT systems.

Research limitations/implications – This paper proposes that further studies in this field are required that focus on organisational and practical issues in order to close the gap between theoretical propositions and the reality of practice.

Practical implications – The study suggests that in order to implement an appropriate knowledge management strategy in SMEs cultural, behavioural, and organisational issues need to be tackled before even considering technical issues.

Originality/value – KM seems to have been successfully applied in large companies, but it is largely disregarded by small and medium sized enterprises (SMEs). This has been attributed primarily to a lack of a formal approach to the sharing, recording, transferring, auditing and exploiting of organisational knowledge, together with a lack of utilisation of available information technologies. This paper debates these concepts from a research findings point of view.

Keywords Knowledge management, Small to medium-sized enterprises, Knowledge organizations, Knowledge management systems, England

Paper type Research paper

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Introduction

Knowledge management (KM) is one of the most used and at the same time controversial concepts, currently discussed in academia and the business world. Interest in KM stems from the realisation that organisational knowledge is a strategic corporate asset that needs to be generated, represented, stored, transferred, transformed and applied to future organisational problems (Schulttze and Stabell, 2004). Large companies and multinationals, such as Honda, Cannon, Matsushita, NEC, Sharp, Kao, Ford, PriceWaterhouseCoopers, Texas Instruments and HP, have long recognised the need for KM in order to respond quickly to customers, create new markets, rapid developing new products and handle emergent technologies (Nonaka, 1991). Consequently, KM practices are now considered as established practice in large organisations (Srikantaiah and Koenig, 2000). A major influence in this uptake has been convincing argumentation and marketing from:

- Hardware and software technology and service vendors who promote their products as a means of increasing corporations' efficiency and profitability. The assumption here is that IT systems can effectively facilitate codification and distribution of knowledge.
- Organisational learning and organisational development specialist who analyse both tacit and explicit knowledge in the organisation and make recommendations to increase company performance.
- Strategic and business management consultants (Prichard *et al.*, 2000).

Further, authors such as Davenport and Prusak (1998) and Coleman (1999) have promoted KM as a practice with implications beyond that of simply developing information and communication technology (ICT) infrastructures, with information sharing and retrieval potential. For example, according to Pollard (2003) the expectations are mostly of organisational gains in terms of:

- growth and innovation in organisations;
- productivity and efficiency (reflected in absolute cost savings);
- customer relationships;
- employee learning, satisfaction and retention; and
- management decision-making.

Nevertheless, early enthusiasm for KM now seems to be fading. As noted by Pollard (2003), "once the darling of business schools and business gurus, and the fastest growing area in Management Consulting", but there is now an accumulation of evidence of diminishing interest in KM, such as:

(1) budgets for KM have been slashed everywhere, and whole KM departments eliminated;

(2) many companies are now trying to outsource KM, no longer viewing it as a core competency;

(3) whereas at one time six of the top ten bestsellers at Books for Business were about KM, now very few KM titles even enter the list;

(4) writers are starting to predict "the death of KM" (Firestone, 2001b), lament "where did KM go wrong" (Grey, 2003) and even decry "the autism of KM" (Pollard, 2003);

(5) there are now fewer chief knowledge officers in *Fortune* 500 companies than there were five years ago; and

(6) half of the KM conferences scheduled in the past year in Toronto were cancelled for lack of interest (Pollard, 2003).

More importantly, while KM seems to be successfully applied in large companies, it is largely disregarded by small and medium sized enterprises (SMEs). This has been attributed primarily to a lack of a formal approach to the sharing, recording, transferring, auditing and exploiting of organisational knowledge, together with a lack of utilisation of available information technologies. However, this informality within SMEs and on projects can also be viewed as a strong motivation for adoption of KM, since it will affect dissemination and transfer of experiences and relevant knowledge to future projects and organisational development (Egbu *et al.*, 2004). Specifically, though, as in any global corporation, SMEs need appropriate and up-to-date knowledge in order to compete, they tend to be more susceptible to problems of high staff turnover and knowledge retention. Thus, this knowledge must be appropriately managed, disseminated and retained in the company. Consequently, even though KM processes are onerous in terms of both direct and indirect costs, the consequences for an SME of not maintaining those processes can potentially make the SME vulnerable to knowledge leakage and consequent losses in efficiency, productivity and competitiveness.

Despite the strength of the above argumentation, the lack of uptake of KM within SMEs suggests that they are currently not convinced of the advantages of adopting a KM strategy for innovative purposes and business growth. Kerste and Muizer's (2002) explanation for this is that for SMEs, acquisition of knowledge is only interesting if this knowledge can be easily obtained, disseminated and will result in pragmatic and immediate increase in efficiency, higher profit margin or competitive advantages. In other words, KM advantages have to be clear and easily attainable, otherwise SMEs will continue to focus on the traditional way of working. However, there is currently a sparcity of information available on KM in SMEs (McAdam and Reid, 2001).

