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KNOWLEDGE MANAGEMENT IN TOURISM ORGANISATIONS: PROPOSAL FOR AN ANALYTICAL MODEL

GESTÃO DE CONHECIMENTO EM ORGANIZAÇÕES TURÍSTICAS: PROPOSTA DE UM MODELO DE ANÁLISE

Bernadete Dias Sequeira
João Filipe de Jesus Marques

ABSTRACT

Tourism is an activity-based service sector in which information and knowledge are fundamental to developing realistic strategies and business plans. This article presents a model that was developed in an investigation called "Organisational Knowledge Management in Tourism Organisations," which was part of a doctoral degree in Sociology, Faculty of Economics, University of Algarve. This study investigated how Algarve tourist organisations manage knowledge by observing how they create, retain, share and use it. This empirical research is based on a study of three cases that used documental investigation, interviews and questionnaires and the analytic model that is introduced here. We present an analytic model that identifies the different stages of knowledge management (acquisition / knowledge creation, retention / storage, transfer / sharing and use) and the management practices that facilitate it (strategic management, organisational culture, structure and work processes, human resource policies, information systems and communications, evaluation of results and relationship with the environment outside the organisation) based on learning promotion.

Keywords: Knowledge, Organisational Knowledge Management, Facilitating Practices.

RESUMO

O turismo é um sector de actividade baseado em serviços, no qual a informação e o conhecimento são fundamentais para definir estratégias e planos de negócio adequados à realidade. O presente artigo consubstancia-se na apresentação de um modelo de análise desenvolvido numa investigação designada "Gestão do Conhecimento Organizacional em Organizações Turísticas", conducente à obtenção do grau de Doutor em Sociologia, na Faculdade de Economia da Universidade do Algarve. A investigação tem como objectivo analisar como organizações turísticas no Algarve gerem o seu conhecimento, ou seja, observar a forma como criam, retêm, partilham e utilizam o conhecimento. A investigação empírica a levar a cabo basear-se-á no estudo de três casos através da investigação documental, da realização de entrevistas e da implementação de questionários, tendo como pano de fundo o modelo de análise que aqui se expõe. Nesse sentido, elaborou-se um modelo de análise que identifica as diferentes fases do processo de gestão do conhecimento (aquisição/criação do conhecimento; retenção/armazenamento, transferência/partilha e utilização) e as práticas de gestão facilitadoras do mesmo (gestão estratégica, cultura organizacional; estrutura e processos de trabalho, políticas de recursos humanos, sistemas de informação e comunicação, avaliação de resultados e relação com o ambiente externo da organização) com base na promoção da aprendizagem.

Palavras-chave: Conhecimento, Gestão do Conhecimento Organizacional, Práticas Facilitadores.

JEL Classification: D83

1. INTRODUCTION

In the first half of the twentieth century, the world economy was based on industrial production. However, starting 50 years ago, the importance of the tertiary sector as a lever for economic development increased. The 1990s were marked by the dominance of the service sector over other sectors because technological development radically altered information processing, thus allowing the incorporation of large amounts of information. Thus, information and knowledge have taken on a central role in the economy in relation to capital, raw materials and even work.

The sociologist Daniel Bell, (1973), who pioneered the conceptualisation and systematisation of the concept of post-industrial society, refers to the shift from an economy based on the production of goods to an economy where services gain momentum. In this scenario, theoretical knowledge functions as the central generator of innovation and change and leads the ideas that inspire the community.

According to Kaplan and Norton (1997), one of the most radical changes in management thinking in recent years was the transformation of the role of workers from providing physical labour to performing increasingly abstract data analysis.

The traditional factors of production - land, labour and capital - have not disappeared but have become secondary. They can be easily obtained when there is knowledge. Thus, Peter Drucker (1996) also refers to a "knowledge society" as the "society of organisations" in which the purpose and function of each organisation, whether corporate or not, is the integration of expertise in tasks.

The challenge for organisations is the development of teams, collective or organisational knowledge learning and knowledge management (Kluge, Stein and Licht, 2002). These practices foster many opportunities for professional development and encourage people to collectively develop and share skills, thus encouraging cooperation in the workplace. Knowledge management is inextricably linked to organisations' abilities to utilise and combine the various sources and types of organisational knowledge to develop specific skills and innovative capacity. This knowledge can then be translated into new products, processes and market leadership (Nonaka and Takeuchi, 1997).

Thus, tourism faces a similar challenge to that faced by other service sectors. Society and markets require the rationalisation of resources and improved efficiency, which puts enormous pressure on all public and private organisations. The improvement of work processes and management of people and their knowledge, supported by modern information systems, are necessary to create the appropriate mechanisms to achieve those aims.

This article is situated in the field of research known as "Organisational Knowledge Management in Tourism Organisations" and is the final stage in a doctoral degree. This research integrates empirical research from a number of hotel organisations using the analytical model that is presented here.

"The problems of understanding what knowledge is, how it is to be justified and its extent and permanence have been the subject of vigorous philosophical debate for many thousands of years" (Spender, 2001: 35). Therefore, this article will first discuss knowledge

to clarify three theoretical approaches: the theory of knowledge, the sociology of knowledge and organisational approaches. Second, we present the analytical model, which aims to understand the structure and dynamics of knowledge management in organisations.

Thus, we present a proposal for an analytical model, still under construction, which identifies the different stages of knowledge management and management practices that use the promotion of learning to create the conditions that facilitate organisational learning.

Given the complexity of the structural contexts and decision-making and the dynamics of interaction between the organisational actors, the processes of knowledge management are quite varied. Therefore, in this model, we try to account for the multifaceted characteristics of management knowledge and its practical significance. The two major axes of the model (stages of knowledge management and practices to facilitate knowledge management) do not exist in isolation. Rather, they complement each other and are essential for a comprehensive approach to knowledge management.

2. LEARNING KNOWLEDGE

The problem of knowledge caught the attention of the pre-Socratic philosophers, Heraclitus and Parmenides as well as Sophists, Socrates, Plato and Aristotle. In modern history, the fields of knowledge and science have gained particular importance. The theory of knowledge, along with the problems of rationalism and empiricism, became a central theme only in the Modern Age.

The Theory of Knowledge investigates issues arising from the relationship between the subject and object of knowledge and the basic conditions for true knowledge. This theory, seeking "an explanation or philosophical interpretation of human knowledge" (Hesse, 1978: 25), has explored issues concerning the nature, sources and validity of knowledge. It tries to answer questions such as the following: What is knowledge[1]? How do we reach it? Can we achieve the means to defend it against scepticism? These issues are as old as philosophy. The History of Philosophy from the Greek period can be seen as a process that seeks the answer to the question: what is knowledge? However, the definition of knowledge is far from logically perfect, so there is scepticism in the pursuit of knowledge in philosophy (Nonaka and Takeuchi, 1997). This issue has led many philosophers to seek a method that establishes a "truism".

The rationalism-empiricism controversy has been one of the most persistent debates in the history of philosophy. It was overcome by the Kantian synthesis that, among the more radical positions, used pure rationalism or empiricism as pure intermediate positions and attempted to reconcile this dualism.

According to contemporary rationalism, reason plays an important role in cognitive processing, which is the main source of knowledge (Hesse, 1978). Rationalists assume that the knowing subject is active and that to create a representation of any real object is to submit it to the structure of the subject's ideas. That is, true knowledge is not a product of sensory experience, but a mental process that brings absolute truth through rational argument based on axioms (Nonaka and Takeuchi, 1997).

According to contemporary empiricism, sense experience is the source of all knowledge. Knowledge about things, even one that seeks to elaborate universal laws from experience, therefore, is only valid within the limits of the observable. Empiricists deny the existence

[1] The philosopher John Locke, in his "Essay Concerning Human Understanding" published in 1690, is a systematic approach to the issues concerning the origin, nature and certainty of human knowledge. Leibnitz, in his book "New Essays on Human Understanding, " published posthumously in 1765, sought to refute the epistemological perspective of Locke. On the conclusions reached by these two philosophers, other thinkers developed their ideas in England, including George Berkeley in his "Treatise of the Principles of Human Knowledge" in 1710 and David Hume in his works "Treatise of Human Nature" in 1739 - 40 and "Research on Human Understanding "in 1748. Also, Immanuel Kant, with the publication of his seminal book "Critique of Pure Reason" in 1781, sought to find a critical foundation of scientific knowledge of nature, which is the logical validity of knowledge (Hesse, 1978).

of innate ideas, as advocated by Plato and Descartes, and consider that the mind is empty before it receives any sensory information. Reason is merely an organisation of sensory data, and ideas or concepts of reason are simple copies or combinations of data from this experiment.

The historic debate between rationalists and empiricists led to intermediate positions that sought to overcome the limitations of both philosophical positions. So-called intellectualism, with origins in Aristotelian thought, recognises the existence of the "truths of reason" and, moreover, gives intelligence a positive function in the act of knowing. That is, reason does not contain universal truths as ideas but can reach them using particular facts that coordinate the intellect. Thus, the intellect draws together concepts of reality based on real images. "Thus, the experience and thinking exactly form the basis of human knowledge" (Hesse, 1978: 75).

