INTRODUCTION TO KNOWLEDGE MANAGEMENT

A brief introduction to the basic elements of knowledge management for non-practitioners interested in understanding the subject.

FILEMON A. URIARTE, JR.
ASEAN FOUNDATION

Supported by:
National Academy of Science and Technology
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If this book were to have a co-author, it would be my wife who carefully prepared and meticulously edited, cleaned up and enhanced all the tables, charts, figures and boxes contained in this book. She conceptualized, designed and prepared the final layout of this book and reviewed the final draft prior to printing. I am greatly indebted to her. Thus I should like to dedicate this book to my loving wife and able partner – Jean.

Dr. F. A. Uriarte, Jr.
Executive Director
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FOREWORD

This book is not for knowledge management experts and practitioners. It is for those who have no previous background on knowledge management but would like to know something about the subject. The purpose of this book is to provide an introduction to the various elements of knowledge management. It is meant for a wide audience of readers interested in gaining some understanding of the basics of knowledge management. These include the professionals in the private sector, the managers of corporations, the business executives, as well as the government officials at various levels who may have management, technical or engineering background but no exposure yet to knowledge management. This book is meant to be their first book on knowledge management.

This book has six chapters. The first chapter introduces the concept of knowledge as differentiated from data and information. There is no attempt to examine the various theories and postulates about how knowledge is created or generated. The aim is merely to distinguish data from information, and information from knowledge, and to introduce the reader to the two types of knowledge that are of importance to knowledge management.

The second chapter defines what knowledge management is by discussing the four pillars of knowledge management. The aim is merely to give a glimpse of knowledge management without having to go too deeply into the technical details and the technologies that enable the implementation of knowledge management.

The third chapter deals with the brief history of knowledge management, how the discipline developed in the 1970s, 1980s and 1990s. Short descriptions of the first and second generations of knowledge management initiatives are provided to give the reader an indication of how the practice of knowledge management developed.

The fourth chapter deals with the elements of knowledge management. It provides an introduction to knowledge creation and capture, knowledge sharing and enrichment, information storage and retrieval, and

knowledge dissemination. As a mere introduction, the section on information storage and retrieval does not cover the various technologies that enable and facilitate information storage and retrieval.

The fifth chapter is about knowledge management tools. No attempt is made to describe in detail the various technologies for document management, developing an enterprise portal, preparing knowledge maps and sharing lessons learned. The reader is merely introduced to the concepts and given a few selected examples of these tools.

The sixth and final chapter provides a simple, step-by-step guide towards the implementation of knowledge management. The purpose is not to enable the reader to implement a knowledge management initiative, but to understand the steps that may be taken by a knowledge management expert that his or her organization may retain to implement a knowledge management initiative.

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CHAPTER 1

Concept of Knowledge

Knowledge is increasingly being recognized as the new strategic imperative of organizations. The most established paradigm is that knowledge is power. Therefore, one has to hoard it, keep it to oneself to maintain an advantage. The common attitude of most people is to hold on to one's knowledge since it is what makes him or her an asset to the organization. Today, knowledge is still considered power – an enormous power in fact – but the understanding has changed considerably, particularly from the perspective of organizations. The new paradigm is that within the organization knowledge must be shared in order for it to grow. It has been shown that the organization that shares knowledge among its management and staff grows stronger and becomes more competitive. This is the core of knowledge management – the sharing of knowledge.

Understanding Knowledge

In order to comprehend knowledge management, it is necessary to first understand the concept of knowledge. What is knowledge? How is it different from information? And how is information different from mere data?

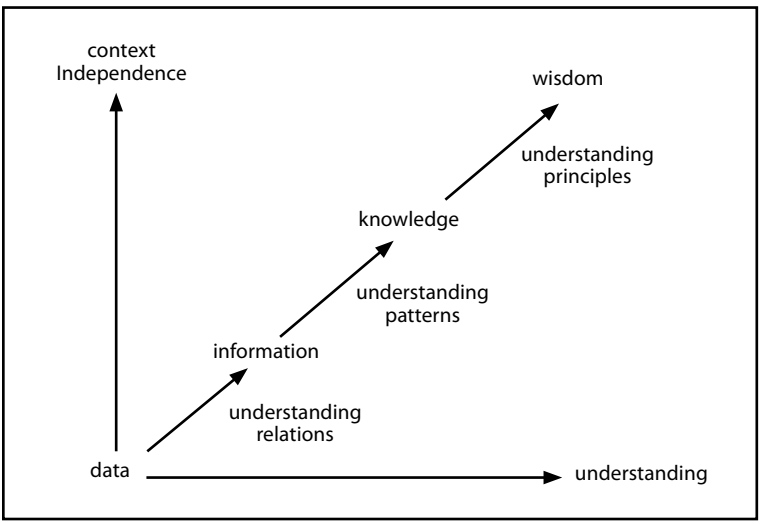
We begin with data. What is data? Data is a number or word or letter without any context. For example, numbers like 5 or 100, without any context, are mere data. Without reference to either space or time, these numbers or data are meaningless points in space and time. The key phrase here is "out of context". And since it is out of context then it has no meaningful relation to anything else.

A mere collection of data is not information. This means that if there is no relation between the pieces of data, then it is not information. What makes a collection of data information is the understanding of the relationships

between the pieces of data or between the collection of data and other information. In other words, what is essential in making data or a collection of data information is the context, that is, the relation between the pieces of data.

Let us take an example. If we are given numbers like 1 and 7, they do not mean much. We may relate to the number 1 as being less than 2 and greater than 0, while 7 is a number greater than 6 but less than 8. At this level of understanding, these numbers are mere data. However, if we associate 7 with the number of days in a week, then we create context. With context, these data become information. And the information given by that context is that there are 7 days in 1 week. We have established a relationship between the two pieces of data 1 and 7. We have associated the number 1 with week and the number 7 with days. We have placed the data within a context thus producing information.

Figure 1.1 Conceptual Progression from Data to Knowledge



We see from this example that information entails an understanding of the relations between data (e.g. the relation between the number 1

and number 7 in the context of the number of days in a week). In general, information remains relatively static in time and linear in nature (Figure 1.1). Since information merely provides the relationship between data, it therefore does not provide a foundation for why the data is what it is and does not indicate as to how the data is likely to change over time. In short, information is a relationship between data that is dependent on context for its meaning and with little implication for the future.

Box 1.1 An example: data, information and knowledge

This example uses a bank savings account to show how data, information and knowledge relate to the principal, interest rate and interest.

Data. The numbers 100 or 5%, completely out of context, are just pieces of data. Interest, principal, and interest rate, out of context, are not much more than data as each has multiple meanings which are context dependent.

Information. If I establish a bank savings account as the basis for context, then interest, principal, and interest rate become meaningful in that context with specific interpretations. Principal is the amount of money, $100, in the savings account. Interest rate, 5%, is the factor used by the bank to compute interest on the principal.

Knowledge. If I put $100 in my savings account, and the bank pays 5% interest yearly, then at the end of one year the bank will compute the interest of $5 and add it to my principal and I will have $105 in the bank. This pattern represents knowledge, which, when I understand it, allows me to understand how the pattern will evolve over time and the results it will produce. In understanding the pattern, I know and what I know is knowledge. If I deposit more money into my account, I know that I will earn more interest, while if I withdraw money from my account, I know that I will earn less interest.

Source: Bellinger, G., "Knowledge Management – Emerging Perspectives", <http://systems-thinking.org/kmgmt/kmgmt.htm> (2004).

When information is further processed, it has the potential for becoming knowledge. Information is further processed when one finds a pattern relation existing among data and information. And when one is able to realize and understand the patterns and their implications, then this collection of data and information becomes knowledge. But unlike mere information that is context dependent, knowledge has the tendency to create its own context. In other words, the patterns representing knowledge have a tendency to be self-contextualizing. These patterns which represent knowledge have a characteristic of being complete – a feature that mere information does not contain. These patterns are dynamic. They are constantly changing. But when these patterns are fully understood, there is a high level of predictability and reliability as to how the patterns will change or evolve over time.

Types of Knowledge

In the modern economy, the knowledge that it is able to harness is the organization's competitive advantage. This competitive advantage is realized through the full utilization of information and data coupled with the harnessing of people's skills and ideas as well as their commitments and motivations. In the corporate context, knowledge is the product of organization and systematic reasoning applied to data and information. It is the outcome of learning that provides the organization's only sustainable competitive advantage. As such knowledge is an essential asset that has become more important than land, labor or capital in today's economy.

In general, there are two types of knowledge: tacit knowledge and explicit knowledge. Tacit knowledge is that stored in the brain of a person. Explicit knowledge is that contained in documents or other forms of storage other than the human brain. Explicit knowledge may therefore be stored or imbedded in facilities, products, processes, services and systems. Both types of knowledge can be produced as a result of interactions or innovations. They can be the outcome of relationships or alliances. They permeate the daily functioning of organizations and contribute to the attainment of their objectives. Both tacit and explicit knowledge enable organizations to respond to novel situations and emerging challenges.

Tacit knowledge

Tacit knowledge is personal. It is stored in the heads of people. It is accumulated through study and experience. It is developed through the process of interaction with other people. Tacit knowledge grows through the practice of trial and error and the experience of success and failure.

Tacit knowledge, therefore, is context-specific. It is difficult to formalize, record, or articulate. It includes subjective insights, intuitions and conjectures. As intuitive knowledge, it is difficult to communicate and articulate. Since tacit knowledge is highly individualized, the degree and facility by which it can be shared depends to a great extent on the ability and willingness of the person possessing it to convey it to others.

The sharing of tacit knowledge is a great challenge to many organizations. Tacit knowledge can be shared and communicated through various activities and mechanisms. Activities include conversations, workshops, on-the-job training and the like. Mechanisms include, among others, the use of information technology tools such as email, groupware, instant messaging and related technologies.

In managing tacit knowledge, the very first hurdle to most organizations is identifying the tacit knowledge that is useful to the organization. Once relevant tacit knowledge is identified, it becomes extremely valuable to the organization possessing it because it is a unique asset that is difficult for other organizations to replicate. This very characteristic of being unique and hard to replicate is what makes tacit knowledge a basis of the organization's competitive advantage. Accordingly, it is essential for an organization to discover, propagate and utilize the tacit knowledge of its employees in order to optimize the use of its own intellectual capital.

In any organization, tacit knowledge is the essential prerequisite for making good decisions. A new executive not yet familiar with the organization will find it difficult to make good decisions since he or she has yet to acquire tacit knowledge about the workings of the organization. Tacit knowledge is

therefore crucial to getting things done and creating value for the organization. This is the essence of the "learning organization". Management and employees need to learn and internalize relevant knowledge through experience and action. And they need to generate new knowledge through personal and group interactions within the organization.

Explicit knowledge

Explicit knowledge is codified. It is stored in documents, databases, websites, emails and the like. It is knowledge that can be readily made available to others and transmitted or shared in the form of systematic and formal languages.

Explicit knowledge comprises anything that can be codified, documented and archived. These include knowledge assets such as reports, memos, business plans, drawings, patents, trademarks, customer lists, methodologies, and the like. They represent an accumulation of the organization's experience kept in a form that can readily be accessed by interested parties and replicated if desired. In many organizations these knowledge assets are stored with the help of computers and information technology.

Explicit knowledge is not completely separate from tacit knowledge. On the other hand, the two are mutually complementary. Without tacit knowledge it will be difficult, if not impossible, to understand explicit knowledge. For example, a person without technical, mathematical or scientific knowledge (tacit knowledge) will have great difficulty understanding a highly complex mathematical formulation or chemical process flow diagram, although it may be readily available from the organization's library or databases (explicit knowledge). And unless we try to convert tacit knowledge to explicit knowledge, we cannot reflect upon it, study and discuss it, and share it within the organization – since it will remain hidden and inaccessible inside the head of the person that has it.

Interaction between types of knowledge

Personal knowledge can become organizational knowledge through the dynamic interaction between tacit knowledge and explicit knowledge.

This dynamic process is the essence of knowledge creation in an organization. This interaction between the two types of knowledge brings about what is called the four modes of knowledge conversion (Nonaka 1996) .

The process of knowledge creation is based on a double spiral movement between tacit and explicit knowledge. Figure 1.2 shows the four modes of knowledge conversion: socialization (from individual tacit knowledge to group tacit knowledge), externalization (from tacit knowledge to explicit knowledge), combination (from separate explicit knowledge to systemic explicit knowledge), and internalization (from explicit knowledge to tacit knowledge).

Figure 1.2 Spiral of Organizational Knowledge Creation

	To tacit knowledge	To explicit knowledge
From tacit knowledge	Socialization	Externalization
From explicit knowledge	Internalization	Combination

Source: Nonaka, I., "Dialogue on leadership", <http://www.dialogueonleadership.org/Nonaka-1996.html> (1996).

Socialization is a process of creating common tacit knowledge through shared experiences. In socialization, a field of interaction is built where individuals share experiences and space at the same time. Through this process common unarticulated beliefs and embodied skills are created and developed. In socialization, the tacit knowledge of one person is shared and transmitted to another person and it becomes part of the other person's tacit knowledge.

Externalization is a process of articulating tacit knowledge into such explicit knowledge as concepts and/or diagrams. The process often uses metaphors, analogies, and/or sketches. This mode is triggered by a dialogue

intended to create concepts from tacit knowledge. A good example of externalization is the process of creating a new product concept or developing a new production process. Here the tacit knowledge in the brains of experts are articulated and expressed as concepts or drawings, thus becoming explicit knowledge that can be further studied and refined.

Combination is a process of assembling new and existing explicit knowledge into a systemic knowledge. For example a researcher can assemble an array of previously existing explicit knowledge in order to prepare a new set of specifications for a prototype of a new product. Or an engineer can combine available drawings and design specifications to produce a new process design or equipment. What commonly occurs is the combination of a newly created concept with existing knowledge to produce something tangible (e.g., a new product model).

Internalization is a process of embodying explicit knowledge into tacit knowledge or an individual's know-how or operational knowledge. An excellent example of this is "learning by doing or using." Explicit knowledge that is available as text, sound, or video facilitates the internalization process. The use of operating manuals for various machines or equipment is a quintessential example of explicit knowledge that is used for internalization. The instructions are learned and become part of the person's tacit knowledge.

The Knowledge Challenge

Knowledge is one of the most important assets of any organization. Unfortunately, very few are able to harness this asset in a meaningful way. Even fewer are organizations that are able to optimize the use of this important asset. In this context, it is helpful to identify two kinds of knowledge: core knowledge and enabling knowledge.

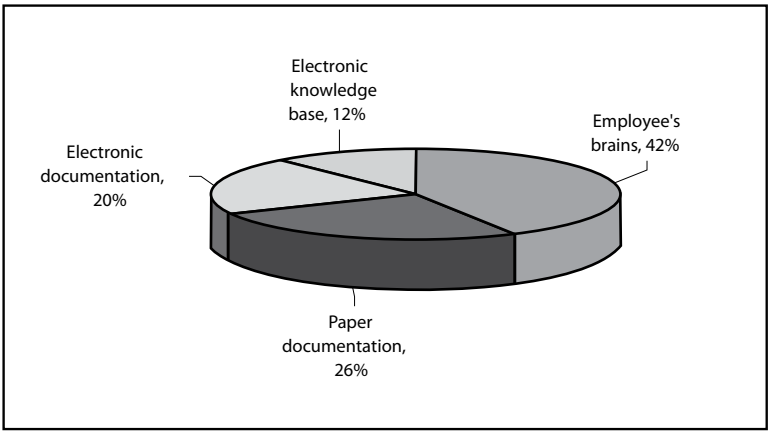
In any organization, certain areas of knowledge are more important than others. The kind of knowledge that is critical to the attainment of the organization's goal and the fulfillment of its strategy is called "core knowledge". Because core knowledge is critical to the organization, the management of core knowledge must be kept within the organization. It must be developed

and nurtured inside the organization.

Core knowledge alone cannot fully support an organization and make it competitive. There is need for knowledge that can maintain the effectiveness of the organization. Such knowledge is known as "enabling knowledge". When combined with the core knowledge, such enabling knowledge leads to the development of new products, processes and services. By its very nature, the management of enabling knowledge can be outsourced.

The core and enabling knowledge in organizations are more than a pure competitive advantage. This organizational knowledge makes possible focused and collective action. But as important as organizational knowledge is organizational memory. A great deal of the knowledge of the organization is created and stored at individual level. They are in the heads of people and groups of people who work in the organization – the employees, managers and top executives (Figure 1.3).

Figure 1.3 Primary repositories of an organization's knowledge



Source: The Delphi Group, Inc., (2000)

While much of the organizational knowledge is available as explicit knowledge, a significant portion of core and enabling knowledge remain

tacit. The willingness to share this tacit knowledge is influenced to a large extent by the managerial approaches to identify, capture and integrate that knowledge. These approaches include award and punishment systems and organizational procedures for assessment of individual performance. The effective implementation of these approaches can contribute to wider sharing of tacit knowledge within the organization.

This is the knowledge challenge. Organizations contain vast reservoirs of untapped core knowledge and enabling expertise. The problem is that top management usually does not know who has what information. Few top executives are aware of where core and enabling knowledge reside and how to enable this knowledge to flow through the organization. This is the very purpose of knowledge management. Knowledge management addresses this problem directly and pointedly. Thus, the importance of knowledge management!

Box 1.2 Definitions of Knowledge

The body of truth, information, and principles acquired by mankind. Interpreted information that can be used. - *<www.iteawww.org/TAA/Glossary.htm>*

Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain. - *<www.edu.uleth.ca/courses/ed3604/conmc/glsry/glsry.html>*

An organized body of factual or procedural information necessary to function in a position, including consideration of the amount, breadth (various types required), and depth (extent of both comprehensive and detailed understanding of a specific subject) needed. However, it is not expected that any one incumbent must possess all knowledge listed on the specification in order to be reallocated from one level to another. The range of knowledge to be expected would include a substantial range of knowledge and necessarily depends on the scope of responsibility and duties of the individual position. - *<www.michigan.gov/mdcs/0,1607,7-147-6879_9325-18616--,00.html>*

Box 1.2 Definitions of Knowledge

Organized body of information. The acquaintance with facts, truths or principles as from study or investigation or the familiarity with a partaker subject, branch of learning, etc. - <*www.seattlecentral.org/library/101/textbook/glossary.html*>

The sum of the information and experience the teacher has acquired or learned and is able to recall or use. - <*www.wmich.edu/evalctr/ess/glossary/glos-e-l.htm*>

Information evaluated and organized in the human mind so that it can be used purposefully. - <*www.aslib.co.uk/info/glossary.html*>

The final goal of the understanding in combining intuitions and concepts. If they are pure, the knowledge will be transcendental; if they are impure, the knowledge will be empirical. - <*www.hkbu.edu.hk/~ppp/ksp1/KSPglos.html*>

Knowledge is information associated with rules which allow inferences to be drawn automatically so that the information can be employed for useful purposes. - <*www.seanet.com/~daveg/glossary.htm*>

Familiarity, awareness, or understanding gained through experience or study. The sum or range of what has been perceived, discovered, or learned. - <*www.jfcom.mil/about/glossary.htm*>

The information context; understanding the significance of information. - <*www.cio.gov.bc.ca/other/daf/IRM_Glossary.htm*>

Justified belief that increases an entity's capacity for effective action (Nonaka); the highest degree of the speculative faculties, which consists in the perception of the truth of affirmative or negative propositions (Locke).-<*www.sims.berkeley.edu/courses/is213/s99/Projects/P9/web_site/ glossary.htm*>

Information plus semantic meaning. - <*wotug.ukc.ac.uk/parallel/acronyms/hpccgloss/all.html*>

Box 1.2 Definitions of Knowledge

Understanding and recall of information measured by depth, scope, and ability to integrate to resolve problems. - *<www.csufresno.edu/humres/Classification.Compensation/Glossary%20of%20Terms.htm>*

Information that people make use of, along with the rules and contexts of its use. - *<www.vnulearning.com/kmwp/glossary.html>*

Information required to develop skills. Job concepts or rules (declarative knowledge) and their interrelationship (structural knowledge). The job-specific content or information which a person has gained through training, education and/or experience. Knowledge is built upon the foundation of mental abilities that a person brings to the situation. - *<www.eurocontrol.int/eatmp/glossary/terms/terms-11.htm>*

Knowledge is part of the hierarchy made up of data, information and knowledge. Data are raw facts. Information is data with context and perspective. Knowledge is information with guidance for action based upon insight and experience. - *<www.itilpeople.com/Glossary/Glossary_k.htm>*

Comprises theory and information which may be formal, factual, descriptive or empirical; (intellectual) acquaintance with a range of facts or information; theoretical or practical understanding of an art, science, language, etc.; information obtained by study (OED). - *<www.ee.wits.ac.za/~ecsa/gen/g-04.html>*

Information defines facts (A is B). Knowledge defines what one should do if certain facts apply. Thus, if A is B, then do C. There are many different ways knowledge can be encoded, but policies and business rules are popular formats. - *<www.bptrends.com/resources_glossary.cfm>*

Knowledge is information that is relevant, actionable, and at least partially based on experience. - *Dorothy Leonard*

Knowledge can mean information, awareness, knowing, cognition, sapience, cognizance, science, experience, skill, insight, competence, know-how, practical ability, capability, learning, wisdom, certainty, and so on. The definition depends on the context in which the term is used. *- Karl-Erik Sveiby, The New Organizational Wealth.*

Knowledge is content in context to produce an actionable understanding. - *Dr. Robert Bauer, Xerox Parc.*

CHAPTER 2

Defining Knowledge Management

There is no universally accepted definition of knowledge management. But there are numerous definitions proffered by experts. Put very simply, knowledge management is the conversion of tacit knowledge into explicit knowledge and sharing it within the organization. Putting it more technically and accurately, knowledge management is the process through which organizations generate value from their intellectual and knowledge-based assets. Defined in this manner, it becomes apparent that knowledge management is concerned with the process of identifying, acquiring, distributing and maintaining knowledge that is essential to the organization.

Table 2.1 What is KM?

Results-oriented definition	"To have the right knowledge at the right place, at the right time in the right format."
Process-oriented definition	"The systematic management of process by which knowledge is identified, created, gathered, shared and applied."
Technology oriented	"Business intelligence + collaboration + search engines + intelligent agents."

Source: Benjamins, V.R., "Knowledge Management in Knowledge-Intensive Organizations", Intelligent Software Components (2001).

If one considers knowledge management in the broadest context, then there are multifarious definitions of knowledge management. All these definitions hint at the same idea but each one focuses on a particular aspect of knowledge management (Table 2.1). For example, a results-oriented definition may state that knowledge management is "to have the right knowledge at the right place, at the right time in the right format." On the other hand, a

process-oriented definition may describe knowledge management as "the systematic management of processes by which knowledge is identified, created, gathered, shared and applied." And a technology-oriented definition may present a formula for knowledge management as "business intelligence + collaboration + search engines + intelligent agents."

Aspects of Knowledge Management

There are two main aspects of knowledge management, namely, information management and people management. Viewed from this perspective, knowledge management is about information, on one hand, and people, on the other.

Most entrepreneurs and managers are familiar with the term information management. This term is associated with the management of knowledge related to objects that are identified and handled by information systems. The practice of information management developed and became widely accepted when executives realized that information was an important corporate resource that could and should be managed to improve the company's competitiveness. As a consequence of the growth in the practice of information management, the concepts of "information analysis" and "information planning" developed, thus providing additional tools for practitioners.

As academics and theorists continue to reflect on the subject, information management has further developed into knowledge management. Entrepreneurs and managers have become more aware that knowledge – as differentiated from mere information – is an even more valuable resource of the organization. Consequently, the idea that processes for knowledge management must be developed in a manner similar to the management processes applied to information has gained more and more followers. This trend has resulted in a number of techniques being developed and applied such as "knowledge technology", which analyzes knowledge sources. By using these techniques, organizations are able to implement "knowledge analysis" and "knowledge planning" – in much the same manner as the application of earlier tools of "information analysis" and "information planning".

In practice, knowledge management involves, among others, the identification and mapping of intellectual assets within an organization. This basically means identifying who knows what within the company. When viewed from this perspective, knowledge management can be considered as a process of performing an audit of intellectual assets focusing on the organization's unique resources and their crucial functions. Through this audit process intelligence, value and flexibility are added to the identified intellectual assets. In addition, the intellectual assets are protected from dormancy thus making possible significant improvements in decision-making processes as well as in services and products.

But knowledge management goes beyond this level of mapping. More substantively, it also involves the creation of knowledge for competitive advantage and the conversion of large amounts of organizational data into readily accessible information. Through knowledge management latent points of congestion that hinders the flow of knowledge towards decision and action can be identified. And with the application of ICT, all the different aspects of knowledge management can function in a seamless and coordinated manner. In fact it has been shown again and again that when knowledge is managed well, there is significant reduction in the time needed to complete tasks and unnecessary duplication is greatly minimized, if not avoided.

The second aspect of knowledge management is people management. Basically, this involves the management of tacit knowledge that resides inside the heads of people. In actual practice it entails managing the knowledge that exists alongside organizational processes involving a complex set of dynamic skills, know-how and other knowledge-related capabilities. In order to effectively manage the people that possess the desired tacit knowledge, it is essential to take into consideration their cultural and social values, attitudes and aspirations, and likes and dislikes. If this can be done successfully, it can lead to the creation of new knowledge that otherwise cannot be accomplished by information management alone.

Although the importance of the two aspects of knowledge management is now well-recognized by many organizations, the full potential of knowledge management still remains to be realized. In fact not all organizations

with some form of knowledge management systems in place are aware that they have such systems. Most organizations have some kind of system for the management of explicit knowledge, whether simple or complex. However, they may not necessarily call it a knowledge management system. On the other hand, the management of tacit knowledge is not common and the current technology-based knowledge management has not developed a fully effective means for the extraction of tacit knowledge. Although tacit knowledge is at the core of organizational knowledge, it is so personal in nature that it is difficult to formalize and communicate.

Both aspects of knowledge management embody two immediate concerns: (a) to make organizational knowledge more productive; and (b) to produce benefits that are significantly greater than those envisioned. Knowledge management offers an excellent opportunity to adopt previously impossible business strategies. For example, it can open the door to the creation of an almost unlimited network that enhances the alliances and relationships with customers and suppliers. In enhancing customer relations, knowledge management makes possible the discovery of new issues and opportunities through the optimum use of knowledge assets such as contract sales and records and customer demographics and data, including customer location and contact names.

It is precisely in this manner that knowledge management can complement and enhance the impact of other initiatives of the organization such as total quality management, business process re-engineering, and organizational learning. It is evident from this discussion that knowledge management initiatives can be applied in a variety of domains to achieve superior results within almost any type of organization. And it is possible to achieve these results regardless of the level of technological availability or the market sector concerned.

Pillars of Knowledge Management

In order to more fully define and understand knowledge management, it is useful to consider knowledge management as having four pillars. These pillars are: (a) management and organization; (b) infrastructure; (c) people and culture; and (d) content management systems.

Management and organization

The first and most important pillar of knowledge management is the commitment at the highest levels of management. This commitment is absolutely essential to the success of any knowledge management initiative. Without such commitment, knowledge management initiatives are bound to fail. Sustained efforts to manage knowledge must permeate the entire organization, from the head of the organization down to the rank and file. It is also essential that managers promote appropriate behaviors among employees by setting the example.

The commitment from top management can come in two ways. Firstly, the managers at the highest levels should serve as role models by sharing and using knowledge themselves. The best way to promote knowledge management and demonstrate its strategic importance is for top management to provide adequate examples of ideal behavior and communicate clearly with all levels in the organization. Secondly, a structure to support knowledge management should be implemented, including financial, technological and human resources. One way is to create a knowledge management department and designate a Chief Knowledge Officer (CKO). This department should be given the clear responsibility for the promotion and implementation of knowledge management, led by the CKO. Its responsibilities should include the establishment of a knowledge-oriented technology infrastructure as well as helping to collect, categorize or monitor the use of knowledge. It should also be assigned the management of organizational resources such as labor and capital to enable it to pursue its objectives effectively.

The responsibility of the CKO should change once the knowledge management system has been established. At the start, the CKO should be involved in the collection and categorization of knowledge. But as the system gets more entrenched, the CKO should serve merely as a facilitator behind the scene playing the role of creating awareness, promoting further progress and monitoring improvements. There should be a conscious effort to allow knowledge to be freely created throughout the organization without too much intervention from the CKO or the knowledge management department.

Another aspect of the management-organization pillar is the management of the value chain, which is a critical enabler for knowledge management. The concept of value chain arises from the fact that organizations do not exist in isolation. They form links joined together in value chains. In these value chains every organization has customers while at the same time being a customer of other organizations. Every organization has to manage the organizational knowledge relating to its customers and suppliers. Such knowledge is generally referred to as customer knowledge, which must be generated, organized, shared and applied – in other words, managed. The main enabling practice with regard to this type of knowledge is customer relationship management. Effective management requires that a rich relationship with customers should be firmly established. In terms of the knowledge management process, this means making sure that the preferences of customers and the feedback that they provide are known to all the relevant persons within the organization.

Box 2.1 Why do we have to manage knowledge?