This paper, presents preliminary results of a study that aimed at addressing the latter gap, by trying to understand current KM awareness, perceptions and requirements in SMEs. An interpretivist approach was chosen, as the aim was to acquire an in-depth appreciation of the understanding of KM and potential barriers to its use. Therefore, a questionnaire-based study was deliberately excluded in favor of a case-study approach. Before initiating the interviewing process, an exhaustive literature review was undertaken, in order to gain an insight into the above-mentioned debates and to establish an appropriate conceptual KM model for SMEs. Accordingly, the paper is organised into three main sections. A summary of the literature review is presented in the first, followed by a description of the research methodology and design. Finally, results are discussed and conclusions drawn.

Knowledge management characterisation

From the literature, definitions of knowledge vary widely. Furthermore, many articles in the KM field often confuse knowledge with information, as identified by Wilson (2002) and Firestone (2001a), and thus add to a certain degree of confusion and epistemological conflict. Starting from the basic, the *Cambridge International Dictionary of English*, defines knowledge as:

> . . . understanding of or information about a subject which has been obtained by experience or study, and which is either in a person's mind or possessed by people generally.

Post-modern schools of thought hold that "knowledge of the world is not a simple reflection of what there is, but a set of social artefacts; a reflection of what we make of what is there" (Schwandt, 1997). In other words, there is a meaning that people in organisations attach to acquired knowledge and information that is associated with their work practices and experiences, as well as their work environment and culture. KM therefore is management of such understandings, artefacts and information sources. However, this very generic definition will be interpreted by different individuals according to their perspectives, epistemological assumptions, and specialisation. Consequently, this definition would mean different things to different people. In fact, KM itself is not without contradictions at both epistemological and philosophical levels. Authors such as Wilson (2002) and Drucker as quoted by Kontzer (2001) discredit the concept of managing knowledge arguing that it is not possible to manage what is internally constructed by an individual. Knowledge as an internal construction is based on social, negotiation of meanings and interactions with the environment cannot be extracted, stored and managed.

> You can't manage knowledge. Knowledge is between two ears, and only between two ears. When employees leave a company, their knowledge goes with them, no matter how much they've shared (Kontzer (2001), quoted Drucker).

Types of knowledge

Nevertheless, and despite the more purist philosophical conceptualisations of knowledge, the literature in KM distinguishes different types of knowledge in order to be able to propose its management. Not negating the internal nature of knowledge creation and construction, KM authors prefer to focus on the nature of the captured knowledge that emerges from the process of knowledge extraction and acquisition. Wilson (2002) and most of the social constructivist and postmodernist philosophers would argue that once extracted this knowledge is but mere information and heuristics. Most KM authors do not intrinsically disagree with this, however they argue that if this knowledge exists in the organisation, namely "between [the] two ears" (Kontzer (2001) quoted Drucker, 2001) of its employees, then the KM process aims at extracting, representing, and acquiring this knowledge.

KM authors divide and typify knowledge in different ways. For example, some authors differentiate technical and strategic types, (Liebeskind, 1996). Grant (1996) proposes practical knowledge, intellectual knowledge (scientific, humanistic and cultural), pastime knowledge (news, gossip, and stories) and undesired knowledge. Garvin (1998) and Brown and Duguid (2000) focus on issues related to problem-solving knowledge in work practices and knowledge associated with coordination and tactical

issues. Finally, the more common characterization of knowledge is tacit knowledge, explicit knowledge and implicit knowledge (Srikantaiah and Koenig, 2000, p. 223; Nonaka, 1994; Nonaka and Konno, 1998; Cavusgil *et al.*, 2003).

Explicit knowledge

Explicit knowledge can be formalised and represented, and thus articulated in formal languages. This is the type of knowledge that most critiques of KM equate to information (e.g. Wilson, 2002). As information, explicit knowledge can be easily stored, retrieved, shared and disseminated within organisations. Some of the examples of explicit knowledge are found in commercial publications, e-mail, internet, GroupWare, intranets, database, organisational business records and self-study material (Srikantaiah and Koenig, 2000:11). The management of explicit knowledge usually includes the creation, generation or acquisition of that knowledge and should be supported by a number of information and communication technologies (ICT). According to Srikantaiah and Koenig (2000, p. 270) these include:

- codification and organisation;
- access and dissemination; and
- use and application.

Tacit knowledge

According to Ryle (1984, pp. 25-61), the distinction between tacit knowledge and explicit knowledge has sometimes been expressed in terms of knowing-how and knowing-that respectively; or in terms of a corresponding distinction between embodied knowledge and theoretical knowledge (Barbiero, 2002).

> On this account knowing-how or embodied knowledge is characteristic of the expert, who acts, makes judgments, and so forth without explicitly reflecting on the principles or rules involved. The expert works without having a theory of his or her work; he or she just performs skillfully without deliberation or focused attention. Knowing-that, by contrast, involves consciously accessible knowledge that can be articulated and is characteristic of the person learning a skill through explicit instruction, recitation of rules, attention to his or her movements, etc. While such declarative knowledge may be needed for the acquisition of skills, the argument goes, it no longer becomes necessary for the practice of those skills once the novice becomes an expert in exercising them, and indeed it does seem to be the case that, as Polanyi argued, when we acquire a skill, we acquire a corresponding understanding that defies articulation (Barbiero, 2002).

