Defining Organisational Knowledge:

A Best Practice Perspective

By

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Abstract

In today’s digital economy, the emerging patterns are that intellectual capital will replace natural resources, commodities, finance, technology and production processes as the key factor influencing competitive advantage. However, knowledge management is still in its infancy. This paper aims to identify the critical success factors and best practices of knowledge codification for knowledge management through analyzing the experiences of several organisations. The paper starts by defining what is meant by ‘knowledge’ and ‘knowledge management’, and follows on by presenting the knowledge processes which are at the basis of knowledge management practices. Moreover, and based on a systematic analysis of 6 case studies of leading organisations in knowledge management, the paper focuses on the practices these organizations deployed to define and understand organizational knowledge.
1. Introduction

The field of Knowledge Management (KM) is of growing interest in today’s business and academic world. Today organisations are living in a world of expanding knowledge with more and more people being described as knowledge workers, and knowledge being widely accepted as the only true business asset. Global organisations have started using KM technologies to heighten their competitiveness in ways that were impossible a few years ago. Hewlett-Packard executive stated that “If HP knew what HP Knows, we would be three times as Profitable” (cited in Coates, 1999) With the importance of KM being realised, companies are viewing KM as a critical factor for their success (Lim, Ahmed and Zairi 1999). According to James Dalton, CAE, president, Strategic Counsel, in the USA, the “downsizing of the 1980s led corporate America to realise that they were haemorrhaging an asset that wasn’t on their balance sheets. Today, however, many people deem knowledge-based assets to be the new organisational wealth. Acquisition and enhancement of these assets have become crucial management concerns” (Kirrane, 1999). Many authors and practitioners (Quinn, et al., 1996, Matinez, 1998, Numri, 1998, Albert and Bradly, 1997) argue that the emerging patterns are that intellectual capital will replace natural resources, commodities, finance, technology and production processes as the key factor influencing competitive advantage. This is because, with the exception of intellectual capital, everything else (IT, materials, end technical information) is available to everyone on more or less the same terms. So it does not come as a surprise to find many organisations have already embarked on some form of ‘knowledge management system’.

2. Knowledge and Knowledge Management

There has been a great deal of debate in the literature about the meaning of the term “knowledge management”. Most of the debate revolves around the differences between the term’s ‘information’ and ‘knowledge’. Even though in some instances they may have been used interchangeably, many have suggested that the two concepts are distinctly different (Gore and Gore, 1999). It is frequently suggested that information is a component part, but not the whole of knowledge. Knowledge itself is a much more all-encompassing term which incorporates the concept of beliefs that are based on information (Machlup, 1983).

In order to successfully manage knowledge, it is prudent to clearly define it. The definition of knowledge adopted here is “information combined with experience, context, interpretation, and reflection. It is a high-value form of information that is ready to apply to decisions and actions” (Albert and Bradley, 1997).

Based on cognitive science theories, knowledge can be defined as an abstract concept that is consciously or unconsciously built by the interpretation of a set of information acquired through both experience and meditation on the experience itself, and that is able to give its owner a mental and/or physical ability (Polanyi, 1962; 1966; Kim, 1993; Kolb, 1984; Johnson-Laird, 1993). This definition highlights that knowledge has three characteristics: structural, process and functional, that are tightly interconnected. From a structural point of view, knowledge is formed by information. However, knowledge is not a simple aggregation of information: while information, defined as a structural set of data, is neutral, i.e. independent from the owner (individual or organization), knowledge is a set of information associated to a meaning by an individual or organizational interpretation process (Huber, 1991; Weick, 1979). This aspect is the process characteristic of knowledge. The interpretation process concerns new or existing information by which both individuals and organizations develop new knowledge (Daft and Weick, 1984). Therefore, to deal with the concept of knowledge it is necessary to separate the simple information from information associated to a meaning (i.e., the knowledge). Finally, from a functional point of view, all the knowledge owned by individuals or organizations defines their skills and core competencies, respectively, and enable them to carry out some tasks. In fact, every skill always makes reference to a specific task defined as a goal that can be achieved in given conditions (Leplat, 1990).

