

Knowledge Management Consulting Method

Part 1 – KM Education

Module 1.2 – A History of KM

Table of Contents

MODULE 1.2	KNOWLEDGE AND KNOWLEDGE MANAGEMENT.....	3
1.1	1.1 A HISTORICAL PERSPECTIVE.....	3
1.2	THE CONTEMPORARY STANDPOINT	5
1.3	1.3 CURRENT MANAGEMENT THINKING ON KNOWLEDGE.....	6
1.4	1.4 THE VALUE OF KNOWLEDGE IN THE BUSINESS ENVIRONMENT	8
1.4.1	<i>Why is knowledge valuable at the organisational level?.....</i>	8
1.4.2	<i>What is Knowledge Management?.....</i>	9
1.4.3	<i>Efforts to Develop Standards in Knowledge Management.....</i>	10
1.4.4	<i>The Knowledge Management Market.....</i>	11
1.4.5	<i>Real-world Knowledge Management Initiatives.....</i>	12

Module 1.2 Knowledge and Knowledge Management

1.1 A Historical Perspective

One can trace the history of knowledge management back to the earliest civilisations; see e.g. Ives, Torrey, and Gordon (1997). The palace archives of Sumer and Akkad and the extensive cuneiform archives discovered recently at Ebla in Syria, all more than 4,000 years old, were attempts to organise the records of civilisation, of government and commerce, so that the information contained therein could be used to guide new transactions and to prevent the loss of knowledge from generation to generation. This imperative to preserve knowledge eventually led to the great libraries of antiquity, the most notable was the Library of Alexandria in Egypt, which was founded in the Third Century B.C. and lasting almost 1,000 years. At its peak the library contained more than 500,000 hand written works, copies of which were made and disseminated throughout the world.

Each new advance in communication and learning technology expanded the possibilities for knowledge capture and distribution and, in each case, it took a while to understand which were the possibilities and what were the requirements to enable them. Take text or writing for example: the invention of the phonetic alphabet around 700 B.C. made possible a number of capabilities that were not intended that required a number of features not foreseen.

In the pre-writing oral tradition, the conditions for the preservation of knowledge and ideas were mnemonic. To promote memory, instruction and knowledge preservation made use of verbal and musical rhythms; however, these rhythms placed severe limits on the verbal arrangement of what was said, as in Homer, and the need to memorise used up cognitive energy that otherwise could have been devoted to learning (Olson, 1976). Because of the heavy memory load, the epic poets did not actually memorise content verbatim; they created new versions from a set of possibilities as they went along. The concept of an original version that could be preserved, critical to the development of modern science and essential for many forms of instruction, did not evolve until after written text. In many ways, the epic poets - chief knowledge distributors on their day - made up the details as they went along.

Monks are one of the first knowledge specialists. Text made available a visual record of thought, abolishing the need for an acoustic record and hence the need for rhythms. Such works as Plato's *Republic* have been described by scholars as an attack on the oral poetic tradition of knowledge distribution (Havelock, 1976).

As older civilisations passed, great efforts were made to preserve the knowledge gained through experience and reflection over great periods of time. Much of the knowledge of the Greeks and Persians, falling to an expanding Islamic empire, was preserved in Arabic translations. This knowledge eventually made its way into the monasteries of Europe where knowledge specialists - monks dedicated to seeking truth and viewing all

knowledge as an expression of God and His creative acts - preserved and translated these works for contemporary scholars and for those yet to come.

Through all of this, the skills of translation and the library sciences were developed to a very high degree, yet the knowledge itself was disseminated only with the greatest of physical effort as all was still copied and preserved manually.

Print reforms knowledge preservation...

The printing press is often considered to be one of the greatest inventions for it accelerated the dissemination of knowledge exponentially and lowered the cost, bringing it into the hands of ordinary people. Since the 15th century, the sheer quantity of information has steadily increased as the technologies for creating and preserving knowledge have progressed.

... but also generated new problems

As the volume of information increased, many great thinkers have pondered the problem of making information more accessible and converting it into knowledge. Print literacy not only provided a new means of instruction, and allowed advances in distance education and knowledge distribution, it allowed people to think in new ways.

Although print made distance education possible by consistently storing information, it limited the type of information stored and transmitted. It also limited access to this information to those who could become literate in the new technology. The high multi-sensory bandwidth of direct person to person communication was lost as print replaced oration as the principal means of knowledge distribution.

The printing press helped to widely reinforce a reliance on text for “true” knowledge and the pervasive practice - still current - of “indirect” teaching and testing of performance through written texts and tests.