The term "tacit knowledge" was first coined by Polanyi (1958) and refers to hidden or non-verbalised intuitive and unarticulated knowledge (Cavusgil *et al.* 2003):

> . . . the idea that certain cognitive processes and/or behaviours are undergirded by operations inaccessible to consciousness (Barbiero, 2002).

More pragmatically, tacit knowledge can be described as experience that is embedded in an individual such as perspective and inferential knowledge. It includes insights, hunches, intuitions, and skills that are highly personal and difficult to formalize, and as a result are hard to communicate or share with others. Tacit knowledge therefore cannot be easily codified and thus is not readily transferable from one person to another. It can only be "learned" by close association over an extended period of time. The core differentiation between information management (IM) and KM lies in the

assumption that tacit knowledge forms the basis of intellectual capital of organisations (Srikantaiah and Koenig, 2000, p. 223) and needs to be expressed and managed. Traditionally, IM authors do not consider tacit knowledge in their frameworks and models and focus on explicit knowledge alone. Explicit knowledge is relatively uncomplicated, therefore, it is with tacit knowledge that KM enters into a new and unexplored field. According to Srikantaiah and Koenig (2000, p. 11) and Nonaka (1991) explicit and tacit knowledge have a symbiotic relationship where the each contribute or benefit from the other. In order for KM to be effective it is essential that both explicit and tacit knowledge are present in the organisation's infrastructure. This infrastructure may include benchmarking, training, sophisticated information technology and a basis of trust and will vary depending on the complexity of the organisation and its goals and objectives.

Implicit knowledge

Nevertheless the concept of tacit knowledge is not accepted without discussion by the opposing sides in the KM debate. In fact, Wilson (2002) distinguishes tacit and implicit knowledge as follows: "Implicit knowledge [. . .] is expressible; tacit knowledge is not". Thus tacit knowledge can be translated into workplace heuristics and mnemonics that become implicit knowledge, that is, implicit knowledge is knowledge which is hidden within procedures and management and work practices of the organisation. It may include human experiences, informal representations, such as images and visions and formal inferences from explicit knowledge.

Definition of KM

Thus, and in generic terms, the aim of KM practices is to maximize organisational and individual knowledge by extracting tacit and implicit knowledge and translating these into explicit knowledge, which then can be interpreted, represented, codified, stored, retrieved, shared and disseminated. Therefore, academics such as Srikantaiah and Koenig (2000), Sanchez (2001), Firestone (2001a) Nonaka and Takeuchi (1995), Howells (1996), Schulttze and Stabell (2004) as well as a well known number of multinational organisations and educational institutions have embraced the concept of KM. Not that these individuals and organisations reverted to a platonic objectivist view of the world, but because it is agreed that KM must include processes of interpretation, extraction, translation and acquisition of knowledge that are not usually included in traditional information management (IM). Nevertheless, it is undeniable as stated by Wilson (2002), that some KM use, both in organisations and educational institutions, has been synonymous to IM and IS and that in some cases KM has been promoted by consultants and companies through simple renaming of existing solutions and technologies.

In general, KM in organisations should be seen as the process of critically managing knowledge to meet existing needs, to identify and exploit existing and acquired knowledge assets and artefacts and to develop new knowledge in order to take advantage of new opportunities and challenges (Quintas *et al.*, 1997). In holistic terms, KM must be seen as a strategy to manage organisational knowledge assets to support management decision making. to enhance competitiveness, and to increase capacity for creativity and innovation (Zyngier *et al.*, 2004). In operational terms, De Jarnett (1996) proposed KM as a cycle that starts with "knowledge creation, which is followed by

knowledge interpretation, knowledge dissemination and use, and knowledge retention and refinement".

KM and knowledge intensive organisations

In relation to KM, Prichard *et al.* (2000) argue that in addition to interest and dissemination undertaken by the consultancy companies, KM has grown because of the emergence and reproduction of research from established academic institutions which gave the concept important credibility. But realistically, KM emerged mostly due to the era of downsizing that characterised the 1980s and early 1990s, when companies where aiming to achieve a leaner organisation with fewer employees, through outsourcing of services and systems. In addition to the reduction in the staff force, mergers and acquisitions where forcing employers to realise that the knowledge gained and developed over the years with their long-term employees was being lost through early retirements and redundancies. This phenomenon was particularly important for knowledge intensive organisations that were losing their chief assets when employees left.

As defined by Alvesson (1995, p. 6), knowledge-intensive companies as opposed to labour-intensive or capital-intensive companies are characterised by the following factors:

- significant incidents of problem solving and non-standardized production;
- creativity on the part of the practitioner and the organisational environment;
- heavy reliance on individuals (and less dependence on capital) and a high degree of independence on the part of the practitioners;
- high educational levels and a high degree of professionalisation on the part of most employees;
- traditional concrete (material) assets are not a central factor. The critical elements are in the mind of employees and in networks, customer relationships, manuals and systems for supplying services; and
- heavy dependence on the loyalty of key personnel and- this is the other side of the picture –considerable vulnerability when personnel leave the company.