There was a second attempt to reconcile rationalism and empiricism by the German philosopher Immanuel Kant (1724-1804). His critical theory used experience and thought as sources of knowledge. However, the concept of the a priori inverts the relationship between experience and thought. That is, thought is not passive before experience; it is active and consists of elements a priori knowledge, independent of experience, conceived as forms that allow for ordering the jumble of sensations in space and time (Hessen, 1978). In this view, knowledge begins with experience, but it is organised by the a priori structures of the subject. According to Kant, knowledge is the synthesis of the information in our senses (phenomenon), and our understanding produces itself (concepts) (Kant, 1997).

Comte, in his discussion of the positive method of science, added to rationalism and empiricism. He treated theory as a way to organise facts in a relevant way for scientific use (Giddens, 1998). Although Comte adopted a fundamentally empiricist point of view, systematic observation distinguishes science from other types of positive claims to knowledge. This difference is dependent on the evidence of sense perception, which is considered the basis of certainty in science (Giddens, 1998). Rationalism, in turn, only deals with the organisation of select facts into theories, and these facts establish the link with laws or universal propositions.

One objective of the general theory of scientific knowledge is situated among other possible forms of knowledge. Are there knowledge processes that use different pathways from those used by science? Some authors propose directing our intellectual faculties to the "intuition of essences" and establishing a phenomenological science beyond scientific facts (Blanche 1988). Phenomenology attempts to describe, understand and interpret the phenomena that appear to perception and proposes to end the separation between subject and object (as opposed to positivist thought of the nineteenth century). It examines reality from the perspective of the first-person. Its aim was to demonstrate that true knowledge is perceived in things themselves and is not a mere reflection of a pre-existing awareness, which determines in advance the kind of potential knowledge (Manheim, 1986), as in the Kantian approach.

The phenomenological approach to sociology was verified through the work of Austrian Alfred Schütz, who stood at the crossroads of Weber's sociology and Edmund Husserl's phenomenological philosophy (Corcuff, 2001). In Weber's sociology, the meaning and significance of things may arise from social work or when the protagonist of the action gives meaning to the subjective thought and behaviour. By understanding human and social facts, Weber developed the foundations of a comprehensive or interpretative sociology.

The Sociology of Knowledge was introduced by the German philosopher Max Scheler, in the 1920s. However, the origins of the Sociology of Knowledge are in German thought from the nineteenth century, including Marxism, Nietzsche's thought and historicism (Berger

and Luckman, 2004)[2]. The roots of the Sociology of Knowledge may be found in Marx, who argued that man's consciousness is determined by his social being. This subject included some of Marx's key concepts, including ideology (ideas that serve as weapons for social interests), false consciousness (thought that is alienated from the true social thinker) and infrastructure structure/superstructure or reification. According to Marx, human thinking is grounded in human activity (work) and the social relations produced by this activity. Thus, infrastructure is human activity, and super-structure results from the thought produced by such activity. Thus, the economic infrastructure of society determines its ideological superstructure and its legal, political and religious make-up.

It should be noted that Scheler was interested in the Sociology of Knowledge. He aimed to establish a philosophical anthropology using different perspectives that accounted for specific location, and historical and social levels (Berger and Luckman, 2004, 19). Hence, Scheler argued that the relationship between "ideal factors" and "real factors" (terms reminiscent of Marx's concepts infrastructure/ superstructure) was just an adjustment. The "real factors" regulate the conditions under which certain "ideal factors" appear in a story (Manheim, 1986), but not its content. That is, society determines the presence but not the nature of ideas (Berger and Luckman, 2004: 19).

However, the perspective of Karl Mannheim[3], viewed by many as the founder of the Sociology of Knowledge, is much broader than that of Scheler. According to Mannheim, context determines not only the appearance but also the content of ideas. Mannheim returns to historical materialism, claiming that knowledge is historically relative and socially relative; in other words, it is conditioned by certain aspects of social being, particularly social classes (Mannheim, 1986). He argues that the elements of a group cooperate and compete in organised groups that have different influences according to the position of the groups, changing societal issues and the continuity of given conditions. Thus, according to a group's desire to change or maintain such collective activity, we encounter problems, concepts and modes of thought. The competition over the construction of various modes of thought influences the emergence of new knowledge and the ways in which it develops. That knowledge controls the economic market, the course of political and social events and reveals the various interpretations of the world as expressions of intellectual groups struggling for power.

Berger and Luckman (2004) move away from Mannheim and Scheler's ideas and the neo-positivist orientation. They believe that the question of ideas, including ideology, is only part of the wider problem of the Sociology of Knowledge. This discipline should "take care of what is considered" knowledge "in society" (Berger and Luckman 2004: 26), which is what men know as reality in their daily lives. This knowledge constitutes the construction of meanings without which no society could exist.

Peter Berger and Thomas Luckman used phenomenological constructivism, clearly influenced by the thought of Alfred Schutz, to extend the Sociology of Knowledge to common knowledge (i.e., the processes of social construction of knowledge in everyday life. Thus, the sociology of knowledge must deal with the variety of empirical knowledge in human societies and the processes by which any body of knowledge is established as "reality" (Berger and Luckman, 2004). It is important to understand the processes by which human knowledge develops and is transmitted in social situations, which crystallise reality for the common man and are taken for granted.

The epistemologist Thomas Kuhn (1996) made an important contribution, but more importantly, he legitimised the social relevance of content (beliefs, values, consensus), in

[2] The book *The Social Construction of Reality* was published in 1966.

[3] Currently associated with the sociology of knowledge due to the work of Karl Mannheim, as a result of the full translation of his work into English. Scheler's work on the sociology of knowledge has never been translated. The formulation made by Manheim in the sociology of knowledge remains the reference for this subject area.

many cases a key factor for the validity of discoveries in science. According to this argument, the scientific community as a group, at certain times in its history, adopts a set of shared beliefs, values and techniques, which become the paradigm (or programme) for the acceptance of scientific knowledge.

Therefore, paradigms are reflected in organisational settings, in literature and in accepted practices and are shared by various communities that research, teach, work and comment on theories of organisations (Magalhães, 2005). In the last 50 or 60 years, there has been a shift in thinking about organisations. According to Magalhães (2005), the old paradigm behind the mechanistic metaphor is grounded in the classical theories of Taylor (1914), Fayol (1949), Weber (1947) and more recently in the systems theory of Von Bertalanfy (1950) and the theory of decision-making by Herbert Simon (1945). The new paradigm is based on explaining the complexity of the mechanisms that develop collective cognition, or organisational culture, and self-referential social systems that are in permanent state of change. The theoretical proposals of Nonaka and Takeuchi (1995) about the creation and development of knowledge management in organisations, along with those of other authors, are currently accepted by the academic community. It can be said that the new paradigms for "organisations" and "organisational knowledge" are intimately intertwined (Magalhães, 2005).

2.1 Organisational Knowledge

To define organisational knowledge, it is important to differentiate data, information and knowledge. It is not easy to disentangle these three concepts, which often are correlated and even overlap. *Data* are facts about events and objectives. They describe what happens and do not include value judgments or interpretations. According to Davenport & Prusak (2003), in an organisational context, data are often described as structured records of transactions.

The attribution of meaning to data and its relationship to a context and its interpretation transform them into *information*. According to Peter Drucker (1993), information differs from data because it has meaning, relevance and purpose. For a set of data to be *information,* there must be relationships between the data or between the data and other information. It is the result of a combination or organisation of data that allows us to draw conclusions about a particular phenomenon (Fialho and Serrano, 2003).

People continuously transform information into knowledge; they make comparisons, analyse consequences, look for connections and talk to others about the information received. These actions result in the accumulation of knowledge, which increases the individual capacity of transforming data into information to create knowledge for future action.

However, both information and knowledge are closely linked to the production context and social relationships because they are created through social interactions. Berger and Luckmann (2004) argue that people construct social knowledge, which influences their attitudes and behaviours through interaction and information sharing in a particular historical and social context.

Similarly, Karl Wiig (1999), another author who distinguishes knowledge and information, says that knowledge consists of truths, beliefs, perspectives, concepts, judgments, expectations, methodologies and *know-how*. It is organised, integrated and accumulated over long periods to be applied in specific situations. The information, in turn, consists of facts and data that are organised to describe a particular situation. Applied knowledge is used to interpret information about a situation and to manage it. In this perspective, knowledge is information applied to action and appears in individuals' routine practice and behaviour (Fialho and Serrano, 2003). Therefore, in organisations, knowledge is often embedded not only in documents or repositories but also in routines, procedures and norms (Davenport

and Prusak, 2003). It therefore has a dual nature because, in formal procedures, it is implicit and explicit in people and products.

Nonaka (1991) and Nonaka and Takeuchi (1997) recognise the distinction between tacit and explicit knowledge and draw on Polanyi's theory of knowledge, explained in his book *Knowing and Being*, published in 1969. According to Nonaka and Takeuchi (1997), there are two types of organisational knowledge: tacit and explicit. Tacit knowledge involves a technical dimension - *know-how* - and other cognitive models, beliefs and perceptions. Such models are difficult to demonstrate, but they exert a profound influence on how we perceive the world. The technical dimension includes personal skills and knowledge related to the action of an individual in a specific context, such as an art or profession, a particular technology or market or even the activities of a group or team. In turn, the cognitive dimension includes items such as intuitions, emotions, schemas, values, beliefs, attitudes, skills and "premonitions". These elements are embodied in individuals and determine how they act and behave. They are the filters through which people perceive reality.