- Marketplaces are increasingly competitive and the rate of innovation is rising.
- Reductions in staffing create a need to replace informal knowledge with formal methods.
- Competitive pressures reduce the size of the work force that holds valuable business knowledge.
- The amount of time available to experience and acquire knowledge has diminished.
- Early retirements and increasing mobility of the work force lead to loss of knowledge.
- There is a need to manage increasing complexity as small operating companies are transnational sourcing operations.
- Changes in strategic direction may result in the loss of knowledge in a specific area.

Source: Barclay, R.O. and Murray, P.C., "What is Knowledge Management?", Knowledge Praxis, <http://www.media-access.com/whatis.html> (2004).

The management of customer relationship has two main objectives: to acquire customers and to keep customers. Advertising and promotion can attract and acquire customers. The decision to buy or not a particular product is based on the customer's perceived value and suitability of the said product. Once the customer makes a decision to purchase, customer relationship management must aim to keep the customer by conveying the message that the product's value and suitability is maintained or even enhanced. Today, new ICT applications are available to facilitate efforts aimed in this direction and help organizations to improve the ways in which they deal with and keep customers. By the application of customer relationship management it is possible to track customer records and harmonize automated customer interactions.

Once a rich relationship has been established between the organization and its customers (as well as suppliers), the knowledge generated during such relationship can be captured, organized, shared and used internally in decision-making. In this manner, the way in which the organization fits in to the value chain is greatly enhanced, thus giving it competitive advantage. In other words, customer relationship management systems contribute to the smooth operation of customer service processes and contribute to the creation of a culture that values knowledge sharing. Through customer feedback on a range of subjects, including customer preferences, product requirements, marketing strategy and competitors, new knowledge is generated, thus contributing to the attainment of the organization's overall objectives.

Infrastructure

All knowledge management systems require a certain level of technology and infrastructure support to be effective. As business processes become increasingly complex, knowledge management can be fully implemented only when appropriate information and communication technologies are available. An adequate ICT infrastructure is needed in order to better create, organize, share and apply knowledge. In this sense, ICTs are relevant enablers. Knowledge management solutions that manage both explicit and tacit knowledge must be enabled by a basic communications

infrastructure. This basic infrastructure may include, among others, a portal, a virtual workplace or an e-mail environment. The need for such an enabler is greater in organizations that are spread out in many different locations (e.g., a transnational corporation with offices or factories in many countries) since there will be need to communicate and collaborate in productive and meaningful ways across considerable physical distances.

In any knowledge management system, three principal technology infrastructures are needed. These are: firstly, the technology infrastructure needed to organize content; secondly, the technology infrastructure needed to search information, once organized; and thirdly, the technology infrastructure needed to locate appropriate expertise.

In order to organize content, information and communication technology tools are essential. The first step in organizing content is the preparation of the taxonomy or knowledge mapping. In knowledge mapping the contents of an organization are taken and the information classified in a catalogue in an orderly and systematic manner. The way in which workers in the organization think is reflected in the structure of the catalogue. The users recognize taxonomies intuitively since majority of workers apply similar mental models and use established terms in their jobs. As the knowledge management system matures, taxonomies grow in terms of quality and comprehensiveness.

There are multifarious ways to search for needed information. The library is one such source of various kinds of information. In today's world, the most preferred way of searching for information includes browsing the Internet, exploring electronic databases and seeking digitized documents. There are a host of document and content management solutions that facilitate the search for information and provide users with unique interface for accessing the Internet as well as information stored in the file servers and databases of the organization. Many technology solutions also provide navigation tools that make them user friendly. By effectively using these document and content management solutions, organizations can become more efficient by finding the needed information faster. In this manner, they

are also able to make better-informed decisions.

Table 2.2 Technology Appropriate to Knowledge Management Approach

REPOSITORY MODEL	• Internet, HTML, XML • Full text search engines • Document management systems
COMMUNITIES OF PRACTICE	• Web conferencing • Threaded discussion groups • Automated workflow • Expert Directories
CONTINUOUS LEARNING	• Learning management systems • Electronic performance support systems (EPSS) • Performance management
BUSINESS INTELLIGENCE	• Databases • Data Mining Tools • Enterprise Databases • Decision Support Tools

Source: "What is Knowledge Management?", Sun Microsystems, Inc. (2000).

Identifying and locating the relevant expertise for a given task is as important as content availability and classification. Managers make more effective decisions when they have inputs from experienced experts. The process of locating experts within and outside the organization can be greatly facilitated with the application of ICT tools. With such tools it is possible to create "people finders" that identify areas of expertise and "keyword affinities" that describe each expert. An effective searching process normally combines these two ICT tools. By gaining access to the unique knowledge of experts, organizations can enhance their competitive advantage.

People and culture

There is ongoing debate on what is the most important enabler for knowledge management. A number of management analysts contend that technology is the most important. Others consider people to be the

most important in knowledge management and argue that knowledge management initiatives that focus mainly on technology can and do often fail. Both are, of course, important to the success of any knowledge management system. But the success of a knowledge management system depends on many factors, and among the most important is the efficient management of people and culture within the organization.

People are the bearers of tacit knowledge. And the sharing of tacit knowledge is crucial to the success of knowledge management. For this reason, perturbations in the composition of the workforce can have significant impact on the organization's performance. Accordingly, the knowledge management process within an organization must take into account not only the processes and material resources but, more importantly, the people by whom knowledge is generated. This is what is known as the "people and culture" enabler in knowledge management.

People and culture as an enabler of knowledge management requires three important elements. These are: (a) the redefinition of organizational structure, (b) the corresponding human resource practices, and (c) a consistent organizational culture.

The first element, organizational structure, determines the manner by which decision is made as well as the accountability for material and human processes and resources. Organizational structures vary. They can be vertical or horizontal. Depending on the objective of the organization, one type of organizational structure may favor knowledge sharing and knowledge management practices than others. For example, in organizations where creativity and innovation are the most important assets, a horizontal structure that empowers the employees and has few layers of hierarchy will be more conducive to knowledge sharing and management.

The second element, human resources management practices, includes acquiring (recruitment), enabling (training), evaluating (performance measurement), developing (career management) and rewarding (compensation) the knowledge workers. If these practices are effectively

carried out, there will be greater impact on the knowledge management practices of the organization as well as in its efforts to create a culture of knowledge sharing among the employees.

The process of recruitment can contribute significantly to the efficient implementation of knowledge management. Effective recruitment practices include, among others, the implementation of joint programs with universities that promote research and knowledge development relevant to the organization. By refining the process of recruitment to ensure that only people with the desired knowledge and relevant experience and abilities are recruited, it would be possible to bring new and useful knowledge into the organization. In addition, such people generally integrate easily into the organization and are able to use and apply existing organizational knowledge quickly and efficiently.

Continuing education and good training practices promote the sharing of knowledge among the workforce. Training methodologies supported by ICTs, such as virtual learning and e-books and train-the-trainer techniques, can be geared towards knowledge sharing and dissemination. In the past, training is generally considered a requirement for promotion. With knowledge management, organizations today identify the knowledge that is required to meet a certain organizational objective and then design the training to make that knowledge available.

With knowledge management, performance evaluation and compensation systems are now giving increasing importance to knowledge creation and sharing. Increasingly, managers consider not only short-term performance of employees but, more importantly, their knowledge and the speed at which they learn and their contribution to the overall knowledge of the organization. The recognition of employees as experts in their respective areas of specialization is an important key to the success of knowledge management.

In order for the third element – a consistent organizational culture – to flourish, it is important to create a climate of trust and an environment of openness where continuing learning and experimentation are valued, appreciated and supported by everyone in the organization. Concomitantly,

an atmosphere conducive to maintaining motivation and the desire to share knowledge must be cultivated and maintained.

The assumptions and values that form the basis of making decisions normally shape the culture of an organization. In order to ensure wide ranging participation of employees in knowledge creation and sharing, there is need to change traditional mindsets and culture from hoarding knowledge to sharing it. This can happen only when there exists a climate of trust within the organization and when employees feel secure about their employment.

On the other hand, motivation gives individuals the desire to share their knowledge. Therefore, it is important to manage the expectations of employees and their motivation schemes. It is not enough to declare the existence of a knowledge sharing scheme but even more important is to provide means to develop their motivation to share knowledge.

Employees can be motivated both intrinsically and extrinsically. Intrinsic motivation is more difficult to induce than extrinsic motivation. Intrinsic motivation arises from within individuals and is related to the content of their work, organizational goals and the alignment of these with individual objectives. It acts as a powerful force in fostering the growth of tacit knowledge. It may be enhanced by increasing employee's participation, developing sound personal relationships, and demonstrating positive human resources management decisions such as linking reward to performance.

Extrinsic motivation can be achieved through human resources management practices such as financial compensation or promotion. Money generally provides satisfaction independent of the actual activity. Extrinsic motivation can be achieved by linking the financial motivations of employees to organizational goals and benefits. When tasks are not complex, it is generally sufficient to motivate employees extrinsically. But when tasks are complex, such as the development of a new technology or product, both intrinsic and extrinsic motivation will be required to promote knowledge sharing.

Content management systems

Content management systems include information assets both internal and external and systems that support the creation and administration of digital information. To ensure the proper functioning of the knowledge management system, programs for managing the content of web sites should be developed and implemented. At the same time, the roles and responsibilities for maintaining and updating content should be clearly delineated. There should also be a way to allow "authors" or "contributors" to provide new content in the form of articles. Content management systems also include some concepts of workflow for target users which define how content is to be routed around the system.

Source: The Knowledge Center's Organization: A Dream Quest, <http://www.systems-thinking.org/tkco/tkco.htm> (2004).

Measuring Knowledge Management

By way of a final note to more fully understand what knowledge management really is, it is useful to briefly consider and discuss the measurement of the results of a knowledge management system. Any such system of measurement must take into consideration the value of knowledge assets and the magnitude of knowledge sharing. Admittedly, such measurement is a difficult task since knowledge is generated by human beings and is both tacit and dynamic. Since the management of knowledge involves the coordination of individuals who create, share, organize and apply knowledge, measuring this management involves the tracing and documentation of the causal relationships between the application of knowledge and its creation and sharing.

One of the most difficult challenges in measuring the results of knowledge management is the assessment of the real value of knowledge assets, in particular tacit knowledge. Since tacit knowledge is usually time-specific as well as context-specific, the value of individual knowledge and intellectual capital is most difficult to assess. The challenge lies in the fact that tacit knowledge does not always lead directly to a useful application or a marketable product. Often it has only an indirect impact on the organization's effectiveness through the creation of better approaches or more effective work responses. And since it is difficult to trace the indirect impact of knowledge accurately, top management preoccupied with numbers and clear facts is not always willing to allocate a budget for investment in knowledge management.

In general, the most successful way to measure knowledge sharing is to trace the flow of knowledge among employees. The number of ideas generated in the online system and frequency of access are easy to measure. Similarly, customer satisfaction levels can be measured through surveys and feedback mechanisms. Although these measurements are simplification of what in reality is happening, they are, nevertheless, valuable proxies that contribute to providing a better understanding of knowledge flows, in particular, and knowledge management, in general.

Box 2.2 Definitions of Knowledge Management

1. Knowledge management is the collection of processes that govern the creation, dissemination, and utilization of knowledge. – *Brian Newman*

2. Knowledge management is the management of the organization towards the continuous renewal of the organizational knowledge base – this means, for example, the creation of supportive organizational structures, facilitation of organizational members, putting IT-instruments with emphasis on teamwork and diffusion of knowledge (e.g., groupware) into place. – *Thomas Bertels*

3. Knowledge management is an audit of "intellectual assets" that highlights unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use. – *Denham Grey*

4. Knowledge management consists of activities focused on the organization gaining knowledge from its own experience and from the experience of others, and on the judicious application of that knowledge to fulfill the mission of the organization. – *Gregory Wenig*

5. Knowledge management is a business activity with two primary aspects: (a) treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization; and (b) making a direct connection between an organization's intellectual assets – both explicit (recorded) and tacit (personal know-how) – and positive business results. – *Rebecca O. Barclay and Philip C. Murray*

6. Knowledge management is the process through which organizations generate value from their intellectual and knowledge-based assets. – *Megan Santosus and Jon Surmacz*

7. Knowledge management is the systematic process of finding, selecting, organizing, distilling and presenting information in a way that improves an employee's comprehension in a specific area of interest. – *University of Texas*

8. Knowledge management is a process with four parts that comprise a loop: knowledge is created, knowledge is captured, knowledge is classified and modified, and knowledge is shared. – *Wally Bock*

Box 2.2 Definitions of Knowledge Management

9. Knowledge management is the way that organizations create, capture and re-use knowledge to achieve organizational objectives. – *Wally Bock*

10. Knowledge management is the way organizations create, capture, enhance, and reuse knowledge to achieve organizational objectives. – *Asian Development Bank*

11. Knowledge management is a collection of activities, processes and policies, which enable organizations to apply knowledge to improve effectiveness, innovation and quality. – *UN Knowledge Management Workshop*

12. Knowledge management is the identification and mapping of intellectual assets within an organization, the creation of knowledge for competitive advantage, the conversion of vast amounts of available corporate data into accessible information and the distribution of best practices. – *Economic and Social Commission for Western Asia*

13. Knowledge management is the process through which organizations generate value from their intellectual and knowledge-based assets. – *CIO Magazine*

14. Knowledge management is concerned with organizing knowledge repositories so as to allow for easy retrieval and exchange of the information stored therein. – *Felix Weigel*

15. Knowledge management is the process of capturing value, knowledge and understanding of corporate information, using IT systems, in order to maintain, re-use and re-deploy that knowledge. – *OIC Document Management*

16. Knowledge management is a streamlined approach at improving knowledge sharing across the entire organization. – *Tenrox PSA*

17. Knowledge management is information or data management with the additional practice of capturing the tacit experience of the individual to be shared, used and built upon by the organization. – *KMTool Community*

Box 2.2 Definitions of Knowledge Management

18. Knowledge management is organizing information from disparate sources into a context that reflects the business and the decisions and processes of the business. – *Peter Novins*

19. Knowledge management is the strategy and processes to enable the creation and flow of relevant knowledge throughout the business to create organizational, customer and consumer value. – *David Smith*

20. Knowledge management is the broad process of locating, organizing, transferring, and using the information and expertise within an organization. – *American Productivity and Quality Center*

21. Knowledge management is a newly emerging, interdisciplinary business model dealing with all aspects of knowledge within the context of the firm, including knowledge creation, codification, sharing, and how these activities promote learning and innovation. – *Gotcha*

22. Unfortunately, there's no universal definition of KM, just as there's no agreement as to what constitutes knowledge in the first place. For this reason, it's best to think of KM in the broadest context. Succinctly put, KM is the process through which organizations generate value from their intellectual and knowledge-based assets. Most often, generating value from such assets involves sharing them among employees, departments and even with other companies in an effort to devise best practices. It's important to note that the definition says nothing about technology; while KM is often facilitated by IT, technology by itself is not KM. – *CIO Magazine.*

23. Knowledge Management is the systematic process of finding, selecting, organizing, distilling and presenting information in a way that improves an employee's comprehension in a specific area of interest. – *Knowledge Management Server.*

24. Knowledge Management is the broad process of locating, organizing, transferring, and using the information and expertise within an organization. The overall knowledge management process is supported by four key enablers: leadership, culture, technology, and measurement. – *American Productivity and Quality Center.*

Box 2.2 Definitions of Knowledge Management

25. Communications is human nature. Knowledge sharing is human nurture. – *Alison Tucker, Buckman Laboratories.*

26. The act of making tacit knowledge explicit. Tacit knowledge is the knowledge we each carry in our heads about how to do things, who to call and the lessons learned through experience. Making it explicit is recording in some media that allows another person to use it. The media can be a complex computer database or a piece of paper tacked over the water cooler. There are as many definitions of knowledge management (KM) as there are ways to use it. – *<http://www.moviemaven.com/ technical/definitions/gloslist.htm>.*

27. Important concepts in knowledge management include domains, i.e., fields of related concepts and terms, and ontologies, i.e., structures (typically hierarchies or networks) of interrelated terms for things, concepts, relationships, etc. in a given domain. – *Felix Weigel.*

28. A relatively new concept in which an enterprise consciously gathers and shares its knowledge to further its goals. Some components of knowledge management include data mining and data warehousing (Data Mining: The analysis data for relationships that have not previously been discovered. For example, the revenues for a particular entrée in a restaurant could, if related to other menu-item data, reveal a correlation between the purchase of a particular dessert with that menu-item. Data Warehouse: A centralized repository of operations and transaction information that is captured from diverse sources and is typically housed on a large-scale server). – *Hospitality Technology: Buyer's Guide.*

29. Knowledge Management is the process of capturing value, knowledge and understanding of corporate information, using IT systems, in order to maintain, re-use and re-deploy that knowledge. – *OIC Document Management.*

30. A streamlined approach at improving knowledge sharing across the entire organization. Accessibility of information, documents, best practice methodologies, templates, libraries, and other pertinent information. Hierarchical views of the entire organization, knowledge repositories, company policies, corporate handbook and collaboration. – *Tenrox PSA.*

Box 2.2 Definitions of Knowledge Management

31. Knowledge management is the strategy and processes to enable the creation and flow of relevant knowledge throughout the business to create organizational, customer and consumer value. – *David Smith, Unilever.*

32. Knowledge is a fluid mix of contextual information, values and experiences. For an organization this resides within employees (human capital) and represents a source of creativity, innovation and adaptability to change. Knowledge management is an explicit system to use this capital. – *Article 13 Co.*

CHAPTER 3

History of Knowledge Management

Knowledge management is a relatively new discipline and therefore has a short history. As a conscious discipline, it developed from the various published work of academics and pioneers such as Peter Drucker in the 1970s, Karl-Erik Sveiby in the late 1980s, and Nonaka and Takeuchi in the 1990s. It began when the concept of a "knowledge company" was introduced in published literature.

The 1970s

The early development of knowledge management came as a result of the work of a number of management theorists and practitioners. Among these early works were the papers published by Peter Drucker and Paul Strassman. In these papers they observed the growing importance of information and explicit knowledge as valuable assets of organizations. The work of Peter Senge, on the other hand, focused on the "learning organization" and emphasized the cultural dimension of managing knowledge. Other management experts and practitioners like Chris Argyris, Christoper Bartlett and Dorothy Leonard-Barton of Harvard Business School contributed significantly to the development of the theory of knowledge management and the growth of its practice by examining in their various works and publications the many facets of managing knowledge. In 1995, Leonard-Barton's book Wellsprings of Knowledge – Building and Sustaining Sources of Innovation was published by the Harvard Business School. In this book, she documented her case study of Chaparral Steel, a company which had an effective knowledge management strategy in place since the mid-1970s.

The pioneering studies made in the late 1970s by Everett Rogers at Stanford on the diffusion of innovation and by Thomas Allen at MIT on information and technology transfer were largely responsible for the current understanding of how knowledge is produced, used and diffused within

organizations. This growing recognition of the importance of organizational knowledge led to an increasing concern over how to deal with exponential increases in the amount of available knowledge and the complexity of products and processes. It was at this point that the computer technology, which in the first place contributed heavily to the great abundance of information, started to become part of the solution in a variety of ways.

Box 3.1 Banking on Knowledge

The World Bank has been dispensing loans to developing countries for over 50 years. In 1996, James Wolfensohn, then the new president, announced that the World Bank would strive to become the "Knowledge Bank". As usual with such Olympian pronouncements, the bank's staff scrambled to figure out what the heck Wolfensohn meant, and the skeptics argued that "this too shall pass".

But it did not. Instead, a large variety of initiatives appeared that penetrated almost every corner of the far-flung organization. Sure, there were the usual knowledge repositories, benchmarking efforts with other companies and consulting projects. But what the Bank has that few other organizations can boast is integration with the organization's basic mission and processes. The Bank's mission statement was modified to read: "To help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors." Its strategic plan included a major section on knowledge management that defined the concept and how it would be applied within the organization. By fiscal 2000 the Bank spent about $45 million, or 5 percent of operational expenditures, on knowledge management. Every staff member was expected to devote two weeks of time a year to knowledge creation, sharing and learning. "Communities of practice", or as the Bank quirkily called them, "thematic groups," were organized for the creation and sharing of knowledge in key content domains, such as early childhood development, school health and disaster relief. Presently, there are about 100 such groups, and almost half of the Bank's employees are active members of at least one group.

Box 3.1 Banking on Knowledge

Most important, the effort is showing results. The "Urban Slums and Upgrading" thematic group, for example, used knowledge management-based approaches to begin circulating ideas around the Bank for dealing with problems of slums in developing nations. They developed a CD-based "electronic tool kit" for those who need help in designing and implementing large-scale urban infrastructure projects. They also developed an approach to "tacit knowledge download" to help new staff members learn from experienced ones.

Source: Davenport, Tom, "The Last Big Thing", The CIO Service Center, <http//www/cio.com/archive/110100_davenport.html> (2000).

Two examples of technology solutions that were available for use in early knowledge management systems can be cited. One such solution was Augment (short for augmenting human intelligence), introduced in 1978 by Doug Engelbert, and other early hypertext/groupware application systems that were capable of interfacing with other applications and systems. Another notable example was the Knowledge Management Systems developed by Rob Acksyn and Don McCraken, which was an open distributed hypermedia tool that predated the World Wide Web by a decade.

The 1980s

Classical economic theory does not fully recognize the value of knowledge as an organizational asset. However, by the mid-1980s, the importance of knowledge as a competitive asset was already well-recognized, in particular, its expression in professional competence. Nevertheless, most organizations still did not have the strategies and methods for managing knowledge. It was during this period that Peter Drucker coined the term "knowledge worker". He, together with other foresighted writers like Matsuda and Sveiby, wrote in-depth about the role of knowledge in organization. Thus by the late 1980s, the ideas that they had developed together with the work done in artificial intelligence and expert systems gave rise to such concepts as "knowledge acquisition", "knowledge engineering" and "knowledge-based

systems" and other computer-based ontologies. These developments gave further impetus to the growth of systems for managing knowledge.

Box 3.2 Development of Knowledge Management at Microsoft

Vision:

1. Increase organizational effectiveness by enabling users to intuitively find, share and connect to relevant information, processes and people.
2. Enable information workers to work together to solve business problems more effectively and rapidly through software and services.

Microsoft circa 1997:

- Multiple, disparate business systems
- Lack of worldwide revenue information
- Inability to track people and position
- 250,000 hard copy financial reports distributed worldwide, available 14 days after end period
- Hundreds of paper forms for purchasing, benefits, pensions, policies, etc.
- Excessive resources focused on transaction processing, not adding business value
- Difficulty sharing knowledge, ideas and content effectively.

Microsoft today with knowledge management:

- Single transaction system worldwide
- Consistent business policies and processes
- Key financial and operational metrics available real time including:
  (a) revenue and inventory by product, customer, location, channel;
  (b) organization headcount and possible detail worldwide; and
  (c) transaction cost detail worldwide
- All financial reports distributed electronically 4 days following month end
- Over 90% of all procurement processed electronically
- All employee services are web based
- Integrated platform for sharing knowledge and collaboration

Source: Kushner, J. and Rijpra, G., "Transforming to a Knowledge Management Paradigm", (2004).

As more thinkers and scholars publish their work, the phrase "knowledge management" formally became part of the lexicon of management. And in order to provide a technological base for managing knowledge, a consortium of U.S. companies started in 1989 the "Initiative for Managing Knowledge Assets". As a result, numerous knowledge management-related articles began appearing in journals like Sloan Management Review, Harvard Business Review, and others. Simultaneously, the first books on organizational learning and knowledge management were published, including Senge's The Fifth Discipline and Sakaiya's The Knowledge Value Revolution.

The 1990s

By 1990 a growing number of academics and consultants had started talking about knowledge management as the new business practice. At the same time, a significant number of large management consulting firms had begun in-house knowledge management activities and several well established U.S., European and Japanese firms instituted focused knowledge management programs. And more and more articles on knowledge management began to appear in an increasing number of business journals. The agenda of many conferences also started to include knowledge management as a main item for discussion. But the introduction of knowledge management did not come until 1991 when Tom Stewart published the article "Brainpower" in Fortune magazine. This was followed by many more articles in widely read publications, most notably articles written by Nonaka, Stewart, and others. Nevertheless, business executives and professionals did not yet show widespread interest in the subject.

It was only in 1995 when knowledge management in its current form first received significant attention among corporations and organizations. This came about as a result of the publication of the seminal book of Ikujiro Nonaka and Hirotaka Takeuchi titled The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation. In September of the same year, Arthur Andersen and the American Productivity and Quality Center (APQC) co-sponsored the Knowledge Imperative Symposium in Houston,

which was followed by many more similar conferences and publications. Of the many publications that came out, the more popular titles include Tom Stewart's Intellectual Capital, Karl Erik Sveiby's The New Organizational Wealth, and Verna Alle's The Knowledge Revolution. Butterworth-Heinemann also launched a series – Resources for the Knowledge-based Economy – and started publishing an annual yearbook.

By the mid-1990s, it became widely recognized that the competitive edge of some of the world's leading companies was for the most part due to the robust knowledge assets of those companies. With this realization, the management of knowledge suddenly became a mainstream business objective. At the same time, nurturing knowledge assets such as competencies, customer relationships and innovations became a focus of attention of many corporations. And other companies started emulating the knowledge management practices of the market leaders.

The International Knowledge Management Network (IKMN), which started in Europe in 1989, went online in 1994. It was soon joined by the Knowledge Management Forum, based in the United States. Shortly thereafter, many other KM-related groups and publications started appearing. There was a tremendous increase in the number of knowledge management conferences and seminars as organizations focused on managing explicit and tacit knowledge and leveraging these resources to achieve competitive advantage. In the same year, IKMN published the results of a knowledge management survey conducted among European firms. In 1995 the European Community began offering funding for KM-related projects through its ESPRIT program.

By the end of the 1990s, big businesses started implementing "knowledge management solutions". Knowledge management became a rage and came to be seen as a highly desirable alternative to the failed Total Quality Management (TQM) and business process re-engineering initiatives. As a result, knowledge management projects became big business and source of revenue for major international consulting firms such as Ernst & Young, Arthur Andersen, and Booz-Allen & Hamilton. In addition, a number of professional organizations interested in such related areas as benchmarking, best practices,

risk management, and change management began exploring the relationship between knowledge management and their areas of special expertise. These included reputable organizations like the American Productivity and Quality Council and the American Society for Information Science.

Generations of Knowledge Management

For many large innovative corporations such as Microsoft and international organizations such as the World Bank, knowledge management has become a standard feature of conducting business. Knowledge management is reflected in the organization's mission statement. There are now also a large number of practitioners in the field of knowledge management and a phenomenal growth in the number of periodicals and magazines with knowledge management in their title. These include publications like Knowledge Management, Knowledge Management Magazine, Knowledge Management Review and the Journal of Knowledge Management, which all provide valuable and timely information for knowledge managers, including case studies and guidance from various experts.

It is possible to distinguish two generations of knowledge management applications: the first generation when the emphasis was on technology; and the second generation when the emphasis was on people.

First generation knowledge management

Many of the early knowledge management initiatives met with only limited success. As a consequence, questions were asked whether knowledge management was not simply another fad that on paper looked great, but in actual application failed to deliver. In fact, for a while, it looked as if knowledge management was destined to be confined to the "management fad graveyard". However, on closer scrutiny, companies realized that it was not the concept of knowledge management that was the problem as such, but rather the way that they had gone about approaching it. Thus at the dawn of the new millennium, knowledge management mysteriously vanished from the agenda of the top corporations. It is only now that knowledge management has started to reappear.

Box 3.3 First and second generation knowledge management

First generation knowledge management

- Focus on knowledge management (limited concept of knowledge lifecycle)
- Better and faster storage, indexing and retrieving of content to help knowledge sharing
- Improving individual performance and learning capability
- Origins in information retrieval, intranet and internet
- Technology focus – sometimes obsessive

Second generation knowledge management

- Focus is knowledge process management (full use of knowledge lifecycle concept)
- Better and faster knowledge creation and innovation plus the sharing of such knowledge
- Improving organizational performance and learning
- Origins in first generation knowledge management plus organizational learning and systems thinking (with ideas from complexity theory still to come)
- May or may not use technology

Source : "Second Generation Knowledge Management", <http://www.unicom.co.uk/3in/issue5/1.Asp> (2004).

The reasons for this loss of confidence in knowledge management include the following:

- The hype associated with knowledge management was too much with consultants and technology vendors making too much money on the latest management fad.
- Many corporations spent too much financial resources usually on exotic technologies with little or no return on their investments. The fact that the measurement of ROI of knowledge management projects is difficult even for the best planned projects let alone with those that are badly envisioned was greatly overlooked.

- Most published materials on knowledge management were very conceptual and lack practical applications. This led to frustration at the inability to translate the theory into practice. Thus many asked the question: "It all makes so much sense but why is it not working?"

Many companies also suffered from what is called the "Air Flight In-house Magazine Syndrome". What this means is that the busy executive (with a budget) reads an article on knowledge management while traveling (perhaps in a magazine provided by the airline) and upon arriving at the office immediately gives orders for the implementation of some sexy knowledge management technology.

