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Dilemmas in Knowledge Management

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Purpose: This paper discusses some of the debates that have surrounded Knowledge Management as a field since its inception in 1990s from the perspective of the dilemmas that they have raised regarding: i) the notion of Knowledge Management as a field in relationship to other cognate fields such as Information Management; ii) the implications introduced by different approaches and perspectives on managing knowledge.

Methodology/Approach: Problems and dilemmas brought about by the contribution of the following perspectives and strands of literature on Knowledge Management are discussed:

- Organisational behaviour perspectives;
- Strategic management perspectives;
- Economic and accountancy based perspectives.

Findings: The explicit aim attributed to Knowledge Management by many authors of managing the transfer of tacit knowledge into explicit knowledge raises dilemmas that are re-enacted and reconstructed in the above key approaches to Knowledge Management.

Originality/value of paper: Beyond focusing on the classical debate on the nature of knowledge and whether it can be managed, these dilemmas offer avenues for reconsidering both the conceptual apparatus and the practical organisational intervention methods inherent to this field; this implies adopting different views and professional practices over what we understand by management, strategy, measurement and evaluation.

Type of paper: Literature review

Keywords: Knowledge Management, Information Management, Organisational Learning, Core Competencies, Intellectual Capital

Introduction

The role of knowledge as a source for economic and social growth is not new and back in the late 19th century Marshall stated: “*Capital consists in a great part of knowledge and organisation... Knowledge is our most powerful engine of production.*” (Marshall, 1890, *The Principles of Economics*, quoted in Quintas, 2002). This raises the question of why is it that Knowledge Management has emerged only recently, both as a management discourse and set of management practices and as an academic field of inquiry that claims autonomy from other related fields, such as information management?

The notion of Knowledge Management started to be debated in the literature around the mid and late Nineties (Scarborough and Swan, 2001) and its emergence has raised an interesting debate on how it may relate to pre-existing fields and schools of thought, as exemplified by Wilson’s (2002) discussion of its relationship to information management and Scarborough and Swan’s (2001) discussion of its relationship to research traditions on the learning organisation. Much of the debate has been focused on two fronts: i) discussing the meaning of concept of knowledge management and ii) questioning whether it represents a new field or constitutes a fashion based re-badging of well established concepts and practices.

This paper discusses some of the debates that have surrounded knowledge management as a field since its inception in the mid 1990s from the perspective of the

dilemmas that they have generated. As stated by Vasconcelos, Ellis, Pieters and Chavda (2001:719): “[T]he fundamental character of a dilemma is that it offers alternatives that are unacceptable in different ways. In terms of measurement, the dilemma is represented in physics by the uncertainty or indeterminacy principle, which states that there is an inescapable trade off between the precision of measurement of the position and momentum of a particle”. Discussing disciplinary and field related developments from the perspective of the dilemmas they may generate is not new and we can find examples in this area in Ellis (1996), on an exploration of dilemmas in measurement in information retrieval, in Vasconcelos, Ellis, Pieters and Chavda (2001) on similar dilemmas in the measurement and evaluation of intellectual assets and more recently Schultze and Stabell (2004) discuss the contradictions raised by different theoretic lenses adopted in knowledge management. The intention in this paper is to discuss the dilemmas raised i) by the notion itself of managing knowledge *vis-à-vis* other cognate fields, in particular information management and ii) within some of the different approaches to managing knowledge.

Information management and knowledge management: a continuum of value added or terminological inflation and re-badging?

Becher (1989) notes that change in disciplinary developments often involves the re-labelling of areas of work and the redoing of their history. Becher refers to various examples where different fields have re-labelled themselves in an attempt to assume a more attractive identity – for example, functional morphology turned into biomechanics; in mathematics, analysts became successively, classical analysts, functional analysts and hard analysts. However, as he notes, what is at stake is often more than terminological change and may involve a change in focus or even a shift in paradigm. Bourdieu (1984) refers, for example, to how philology was overtaken by linguistics, representing a shift in thinking in the study of language.

The emergence of Knowledge Management as a field that claimed a different identity from other related fields raised various questions. In effect, the idea of managing knowledge raises difficult issues in itself and Alvesson and Karreman (2001) refer to it as an “*odd couple*” and conceptually a contradiction in terms. Wilson (2002) goes further in considering that what Knowledge Management has to offer is based on a flawed version of the offerings of Information Management, arguing that we can only manage what has been externalised and represented through information: the knowledge that is captured and represented in physical artefacts becomes information and what is managed is nothing but information. He proposes that Knowledge Management is an umbrella term for a variety of practices that are not based on managing knowledge. In his view, the term Knowledge Management rests on two pre-existing areas of practice and disciplinary fields: the management of information and the management of people. This view is consistent with the original approaches to Knowledge Management, rather prevalent in the offerings of consultancy and technology providers, that was essentially focused upon the provision of IT services to support organizational needs.

Part of the arguments which present Knowledge Management as a much hyped version of practices that have been in place for a while in organisations focus, as mentioned by Davenport (1999), on the:

- similarity between knowledge resources in the newly designated knowledge management systems and traditional information resources;
- fact that IT tools and applications used to manage knowledge have been previously used for managing information resources;
- overlap, to some extent, between the literatures of the two fields, at least between information management and the earlier knowledge management literature, between c. 1997 to 1999.

More recently, however, other developments are referred to in the literature and in management practices. Other authors (Scarbrough and Swan, 2001, Alvesson and Karreman, 2004; Ellis, Vasconcelos and Rogers, 2004) argue that, whilst the meaning of the expression of managing knowledge is somewhat incongruous and conceptually flawed, there is a set of practices and a significant bulk of literature whose main concern is somewhat different from previous practices that were centred around Information Management.