Business knowledge generally is of two types; explicit knowledge (can be written down, transferred, and shared. It is definable and can be protected by the legal system) and Tacit knowledge (know-how, and is by
nature difficult to describe. It can be demonstrated but rarely codified, and resides with its holder. It gets transferred through demonstration and on-the-job training). Within this context, knowledge management means the “strategies and processes of identifying, capturing, and leveraging knowledge to help the firm compete” (APQC, 1997). In general, knowledge management is the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities. It is a systematic process of underpinning, observation, instrumentation, and optimisation of the firm’s knowledge economies. Its overall purpose is to maximise the enterprise’s knowledge related effectiveness and returns from its knowledge assets and to renew them constantly.

3. A framework for knowledge management processes

In Figure 1 the fundamental knowledge processes underpinning the knowledge management practices are depicted. It addresses the possible knowledge management practices that an organization might implement to continuously maintain and develop its knowledge.

The framework is structured around the knowledge codification process. It is considered the most relevant process on which other knowledge processes are based. In fact the knowledge codification represents a cross-sectional process which affects all other knowledge processes. In accordance with the ‘knowledge creating company’ model, proposed by Nonaka and Takeuchi (1995), knowledge generation is deeply affected by the ability of an organization to adopt knowledge codification. By knowledge codification a company stimulates the organization knowledge creation mechanisms as well as allows the acquisition of public and private knowledge available outside the company context in form of formalized knowledge. Knowledge codification increases the effectiveness of knowledge transfer and sharing processes, allowing to overcome the constrains of the socialization processes to exchange tacit knowledge. Moreover the knowledge codification is at the basis of both knowledge mapping and knowledge storing. In fact in order to map knowledge, it is necessary, at least, to classify it. While the knowledge storing is only possible if the knowledge is put in some information codes.

![Figure 1. Relevant knowledge processes underpinning knowledge management practices](image)

3.1 Knowledge Codification - From a semantic point of view, to codify knowledge means to put knowledge into a code. Within an organization the knowledge codification process involves three main interrelated processes which are: knowledge externalisation, knowledge representation and knowledge organization. Knowledge externalization is the process by which tacit knowledge rooted in an individual’s actions is transformed into explicit knowledge, i.e. knowledge that can be described and transferred by a verbal communication process. This transformation has a fundamental role since tacit knowledge is not describable by its owner and it can only be observed through the ability that it allows (Albino et al, 2001).

Knowledge representation is the process which gives explicit knowledge a graphic form and it is possible to use different information and communication code, such as natural language, figures, drawings, pictures, ideograms, flow charts, and so on. Until explicit knowledge is represented by an information and
communication code, it is informal knowledge. For an organization, the value of informal knowledge is increased when it is formalized or represented. In fact in this way the knowledge becomes the property of the organization rather than of the individual. It can be stored, easily spread in the organization and also sold. The representation of knowledge involves the description of the explicit knowledge by a specific information and communication code. The choice of code to be used is strictly related to the goal of the codification process and depends on the information and communication technologies that will be adopted to store and spread the codified knowledge.

Knowledge organization is the process designed to categorize, structure and/or contextualise the codified knowledge. Usually a lot of codified knowledge is recorded in organizations in different types of documents that are dispersed in diverse databases. The result is that their access and retrieval can be difficult. Through the organization of knowledge the organizational codified knowledge is identified and structured according to specific rules. In this way the knowledge utilization value is increased. Knowledge organization can also involve a contextualization process. This is a process which aims to change the communication code of specific codified knowledge in order to make knowledge more transferable and absorbable in contexts different from the original one. In fact the information code used to represent knowledge could be strictly related to a specific context. This requires that the codified knowledge is understood and used properly only within the context in which the code is well understood.