This approach is of course likely to result in failure (as did better planned initiatives) for the following reasons:

- Knowledge management was not tied into business processes or ways of working. It was seen as another laborious overhead activity such as completing timesheets – something that might get done at 5 p.m. on the last Friday of the month.
- A lack of incentives – employees quite rightly asked the "What is in it for me?" question. To further complicate matters, their personal objectives probably encouraged individualistic rather than collaborative activity.
- The people who used it most were not the people who want or need to use it – the time factor (as with most communities, how do you encourage the experts to share knowledge when they receive very little new knowledge back?)
- There was not senior executive-level buy-in.
- The focus was on the technology rather than the business and its people. This is reinforced by a McKinsey survey of 40 companies in Europe, Japan and the United States, which showed that many executives think that knowledge management begins and ends with building sophisticated IT systems.

The first generation knowledge management involved mainly the capture of information and experience to make them easily accessible to other users within the organization. Thus knowledge management was primarily about "knowledge capture". By properly managing this capture of knowledge makes possible the growth of the system into a powerful information asset.

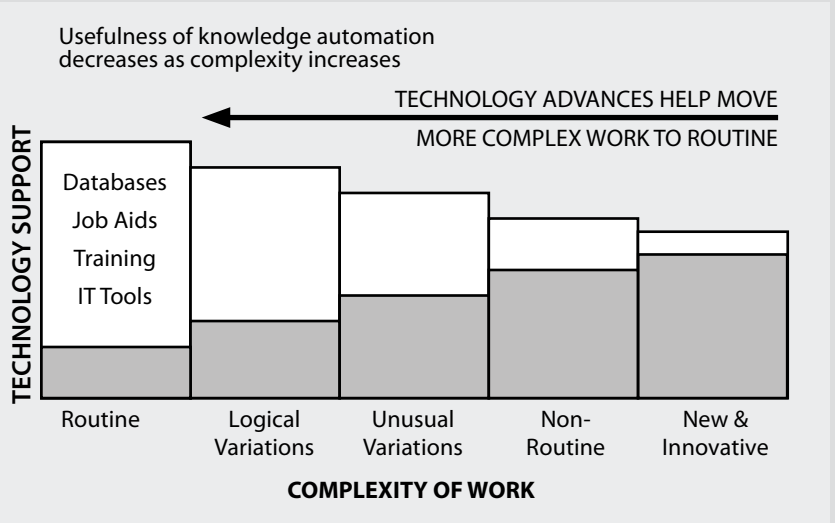
Second generation knowledge management

In the light of the many practical failures of first generation knowledge management techniques and their inability to live up to their promises, theorists began to study and scrutinize more closely the ways by which knowledge is created and shared. As a result there was a dramatic shift in metaphor. Organizations came to be viewed as capable of learning. Consequently, a link between learning theory and management started to develop and more organic models began to replace hierarchical models of organizational structure. Thus effective organizations were seen as capable of structural changes in response to their environment.

In view of the growing recognition of the early mistakes and learning from them, companies have started to take a different approach to knowledge management. In this new approach the emphasis is more on people, behaviors and ways of working rather than on the application of technology. While there are still some skeptics who believe that knowledge management is just a fad, they are now in a minority. The more popular view is that knowledge management may not remain a distinct discipline but may become an integral part of the way organizations work. A similar example is what happened to Total Quality Management. TQM was the "fad" in the 1980s but today nobody talks about "TQM" any more. However, many of its principles and practices have become integral part of how organizations operate. Many experts predict that this could also be the future for knowledge management.

Box 3.4 People over technology: usefulness of technology decreases as complexity increases

Top companies have learned that technology is the easy part of supporting knowledge creation and sharing. The really hard part is working with people to improve collaboration and knowledge sharing. What becomes clear very quickly to those supporting knowledge initiatives is that as knowledge complexity increases the degree to which technology can be counted on to assist with the task is reduced. On the up side, though, as we learn how to build smarter technologies that can assist with more complex tasks, we move the complex to the routine. This in turn frees up people's intelligence to address more complex questions.



Source: Allee, V., "Knowledge Networks and Communities of Practice", <http://www.odnetwork.org/odponline/vol32n4/knowledgenets.html> (2005).

Box 3.5a – Implementing the Knowledge Bank: Chronology	
1996	James Wolfensohn announces Knowledge Bank Matrix Organizational Structure Thematic Groups launched and Advisory Services created
1997	Strategic Compact approved Global Knowledge Conference convenes
1998	All World Bank offices linked to a global communications system Innovation Marketplace launched Knowledge sharing becomes part of the Overall Performance Evaluation
1999	The World Development Report on Knowledge for Development published Action Review of Knowledge Management released
2000	The Global Development Learning Network launched The Development Gateway launched Knowledge for Development program established
2001	Strategic Compact Assessment released
2002	Three pillars of knowledge sharing at the Bank firmly established World Bank Institute given mandate to lead/facilitate
2003	KM job standards introduced Evaluation of Knowledge Sharing (OED)
Source: World Bank, "Knowledge Sharing at the World Bank" (2005)	

Box 3.5b – Implementing the Knowledge Bank: Level of Difficulty	
Easier  **More difficult**	Collecting (Knowledge repositories) 1997 … Connecting internally (Knowledge Communities or Thematic Groups) 1998 … Connecting externally (Knowledge Partnerships, Gateway, GDLN) 1999 … Brokering global knowledge, Facilitating adaptation to local knowledge, Connecting stakeholders, and acting as a catalyst for change 2002 …
Source: World Bank, "Knowledge Sharing at the World Bank" (2005)	

Box 3.5c – Implementing the Knowledge Bank: Results

Within 7 years

- **Thematic Groups** (80 communities of practice)
- **Advisory Services** (25 help desk facilities)
- **Sector Knowledge Collections** (Web)
- **Country/Sector Statistics** (Live Database)
- **Directories** (People Page)
- **Debriefing** (tacit knowledge download)
- **Indigenous Knowledge (**Africa IK)
- **Global Development Gateway**
- **Development Forum** (Discussion Groups)
- **B-SPAN** (webcasting)
- **Dissemination** (formal/informal learning)

Source: World Bank, "Knowledge Sharing at the World Bank" (2005)

CHAPTER 4

Elements of Knowledge Management

A complete knowledge management system must contain four elements. These are: (a) knowledge creation and capture, (b) knowledge sharing and enrichment, (c) information storage and retrieval, and (d) knowledge dissemination.

Knowledge Creation and Capture

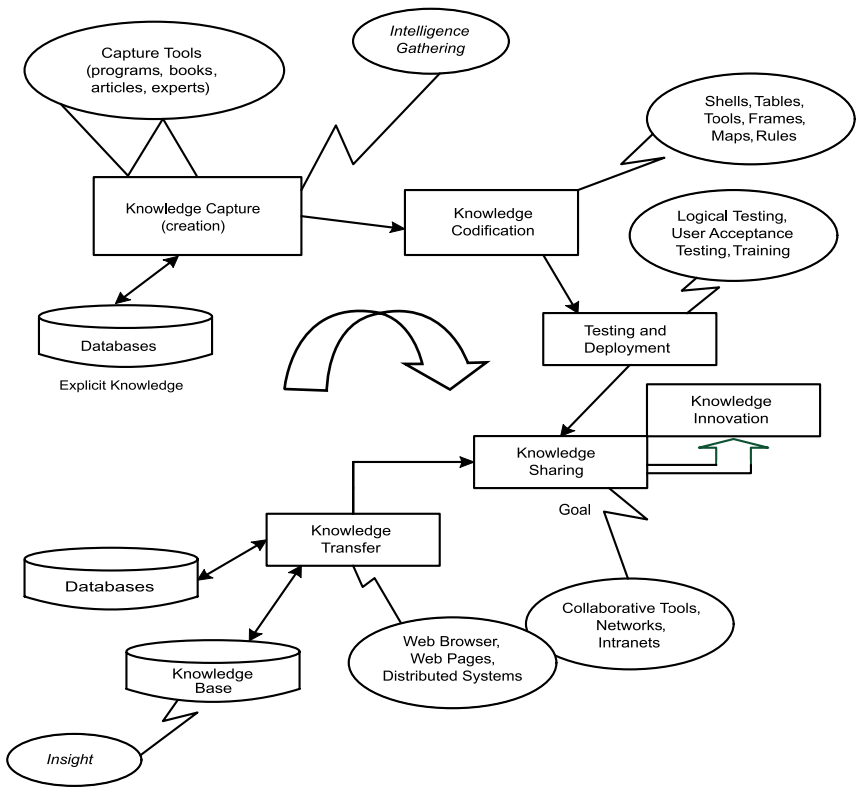
The first element of knowledge management is knowledge creation and capture. Knowledge is continually being created in any group, corporation or organization since the very interaction among people generates knowledge. One of the primary aims of knowledge management is to capture the knowledge that is produced during such interactions. As a consequence of the highly competitive nature of today's markets, there is increasing need within corporations and organizations to create new knowledge, generate novel ideas and concepts, and to capture these knowledge, ideas and concepts.

The very survival of a corporation sometimes depends largely on how much new and advanced knowledge it can generate, capture and utilize in order to produce a more competitive or attractive product or service. For this reason, two factors have become of utmost importance in determining competitiveness – creativity and innovation. These two factors have become not only important, but essential, to the long-term viability of the corporation or organization. Unless an organization is able to create new products, develop more efficient manufacturing processes, or introduce improvements in design or function, it will have great difficulty in competing in fast changing markets.

The creation of new knowledge will not be possible without creativity and innovation. These are the two most important traits or skills needed to make the organization more productive and competitive. For this reason, creativity and innovation require proper management. If managed effectively,

these skills can be harnessed to discover alternative approaches to doing things, faster way of completing tasks, cheaper methods of producing outputs, and easier paths to accomplishing desired results.

Figure 4.1 Knowledge Capture and Sharing



Source: Awad, E. M. and Ghaziri, H. M., Knowledge Management, Pearson Education International (2003).

Brainstorming is one of the most common methodologies used to bring out creativity and innovation from individuals. Different individuals have different levels of knowledge about some things as well as different ways of looking at the same thing. The process of brainstorming makes possible the sharing of views and ideas and mental models commonly used by individuals.

It is also through this process that such ideas, views and mental models can be challenged and defended and further elaborated or modified. Through brainstorming it becomes possible to bring out the diversity of perspectives and mental sets that exits in the brains of the participants. By properly managing such brainstorming sessions, it is possible to produce a composite perspective on a common problem. This composite perspective could lead to innovation and new knowledge.

The process of creating new knowledge is the most difficult to manage. Often creativity and innovation flourish when there is a minimum of intervention from management. Nevertheless, for many organizations there is no option but to find ways and means to manage this process since for some their survival as a viable organization depends on how well they can manage this process. Once new knowledge is created, it will be necessary to capture it so that it can be utilized.

Knowledge can be captured in various ways. Knowledge from outside the organization can be captured by accessing different sources such as publications, websites, emails and the Internet. Explicit knowledge from within and outside of the organization can be captured in various forms such as printed reports, record of meetings, copies of memos and the like. These documented outputs are generally generated at various stages of operation of the organization. On the other hand, tacit knowledge can be created and captured during discussions and meetings with office colleagues, stakeholders, institutional partners, consultants and experts. Seminars and workshops also provide excellent venues for creating and capturing tacit knowledge that may come from the speakers or the participants.

Content management

A principal component of knowledge creation and capture is content management which involves the creation of an information database. In general, three essential decisions are involved in the process of populating the information database.

The first decision is on how new information will be created, contributed and published. Information can be contributed in many ways. It can be submitted into the database via a prescribed form or it can be contributed through web page, email, shared public folders and shared network directories. Content management involves making a decision on acceptable means of adding content into the database.

The second decision is on who will have the access or rights to subsequently update or delete information in the database. Users of a database are usually provided multiple paths to facilitate access to information. On the other hand, contributors to the database should not encounter too many barriers as to discourage them from further contributing useful data or information. For these reasons, the system's ability to distinguish those who have rightful access from those who have not is an important component of content management.

The third decision is on which information are worthy of inclusion in the database. Information from documents, web pages and emails are generally not structured in accordance to the requirements of the database. On the other hand, information that is retrieved from the database is usually structured in a certain way. Content management requires that there be a means to determine which structured information from databases and unstructured information from other sources are to be included in the system.

Submission and indexing

There are many ways by which knowledge or information can be gathered and submitted into the KM system. Information can be collected from existing data storage systems within an organization, for example, from the hard disks of computers belonging to the staff. Information can also be automatically captured as they are created, for example, from structured reports being prepared by the staff. Alternatively, authors can first write the reports and submit them when complete. It is important that the process of submitting information or knowledge be designed in a way that it is as natural

as possible. It must be unobtrusive and as closely integrated as possible with the organization's day-to-day systems and processes. In this manner, the users will be more likely to submit their contributions and follow the set procedures.

To facilitate the subsequent retrieval of information, it is necessary to tag content as data and information are added into the database or KM system. This can be done by creating a web interface through which a user can submit a document to the system. The user will then be asked to answer a series of questions about the document. Through the answers provided by the user, the document will be properly tagged or categorized, which will facilitate subsequent search and retrieval. This is achieved through what is termed XML indexing.

Box 4.1 The Role of XML

What is XML?

XML is a subset of the standard generalized markup language (SGML) defined in ISO standard 8879:1986 that is designed to make it easy to interchange structured documents over the Internet. XML files always clearly mark the start and end of each of the logical parts (called elements) of an interchanged document. XML restricts the use of SGML constructs to ensure that fall-back options are available when access to certain components of the document is not currently possible over the Internet. It also defines how Internet uniform resource locators (URLs) can be used to identify component parts of XML data streams.

By defining the role of each element of text in a formal model, known as a document type definition (DTD), users of XML can check that each component of the document occurs in a valid place within the interchanged data stream. An XML DTD allows computers to check, for example, that users do not accidentally enter a third-level heading without first having entered a second-level heading, something that cannot be checked using the hypertext markup language (HTML) previously used to code documents.

However, unlike SGML, XML does not require the presence of a DTD. If no DTD is available, either because all or part of it is not accessible over the Internet or because the user failed to create it, an XML system can assign a default definition for undeclared components of the markup.

Box 4.1 The Role of XML

XML allows users to do the following:

- Bring multiple files together to form compound documents.
- Identify where illustrations are to be incorporated into text files, and the format used to encode each illustration.
- Provide processing control information to supporting programs, such as document validators and browsers.
- Add editorial comments to a file.

It is important to note, however, that XML is not:

- A predefined set of tags, of the type defined for HTML, that can be used to mark up documents.
- A standardized template for producing particular types of documents.

XML was not designed to be a standardized way of coding text. In fact, it is impossible to devise a single coding scheme that would suit all languages and all applications. Instead, XML is a formal language that can be used to pass information about the component parts of a document to another computer system. XML is flexible enough to describe any logical text structure, whether it be a form, memo, letter, report, book, encyclopedia, dictionary, or database.

Source: Bryan, M. "An Introduction to the Extensible Markup Language (XML)", SGML Centre <http//:www.personal u-net.com/-sgml/xmlintro.htm> (1997).

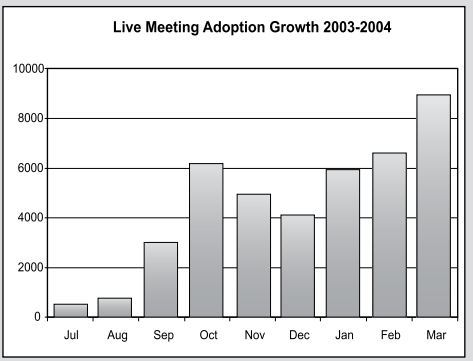
By indexing the organization's file system information and data can be captured and organized. Information can become searchable as a component of a central depository by generating a keyword index against the files. Compared to a system where users have to submit or post new documents, this system of indexing is easier to use and implement. However, this system suffers from two disadvantages: first, this indexing method does not support the same level of categorization in comparison to a more active system; and second, this may require the development of workflow processes such as an approval process to validate the information.

Knowledge Sharing and Enrichment

The second element of knowledge management is knowledge sharing and enrichment. This element is probably the most crucial among the four. It is during the process of sharing that knowledge is usually refined and enriched. Knowledge can be shared by the organization with its employees (e.g., through memos and instructions) and sharing of knowledge can occur between employees of the organization (e.g., through group discussions and internal meetings) as well as with people outside of the organization (e.g., through attending seminars and workshops).

Box 4.2 Live Meetings at Microsoft

- Users eliminated 30% of travel
- Adopted by over 10,000 employees in 6 months
- Over 40,000 meetings held
- Monthly meeting growth rate of 60%
- Cost savings of over $30 million



Source: Kushner, J. and Rijpra, G., "Transforming to a Knowledge Management Paradigm", (2004).

For example, an employee may share the captured knowledge on cleaner production technologies with other employees or groups who are interested or concerned with the subject matter. As the groups of employees discuss and debate the knowledge and give their own comments and inputs, new insights are formed that add relevance to and enrich the original knowledge that was shared. Furthermore, as the knowledge on cleaner production technologies is distributed by the organization to its staff, various

sector committees and thematic networks can provide a forum where new ideas can be exchanged, debated and made more relevant. Through this process of dissemination, debate and discussion, the organization's knowledge on cleaner production technologies is enriched. Additionally, when staff members attend outside seminars, workshops and meetings on cleaner production technologies, further knowledge sharing and enrichment take place.

The competitive advantage of many organizations is generally determined by the magnitude of knowledge sharing that takes place within the organization. But knowledge sharing does not automatically take place. It must be encouraged and nurtured. In general, it is necessary to facilitate communication and nurture the right culture within the organization in order for proper sharing of knowledge to take place. A worker with specialized knowledge in one area might ask, "If my knowledge is a valuable resource that makes me an essential asset of the company, why should I share it and create a competition?" On the other hand, a worker confident of his or her expertise in one field might ask, "Why should I use the knowledge of others when it might put to risk the quality of the work that I am doing?" Accordingly, a knowledge manager must take into consideration the natural tendency of human beings to hoard their own knowledge and regard that of others with suspicion when designing a knowledge management system for any organization.

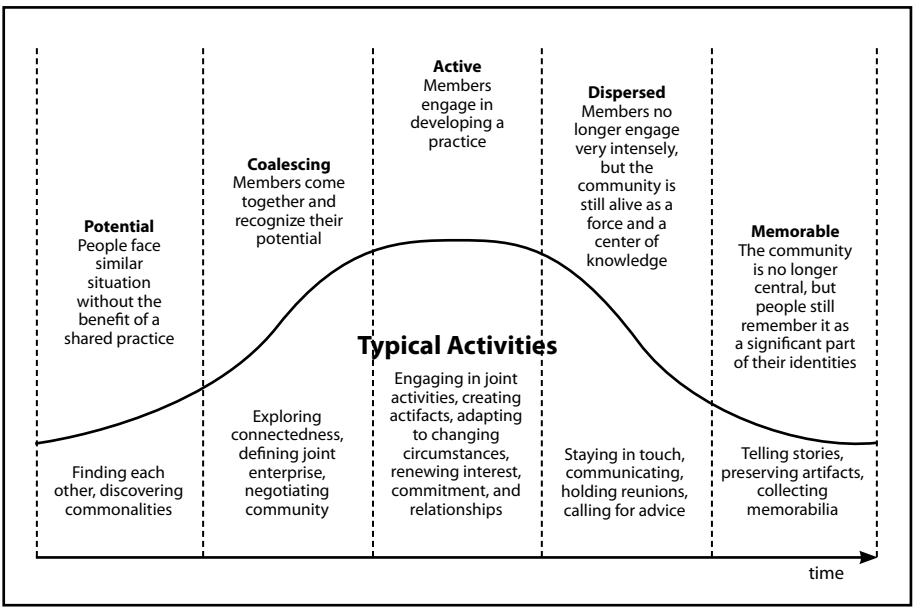
Knowledge sharing can be enhanced through the implementation of appropriate technologies, operations and systems that stimulate collaboration, facilitate the process of sharing, and reward those individuals that share the most knowledge as well as the individuals that actually utilize knowledge that have been shared. Organizations are generally able to make decisions with impact when knowledge is efficiently shared. They are able to make and execute decisions rapidly when individuals throughout the organization can gain access to important strategic ideas. Knowledge managers, therefore, must ensure that employees have direct access to one another rather than requiring them to go through higher management whenever needed information or knowledge are required in the implementation of certain projects or the design of certain products. In this manner, the persons who have the right

information or knowledge can readily share it with those who can use it to produce the greatest benefit for the organization.

Communities of practice

Communities of practice have been proven to be excellent means to share knowledge among people who have a common interest. These comprise groups of people who share knowledge, concerns or interest in a given area. As a result of their continuing interaction with one another, generally through the use and application of information and communication technologies, the members of the community enrich their knowledge and expertise in that particular area. Communities of practice provide their members with very powerful cooperative tools for further developing their expertise and abilities. These groups are an effective and flexible means to examine some knowledge issues and gain further insights into specific knowledge domains.

Figure 4.2 Stages of Development of Communities of Practice



Source: COPs: Learning as a Social System,
<http//:www.co-i-1.com/coil/knowledge-garden/cop/lss.shtml>, (2005).

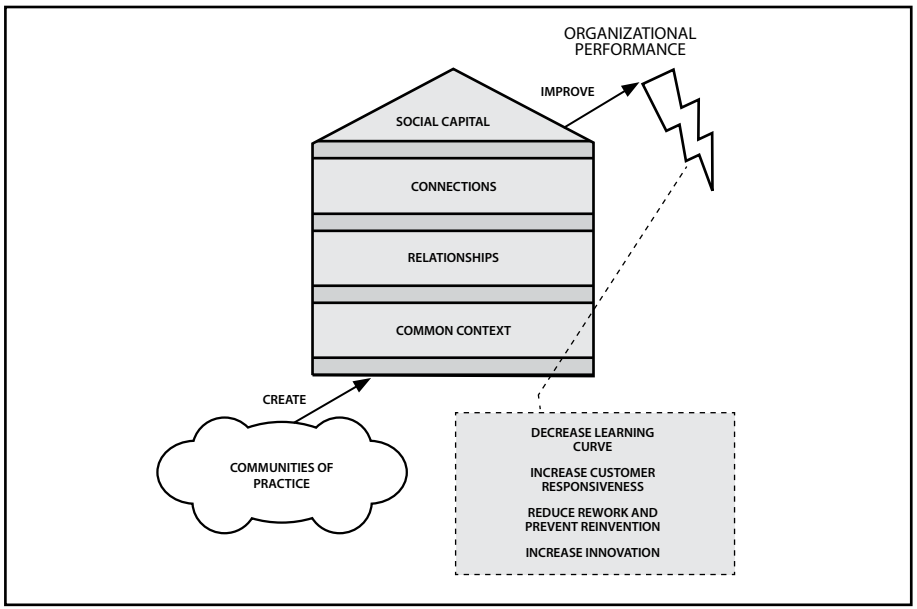
Communities of practice are not synonymous to teams or task forces that are formed for a specific purpose for a certain period of time. Rather, they are peers that form groups to learn from one another and improve their understanding of a particular subject of common interest. What binds them is their common desire to improve their knowledge and their respective need to know what the other knows. In other words, a community of practice is where members share "work stories". During the process of "story telling" the exchange of tacit knowledge takes place. This process is particularly important to new staff members since the sharing of knowledge tends to accelerate their movement from a mere tangential contact to a fuller involvement with the older staff members.

When an organization starts to manage its knowledge to attain competitive advantage, one key initiative would be to foster the formation of communities of practice around the core knowledge of the organization. Although communities of practice generally grow spontaneously around personal relationships, it is important that organizations create a condition conducive for such growth to occur. Once in existence, there will be need to manage such communities of practice in order to optimize their contribution and help ensure their success. There will also be need to have the goals of the communities of practice aligned with the goals of the organization. Unless there is convergence of objectives, the outputs of the communities of practice would be of little use to the organization. In other words, the impact of communities of practice would be severely limited if they lack strategic relevance for the organization.

Many progressive organizations rely on communities of practice to maintain the professional excellence of project teams regardless of where the members of the team may be geographically located. Because communities of practice facilitate knowledge sharing they are critical to overcoming the challenges involved in the creation, sharing, dissemination and use of knowledge. An excellent example of this is the experience at the World Bank. Among the primary objectives of the World Bank is the reduction of poverty. It tries to attain this objective with money (e.g., through loans and grants to governments) and knowledge (e.g., through relevant publications, training, workshops and the like). In this connection, the World Bank uses communities

of practice in various fields in order to enhance its expertise in areas that are important to developing countries, for example, in water resources development, environmental protection or energy supply and generation.

Figure 4.3 Communities of practice are linked to organizational performance through the dimensions of social capital



Source: Lesser, E. L. and Storck, J., "Communities of Practice and Organizational Performance", IBM Systems Journal, Vol. 40, No. 4 (2001).

Understood correctly, communities of practice are therefore not just web sites, databases and sets of best practices, although these constitute the means by which the members interact. Rather, a community of practice consists of members exchanging knowledge, and in the process they build relationships and develop a sense of belonging and mutual commitment. To some extent, a community of practice also helps develop a homogeneous vision and common approach to solving problems, attaining a desired objective, or designing a product. The members of a community have their individual official and unofficial roles, they create reputations for themselves, and they acquire status and spheres of influence as they actively participate

in interactions. The communities of practice may therefore be viewed as social entities in which views are ventilated and shared and where conflicts and disagreements can sometimes appear but mechanisms are available to handle tensions when required.

In many organizations, communities of practice are informal groupings that are separate from but are not in conflict with the formal organizational structure or hierarchy. They act as parallel structures but do not interfere with the regular responsibilities and accountabilities of staff members. They are groups in which various areas of knowledge connect people. In all organizations, the management structure and hierarchy may change and projects start and will eventually end. Communities of practice however can continue indefinitely as long as there are groups of people that are interested in sharing knowledge. Knowledge is the continuous element that binds the members of the community of practice together. For this reason, communities of practice can provide that underlying layer of stability to many organizations.

There is an old saying that it is the string and not the pearls that make a necklace. A good example may be cited in the case of an engineer in a manufacturing industry and a marketing professional in the same company. The two may need to regularly exchange information about a specific product on which they both are working with – the engineer to produce it, and the marketing professional to sell it. They need to help one another in order to gain a broader view of the product and understand it better. The engineer needs to understand what kind of product would sell while the marketing professional needs to know what can be produced efficiently with the available facilities and materials. In a community of practice that addresses that particular product, the two will interact not so much because they have to but because they find their interaction useful. Through the community of practice, they exchange knowledge that is useful in their own particular fields of practice.

Box 4.3 The Value of Communities of Practice: An Example for the World Bank

A Community of Practice is a group of people who communicate with each other because they share common work practices, interests, and aims. Generally they will have a regular system of interchange that allows the sharing of knowledge concerning their field of expertise.

COPs generally operate at an informal level although they can be stimulated and encouraged to grow by providing space and resources in which they may flourish.

The value of COPs is evident in this example from a World Bank Thematic Group:

> The Transport sector thematic group is a community of practice that promotes team building, compiles a knowledge base of good practices, and supports staff learning through brown bag lunches, forums, seminars, and other events. When someone in DC sent an email to the group seeking best practice examples for a National Transport Sector Strategy the first response came back a mere 20 minutes after the initial enquiry was sent. It was a useful contribution from a Bank staff member working in Beirut. Within 24 hours four other relevant contributions were made by colleagues, including letters and notes on Transport Sector Reform strategies, Terms of Reference (ToRs) for carrying out transport sector reviews, as well as reference to a recent Working Paper by the Operations Evaluation Department. Eleven country examples were obtained in response to the query and two were selected as best practice, given their applicability to the current need. By focusing on these examples it is expected that significant savings on technical assistance costs and the timeliness of the project will be forthcoming.

Source: United Nations System Staff College, "UN Knowledge Networks and Communities of Practice", <http://www.unssc.org/web1/programmes/km/about.asp> (2005).

Incentive schemes

In order to encourage knowledge sharing, certain incentive schemes will have to be provided. In many cases, a worker may feel threatened to introduce or share knowledge into a system while another may feel reluctant to actively search out knowledge that others introduce. Many may also find

the process of sharing and searching as requiring considerable amount of time and effort. In practice, the fact that knowledge is available does not necessarily mean that others will use it. Nevertheless, the knowledge manager of any organization should create an overall situation in which knowledge is shared and reused spontaneously. In other words, the principle of knowledge sharing and reuse must permeate through the entire organization. This can be facilitated through the provision of certain incentives, financial or otherwise, to those actively sharing useful knowledge and those frequently reusing knowledge that have been shared.

From a technological point of view, there are many ways of promoting knowledge sharing within the organization. The installation of an application such as Lotus Notes is one example. This should of course be accompanied by the proper training of the staff in the use of this application software. In addition to the provision of the necessary technological infrastructure, management techniques such as an annual personnel performance evaluation that takes into consideration the staff member's contribution to knowledge sharing can be of benefit in promoting the sharing and use of knowledge. Financial incentive schemes that reward active and positive participation in the organization's knowledge management system have also been found useful in promoting knowledge sharing.

Some organizations are beginning to evaluate and reward personnel who share and use knowledge. One example of this is IBM Lotus Development, which assigns 25 per cent of the total performance evaluation of its customer support employees to knowledge sharing. Another example is Buckman Laboratories, which applauds the work of its top hundred knowledge sharers and honors them with an annual conference at a resort. Similarly, ABB evaluates some managers based not only on the impact of their decisions, but also on the information they use in the decision-making process.