Brown and Duguid (2001) treat knowledge in organisations as a social practice. Most of the practices in which people are involved, in particular working practices, are ultimately social practices that bring people together through interdependent activities. Thus, the available knowledge in a group, although often invisible, is collective[4] and may give rise to what Weick and Roberts (1993) refer to as aspects of a collective mind. This type of knowledge is revealed through practice rather than in the statements. It is distributed because it often requires several members of a group to perform a task. Also, it is partial because it is unlikely that any member of the group has all the knowledge. Finally, it may be improvised because each group member spontaneously adapts his activity to the others, following a basic script. Despite attempts to reduce unpredictability, not everything is predictable because workers adapt to various situations.

From the individual standpoint, knowledge originates in and is applied to the human mind. From the perspective of organisations, knowledge resides in documents, routines, procedures, practices and norms (Loureiro 2003). However, above all, knowledge is reflected in the organisational development of new products and services, in making decisions in relation to customers, in the formulation of strategies and so on. According to Nonaka and Takeuchi (1997), this knowledge is the result of the dissemination of knowledge by individual organisational structures.

3. ORGANISATIONAL KNOWLEDGE MANAGEMENT

In our literature review on organisational knowledge, we found that some authors define it as an object to be created, purchased, possessed or sold or as something like a machine, a building or another organisational asset. Other authors support this idea and focus on the process of knowledge creation. This approach leads us to the concept of knowledge management, viewed as a published and explicit knowledge that is embedded in the practices of an individual or collective organisation. From this perspective, knowledge is seen as a process and not as a product (i.e., a process that involves the individual and social processes of creativity, innovation, motivation and communication). This issue covers a broad and complex field of research.

The field of Knowledge Management is explored in several scientific areas, including Information Science, Psychology, Sociology, Business Studies, Organisation Studies, Strategic Management, Computer Science and Information Systems, among others. Under Organisational Theories, knowledge management is the organisational

[4] Indexing in the sense of ethnomethodology.

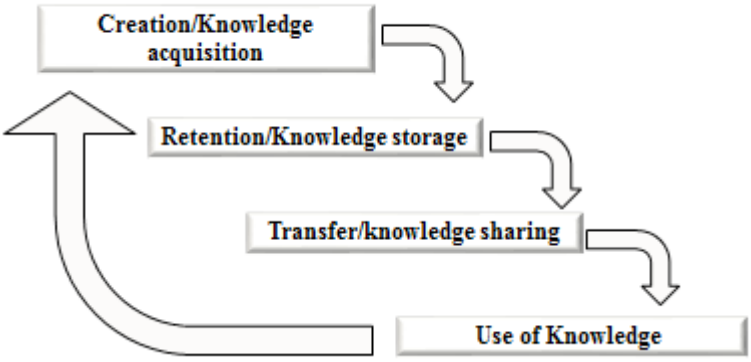
capacity to develop, innovate and enhance competitiveness. From this perspective, knowledge management is a management context where knowledge is used. Researchers such as Nonaka and Takeuchi (1997), Davenport and Prusak (1998) and Bukowitz and Williams (2002) have tried to understand the processes of organisational learning through well-defined stages, in which they analyse various management practices that improve procurement processes and the encoding, transfer and use of knowledge in an organisational context. The models designed by these authors can be termed Models of Knowledge Management.

3. 1 Processes of Knowledge Management

Research interest in the concept of knowledge management does not mean that the conceptual frameworks are clearly defined. Most theoretical approaches use multidimensional characteristics that are difficult to identify. In this sense, we tried to develop an analysis model to identify the different stages of knowledge management and the management practices that facilitate this knowledge, based on the promotion of learning because "managing knowledge is to create conditions that facilitate organisational learning "(Loureiro, 2003: 63).

The model, at the various stages of knowledge management, is based on the complementarity of several theoretical approaches to build an analytical framework that can address different processes in knowledge management, as shown in Figure 1. In addressing the practices that facilitate knowledge management, we adopted the thesis of Claudio Terra (2001) and developed it with other theoretical perspectives.

Figure 1 - Processes of knowledge management

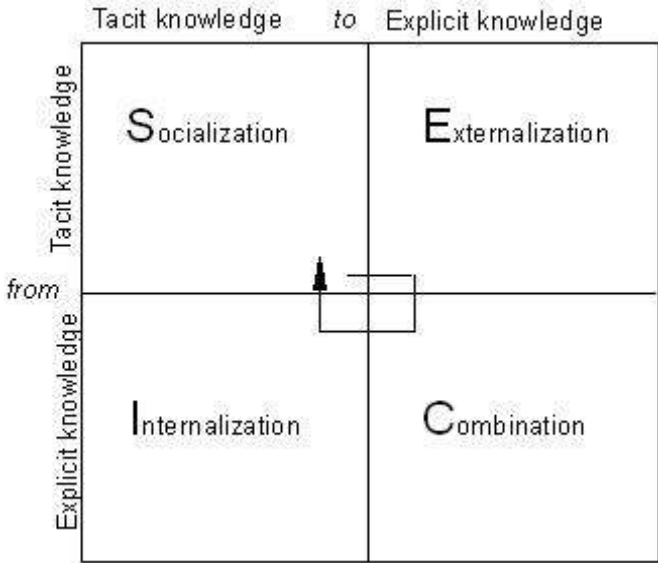


Source: Authors' (2011)

3.1.1 Creation and acquisition of organisational knowledge

Nonaka and Takeuchi (1997) are considered pioneers in research on the creation and use of knowledge in organisations. They created the analytical model of organisational knowledge creation called the "knowledge spiral", which enhances and integrates the various types knowledge. These authors showed that innovation and the creation of new knowledge derives from organisational transformation, or the conversion of tacit knowledge into explicit knowledge (Nonaka and Takeuchi, 1997: 11).

Figure 2 - Spiral of organisational knowledge creation



Source: Adapted from Nonaka and Takeuchi, (1997)

The combination of these two categories of knowledge highlights four modes of knowledge conversion (socialisation, externalisation, combination and internalisation), through which tacit and explicit knowledge spreads (Nonaka and Takeuchi, 1997).

Socialisation is the process of sharing or creating tacit knowledge between individuals through the development of shared experiences, observation, imitation and practice.

The process of explanation is the articulation and externalisation of tacit knowledge into explicit knowledge. It becomes codified and transmissible through formal language that can be easily understood by others. When it is made explicit, tacit knowledge can be shared and then becomes the basis of new knowledge.

Combination is the dynamic process of creating new tacit knowledge from explicit knowledge that already exists, giving rise to new concepts and ways of working. The combination is a process of systematisation of explicit concepts, at the organisational level more than the group level (Julian, 2009).

The main issues in combination concern the processes of communicating, disseminating and systematising knowledge. Therefore, networks and computerised data may be catalysts in this type of conversion (Nonaka, 1994).

The internalisation process is the incorporation of explicit knowledge in the form of tacit knowledge. In practice, the internalisation process has two dimensions. Firstly, explicit knowledge in the behaviours and practices of organisational members is incorporated in the form of mental models, cognitive structures or shared technical knowledge (know-how). Secondly, explicit knowledge is incorporated through the use of simulation programmes or projects that promote the various processes of learning through practice (learning-by-doing) and enable the learning of new concepts and working methods.

Each mode of knowledge conversion creates a different knowledge content. Socialisation generates what might be called "shared knowledge" because mental models or technical skills are shared. Outsourcing generates "conceptual" knowledge. Combination gives rise to "systemic knowledge." Internalisation produces "operational knowledge" about project management, production processes, new products and policy implementation (Nonaka and Takeuchi, 1997).

The creation of knowledge is thus a continuous and dynamic process between tacit and explicit knowledge. It involves fluctuations between the four modes of knowledge conversion and is like a spiral of knowledge that gradually extends the base of organisational knowledge. This process can expand to the organisation's external environment to the extent that it can interact with other organisations, leading to the creation of new knowledge.

Davenport and Prusak (1998), in turn, consider five methods for intentional knowledge acquisition, resource dedication, fusion, adaptation and knowledge networking. The most direct and usually the most effective way to acquire knowledge is to buy an organisation or to hire the individuals who own it. Increasingly, companies are acquiring others because of their knowledge. Moreover, knowledge can be leased or financed. An organisation can financially support a research institution or university in exchange for the right of priority in the commercial use of their results. Hiring a consultant to conduct a project is renting a source of knowledge. Contrary to the rental of tangible goods, knowledge implies a degree of knowledge transfer, but it represents only a small portion of the knowledge held by experts.

Another way to create knowledge is to direct resources to train units or groups with a specific purpose. Research departments are examples of this method. Mergers bring together people with different perspectives to work on a problem or project and encourage them to reach a common answer. This practice brings together a variety of talents and experience and increases the chances of a successful outcome (Davenport and Prusak, 1998). However, the "creative abrasion or merger requires some commonality" (Davenport and Prusak, 1998: 74), so group members must develop a common language to understand each other. Thus, some shared knowledge is necessary for the collaboration, such as a common object or concept to unify the efforts of the group.