The first key issue in terms of the dilemmas presented by Knowledge Management is therefore whether Knowledge Management differs from previous concepts and practices or whether it represents the mere re-badging and re-labelling of these pre-existing fields and practices. The origins of this dilemma lie in the explicit aim adopted by many Knowledge Management authors of addressing and managing the transfer of tacit knowledge into explicit knowledge. Its key proposition is that the source of competitive advantage and organizational success lies in tacit knowledge which needs to be converted into explicit knowledge in order to be managed (Schultze and Stabell, 2004).

In this paper, it is argued that the *foci* and conceptual referents of both academic and practice based discourses on Knowledge Management differ from those that have been deployed by the original Information Management communities. The remaining of this section analyses some of these referents through key themes in the literatures of both Information Management and Knowledge Management.

Information Management (IM) is an established field which deals with the practical implications of managing information. It is often viewed as a spin-off of management theory, although it imports many of its concepts, techniques and tools from a variety of fields, ranging from accountancy, computing, library studies, linguistics to organisational psychology and sociology. The origins of the term 'information management' date to 1977, when it was used by the US National Commission on Federal Paperwork to refer to the need to rationalise the huge volume of files and records (including those in electronic format) which existed throughout the Federal Administration (Wilson, 1997). The work of the Commission was prompted by the awareness that there was no effective record and tracking system for this huge volume of information, resulting in duplication, misplacement, loss or overload of information. The main reason and rationale behind this concern was to reduce the

costs incurred in producing, disseminating and storing this information. These activities led to the Federal Act on the Reduction of Paperwork. As commented by Wilson (1997), it is ironic but not surprising that the first formally recognised as such information management set of activities was an attempt to reduce the volume of information. The initial concern of the Commission towards reducing the amount of information was, however, soon directed towards the management of wider issues of information requirements planning and to information control, accounting and budgeting (Wilson, 1997).

Interestingly, the notion of information management was also a focus of debate at the time, as it can take many flavours depending on whether one adopts a library and information studies, a computer science or business and management studies perspective (Wilson, 1997). Also its designation and that of Information Resources Management are often used interchangeably. Some authors (Wilson, 1997) and professional associations, such as CILIP, consider that, though, strictly speaking, there are conceptual differences between the two.

The UK Information Resources Network (under CILIP- the Association for Information Management) proposes that the sphere for Information Management activities is co-ordinating the relationship between organisational objectives, management processes and information needs, with a view to define and formulate information policies and strategies. In turn, Information Resources Management activities relate to the application of general resources management principles to information entities (often tangible information entities) with a view to i) establish ownership, accountability and responsibility; ii) determine costs and values and iii) promote effective and efficient development and exploitation.

In this sense, Information Management takes a macro view of the organisation and of its information environment to define information policies and strategies, in order to address organisational objectives, whereas Information Resources Management is focused on the management of specific information resources, in order to address information needs of different organisational users.

Key themes in Information Management from overviews provided by Wilson (1985, 1997, 2002) have been:

- i) the identification of organisational objectives and the establishment of correlated information needs;
- ii) the audit and diagnosis of information environments, in order to identify existing information resources, as well as gaps between information needs and resources and duplications or inefficiencies in handling information;
- iii) the provision of adequate information resources to specific organisational groups in order to fulfil information needs prompted by the pursuit of organisational objectives
- iv) the valuation of information resources and information handling activities;

- v) the definition of information policies and strategies and of issues in implementing the policies and strategies.

Information Management appears, therefore, to be closely related to dealing with tangible information entities and to focus on tangible representations of information and on the rational management of these information resources, in order to address organisational needs and support organisational objectives.

The original and technologically centred developments on Knowledge Management seemed to have a similar focus. More recent developments, however, tend to adopt a different perspectives. They are geared towards supporting and managing competences. They propose a clearer focus on managing people and their expertise. There is also a distance from a very rationally focused view of organisations and issues such as dealing with power, conflict, influence and organisational culture are central to Knowledge Management approaches. Many authors agree that the notion of Knowledge Management is very open ended and that organisations are using a variety of approaches to support knowledge management which are very diverse in nature. Some technically centred approaches range from relatively simple relational database systems through to intelligent systems. Others rely less on technology, but aim to facilitate social interaction in order to leverage pre-existing knowledge in organisations, particularly those that are geographically diverse. Other approaches focus on the management of intellectual capital through the development of complex metrics and indicators.

In order to make sense of this diversity, several authors have devised different taxonomies to categorise approaches to Knowledge Management (Binney, 2000; Earl, 2001; Land, Nolas and Amjad, 2004). Earl (2001), in particular, surveyed a number of companies and from this drew up a classification or taxonomy of the type of knowledge management approaches he found. Although his study was focused around approaches to knowledge management, there is, as discussed below, strong overlap between some of the knowledge management approaches identified and categorised by Earl and previous approaches to Information Management.

He identified seven schools of Knowledge Management organised into three groups. The first group, termed the technocratic group comprised the systems, cartographic and engineering schools. Earl claims that "*they are based in information or management technologies which largely support, and to different degrees condition employees (or knowledge workers) in their everyday tasks.*" (Earl 2001: 218) The key word here is *everyday*, as the focus of the activities in these schools is the assistance of the worker in the pursuit of their duties. There is less emphasis on managerial or strategic issues. Most of these technocentric approaches are, in effect, information management focused. The second category, the economic category, has its emphasis is on the exploitation of knowledge and an economic resource. The third category is the behavioural group contain the organisational, spatial and strategic schools. These schools are based on social interaction and organisational behaviour approaches.