Table 4.1 provides a summary of the characteristics of the various communities of practice in different types of organizations studied, showing community objectives, community activities, and key value outcomes.

Table 4.1 Summary of Study of Characteristics of Communities of Practice

Organization	Community	Objectives	Community Activities	Key Value Outcomes
Multinational lending institution	Urban services specialists	Share experience and expertise across similar projects	• Held informal lunchtime seminars • Conducted formal training sessions • Facilitated Website repository • Produced CD of relevant intellectual capital • Captured experiences of retiring practitioners in multimedia	• Faster project delivery • Greater reuse of intellectual capital developed by projects
Multinational lending institution	Land and real estate specialists	Share experience and expertise across similar projects	• Held informal lunchtime seminars • Conducted training sessions • Sponsored conferences with outside speakers • Facilitated Web site • Developed Web links to relevant outside content sources	• Faster project delivery • Greater reuse of intellectual capital developed by projects • Improved linkages to outside knowledge sources
Manufacturing company	Quality champions	Develop and exchange implementation and training techniques	• Held informal discussions among practitioners • Developed Web sites with relevant training material and advice	• Increased reuse of previously developed assets
Pharmaceutical firm	Research chemists	Share knowledge about a new industry development	• Held face-to-face discussions and meetings to share insights • Used video-conferencing to connect research labs • Maintained Web site, using one of the technologies as a webmaster	• Development of a new business capability based on advanced research techniques

Source: Lesser, E. L. and Storck, J., "Communities of Practice and Organizational Performance", IBM Systems Journal, Vol. 40, No. 4, (2001).

Table 4.1 Summary of Study of Characteristics of Communities of Practice

Organization	Community	Objectives	Community Activities	Key Value Outcomes
Software development company	Programmers	Respond to needs for customization of a standard product	• Maintained internal listservs for individuals to post comments about modifications • Maintained Web site to support sharing of software components • Provided access to "spearhead" experts around the company	• Greater reuse of existing software assets • Increased innovation around new software products
Specialty chemical company	Researchers	Share and innovate new solutions to satisfy customer needs	• Maintained extensive discussion database where individuals can post and seek answers to customer problems • Employed knowledge brokers and editors to cull through discussion databases and identify frequently asked questions and other knowledge needs • Held informal "breakfast seminars" to share discoveries and engage other researchers in problem solving	• Faster response time to customer problems • Greater linkage between customers and research staff in developing new solutions
Telecom company	Project managers	Transfer experience and techniques across industry groups	• Held initial face-to-face meeting with community members to outline community objectives and opportunities • Developed email-based expert access/question-and-answer system to post and distribute inquiries	• Faster response to project bids and request for proposals • Greater reuse of existing knowledge assets

Source: Lesser, E. L. and Storck, J., "Communities of Practice and Organizational Performance", IBM Systems Journal, Vol. 40, No. 4, (2001).

Information Storage and Retrieval

The third element of knowledge management is information storage and retrieval. The organization should ensure that acquired or shared knowledge is readily accessible to others. This can be done by storing information in a centralized location with sufficient provisions for easy retrieval. For example, reports, statistical data on economic, social and environmental areas can be stored in databases while official documents, once approved, should be categorized and stored electronically in suitable file systems. The documents and information in databases could then be retrieved through the Internet or the organization's intranet websites.

Box 4.4 The Productivity Challenge: A Closer Look

- Average information worker spends over an hour and a half on email each day, which is 20% of their work time
- Employees get 50% - 75% of their relevant information directly from other people
- More than 80% of enterprise's digitized information reside in individual hard drives and personal files

Source: Information Worker Productivity Council Research, (2004), and "The Knowledge Worker Investment Paradox" Gartner Research, (2002).

There are four main options for storing the information that are captured or shared. These are: (a) file system storage (local and network directories and folders); (b) databases; (c) e-mail; and (d) websites (intranet and external).

In most organizations, the bulk of information is likely to be in relatively unstructured formats. These can be in the form of typical business or office documents such as reports, memos, spreadsheets or emails. These documents normally contain valuable information but they are not easily searched and found. For a knowledge management system to be effective, it must provide for search engines that can deal with such unstructured information. In most

cases, however, some form of information structuring is necessary in order to facilitate subsequent information retrieval and use.

Some information may require more than a storage format. For instance, Online Analytical Processing (OLAP) systems convert data from Online Transaction Processing (OLTP) into a format more suitable for aggregation and analysis. OLAP operates against this secondary data store rather than the production system.

Information organization

In order to facilitate retrieval, a two-step process has to be implemented: first, the information should be divided into manageable units; and second, each unit should be categorized.

Before the information is divided into smaller units, there is need to determine the size, or granularity, of each meaningful unit. The finer the subdivision or granularity of each unit the more tedious and time consuming the cataloging effort will be. Let us take, for example, the case of cataloging a book describing how to build a particular machine. There are several questions that we need to ask. Shall we consider the entire book as one unit and catalogue it as such. Or, shall we consider as one unit one chapter of the book, or one section or one paragraph of the book? The larger the unit the more difficult it is to find the exact information one is looking for. In some cases, the manner of dividing into units presents itself as obvious. One example is an anthology of short essays by different authors. It is obvious that it can be divided into several units where one unit constitutes one short essay by each author. Some products implicitly assume levels of granularity. For instance, Index Server is based on individual words. On the other hand, databases usually work with fields and records as units for searching and retrieval.

After the information is divided into smaller units, the units must then be categorized by content type. In order to do this, it is necessary to create a list of all the content types for the organization. This list may include classifications such as proposals, invoices, white papers, and correspondence. Each entry is

then tagged with content attributes, including metadata such as document title, author, client, and approval status. These predefined categories and attributes constitute the site vocabulary. Microsoft Site Server has facilities for managing content type and attributes.

Information retrieval

Once the repository of information is created and populated, the next step will be to provide various means for users to have access to the information needed. This involves designing and providing information retrieval pathways. These pathways should be designed with the user community in mind and made as user-friendly as possible. Since users have different levels of technical expertise and have different purposes for accessing information, multiple access methods will have to be provided. Each access method should be designed to meet a specific user level. In this manner both casual and intensive users will be provided access to the same body of information.

Since different users require different views of the knowledge base, the ability to personalize these views will greatly increase the ease of use. Personalization taps into user profiles to control what content is offered. After the right to access of the user has been verified, personalization can apply the user's preferences for how and what to present on the page. For example, from the same information database, an engineer may be shown the technical drawing and specifications of a new machine or product that has been entered into the system. On the other hand, a marketing specialist may see the innovative features, the different models and price list of the new product. It is also possible for users to specify the language, font or layout they prefer.

Portals, such as Microsoft's Digital Dashboard, are capable of showing data from heterogeneous sources side by side and simplifying navigation by consolidating views of data. By using integrated search tools, it is possible to reach across application boundaries to find information. For example, it is possible to integrate human resources, finance, and time and accounting applications by cataloging their data into a single repository. This system can then allow searches against database, file system, and web data in a

single query. As a result, a search page can be configured to query multiple repositories at the same time.

There is another form of information retrieval called "push" technology. In this case information retrieval is initiated by the system rather than by a user. In this form of information retrieval, the users subscribe to areas of interest. They then receive updates via e-mail delivery, personalized web pages and personalized corporate portals or home pages. For instance, Site Server provides for pushing information through Active Channels. The Digital Dashboard also offers push capabilities.

The consolidation of information from diverse sources can be consolidated using web-based knowledge portals. These portals allow the user to reference, collaborate, and interact with information. These ubiquitous web browsers allow easy access from any location. With these systems, intranets, extranets, and even Internet knowledge management implementations are possible.

Knowledge Dissemination

The fourth element of knowledge management is knowledge dissemination. Unless knowledge is effectively disseminated, the development impact of knowledge will remain limited. For knowledge dissemination to be effective it will require the transformation of highly individualized tacit knowledge into explicit knowledge that can be more widely shared. In an organization where there is fear of the management or hierarchy, the employees will have a tendency to keep their knowledge to themselves and share it with others only cautiously. In cases such as this, management must take the lead in creating an environment of understanding, cooperation and learning. It should also encourage knowledge sharing, even if the positive results of doing so are not readily apparent. Such results can best be measured in the long term.

Publications, presentations, websites and libraries are the most obvious forms of dissemination of knowledge. Participation in external networks, establishing partnerships with other organizations, and creation of

knowledge centers are also effective means to disseminate knowledge. The Asian Development Bank, for example, participates in over 300 networks with professional and other organizations throughout the world, which serve as forums for information exchange and sharing. Through these networks, the Bank is able to disseminate best practices and lessons learned, among many others.

Box 4.5 Initiative for Knowledge Sharing and Dissemination

The Asian Development Bank launched the Center for Learning, Information, Communication and Knowledge (CLICK) initiative at the World Summit on the Information Society in Geneva in December 2003. Under this initiative, ADB will set up ICT-based interactive knowledge centers in its developing member countries. Through CLICK, ADB will support distance learning on key development topics for developing member countries with up-to-date knowledge products and services that are tailored to clients' needs. CLICK will also enable developing member countries and ADB's development partners to disseminate their own knowledge products and services through this facility.

Source: Asian Development Bank, <http://www.adb.org> (2004).

CHAPTER 5

Knowledge Management Tools

All organizations deal with knowledge in their daily operation. However, only a few have a systematic and formal way of dealing with knowledge. The majority of organizations rely on individuals and ad hoc processes. The consequence of this is that when people leave the organization, they take their knowledge with them resulting in the loss of valuable organizational assets and resources.

There are a number of factors that can motivate an organization to establish a formal and systematic management of knowledge. These include the desire or need to: (a) get a better insight on how the organization works; (b) reduce the time and effort in searching for information and documents; (c) avoid repetition of errors and unnecessary duplication of work; (d) reduce the response time to questions that are asked frequently; and (e) improve the quality and speed of making important decisions.

Various levels of the organization, including administrative, tactical and strategic, can benefit from a systematic and formal knowledge management. The administrative benefits include significant reduction in Human Resource Management (HRM) workload, better planning of recruitment of employees, personalized training of staff, and improvement in the retention of employees. Knowledge management can provide the employees the necessary tools to auto administer their data. An enterprise portal, for example, can provide the means for employees to update certain data that concern themselves such as home address, bank account and the like. As a consequence of the use of such a portal, the HR department can be relieved of several administrative tasks and focus on other relevant work. In addition, this process gives the employees a sense of being in control of certain aspects pertaining to their personal information.

On the other hand, a web-based skills management system, which can be implemented as a component of the knowledge management system, can enable employees to update and upgrade their own skills. It can also be

used to locate or identify people with the right skills. Once all skills of the staff along with their history are stored in a KM system, a knowledge map of the organization can be generated. This map can show the strong and weak points of the organization and indicate emerging trends.

The tactical benefits include faster access to relevant information and documents at any time resulting in accelerated organizational processes. In addition, the knowledge map, which provides an explicit representation of staff competencies and interests, makes possible a better and faster matching of the requirements of particular projects to the skills and interests of people available within the organization.

The strategic benefits include the competitive advantage that can result from a proper and systematic management of the organization's knowledge. Through knowledge management, the organization can turn knowledge into a strategic asset and create an ever learning organization. By capturing relevant experiences and making them readily available throughout the organization, the entire organization can learn on itself. By having an efficient knowledge storage system and intelligent distribution process, the whole organization can learn from individuals and from groups working within the organization. Such a system also ensures that the right persons with the relevant knowledge are consulted at the most appropriate time.

In order to fully implement a knowledge management system and derive the maximum benefits there is need to provide two elements: one, a technological infrastructure composed of computers, networks and databases; and two, software applications installed in distributed environments. These two elements are usually referred to as knowledge management tools. These tools are designed and built to enable easier and faster use of important functionalities, such as document management, collaborative online workshops, superior search engines and the like, that are essential for the management, safeguarding and harnessing of knowledge. The effective deployment of these tools within a knowledge management system can improve collaboration and working environment, enhance competitive advantage and responsiveness, and increase overall productivity.

Knowledge management tools are used to create, organize and share the knowledge that can be found, most of the time, in a document, a project report, or a memo from one employee to another. There are a number of software applications that are able to create a web of repositories, search engines and virtual spaces where knowledge can be stored, retrieved and shared. An ideal knowledge management tool must include such features like mobility that allows users to interact with the system from any place at any time. It is also important to maintain an updated compact disk (CD) that can be used offline whenever a network connection is not available.

For the end users, the usability of knowledge management tools is of great importance. Such tools must be readily available and user friendly, other-wise employees will not use them. Since most users are already familiar with the Internet Web Browser, it is probably the most common in the market as a default presentation. Hidden from the view of the users are databases, mainly Oracle or SQL server, expert systems, integration with Enterprise Resource Planning (ERPs), such as SAP R/3, applications such as Lotus Notes and development products such as Microsoft or Sun for C, C++, Java and Visual Basic, among others.

There are a great variety of knowledge management tools available in the market comprising many different features that are suitable for a number of different applications. Some of the typical tools that are used in knowledge management solutions will be discussed here. These include: (a) document management system; (b) enterprise portal; (c) knowledge map and skills management; (d) information database and lessons learned system; (e) collaboration tool; and (f) communities of practice.

Document Management

Documents are the most common repository of information and knowledge in any organization. Documents are produced for almost everything: a project proposal, a contract or agreement, a technical report, a scientific paper, and others. Because of the great variety of the types and lengths of documents that an organization can produce, the systematic

and organized management of these documents can save the organization considerable effort and money. And for many organizations such an effort to systematize and organize document management is the starting point of knowledge management. However, knowledge management actually involves much more.

Box 5.1 Document Management: KM Starting Point

There are several document management products on the market, all providing basically the same functionalities (e.g., MS Sharepoint, Oracle iFS, Lotus Domino, etc.). Some typical features are described below.

Description:

Web-based central repository containing all important documents for an organization. Structured according to each organization's needs.

Benefits:

Enterprise-wide sharing of any kind of document (office, html, mail)

Features:

- Easy construction of folder structure
- Define customized document types with corresponding metadata/ attributes
- Indexation of all common file types (office, pdf, html, txt)
- Advanced search
- Alerting/subscription services
- Workflow
- Version control
- Profile and user-based access and actions
- Threaded discussions about documents

Source: Benjamins, V. R., "Knowledge Management in Knowledge-Intensive Organizations", Intelligent Software Components, (2001).

Document management has two key functions: first, it provides content; and second, it facilitates content management and access. These two functions have significant positive impacts on the efficiency of the organization. Depending on the nature and size of the organization, the inefficiencies related to document accessibility can cost the enterprise millions of pesos annually as employees waste many hours just looking for the needed information.

Document management has four basic elements: first, it records discussions and emails and archives documents; second, it organizes these electronic documents in a hierarchical or network framework; third, it provides search engines for the retrieval of the desired documents; and fourth, it enhances content security by allocating appropriate levels of access to each document.

Most search engines are able to analyze content and search for synonyms. This feature allows users to find keywords or phrases not only in document names but also in document bodies. Many search engines can also manage different document versions, historical documents and archives. This feature ensures that the retrieved version always contains the most recently updated information. Search engines can also have features that allow users to retrieve any document in any desired format and can be used with the preferred software. Such features obviate the need to have all applications installed in the corporate personal computer, which would be expensive and inefficient. As technological development proceeds at rapid pace, it will be possible, in the near future, to retrieve documents in any chosen language, once they have been automatically translated, and to handle voice and video with the same ease as the handling of plain texts today.

Enterprise Portal

Portals can be defined as single points of access that provide easy and timely access to knowledge. Portals are important tools for knowledge management since they make it easier to share knowledge in an organization. In essence, knowledge portals serve as the central point for

sharing knowledge. Through this portal, users can contribute information to the corporate pool of knowledge, access information, and collaborate with other experts and their peers. Since one of the goals of portals is to enhance corporate performance, it is essential to populate the portal with information of the highest quality in order to ensure its successful use in a knowledge management system.

The complete cycle of knowledge includes a series of episodes. A knowledge worker seeks and retrieves knowledge from the portal and then organizes and analyses it so that it may be used to make decisions or take action. Finally, the outcome is shared and disseminated as lessons learned. This knowledge is then stored in a place that can be accessed by other colleagues. The user can obtain knowledge from people with the required expertise or from documents and other artifacts, thus capitalizing on past experiences. In order to make them more useful, documents and artifacts accessed through a portal include a summary, authorship, type, date and other contextual data.

An employee portal provides a single entrance point through which employees can find all the information they need. In addition, it provides tools where employees can update certain data that concern themselves, like home address, bank account, etc. Major benefits of such a portal are that the human resource department is relieved of several administrative tasks (and can therefore focus on other relevant tasks), and it gives employees a sense of being in control over their own information.

The concept of an enterprise portal encompasses the various tools, technologies and practices that make knowledge available to all the staff of the organization and other authorized outside users. They serve to support the collaborative work of groups of knowledge workers in communities of practice and can serve various purposes including academic, business, non-governmental and government-based organizations. Portals are frequently Web-based, allowing creation of distributed documents and making possible to search online information.

Box 5.2 Key Enterprise Portal Basic Functions

- Single sign-on, profile
- Structure, navigation, and personalization
- Community, share and collaborate
- Work flow
- Capture, store and publish
- Categorize and classify
- Search and retrieve
- Notification
- Integration with business applications
- Maintenance

As information and communication technologies become more powerful and widely available, portals are becoming broader structures that support numerous different knowledge-based activities. A good example of a single entry point of access to broad-based and wide-ranging types of information is Google.com. However, majority of portals are usually limited to a number of persons who belong to an organization, government agency or civil society institution or who share a common knowledge area although belonging to different organizations. Another type of portal is organized around the knowledge of a particular sector in a country or group of countries. This type is usually referred to as a "vertical portal".

From a technical perspective, the two main features of portals are taxonomies and crawlers. Organizational taxonomies and advanced search engines are essential elements of portals that facilitate navigation. In addition, most portals include a web-crawling function the primary objective of which is research and analysis of information. After documents are submitted to portal repositories, these can be accessed by crawlers that browse and extract text and meta-data from sets of documents, which can be in multiple repositories over networks.

Box 5.3 A Case Study of the Performance of an Enterprise Portal

THE PROBLEM: UNLOCKING KNOWLEDGE

Corporate executives knew that capturing best practices and corporate information would give employees something they could sink their teeth into. However, information was scattered around the company in disparate systems, and there was no easy way for the geographically dispersed sales force to get at it. "We had knowledge trapped in files everywhere", says Mike Marino, vice-president of customer development at Frito-Lay, an $8.5 billion division of PepsiCo in Plano, Texas. Marino says that he knew if the 15-member sales team could only access the same information, it would solve its ongoing problems within information sharing and communication.

Additionally, much valuable knowledge was squirreled away on each salesperson's system. There were many idiosyncratic methods of capturing information, "none of which were terribly efficient", Marino says. The sales team also lacked a place for brainstorming and collaboration online. If somebody got a piece of research and wanted to get input from account executives in Baltimore and Los Angeles, the ability to collaborate [online] just was not there.

THE SOLUTION: A KOWLEDGE MANAGEMENT PORTAL

The answer, Marino's group realized, was to build a knowledge management portal on the corporate intranet. A KM portal is a single point of access to multiple sources of information, and it provides personalized access. Companies are starting to pay attention to portals because they offer an efficient way to capture information, says Carl Frappaolo, executive vice president and cofounder of the Delphi Group, a consultancy in Boston. A KM portal at Frito-Lay would give the sales department a central location for all sales-related customer and corporate information and cut down on the time it took to find and share research. In addition to different types of information about the team's customers – including sales, analysis, and the latest news – the portal would contain profiles on who's who in the corporation, making finding an internal expert a snap.

Box 5.3 A Case Study of the Performance of an Enterprise Portal

THE IMPLEMENTATION: BUILT FROM SCRATCH

Marino's group established three goals for the Frito-Lay portal: to streamline knowledge, exploit customer-specific data, and foster team collaboration. He brought in Navigator Systems, a consultancy based in Dallas, which had worked with Frito-Lay in the past and had some experience building knowledge management portals. Navigator built a prototype in about 3 months using technologies previously approved by Frito-Lay's IS department

Marino and Navigator essentially had to start from scratch when it came to populating the portal. "Never before at Frito-Lay had they tried to capture expertise systematically in one place", notes Todd Price, a consultant at Navigator. Marino and Price did an audit within the company and then created expertise profiles on the portal so that sales staff in the field would have an easy way to learn who's who at headquarters in Plano. That way, people who have expertise in areas such as promotion planning, activity planning, costing, or new product announcements can be readily tracked down and contacted for information.

The portal went live in January 2000. Since then, three additional sales teams, or customer communities as they are called internally, have been given access to the portal with different content – including research abstracts and what Marino calls performance scorecards, which evaluate account performance. "If somebody in sales or market research did a study in a particular area like private-label trends, [the user] would be able to click to that abstract and get a summary of that study." Users access the portal, known as the Customer Community Portal (CCP), through a Netscape Navigator browser and enter their name and password on the Frito-Lay intranet.

THE RESULTS

The CCP has paid off with increased sales. "What we expected to see was that the pilot team would outperform others in terms of sales and profitability", Marino says. While he declined to give figures, he says the test team doubled the growth rate of the customer's business in the salty snack category. It also made the sales team happier.

Box 5.3 A Case Study of the Performance of an Enterprise Portal

For example, the pilot team members reside in 10 different cities, so the tool has become extremely valuable for communication and helps cut down on travel. A year after implementing the portal, the pilot group has been able to share documents concurrently instead of having to send faxes around the country to different offices. "It's almost a distance learning tool as much as anything else", he says.

The CCP has also helped foster a sense of camaraderie and relationship building. For example, the portal homepage lists the team members' birthdays. People can also share best practices – on anything under the sun. If someone developed an effective sales presentation for a potential customer in Boston, a salesperson in San Francisco could co-opt the information. Salespeople can also find the latest news about their customers, and theirs is an automatic messaging feature that tells team members who is online.

For Ackerman, the portal has also been an invaluable tool for helping him assess employee skill sets, because each salesperson is required to catalog his or her strengths and areas of expertise. "As a team leader, it helps me analyze where people's gaps might be without having to travel to another member's location", he says.

The portal has also helped boost employee retention rates, says Ackerman. Turnover used to be terrible, he says, because salespeople felt pressured to find vital information and communicate with the rest of the team. Marino adds that salespeople felt frustrated and disconnected because there was no way to efficiently collaborate with the rest of their group unless they flew into a central location.

Since the portal has been in place, not one person on the 15-member team has left. Part of that can directly be attributed to the portal, says Ackerman, because it helps build the connection. In company surveys, salespeople previously complained about geographic constraints and how they did not feel connected and part of a team, he says.

The portal has proven so successful that its use has now become a PepsiCo initiative, says Marino. That means it will soon have added functionality so that employees across all three divisions – including Tropicana – can take advantage of product performance information on a jointly shared customer like a supermarket, he says.

Box 5.3 A Case Study of the Performance of an Enterprise Portal

Marino says the different PepsiCo divisions will have the ability to co-promote and co-merchandise multiple products that are consumed together – such as carbonated beverages and salty snacks – to drive greater sales internally, naturally and for its customer. That's talking more than just peanuts.

Source: Shein, E., "The Knowledge Crunch", CIO, <http://www.cio.com/archive/050101/crunch.html>, (2002)

Since the essential purpose of a portal is to facilitate the sharing of high quality knowledge that has been captured electronically, it is important that the portal content be relevant. The organization that makes use of a particular portal must assess and evaluate the quality of the contribution being submitted and assign meta-data according to its particular features. This enables the creation of structures and categories. Once receipt of documents and other artifacts is authorized, workflow systems deliver the contents to involved or interested persons. This can be done via electronic mail, with appropriate attachments.

Policies and guidelines need to be established in order to ensure that quality is high. For this purpose an organization may implement a policy of incentives to promote contributions and use. Automation helps to count the number of times a piece of knowledge is used by other members and assess its relevance. Users can also rate documents in terms of importance and quality. Documents that are not useful, such as those written in poor style or containing inaccurate information, should not be kept in the repository.

A critical balance must be achieved for the dynamic and rapid retrieval of quality information. Some organizations opt for "convergent" information, meaning that every piece of knowledge received must be validated by the organization and so create a body of high-quality correct knowledge. Others adopt a "divergent" approach, allowing users to contribute at their own risk. The divergent approach is similar to brainstorming and needs careful

management. In order to obtain optimum results, both approaches need to be integrated into a combined set of knowledge habits.

In order to support knowledge workers and communities of practice, portals offer additional functionality for distributed meetings, shared workspaces, telephone and video conferencing and dissemination or exchange of artifacts such as presentations or text documents used in meetings. Moreover, an agenda could allow members graphic access to events and happenings. Collaborating members can also use real-time chat applications. Open topics, formed groups, the identity of discussion participants and events in real time can be browsed graphically with hypertext and visual maps. Also, instant messaging is a well-known and powerful collaboration tool for real-time meeting support.

Call centers provide an illustration of the use of portal systems as they rely very heavily on the tools that such systems provide. Call centers need to access information at high speed while solving the technical problems of clients during a telephone conversation. These systems can provide mining and browsing of key information in a visual way that allows users to understand the implications of the information that they see and discover new facts. In this sense, portals are more than virtual libraries as they integrate all the tools needed to support the sharing of best practices and the functioning of communities of practice.

The implementation of portals requires customization in order to revise the specific environment, analyze functional needs and add personal and social considerations. This is done with an implementation tool that allows – using powerful algorithms – a high-level programming interface to assist customizing applications and the manipulation of data for specific needs and queries from users. It is typically installed in web infrastructures in order to standardize further access. It generates web pages with dynamic data that are presented in any Internet browser without compatibility problems. It also controls access, security and registration in forums. It is not necessary for knowledge workers to be aware of such implementation and maintenance techniques, although such awareness would enhance their performance.

"Out of the box" portals do not exist. Various communities of practice and different organizations have multifarious needs making it necessary to customize and personalize the portals that they utilize. Although the acquisition of the latest and most reliable information and communication technologies need to be considered in the development of enterprise portals, operational issues are even more important. The success of a portal is ensured through the identification of the practices and answers appropriate to the issues faced by the knowledge workers who use it. It is anticipated that in the not-too-distant future, knowledge workers will have access to an electronic desktop containing intelligent and highly task-oriented tools, rather than common standardized portals.

Knowledge Map and Skills Management

Knowledge management tools deal not only with documents but, also, with information about living experts who provide advice and share their expertise with colleagues. The system is an efficient way of making the "localization of experts" easy and quick.

In an organization where people are the most important assets, managing their skills, capabilities, interests and experience is critical. A skills management system is a web-based tool that supports this in a distributed way, spreading the workload over the whole organization. All employees can update their own skills (adding new skills or changing skill levels) and interests, and use the tool to locate people with particular skills. Such tools include a back office tool where the HRM department (or equivalent) can define skills and their levels, i.e., what does it mean to have level 4 (or 5) on skill 'web servers', as well as profiles, e.g., what are the skills required for a senior programmer or a junior business consultant. Available software such as Skillman includes a matching function, which enables people (or HRM, depending on permissions) to see how close they are to a particular profile, e.g., a person needs one more year of experience to be a senior consultant.

Box 5.4 – Example of Expert Directory

Experts in Globalization
Read more about a specific expert or contact one now!

Experts (23)	Expertise	View Bio	Contact Expert
David Coelho	Wireless/Telecommunications, Venture Capital/Funding, Startups/Entrepreneuring	View Bio	Contact
David Heaslip	Business Leadership, Business Positioning, Strategic Planning and Strategic Marketing	View Bio	Contact
David Schuelke	Technical Communication	View Bio	Contact
Edmund Astolfi	Technology Transfer Licensing	View Bio	Contact
Felix Germino	Food Chemistry & Product Development	View Bio	Contact
Frederic de Hemptinne	Strategic Environmental Information	View Bio	Contact
Frederick Zimmerman	Manufacturing Efficiency & Engineering	View Bio	Contact
Gregory Lunde	Corporate Governance, Business Strategy Review, Business Intelligence/Audit, and Compensation	View Bio	Contact
Han Kang	Inorganic Chemist (Boron Compounds, H2O2, ClO2, Percarbonate), Household Chemicals	View Bio	Contact

Source: Giga Information Group, (2002).

Projects can be defined along with the skills required for successful execution. For example, an online marketplace project requires as skills Ariba, payment gateways, auctions, etc. Given the project requirements, the matching algorithm can suggest suitable persons and teams, as well as calculate the coverage of the project needs.

Having stored all skills along with their history, the system can generate a knowledge map of the company, which gives insight in the strong and weak points of the company, as well as in emerging trends. A knowledge map helps navigate through documents, versions, authors, experts and external users of information, which could be partners, customers, suppliers and competitors. Knowledge maps are the standard tools employed in order to control crawling, portal access to repositories and categorization of documents and experts.

Information Database and Lessons Learned

In each organization people learn everyday and improve their work constantly based on the experiences gained. Apart from the fact that this is positive for the employee (who is incrementing his knowledge and skills) it is also beneficial for the company as a whole in the sense that individuals perform better, and thus the organization as a whole. However, the organization can also learn on itself by capturing relevant experiences and distributing them through the organization. This ensures that the appropriate persons consult the right knowledge at the right time.