Adaptations imposed on organisations, which are driven by changes in competition, new technologies and social and economic change, encourages the creation of knowledge. Informal networks of knowledge within organisations, such as communities of practice, promote the sharing of common knowledge to communicate and cooperate. The continuity of a network may well lead to new knowledge.

According to Beckman (1997), the creation of new knowledge can have many sources of inspiration and involves various activities, such as learning, creative thinking, research, experimentation, discovery, innovation, customer observation, causal analysis, benchmarking and process improvement projects. Experts' nonverbal and unconscious knowledge in specific areas is also a valuable source. Crucially, at least in today's technological environment, only humans can create knowledge.

3.1.2 Retention and storage of knowledge

Storage aims to reduce the loss of knowledge that is related to individuals' specialties and experiences in an organisation. Thus, knowledge storage seeks to represent an organisation's collective memory to facilitate its accessibility and thus transforms the assets into explicit and formalised knowledge. Both individual and team knowledge holders will add little to the organisation if there are ways to share this same knowledge (Beckman, 1997). Thus, the purpose of coding is to transform organisational knowledge into a code to make it explicit, portable, organised and as intelligible as possible to those who need it (Davenport & Prusak, 1998). According to the authors, it is necessary to follow the principles of coding to keep a certain structure of knowledge:

- Define the business strategy for the codified knowledge;
- Identify the existing knowledge as a way to achieve business objectives;
- Assess knowledge in terms of usefulness and appropriateness for codification;
- Identify a means of coding and appropriate distribution.

The mapping of the sources of organisational knowledge is an important part of the encoding process and can be developed through technology. The development of a knowledge map involves locating important knowledge in the organisation and publishing a list or table showing where to find it (i.e., people, documents and databases). A knowledge map may also function as an inventory and can be used to assess the stock of organisational knowledge and identify its strengths and weaknesses. Patents and the textual representation of a process or product developed by experts and inventors, reports and other structured documents are forms of codified explicit knowledge.

The codification of tacit knowledge in organisations is often impossible to reproduce in a document, which reduces, generally, the location of the knowledge to one person and provides an incentive for the owner to interact with others. Although it is difficult to codify tacit knowledge, this effort may be profitable for the organisation because the loss of those who hold the knowledge threatens the intellectual capital of the organisation. Thus, the organisation should seek to develop strategies to disseminate this knowledge. Thus, an organisation can target its knowledge processing into two broad classes: integrative (structured repositories for managing explicit knowledge) and interactive (allows interaction to integrate tacit knowledge) (Davenport & Prusak, 1998).

According to Terra (1999), every worker should contribute to the knowledge base and strategic knowledge of an organisation through appropriate processes and supporting technologies. A shared classification of information between areas, regions and departments is essential in facilitating collaboration, but it is not sufficient for the full use of information systems. There must be a policy to develop skills in using information technologies, with a particular focus on new, Internet-based technologies. These tools can promote virtual collaboration, research, access and sharing through the publication of information in a web environment.

3.1.3 Knowledge transfer and sharing

Sveiby (1998) states that a unique characteristic of knowledge is that the more it is shared and used, the more valuable it becomes. Davenport and Prusak (1998) argue that knowledge is transferred in organisations, regardless of whether the management process is conscious. According to the authors (1998, 107), the "spontaneous and unstructured transfer of knowledge is vital to the success of a company." However, specific strategies to encourage knowledge transfer are necessary for organisations that prioritise the creation and management of knowledge.

Davenport and Prusak (1998) identified some processes that promote the transfer of knowledge. To encourage the sharing of tacit knowledge among workers, the authors, like Nonaka and Takeuchi (1997), emphasise the system of staff rotation, which enables workers to understand the development of new products and / or services. However, the authors caution that methods of knowledge transfer must be compatible with organisational, and even national, culture. Davenport and Prusak (1998) consider that spaces for knowledge transfer are another way of transferring knowledge. Bars, cafes or restaurants in an organisation allow conversations to occur between employees and are places where "people are wondering about on-going projects, exchange ideas and ask advice on how to solve problems" (Davenport and Prusak, 1998: 110). It is likely that these group settings generate more creative solutions than isolated workers can, fully occupied with their individual tasks. Other ways to promote knowledge sharing are places and occasions for employees to interact, including walking, face-to-face meetings, fairs and forums.

The transfer of tacit knowledge generally requires more intense personal contact. This transfer may occur through partnerships, orientations for younger employees or training involving the transfer of tacit and explicit knowledge.

Information technology may also be an infrastructure for the transfer of tacit knowledge. Possible strategies include intranets, databases that link up workers who wish to share information, knowledge maps, videoconferencing systems for teamwork and video or CD-ROM recordings of the experiences of senior workers.

A common language is an important aspect in the success of any proposed knowledge transfer (Davenport and Prusak, 1998). People who share a common culture communicate better and transfer knowledge more effectively than those who do not.

Resistance to change and the need for mutual trust are equally important. Physical proximity promotes a common language and mutual trust. According to the authors referred to above, the transfer of knowledge involves the transmission and assimilation of knowledge. The mere existence of knowledge transfer does not necessarily mean that knowledge will be absorbed or that changes will occur in organisational behaviour, which is how knowledge is actually used. However, there are several factors that lead to the non-use of knowledge: distrust of the source of new knowledge, pride, stubbornness, lack of time, lack of opportunity or fear of risks. People tend to resist any change that requires the abandonment of skills, on which their competence and well-being at work depend.

Davenport and Prusak (1998) report that knowledge transfers must account for "transfer speed, i.e., the speed with which knowledge moves the organisation" (1998: 124) and the viscosity (i.e., the richness or thickness) of the knowledge transferred[5]. These two factors help to determine the efficiency and utilisation of organisational knowledge. However, the authors point out that speed can decrease viscosity, so it is important to reconcile these two factors.

Information should also be shared with external agents, due to the growing interdependence of partners, suppliers and customers. Obviously, this process requires a pre-definition of what can and should be shared externally. The protection of sensitive information by password mechanisms, encryption and restrictions on the distribution, circulation and printing of files are part of large organisations' knowledge management (Terra, 2007). The existence of (safe) virtual spaces [6] to exchange information and knowledge with various external agents (suppliers, partners, customers and others) tends to improve communication and increase trust and agility. These spaces can also boost innovation and improve services to customers. Achieving value through these relationships leads an organisation to invest in better management for the exchange of information and knowledge.

3.1.4 Use of knowledge

After locating and obtaining knowledge, an organisation faces the challenge of applying it to specific situations to meet the demands of its customers (Bukowitz and Williams, 2002). At this stage, the central issue is the innovative application of knowledge to create greater value for the customer.

Innovation refers to how an organisation combines information in new ways to create alternative solutions to problems. "The organisation may provide the means to enhance creative thinking, but the key is to establish an environment where creativity, experimentation and openness to new ideas are encouraged" (Bukowitz and Williams, 2002).

The use stage of knowledge complements knowledge sharing, which will only reach its maximum value if it is applied in a specific situation. Applying knowledge implies mobilising it to make decisions, perform tasks, solve problems, research ideas and learn. Therefore, the organisation must understand the objectives of its users and their context. Experts from different fields should add to the knowledge repository and provide support for employees through formal training, advice and instructions to improve workers' expertise and performance (Beckman, 1997).

[5] These factors are particularly influenced by the method of transfer. For example, knowledge conveyed through an orientation process or learning will have more viscosity than knowledge obtained through a database (Davenport and Prusak, 1998).

[6] Examples of virtual spaces for cooperation: digital library, list of contacts, internal networks, forums, systems and reporting mechanisms and even workflow.

The challenge is to integrate learning into people's work. Peter Senge (1998) has focused on this issue; he states that the key issue is to make learning happen and generate profound changes in the ways people think and interact. The five components (which he describes as subjects) of instruction that provide organisational learning when developed together are the following: systems thinking, personal mastery, mental models, shared vision and team learning.

This process resists short-term thinking and encourages a structured debate that has long-term benefits.

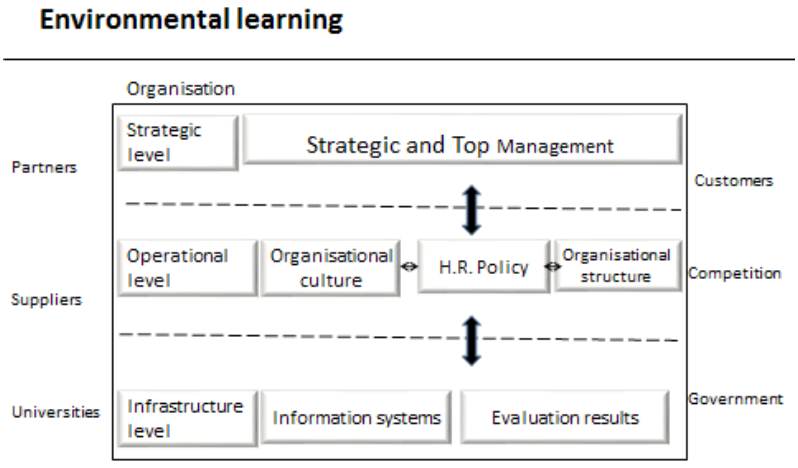
Undoubtedly, some organisations have been effective in creating or acquiring new knowledge. However, they are less capable in applying knowledge to their practices. Without making the necessary changes to their working methods, these organisations will be unable to create organisational learning. Continuous improvement requires effective engagement with learning.