**3.2 Knowledge generation** - includes a set of processes executed in order to increase the stock of corporate knowledge assets. There are two main sub-processes of knowledge generation - knowledge acquisition and knowledge creation.

Knowledge acquisition is the process of capturing and bringing knowledge from the external environment into the internal context of a company. The most direct way of acquiring knowledge assets from the external environment of the company is to buy it. Knowledge can be acquired by scanning the external environment and identifying and, for instance, capturing knowledge in the form of patents, practices and technologies. Alternative methods are either to acquire knowledge assets or to rent them, e.g. paying consultants to resolve specific problems, or to obtain them by building up relationships, e.g. setting up joint ventures or other forms of agreements (Neely et al., 2000).

Knowledge creation is the process of developing new knowledge assets within the company. Adopting a cognitive approach, it can be considered as the result of an information interpretation process performed by individuals within the organization. Knowledge creation within a company is then strictly tied to individual learning processes and can be the result of either fortuitous individual activity or planned organizational policy. The most effective way of creating knowledge within an organization is to motivate employees to be creative and learning-oriented and to dedicate specific resources to these processes. A common way of generating knowledge is to establish organizational units specifically for this purpose, such as a R&D departments.

**3.3 Knowledge transfer** - is the process of passing on knowledge between cognitive systems. When it takes place within a firm, among different units, groups or individuals, it overlaps with knowledge sharing. When it involves the inter-organizational dimension, it has common characteristics with many knowledge acquisition processes. The main difference between the two knowledge transfer processes is the disparity in their use. The former is intended to make individual or team knowledge organizational knowledge. The latter works towards creating a channel and context to enable the organization to acquire knowledge which has been generated from outside. Both intra and inter-organizational knowledge transfers are based on a communication processes that involve both information and interpretation in order to allow the knowledge owned by the sender to be acquired and absorbed by the receiver. It is important to point out that the nature of the transferred knowledge should determine the method of communication. For instance, when the knowledge is tacit the communication is best performed by socialization or facilitated by multimedia communication technology. The effectiveness and efficiency of knowledge transfer processes is affected by the absorptive capacity of the receiver, which is related to a shared knowledge background between sender
and receiver. If they share a common technical and cultural experience the performance of the knowledge transfer process is improved by reducing the ambiguity of the information interpretation process.

3.4 Knowledge mapping - is the process of identifying knowledge assets within the organization and of defining ways of accessing them. Often, much of the knowledge people require to solve problems already exists within an organization, but it is not readily available when needed. All organizational knowledge has to be accessible, as this makes the process of creating new knowledge assets more efficient and effective. Knowledge mapping is usually supported by knowledge storing technologies that make knowledge either available on demand or enable employees to locate it and show how it can be acquired.

3.5 Knowledge storing - is the process of saving knowledge within the organization. But knowledge needs to be available anytime and anywhere. Knowledge storing is at the heart of knowledge mapping and can take the form of either knowledge databases, in which codified knowledge is stored in appropriate information codes, or of yellow pages, which provide links to people with specific know-how. The former is based on the idea that knowledge can be codified and made available to be retrieved electronically. This is an approach followed by many consulting organisations companies such as Ernst & Young who have developed and adopted best practices databases to support the activities of consultants spread out around the world. The only information stored is that required for identifying the people and the places where knowledge resides. For example Hoffmann-LaRoche (Jarrar and Zairi, 2001), as a part of its overall Drug Approval Process knowledge map, included a Yellow Page catalogue of relevant experts, arranged according to know-how, questions and issues.

4. Learning from organisational experience

The practices presented in this paper are based on a wide literature survey, and in depth interviews and analysis of leading organisations. The literature review included a systemic analysis of 40 cases of KM applications in organisations that reported successful initiatives. These cases were analysed using the format shown in Figure 2. The organizations included Dow Chemical, Chevron, KPMG, BT, McDonald’s, Oracle, Saatchi & Saatchi, 3COM, Nortel, Kodak, DHL International, IBM, Royal Mail, Skandia Life, Xerox, HP, Rolls Royce, Hughes Space, Boston Consulting Group, among others. The approach was to analyse the methodologies pursued, IT used, and results achieved in order to identify the success factors. This resulted in developing the framework structure and documenting various Best Practices (Jarrar and Zairi, 2001)(Jarrar, 2002).