The Lessons Learned knowledge base forms the memory of the company. At the same time the Lessons Learned system supports the process of capturing and diffusing the knowledge. Lessons Learned systems are very important in organizations where mistakes can be very costly and avoiding them in the future provides significant savings. These systems are also extremely useful in organizations where best practices need to be repeated and disseminated as much as possible. This is true, for example, among technology consultancy companies that are project-based or among development banks that provide funds for projects since during the execution of the projects many lessons are learned. Apart from a supporting system, the processes that define what knowledge has to be captured and when knowledge has to be diffused are critical factors for the success of a Lessons Learned system. Experience has shown that a properly functioning Lessons Learned system can provide many of the required functionalities to turn a company into a learning organization.

Box 5.5 KMApps and Mapview

The Asian Development Bank is developing a knowledge management applications (KMApps) to support knowledge capturing, sharing and dissemination by department, sector and theme. KMApps are an electronic tool to manage, access and share information among departments, committees and networks. Each KMApp has eleven modules: library, calendar, concern, cooperation, correspondence, forum, indicators, lessons learned, news, operations, and profiles.

The eleven modules for the KMApps contain data and information for six sector and thematic committees, including water, urban development, governance and capacity building, regional cooperation, private sector development, and non-governmental organizations. The KMApps will be extended to additional sector and thematic committees and networks as well as other departments. It will support the construction of virtual workplaces that can be accessed by all staff anytime, anywhere. These workplaces will be open to all ADB staff and its offices worldwide.

The Bank is also developing a spatial database called Mapview to store maps and map-related resources and materials generated for ADB projects. Spatial information range from remote sensing to satellite imagery, and from topography maps to site photographs. With Mapview, developing member countries data can be seen on a map or from a spatial context. ADB staff can use the map library (capture), add new data (enrichment), post a new map (storage), and share the new map (dissemination). Creation of a single environment where people can store and share spatial maps will result in improved efficiency and cost-effectiveness in designing projects.

Source: Asian Development Bank, Knowledge Management in ADB, (June 2004).

Collaboration Tool

Along with document management, collaboration is one of the most important aspects of knowledge management tools. Collaboration resembles a large meeting room in which colleagues work together, even over long distances or at different times of day. They share opinions, calendars and projects. A collaborative environment enables people to work in secure

online workspaces, in which they use e-mail, Internet web browser and desktop applications in order to share knowledge, build closer organizational relationships and streamline work processes. Such an environment also encourages employees to share information in open discussion forums, thereby providing access to tacit knowledge. Moreover, collaboration tools offer better user interface for internal and external users, thus providing the link between the organization and its partners and customers.

Groupware and workflow management are also collaborative functionalities. Groupware brings together virtually all employees involved in a certain task or project. The use of groupware products, such as Microsoft Exchange or Lotus Notes, is often described as artifact-based collaboration because the collaborative activity involves one artifact, such as an e-mail text or shared document authored by many people, for example a sales order or an individual file in a government agency. Groupware technologies include other ICT applications for organizing meetings and supporting group interaction and decision-making.

Workflows describe interactions among employees by defining paths, time and individuals involved in certain procedures. Once described, the system can automatically manage the procedures, improving the quality of collaboration. Workflows are predominantly effective in distributive environments in which employees are frequently inaccessible or not permanently located in the same physical workplace. In such cases, the organization designs document exchange and collaboration between individuals involved in the same process. For example, when an employee completes work on a document, the system might be programmed to send it to a list of supervisors, who would automatically be notified via e-mail, and request a review.

E-mail messaging is a basic but highly efficient way to collaborate. It allows people to make contacts and share views on work, problems and solutions. In order to achieve mass dissemination, the ideal knowledge management tool incorporates web page creation in order to facilitate the arrangement of a number of documents and contents together and make them widely available.

Virtual rooms open a series of possibilities. The ideal knowledge management tool has virtual meeting rooms operating in real time, simultaneously and instantly for all employees, who might be distributed over different locations yet remain connected and thus able to exchange information at once. Various possibilities are available, such as chats, videoconferences, forums, email and web pages.

Box 5.6 Groupware as Collaboration Tool

What is Groupware?

Groupware is technology designed to facilitate the work of groups. This technology may be used to communicate, cooperate, coordinate, solve problems, compete, or negotiate. While traditional technologies like the telephone qualify as groupware, the term is ordinarily used to refer to a specific class of technologies relying on modern computer networks, such as email, newsgroups, videophones, or chat.

Groupware technologies are typically categorized along two primary dimensions:

1. whether users of the groupware are working together at the same time ("realtime" or "synchronous" groupware) or different times ("asynchronous" groupware), and
2. whether users are working together in the same place ("co-located" or "face-to-face") or in different places ("non-co-located" or "distance").

	Same time "synchronous"	Different time "asynchronous"
Same Place "co-located"	voting, presentation support	shared computers
Different Place "distance"	video phone, chat	email, workflow

Box 5.6 Groupware as Collaboration Tool

What is CSCW?

CSCW (Computer-Supported Cooperative Work) refers to the field of study which examines the design, adoption, and use of groupware. Despite the name, this field of study is not restricted to issues of "cooperation" or "work" but also examines competition, socialization, and play. The field typically attracts those interested in software design and social and organizational behavior, including business people, computer scientists, organizational psychologists, communications researchers, and anthropologists, among other specialties.

How is Groupware Design Different from Traditional User Interface Design?

Groupware design involves understanding groups and how people behave in groups. It also involves having a good understanding of networking technology and how aspects of that technology (for instance, delays in synchronizing views) affect a user's experience. All the issues related to traditional user interface design remain relevant, since the technology still involves people.

However, many aspects of groups require special consideration. For instance, not only do million-person groups behave differently from 5-person groups, but the performance parameters of the technologies to support different groups vary. Ease-of-use must be better for groupware than for single-user systems because the pace of use of an application is often driven by the pace of a conversation. System responsiveness and reliability become more significant issues. Designers must have an understanding of the degree of homogeneity of users, of the possible roles people play in cooperative work and of who key decision-makers are and what influences them.

Box 5.6 Groupware as Collaboration Tool

Why Bother?

Why is groupware design worth paying attention to in the first place?

Groupware offers significant advantages over single-user systems. These are some of the most common reasons people want to use groupware:

- to facilitate communication: make it faster, clearer, more persuasive
- to enable communication where it wouldn't otherwise be possible
- to enable telecommuting
- to cut down on travel costs
- to bring together multiple perspectives and expertise
- to form groups with common interests where it wouldn't be possible to gather a sufficient number of people face-to-face
- to save time and cost in coordinating group work
- to facilitate group problem-solving
- to enable new modes of communication, such as anonymous interchanges or structured interactions

In addition to the benefits of groupware, another good reason to study usability and design issues in groupware is to avoid a failed design. Groupware is significantly more difficult to get right than traditional software. Typically, a groupware system can't succeed unless most or all of the target group is willing to adopt the system. In contrast, a single-user system can be successful even if only a fraction of the target market adopts it.

Applications

There are several types of groupware applications. Comparing those design options across applications yields interesting new perspectives on well-known applications. Also, in many cases, these systems can be used together, and in fact, are intended to be used in conjunction. For example, group calendars are used to schedule videoconferencing meetings, multi-player games use live video and chat to communicate, and newsgroup discussions spawn more highly-involved interactions in any of the other systems.

Box 5.6 Groupware as Collaboration Tool

Asynchronous Groupware

Email is by far the most common groupware application (besides, of course, the traditional telephone). While the basic technology is designed to pass simple messages between 2 people, even relatively basic email systems today typically include interesting features for forwarding messages, filing messages, creating mailing groups, and attaching files with a message. Other features that have been explored include: automatic sorting and processing of messages, automatic routing, and structured communication (messages requiring certain information).

Newsgroups and mailing lists are similar in spirit to email systems except that they are intended for messages among large groups of people instead of 1-to-1 communication. In practice the main difference between newsgroups and mailing lists is that newsgroups only show messages to a user when they are explicitly requested (an "on-demand" service), while mailing lists deliver messages as they become available (an "interrupt-driven" interface).

Workflow systems allow documents to be routed through organizations through a relatively-fixed process. A simple example of a workflow application is an expense report in an organization: an employee enters an expense report and submits it, a copy is archived then routed to the employee's manager for approval, the manager receives the document, electronically approves it and sends it on and the expense is registered to the group's account and forwarded to the accounting department for payment. Workflow systems may provide features such as routing, development of forms, and support for differing roles and privileges.

Hypertext is a system for linking text documents to each other, with the Web being an obvious example. Whenever multiple people author and link documents, the system becomes group work, constantly evolving and responding to others' work. Some hypertext systems include capabilities for seeing who else has visited a certain page or link, or at least seeing how often a link has been followed, thus giving users a basic awareness of what other people are doing in the system -- page counters on the Web are a crude approximation of this function. Another common multi-user feature in hypertext (that is not found on the Web) is allowing any user to create links from any page, so that others can be informed when there are relevant links that the original author was unaware of.

Box 5.6 Groupware as Collaboration Tool

Group calendars allow scheduling, project management, and coordination among many people, and may provide support for scheduling equipment as well. Typical features detect when schedules conflict or find meeting times that will work for everyone. Group calendars also help to locate people. Typical concerns are privacy (users may feel that certain activities are not public matters), completeness and accuracy (users may feel that the time it takes to enter schedule information is not justified by the benefits of the calendar).

Collaborative writing systems may provide both real time support and non-real time support. Word processors may provide asynchronous support by showing authorship and by allowing users to track changes and make annotations to documents. Authors collaborating on a document may also be given tools to help plan and coordinate the authoring process, such as methods for locking parts of the document or linking separately-authored documents. Synchronous support allows authors to see each other's changes as they make them, and usually needs to provide an additional communication channel to the authors as they work (via videophones or chat).

Synchronous or Real time Groupware

Shared whiteboards allow two or more people to view and draw on a shared drawing surface even from different locations. This can be used, for instance, during a phone call, where each person can jot down notes (e.g., a name, phone number, or map) or to work collaboratively on a visual problem. Most shared whiteboards are designed for informal conversation, but they may also serve structured communications or more sophisticated drawing tasks, such as collaborative graphic design, publishing, or engineering applications. Shared whiteboards can indicate where each person is drawing or pointing by showing telepointers, which are color-coded or labeled to identify each person.

Box 5.6 Groupware as Collaboration Tool

Video communications systems allow two-way or multi-way calling with live video, essentially a telephone system with an additional visual component. Cost and compatibility issues limited early use of video systems to scheduled videoconference meeting rooms. Video is advantageous when visual information is being discussed, but may not provide substantial benefit in most cases where conventional audio telephones are adequate. In addition to supporting conversations, video may also be used in less direct collaborative situations, such as by providing a view of activities at a remote location.

Chat systems permit many people to write messages in real time in a public space. As each person submits a message, it appears at the bottom of a scrolling screen. Chat groups are usually formed by having a listing of chat rooms by name, location, number of people, topic of discussion, etc.

Many systems allow for rooms with controlled access or with moderators to lead the discussions, but most of the topics of interest to researchers involve issues related to un-moderated real time communication including: anonymity, following the stream of conversation, scalability with number of users, and abusive users.

While chat-like systems are possible using non-text media, the text version of chat has the rather interesting aspect of having a direct transcript of the conversation, which not only has long-term value, but allows for backward reference during conversation making it easier for people to drop into a conversation and still pick up on the ongoing discussion.

Decision support systems are designed to facilitate groups in decision-making. They provide tools for brainstorming, critiquing ideas, putting weights and probabilities on events and alternatives, and voting. Such systems enable presumably more rational and even-handed decisions. Primarily designed to facilitate meetings, they encourage equal participation by, for instance, providing anonymity or enforcing turn-taking.

Multi-player games have always been reasonably common in arcades, but are becoming quite common on the internet. Many of the earliest electronic arcade games were multi-user, for example, Pong, Space Wars, and car racing games. Games are the prototypical example of multi-user situations "non-cooperative", though even competitive games require players to cooperate in following the rules of the game. Games can be enhanced by other communication media, such as chat or video systems.

Source: Usability First, <http://www.usabilityfirst.com/groupware>, (2005).

Communities of Practice

Communities of practice are described extensively in the previous chapter as an excellent means to share knowledge among people who have common interest. Here they will be described again briefly from the perspective of being used as a tool in the implementation of a knowledge management system within an organization. The fact that communities of practice can be viewed as an important enabler for the sharing and enrichment of knowledge as well as a useful tool for the implementation of a knowledge management system lends credence to the claim of many knowledge management practitioners regarding its great importance.

It is common sense that people working together on a project perform better as a team if they often communicate. However, in modern organizations team members often work at different physical or departmental locations. Communities of practice provide a virtual place where those people can exchange knowledge and experiences.

Box 5.7 Communities of Practice

ADB's Communities of Practice priority sectors and themes act as a think tank and provide advice on

- strategic direction and issues in the sector or thematic area covered by it
- sector and thematic annual reports to be prepared by lead specialists
- rationalization of the knowledge products and services (KPS) program and prioritization of ADB participation in external events
- special studies
- ADB's major publications.

Box 5.7 Communities of Practice

The input to strategic direction would also include advice on certain aspects of the HR strategy such as the ADB-wide competencies, skills and numbers required to meet its medium- and long-term strategic objectives and implementation of the proposed technical stream.

The Formal COPs are:

- Education
- Energy
- Environment
- Finance and Trade
- Gender and Social Development
- Governance
- Health
- Regional Cooperation and Integration
- Transport
- Urban
- Water

Recognizing the value of COPs as venue for knowledge sharing, ADB also has informal COPs in the following areas:

- Agriculture and Natural Resources
- Education
- Financial Management
- Information and Communication Technology
- NGO and Civil Society
- Poverty
- Resettlement
- Transport
- Urban Development
- Water

Source: Asian Development Bank, <http://www.adb.org/about/COPs.asp> (2006)

Once a community of practice has appeared or an organization has decided to create one from scratch, there are three main considerations that will need to be taken into account. These are the size of community, the system of interaction, and the budgetary allocation to adequately support its activities.

The size of a community of practice is important. It needs to be large enough to allow critical mass but small enough to avoid inhibiting direct interaction. Experienced practitioners advise that a community with between 20 to 40 members is best able to function smoothly. The actual number depends on the way in which relationships develop and informal leadership grows within the community. A less centralized informal leadership of a community of peers, practitioners and professionals is the preferred structure since decentralization and informality allow for openness and reciprocity in interaction.

In addition to determining the size of the community, it is also necessary to choose an appropriate system of interaction. Under some conditions, face-to-face meetings cannot be relied upon, such as in the case of geographically distant and distributed communities of practice where knowledge problems and issues are common but sharing documents, procedures or experiences over long distances is more difficult. The distance problem can be resolved, in part, through use of interactive information and communication technologies such as videoconferences, teleconference calls, teleconferences on web sites, e-mails and forums but such interactive systems must be carefully designed.

Every knowledge worker has had many experiences of face-to-face interactions, which are predominantly driven by how well each person can express himself or herself or how well a person knows the subject being discussed. But in virtual interaction there are other factors that can limit participation, which can be driven by the technology and system. For example, in most teleconferences, the technology and system decide when and how a member can make a contribution or pose a question. In virtual interaction, one has to deal with the fact that participants are usually visible only when they are making a contribution. The facial reaction or body language of the other participants listening may not be visible at all times.

Moreover, sound budgeting and availability of the financial resources required are critical if members are to dedicate their time. As communities of practice are investments that will yield results, the size of budget allocation

to these communities can be interpreted as an indirect statement from the hierarchy with regard to the extent of the commitment of the organization to the knowledge initiative. Some organizations offer time and travel to participating members. For instance, McKinsey allows formal free time to employees on Fridays after lunch for professional development. But at what point should organizations allow funding for a new community of practice? A system of formal proposals is often established and only those of sufficient interest are funded. For example, the World Bank uses projects as primary source for funding communities of practice infrastructure.

Several experts in a certain area know more than one expert. Therefore, it is important to provide people with the same skills and interests a place where they can discuss and exchange their latest experience, facts, etc. A person working on a project, can – through such a virtual place – stay in contact with his or her peers and therefore always provide the optimal solution known in his area (as opposed to known by himself). This, in fact, is the very essence of communities of practice. It is a useful knowledge management tool that can promote the free exchange of ideas and knowledge resulting in the growth and enrichment of these ideas and knowledge, which ultimately redound to the benefit and competitive advantage of the concerned organizations.

CHAPTER 6

Implementation of Knowledge Management

Knowledge management is based on the fundamental concept that one of the most valuable assets of an organization is the experience and expertise that reside in the heads of its officers, managers and employees. In order to derive the maximum benefit from this intellectual capital, ways and means must be devised to manage this knowledge, capture it and share it with others, particularly the coworkers. If executed and implemented in a proper manner, knowledge management is expected to create a more collaborative environment, cut down on duplication of effort and encourage knowledge sharing. In the process, there will be considerable savings in terms of time and money.

However, in most organizations, employees are reluctant to share their knowledge freely. In fact they feel that their special knowledge is the very reason why they are important to the company and why the company keeps them employed. By keeping the knowledge to themselves, they become valuable to the company resulting in employment security. But such an attitude of hoarding knowledge leads to duplication of work, turf wars, inefficiencies and high costs.

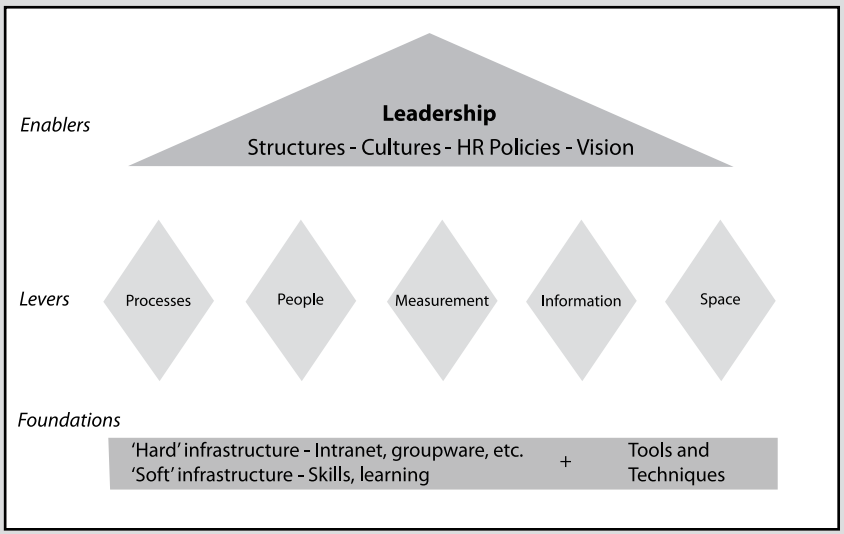
One of the biggest challenges, therefore, to successfully implementing KM is to properly address the cultural change issues. The KM efforts must be focused on this aspect of organizational change and must develop programs to reach out to individuals involved. The programs must include, among others, advocacy, communications, training, policies and procedures, and incentives. They must also include knowledge proficiencies, a comprehensive measurement system, and the creation of an organizational team to lead and support the knowledge management effort. The leadership of an organization must be combined with a culture based on sharing. From an economic point of view, knowledge management should be considered not as expenditure but as an investment in the efficiency and competitiveness of an organization.

A framework for the implementation of a knowledge management system is described in Box 6.1. This framework envisages three layers comprising enablers (as the topmost layer), levers (as the middle layer), and foundations (as the bottom layer).

Box 6.1 A Framework for Implementing Knowledge Management

At the top layer of the framework are the enablers. The key factor here is organizational leadership. There is a senior knowledge champion. The senior management team understands that knowledge is strategic and clearly articulates its contribution to the organization's "bottom line". The organization's structure, culture and environment encourage knowledge development and sharing. Without these enablers most knowledge initiatives drift or stall.

The second layer of the framework comprises a set of levers that amplify the contribution of knowledge. These include processes that facilitate knowledge flows, the effective handling of information, and measurement systems (e.g., for intellectual capital). An important point here is the distinction between explicit and tacit knowledge, since their management is quite distinctive.



Box 6.1 A Framework for Implementing Knowledge Management

Explicit knowledge is that which is written down or expressed in some tangible form, such as in a procedure manual, document or computer database. Tacit knowledge, on the other hand, is personal, in people's heads and is difficult to articulate. It includes insights, experience, judgment and many other aspects of know-how and know-why. Managing explicit knowledge draws heavily on systematic processes for handling information, such as information resources management, as discussed below. Managing tacit knowledge, on the other hand, has more to do with managing people, and particularly the environment in which they operate. Hence design of space that encourages knowledge sharing, such as at British Airways new headquarters at Waterside near Heathrow, is an important lever. So, too, are ways in which people can interact to learn from each either, whether through knowledge sharing events, the conduct of meetings, secondment to other work groups or personal coaching and mentoring.

Thirdly, the foundation layer provides the capacity and capability that embeds knowledge into the organization's infrastructure. It comprises two complementary strands - a 'hard' information and communications infrastructure that supports knowledge collaboration, and a 'soft' human and organization infrastructure that develops knowledge enhancing roles, skills and behaviors. In this layer, the fast moving world of technology is providing an ever increasing number of useful tools for knowledge capture, organizing and sharing. There are now knowledge management suites, such as Open Text's Livelinks, that combines document management facilities with functions that help create 'communities of practice', whereby people in different departments who are pursuing similar interests can be connected into electronic conversations.

An effective knowledge management programme should therefore take a holistic view of the field and ensure that there is suitable balance between the various layers and strands. As far as information professionals are concerned, there are several ways in which they can make a valuable contribution to a knowledge program. Creating knowledge bases and developing knowledge centers are two of them.

Source: Skyrme, D. J., "Knowledge Management: Making it Work", Resources, <http://www.skyrme.com>, (Dec 2004).

However, the actual implementation of a knowledge management system in an organization may generally involve five distinct stages:

Stage 1: Advocate and learn
Stage 2: Develop strategy
Stage 3: Design and launch KM initiatives
Stage 4: Expand and support initiatives
Stage 5: Institutionalize knowledge management

An examination of many knowledge management initiatives of large organizations shows the presence of these five stages of implementation.

Stage 1: Advocate and Learn

The first stage in the development of a knowledge management system comprises the following elements: (a) introducing knowledge management; (b) identifying the KM team and focal points; (c) learning about the experiences of other organizations; (d) identifying advocates of knowledge management; and (e) promoting wide-ranging support to the KM initiative.

The introduction of knowledge management may be initiated at the highest level, for example, the organization's chief executive officer or it may be an initiative of the human resources department or the IT department. Regardless of where the initiative comes from, the organization is more likely to be ready to get started in knowledge management when one or more of the following situations are present: (a) knowledge management has emerged as a topic of interest; (b) at least a few employees have explored the benefits of KM for the organization; (c) someone has had a personal stake in developing interest in KM; (d) some members of the organization have learned about KM through participation in consortia or conferences; (e) the organization has created a high-level rationale or vision for pursuing KM.

Advocacy is the very first task to define KM, make it known to others in the organization, and develop an initial small group of KM supporters. Opportunities should be provided to the staff to learn more about KM through

activities such as in-house seminars and workshops and to share stories of how KM helped other successful organizations. It is also important to make everyone realize how KM could be aligned with other current initiatives of the organizations. During the advocacy and learning stage it is essential to make the concepts of KM real for others in the organization. This means that the advocates should create a clear, tangible picture of the benefits of KM as they relate to goals in the organization. To make KM attractive to a wider audience, it is important to use simple definitions and simple language to explore real problems, opportunities, and the potential value that KM addresses.

The second step is to identify the members of the KM team and focal points that will support the development of KM and serve as advocates of knowledge management. To help identify these people, one should look around the organization for activities that might already be related to KM. In addition, there might already be small groups or communities that are sharing knowledge in some way either formally or informally. It is important to make connections with these people and recruit them as possible focal points or members of the KM team. Finally, the KM team should report to as high in the management as possible in order to get top management support. And recruiting well-respected, influential people within the organization is always a good idea.

The third step is to learn from the experiences of other organizations and constantly look for windows of opportunity to introduce the benefits of knowledge management. In pursuing this, there is need to capitalize on the Internet and seek the assistance of the IT department to provide the necessary tools. Efforts should be exerted to find out what KM possibilities are available with existing and available technology and where KM would be most valued. By talking to people involved with strategic initiatives, it might be possible to translate some of the experiences of other organizations into concrete policies and actions that could prevent repeating earlier mistakes.

The final two steps involve finding advocates of knowledge management and getting wider support to the KM initiative. These are crucial steps and the probability of success is enhanced by making the proper choices. For example, the people from the IT department are potential advocates and

catalyst for emerging KM support technologies since they are already familiar with the technology aspect of knowledge management. Wide-ranging support may be obtained if the KM team can clearly and convincingly explain to the staff what the KM objectives are, what issues are being addressed, how KM can help the organization meet its objectives, and how it will benefit the staff and help them perform their work more efficiently and effectively.

Box 6.2 Challenges of KM Implementation

What are the challenges of KM?

Getting Employees on Board

The major problems that occur in KM usually result because companies ignore the people and cultural issues. In an environment where an individual's knowledge is valued and rewarded, establishing a culture that recognizes tacit knowledge and encourages employees to share it is critical. The need to sell the KM concept to employees shouldn't be underestimated; after all, in many cases employees are being asked to surrender their knowledge and experience — the very traits that make them valuable as individuals.

One way companies motivate employees to participate in KM is by creating an incentive program. However, then there's the danger that employees will participate solely to earn incentives, without regard to the quality or relevance of the information they contribute. The best KM efforts are as transparent to employees' workflow as possible. Ideally, participation in KM should be its own reward. If KM doesn't make life easier for employees, it will fail.

Allowing Technology to Dictate KM

KM is not a technology-based concept. Don't be duped by software vendors touting their all-inclusive KM solutions. Companies that implement a centralized database system, electronic message board, Web portal or any other collaborative tool in the hope that they've established a KM program are wasting both their time and money.

While technology can support KM, it's not the starting point of a KM program. Make KM decisions based on who (people), what (knowledge) and why (business objectives). Save the how (technology) for last.

Box 6.2 Challenges of KM Implementation

Not Having a Specific Business Goal

A KM program should not be divorced from a business goal. While sharing best practices is a commendable idea, there must be an underlying business reason to do so. Without a solid business case, KM is a futile exercise.

KM is Not Static

As with many physical assets, the value of knowledge can erode over time. Since knowledge can get stale fast, the content in a KM program should be constantly updated, amended and deleted. What's more, the relevance of knowledge at any given time changes, as do the skills of employees. Therefore, there is no endpoint to a KM program. Like product development, marketing and R&D, KM is a constantly evolving business practice.

Not All Information is Knowledge

Companies diligently need to be on the lookout for information overload. Quantity rarely equals quality, and KM is no exception. Indeed, the point of a KM program is to identify and disseminate knowledge gems from a sea of information.

Who should lead KM efforts?

Since KM is not a technology-based concept but a business practice, enterprise-wide KM efforts should not be led by the CIO. (The CIO is a suitable choice to lead KM efforts within the IT department, however.) Some companies have dedicated KM staff headed by a chief knowledge officer or other high-profile executive. Other companies rely on an executive sponsor in the functional area where KM is implemented.

What technologies can support KM?

KM tools run the gamut from standard, off-the-shelf e-mail packages to sophisticated collaboration tools designed specifically to support community building and identity. Generally, tools fall into one or more of the following categories: knowledge repositories, expertise access tools, e-learning applications, discussion and chat technologies, synchronous interaction tools, and search and data mining tools.

Source: Santosus, M. and Surmacz, J., "The ABCs of Knowledge Management", <http://www.cio.com/research/knowledge/ edit/kmabcs.html>, (accessed 24/09/04).

There are a number of challenges and possible roadblocks to success at this stage. These include: (a) ignoring the current practices and existing corporate culture and history; (b) overlooking and not addressing issues that might delay the acceptance and hinder implementation of the KM system; (c) creating too much unnecessary hype and attempting to sell an enterprise-wide approach without first building confidence; and (d) asking for an unreasonably large budget before creating a convincing proposition that can create value for the organization.

Stage 2: Develop Strategy

During the second stage of the knowledge management roadmap, there are four activities that should be implemented. These are: (a) identify and characterize the knowledge assets of the organization; (b) develop an overall KM framework with clear goals and objectives; (c) conceptualize and prepare preliminary design of some strategic KM pilot projects; and (d) prepare an indicative budget and find the resources to support the selected KM pilot projects.

As in the first stage of implementation, there are some indicators that could help decide if the initiative is ready or not to proceed to the next stage. For example, if several or all of the following conditions exist, then the organization is ready to proceed to the second stage of knowledge management implementation:

- The organization has established a KM exploratory group or steering committee for KM and it has successfully met a few times;
- An executive sponsor or champion, high enough in the hierarchy of the organization, supports further exploration of KM;
- A group, a section or a division within the organization is looking for successful, internal grassroots efforts related to KM that are already underway;
- The IT section or division of the organization is interested in actively supporting the KM initiatives;
- There are stories or records of how knowledge sharing has helped the organization in the past;

- Some pilots have been identified allowing the demonstration of how KM will benefit the organization; and
- Ownership of the proposed pilots has been identified and their possible funding has been secured.