4. ENABLING KNOWLEDGE MANAGEMENT

Little and Ray (2005) reported that the scholarly and practical interest in knowledge management began with the convergence of different perspectives: information management, organisational learning, strategic management, innovation management evaluation and management of intangible assets.

In this line of thought, Terra (1999), in his doctoral thesis, identified several practices (or enabling conditions) that are associated with innovative learning organisations[7]. The author concluded that knowledge management involves the adoption of management practices that are compatible with individual learning processes and the systemic combination of efforts in various organisational dimensions, including strategy, human resource policies, organisational culture, organisational structure, information systems, evaluation of results and the external environment[8].

Figure 3 - The seven dimensions of knowledge management



Source: Adapted from Terra (2001)

[7] The author sought to draw a cognitive map of the "enabling conditions" and the management practices of companies that take an innovative or proactive management of knowledge. After an exhaustive review of the literature, the author developed a model called the model of the seven dimensions of knowledge management, relating to different areas of management, including the practices that facilitate the process of knowledge management. The model was tested in 587 Brazilian companies.

[8] This approach is associated with the five organisational conditions or management practices that, according to Nonaka and Takeuchi (1995), facilitate the knowledge conversion modes, including organisational intention, autonomy, fluctuation and creative chaos, redundancy and a variety of other requirements.

4. 1 Strategy and Top Management

According to current theories of strategic management, knowledge in organisations is a key factor in transforming strategic imperatives into final results. Knowledge is understood as the only factor that can ensure lasting success in terms of effectiveness and market differentiation (Magalhães, 2005). It is, in effect, a strategic imperative.

Furthermore, Nonaka and Takeuchi (1997) argued that the most critical element of an organisational strategy is defining the kind of knowledge to be developed and its implementation in a system of management. The strategic objective, termed by the authors "intention," is the most important criterion for evaluating knowledge. The formulation of an organisational intention, when communicated, stimulates the commitment of individuals. They can reorient their thinking and behaviour with a collective approach that is based on the organisation's core values and, in particular, knowledge creation.

In knowledge management, there must be a consensus on an organisation's skills and abilities to facilitate the development of business strategies in line with them. Thus, top management should define the knowledge areas in which employees of the organisation should focus their learning efforts (Terra, 2001). It is important that organisational units know what information and knowledge they need to acquire, manage and disseminate to achieve their goals.

Thus, Terra states that knowledge gaps should be identified systematically and strategically to align knowledge assets and organisational processes with actual needs. Gaps in knowledge may include team skills and abilities, external information about markets, industries, trends and areas of expertise (internal and external) (Terra, 2007). The dimension "knowledge" should be incorporated into the strategic planning of the organisation, including, for example, highlighting actions to improve specific skills, hiring employees with profiles, experience and strategic skills and encouraging the sharing of best practices, protection and retention of knowledge and strategic skills. This strategy guarantees that key skills will be available in the future and that key knowledge is widely used in the organisation.

Leaders play a central role in setting challenging goals and creating an organisational culture that is focused on innovation, experimentation, learning, long-term results and the optimisation of various organisational areas (Terra, 2001). Leaders who communicate and share information and knowledge demonstrate that this attitude is valued in the organisation. It is essential that managers are available and collaborative and that they listen, encourage their teams to share knowledge and show their concern for employee development.

4. 2 Organisational Culture

Organisational culture can be defined as a set of core values and standards of behaviour that govern interactions and work in organisations (Schein, 1999).

According to Davenport and Prusak, "the adoption and application of new knowledge can be slow and arduous, and the success rate is highly influenced by company culture" (1998: 125).

Bukowitz and Williams (2002) state that the promotion and enhancement of knowledge sharing establishes an atmosphere of confidence and encourages contributions to organisational knowledge.

The feeling of trust between the workers in an organisation stimulates innovation and willingness to take risks and creates a more cooperative environment (Terra, 1999).

To encourage the sharing of knowledge is important to have a clear understanding, based on a set of standards that incorporates the expectations of knowledge sharing, to promote a reciprocal agreement between the individual and the organisation and between individuals themselves.

If workers perceive that the organisation wants to take ownership of their knowledge without any kind of return, they tend to feel threatened and uncooperative about sharing knowledge.

In the context of knowledge management, trust between people is related to the level of competence of each individual, willingness to share information expressed by colleagues, constructive criticism and the perception that the disagreements are resolved in a transparent and professional way (Terra, 2007). Sometimes it is necessary for workers to observe people who have new knowledge before they accept it (i.e., to learn who they are, their qualifications, whether they are trustworthy) (Davenport and Prusak, 1998).

Organisations can provide many tools to promote the use of information for innovation and creative thinking. However, the most important strategy is to establish an environment that encourages creativity, experimentation and openness to new ideas (Bukowitz and Williams, 2002). In other words, lifelong learning must be valued in words and actions (Terra, 2001); organisations must demonstrate that they value time spent in training, seminars, workshops, reading or even in programmes for e-learning during working hours. On the other hand, an environment conducive to learning makes employees pro-business in their learning strategies and personal improvement, which is embodied in changes in behaviour and results (Terra, 1999). Firms also create incentives to share knowledge by investing in technologies that facilitate communication, information sharing and personal contact between honest people. However, as Davenport and Prusak (1998) pointed out, the tools of information technology are necessary for the transfer of tacit or explicit knowledge in large enterprises, "but the values, norms and behaviours that constitute the corporate culture are the main determinants of the successful transfer of important knowledge" (1998, 117). Bukowitz and Williams (2002) reinforce this idea by noting that, although powerful network technologies make it theoretically possible for everyone to contribute knowledge, in practice, sharing *know-how* is subject to various complications and cultural barriers.

According to Terra (1999), the incentive to experiment and the freedom to try and fail are crucial in an organisation focused on innovation. However, we expect people to follow well-established innovation processes (with time and opportunities to share opinions and gather partial results) to minimise possible errors.

The freedom to act creatively opens the way for new solutions that provide new and better results. Regardless of whether people see themselves as creative, they are free to act on their ideas, and an organisation can encourage this kind of freedom. "When people are able to 'think different' their understanding of how the organisation creates value becomes multifaceted rather than limited (Bukowitz and Williams, 2002, p. 127).

Obviously, when there is more participation, processes are more confused, and the selection of contributions is more complicated. However, the potential for new and good ideas increases. Thus, the process of creativity is essential to create space and time for experimentation (Terra, 2001) and allows creative ideas to flourish, and it does not disrupt the functioning of the organisation when it is intentional. If everyone always acted freely, organisations would not meet their objectives. Thus, some organisations establish formal processes of suggestions for improvements, and other have standard procedures for feedback on the results of creative ideas, innovative actions and knowledge sharing through the public recognition and / or prize awards.

Terra (1999) notes that organisations that value "new ideas" show great openness to humour and jokes because relaxed and tolerant environments allow creative questioning about reality, competitors, the production process and customers' needs and desires.

The transfer of knowledge and information between various corporate areas and, for different units of work, individuals is the pooling of knowledge (Terra, 1999). The same author (2001) also emphasises that teamwork allows the exchange of experiences and helps

people to look at situations with a broader perspective and think more systematically. In contrast, Peter Senge (1998) argues that a systemic way of thinking allows us to see the underlying structures of complex situations, understand the system responsible for problems and analyse important problems regardless of organisational boundaries. According to Terra (1999), the organisations that lead knowledge management realise the importance of systems thinking and the relevance of having workers who think beyond their areas and work processes and seek resolutions together.

4.3 Structure and Organisational Processes

The permeability of ideas is fundamental to the use of knowledge (Bukowitz and Williams, 2002). In this regard, new organisational structures such as network enterprises, self-organising teams and informal structures reflect an increasing need for the rapid and unimpeded flow of knowledge. Models of mechanistic or bureaucratic organisations have become inadequate to meet the challenges that organisations face. Multidisciplinary teams with people from various departments are essential to meet these challenges, which go beyond organisational routine (Terra, 2001). Those teams, which break down hierarchical and operational boundaries, require organisational and individual flexibility. Organisations with more flexible structures allow a better use of expertise and experience (Terra, 1999).

Nonaka and Takeuchi (1997) suggest that organisations can deal with complex environments by developing a horizontal and flexible structure that connects the different areas of the organisation through a network of information and / or the frequent restructuring of organisation.

According to Terra (2001), organisations that stand out in terms of knowledge management use temporary and long-range teams that work on innovative research projects on products, processes or relationships with customers. These teams respond to environmental restrictions, and, thus, small rearrangements occur frequently.

The companies that rely on knowledge management usually have informal meetings outside the workplace to conduct brainstorms (Terra, 1999) because workspaces are believed to influence creativity, learning and the climate for innovation.