An analysis of some of the literature following these avenues points towards following key themes, the first three of which will be further analysed in the following section:

- i) the organisational behaviour perspectives: organisations as dynamic learning environments, communities of practice and informal learning and interaction and underlying issues of organisational politics and culture, which relates to strands of literature on the learning organisation, dating back to the 1970s;
- ii) the strategic management perspectives: the management of core competencies, synthesizing several other strands of literature, some dating back to the 1950s, such as the resource-based view of firms, but also including developments stemming back from the organisational learning and the economic environmental change literatures;
- iii) the economic and accountancy based perspectives: social and intellectual capital valuation;
- iv) the technocentric perspectives: the use and relevance of underpinning ICTs and of information and knowledge management systems; as mentioned above, these approaches, by nature overlap to large extent with some information management approaches and will not be discussed in detail in the following section.

These diverse *foci* suggest that there is a difference between the concerns, referents and discourses of Knowledge Management approaches. Alvesson and Kärreman (2001), while remaining critical of the choice of the term Knowledge Management, concluded that some of the new developments under the general umbrella of Knowledge Management have had a positive effect in rejuvenating approaches that are concerned with the emphasis on people, expertise and organisational learning that, ironically, had been largely undermined by previous rationalistic approaches to managing organisations, such as Total Quality Management and Business Process Reengineering.

Nevertheless, the relationship between Information Management and Knowledge Management remains “[...] *as one of uneasy tension*”, but “[...] *although the two approaches differ in their conceptual underpinnings and may be polarised in their debates, it is possible to argue that the approaches are symbiotic (depend on each other)*” (Ellis, Vasconcelos and Rogers, 2004: 2-3). Bourdieu (1984:150, our translation), in effect, also concedes, in this respect, that different disciplinary approaches are not necessarily monolithic in their opposition, but are bound by relationships of complementarity and complicity, referring to them as “*complicitous opponents*”. In this sense, different academic arenas will be defined by the interplay between complementary or contrasting orders of discourse, depending upon their degree of convergence and divergence. A potential way of looking at these issues in the context of the debates on Knowledge Management may involve considering that, while information is inherent to many different contexts of social interaction, knowledge generation deployment is an internal individual process. In this sense, we cannot consider knowledge in itself manageable, but we may accept that there are ways of leveraging its use in organisations, through the management of people. In this sense, the idea of managing knowledge through people introduces different dimensions to classic information management processes and a wider and more

ambitious scope. The following section discusses these different dimensions and some of the dilemmas they give rise to in more detail.

Dilemmas in introduced by different approaches to Knowledge Management

As mentioned in the previous section, the explicit aim adopted by many Knowledge Management authors of addressing and managing the issues involved in the transfer of tacit knowledge into explicit knowledge lies at the core of the debates on Knowledge Management. Schultze and Stabell (2004:551) state that this core aim “[...] *of managing tacit knowledge*” raises an apparent contradiction that is not inherent to the nature of tacit knowledge but instead to how it is constructed by different discourses on knowledge management. They categorise these discourses into a framework that includes an epistemological dimension and a social order dimension, following the classical four paradigms framework by Burrell and Morgan: the dialogic discourse, the critical discourse, the constructivist discourse and the neo-functional discourse. They acknowledge, however, that there are very few examples of the critical and dialogic traditions.

We could add to this, as do Allen and Ellis (1999, 2000), that the deployment of the framework developed by Burrell and Morgan is problematic in itself, as they employ the notion of paradigm in the sociological sense, as a school of thought, rather than in the philosophical sense (as pre-existing exemplars that underlie the conceptualisation of issues), while advocating paradigm incommensurability at the philosophical level. The uncritical adoption of views over paradigms and the entrenchment of positions in the paradigm in other fields, such as Information Systems, where the paradigm model has been widely debated, has been seen as clouded by misunderstanding and an unhelpful impediment to the development of convergent disciplinary communities (Allen and Ellis, 1999; Jones, 1999; Hirschheim, Klein and Lyytinen, 1996). For these reasons, it makes more sense to examine different themes and conceptualisations in knowledge management based upon an empirical analysis of referents and discursive resources in the literature and in studies of adopted practices.

Organisational behaviour perspectives: the learning organisation, communities of practice and informal learning and interaction

The notion of organisational learning and of organisations as learning entities has been object of study and debate since the late 1970s and early 1980s. It is, up to a large extent, a reaction to notions of organisation that were perceived as relatively formal, rational and mechanistic – organisations as machines, an image borrowed from an engineering paradigm, and whose mechanisms could and should be engineered to tick in an efficient way. The notion of managing information and knowledge is associated to, in this paradigm, making a machine work in a more efficient and effective way by linking supply (of information or knowledge) with demand. Conversely, the notion of organisations as learners borrows both from views of organisations as living organisms that adapt to external environment changes by gathering intelligence and changing patterns of response to the exterior, and to organisations as learning locales, that form “*a community which regenerates itself*”

through the creation of knowledge, the outcome of learning” (Kirk, 1999). The view of organisation as learner implies the following key points:

- i) organisation as community;
- ii) organisation as the locus for learning;
- iii) the social context of learning and knowledge generation

The notion of organisational learning in itself, however, is subject to different interpretations. There is a wide ranging literature on this subject with vast variation in views. Jones (1995) has identified three main schools of thought, depending upon where the emphasis is made in terms of the locale or place where learning takes place – the organisational or the individual:

- i) Organisations as cognisant entities - this strand of literature views organisations as independent learning entities; it assumes that there is an organisational mind and an associated organisational memory in organisations that are independent of individuals (Huber, 1990; Lee, Courtney and O'Keefe, 1992);
- ii) Organisations as collectivist entities - this includes a group of authors for which learning organisation is simply seen as a place where people learn to learn (Senge, 1990; Garvin, 1993; Pedler, Burgoyne and Boydell, 1989); other authors state that organisations do not have a mind as such, but they are more than just the sum of their members and that there is learning that takes place collectively that has greater added value than the learning of each individual member of the organisation (Argyris and Schon, 1978);
- iii) The individual as the creator of the organisation - this stream of literature views learning as taking place strictly within the individuals that form the organisation; for this group of authors, organisations are not independent from the individuals that form them and are shaped by the social interaction of its individual members; therefore, all learning is social and individual learning develops in the context of the organisation (Gioia and Sims, 1986)

In addition to these schools, we could consider that, more recently, work developed under the Knowledge Management umbrella proposes that we learn through knowledge transfer, taking place in the interaction between the individual and the collective (group or organisation), forming, to some extent a fourth strand of literature that places emphasis upon the interaction between the two poles (Nonaka and Takeuchi, 1995; Nonaka, I, Toyama, R., Konno, N, 2000; Baumard, 1999).

Nonaka and Takeuchi (1995) have proposed a model for organisational knowledge creation that is based upon the interaction between explicit knowledge, defined as *“what can be expressed in formal and systematic language and shared in the form of data, scientific formulae, specifications, manuals and suchlike”* (Nonaka, Toyama and Konno, 2000:7) and tacit knowledge, defined as *“highly personal and hard to formalize [...] deeply rooted in action, procedures, routines, commitment, ideals, values and emotions”* (Nonaka, Toyama and Konno, 2000:7). This interaction is

referred to by these authors as knowledge conversion and this process of knowledge conversion is represented as a spiral. It is largely based on this work that the original dilemma generated by knowledge management lies.

Nonaka (1991) and Nonaka and Takeuchi (1995) propose that knowledge conversion occurs through four knowledge conversion processes:

Tacit knowledge ® Tacit knowledge, referred to as *Socialisation*, is the process of generating new tacit knowledge through shared experiences, by doing things together; it is typical of traditional apprenticeship models, they propose, and of sharing experience through informal social meetings, where shared mindsets and trust are generated and form the social bond between different participants;

Tacit knowledge ® Explicit knowledge, referred to as *Externalisation*, is based upon articulating tacit knowledge in explicit terms and can be found in concept creation in product development, where tacitly formed ideas are articulated into new concepts;

Explicit knowledge ® Explicit knowledge, *Combination*, occurs when explicit knowledge is combined with other explicit knowledge to generate more complex constructs, as occurs in teaching, for example;

Explicit knowledge ® Tacit knowledge, through *Internalization*, allows the embedding of know-how or shared mindsets in individual day to day practices and is associated with '*learning by doing*' (Nonaka, Toyama and Konno, 2000: 10).

This continuous process of knowledge conversion is viewed as a spiral, in that knowledge is viewed as continuously amplified. This model is referred to as the SECI model (after Socialisation, Externalisation, Combination and Internalisation).

Nonaka and Takeuchi (1995) illustrate the knowledge conversion process with the example of the design of a bread-making machine at Matsushita. A product development engineer at this company suggested that the development team learned about the process of kneading dough, by observing what the bakery team at the Osaka International Hotel, renowned by baking the best bread in Osaka, did. She joined the team as an apprentice and as she learned to make bread, noticed that the head baker used a particular technique of stretching the dough while kneading it (*socialisation*). She then translated this technique into what the design team at Matsushita should do, using the expression "twisting stretch" (Nonaka and Takeuchi, 1995:104) (*externalisation*). The team codified this knowledge and integrated it with their knowledge about bread making machine design through processes and through the development of prototypes (*combination*). Finally, the team internalised processes and principles about bread-making machine design (*internalisation*).

The model proposed by Nonaka and his colleagues is controversial, as it is difficult to define, how tacit knowledge can be transferred between individuals, for example. The notion of tacitness in itself is subject to diverse interpretations, as well. Furthermore, it is considered that the SECI model ignores, to a large extent, political and cultural dimensions in social practices.

Cook and Brown (1999:381) propose a framework leading to very different

conclusions than those arrived at by Nonaka and his colleagues, which they suggestively label “*the generative dance between knowledge and knowing*”.

They consider that the explicit/tacit/group/individual categories refer to specific forms of what is known - knowledge as possession -, encapsulated in the phrase “*Robert knows auto mechanics*” (Cook and Brown, 1999:382). They propose, however, that not all that is known is captured by this understanding of knowledge. Knowledge as possession does not include other forms of knowledge, such as what is part of the practice - knowing as action -, encapsulated by the phrase “*Robert is fixing cars*” (Cook and Brown, 1999, p382). They propose that the interplay between knowledge and knowing has a generative effect in the development of knowledge and learning in a social context. They refer to this as “*the generative dance between knowledge and knowing*” and state “[...] *the source of new knowledge and knowing lies in the use of knowledge as a tool of knowing within situated interaction with the social and physical world.*” (Cook and Brown, 1999: 383). In their view, interaction takes place rather than knowledge transfer.