The overall objective of this stage of implementation is to formulate a KM strategy that fits the organization's business model. From this KM strategy, business opportunities can be identified and initialized as pilot initiatives. A task force should then be established to take charge of these activities on behalf of the organization.

At this stage, the organization has reached an important turning point. Perhaps a personal vision of capturing, sharing, and using information and knowledge has become an organizational exploration of business potential. With the support of an executive sponsor or champion, it will now be possible to explore specifically how KM will work for the organization. The key actions at this stage, as well as some helpful hints, are summarized below.

The first action is to form a task force for the implementation of the pilots. In forming the KM task force, it is important to use as a base the core group that has already been formed during the advocacy stage of implementation. This task force must also be cross-functional coming from as many different divisions or sections of the organization. The diversity of the task force members is important because it will identify opportunities for pilots and set the standards for methods to be used across all initiatives. Some members of the task force must be high enough in the organizational management ladder in order to facilitate support from top management as well as from the staff directly under them.

The second action is to carefully select the pilots or, if possible, identify current initiatives that could be classified as pilots or modified slightly to constitute a pilot. If there are current initiatives that are already funded and staffed that can be subsumed under the new framework of knowledge management, these should be identified and gradually placed

under the KM framework. Identifying and undertaking too many pilots should be avoided. Three or four pilots are recommended and these pilots should be designed to show demonstrable and relevant results. New strategic pilots or current grassroots efforts already underway can be selected but it is best to have pilots that address issues important to the business. Pilot sponsors with available resources should be selected to help the pilot initiatives along.

The third action is to meet and coordinate with the relevant division or section to identify and allocate the resources to support the pilots. The proposed pilots will never move unless resources, both human and financial, are provided. The resources of highest priority and importance are the skilled and interested staff members who can facilitate the initiative. It is important that these staff members be given authority and permission by management to focus their time and efforts on the proposed pilots. The other needed resources are the information and communication technologies, both hardware and software, to run the pilots and produce tangible and visible results. Some of these infrastructure requirements may already be in existence and can be used without modification. Others may need to be created or purchased while still others may be produced by modifying existing facilities.

Stage 3: Design and Launch KM Initiatives

At this point of project implementation, the task forces have been formed, pilot projects have been identified and designed, and manpower and financial resources have been allocated. The project is now entering the third stage, which involves the successful launching of pilots and gathering of initial results. With the KM pilot projects provided with adequate funding for full implementation, it is necessary, at this stage, to develop methodologies that can be replicated and implement measures to capture and share the lessons learned.

As in the earlier stages, it is important to take note of the presence of certain indicators. If one or more of the following elements or activities are

present or underway, then the organization is ready to proceed to the third stage of KM implementation:

- The pilot projects have been fully conceptualized and designed, including the detailed implementation strategies and procedures.
- Communities of practice have been organized and launched or an interactive KM intranet site or other KM-related initiative is operational.
- The task force team leaders have been enlisted and pilot facilitators and implementers have been trained.
- Pilot measures and indicators have been established and a system for tracking and reporting results has been developed.
- Policies and strategies for learning from the KM initiatives have been created and disseminated to all relevant players.
- Strategies and procedures for expanding the pilot initiatives have been mapped out and desired outcomes from the pilots have been clearly described.

At this third stage the benefits of capturing, sharing, and using information and knowledge have begun to take definite form. This is the time to harness the momentum from the first two stages and focus on details, such as a formal budget. Leadership now needs to see the potential for measurable gains and ROI from successful pilots.

The overall objectives of this stage are to conduct successful pilots, provide tangible evidence of the business value of the knowledge management initiative, and capture lessons learned. To attain these objectives, specific actions will have to be implemented as listed below.

Box 6.3 Phased Implementation of KM at Asian Development Bank

2002
- Reorganization created the Regional and Sustainable Development Department with a mandate to advance the Bank's knowledge agenda internally and externally

2003
- Created a new vice presidency for knowledge management to raise the profile of knowledge activities and improve management oversight
- Launched the Center for Learning, Information, Communication and Knowledge (CLICK) initiative
- Established the Knowledge Management Center

2004
- Taxonomy
- Dumb templates
- Identify operational activities and stages where preparation of "knowledge summary" is considered most valuable
- Corporate taxonomy developed and managed
- Skills and experience databases

2005
- Knowledge management activities integrated in PER exercise
- Improved post-evaluation system of KPS in place
- Develop and apply smart templates for extracting key information from documents produced by staff and consultants, and issue staff instructions
- Adopt a content management system
- First-phase intranet and Internet harmonization

2006
- Introduce personal homepage
- Smart templates for extracting data from information systems and document repositories
- Implementation of content management application

2007
- Full harmonization of intranet and Internet
- Virtual Workplace

Source: ADB, Knowledge Management in ADB, <http://www.adb.org>, (June 2004).

The first action is to release the money to fund the pilot projects and to assign a KM oversight group, such as a steering committee or cross-unit task force, to reallocate organizational resources, such as money and time, for KM initiatives. The formation of this oversight group must take into consideration the membership of the KM task force formed during the earlier stage of implementation. Nearly all successful KM initiatives, including those at the World Bank, Chevron, HP Consulting, Xerox, and Siemens, reported having formed a KM oversight group and/or task force to provide supervision and support for the reallocation of organizational resources.

The second action is to develop methodologies that can be replicated and to avoid building knowledge collections without an active community to contribute to the effort. There will be need to combine knowledge providers and knowledge users in a seamless community of practitioners and allow these active communities to form voluntarily from natural groupings that span boundaries. It is important to encourage active participation of the entire organization in the KM process with face-to-face networking and community-driven websites. However, as contributions to the KM system proliferate, it is necessary to establish a process for screening, filtering, and validating shared knowledge from the sites before presenting it as organizational knowledge.

The third action is to capture and record lessons learned. The oversight group must discuss lessons learned at regular meetings and provide a common space for sharing the results. To complete this most crucial last step, adequate answers should be provided to questions such as: What made the pilots most successful? Are the results worth investing in for expansion? How can the pilots be expanded?

Once the implementation of the pilot projects are underway and the outputs have been evaluated and assessed, the knowledge management initiative will follow one of the following three possible paths: (a) the KM efforts will be expanded to include new initiatives; (b) the existing initiatives will be further enhanced and improved; or (c) the existing initiatives will maintain the status quo. The rate of growth and the pace to maturity of the knowledge management initiative will depend on which path the initiative will follow.

Stage 4: Expand and Support

By the time the fourth stage is reached, which could take a few years, the organization would have gained quite a bit of expertise on managing knowledge. At this point, the pilots would have been launched and results gathered, some important lessons would have been learned and captured, and the further continuation of the KM journey would have been already decided.

Stage 4 will involve expanding and supporting the KM initiatives throughout the organization. Again it will be necessary to examine the presence of indicators. If some of the following elements are present, then the organization can proceed to launch stage 4 of the KM implementation:

- Other departments in the organization are expressing a desire to actively participate in the KM system as a result of successful pilots.
- The promotion and marketing of KM throughout the entire organization has started to show positive results.
- The entire organization has been made aware of the existence of the KM initiative and the results of the pilot activities.
- An expansion strategy for the KM initiatives is in place, supported by a number of top executives in the organization.
- Adequate resources have been identified for expanding the KM efforts and the finance and budget departments are supportive of these efforts.

The overall objectives of stage 4 are to develop and market an expansion strategy throughout the organization and to effectively manage the growth of the KM system. Once the green light to expand the KM system is obtained, there will be the added pressure of subjecting the system to the same formal evaluation methods and ROI justification that other organizational initiatives are normally subjected to. In order to get through this highly visible stage of the KM implementation, it is important to demonstrate that the system can meet the ROI criteria. This further requires skillful management

of the KM growth since at this point KM is on its way to being considered a necessary organizational competency. This demands the implementation of specific actions.

The first action is to develop an expansion strategy. For this purpose two approaches are available: first, the pilot selection criteria for programs in other departments can be applied; or second, an all-at-once strategy to universally apply KM can be developed. Regardless of the selected approach, appropriate resources, such as a group of core facilitators, communities of practice leaders, a corporate KM group, or a chief knowledge officer, will need to be provided. It will be necessary to ensure that the needed technology is in place and that appropriate user support is available. In addition, there will be need to address possible cultural challenges. For example, there will be need to deal with language issues and the "silo" mentality that may exist among the employees. To address these issues it is essential to obtain active support from senior management.

The second action is to communicate and market the KM strategy. This can be done through a variety of means such as widely disseminating information about the KM initiatives throughout the organization; incorporating KM training into new-hire orientation; training managers and quality coordinators on the principles and practice of knowledge management; holding an open house, knowledge fairs, or regular meetings in connection with the KM initiative and pilots; or advertising the KM initiative on the intranet or through brochures and pamphlets.

The third action is to manage KM growth by, among others, controlling the confusion from the expansion of KM initiatives that normally happens at this stage. One way of achieving this is by providing a transparent and consistent online policy that can keep KM resources organized, consistent, and easily accessible. For example, during the implementation of KM at the World Bank, a technology group spent about 50 percent of its time on technology issues related to KM and in managing information on the internet and external Web.

Box 6.4 Microsoft's Six Quick Ways to Implement Knowledge Management

1. Create a threaded discussion to discuss your KM strategy. A threaded discussion is a public collection of messages connected by topic. You can create threaded discussions in *Outlook* and also on the web with *FrontPage*.
2. Use public folders in *Exchange* to store documents such as your standard operating procedures. Moving them to *Exchange* provides two immediate benefits: they are stored independent of the file system from the user's point of view and they may be replicated for offline use. Workflow processes such as an approval process may be needed to validate information. *Microsoft Site Server* contains an approval process that can be customized to suit special requirements, and has facilities for managing content type and attributes. Approval processes can also be built with *Exchange* and *Outlook*.
3. Build a portal to corporate data with the *Outlook 2000* digital dashboard. Start by downloading the *Digital Dashboard* starter kit form. Portals, such as *Microsoft's Digital Dashboard*, consolidate views of data to simplify navigation and show data from heterogeneous sources side by side.
4. Create incentives for people to document best practices. Offer a reward to the person who submits the most documents and for the most innovative practices.
5. Install *Index Server* and create an index for all your *Office* documents. This will provide intranet users with the fast full text searches of all documents. Even without categorizing the documents, users will find files more easily than in the file system. *Microsoft Site Server* provides a great toolset for managing large communities of users and building personalization into knowledge management solutions.
6. Implement *Outlook Team* folders.

Source: Knowledge Management Implementation, <http://www.infostrat.com/ISI/Home/default.aspx?pgID=60>, (accessed 02/12/2004).

To help ensure that the implementation of the KM initiative will remain successful throughout stage 4, it is recommended that the following steps should be taken:

- Establish a central cross-functional KM group that will be tasked to create an expansion strategy; identify the required manpower, financial and material resources; and address any confusion that may arise from rapid growth.
- Obtain or develop from other units of the organization the resources that will be needed to successfully support the expansion of KM initiatives.
- Communicate the KM strategy and the successful results of the pilot projects throughout the organization using vigorous promotional and marketing methods.

In order to advance to the next and final stage, it is crucial at this stage to make a comprehensive assessment of the KM efforts and to identify and address the possible weaknesses in the KM strategy. For example, at this stage of implementation of their KM initiatives, Chevron deployed an internal corporate KM group to undertake a comprehensive assessment and address weaknesses. On the other hand, World Bank engaged an outside team of KM practitioners to undertake the same task while Xerox embedded KM evaluation into its Xerox Management Model assessment process.

Stage 5: Institutionalize Knowledge Management

The final stage involves making knowledge management an integral part of the organizational processes. At this stage, the organization has to redefine its strategies, review its organizational structure, and revisit its performance assessments. Once again, it will be necessary to look for indicators. If one or more of the following conditions exist in the organization, then it is ready to embark on the fifth and final stage of KM implementation:

- The KM system is now directly linked to the business model.
- A number of KM initiatives are widely deployed throughout the organization.

- All executives, managers and employees are trained to use KM tools and technologies.
- The KM strategy is methodically assessed, gaps are being identified, and methods to close the gaps are available.
- A formal support structure is in place to maintain the operation of the KM system.
- An employee compensation and rewards program is in place and aligned with the KM strategy.
- Sharing knowledge is now the norm in the organization and communities of practice are actively operating.

At this final stage of KM implementation, the organization is already aware that KM is a business strategy and not just an elaborate database. It is already convinced that KM must be an integral part of the business model and that it is a necessary organizational competency with unlimited potential to benefit every unit in the organization. In order to fully institutionalize knowledge management the following actions will need to be undertaken.

The first action is to embed KM in the business model. This action is necessary to obtain CEO and senior executive support. At this stage, KM needs to be incorporated into the organization's mission statement, management model, or assessment process. It is expected that at this point there will be increasing financial pressures related to the implementation of the KM system. On the other hand, KM barriers such as "functional silos" will have almost disappeared.

The second action is to realign the organization's structure and budget in accordance with the KM strategy. At this stage, it is essential to reorganize budget and departmental responsibilities to accommodate the wide development of KM as a business strategy. For example, at this stage of implementation, the World Bank shifted KM leadership to operations from the chief information officer, as KM evolved from a database to an all-encompassing strategy. The budget increased from $13 million to $57 million in two years and included a formal consolidation of budgets from activities

that had been contributing to KM. At this stage, the organizational structure will, to some extent, naturally evolve to better fit this new way of working.

The third action is to constantly monitor and evaluate the health of the KM system. To ensure that the KM systems stay healthy, it is necessary to take the pulse of the KM initiatives at regular intervals. For this purpose, an external KM evaluation panel may be employed, or an internal KM maturity evaluation may be conducted, or a KM feedback on employee surveys may be included. Based on the results of these evaluations and surveys, corrective actions and measures should be immediately undertaken.

The fourth action is to align performance evaluation and rewards system with the KM strategy. In most organizations, performance appraisals are the basis for promotion and pay. It is necessary at this point to include KM standards with performance appraisals and reviews in order to convey to all employees a dramatic message about its important role in the life of the organization. In addition, recognition awards may be given to people who exemplify the ideals of the KM strategy.

The fifth action is to balance the organizational KM framework with local control. Implementing this action will require linking organization-wide business goals to local KM activities to provide necessary consistency. At the same time, the organization must allow individual groups in various divisions to develop KM resources that meet their specific local needs. In other words, the organization must allow business needs to drive the KM strategy, policy and implementation.

The sixth and final action is to continue the KM journey. As the organization becomes a true knowledge-sharing enterprise, the demand for knowledge processes will continue to increase. At the same time, there should be measurable savings of time and money and tangible improvement in business competitiveness resulting from the KM initiatives. In order to sustain robust KM implementation, it is crucial to maintain senior leadership support to help the organization keep pace with demand.

In the final analysis, the knowledge organization will find that the critical success factors for keeping the KM spirit alive include the following: the ability to maintain the full and active support of a committed and involved leadership; the presence of a motivating and consistent vision to make the organization a learning one; the application of an evolutionary KM development process rather than a "big bang" approach; the care taken to ensure that KM initiatives are started only when and where people are ready; the ability to identify role models; and the use of effective means to communicate constantly and effectively about KM initiatives and business needs.

Box 6.5 The Human Element: KM's Secret Ingredient

A KM initiative that overemphasizes aggregation and indexing can overlook the human side of knowledge management. Central to understanding knowledge in human terms is identifying knowledge that is truly shareable by people. Shareable knowledge - knowledge that people can reuse and apply to novel situations - isn't contained wholly in the documents and email messages of an organization. In fact, unless a stand-alone document is specifically produced to serve a knowledge-sharing purpose, it typically represents only part of the understanding required to apply that document to a business problem. For example, stand-alone documents often provide only clues about how a colleague tackled a business problem. Merely providing access to documents through a KM system creates an experience much like a typical archeological exhibit in a museum that displays ancient artifacts with basic information about their age and composition but leaves visitors to rely on their imaginations to draw conclusions about the application and significance of the artifacts.

Box 6.5 The Human Element: KM's Secret Ingredient

A similar strategy leads to KM applications that resemble warehouses or repositories, which place a heavy burden on the end user to find relevant expertise and to determine how knowledge should be applied. To minimize that impact on productivity and to maximize the return on KM investment, KM applications must make an effort to capture the context of such business artifacts as documents, charts, videos, and so forth. To achieve this, KM as a discipline must shift its emphasis from aggregating artifacts to cultivating expertise. Currently, this shift in emphasis is made up of a few key misconceptions about KM implementation. By examining these misconceptions and discussing strategies to humanize how knowledge is represented, organizations can realize knowledge management objectives that improve productivity, increase organizational competency, and foster innovative thinking.

The big tradeoff

Knowledge managers face an investment choice as they consider the development of KM applications: technology vs. content. Obviously, you need both, but too often the emphasis is on technology. Consider the alternative approach: a simpler KM application that provides access to a lower volume of higher quality content, transformed and tailored to the needs of its audience.

Trade in a portion of your investment in sophisticated indexing and search technology for the resources and time required to interview experts in your organization on an ongoing basis. Ultimately, knowledge management needs to be more than facilitating knowledge management, which is what happens when you implement a self-service portal without addressing content issues. KM efforts need to be about managing (or leveraging) knowledge, which can only be achieved by paying attention to the source of knowledge - people.

Adopt a technology-focused approach to KM, and you're likely to build KM systems that are easy for the IT department to install and maintain. Adopt a human-focused approach and you're likely to build KM systems that make it easier for your knowledge workers to capture and share knowledge. For most, the latter is a much wiser investment.

Source: American Society for Training and Development (ASTD), "The Human Element: KM's Secret Ingredient", <http://www.learningcircuits.org/2001/ded2001/visioncor.html>, (accessed 24/09/2004).

Annex 1:
Knowledge Mapping at the Philippine Department of Health

Overview of Knowledge Mapping

A knowledge map is "an association of items of information (e.g., process, network, policy, geography, etc.) preferably visual, where the association itself creates new, actionable information".

Knowledge mapping is the process of creating a knowledge map. This process consists of five steps, as shown in Figure A.1.1.

The purpose of this figure is to depict the manipulation or transformation which occurs during the process; it could be applied to information or knowledge instead of data, depending on the association of items of information the process is looking at.

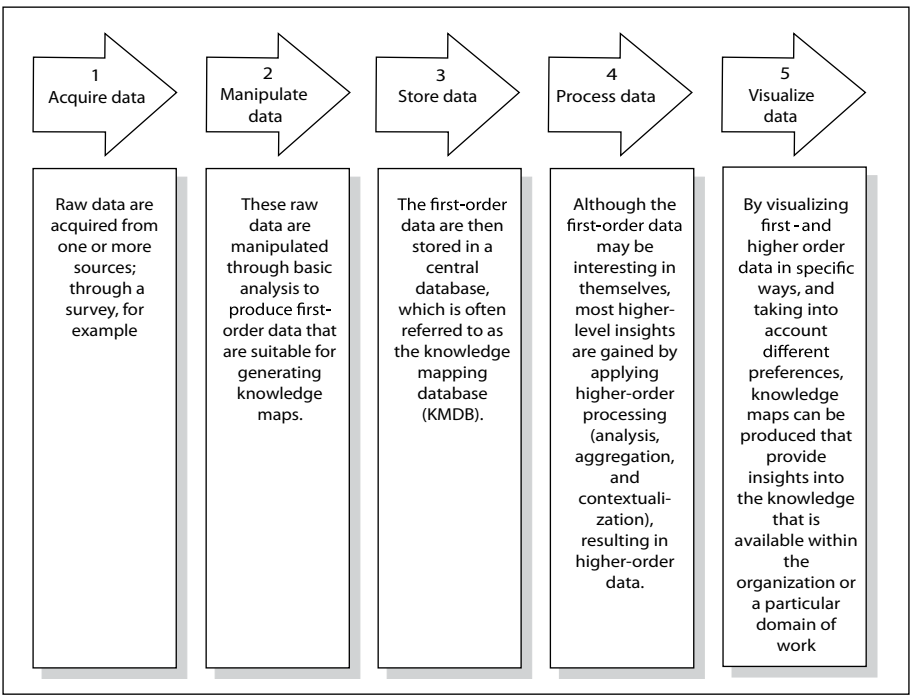
The most comprehensive approach to knowledge mapping examines the dynamics at play in a health system or area of work; where knowledge resources and assets are located; how these elements move around the organization or an area of work; where the elements are created; and where they are needed and should be used.

To be effective, the resulting knowledge map should be created with reference to four perspectives, known as the visual framework:

- The function of the map (including coordination, motivation and elaboration);
- The knowledge type (know what, know how, know why, know where, know who);
- The recipient (individual, group, organization, network); and
- The visualization type (sketch, diagram, image or map).

The success of the knowledge mapping process depends to a great extent on the people who apply it; their ability to engage all the participants in the exercise, ensuring that people understand the process and are able to interpret the map; and the integration of all four perspectives in the visual framework, rather than on the tools themselves which are used to produce the map.

Figure A.1.1 The knowledge-mapping process



An example of mapping at the policy level is that of the Philippine Department of Health (DOH) which took place as part of a "knowledge audit". This exercise looked into the knowledge assets related to policy-making processes, taking into account some of the bureaus and units in the DOH which were involved in the development of policy for the health sector reform. Specifically, the study identified the assets of each bureau in terms of databases, documents, professional knowledge and links with stakeholders. This study also tried to determine how the policies of the central office of the DOH would trickle down and be adopted by the local government units.

The knowledge management framework that was considered for this exercise consisted of three layers:

- The core processes of policy development: these processes represent the organizational context in which critical information and knowledge is needed.
- The five core knowledge activities: these are identification, creation, storage, sharing and use of knowledge.
- Personal and organizational knowledge capabilities.

Based on the above framework, documents were reviewed and interviews were conducted using structured matrices. Those interviews involved key personnel at both the national and subnational levels of the DOH and some staff of selected local governments.

Even before knowledge maps had been generated, this exercise allowed the identification of knowledge assets and resources as well as of the knowledge gaps and weaknesses in policy-making. It was able, for example, to verify that the main knowledge assets and resources for DOH policy-making are health staff, information systems, databases and health research. These knowledge resources are being used for policy development. However, gaps were also identified, such as: incomplete, outdated or unreliable databases; insufficient reports on the monitoring of implemented policies; absence of a systematic approach for linking research results with the core processes of policy-making; and lack of systematic diagnosis and documentation of best practices in the field. Furthermore, there were areas of weakness in professional knowledge, which highlighted the need to improve staff capability for policy analysis and political mapping, as well as their skills in professional legislative lobbying and negotiation.

In terms of the core processes from knowledge creation to sharing, this first phase of the mapping process also revealed some inadequacies which included weak monitoring and evaluation systems and limited documentation of "lessons learned" and good practices. There were also serious flaws in knowledge storage. The responsibilities for maintaining,

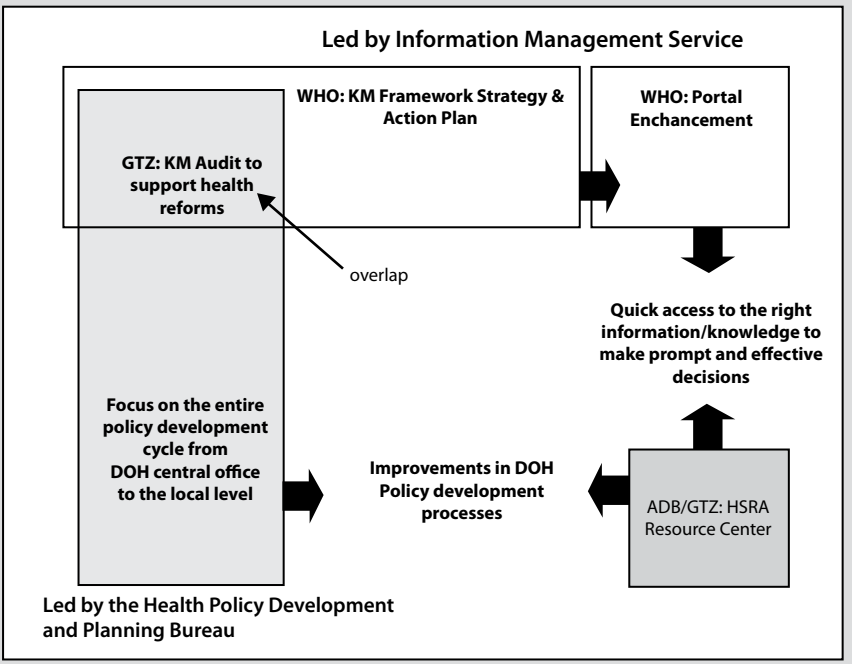
updating and assuring the integrity and quality of the existing databases in the various technical fields and DOH units were not always adequately defined. In addition, procedures and methods to make tacit knowledge explicit were weak: no expertise database or mechanisms to preserve the knowledge of staff or experts leaving the DOH have yet been institutionalized.

This exercise also emphasized weaknesses in terms of knowledge flows, either top-down or bottom-up, in the policy-making process. In a devolved health system, the numerous interfaces in the line of control of the DOH and at the local government level create risks of errors and flaws in the transmission, interpretation and operationalization of policies issued at the level of local government units. The policy cycle was most commonly broken when a local government unit implemented the policies developed by the DOH.

Box A.1.1 KM Initiatives at the DOH involving Health Policy Development

1. Development of a KM Framework for the Department of Health, funded by World Health Organization
2. Website Enhancement, funded by World Health Organization
3. KM Audit of Policy Processes, funded by *Deutsche Gesellschaft für Technische Zusammernarbet GmbH (GTZ)*
4. HSR (Health Sector Reform) Resource Center, infrastructure funded by Asian Development Bank, other support from GTZ

Box A.1.2 Interrelationships among KM Initiatives

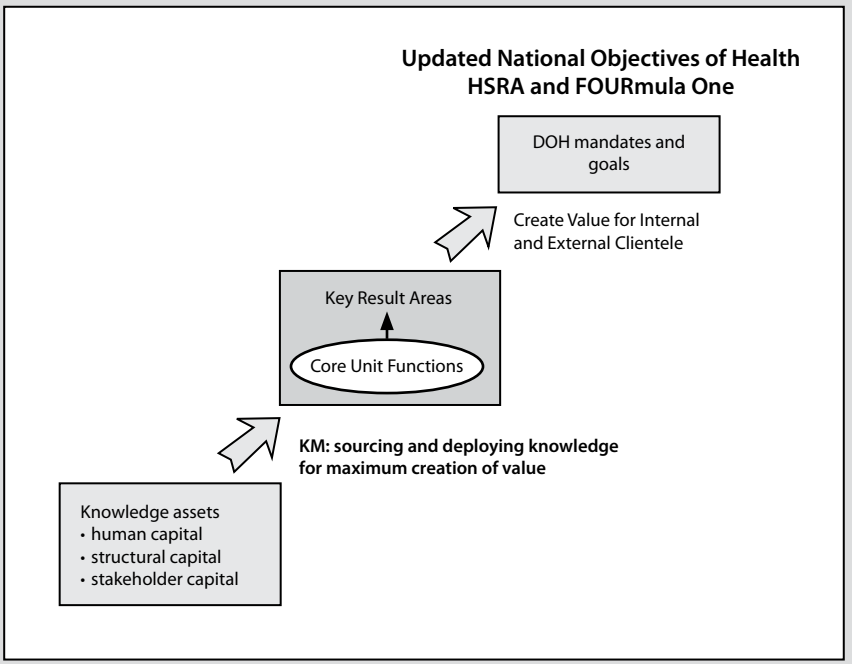


Box A.1.3 Objectives: KM Framework Project (July 2005 to February 2006)

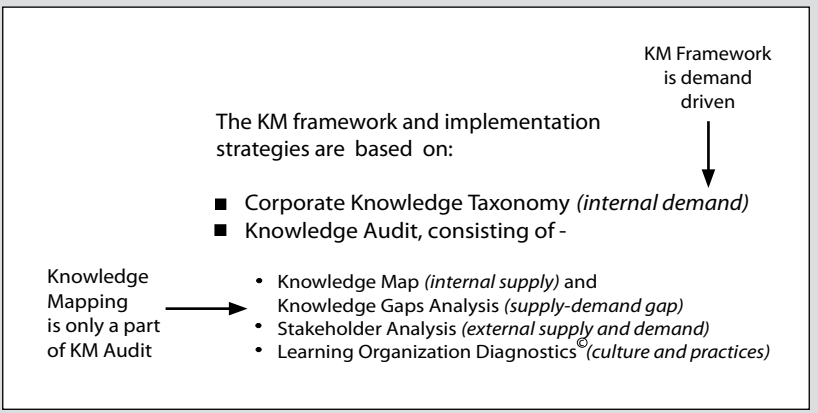
To develop a knowledge management (KM) framework and an implementation plan which aims to -

- Make information and knowledge available to the right people at the right time for knowledge-based decisions;
- Ensure that information and knowledge is shared with other stakeholders and partners; and
- Develop knowledge management awareness at the Department.