This type of organisation also uses communities of practice and learning, which include a significant number of people. The purpose of communities of practice is to create virtual or face-to-face collective learning around specific areas of knowledge (Nonaka and Takeuchi, 1997; Bukowitz and Williams, 2002; Terra, 2001).

Decision-making has shifted from the exclusive domain of senior executives to a distributed domain of line managers. However the flow of information is not always equally distributed. For the use of knowledge to be effective, it is important to treat information as an open resource that flows freely through the organisation (Bukowitz and Williams, 2002) to give decision-making power to people who have more knowledge and / or a specific competence for a task. Thus, it makes sense that decisions are taken at the lowest level possible to streamline the decision-making process and minimise bureaucracy (Terra, 2001).

4.4. Policies and Practices in Human Resource Management

According to Cascão (2004), Human Resource Management should play a facilitating role in knowledge management. Likewise, Terra (2001) states that the role of Human Resource Management is the creation, distribution and storage of knowledge through various policies and practices. It is through human resource policies that organisations clarify the kind of people, skills and attitudes they wish to attract.

Recruitment and selection is sometimes referred to as a strategic role for Human Resource Management[9]. These processes must be rigorous to evaluate not only the skills and abilities of candidates for a job but also the cultural appropriateness of their values related to sharing information and knowledge. Organisations should pursue diversity by recruiting professional profiles (either external or internal to projects) to enhance creativity (Terra, 2001). People with different backgrounds, experiences, formal education and culture bring different perspectives to solve problems and create new insights.

In career management, it is important to provide employees with different perspectives and experiences. Mobility and turnover make people the main vehicle for exchanging information and establishing links between different areas of the company. This experience enables individuals to learn about the organisation from different perspectives, creating fluid organisational knowledge (Nonaka and Takeuchi, 1997). Turnover, according to the authors cited above, fosters redundancy[10], which promotes the organisational knowledge spiral. In addition, careers consist of experiences in different areas and functions that enhance people's creative potential and their contacts with people from different areas of the organisation and various fields of knowledge (Terra, 2001; Nonaka and Takeuchi, 1997). Thus, these employees understand the organisation's systemic weaknesses and strengths and can usually adjust to the unexpected demands of new projects without requiring long periods of formal training.

A culture based on meritocracy is important for organisations concerned with knowledge management. They must develop a broad and comprehensive performance evaluation that measures contributions to learning and organisational knowledge, skills and specific outcomes in terms of innovation, efficiency and value, perceived by internal and external customers (Terra, 1999).

The sharing of knowledge may be a criterion for performance evaluation, for example, through the relevance and frequency with which employees contribute to the databases of best practices, discussion forums and participation in communities of practice.

The effort to promote knowledge sharing is essential for training organisation members, such as new employees, to use the systems for knowledge dissemination. Thus, an organisation focused on knowledge management should plan human resource development training that includes internal, external and on-the-job training for the development of skills and technical expertise, both for its staff and according to the needs of the organisation (Terra, 2001).

Training should be strongly associated with the strategic needs of the organisation. That is, an explicit organisational strategy, the identification of the skills needed for its implementation and a subsequent breakdown by function or department level clarify what skills each individual should develop (Terra, 2001; Ceitil, 2002). Thus, to create knowledge, organisations should encourage the commitment of their employees by formulating an organisational intention (Nonaka and Takeuchi, 1997). Training plans must develop technical and behavioural skills relevant to the results expected by the organisation.

Terra (2001) highlights that it is prudent for an organisation to avoid significant losses of employees with key knowledge. The longer an employee stays in a company, the higher his productivity and the more specific his knowledge. Companies that maintain low turnover have an advantage in creating knowledge that needs long maturation time. However, this fact does not prevent an organisation from maintaining an active policy of staff renovation by removing underperforming people and attracting human resources with new insights and knowledge.

[9] The reasoning behind this perspective assumes that cognitive ability, creativity and individual motivation and the ability to work as a team, although they can be improved and facilitated by an organisation, are personal characteristics that individuals develop throughout their lives and are hardly modifiable.

[10] The existence of information beyond the immediate operational needs of the members of the organisation allows new information from different perspectives.

The association of remuneration with a position is not a good measure because people need to show versatility in increasingly integrated teamwork and projects. Pay based on skills removes the primary focus on past performance and accounts for workers' flexibility to deal with future challenges. In fact, the employee "need not have a boss telling you how to perform your work - have a client that expects him to be able to plan and organise their own work" (Stewart, 1999: 82).

Organisations can also institutionalise ways to reward and recognise outstanding contributions and results, including symbolic moments of recognition and awards, particularly in public (Terra, 2001). Similarly, the distribution of profits among employees and engagement in business may contribute to a sense of common responsibility, fostering attitudes of collaboration and knowledge sharing between different areas of the organisation.

According to Davenport and Prusak (1998), one of the challenges of knowledge management is to ensure that knowledge sharing is more profitable than its closure. However, many initiatives related to knowledge are based on the utopian premise that people share knowledge without thinking about their potential gains or losses. However, in reality people rarely give something valuable (including knowledge) to others without expecting something in return. According to Terra (1999), it is important to maintain networks of contacts with former employees because these networks retain knowledge and can be an excellent source of business opportunities that lead to new employees and even potential partners.

Another way to foster learning through increased contacts and interactions within and outside the organisation is to encourage the active participation of individuals and teams in events and professional associations relating to their areas. In these events, individuals take on leadership positions and interact with their peers, both internally and externally.

According to Cascão (2004), human resource management will have to be innovative and decisive to face one of the biggest challenges in its history: the sharing of knowledge and skills. Performance motivation alone is no longer enough, and promoting knowledge sharing is crucial.

4. 5. Information Systems and Communication

The link between information technology, knowledge and organisational performance is clear. Technologies provide access to diverse sources of specialised information and improve our ability to analyse, manage and apply this information to work (Serrano and Candido, 2003).

The purpose of information and communication systems should be to apply timely, reliable, accurate and relevant information where it is useful. Vagueness, low accessibility or a lack of information can be costly to organisations in terms of duplicated effort, missed opportunities and dissatisfied customers.

Bukowitz and Williams (2002) report three types of disorders in accessibility of information in organisations:

- Dysfunction of information accessibility from top to bottom, usually related to safety issues or other concerns related to their misuse.

- Transorganisational dysfunction, when the different functional groups (e.g., departments, business units or process teams) refuse to share information, creating organisational cocoons.

- Dysfunction of the bottom up, when the supervisors block access to important information for decision-making. This dysfunction may happen more often when individuals are only rewarded for reporting good news and select only a certain type of data to give to executives. Furthermore, (Nonaka and Takeuchi, 1997) databases, methods of classifying information, web-based tools, intranets and the Internet support phase combination (i.e., the systematisation of concepts at an organisational level) because they allow the exchange and dissemination of knowledge among various sections, departments and organisational units.

Systems should be developed to ensure that information systems[11] are relevant and allow for the identification, access, organisation and selective distribution of information appropriate to the work of each employee of the organisation. These systems should use different perspectives: individual, team, project, organisation and intra-organisational (Terra, 2001). A system of user-customisable information is useful when searching for information and allows the individual to receive information in the format and timing suited to his needs.

A constant concern for leaders in knowledge management is to make information systems friendly (Terra, 2001) by taking into account organisational goals, best practices for use, characteristics of internal and external audiences, situations of use and the limits of existing technology.

However, these strategies alone are not sufficient for the information systems to be completely used. Organisations should develop skills and competencies to use information technologies, especially new Internet-based technologies that facilitate virtual collaboration, research, access and publishing (Terra, 2007). Given the growing interdependence of relations with partners, suppliers and customers, information should be shared with outsiders. Obviously, this openness requires a pre-definition of what can and should be shared externally. The transfer of knowledge is desirable and necessary for the development of organisations. However, imitation by competitors should be avoided (Serrano and Candido, 2003).

Organisations with advanced processes of knowledge management have a major incentive to document knowledge and know-how (Terra, 2001). In fact, these groups determine the procedures related to codification and knowledge sharing. The intranet, extranet and even the site are key channels of contact with customers, partners and suppliers. In this regard, the organisation must consider the effective use of these channels, which require human, financial and time investments to remain up to date. The most relevant information must be encoded and organised in virtual spaces for general access and not on individual computers or specific areas of the organisation. Importantly, knowledge management is primarily a matter of people (Terra, 2001). Useful technologies for knowledge management are those that integrate people (Serrano and Candido, 2003) and overcome the boundaries between business units to prevent the fragmentation of information and to create global networks for sharing knowledge.

The challenge of information technology is to identify, develop and deploy technologies and information systems that promote organisational communication and the exchange of ideas and experiences that facilitate group participation and the renewal of informal networks. Thus, the role of information technology is to develop collective knowledge and learning and facilitate the sharing of problems, perspectives, ideas and solutions.

4.6. Outcome Assessment

An important aspect of knowledge management for practitioners and researchers has been the creation of an organisational theory to include intangible variables. Terra (2001) highlights the need to measure results from various perspectives (financial, operational, strategic, knowledge acquisition), which allow us to evaluate the relations between different organisational areas and processes. Robert Kaplan and David Norton created the Balanced Scorecard (BSC), which has been developed and refined since 1992. These authors seek a comprehensive overview of an organisation that can monitor financial performance and the activities that lead to such results, such as customer relations, innovation, learning and internal business. This approach allows a greater openness to knowledge management (Bukowitz and Williams, 2002).