To further understand the practice and techniques used, in-depth interview-based case studies were undertaken. The case study organisations that took part in this study include: British Telecom, British Airways, IBM, Unilever, Ernst & Young, and Yorkshire Water. These companies were based on several criteria including: experience with KM (reported success); blue chip; and willingness to share their experience. The cases were based on in-depth, semi-structured, interviews with organisational directors. In most organisations, two directors were present at each interview (usually MD and KM Director levels). The interview focus and structure was based on understanding the knowledge management methodologies pursued by the organization, the processes implemented, Information Technology used, and the results achieved. Such a structure allowed the investigation of the perceived success factors (best practices) and challenge areas. The interview structure is shown in the framework below (Figure 2). The data collected from the interviews was mostly qualitative and various qualitative analysis techniques (including Coding and Critical Incident Techniques) were used, however, the detailed methodology of analysis is outside the scope of this paper.

The interview structure above was within a Best Practice Knowledge Management framework (Figure 3) which, as noted, was in-itself based on a comprehensive study of Best Practices (Jarrar, 2001). The objective of this study, was to understand in more depth the practices, processes, and techniques that underlay that generic framework of knowledge management. The study covered all four aspects of the framework, but the final part of this paper will focus on the area of ‘Defining and Understanding Organisational Knowledge’.
5. Define and understand organisational knowledge

For a successful start to KM, an organisation should engage in a clear understanding of how, and where, knowledge resides, and is developed, in the company. Organisations like BT and Ernst & Young have pursued this step and gone as far as developing their own models for defining organisational knowledge. Other organisations can learn from these best practices (to avoid re-inventing the wheel) and start by clearly defining what knowledge means to them. This can be achieved by studying the definitions and mapping the organisational knowledge. An organisation must identify its knowledge assets as a first step to develop plans for acquiring, retaining, building, and leveraging those assets on a continuous basis. All organisations that valued knowledge saw it imperative to know how and where to access it, and successful attempts so far have started by classifying intellectual portfolio by producing an organisational ‘knowledge map’ (Bontis, 1996). Organisations like BT and Unilever, undertook knowledge mapping and produced guides to in–house experts (a ‘yellow pages’ directory that directs the user to the people in the firm who know about particular topics of interest). Ernst & Young charted the key business processes or areas covered by the knowledge management system, how knowledge flows among these areas, and the key knowledge requirements for each step within each of the flows. This clear, up-front definition for users of what to do and what not to do avoids wasting organisational resources on unfocused activities. Furthermore, knowledge mapping could result in immediate benefits. In the case of Dow Chemical (Caulkin, 1997) (Davenport et al., 1998), just by arranging such a ‘knowledge map’ and understanding where all their patents lay, they saved $4 million during the first year, expected to generate more than $100 million in the second.

The most common initiative was building some form of ‘knowledge repositories’ which was intended to take some form of knowledge that has been extracted from people’s heads and store it in an information system for later access. For example, IBM have systems that store sales-oriented documents--white papers, presentations, marketing collateral, for access by their field sales forces in selling computers. Other
knowledge repositories are less structured, consisting of the insights and observations of employees, sometimes called ‘discussion databases’ or ‘lessons-learned’ systems. Some repositories do not hold the knowledge itself, but point to those who have knowledge. IBM, for instance, has expert repositories for researchers in its Laboratories and Corporate Education groups.

The cases analyzed revealed the following main knowledge repositories:

1. External knowledge – by definition, the easiest to acquire, organize, and communicate. This includes knowledge about the market place, competitors, customer information, etc.