They illustrate this with a series of examples, including the study of three flute making workshops by Cook and Yanow (1993) These flute workshops, based in Boston, produce world-class flutes using very skilled craftsmanship. Each flute is produced by a specific team and each flute maker is responsible by only one part of the flute. Each part is developed by a flute maker until it meets a standard of quality, after which it is handed in to the next flute maker, who assesses the work in terms his or hers own set of standards. If the part does not “*feel right*” it is returned for further work. Each component is validated by the next stage and this work and is often assessed by eye or by hand. The collective knowledge of the team, which is developed as the flutes are produced, is embodied in each flute. Part of this know how is developed through the negotiation of what is then codified as “*feeling right*”.

Cook and Brown (1999:397), provide an interesting analysis of this example, by asserting that whilst it exemplifies the deployment of existing tacit knowledge of experienced flute makers and the development of new tacit knowledge of novices, in the context of interacting together and with the artefact, “*it is not possible, under any circumstances, for tacit knowledge to become explicit (or vice versa)*”. In their view, what is at stake is the deployment and generation of tacit and explicit knowledge in their own right, within an interaction, rather than the transfer of knowledge between the actors. This is in direct opposition to Nonaka and Takeuchi’s (1995) model of knowledge creation through a spiral of conversion of knowledge from tacit to explicit, explicit to explicit, explicit to tacit and tacit to tacit, from individual to group and from group to individual, exemplified in the context of bread making machine design. In effect, Cook and Brown (1999) refer to the bread-making machine design example, offering a very different explanation, by asserting that it exemplifies the interaction between what is known and knowing by drawing both simultaneously from a group of people. They stress this as an example of learning in action, through social interaction, rather than of knowledge transfer.

The study of communities of practice (Cops) provides an interesting context for exploring the notion of organisational learning (Davenport and Hall, 2002). The concept of communities of practice was proposed in the seminal studies by Lave (1988, 1991) and by Lave and Wenger (1991) who studied situated learning and

learning in action through practices of apprenticeship in various contexts. More recent examples include similar communities and patterns of interaction in virtual environments (Hall, 2001; Kimble, 2001; Cox, 2005, 2007a, 2007b)

Communities of practice are often referred to as “ (...) a flexible group of professionals, informally bound by common interests, who interact through interdependent tasks guided by a common purpose thereby embodying a store of common knowledge” (Jubert, 1999, p166). Ellis, Oldridge and Vasconcelos (2003) propose the following elements give rise to communities of practice:

- i) a voluntary and emergent formation of a group of individuals,
- ii) that is characterised by self-regulation,
- iii) based upon what is often a tacit understanding of common interests,
- iv) where mutual sources of gain exist,
- v) and are bound by shared practices, discourses and interpretative repertoires
- vi) that give rise to mutual trust.

There are multiple implications raised by these elements, of which the following are highlighted for the purposes of the aims of this paper:

- i) the notion that the application of formal and classical management principles to CoPs is detrimental to their nature and aims and will result in stifling them: “*Communities of practice are responsible only to themselves. Nobody owns them (...) indeed managing them could kill them.*” (Stewart, 1997, p. 96-97)
- ii) what binds them together is a shared and negotiated understanding of their joint commitment, norms of mutual engagement and shared repertoires of joint resources – “*language, routines, sensibilities, artefacts, tools, stories, styles*” (Wenger, 2000:229)
- iii) technology is often seen as a form of control: replacing the water cooler and the coffee pot with emailing lists of groupware applications is not always a good idea, as it threatens the largely informal and voluntary way of operating that these communities display (Brown and Duguid, 1998);
- iv) reciprocity and mutuality in CoPs are not based on formal agreements but on a tacit understanding of common interests and mutual gains;
- v) value is added for the individual in the collective development of the activities – although the resulting gains for each individual may be different, not immediate or direct; an example of this is provided by the informal collaboration networks that can be found across high tech firms, as studied by Macdonald (1995, 1998), who argues that sharing what may even be seen as proprietary knowledge across firms is often the condition for innovation in high tech environments;
- vi) in effect, the voluntary and reciprocal nature of participation in these communities means that “*what holds them together is a common sense of purpose and real need to know what each other knows.*” (Brown and Grey, 1995, p.78); they develop around a notion that there is value-added for each member of the community in the collective

development of activities, even though the gains may be different for each of its members and may not even be immediate or direct.

It seems then, by looking at the patterns of interaction, modes of self-regulation and models of intrinsic motivation of communities of practice that although much of the debate on organisational learning has focused on the apparent contradiction inherent to the idea of 'managing the tacit', and particularly on the notion of tacit knowledge which is difficult to formalise and articulate, limited attention has been given to what is understood by the notion of management in this context. A potential avenue for discussion is whether the notion of management should be reconsidered when we move from the world of the explicit and the tangible to the world of the tacit and the intangible, where it may be a closer synonym to informal self-regulation, intrinsic motivation and voluntary reciprocity.

Strategic management perspectives: the management of core competencies and exploration vs. exploitation of knowledge

A key theme arising from recent trends in the field of knowledge management relates to the focus on human resource issues and, in particular, on the development of organisational core competences. This concept has received large attention recently but it is not a new concept. It arises from a strand of literature on strategic management that was developed in the 50s and is known as 'the resource view of organisations'. Bogner *et al.* (1999), in effect, identify three main strands of literature as contributing to the theoretical foundations of core competences. The work carried by these authors synthesizes these strands, leading to a richer and dynamic notion of this concept:

- i) The resource-based theory of the firm brought the notion that internal assets are key to strategy formation and to the generation of above average performance through resources that are unique to successful companies; it does leave open, however, the questions of how can we define this uniqueness and of how advantage can be sustained over time;
- ii) The organisational learning literature has contributed to these questions by proposing that sustainable competitive advantage is dependant upon the capability of firms to regenerate themselves by further developing their knowledge bases through ongoing experimental learning;
- iii) The environmental change literature established that not all is dependant from internal characteristics of organisations, but that external changes may influence success in integrating learning into adapting to change, distinguishing between competence enhancing change and competence destroying change.