With the continuing evolution of the digital computer, progress has been made in solving several distinct knowledge capture and distribution limitations. Some have argued that the effect will be equal or greater than that of the printing press (e.g. Provenzo, 1986); yet, at times, it has seemed that the computer, rather than solving the problem, has only made it worse.

Out of this milieu, the modern discipline of knowledge management has begun to emerge.

1.2 The Contemporary Standpoint

According to Webster's Dictionary, knowledge is “*the fact or condition of knowing something with familiarity gained through experience or association*”. Knowledge may be recorded in an individual brain or stored in organisational processes, products, facilities, systems and documents. In reality, though, there exist many possible, equally plausible definitions of knowledge.

In everyday language, it has long been the practice to distinguish between *information* — data arranged in meaningful patterns — and *knowledge* — something that is believed, that is true (for pragmatic knowledge, that works) and that is reliable. In recent times, theoretical objections to the concept of truth (e.g. by post-modernists) or to that of reliability (e.g. by positivists) have led to some blurring of the distinction.

The interchangeable use of *information* and *knowledge* can be confusing if it is not made clear that *knowledge* is being used in a new and unusual sense, and can seem unscrupulous insofar as the intent is to attach the prestige of knowledge to mere information. It also tends to obscure the fact that while it can be extremely easy and quick to transfer *information* from one place to another, it is often very difficult and slow to transfer *knowledge* from one person to another.

In the West, intuitive knowledge has often been devalued in favour of rational scientific knowledge, and the rise of science has even led to claims that intuitive knowledge is not really knowledge at all. However, recognition of the difficulties inherent in transferring knowledge from one person to another has tended to highlight the importance of tacit knowledge e.g. notably in the writings of Polanyi (*The Tacit Dimension*, 1975), and Nonaka and Takeuchi (*The Knowledge Creating Company*, 1995).

In the East, the tradition has been to celebrate the importance of the intuitive, in comparison with the rational. The *Upanishads* for instance speak about a higher and a lower knowledge, and associate lower knowledge with the various sciences. Chinese philosophy has emphasised the complementary nature of the intuitive and the rational and has represented them by the archetypal pair *yin* and *yang*.

Debates about the meaning of knowledge have continued for thousands of years, and seem likely to continue for some time to come.

The KM Consulting Methodology solution does not intend to examine the various epistemological definitions of knowledge, nor to analyse the various perspectives taken by philosophers in this field.

The interest of KM Consulting Methodology is focused not on what knowledge is, rather on what knowledge can do; hence the focus is not on discovery and truth - rather it is on effective action and performance.

1.3 Current management thinking on knowledge

Davenport and Prusak (1998) define knowledge as "a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices, and norms."

Tacit Knowledge:

This definition highlights two important types of knowledge - explicit knowledge and tacit knowledge; see also Nonaka and Takeuchi (1995).

Tacit knowledge refers to that knowledge which is embedded in individual experience such as perspective and inferential knowledge. Tacit knowledge includes insights, hunches, intuitions, and skills that are highly personal and hard to formalise, making them difficult to communicate or share with others. Tacit knowledge is also deeply rooted in an individual's commitment to a specific context as a craft or profession, a particular technology or product market, or the activities of a work-group or team. With other words tacit knowledge is deeply ingrained into the context, i.e. the owner's view and imagination of the world and into his/her experience, which is previously acquired knowledge.

Explicit Knowledge:

Explicit knowledge is knowledge that has been articulated in formal language and which can be easily transmitted among individuals. It can be expressed in scientific formulae, codified procedures or a variety of other forms. It consists of three components: a language, information and a carrier. The language is used to express and code knowledge. Information is coded externalised knowledge. It is potential knowledge, which is realised when information is combined with context and experience of humans to form new tacit knowledge. The carrier is capable to incorporate coded knowledge and to store, preserve and transport knowledge through space and time independent of its human creators.

Both explicit knowledge and tacit knowledge are important for the organisation.
Both must be recognised as providing value to the organisation.

It is through the conversion of tacit to explicit knowledge and explicit to tacit knowledge in the organisation that creativity and innovation are released and the potential for the creation of intellectual capital arises.

The goal, then, is to leverage both explicit knowledge and tacit knowledge and to reduce the size of the organisational knowledge gaps (see **Table 1.1**).

	Know	Don't Know
Know	Knowledge that you know you have (Explicit knowledge)	Knowledge that you know you don't have (Knowledge gaps)
Don't Know	Knowledge that you don't know you have (Tacit knowledge)	Knowledge that you don't know that you don't have (Unknown gaps)

Table 1.1

Because knowledge is based on human processes, it resides throughout the organisation. By mapping knowledge and developing processes to codify and share knowledge, organisations are able to increase use of the knowledge they have and reduce the knowledge gaps.