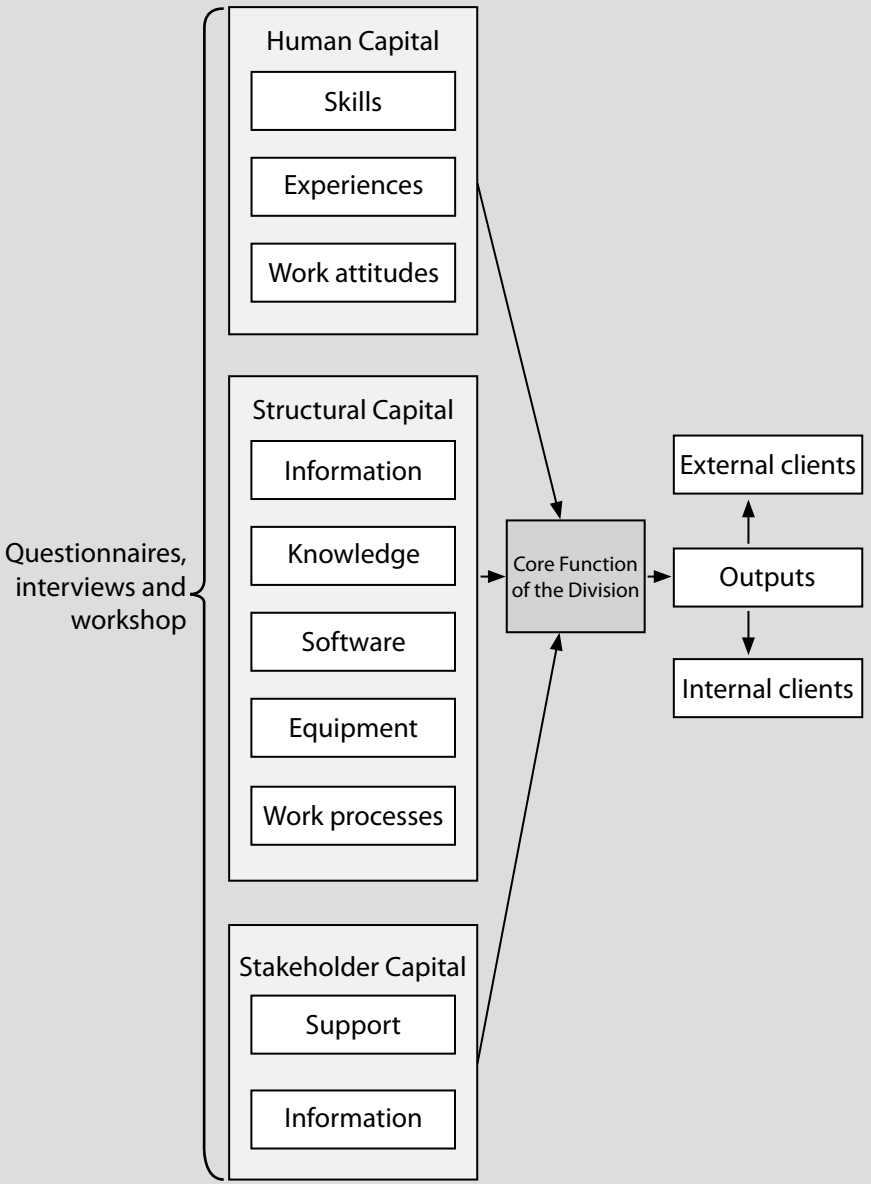
Box A.1.4 Alignment of KM to DOH Goals



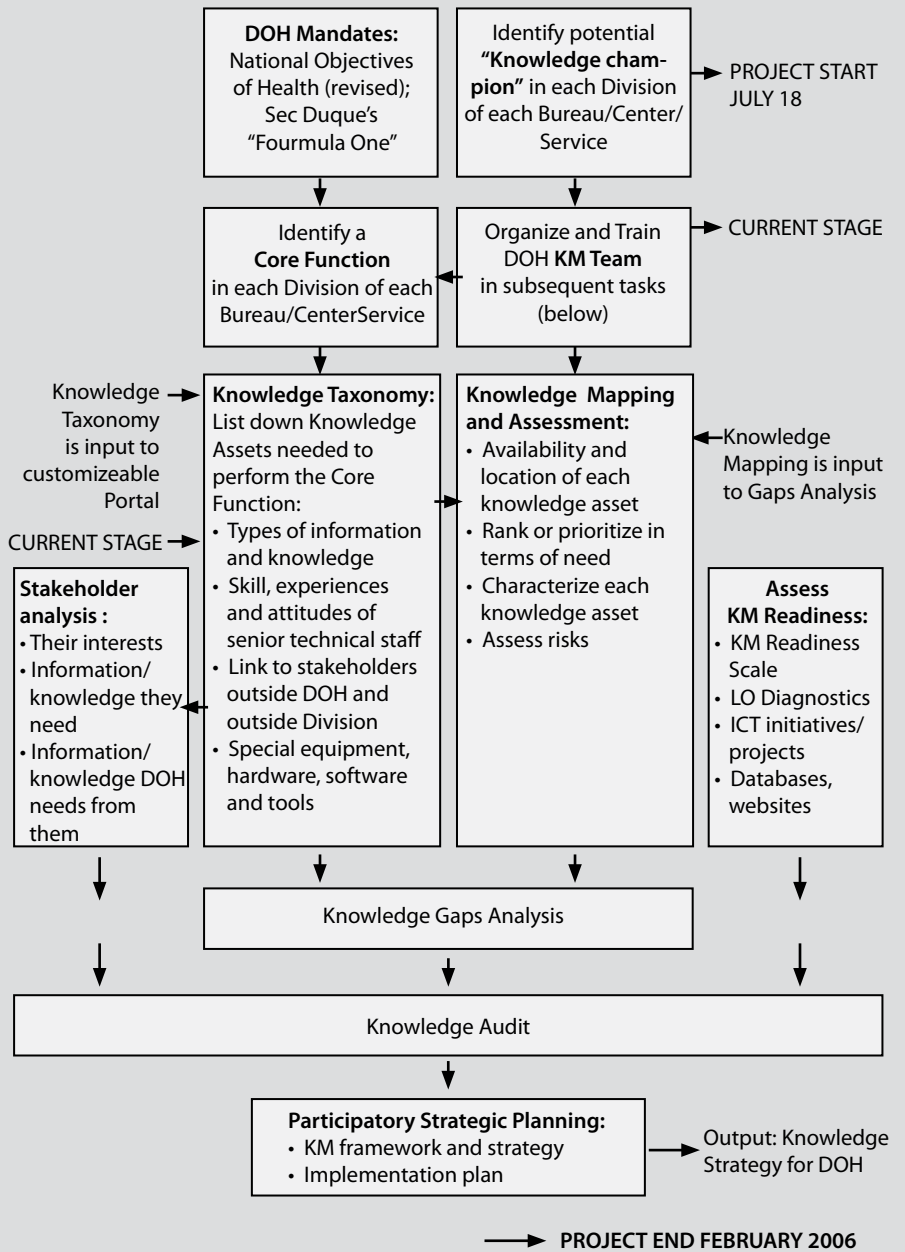
Box A.1.5 KM Framework Project



Box A.1.6 Knowledge Mapping: Intellectual Capital → Core Function



Box A.1.7 KM Framework Project



Box A.1.8 DOH Knowledge Management Team
26 September 2005 mini-workshop

STRUCTURAL CAPITAL: Physical/Technology

Licensed software,
for workgroup collaboration
Functional equipment:
computer, printer, telephone
with voice mail, fax machines
IT supplies, books

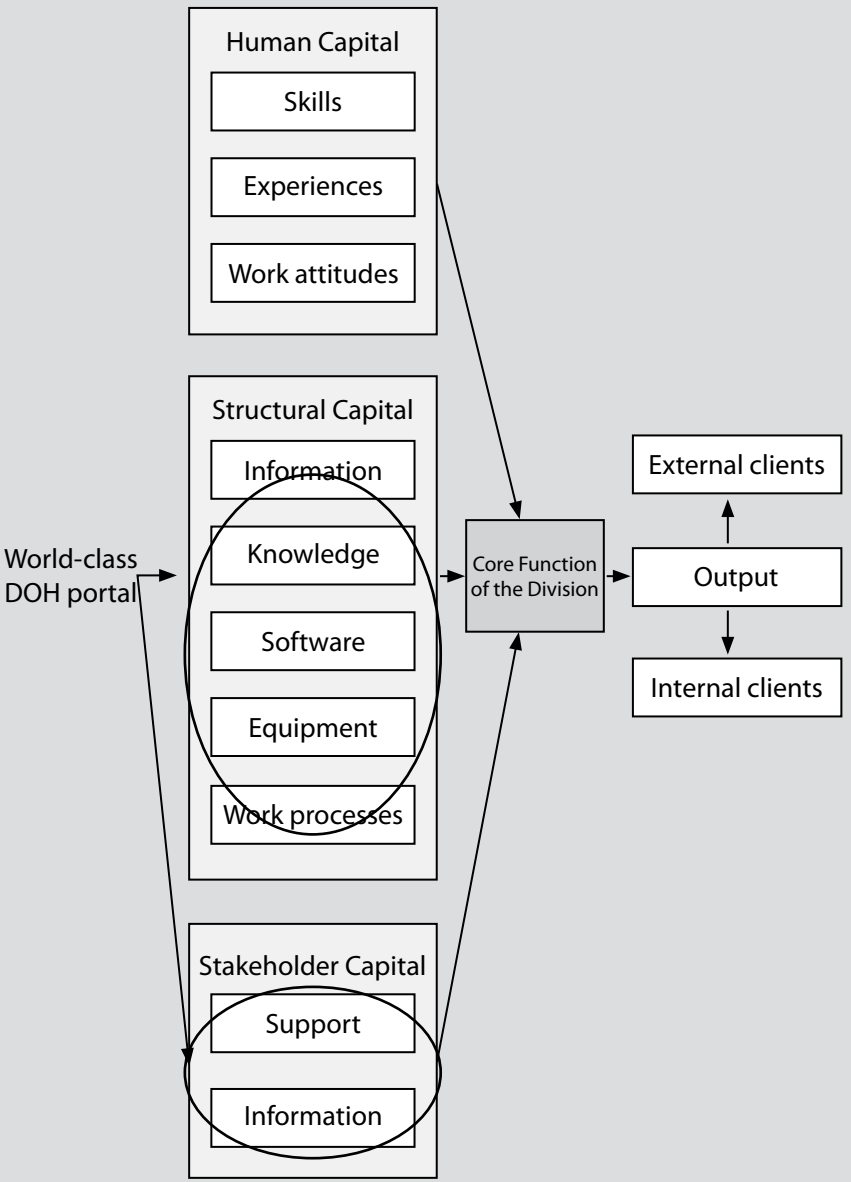
STRUCTURAL CAPITAL: Work processes

Innovative team players who are interested in workgroup collaboration
Professional relationships between supervisor and peers
Harmonious working relationship
Adherence to rules

STAKEHOLDER CAPITAL

Fora, roundtable discussions, internet linkage and workgroup collaboration activities involving partners

Box A.1.9 Website Enhancement:
DOH Portal → Improve Performance



Box A.1.10 Objectives: KM Audit of Policy-Making (September 2005)

"To assess the KM practices in policy-making in the DOH ... with the end goal of improving the use of information and evidence as DOH implements and improve, if necessary, the policies and reform strategies under the HSRA -

- To identify the knowledge assets and resources for policy-making
- To identify the knowledge gaps and weaknesses in policy-making
- To recommend a strategy for KM to improve the process of policy making"

← Knowledge Mapping is also embedded in KM Audit

Box A.1.11 Insights and lessons

- Concept of knowledge / intellectual capital is poor (used but not labeled as such)
- Knowledge utilization is not systematic, not an integral part of the system
- Knowledge Mapping should be anchored on organizational goals, core processes and culture
- Knowledge Mapping is rigorous … requires dedicated time and full attention of staff

On Knowledge Management

- Integration of efforts among all units initiating KM projects
- Involvement of partners, particularly local governments, communities
- Dearth of local KM experts
- Support of donors
- KM requires top management support, commitment and action

Box A.1.12 Conclusions

- DOH Portal and HSRA Resource Center: facilitate ready access to information and knowledge needed for health policy development, by users inside and outside DOH
- KM Audit: uncover gaps and improve performance in various stages of health policy development
- KM Framework: provide strategies for sourcing and deploying knowledge needed for health policy development, e.g.,
  - Set-up of networks among policy development practitioners
  - Facilitation of two-way flow of information/knowledge between DOH and various stakeholders
  - Optimization of utility of health sector researches for policy-making

Sources: Ebener, S., et. al., "Knowledge mapping as a technique to support knowledge translation", Bulletin of the World Health Organization, August 2006; and Beltran, M., Knowledge Mapping at the Philippine Department of Health (Powerpoint presentation).

Annex 2:
Cases in KM Failure

Case 1: a global bank

A global bank that spanned across 70 countries decided to implement various KM projects after the departure of a major client who felt it could not receive integrated services across divisions and countries from this bank. The main objective of the KM project was to leverage on intranet technology to develop a global knowledge network so that the services in the bank could be integrated. Among several independent intranet projects proliferated were OfficeWeb, GTSnet and Iweb.

OfficeWeb brought together the relevant branch managers in the Domestic Division to create a community of users where local knowledge could be freely shared. The project was strategically important as it could support the shift towards a more decentralized, entrepreneurial, organizational structure in the branches. GTSnet was intended to consolidate the disparate sources of information across the bank and allow users in the Transaction Services Division to obtain information from an integrated source. The project was given abundant financial resources and was staffed mainly by external IT consultants. Iweb was designed specifically for the IT function. Besides being a central repository for storing information, Iweb was intended for use as a platform for staff to gain and share expertise particularly in intranet technology. The project was well allocated with technical staff and hardware resources. Furthermore, a senior IT manager was involved in establishing standards for the creation and maintenance of contents on the intranet.

OfficeWeb was abandoned even before it was rolled-out. GTSnet held obsolete content soon after it was implemented. Iweb was more successful than the other two projects. But it failed to promote any sharing of knowledge within the IT division.

The main reasons for the KM projects' failure at the bank were as follows:

- During test trials of OfficeWeb, the bandwidth of the existing infrastructure was found to be inadequate to support the network traffic generated.
- GTSnet did not involve the targeted end users during the project development stage. It also failed to convince the users of the importance of the project to the success of the Division. Furthermore, GTSnet was staffed by external IT consultants who did not possess the relevant business knowledge. Hence, when it was launched, it was unable to garner support internally to bring together the technical and business expertise.
- While Iweb infrastructure was fully operational, it was unable to change the users' basic attitudes towards knowledge-sharing behavior. When it was launched, there was no impetus for individuals to share their knowledge or access the knowledge of others.

Case 2: a pharmaceutical company

An American-owned global pharmaceutical company which specialized in high margin "lifestyle" drugs aimed to accelerate its internal drug development processes through overt knowledge management initiatives. The management committed a substantial amount of political and financial resources to implement three forms of KM projects, namely: "lessons learned", "warehouse" and "electronic café".

"Lessons" was a highly structured debriefing exercise conducted by each workgroup at the end of a major drug development process. It was intended as a method to archive corporate lessons and to prevent the loss of operational knowledge in the drug development process. "Warehouse" was an organization-wide groupware populated with content based on the "lessons learned" debriefings. Its objective was to capture not only problems and solutions but the details of administrative and decision-making processes. It had features such as common repositories and discussion forums that

supported coordination and collaboration across workgroups. "Café" was a set of linked web sites based on the anecdotes of individuals involved in the drug development programs. It was intended as a platform for self-reflection and sharing of personal experiences among a small group who had been identified as organizational innovators. Within "café", individuals were liberated to digress from reality and to discuss hypothetical issues or explore radical alternatives.

"Lessons" yielded uneven results within three years of its implementation. "Warehouse" could not be adapted to the specific context of each workgroup, while "café" was perceived to be exclusive, impractical and remote from reality. None of these KM projects had an effective mechanism to encourage participation or measure outcomes.

The main reasons for the failure of KM at the pharmaceutical company were as follows:

- In "lessons", there was no mechanism to sift through the lessons compiled. Neither were there any opportunities to extend the scope of the exercise beyond existing procedures. In addition, the output from "lessons" was a list of dissatisfaction with how standard operating procedures were applied rather than critical reflections on the procedures themselves. Thus, instead of fostering organizational innovation, "lessons" became a ritualized reinforcement of routines.
- "Warehouse" could not be adapted to the specific context of each workgroup. It was thus deemed to be irrelevant to day-to-day operational processes.
- Contributing to "warehouse" was perceived as a loss in personal expertise while accessing "warehouse" was perceived as a sign of inadequacy. Hence, "warehouse" did not attract spontaneous contribution and access.
- The open-ended nature of "café" had inadvertently made its relevance and practicality questionable. Furthermore, the exclusive access to "café" limited its potential for expansion.

Case 3: a manufacturing company

A European manufacturing company that had more than 60 production units in some 30 countries implemented three distinct KM projects, namely, "production project", "supply-chain project" and "design project". The focus of "production" was on capturing, documenting and sharing knowledge about production methods such as machine maintenance methods and safety prevention. The main aim was to cut production costs. "Supply" was intended to improve and distribute knowledge about offered products in downstream supply chain. The aim was to enhance product functionality and better understand the effects of product design on the economics of transport and warehousing. The objective of "design" was to improve structural product design so that designers could construct prototypes with minimal raw materials.

Two years after implementation, "production" was able to capture and transfer knowledge to the plant that needed it, but its aim to promote the application of the new knowledge resulted in a mixed level of success. "Supply" was a codification of knowledge culled from customers, warehouse delivery centers, transporters and end-consumers. However, it was under-utilized. "Design" was a highly sophisticated software system but it was largely neglected by designers and became obsolete after a while.

The main reasons for the failure of KM at the manufacturing company were as follows:

- In "production", out of 40 plants studied, ten plants did not apply the new knowledge largely because they did not perceive a production performance gap in their plants. They were unconvinced of the value created from applying the new knowledge. It was later discovered that the rest of the plants that applied the new knowledge actually saw a significant improvement in their production performance.
- When "supply" was launched, it was under-utilized because users found that the software merely provided them with information

they already possessed. Moreover, "supply" neither resulted in increased sales volume for sales staff nor helped create better products for designers.

- "Design" was perceived to be too cumbersome and difficult to be understood. In addition, it did not reduce the raw material costs or the amounts of prototypes as intended. Since "design" was largely neglected by designers, it was not updated and after a while became obsolete.

Case 4: a European-headquartered company

The management of a European-headquartered company was convinced that a knowledge-based learning organization was the key for the company to achieve cost-effectiveness, competitiveness and a better management of business risks. For this reason, it commissioned a KM team that comprised nine management staff to implement a KM initiative.

The initiative that enjoyed high visibility encompassed a series of plans such as creating informative web pages of the management and all business units, organizing staff into communities of practice and identifying internal knowledge champions. The initiative progressed on the basis that IT systems would be the foundation for all activities and processes. As time passed, the team found out that the web site and internet development were divided between the IT and media affairs departments. These two departments had diverging agendas and held conflicting views as to how the IT systems should be developed. Members in the team suspected that the IT manager's involvement in the KM initiative was to gain a dominant position in the company's strategy, methodology and budget. As a result, tension started to grow within the KM team. Meanwhile, external market conditions deteriorated and prompted the company to implement a major organizational restructuring exercise. The KM initiative faded and became lost in the turbulence.

The main reasons for the failure of KM initiative at the company were as follows:

- The top management was committed only up to a point. In the face of crisis, the KM initiative, which was perceived as a "nice-to-have" rather than mission-critical activity, was completely ignored. This underscores the need for the KM initiative to be grounded in the organization's strategy.
- The KM team failed to manage the political processes between the IT and media affairs departments which in part undermined the initiative.
- The KM team spent little time deliberating on the potential barriers to the initiative and did not consider the idea of rolling out a pilot even though the scale of the initiative was significant. The team could have avoided such pitfalls if external advice had been sought.

Case 5: a global company

A global company, which was one of the top ten organizations in its industry, lost a number of deals because of its inability to offer integrated solutions in the order handling line of business. In response, the management commissioned a KM project known as Alpha with the objective to create a "blueprint for gaining and maintaining global order handling services market leadership". Underpinning Alpha was a comprehensive attempt to manage the knowledge across the company.

Within Alpha several functions and teams such as business architecture, IT and knowledge content and design were formed. One of Alpha's priorities was to build a network of "knowledge-enabled worktables" to provide staff customized access to Alpha's knowledge base. Due to the teething problem of using new technology and the poor translation of design requirements to system functionalities, the IT team could not complete the first worktable for the sales function on schedule. Meanwhile, the knowledge content and design team had already developed a large amount of content. Fearing that the delay could dampen interest in KM, the team engaged a vendor to develop an intranet system as a quick alternative to making its

content available. This move was perceived by the IT team as an invasion into its territory. Furthermore, the intranet was treated with skepticism from the rest of the functions in Alpha. By the end of the year, the viability of the worktable was in doubt. Given the high dependence and unsustainable expenditure on external IT resources, Alpha was perceived to be losing control over its IT-related projects. Thus, the management curtailed the worktable project and disbanded Alpha completely when it eventually lost faith in knowledge management.

The main reasons for the failure of Alpha were as follows:

- Knowledge was managed within silo-oriented communities. Thus, business-critical knowledge that straddled across multiple functional groups was neglected.
- There was an over-reliance on IT systems to manage knowledge in Alpha. Tacit knowledge and behavioral issues, on the other hand, received insufficient attention.
- Three different external consulting firms were engaged at different stages of Alpha's development. Inputs from these consultants confounded instead of facilitated the KM initiative.
- As time passed, the cost to sustain the KM initiative ballooned beyond control. The management decided to cut its losses and terminated the initiative altogether.

Source: Chua, A. and Lam, W., "Why KM projects fail: a multi-case analysis", Journal of Knowledge Management, vol. 9, no. 3 (2005).

Annex 3:
Knowledge Management Profiles

1. An interview with Bruno Laporte and Ron Kim
The World Bank, July 2002

The World Bank Group

Who is the KM champion in the organisation?	James Wolfensohn, President of the World Bank.
Who is the primary contact for KM? Other key contacts?	Bruno Laporte, Manager, Knowledge and Learning Services Division, World Bank Institute; Karin Millett, Director of Global Knowledge and Learning, WBI.
What are your primary KM activities?	Communities of Practice (internal and external); Advisory Services; coaching, mentoring, staff learning and multi-sector team learning; video debriefing programs; indigenous knowledge programs; websites and e-discussions; knowledge and learning event; global knowledge initiatives such as Global Development Learning Network, Development Gateway, infoDev, Development Marketplace; Knowledge Internship Program; dissemination of best practices, lessons learned, statistics, research.
What new activities are being planned?	Activities based on longer-term, multi-team interventions; more closely aligning knowledge and learning; and applying more effectively global knowledge to local situations.

What is the role of Communities of Practice in the organisation?

CoPs connect practitioners sharing common interests and often contribute to improved outcomes. They facilitate problem-solving among members, stimulate learning, promote professional development, and generate the type of knowledge that members need in their daily work. CoPs offer a powerful tool for sharing global experiences with the goal of adapting them to meet local challenges.

How are they perceived to add value?

They add value by providing just-in-time knowledge to those who need it most. They also provide a venue for continuous learning and thus offer an alternative to one-off events.

Do your KM activities have an external focus? i.e. is KM distributed globally?

Absolutely. Major efforts have been made to link HQ to country offices. Global knowledge initiatives have been launched (Gateway, GDLN, Global Development Network, World Links, African Virtual University, etc.) to share knowledge with clients and partners and build client capacity.

What are the key sources of inspiration that guided your KM approach? Who are your influences?

While the WB has learned from the experiences of organisations in the private and public sector, the key inspiration has been the critical need to rethink development in general and our role/value added in particular. The Knowledge Bank concept implies a fundamental shift whereby knowledge is given as much prominence as lending (knowledge as the WB's second currency).

Does the KM have links to other strategic initiatives within the organisation? Describe.	Knowledge sharing is integral to all the WB's strategic initiatives. For example, the Comprehensive Development Framework (CDF) and Poverty Reduction Strategy Papers (PRSP) are based on local feedback and working with partners, both of which are directly related to the Knowledge Bank.
Is there a process in place to measure the impacts on the organisation? What are your indicators of success?	There are plenty of web statistics and even client surveys of the WB's performance as a knowledge institution. The WB has used a knowledge sharing attribute in its staff performance evaluations since 1998. It has also been involved in a number of benchmarking studies with outside organisations for the past 6 years and launched numerous surveys for CoPs and Advisory Services. However, measuring actual impact is an ongoing challenge.
What are the biggest obstacles you have encountered?	Changing the prevailing culture and mindset of the WB as simply a lending institution; de-emphasizing the role of technology; creating incentives for sharing knowledge.
General narrative description of KM activities at your organisation. An anecdote.	This would require several pages. More details of the WB's KS Program can be found at: <www.worldbank.org/ks/vision.html> KA Q&A can be found at: <www.worldbank.org/ks/faq.html> Stories/anecdotes can be found at: <www.worldbank.org/ks/k-practice_stories.html>
What is the initiative called? e.g. Knowledge Sharing?	Knowledge Sharing.

Where is the KM initiative located in the organisation? i.e. which department(s)	WBI, primarily the KS Team located in the Knowledge and Learning Services Division (WBIKL).
What year did the organisation's KM initiative begin in?	October 1996 when James Wolfsensohn officially announced the concept of the Knowledge Bank at the WB/IMF annual meetings. For more details, go to: <www.worldbank.org/ks/history_kb.html>
Is there a website for the KM initiative?	The Knowledge Sharing Portal: <www.worldbank.org/ks/>
How many staff work directly on KM?	7 in the core KS Team, dozens in each Region, Network, or other Vice Presidential Unit including knowledge coordinators, Thematic Group (CoP) and Advisory Service staff, IT specialists, etc.
How are resources allocated to or through the KM initiative?	Resource allocation is very decentralized and allocated to individual Regions, Networks, other VPUs, Sectors, etc.

2. An interview with the UNDP
KM Ottawa Workshop, May 12-13, 2003

Who is the KM champion in the organisation?	Mr Steve Glovinsky – Policy Support Coordinator

Who is the primary contact for KM? Other key contacts?

Mr Steve Glovinsky – Policy Support Coordinator
Mr. Patrick Breard – Knowledge Network Coordinator BDP
Ms. Fadzai Gwaradzimba – Knowledge Management Cluster Team Leader – Evaluation Office

What are your primary KM activities?

Knowledge Services: UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners.
Knowledge Management in UNDP is integrated in its core activities and is decentralized.

The Bureau for Development Policy (BDP): Subregional Resource Facilities (SURFs) and Knowledge Networks "provide world class practical policy support where it is most needed – in the field".

Today, there are twelve Global Knowledge Networks in UNDP, totalling more than 6.500 subscriptions. Knowledge networks encourage people to share information and discuss substantive issues through mail groups, workshops and other initiatives. These activities promote collaboration and mutual support among professional peers, i.e., country office, headquarters and SURF staff, as well as external partners in the UN system and the professional community.

There are 9 Subregional Resource Facilities (SURFs) to provide timely, flexible, demand-driven and knowledge-based services to UNDP country offices in the following areas:

1. Networking and sharing knowledge between staff and development partners;
2. Expert referrals and access to technical and programme-related information;
3. Technical support for programme identification, design, formulation and review;
4. Documentation and dissemination of comparative experiences and best practices

What new activities are being planned?

UNDP's KM positioning emphasizes a set of preferred values and directions: Connection over Collection, Decentralisation over Centralization, Externalisation over Internalization. This quadrant gives a strategic blueprint for the KM services implemented or planned.

For instance, Community-based and owned selection of best practices, federated search engine, Practice experience mappings have just been launched or are planned.

What is the role of Communities of Practice in the organisation?

As UNDP increasingly orients itself towards policy advisory services and capacity development, it needs to provide more substantive policy knowledge to programme countries. UNDP staff builds specialized expertise around Practices, UNDP's development priorities. Communities of Practice –or Knowledge Networks- link thematic focal points in the country

offices with each other and with the relevant policy specialists. Current networks focus on Democratic Governance, Poverty, Energy and Environment, ICT for Development, and HIV/AIDS. In addition to the practice networks, other global knowledge networks include Gender, Small Enterprise and Microfinance, National Human Development Reports and Millennium Development Goals.

How are they perceived to add value?

For The Organisation: Promotes UNDP's capacity to become a knowledge organisation, by drawing on local, regional and global expertise and promoting the exchange of more nuanced information. Enhances the delivery, relevance and effectiveness of our work and advisory services. For the thematic community: Allows for the development a common language & understanding of thematic issues.

For the practitioner: Helps staff to do their jobs, builds bonds with peers, keep up to date. Allows staff to pursue interests.

Do your KM activities have an external focus? i.e. is KM distributed globally?

Knowledge comes from the field and the purpose is to "scan globally and reinvent locally". It's a KM strategic position in UNDP to gear knowledge towards external partners as well as to learn from partners and stay demand driven.

Thematic Knowledge Networks are for example used to gather expertise on a project and by drawing on local, regional and global expertise and promoting the exchange of more nuanced information, it enhances the delivery, relevance and effectiveness of the work and advisory services.