This perspective on organisations has regained greater emphasis in recent years, with the work of authors such as Prahalad and Hamel (1990). According to Prahalad and Hamel (1990), core competences are capabilities that allow firms to compete better than the average firm in their sector. They propose in their seminal work that core competences possess the following attributes:

- i) the ability to deliver clear and valued customer benefits, whether through the provision of better services or products or through the provision of these services and products at lower cost, for example;
- ii) they are defined as largely tacit and hard to imitate by potential competitors;
- iii) they should be organisation wide and deployed across different areas, products and services in the organisation; Boisot (1998) refers to the example of Sony and the application of miniaturisation across all its product offerings;
- iv) they appreciate with use, because they are the product of organisational learning, thus increasing in value every time the knowledge that inheres them is redeployed;
- v) they cannot be traded – they are developed inside each organisation in an almost organic and emergent way and cannot be bought from outside, although the companies that possess them can.

As can be deduced from this list of attributes, core competences are not an easy concept, because these attributes raise a few questions, as pointed by Boisot (1998):

- i) if core competences are tacit, where do they lie and how do we identify them?
- ii) the issue of value to the customer can be over-rated and companies can become locked in past successful experiences, whereby core competences can turn into core rigidities;
- iii) Boisot refers to over emphasis on quality, for example, leading to neglect in placing products on the market, as exemplified by Motorola, a company whose strong commitment towards quality has sometimes compromised product availability and product development times;
- iv) how to define core competences in multinational companies that are involved in different industries? where do core competences lie in these cases?

While the notion of core competences raises questions, different authors agree upon the proposition that this notion implies an element of uniqueness and of individuality in the companies that possess them. There is also an agreement that core competences possess a multidimensional nature that is complex and difficult to define, implying that that there may not be a clear linear relationship between competence and performance (Boisot, 1998).

The nature of the concept of core competences, based upon the notion of largely tacit and inimitable capacities, that are rare at the industry level, but inherent to and widely diffused across organisations that possess them, is elusive in itself and raises difficulties to the proposition that core competences can be managed. If core competences themselves are difficult to define and to identify, how can they be managed? Is the notion of management congruent with the notion of core competences? Or does the concept itself appeal to the notion of emergent and largely undetermined constellations of expertise that cannot be managed as such?

We can approach this issue from the dilemma faced by many organisations of deciding whether to focus their strategies on the exploration of knowledge or on the

exploitation of knowledge. Exploration can be defined as *'the pursuit of new knowledge of things that might come to be known'*, whereas exploitation is *'the use of things already known.'* (Levinthal and March, 1990, cited in McNamara and Baden-Fuller, 1999: 292).

In many organisations, both are present and there is a temptation to pursue both avenues, in the shape of a tension between exploration and exploitation. In effect, McNamara and Baden-Fuller (1999) consider that a balance between both is necessary for organisational survival. Nevertheless, Levinthal and March (1993, cited in McNamara and Baden-Fuller, 1999: 292) state that there is a tendency, especially in mature organisations, for exploitation to dominate over exploration over time:

"Exploitation tends to generate clearer, earlier and closer feedback than exploration. It corrects itself sooner and yields more positive returns in the near term. As a result, the primary challenge to sustaining an optimal mix of exploration and exploitation is the tendency of rapid learners and successful organisations to reduce the resources allocated to exploration."

It is possible for organisations to pursue successful strategies based on exploitation, if they are able to continually re-deploy their skill basis adapting it to an evolving environment. However, logic would determine that at some point there must be a need to adapt this knowledge base and integrate it with new developments if the environment changes significantly. In effect, we can consider that success based upon exploitation will tend to reinforce the patterns of behaviour that have led to it and overwhelm the organisation's capacity to change.

We can relate this to Bogner, Thomas and McGee's (1999) concept of dynamic competences:

- i) over time, follower firms can mimic successful behaviour, so leading firms need to implement further developments;
- ii) changes in the environment can impact negatively on knowledge bases, requiring their constant renewal;
- iii) the long term implications of focusing on standardising knowledge, via over investment on exploitation are therefore problematic, but there is often a need to reinforce developed competences through an exploitation path;
- iv) a balance between exploration and exploitation appears therefore necessary for achieving and maintaining organisational success, but achieving this balance implies resolving practical implications raised by the tension between exploration and exploitation (McNamara and Baden-Fuller: 1999).

Economic and accountancy based perspectives: dilemmas in intellectual capital valuation

The conventional definition of intellectual capital (IC) considers all value of a company or organisation in excess of book value. Therefore IC is not only concerned with the more tangible aspects of an organisation - it has as much to do with the

organisational ability to deploy resources profitably into new markets, as, for instance, the ability to translate new ideas into products or services. Edvinsson and Malone (1997:17), divide IC into two components, namely:

- i) human capital, which is the combined knowledge, skill, innovativeness, and ability of the organisation's individual employees to meet the task at hand; it also includes organisational values, culture, and philosophy; human capital cannot be owned by the organisation and is often defined as "*what leaves the company when employees go home*";
- ii) structural capital, includes the hardware, software, databases, organisational structure, patents, trademarks, and everything else of organisational capability that supports the productivity of those employees; as put by Edvinsson and Malone (1997), it is everything that is "*left at the office once the employees go home*"; it also includes customer capital and the relationships developed with key customers; unlike human capital, structural capital can be owned and thereby traded.