Consequently, the potential loss of key personnel lead to the fear that the organisation could lose their competitive edge, which was dependent on the knowledge acquired and developed by these employees. This is particularly crucial for SMEs, which traditionally rely heavily on particular individuals and lack the recruiting capacity of large organisations. Realistically, this was the main reason behind the development and growth of KM concepts, models and systems. Companies soon discovered that there is a need for systems that enable the retention and exploration of knowledge developed in the organisation over time by these key personnel and to develop and establish methods which allow for the sharing of this knowledge (Prichard *et al.*, 2000, p. 3; Srikantaiah and Koenig, 2000, p. 11). Theoretically, and as defended by most KM authors, these knowledge acquisition, storing, retrieving and sharing processes should be seen as crucial and core by knowledge intensive companies, notably by SMEs. However, in practice, SMEs are still very reluctant in taking KM principles in their strategic thinking and daily routines (McAdam and Reid, 2001; Sparrow, 2000).

Methodology

Research aims and objectives

The main aims of this study were to investigate how knowledge is used, perceived and represented within a knowledge-intensive SME and to investigate understanding and perceptions of knowledge management.

Thus this study aims at more then just investigating the veracity of the arguments proposed by Wilson (2002) that KM was just another industrial fad where the concept of "information" was being searched for and replaced with "knowledge". The authors agree that it is important that knowledge is not confused with information or that they should not be used interchangeably. This study takes the view defended by Firestone (2001a) that what distinguishes knowledge from information "is the validation context of knowledge". Therefore knowledge is information that has being tested and validated by record or experience, which was provided by working practices as the validation process. The study aims at exploring the understanding of these issues by SMEs and the levels and depth of penetration of these ideas. Specifically, the study aims at exploring these issues in the context of knowledge intensive organisations as these seem to be ideally suited to the implementation and use of these concepts.

Methodology

Therefore this study seeks to understand the perceptions and perspectives of SMEs as a whole, as well as of the people within the organisations including the different sub-groups which may have developed shared meanings or perceptions. It was felt that yet another questionnaire survey would not provide the depth of exploration needed to understand these perceptions and consequently the study would not be served by a more positivist approach. A positivist approach, focuses primarily on the development of the technology as oppose to the perception and perspectives of the people involve in the development of the system. The interpretivist paradigm however, focuses on the understanding of the world as it is, as well as on an understanding of the social world from the level of individual subjective experiences. "It seeks explanation within the realm of individual consciousness and subjectivity, within the frame of reference of the participant as opposed to the observer of the action" (Burrell and Morgan, 1989, p. 28). Thus, in the case of this research such an interpretivist approach was needed in order to enable the understanding of the social world of the SMEs being studied, as well as the acquisition of an understanding of the subjective experiences of individuals in the organisations, including the individuals' consciousness and subjective perceptions as proposed by Mason (1997, p. 4).

There are a number of fundamental motivations for adopting an interpretivist approach to this study. These primarily were:

- It addressed qualitative issues aimed at producing an understanding of the social contexts and the social processes of the organisations into which the study has been conducted.
- It supports the acquisition of knowledge and understanding of complex social phenomena in human activity systems, namely to understand the sociological aspects in KM as it focuses on human thought and action in social and organisational contexts.

- Interpretivist research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as the research proceeds (Galliers 1992).
- Interpretivist research deals with the abstruseness of research in complex human activity systems under enquiry (no repeatable experiments, continuously evolving systems composed of a myriad of different motivations, behaviours and constraints).
- Interpretivist research tries to understand all the nuances of the phenomena at issue, in order to obtain clarification and insight of the situation. Positivist research, however, is inappropriate when the phenomenon under scrutiny is ill defined. Therefore interpretive research can demystify the phenomena being studied, leading the way for positivist research to be conducted more perceptively.

Research design

Two knowledge intensive SMEs, within the South Yorkshire region, were selected as case studies. Interviews were used as the data collection method and this consisted of three sets of interviews for each company (these companies will be referred to as Company A – which operates within the UK and Europe and has 18 employees – and – Company B – which is active worldwide and employs 75 employees). Interviews were conducted with the CEO, operational manager and the technical staff for each company. Interviews were selected as the method of data collection as it would enable frank, anonymous and face-to-face exploration of issues with the interviewees. It was expected that the interviews would provide the research team with a chance to probe and delve deeper into the subjective perceptions and understandings of the interviewees, here, an amalgamation of specific, reflective, hypothetical and leading questions were used to further explore the responses as proposed by Keats (2000, p. 35) and Warwick (1984, p. 7).

In order to design the interview script, a KM model for SMEs was developed from the literature. A number of KM models where examined to determine the most applicable to the study. Particular attention was paid to Prichard *et al.* (2000) McAdam and McCreedy (1999) and Smith *et al.* (2003). However, it was decided that these models do not singularly and adequately represented the KM process within the organisational setting selected. Base on this observation it was decided that a combination of the models would be more accurate in representing these processes as illustrated in Figure 1. This figure presents KM in its organisational context and in the bottom part a more detailed elaboration of KM as a process.