1.4 The Value of Knowledge in the Business Environment

1.4.1 Why is knowledge valuable at the organisational level?

In today's fast-paced society, an organisation's knowledge base is quickly becoming its only sustainable competitive advantage. As such, knowledge resources must be protected, cultivated and shared among the organisation's members. Until recently, organisations could succeed based upon the individual knowledge of a handful of strategically positioned individuals. This is not the case any more.

However, organisational knowledge does not replace individual knowledge; rather it complements individual knowledge, making it stronger and broader.

The full utilisation of an organisation's knowledge base, coupled with the potential of individual skills, competencies, thoughts, innovations and ideas will enable an organisation to compete more effectively in the future.

The main drivers of industrial needs to leverage knowledge can be conceptualised as the convergence of external market forces and internal, corporate infrastructure changes.

The main external and market forces concern:

- ? the need for speed and cycle-time reduction in virtually every industrial activity (e.g. new product development, customer response time, business process execution, etc.); - firms need to reuse knowledge, rather than recreate it.
- ? the need for organisational growth as an important part of the organisation's need to survive.
- ? the globalisation of business and the process of acquisitions and mergers make it critical that information and knowledge in one part of the business is shared with the other parts.

On the internal, corporate infrastructure side, the main issues are related to:

- ? the fact that the cost of distributive computing, networks and database management systems has lowered the investment required for capturing and sharing knowledge.
- ? the recognition that downsizing and restructuring efforts have resulted to considerable losses in organisational knowledge.

The challenge of leveraging the knowledge assets of an organisation to create competitive advantage becomes more crucial as:

- ? The marketplace is increasingly competitive and the rate of innovation is rising, so that knowledge must evolve and be assimilated at an ever faster rate.
- ? Corporations are organising their businesses to be focused on creating customer value. Staff functions are being reduced as are management structures.
- ? There is a need to replace the informal knowledge management of staff with formal methods in customer aligned business processes.

- ? Competitive pressures are reducing the size of the workforce which holds this knowledge.
- ? Knowledge takes time to experience and acquire. Employees have less and less time for this.
- ? There are trends for employees to retire earlier and for increasing mobility, leading to loss of knowledge.
- ? There is a need to manage increasing complexity in business operations.

1.4.2 What is Knowledge Management?

Neither researchers nor practitioners have an agreed definition of “knowledge management”.

The term is used loosely to refer to a broad collection of organisational practices and approaches related to generating, capturing, disseminating know-how and other content relevant to the organisation’s business.

Since knowledge management is an emerging practice, there are many different interpretations as to what it exactly means and how to best address the emerging questions about how to effectively use its potential power (see e.g., Davenport & Prusak, 1998; Edvinsson & Malone, 1997; Nonaka & Takeuchi, 1995; Wiig, 1995).

Some would argue that “knowledge management” is a contradiction in terms, being a hangover from an industrial era when control modes of thinking were dominant.

Whatever the term and the definition employed to describe it, knowledge management is increasingly seen, not merely as the latest management fashion, but as signalling the development of a more organic and holistic way of understanding and exploiting the role of knowledge in the processes of managing and doing work, and an authentic guide for individuals and organisations in coping with the increasingly complex and shifting environment of the modern economy.

The important points that should be emphasised are that:

- ? Knowledge management is an emerging discipline.
- ? There is no agreed-upon industry-standard definition of knowledge management.
- ? Managing knowledge is not exactly a new concept - just newly framed and enabled by new technologies, processes, media, devices, and techniques.
- ? It will take time for these new capabilities to fully evolve and for their opportunities and effects to be fully understood.

1.4.3 Efforts to Develop Standards in Knowledge Management

Unfortunately, the knowledge management community and commentators on the business scene are contributing to one of the problems that knowledge management itself is trying to solve: a profusion of information, technical terminology, and buzzwords that make it harder, rather than easier, to understand the issues and find solutions.

Hence a common framework is needed in order to avoid a situation in which knowledge management is viewed as another scheme devised by vendors and consultants to repackaging their old methods and tools into new products with no new perceived value.

At least two efforts have been recently initiated that aim to create common frameworks and assist both developers and users in the knowledge management market: the Knowledge Management Consortium and the Knowledge Management Reference Model effort.

Knowledge Management Consortium:

The following paragraphs give a brief overview of these efforts;

KMC (Knowledge Management Consortium) is a non-profit organisation founded in 1997 devoted to *“developing a balanced view of knowledge management from the context of the enterprise”*. What KMC mean by balanced is *“to define knowledge management as part of a complex adaptive system involving people, processes, and technology”*. The end result of the KMC's efforts is to provide a practical, measurable application of KM to businesses and other organisations. The members of KMC are *“organisations and individuals coming together to develop a shared vision, common understanding, and aligned action about Knowledge and Knowledge Management”*.