Edvinsson and Malone (1997) state that true value is created when:

- i) flows occur between human and structural capital;
- ii) this leads to value being added to the organisation in the form of a more informed workforce, better communication, increased staff morale, more time for decision-making and a better use of visible information;
- iii) in time, this value added to the organisation may, but not necessarily, lead to financial capital, in the form of decreased staff turnover, lucrative new business opportunities and more favourable terms with suppliers;
- iv) even if this value can never be translated into Financial Capital, it can ultimately contribute to the survival of the organisation by providing a structure or backbone for future growth.

Some organisations are beginning to develop and deploy new methods that aim at measuring its intangible assets, such as its intellectual capital, namely through tools designated by intellectual capital navigators. This is based upon the idea that intangible assets play an important role in determining the underlying value of a company. In effect, intellectual capital has not been totally ignored in the past and the difference between the book value of a company and its market value has long been thought of as based upon intangible assets, such as its knowledge base, degree of expertise, potential for innovation, customer relationship, amongst others. This difference is called "goodwill". "Goodwill" was assumed to be entirely subjective and could not be empirically measured. It represents the value or potential value in the eyes of the buyer, not the company value. Nevertheless, it could be argued that the

measurable goodwill that arises when a company is sold was obviously there before it was sold, although it may be difficult to express it in a consistent and reliable measure.

However, certain groups in the accounting industry have long been aware of these shortcomings in traditional accounting measures and valuing IC and other intangible assets, as demonstrated through the work carried out by the American Institute of Certified Public Accountants (AICPA), the Society for management Accountancy of Canada (SMAC) and the Institute for Chartered Accountants in England and Wales (ICAEW) and through recent initiatives, such as the Beyond Budgeting Round Table (Hope and Fraser, 1999; Fanning, 2000; Society for Management Accountants Canada, 2001).

According to Roos and Roos (1997), for intellectual capital (IC) measurement and valuation methods to stand the test of time and add value to the organisation, there are certain requirements they need to meet:

- i) the company must be mature enough to have gone beyond the stage of discussing business performance in solely financial terms – they must have a clearly defined direction and be able to relate IC to that direction with the visible support of top management;
- ii) efforts to identify and measure IC must be rooted in the business strategy;
- iii) to be measured, IC must be categorised in a top-down process because it establishes what is considered important for the organisation. A set of indicators should then be used for each category – these can be derived from the company's vision, the IC category selected or the inter-capital flow from Human Capital to Structural Capital. Lastly, indicators need to be scaleable and the IC system needs to be aligned with existing managerial processes.

These points raise a few issues on the nature of these methods and their applicability:

- i) what is the role of measurement and of valuation beyond the financial dimension of organisations?
- ii) how to codify numerically assets which are uncoded by nature?
- iii) how to represent dynamic processes, such as inter-capital flow?
- iv) is benchmarking possible or even desirable?

These issues are represented as four key dilemmas by Vasconcelos, Ellis, Pieters and Chavda (2001):

- i) the dilemma in relationship to product vs. content - do we concentrate on the tangible manifestations of intellectual assets or do we express

what is often the essence of intellectual assets (ideas, insights, further knowledge) in a precise measure, knowing that its value is dependent upon the context of its deployment and often 'lies in the eye of the beholder'?

- ii) the dilemma on budgeting versus beyond budgeting - what is the role of measurement and valuation beyond the financial dimension of organisations?
- iii) the dilemma in relationship to static vs. dynamic - do we concentrate on what is the situation of an organisation at a precise point in time or do we focus on its evolution and its potential?
- iv) the dilemma in standardisation vs. uniqueness is - do we concentrate on what is comparable and easier to benchmark across different organisations or do we focus upon what is unique about each organisation, which is often where most of its value lies?

These issues are key for evaluating the intellectual assets of an organisation, beside that offered by the traditional accounting model, and are central to the knowledge management approach to understanding an organization's worth beyond the balance sheet. The accountancy practice has tried to apply different solutions to each of these dilemmas, although it is recognised that neither the dilemmas have been fully resolved, nor there are universally accepted solutions and methods (Fanning, 2001)

Vasconcelos, Ellis, Pieters and Chavda (2001) propose that these dilemmas arise within the conceptual framework inherent to the referent discipline which is used to approach the issue of measuring intellectual assets. Whilst the validity of some of the approaches developed within an accountancy framework is not questioned, they doubt that its conceptual apparatus can address all the dimensions of this problem.

They propose that some of the work undertaken in the field of information management and particularly in the economics of information, although focusing specifically on the value of information, may help to shed some light into the origins of the dilemmas in valuing other intellectual assets and provide insight into future directions for approaching the problem. This issue was in effect explored in depth by Repo (1986, 1989). The crucial distinction between the exchange value of information and value-in-use of information is described by Repo (1986) as follows:

- i) in the World of Exchange, individuals and organizations produce and store information products and services; other individuals and organizations acquire those same information products and services through the mechanism of the market; the value of the information products and services in this world is determined by market forces and by their exchange value;
- ii) in the World of Use, information in the information products and services is used by individuals in their information tasks and their value is determined by their expected and perceived value in use (Repo, 1986).