The interviews were led in-loco in the organisations. Immediately before the start of the interview, interviewees were guaranteed anonymity and provided with an "*aide-mémoire*" that contained an explanation of the main KM terms that could emerge in the discussion. The *aide-mémoire* was then discussed with the interviewee to ensure that both the researchers and the interviewee had an appropriate understanding of the expectations, focus and the direction of the interview. The interviews were followed by research focus group discussions with the entire research team aiming at building a common understanding of the results obtained and fine tuning the interview scripts accordingly.

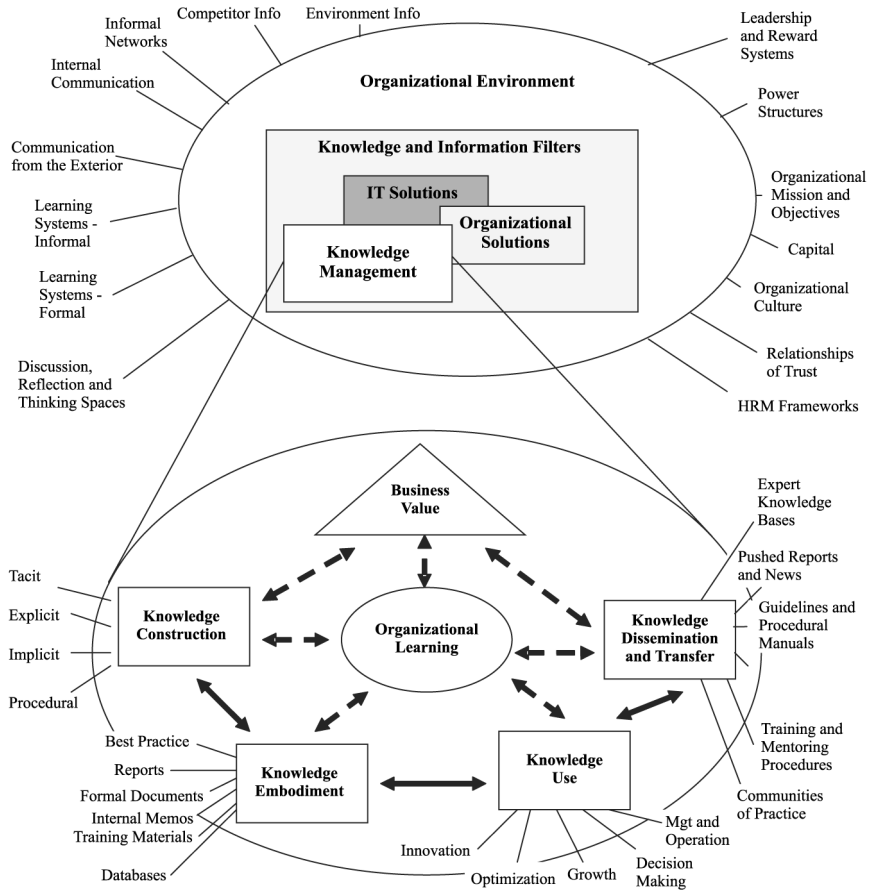

Figure 1.
The knowledge intensive KM (KIKoM) model

Source: Adapted from McAdam and McCreedy (1999), Prichard *et al*. (2000) and Smith *et al.* (2003)

The interview data collected was transcribed and subsequently analysed. The analysis was performed by interpretation and coding of data and representation through concept maps. Interview transcript coding did not follow phenomenography or grounded theory approaches. In fact, rather then letting codes emerge without an explicit theoretical stance, this study used the model in Figure 1 to frame both the different interview scripts and the coding of the transcripts. In order to conduct the coding, a main concept characterisation was defined a priori. This characterisation was based on the following key concepts that are represented in Figure 1: knowledge construction, knowledge embodiment, knowledge use, knowledge dissemination, business value and organisational learning. Nevertheless, and as the results of transcript analysis, one extra key concept did emerge from the discussions and was added at the analysis phase: knowledge management barriers. The final concept characterisation was thus based on these seven key concepts included further elements, systems and subsystems. These served to provide finer levels of detail and

define interrelationships. This characterisation was then represented through concept maps. These maps were used, as they are useful exploratory tools and an efficient method to share, discuss and represent qualitative data. They also formed an essential role in scaffolding the rhetorical presentation, description and discussion of data that forms the findings of this study. In sum the interview process, transcript analysis and concept map development was done according to the following framework:

(1) definition of the theoretical stance/model;
(2) selection and definition of key concepts;
(3) design of the interview scripts accordingly;
(4) conduct the interviews in the selected organisations;
(5) transcription of the interviews;
(6) representation of each individual interviews using concept maps according to the hierarchy of elements, systems and subsystems;
(7) clustering of elements, systems and subsystems into the key concepts by merging the different individual interviews;
(8) consequent re-arranging of interdependencies and relationships; and
(9) interpretation of key concept maps and formulation of findings.

Consequently, six individual concept maps were produced. The example in Figure 2 illustrates the complexity of the findings and the richness of the interview responses. Irradiating from the centre are the seven main concepts, which then are characterised by their main elements, which in turn are linked to actual organisational implementations. These were then merged into seven key concept maps that reflect a holistic view, rather then individual stances. The findings of this study emerge from these seven key concept maps and were consequently divided into seven sections.