The vision of KMC is to develop a shared vision and common understanding of what knowledge management is and how it can be implemented; to integrate academic and commercial knowledge and activities related to knowledge management; to help end-users to harness and exploit their knowledge capital; to help knowledge management tool and method providers develop a common language and measures; to provide services to its members that will help accelerate them toward their knowledge management goals.

KMC has established an International KM Standards Committee which is managed by KMC in collaboration with AIIM International. The aim is to develop Knowledge Management standards that will be endorsed by the American National Standards Institute (ANSI) and the International Standards Institute (ISO). Because of the scope of knowledge management, the KMC committee is developing standards and technical reports covering several contexts: terminology (metrics, processes, modelling, and methods), human factors (training, knowledge sharing, knowledge production,

knowledge transmission, knowledge acquisition, reward systems, etc.), business and finance (financial measures for intellectual capital and knowledge processes, economic measures), technology (a Unified Knowledge Language, etc.)

KREF (the Knowledge management Reference model Effort, pronounced "kay-ref") is a non-profit organisation of consultants, developers of computer applications, and implementers involved in a collaborative effort to develop a knowledge management reference model (KM RM) — a succinct formal description of the business functions performed in developing, managing, and distributing knowledge in organisations. This common frame of reference is expected to help vendors design, market, and position KM-related products; help implementers choose the products that fit their needs; and help consultants build their services around an unambiguous, buzzword-free understanding of implementer needs and the complementary roles of KM technologies.

The mission of KREF is to *“develop a set of unambiguous descriptions of the specific functions of organisational knowledge management in order to (1) aid in the evolution and advancement of the discipline of knowledge management, (2) help implementers of corporate*

knowledge management identify the methods and technologies that can be used in their implementations, and (3) assist vendors and solution developers in providing better understanding of the features of, and functions served by, their products and services”.

The product of KREF's work will be a set of concepts (primarily business functions of knowledge management implementations), computer-supportable relationships among those concepts, and associated descriptions. The content of the Reference Model will be made available in a system-neutral format that accommodates change and modification in a variety of software applications designed for management of semantic data.

1.4.4 The Knowledge Management Market

It is rather difficult to estimate in a quantitative manner the market for knowledge management services and tools since this market is emergent, with companies only gradually realising the importance of their knowledge assets on their performance, while in the same time most vendors claim or actually do sell knowledge management related services.

The expected knowledge management market was estimated by Dataquest to increase from \$US 410 million in 1994 to \$US 4.5 billion in 1999. This market includes systems integration, management and business process management. According to Dataquest, the annual US growth is expected to be 51%, while the non-US rate of growth will exceed 80%.

Gartner Group has a similar forecast: \$5 billion in 2001 from a base of about \$1.5 billion in 1996.

On the other hand, the 1997 *Information Strategy* European survey (conducted by the Cranfield School of Management and Xerox) reveals that European companies plan to boost their spendings on knowledge management activities by a massive 70% in three years (6.2% of their revenues, up from 3.7% in 1997).

1.4.5 Real-world Knowledge Management Initiatives

The business and popular press abound with real-world industrial examples of knowledge management initiatives.

Such initiatives can be classified within three strands:

- ? *Innovation in product development initiatives*, following either of two strategies: making sure that knowledge is embedded in products, or accelerating product development by reusing knowledge (e.g. Dow Chemical, Skandia).
- ? *Process and operational improvement initiatives*, that tend to focus on the transfer of best practices by the creation of best practice databases, and best practice sharing events (e.g. Texas, Chevron).
- ? *Customer and market initiatives*, in which companies are mining customer data to make sense of who buys and why, and how to keep clients buying (e.g. Buckman Laboratories and various telecommunications companies).

It is worth noting that most of the major and most well-known examples of firms that have initiated knowledge management activities are found in the USA and mainly in large companies.

They include such companies as Buckman Laboratories, Monsanto, Bechtel, Cigna, General Motors, Fidelity, Ford Motor, Dow Chemical, Hewlett-Packard, AT&T, IBM, Northeast Utilities and Texas Instruments.

It should be noted, however, that only a limited number of European firms have attempted to explicitly manage their intellectual assets in concrete and measurable ways (most known examples include Royal Dutch Shell and Skandia).

In their quest to apply knowledge management principles in managing the business various companies have developed and implemented practical approaches, while various vendor companies and/or academic and business researchers have proposed frameworks trying to assist such efforts.

Module 2.1, 'Critical Review of Leading KM Frameworks', provides an overview and comparison of these approaches and frameworks.