[11] Portals, document management, Website, groupware, etc.

The BSC management model aims to clarify organisational vision and strategy by explaining them in terms of cause and effect through four perspectives: financial, customer, internal processes and learning and growth. They describe the logic of this relationship with a strategic map, in which strategic objectives are broken down into indicators and performance targets. Action plans are essential for achieving every goal and describe strategic initiatives so that all "knowledge workers" understand their operational responsibilities and work for the results expected by the organisation (Kaplan and Norton, 1997).

According to Kaplan and Norton (1997), the role of workers has changed, and suppliers have the ability to perform increasingly abstract data analysis. This view is supported by several authors, including Drucker (1994), who refers to knowledge workers, and Sveiby (1998), who sets out the differences between the industrial paradigm and the paradigm of knowledge. Stewart (1998) also describes workers' knowledge. Edvisson and Malone (1998) and Sveiby (1998) argue that people are the only active agents in organisations. Thus, all assets and infrastructures (tangible or intangible) are the result of human actions, depending ultimately on the people there. Thus, Kaplan and Norton (1996) describe learning and growth as the foundation of every organisation's strategy, which should create infrastructures to enable the achievement of the other three dimensions of the model. The authors (2004) present the three types of capital that determine the value of intangible assets, organised into six objectives:

i) Human capital

- Strategic competencies, skills, talent and knowledge to perform the activities required by strategy;

ii) Information capital

- Strategic information, availability of information systems, infrastructure and knowledge management applications needed to support the strategy;

iii) Organisational capital

- Culture: awareness and internalisation of the mission, vision and common values needed to implement the strategy;
- Leadership: The availability of qualified leaders at all levels to drive the organisation in implementing the strategy;
- Alignment: alignment of goals and incentives with the strategy at all levels;
- Teamwork: sharing knowledge and resources for people with strategic potential.

Thus, the BSC is seen as a management system that can improve critical areas such as innovation in products, processes and customer and market development. It aims to implement organisational vision and strategy through the articulation of strategic objectives for long-term and short-term actions (Kaplan and Norton, 1997). Thus, the BSC tracks performance and strategic alignment using past financial data and introducing guidelines for future performance (Amaral and Pedro, 2004)

In 1997, Karl Erik Sveiby proposed adding a new group of elements to the balance sheet[12]. The author created the Intangible Assets Monitor, which aims to let managers experiment with new measures to evaluate intangible assets, which are increasingly important in the knowledge economy.

According to Sveiby (1998, p. 14), "while intangible assets may seem invisible, they can actually be discerned with ease, using for this, the following categories to classify them: employee competence, internal structure and external structure."

[12] The author studied how to manage and track business - based on knowledge - they have their production based on the traditional model, but only on knowledge and creativity of their employees. This work has provided a rich and global vision to assess the potential of the business.

Employee competence is the ability to place the organisation's staff in a variety of situations and create tangible and intangible assets, including skills, education, experience and values.

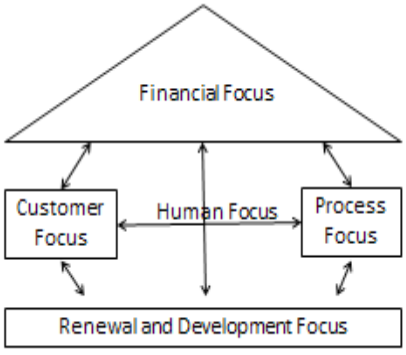
Internal structure is the existing knowledge in the organisation, which includes patents, designs, concepts, organisational culture and information systems. This knowledge is usually created by developers and owned by the company. Thus, the interaction between competence and internal structure determines an organisation's performance mode.

Knowledge that is created by the relationships between a company and its external agents is called the external structure. It consists of items that are difficult to manage and evaluate, such as relationships with customers, suppliers, image and reputation. From this perspective, investments in external structure are generally not as safe as those made in the internal structure because their value depends on how the entity meets the expectations of external agents.

Assessment is not a substitute for strategy; it is a reflection of strategy and a tool for its implementation. "At best, it works as a nervous system. It keeps the company in harmony with the reality of strategy in the extremities" (Bukowitz and Williams, 2002: 234) with customers, employees, suppliers, regulators and the community. At worst, it becomes an obstacle to change when information is not provided about the real state of the organisation (Bukowitz and Williams, 2002). The core of a knowledge management project is not the control of organisational knowledge sharing. Rather, it works as a strategic resource for the organisation.

From the experience of the company Skandia, an insurance industry based in Sweden, Edvinsson and Malone (1998) report on the intellectual capital model presented in the "Skandia Navigator." This model presents a broad list of performance measures for intangible assets.

Figure 4 - Navigator of Skandia



Source: Edvinsson e Malone (1998)

The model is characterised by five areas of focus: financial, customer, process, renewal and development and human (Edvinsson and Malone, 1998). In the opinion of the authors, organisations should focus on these areas, which are the source of intellectual capital. However, the epicentre of Skandia Navigator is its people, and financial capital is the commercial result of value created from intellectual capital. The navigator also integrates a temporal dimension with past, present and future axes. The financial focus is on the past, but the customer focus is centred on the human dimension. The processes are based in the present, and renovation and development position the organisation in the future.

Thus, in this model, intellectual capital is measured by 111 indicators, derived from a preliminary list of 164 indexes (91 based on intellectual activities and 73 in traditional

measures), covering the five foci: (1) financial, (2) customers, (3) processes, (4) renewal and development and (5) human. This quintet forms the structure of the report on intellectual capital. Edvinsson and Malone (1998) believe that companies have the capacity to monitor 111 indicators through a computerised information system.

Terra (2001) states that an organisation needs to perform both quantitative and qualitative evaluations to determine whether it is achieving its objectives (i.e., strategic level, customer level, employees, financial, operational and the creation of intangible assets)[13].

Information technology and communication provide ways to evaluate specific and detailed information about use (frequency of use, type of user, type of content and applications accessed) (Bukowitz and Williams, 2002). Other typical measures include time spent by task, relevance, updates, information accuracy and usability. According to Terra (1999), the relative size of learning, knowledge sharing and capacity building can include the results of various departments, areas and business units. Today, organisations spend as much time evaluating results in terms of skill development, organisation, divisions, departments or individuals as they do on evaluating financial and operational results. This shift requires detailed monitoring of key competences through formal and periodic reviews of initiatives related to employees' learning and skill development. Assessment in organisations is important because it allows them to detect and highlight areas for improvement.

4.7. Learning with the Environment

The blurring of organisational boundaries, as evidenced by increased collaboration with customers and suppliers, has come to define new forms of competition and innovation based on using know-how to create value (Bukowitz and Williams, 2002).

Customers (particularly the most important and profitable ones) can be significantly involved with an organisation in areas such as strategic planning, product development and feedback on products and services. Learning with customers can occur through various formal and informal mechanisms, such as focus groups, formal interviews and customer communities (Terra, 2001).

Employees' knowledge of marketing, sales and service often contribute to databases of information about customers and competitors, such as customer profiling systems for sector analysis, data on competitors and benchmarking. Organisations have well-developed systems and allow access to customer data in aggregate form or otherwise, both for front-line employees and the management, which follows the evolution of customer relationships.

According to Terra (2001), an increasingly important issue in supplier evaluation relates to the work abilities revealed by these systems, which measure the achievement of common goals through the collaborative approach based on information and knowledge sharing and contribution to innovation. Hence, capacities for innovation, collaboration and interest in ethical knowledge sharing are important criteria for selection and maintenance suppliers.

Today, it is difficult for one organisation to provide all the components of products and services that customers need and to develop products in isolation. This issue is due to the dispersion of knowledge, so it is essential that an organisation can manage partnerships with other organisations (Terra, 1999). To meet this challenge, organisations have formal training programmes, which provide the skills and competencies required for effective partnerships. They follow methods that aim to ensure the achievement of expected results. Some organisations, the leaders in knowledge management, have areas devoted to relationships with universities and research institutions (Terra, 2001). This type of initiative

[13] Specific examples include: customer loyalty and satisfaction indexes, organisational climate and employee satisfaction, as well as measures of efficiency and effectiveness in various central processes of the organisation.

aims to ensure that organisations are aware of emerging ideas in critical areas. According to Terra (2001), the decision to make alliances is often related to strategic decisions and learning. Thus, in formal alliances, there are precise definitions of how intellectual assets should be managed between the parties (access, sharing, ownership, etc.).

Organisations that compete effectively have a good understanding of their sectors, markets and competitors; they strive to capture, organise and disseminate information about the environment and competition (Terra 2001). This information may be acquired (secondary sources) and / or internally developed by teams of analysts.

Importantly, organisations absorb tacit and explicit knowledge from multiple sources, even external ones (e.g., its suppliers, partners and customers), through interactive processes. "Increasingly, organisations will build their intellectual capital through relationships - with employees, suppliers, customers and the communities with which they interact and even with competitors (Bukowitz & Williams, 2002: 27). Achieving value through these relationships, forces an organisation to invest in better environmental management.