Discussion of findings

Findings of interpretivist research are usually presented in rhetorical form. The findings presented below were constructed using concept maps as the scaffolding tool and quotes from the interviews as anecdotal evidence to qualify the argumentation.

Business value of KM

The analysis of the interviews conducted indicates that owners/managers of SMEs do not perceive KM as a business critical function. While both companies collect and store explicit knowledge in the form of training materials, newsletters, databases, company's web site etc, they do not seem to make active use of them as a source of knowledge. As a result very few employees actually bother reading or searching for information from these sources. According to one interviewee "the information is shared, but I don't think sharing of information is made use of by everyone" (TD Company B). This reveals lack of understanding of the value of knowledge in competition, innovation and even survival by both managers and employees.

> We honestly don't lie awake at night and worry about it [KM]. We have got lots of things that are going on that yes individually could be better in our moving the right way (MD Company A).

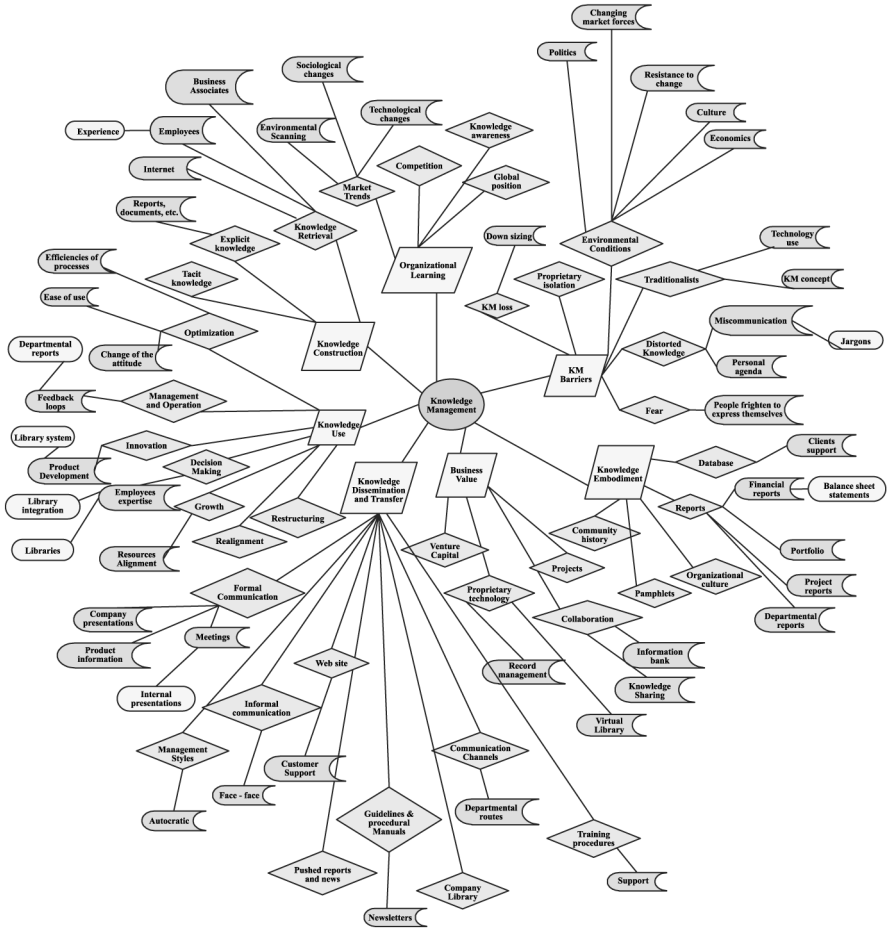

Figure 2.
Company B, interview with CEO

Consequently, management perception of KM in these companies – where KM is not seen as a business imperative or even as a priority – has had a waterfall effect on the employees. In fact, the pragmatics of competition and survival and very hard business environments result in short term thinking and planning, as so cogently stated the managing director (MD) of Company B:

> I am management and I am focused on what invoices are we going to get through the door this month, what sales we are going to make this month. Those are the top of my list. Next down the way is what cash is going to come in this month. Those are the top three priorities further down the list come things like are we going to release the next version of the product on time and where is next month sales going to come from and that settle those set of priorities. [. . .] So I am thinking what is going to generate business for me in 18 months time (MD Company B).

This short-term thinking is not conducive to the devising of long term sustainable KM strategies. KM is perceived to be useful, if only there was the time and the funds to

invest in it. Actually, and quite surprisingly, it is not the even the complexity of KM in itself that represents a barrier to implementing it:

> It all boils down to the fact that it is long term investment and long term investments are always lower priority than short term investment and the stuff that I talked about I don't think it is difficult to do. I don't think it will cost me any money but it will cost me my time and I generally spend my time getting cash in the bank this month. What time is left after doing that, you generally spend on doing long term strategic but there is generally no time MD Company B).