2. Internal knowledge -
   2.1 Formal / Structured – this type of knowledge includes research reports, marketing material, processes and methods, etc. HP (Davenport et al, 1998) used artificial intelligence software to manage such knowledge. They created an ‘electronic sales partner’ which contained technical product information, sales and marketing information, customer account information, etc. Sales support area reported having phenomenal feedback from both submitters (of knowledge) and users.
   2.2 Informal – the most important area, and most difficult to manage. It mainly deals with tacit knowledge. To transfer tacit knowledge from individuals into a repository, organisations usually use some sort of community based electronic discussion and ‘lessons learnt’ databases. For many companies the issue is not acquiring or retaining organisational knowledge, instead it is figuring out how to more effectively capture and share the knowledge that already exists within a department, division, or even employees’ minds. Chevron, (Stivers and Joyce, 1997) for example, saved over $20 million a year by comparing information on the operation of gas compressors in fields from all over the world. A recent survey of consulting firms by Consultants News (Stivers and Joyce, 1997) showed that about 75% of firms surveyed, reported that they had a process in place for capturing best practices, sharing information from one project to another, and documenting innovative ways of solving client problems. The creation of such knowledge repositories is not just about collecting data. The knowledge collected must be directly related to a business process. Broad-based employee participation in determining what knowledge is essential, is critical in determining what types of information should be collected and shared. In Dow Chemical’s (Pettrash, 1996) experience, it was more difficult determining which in-house know-how added value and which did not. They tackled this by setting up teams and establishing a single criterion to determine value. Similarly, Hughes Space and Communications (Bontis, 1996) has editorial teams that analyse and store knowledge posted by individuals on its web site in order to be shared by all areas. Buckman Labs (Martinez, 1998) ensures its knowledge system contains validated knowledge through ‘Content experts’ who monitor the information that is placed on the network.

In case of creating transfer and access channels the case studies have highlighted the following best practices for designing an effective system for knowledge connectivity, access, and transfer:

- Minimise the number of transmissions of knowledge between individuals to achieve the least distortion.
- Provide 24 hour access to every employee from any location.
- Allow and encourage each person to contribute and make the system easy to use.
- Design a flexible system that is automatically updated as questions and answers are given.
- Design multiple channels for knowledge transfer, ranging from intranet to face-to-face. Each has its benefits and techniques and times to be used.

Finally, a practice that was common to all organisations studied was clear planning for KM. Before attempting to understand and capture organisational knowledge, there are a number of questions that the organisation should seek to answer. These are essential to clarify why the organisation is going down the path of KM and to justify the costs (which can be substantial) of the initiative(s). The main questions at this stage include:
(1) What is the objective of KM? Objectives could vary for leveraging implicit knowledge, retaining knowledge of employees as they exit the organisation, or more efficient access to knowledge repositories. While these objectives might fall under one strategy for KM, they require different tactics and tools.

(2) What is the scope of KM in relation to the types of knowledge that the organisation should embrace? Explicit and tacit knowledge require different approaches to acquire and manage.

(3) What technologies and techniques are to be employed? These can vary from document creation and management technologies to group working technologies. Each approach requires different approaches, skills, training, and investments.

5. Conclusions

In today’s business context, knowledge represents a strategic resource for company competitiveness. Thus knowledge management is a key strategic lever for a continuous improvement of business performance. In fact all company’s capabilities are based on a knowledge base which is specific to any company. Organisations need to develop KM capacity to be able to survive in a knowledge-based, global marketplace.

This paper provided a clear definition of Knowledge and Knowledge Management. This should provide managers with a conceptual interpretation of this intangible resource in order to guide them in implementing knowledge management practices. A framework presenting the most relevant knowledge processes is also introduced. It allows the understanding of what the knowledge processes underpinning the knowledge management practices are. The first step in successful KM is to understand what knowledge is currently available at one’s own organisation. A systemic analysis of 6 leading organisations provided a discussion of best practices deployed in this area. This can be seen as a generic approach that can form a starting point for managers and researchers alike to start working with KM.

6. References