5. CONCLUSION

Knowledge management incorporates individual, group and organisation levels. It is part of a multidisciplinary and systemic approach and involves a dynamic interaction between the various subsystems of an organisation. Knowledge management is articulated through an institutional approach that seeks to understand the influence of socially constructed cultural elements on the relationships in an organisation.

Organisational learning was discussed above through the various perspectives in the literature. We aimed to find a better understanding of this new organisational approach and identify key areas currently considered essential for effective knowledge management. Thus, approaches to knowledge management focus on organisational processes related to the creation, retention, transfer and use of organisational knowledge and highlight the importance of the management practices that facilitate them.

We presented an analytical model that identifies the different stages of knowledge management (acquisition / knowledge creation, retention / storage, transfer / sharing and use) and the management practices that facilitate it (strategic management, organisational culture, structure and work processes, human resource policies, information systems and communication-measuring results and relationships with the environment outside the organisation). We tried to take into account the multifaceted characteristics of knowledge management and its practical significance.

The two major axes of the analytical model (stages of knowledge management and practices to facilitate knowledge management) do not exist in isolation; they are complementary, and both are essential for a comprehensive approach to knowledge management. The dimensions of analysis are interconnected because the various practices of knowledge management go beyond the categorisation established here.

For example, strategies to retain knowledge through information technologies involve changes in organisational processes. These changes depend on the efficient operation of activities linked to the cultural and behavioural aspects of knowledge sharing. These factors must be taken into account throughout the investigation.

Thus, knowledge management is a set of processes that, through the dissemination of knowledge, maintains or improves the performance of organisations. These processes are influenced by variables such as culture, strategy, structure, technology, management type, resources and work processes. The interplay of these variables requires coordinated action to translate knowledge management into positive results for organisational performance.

REFERENCES

Amaral, P. C. e Pedro, J. M. (2004). *O Capital Conhecimento: modelos de avaliação de actividades intangíveis*. Universidade Católica. Lisboa.

Beckman, T. J. (1997). Methodology for knowledge management. Em: International Association of Science and Technology for Development (IASTED). *AI and Soft Computing Conference*. Banff, Canada.

Bell, D. (1973). *The Coming of Post-Industrial Society: A Venture in Social Forecasting,* 1ª edição, Basic Books. New-York.

Berger, P., L. e Luckmann, T. (2004). *A construção social da realidade*. 2ª edição, Dinalivro. Lisboa.

Blanché, R. (1988). *A Epistemologia.* 4ª edição, Editoral Presença. Lisboa.

Brown, J. S. e Duguid, P. (2001). Estrutura e espontaneidade conhecimento e organização. Em, M. T. L. Fleury e M. M. Oliveira Júnior. (eds.), *Gestão estratégica do conhecimento: integrando aprendizagem, conhecimento e competências*. 1ª edição, Publicações Atlas. São Paulo.

Bukowitz, W. R. e Williams, R. L. (2002). *Manual de Gestão do Conhecimento: ferramentas e técnicas que criam valor para a empresa*. Bookman. Porto-Alegre.

Cascão, F. (2004). *Entre a gestão de competências e a gestão do conhecimento: Um estudo exploratório de inovação na gestão das pessoas,* 1ª edição, Editora RH. Lisboa.

Ceitil, M. (2002). O papel da formação no desenvolvimento de novas competências. Em: A. Caetano e J. Vala (eds.), *Gestão de Recursos Humanos – contextos, processos e técnicas. 2ª edição,* Editora RH. Lisboa.

Corcuff, F. (2001) *As novas sociologias. Construções da realidade social*, 2ª edição, VRAL. Lda.. Sintra.

Davenport, T. H. e Prusak, L. (2003). *Conhecimento empresarial: como as organizações gerenciam seu capital intelectual*. 9ª edição, Campus. Rio de Janeiro.

Drucker, P. F. (1996). *A* gestão *numa época de grande mudança*, Difusão Cultural. Lisboa.

Drucker, P. (1993). *The Post-Capitalist Society*. HarperCollins. New York.

Edvinsson, L. e Malone, M. S.(1998) *Capital intelectual: descobrindo o valor real de suas empresas pela identificação de seus valores internos*. Makron Books. São Paulo.

Freire, J. (2002). *Sociologia do Trabalho: Uma Introdução*, Colecção Biblioteca das ciências do Homem. 2ª edição, Edições Afrontamento. Porto.

Giddens, A. (1998). *Política, Sociologia e teoria social. Confrontos com o pensamento social clássico e contemporâneo.*1ª edição. Celta Editora. Oeiras.

Hessen, J. (1978). *Teoria do Conhecimento*. 7ª edição, Editor Sucessor. Coimbra.

Julián, B. F. (2009). *Práticas organizativas, capacidades dinámicas y desempeño económico*. Tesis doctoral. Departamento de Administración de Empresas y Marketing, Faculdade de Ciencias Jurídicas y Económicas, Universitat Jaume I. Castelló de la Plana.

Kant, (1997). *Crítica da Razão Pura*. 4ª edição, Fundação Calouste Glubenkian. Lisboa.

Kaplan, R. S. e Norton D. P. (1997). *A estratégia em Acção: Balanced Scorecard.* 4ª edição, Editora Campus. Rio de Janeiro.

Kaplan, R. S. e Norton, D. P. (1992). The balanced scorecard: measures that drive performance. *Harvard Business Review*, Jan./Feb, **70 (1):** 71-79.

Kluge, J., W. Stein e Licht, T. (2002). *Gestão do Conhecimento: Segundo um estudo da Mckinsey & Company*. 1ª edição, Principia. Cascais.

Kuhn, T. (1996). *The Structure of Scientific Revolutions*, 3rd Edition, The University of Chicago Press. Chicago.

Little, S. e Ray, T (2005). *Managing Knowledge: an essential reader. 5ª edição,* Sage. Londres.

Loureiro, J. (2003). *Gestão do Conhecimento*. 1ª edição, Centro Atlântico. Lisboa.

Magalhães, R. (2005). *Fundamentos da Gestão do Conhecimento Organizacional*. 1ª edição, Edições Sílabo. Lisboa.

Manheim, K. (1986). *Sociologia do conhecimento*. I volume, Porto: Rés-editora.

Nonaka, I e Takeuchi, H. (1997). *Criação de conhecimento na empresa: Como as Empresas Japonesas Geram a Dinâmica da Inovação*. 13ª edição, Rio de Janeiro. Campus.

Nonaka, I. (1994). A Dynamic Theory of Organizational knowledge Creation. *Organization Science*. **5 (1):** 14-37.

Schein, E. H. (1999). The Corporate Culture Survival Guide: Sense and Nonsense About Culture Change. 1st Edition, Jossey-Bass. San Francisco.

Senge, P. M. (1998). *A Quinta Disciplina: Arte e Prática da Organização que Aprende*. 2ª edição, Best Seller. São Paulo.

Serrano, A. e C. Fialho (2003). *Gestão do Conhecimento: O Novo Paradigma das Organizações*. 1ª edição, FCA – Editora de Informática. Lisboa.

Spender, J. C. (2001). Gerenciando Sistemas de Conhecimento. Em: Fleury, M. e Jr. M. (eds), *Gestão Estratégica do Conhecimento: integrando aprendizagem, conhecimento e competências*. Publicações Atlas. São Paulo.

Stewart, T. (1999). *Capital Intelectual: A nova riqueza das organizações*, 1ª edição, Edições Sílabo. Lisboa.

Sveiby, K. (1998). *A Nova Riqueza das Organizações: Gerenciando e Avaliando patrimónios de Conhecimento,* 7ª edição, Campus. São Paulo.

Sveiby, K. E. (1997). *The New Organizational Wealth*. 1st Edition, Berrett-Koehler Publisher. San Francisco.

Terra, J. C. C.(2007). *Gestão do Conhecimento: 7 Dimensões e 100 Práticas Gerenciais*. Acedido em 2 de Março de 2007, no *Web site*: TerraForum Consultores: http://portais.integra.com.br/sites/terraforum/Biblioteca/GC_7_Dimensões_e_100_práticas_gerenciais.pdf

Terra, J. C. C. (2001). *Gestão do conhecimento: o grande desafio empresarial*. 2 edição, Negócio Editora. São Paulo.

Terra, J. C. C.(1999). *Gestão do Conhecimento Aspectos Conceituais e Estudo Exploratório Sobre as Práticas de Empresas Brasileiras*. Tese de doutoramento. Escola Politécnica da USP. Acedido em 19 de Maio de 2007, no Web site TerraForum Consultores: http://www.terraforum.com.br/sites/terraforum/paginas/teses/teses.aspx

Weick, K. e Robert, K. (1993). Collective mind and organizacional reliability. *Administrative science Quarterly*. **38(3)**: 357-381.

Wiig, K. M. (2002). "Knowledge Management in Public Administration". *Journal of Knowledge Management*. **6(3)**: 224-239.

Wiig, K.M. (1999). What future knowledge management users may expect. *Journal of Knowledge Management.* **3(2):** 155-156.