Curiously, KM is recognised as crucial in avoiding knowledge leakage in businesses that traditionally have very high staff turnover and are highly dependent of knowledgeable employees:

> If knowledge is inadequately captured in peoples head then the knowledge walks out the day the people walked out whenever somebody leaves . . . if anybody becomes a unique source of knowledge, we move them away from that position. three or four years ago we would have a problem were a person if he walked out it would be a problem, but now if he walked out it still wouldn't be a problem other than a skilled person is gone his unique knowledge has been captured by other people so we have a KM strategy in that sense to make sure nobody has or is carrying unique knowledge in their head (MD Company B).

Therefore it became apparent that, although not having any explicit KM strategy, both companies have guidelines and implicit strategies to deal with KM issues:

> We got a procedure or working instructions for managing paper files, electronic files, file structures on the computer, database structure, have we got a systems strategy, have we got IT policies and all that sort of stuff, yes absolutely we have all that. [. . .] but we don't call it a KM strategy (MD Company A).

Knowledge construction and knowledge embodiment

Knowledge acquisition and embodiment was perceived as a crucial task by all interviewees. Curiously, they all agree that knowledge could be better managed and stored within the organisation and this could probably result in greater innovation and profitability.

When asked whether explicit knowledge was adequately captured in their organisation the response was mixed from within both companies. The CEOs from both companies believed that enough had been and is being done in capturing knowledge that is necessary to support business processes. Both CEOs would frequently refer to the number of databases, websites, reports and presentations and meetings that take place within the organisation.

> Well it is all sorts of places, some of it is in people's heads; some of it is in material we have, in other words news letters from customers, research documents, reports background documents all that stuff which are generally stored if we can electronically either by client or client group or sometimes by product so for, e.g. if we had a research paper on assessment centres that was going to be helpful then this will be on the system under intellectual property bit of the database of the data files. If it was something about the DTI or the small business services then it would be under the business services client folder as a background paper or the latest new organisation or whatever and there might be some – let me choose my words carefully – there might be some under the client relationship management database. If I am to

> be very honest I would say there is a lot less of that than else where because got quite a lot file structure or client structure so you can find stuff most of the time (CEO Company A).

However, by simple analysis of this statement, it is clear that key concepts (e.g. folder and database) are being confused and used interchangeably and that at the same time there is no clear and consistent strategy or infrastructure to capture and store important explicit knowledge. Therefore, it was no surprise to find that MDs and TDs of both companies disagree with the optimistic view of their CEOs.

This disappointment became quite apparent from the statements of the MD of Company B that stated: "we have people lower down the organisation who meet with customers who discuss requirements about what they want and from that we could be gathering all sorts of ideas about how our product should go forward. There is no formal channel to bring all that together and to decide what our product strategy is we have a product strategy and we have a market strategy but there is no link". This shows a clear lack of communication strategy and of knowledge acquisition that could imply severe risks in terms of understanding of the business environment, customer relationships and needs, as well as loss of business opportunities and innovative thinking. This may be crucial in terms of a SME, as not taking advantage of potential opportunities and losing touch with the business environment may not allow the company the necessary flexibility and agility and therefore reduce business growth, competitiveness and even survival chances.

On the other hand, when asked about tacit knowledge, all interviewees agreed that this type of knowledge was inadequately captured and managed within their companies. It was generally accepted that this was a problem, as was very clearly put by the MD of company B:

> Inadequately captured in peoples' heads and this knowledge then walks out the day the people walked out – whenever somebody leaves (MD Company B).

In fact, the MD of company B goes further to state that "the knowledge that really matters is in people's heads". But as admitted by all, this is the type of knowledge that is more difficult to capture and manage. Without a systematic effort, an effective reward system and a persistent strategic drive to encourage employees to express tacit knowledge, it was recognised that it is virtually impossible to do so.

> From our limited experiences so far its the good old garbage in garbage out isn't it? Because if people aren't adding things properly, or summarising them properly, or making sure they are filed the way the system required them to be filed, then guess what? We can't drag them back out again and consultants are notorious for being very bad at finishing things off. They would get to the end of the job and trot off to the next one and leave the files and reports in an appalling state and I think that is where we would fall down here. Everyone has the best intentions and talk enthusiastically about it and yet it wouldn't [...] work and that's the reality of it. As much as I could scream and bang the table it might go alright for a minute and then it would decay again and I have better things to do than to rush around getting people to fill the [...] file form or what ever it was. So we need something that is easy to do and easy to use that is more smart than just search on words (CEO Company A).

This clearly indicates two very comprehensible reasons for the difficulties in capturing tacit knowledge. On the one hand, processes and tasks that try to translate tacit knowledge into explicit embodiment need to be clear, reasonable and realistic as well as accepted by the employees. On the other hand, an understanding of the benefits of

these additional tasks, possibly perceived as not crucial, must be sold to the employees and an appropriate reward system needs to be put in place. It is clear that otherwise, no amount of pressure will suffice. This is recognised by the MD of company B by admitting that:

> I think the barrier in getting internal knowledge [referring here to tacit knowledge] is actually getting the significance of it appreciated (MD Company B).