An associated point which Repo (1986) also made is not only there is a category difference between these two worlds but that the referent discipline for understanding each world is also different. Repo argued that the exchange value of information products, services, channels, systems, should be studied using 'classical' economic and accountancy methods, but the value-in-use of information should be studied using the cognitive approach which takes the user, the use and the effects of the use of information into account. The resolution of the dilemmas cannot therefore take place within the conceptual framework of a single referent discipline.

We can relate these ideas to the Edvinson and Malone's views over intellectual capital. The valuation of different types of capital requires different approaches. We often concentrate on studying different types of capital independently yet value is created through inter-capital flow. This implies that the resolution of the dilemmas identified above must involve recognition that conceptual category changes take place when we consider different types of intellectual assets. As these category changes take place, the root referent disciplines involved in determining the methods used to assess them must also change. For instance, it may make sense, for some purposes, to value intellectual assets in a budgeting sense and at other points not, but to do so involves a disciplinary shift from an accounting model to a non-accounting one.

Conclusion

This paper discusses some of the debates that have surrounded knowledge management as a field since its inception in the mid 1990s from the perspective of the dilemmas that they have generated i) by the notion itself of managing knowledge vis-à-vis other cognate fields, in particular information management and ii) within some of the different approaches to managing knowledge. It argued that the explicit aim adopted by many Knowledge Management authors of addressing and managing the issues involved transfer of tacit knowledge into explicit knowledge raises dilemmas that lie at the core of the debates on Knowledge Management in what concerns its relationship to cognate fields (Alvesson and Karreman, 2001; Ellis Vasconcelos and Rogers, 2004; Schultze and Stabell, 2004) and is re-enacted and reconstructed in several key approaches to Knowledge Management.

In organisational behaviour driven approaches, a dilemma at the heart of the debates that are undertaken concerns whether the tacit-explicit knowledge transfer occurs between individual and groups or rather people learn in interaction but what is tacit and explicit to each individual remains as such. Although much of the debates have centered on the notion of tacitness and its amenability to convert to explicitness, the study of patterns of interaction, modes of self-regulation and models of intrinsic motivation of communities of practice seem to indicate that an area of debate that has been neglected remains what constitutes management and that dimensions and concepts of management should be reconsidered when we move from the world of the explicit to the world of the tacit, where it may be closer to the patterns of activity exhibited by communities of practice.

In strategic management oriented perspectives, this key dilemma is re-enacted in the debate about the nature and importance of core competences, characterized as largely tacit, unimitable, rare and multidimensional, raising the question of whether this concept appeals to the notion of emergent strategies around constellations of expertise. It was suggested that this issue is also related to the dilemma faced by all organizations of whether to pursue of strategies geared towards the exploitation of knowledge versus those that are driven by the exploration of knowledge. Achieving a balance between the two within the management of complex regimes (Boisot, 1998) appears an obvious pathway, but this implies resolving the practical implications raised by the tension between the two.

The economic and accountancy based approaches offer several dilemmas in how to apply methods of measurement to intellectual assets, largely intangible by nature. It has been suggested that this requires shifts in the conceptual apparatus and referent discipline required to address the differences in nature between tangible and intangible assets.

Despite the dilemmas and the debates that it has arisen, Knowledge Management has known a relatively widespread diffusion and adoption (Swan and Scarsborough, 2001; Land, Nolas and Amjad, 2004) and is considered to have a positive impact in bringing out areas that had been previously neglected in management approaches and research traditions, while providing an interesting synthesis between these and other approaches, as seen in the discussion of the theoretical influences in the three main approaches identified and discussed above.

Part of the explanation for this can be based upon the notion of 'interpretative viability' (originally coined by Ortmann, 1995 and adapted by Benders and Van Veen, 2001) to illustrate how in this case management concepts that are open to multiple interpretations often display characteristics of broad dissemination, because "[...] *their users can eclectically select those elements that appeal to them, or that they interpret as the fashion's core idea, or that they opportunistically select as suitable for their purposes.*" (Benders and Van Veen (2001:37) and therefore, they often attract a wide user basis because "[...] *different parties can each 'recognize' their own version of the concept.*" (Benders and Van Veen, 2001: 38). Beyond that, it has previously been suggested (Ellis, Oldridge and Vasconcelos, 2004) that many concepts adopted in management and social sciences are open-textured (Waismann, 1951), as they are amenable to multiple reformulations, in accordance to different understandings arising from social and technological evolution, for example. An integration between the concepts of recontextualisation (Bernstein, 1996), of interpretative viability and of open-texture can serve as a basis for explaining issues around how different research traditions in the same field – and indeed different fields - claim the same concepts as part of their intellectual arenas and how, despite this, they form different rhetorical approaches towards them, both issues of critical importance to discuss the notion of Knowledge Management in its different iterations and in its relationship to apparently similar notions.

Much of the debates on Knowledge Management have centred on the notions of knowledge vis-à-vis information, on ideas over the inter-relationships between tacitness and explicitness and on whether they can or cannot be managed. The dilemmas raised within different approaches to Knowledge Management offer

interesting avenues to reflect upon and adapt the conceptual apparatus that have been adopted both through the intellectual and practical antecedents of Knowledge Management, whether this means adopting different views over what we understand by management, strategy, measurement and evaluation.

It is also of importance to consider, in this context, new perspectives brought about by notions of transdisciplinarity, where divergence and non linearity are seen as an integral part of knowledge production: “*Disciplines are the contexts in which disagreement can be deliberated*” (Hyland, 2000:11). These issues are of significant relevance for the study of approaches and their discourses, both academic, professional and lay on Knowledge Management.

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