Knowledge use, knowledge dissemination and organisational learning

It clearly emerged from the interviews that a sound technological infrastructure was in place that theoretically would allow for efficient knowledge use and dissemination.

> For Office 2000 we use it for internal budgeting and day-to-day office use mostly. The software which is mostly used is office 2000. We also use Mind maps to put ideas down. We use Visio to make diagrams and flow charts of the procedures. We use Tempest Pro for the recording of our time, how we spend our time. There is a software we have been using called CRM which we use to record all conversations and correspondents with our clients. It records also our client contact details (TD Company A).

However, it was also obvious from the interviews that the mere availability of ICT infrastructures does not necessarily mean that knowledge is shared and disseminated throughout the organisation. This fact is highlighted by the TD of company B:

> The information is shared but I don't think sharing of information is made use of by everyone. So the policy is to make sure that everything I've got is made available to people and let them know it is there. If they then choose not to take advantage of the fact that the information is there then that is up to them but they cannot complain about not being told about things. You get this straight across the organisation some people make good use of it and know what is going on everywhere some people don't do it at all. I think you find that everywhere it is more of a personality thing rather than an organisational procedural thing (TD Company B).

In fact, and by analysing this statement more carefully, it is evident that there is also confusion between the concepts of availability of knowledge and sharing and dissemination. These are not synonymous and in reality sharing and dissemination require a carefully planned and implemented strategy to be successfully implemented. This needs to be more than "everybody talks to each other" (CEO Company A). Without such a strategy organisational learning is not a systematic process and knowledge sharing is at most haphazard. Despite recognising that "the informal communication around the coffee machine works very well", the MD Company B went on to admit that "we are reinventing the wheel in three different parts of the world, just in a 75 employee company". His own CEO had also previously recognised that "knowledge is everything in that sense. Having the right information/knowledge is crucial and sharing it is crucial", before surprising us by using the famous quote by Lew Platt, former CEO of Hewlett-Packard: "If we knew what we know, we'd be three times as profitable!" This same CEO then provided a response to this apparent paradox:

> It is going to take you a good month of thinking and work out how you are going to do it. A month's investment is nothing but it requires a month of senior management time – a month of my time and that is going to take a year to get (CEO Company B).

Knowledge management barriers

In terms of SMEs and despite the knowledge-intensive nature of the two companies studied, two main reasons were cited for management resistance to KM. The first is associated with the already discussed syndrome that "long term investments [meaning investment of management effort] are always lower priority than short term investment". The second reason cited by almost all stakeholders interviewed is related with the difficulties in obtaining a "believable Return on Investment case" (MD Company B).

Without resolving these two main barriers, all other inherent problems of KM implementation become secondary. If SMEs, symptomatically knowledge intensive SMEs, are not convinced of any immediate benefit of KM, the main question to be resolved by proponents of KM will have to be that posed by the CEO of Company A:

> My question would be what decision drivers would make me invest people and resources into making my business better – not just KM, because I wouldn't just sit here and think I need to make some decisions about KM. I would be thinking about how I make decisions to run my company and our performance, which would then obviously involve the use of knowledge, but I would not start from there (CEO Company A).

Conclusions

It is widely acknowledged in the academic milieu that all organisations, both large and small, require efficient KM in order to maximise their competitiveness and survival chances in the modern information society. Large organisations have readily adopted KM principles and its inherent business value by adapting organisational strategies and use of ICT. These large organisations, normally multinationals as described by Davenport and Probst (2002), generally implement KM systems which typically take advantage of explicit knowledge represented in the form of documents and other files uploaded to a central repository. Such companies also make significant efforts to try and elicit tacit knowledge from work procedures and heuristics. However, the latter form of knowledge is not easy to capture and represent. The reality of this approach is that it requires a considerable investment in both time and resources to implement. Classifications, hierarchies and ontologies have to be established and corresponding documents classified, indexed and uploaded.

SMEs, including knowledge intensive ones, cannot afford this investment and have difficulties in establishing a credible business value to KM. This study uncovered evidence that while acknowledging that adequately capturing, storing, sharing and disseminating knowledge could lead to greater innovation and productivity within their organisation, managers are not prepared to invest the relatively high effort on long term goals for which they have difficulty in establishing the added value. This seems to stem from pragmatic concerns related to competition and survival in highly unforgiving and competitive business environments. This organisational culture and management style in SMEs in clearly explained by the CEO of Company A:

> Actually the most important part of this business is getting the business and living the business and all the other stuff is there to keep it going (CEO Company A).

Therefore, though it became clear from the interviews that there is a strong need to create, share and disseminate knowledge within SME's, this is clearly not related with the availability of ICT infrastructures. In fact, KM in SMEs tends to happen in an

informal way, rarely supported by purposely designed ICT systems. In order to implement an appropriate knowledge management strategy in SMEs, cultural, behavioural, and organisational issues need to be tackled before even considering technical issues. Further studies in this field should focus on the former issues in order to close the gap between theoretical propositions and the reality of practice. This may help mitigate the syndrome that "we don't think about it the way you academics do" (CEO of Company A) and reinforce the feeling that academic contributions "might [. . .] enthuse me to think about it a little bit more" (CEO of Company B).

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