On a different level, UNDP hosts KM Tours, welcoming partners to present them the current state, achievements and value as well as strategic directions for Knowledge Management in UNDP.

What are the key sources of inspiration that guided your KM approach/ strategy? Who are your influences?

The UNDP Knowledge Management approach has been designed as a collaborative process involving various parties, types of communications, assessments, discussions and updates.

On-line discussions were the first medium used for consultations. Initially organized into four one-week discussion, each week had a separate topic. Each topic began with a "launch paper" to frame the discussions. At the end of a discussion, a summary of the contributions was circulated, together with the comment of a "mentor", an acknowledged authority in the field of KM who had listened to the discussions. About 202 members contributed globally to the discussions, articulated by a set of questions.

Outcomes of these consultations were compiled and further elaborated during a workshop attended by a selected panel of participants to these discussions. The draft papers were then discussed with Senior Management. Further consultations involved discussions with a team of strategic consultants to assess the potential impact on Knowledge Management of recommendations to turn UNDP into a best practice advisory organisation.

Does the KM approach/ strategy have links to other strategic initiatives within the organisation? Describe.

UNDP's KM services support UNDP's corporate strategy to be a Practice driven and knowledge-based organisation. Our focus is helping countries build and share solutions to the challenges of: Democratic Governance, Poverty Reduction, Crisis Prevention and Recovery, Energy and Environment, Information and Communications Technology, and HIV/AIDS.

UNDP's Knowledge Management services are aligned in order to support these six thematic areas, for instance through the support of Knowledge Networks which form the backbone through which these respective Practices communicate and collaborate globally.

Is there a process in place to measure the impacts on the organisation? What are your indicators of success?

There are quantitative and qualitative measurements, collection of success stories about KM, individual as well as collective –country office- assessments and surveys conducted. Measurements are from bi-yearly to yearly except for the success stories which are more on-going. A Knowledge sharing indicator is also included in the Organisation's balance score card and assess the performance of the Country Offices in sharing knowledge and supporting each other.

We organize KM Tours, if interested to get more details.

What are the biggest obstacles you have encountered?

To manage priorities: many KM services have been found interesting and would be wanted at the same time, but it's still necessary to manage a selection process to identify what must be implemented first.

Another constraint is time. UNDP has a fertile ground for KM with a global reach of countries and cultures, expansive expertise and issue coverage as well as extensive depth of experience and skills. But linking these dimensions is time consuming.

Establishing a knowledge sharing culture is an on-going task that requires commitment, persistence and proper sponsorship, and the ability to be a change agent throughout the organisation.

General narrative description of KM activities at your organisation. An anecdote.

When the networks were launched in UNDP, an important function foreseen was to better link the country offices with Headquarters. But as soon as the first country offices put queries on the networks, other country offices rather managed to respond, initiating a continuous and still ongoing process of Knowledge sharing.

If your organisation has a KM initiative, please share the following information about the initiative:

What is the initiative called? e.g. Knowledge Sharing?

UNDP's Knowledge Services.

Where is the KM initiative located in the organisation? i.e. which department(s)

Knowledge Management in UNDP is integrated in its core activities and is decentralized. Various departments have a KM agenda. Besides the Bureau for Development Policy, in charge of Knowledge Networking and Knowledge-based advisory services, other relevant departments include for instance the Evaluation Office, Regional Bureaus, the Learning Resource Center, Country Offices, etc.

What year did the organisation's KM initiative begin in?

The first Global Knowledge Network was launched in 1999:

National HDRs	June 1999
SME & Microfinance	July 1999
Environment	Sept. 1999
Poverty/Social Development	Sept. 1999
ICT for Development	Nov. 1999
Governance	Nov. 1999
HIV-AIDS	Jan. 2001
Gender in Development	Aug. 2001
Drylands Development	Aug. 2002
Crisis Prevention and Recover	Sept. 2002
Management Practice Network	Sept. 2002
Evaluation Network	Jan. 2003

Is there a website for the KM initiative?

http://www.undp.org/policy/surf.htm

How many staff work directly on KM?

All BDP staff, whether based at headquarters or in a field location, might spend 10 per cent of their time allocation to networking.

In addition, Global Thematic Networks have dedicated Network Facilitators. Global Thematic Networks host more than 6.500 subscriptions, from members who thus agreed to devote time to knowledge networking.

How are resources allocated to or through the KM initiative?

As being part of its mission, the Bureau for Development Policy devotes the resources to Knowledge Networking.

What are the biggest obstacles you have encountered?	A complete change in Senior Management which has been known to be coming for some time has probably prevented people from engaging too much in changes they do not know will be supported by the new Management Team; Staff time to commit to various activities;

3. An Interview with the UNFPA
KM Ottawa Workshop, May 12-13, 2003

UNFPA

Who is the KM champion in the organisation?	Brendan O'Brien
Who is the primary contact for KM? Other key contacts?	Brendan O'Brien, Chief, Knowledge Sharing Branch Susan Pasquariella, Sr. Knowledge Sharing Officer David Rose, Sr. Knowledge Sharing Officer
What are your primary KM activities?	Knowledge Asset creation and maintenance; Knowledge Networking; Integrating KS into organisational practices and processes; Creation of tools to enable or facilitate KS/KM
What new activities are being planned?	Integration of KS into UNFPA's performance management system and inclusion of KS as a core competency; Development of KS tools; Identifying areas of corporate need for KS.

What is the role of Communities of Practice in the organisation?	Formal Knowledge Networks create, manage and maintain UNFPA's Knowledge Assets; Informal networks share knowledge for specific purposes or projects.
How are they perceived to add value?	Knowledge Networks (CoPs) bring diverse experiential knowledge to HQ and speed problem solving.
Do your KM activities have an external focus? i.e. is KM distributed globally?	The objective of KM/KS is to strengthen capacity and to improve UNFPA's work in developing countries as well as within the organisation; UNFPA also manages the Development Gateway Population and Reproductive Health (POP/RH) Portal which is a mechanism for focusing attention on population and reproductive health issues and for sharing experiential knowledge in these areas.
What are the key sources of inspiration that guided your KM approach? Who are your influences?	"Learning to Fly" and previous experience in other organisations.
Does the KM have links to other strategic initiatives within the organisation? Describe.	KS is one of UNFPA's corporate priorities and is recognized as a core competency within UNFPA's performance management system.

Is there a process in place to measure the impacts on the organisation? What are your indicators of success?	KS will be measured as one of the corporate priorities. Specific indicators are under consideration.
What are the biggest obstacles you have encountered?	Seeing KS as an alternative rather than competitive way of working.
General narrative description of KM activities at your organisation. An anecdote.	In February 2001, the NPO from Turkey was invited to India to provide technical support to undertake a needs assessment field mission to several districts of Gujarat that were affected by an earthquake. The NPO made an important contribution based on his experience in handling UNFPA response to the earthquake that hit Turkey two years ago. As a result of this collaboration UNFPA was able to deploy the right human and technical resources to India in a record time.

4. An Interview with the UN System Staff College KM Ottawa Workshop, May 12-13, 2003

United Nations System Staff College

Who is the KM champion in the organisation?	Project Officer – Learning Programme Team. Although the KM champion's role falls directly to one person there are in reality a number of champions who have taken it upon themselves to push things forward with different initiatives.

Who is the primary contact for KM? Other key contacts?	Ben Docker (email: b.docker@unssc.org; ph: +39 011 653 5908)
What are your primary KM activities?	Facilitation of Communities (UN Learning Managers); Lessons Learned and Knowledge Sharing meetings; Creation of an internal Knowledge Asset; Project presentations; lunchtime learning;
What new activities are being planned?	A Learning Programme (incl. workshops) for UN organisations in Change Management and Learning to Lead/Manage with Knowledge. The objectives of such a programme would be to enable managers: to analyse their organisation's work processes from a knowledge perspective and make decisions based on this analysis; to develop and implement a KM strategy; to facilitate specific KM activities such as the creation and fostering of communities of practice; to implement processes that encourage organisational learning; and to be able to contribute to the development of system-wide KM. Also planned is the cultivation of a UN System community on Knowledge Management to support the development of system-wide KM. Development of other system-wide communities is also on the agenda.
What is the role of Communities of Practice in the organisation?	The organisation is too small for many distinct and formal internal communities of practice, although we are incorporating COP dimensions into our work teams; and also creating a single community amongst the entire staff (approx. 35 people) concerning Instructional Design and Programme Delivery.

Do your KM activities have an external focus? i.e. is KM distributed globally?	Yes. As a mediator for UN System cooperation and knowledge sharing we are working to develop activities across all UN organisations through both learning events and Communities of Practice;
How are they perceived to add value?	Very positively in terms of sharing information and experience.
What are the key sources of inspiration that guided your KM approach? Who are your influences?	KM4Dev; Other UN organisations; Learning to Fly – Collison & Parcell; Working Knowledge – Davenport & Prusak.
Does the KM have links to other strategic initiatives within the organisation? Describe.	Definitely. KM is an integral part of the UNSSC's new learning strategy, which for a provider of learning forms the framework of the business plan.
Is there a process in place to measure the impacts on the organisation? What are your indicators of success?	It is too early to evaluate the impact significantly although a framework for the evaluation of KM is being considered in line with the learning strategy and the development of an overall organisational KM approach.

General narrative description of KM activities at your organisation. An anecdote.	For the time being we are just trying to concentrate on a few of the basics to see what works for us. For instance the Learning Group has developed a Lessons Learned format based on its work-plan, to be implemented through quarterly review meetings. In this Group we have also incorporated project feedback sessions into our regular information sharing meetings. Task groups have been setup to deal with the issues of creating the framework for an Instructional Design Knowledge Asset and for improved flexibility of process. Lunchtime learning activities are being implemented to help facilitate knowledge transfer between staff members on any topic.

If your organisation has a KM initiative, please share the following information about the initiative:

What is the initiative called? e.g. Knowledge Sharing?	Internal initiatives are not grouped under any one name. Externally the activities will fall under the title "Learning to Lead/Manage with Knowledge"
Where is the KM initiative located in the organisation? i.e. which department(s)	Programme Section – Learning Team
What year did the organisation's KM initiative begin in?	2002
Is there a website for the KM initiative?	We have an Internal prototype based around the developing knowledge asset. Our external site will be online in the next month or so.

How many staff work directly on KM?	1
How are resources allocated to or through the KM initiative?	Knowledge Management as a separate Project Budget line

5. An Interview with the USAID KM Ottawa Workshop, May 12-13, 2003

USAID

Who is the KM champion in the organisation?	John Simon, Deputy Assistant Administrator, Bureau for Policy and Program Coordination (PPC) <jsimon@usaid.gov>
Who is the primary contact for KM? Other key contacts?	Lee White, Tech Information Analyst, Bureau for Policy and Program Coordination (PPC) <leewhite@usaid.gov>

What are your primary KM activities?

The Agency is engaged in a wide variety of KM activities that are dispersed throughout the various Bureaus and Missions. An informal survey conducted in December 2002 identified over 120 KM activities including: 17 Communities of Practice, 7 Distance Learning, 27 Knowledge Asset Repositories, 1 Story, 7 Technology, 10 Best Practices, 3 Lessons Learned, 5 Management Tools, 3 Portals and 34 'Other' KM activities.

There are currently six major, Agency-wide KM projects being sponsored by the USAID Business Transformation Executive Committee (BTEC) including:

1. KM Strategy
2. Community of Practice Pilots
3. Advisory Services Program Development
4. Revised CDIE OnLine (internet access to USAID's Development project document repository)
5. Expanded KM Inventory and 'Yellow Pages' development
6. KM Web site

What new activities are being planned?

The KM Strategy project will define additional Agency-wide initiatives. This project is planned for completion in the Summer, 2003. The initiatives will address the organisational and technological KM enablers and the KM processes required to support the Agency's core business strategies over a 15-month planning horizon.

Preliminary plans are being made for the second USAID Knowledge Fair, tentatively scheduled for Fall, 2003.

What is the role of Communities of Practice in the organisation?

Communities currently fulfill a wide variety of knowledge sharing roles throughout the administrative and program delivery functions of the Agency. The majority of the Agency's communities are addressing the identification and communication of Best Practices within specific domains.

How are they perceived to add value?

Success with communities varies widely by individual community. However, the need for broader collaboration and communication within and across the Agency is commonly recognized and Communities of Practice are increasingly seen as a positive contributor to improved Agency performance.

Do your KM activities have an external focus? i.e. is KM distributed globally?

KM activities span the 'extended enterprise' with local, sectoral, regional and global initiatives. Collaboration with partner organisations extends the reach of KM beyond the USAID organisational boundaries.

What are the key sources of inspiration that guided your KM approach/ strategy? Who are your influences?

The KM/KS Working Group at the Agency embarked on a KM awareness program that introduced a variety of KM thought leaders to the organisation. These leaders came from elsewhere within the US Government (Dept of Navy, Federal Highway Administration, KM.GOV), consulting organisations (PWC, IBM, CSC, KPMG, Mitre, Bellanet), partners (Academy for Educational Development, IRG, Johns Hopkins) and other donor organisations (The World Bank, CIDA).

Does the KM approach/ strategy have links to other strategic initiatives within the organisation? Describe.	The current KM Strategy project has the identification of this type of linkage as one of its primary objectives.
Is there a process in place to measure the impacts on the organisation? What are your indicators of success?	Several of the BTEC-sponsored KM projects (CoP Pilots, Advisory Services, KM 'Yellow Pages') will be defining metrics to evaluate their effectiveness. None are currently available. There is growing anecdotal evidence that the acceptance of KM techniques as valuable contributors to success of the Agency is increasing rapidly. This evidence includes an increasing number of staff assignments to KM positions, large attendance at KM events and growing attendance at the KM/KS Working Group meetings.

If your organisation has a KM initiative, please share the following information about the initiative:

What is the initiative called? e.g. Knowledge Sharing?	• Knowledge for Development • USAID BTEC Knowledge Management/ Knowledge Sharing Sub-committee

Where is the KM initiative located in the organisation? i.e. which department(s)	• Bureau for Policy and Program Coordination (PPC) - host for the Agency-wide initiatives and coordinator for KM activities throughout the Agency • Economic Growth Agriculture and Trade (EGAT) Bureau - host for a variety of sectoral KM initiatives; dedicated KM Manager • Global Health (GH) Bureau - host for a large number of sectoral KM initiatives; dedicated KM Manager
What year did the organisation's KM initiative begin in?	2001
Is there a website for the KM initiative?	Yes
How many staff work directly on KM?	Approximately10 FTE's
How are resources allocated to or through the KM initiative?	A variety of staffing approaches and mechanisms are employed.

Annex 4

A Decade of Knowledge Generation and Sharing: Projects Funded by the Japan-ASEAN Solidarity Fund

The largest contributor to the project funds of the ASEAN Foundation is the Government of Japan through the Japan-ASEAN Solidarity Fund. During the past ten years, the Fund has been utilized to support over 100 projects mainly in human resources development and capacity building and poverty alleviation. In the process, a tremendous amount of knowledge has been generated and shared among the various stakeholders in ASEAN. The list of these projects is presented here to give the reader an idea of the magnitude of funding provided and diversity of the areas covered. The ASEAN Foundation is ready to share with interested groups the wealth of knowledge contained in the papers and reports generated by these projects.

Completed Projects

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
1	Seminar on International Crisis Management for ASEAN Diplomats	IDFR (Institute of Diplomacy and Foreign Relations)	Malaysia	42,666.65
		Sub-Total (1999)		**42,666.65**
2	Support Projects for ASEAN's Small and Medium Enterprises	APO (Asian Productivity Organisation)	Japan, Thailand	211,054.92
3	Training Course for National Economic Management and Poverty Eradication	INTAN (National Institute of Public Administration)	Malaysia	46,727.29
4	Workshop on Technical Vocational Education and Training (TVET) for Women's Economic Empowerment	TESDA (Technical Education and Skills Development Authority) Women's Center	Philippines	59,797.16
5	Training of ASEAN English Language Teacher	RELC Language Teaching Institute	Singapore	100,012.93
6	AUN Educational Forum (Student and Faculty Exchange Programme)	AUN (ASEAN University Network)	Thailand, Brunei	30,763.40
7	ASEAN Student Exchange Program at the Secondary Level	International Relations Divison, Ministry of Education of Malaysia (IRD)	Malaysia	34,246.05
8	Conference on Technology Transfer in the Food Sector: The 7th ASEAN Conference	PAFT (Philippine Association of Food Technologists Inc.)	Philippines	65,787.19
		Sub-Total (2000)		**548,388.94**
9	Trainers' Training on Planning and Management of Literacy Programs for Poverty Alleviation	SEAMEO INNOTECH (Regional Centre for Educational Innovation and Technology)	Philippines	43,248.05
10	Training Course for the Promotion of the ASEAN National Agriculture Research System (NARS)	ARC-AVRDC (Asian Regional Center of the Asian Vegetable Research and Development Center)	Thailand	82,750.10
11	Training Project for Lecturers and Farmers from the ASEAN Countries in the Area of Rural Development	NAETC (National Agricultural Extension and Training Center, Kasetsart University)	Thailand	61,255.49
12	The Promotion of Sustainable Fisheries through South-South Cooperation in the ASEAN Region	SEAFDEC (The Southeast Asian Fisheries Development Center)	Thailand, Malaysia, Philippines, Singapore	175,189.62
13	High School Student Exchange Programme for Japan and ASEAN	AFS (Japan's AFS Association)	Japan, ASEAN 10 Countries	520,542.94
14	Workshop for ASEAN Promotion Campaign on Tourism for VAY2002	APC (ASEAN Promotion Centre on Trade, Investment and Tourism)	Japan	426,538.58
15	ASEAN-SEAFDEC Conference on Sustainable Fisheries in the New Millennium: "Food-Security for the People"	SEAFDEC (The Southeast Asian Fisheries Development Center)	Thailand	418,275.00
16	Training workshop on Self-Learning Material Development	SEAMEO SEAMOLEC (Regional Open Learning Centre)	Indonesia	79,201.34
17	Woman, Gender and Co-operatives in Asia-Meeting Challenges and Exploring Opportunities	AWCF (Asian Women in Cooperative Development Forum)	Philippines	76,678.61

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
18	Scholarship for Funding the Smart but Poor in ASEAN	NUS (National University of Singapore, Masters in Public Policy Programme)	Singapore	152,405.68
19	Regional Training on Self-employment for Out-of-School Youth	CYDECO (International Youth Cooperation Development Center)	Vietnam	91,101.64
		Sub-Total (2001)		**2,127,187.05**
20	Japan- ASEAN Human Resources Development Promotion Program	FASID (Foundation for Advanced Studies on International Development)	Japan, Thailand, Indonesia	211,709.69
21	High School Exchange Program for Japan and ASEAN II	AFS (Japan's AFS Association)	Japan	504,393.55
22	Seminar on Urban Youth Work II	NYC (National Youth Council)	Singapore	59,236.00
23	Training Course on Diversified Farming Using Participatory Approach for Food Security	Department of Agricultural Extension, Ministry of Agriculture and Cooperatives of Thailand	Thailand	30,496.38
24	Training in Integrated Quality System Development for Agriculture Food Processing Industries of ASEAN's SMEs	Khon Kaen University Academic Services Center	Bangkok	94,284.14
25	30th International Forestry Student Symposium	Faculty of Forestry, Bogor Agricultural University	Bogor	6,032.64
26	ASEAN Student Leader's Summit and Cultural Festival 2002	Angeles University	Philippines	7,159.41
		Sub-Total (2002)		**913,311.81**
27	Looking to the Future for Deprived Children in the ASEAN Region: Research and Conference for Joint Action and Creation of an ASEAN-Japan NGO Network	JANIC (Japan NGO Center for International Cooperation)	Indonesia, ASEAN	175,546.65
28	ASEAN Tourism Missions	APC (ASEAN Promotion Centre on Trade, Investment and Tourism)	Japan and GMS	319,089.42
29	ASEAN + 3 Study Group on Facilitation and Promotion of Exchange of People and Human Resources Development	ASEAN Foundation	Indonesia & Thailand	37,417.72
30	Human Resource Development in Enviromental Toxicology for New Member Countries and other ASEAN Countries	Chulabhorn Research Institute (CRI)	Thailand	174,514.27
31	Comprehensive Capacity Building for Sustainable Development in the Greater Mekong Sub-Region	Asian Institute of Technology (AIT)	Thailand	353,584.04
32	Teacher Training Workshop in Learning to Live Together in Peace and Harmony: Education for Peace, Values and Sustainable Development	UNESCO-APNIEVE (Asia Pacific Network for International Education and Values Education)	Hanoi, Vietnam	23,620.46
33	Asian Farmer's Exchange Learning, Network-building, and Solidarity Programme	Asia DHRRA (Asian Partnership for the Development of Human Resources in Rural Areas)	Philippines	250,232.92

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
34	AUN Distinguished Professors Programme	AUN (ASEAN University Network)	Thailand	43,014.70
35	ASEAN Studies Programme	AUN (ASEAN University Network)	Thailand	52,713.65
36	Capacity Building for Sustainable Development in the Greater Mekong Sub-region: Closing Gaps in the Digital Divide and Improving Environment Management	AIT (Asian Institute of Technology)	Bangkok	24,890.57
37	English Language Training of Foreign Service Officials	RELC Language Teaching Institute	Singapore	119,327.54
38	Urban and Rural Flood Risk Management Courses	ADPC (Asian Disaster Preparedness Center)	Philippines	53,133.53
39	The Asian Children's Cultural Festival-2003 ASEAN Focus	Sikkha Asia Foundation	Thailand	28,122.90
40	Participation of ASEAN Scientists in 8th ASEAN Food Conference: Cooperation and Integration for Development	Vietnam Institute of Agricultural Engineering and Post Harvest Technology Institute (ASCFST)	Vietnam	49,569.62
41	Training for Managing the Integration of Culture into Development Programmes	SEAMEO Regional Centre for Archeology & Fine Arts (SPAFA)	Thailand	35,896.04
42	Regional Volunteer Experts for Agricultural Modernization (REVEAM)	SEAMEO SEARCA (SEAMEO Regional Center for Graduate Study and Research in Agriculture)	Philippines	68,209.16
		Sub-Total (2003)		**1,808,883.19**
43	Japan-ASEAN Cooperative Capacity Building on "The Asian Development Experience"	Japan Institute of International Affair (JIIA)	Japan	392,043.50
44	Human Resource Development for the Coordination in the Field of Natural Disasters	Asia Disaster Reduction Centre (ADRC) and Office for the Coordination of Humanitarian Affairs (OCHA), Kobe	Indonesia	454,007.44
45	The Third High School Student Exchange Program for Japan and ASEAN	AFS Japan Association	Japan & ASEAN	315,807.69
46	Capacity Building for the Improvement of the Fishery Statistical System in the ASEAN Region	Southeast Asian Fisheries Development Center (SEAFDEC)	Japan	200,000.00
47	Health Management for ASEAN Health Executives	ASEAN Institute for Health Development Mahidol University (AIHD)	Thailand	80,311.21
48	Training of Trainers on Community Leadership and Entrepreneurship for Young Agri-Graduates	Bogor Agricultural University (IPB)	Indonesia	92,219.90
49	Training of Trainers on Community Leadership and Entrepreneurship for Young Agri-graduates	Maejo University	Thailand & Indonesia	29,703.51
50	Training Course on Project Proposal Writing and Management	ASEAN Foundation Secretariat	Laos	41,245.50

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
51	Teacher Training Workshop in Learning to Live Together in Peace & Harmony: Education for Peace, Values & Sustainable Development	UNESCO-APNIEVE	Philippines	33,501.74
52	Remote Sensing Techniques for Determining Coastal Water Parameters and Coastal Zone Mapping	SEAMEO Centre for Tropical Biology (BIOTROP)	Indonesia	24,804.47
53	Regional Workshop on Drying Technology	SCNCER (Sub-Committee on Non-Conventional Energy Research)	Philippines	219,103.15
54	AUN Collaborative Research	AUN (ASEAN University Network)	Thailand	75,608.95
55	2nd & 3rd Training in Integrated Quality System Development for Agri-Food Processing Industries of ASEAN's SMEs	Academic Services Center for Business and Industry, Faculty of Engineering , Khon Kaen University (KKUASCBI)	Malaysia & Thailand	114,704.33
56	Intensive Education and Training on Sustainable Farming Technique and Management	Bina Pembangunan Foundation (YBP)	Indonesia	168,311.78
57	HRD Programme in Biotechnology for CLMV	National Centre for Genetic Engineering and Biotechnology (BIOTEC)	Thailand	74,869.37
58	Promoting Economic Empowerment of Women as Important Dimension to Building Gender Equality in Southeast Asia	Asian Women in Cooperative Development Forum (AWCF)	Thailand, Philippines, Malaysia	157,953.34
59	Capacity Building Training Programs on Technical Vocational Education and Training for CLMV Countries	Technical Education and Skills Development Authority (TESDA)	Vietnam & Philippines	73,977.95
60	Science and Technology Human Resource Development Programme (Phase 1)	COST (ASEAN Committee on Science and Technology)	Indonesia	156,605.98
		Sub-Total (2004)		**2,704,779.81**
61	The Third Intellectual Dialogue on Building Asia's Tomorrow	JICE (Japan Center for International Exchange)	Thailand	117,919.00
62	Community-based HIV/AIDS Management Course	Foundation for Advanced Studies on International Development (FASID)	Thailand	400,736.36
63	Support Programme for the ASEAN Sub-network of Higher Engineering Education for Development (SHEED-Net)	AUN/SEED-Net Secretariat	Thailand	317,510.17
64	Interventions and Initiatives for Satisfying Short and Medium Term HRD and Institutional Capacity Building Needs in CLMV	Asian Institute of Technology (AIT)	Thailand	86,903.32
65	Training of Social Workers: Training People to Help the Poor & the Disadvantage	Technical Working Group for Social Welfare & Development Concerns in ASEAN (TWG-SWADCA)/College of Social Work & Community Development, University of the Philippines	Philippines	30,167.57

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
66	ASEAN Training for Trainers on Safety and Risk Assessment of Agricultural-related GMOs	International Life Sciences Institute (ILSI), Southeast Asian Region	Singapore	83,554.99
67	Training in Groundwater Resource Development for Cambodia, Lao P.D.R., Myanmar and Vietnam (CLMV)	Minerals and Geoscience Department, Malaysia	Malaysia	68,738.93
68	Workshops on Managing the Integration of Culture into Develoment Programmes	SEAMEO SPAFA	Thailand	175,998.03
69	Strengthening ICT in Schools and Schoolnet project in ASEAN Setting I	SEAMEO Regional Open Learning Centre (SEAMOLEC) & UNESCO	Indonesia	209,439.29
70	Strengthening ICT in Schools and SchoolNet Project in ASEAN Setting II	National Electronics and Computer Technology Center (NECTEC) and UNESCO	Thailand	63,822.66
		Sub-Total (2005)		**1,554,790.32**
71	Fourth High School Student Exchange Program for Japan and ASEAN	AFS (Japan's AFS Association)	Japan	36,392.36
72	Promotion of BIMP-EAGA as a Single Destination: with Emphasis on Natural and Cultural Tourism Recourses	ASEAN Japan Centre (AJC)	BIMP-EAGA	159,198.30
73	Energy Efficiency & Renewable Energy for SMEs in the Greater Mekong Sub-region of ASEAN: Reusing Biomass Waste in Industrial Boilers for Energy Recovery	APO (Asian Productivity Organisation)	CLMV	82,152.62
74	Capacity Building for ASEAN SMEs and Venture Business	APO (Asian Productivity Organisation)	Japan	72,811.05
75	HRD Programme on Pilot Project-cum-Training course on Participatory Project Cycle Management (PPCM) for the Mekong Region	APO (Asian Productivity Organisation)	CLMV	39,362.82
76	Productivity and Quality Management Program (PQMP) for ASEAN SMEs Competitiveness Building	APO (Asian Productivity Organisation)	CLMV	72,084.13
77	Capacity Building for Creating an Eco-circulation Society through Biomass Utilisation in the BIMP-EAGA Region	APO (Asian Productivity Organisation)	BIMP-EAGA	80,634.80
78	Enhancing Higher Education Management in CLMV Countries	ASEAN University Network (AUN)	Thailand	32,296.26
		Sub-Total (2006)		**574,932.34**
79	HRD for Sustainable Development Fisheries in Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) Region	SEAFDEC (Southeast Asian Fisheries Development Center)	Thailand	181,282.23
80	Capacity Building on Supply Chain Management for Agribusiness SMEs in the Mekong Region	APO (Asian Productivity Organisation)	Thailand	29,847.80

No	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
81	Development of Productivity Specialists – Capacity Building for ASEAN Managers	APO (Asian Productivity Organisation)	Philippines	110,108.38
82	Training on Community Leadership and Enterpreneurship for Small and Medium Agricultural Businesess in the Greater Mekhong Sub-Region	MAEJO University	Thailand	29,307.46
83	Second ASEAN Student Leader's Summit and Cultural Festival	Angeles University Foundation	Philippines	32,810.01
84	ASEAN Students Engaging Action for Local and Regional Contribution to Society	Department of International Relations, Faculty of Social and Political Sciences, University of Indonesia	Indonesia	126,317.30
85	ICT Training in Developing Countries	National Electronics and Computer Technology Center (NECTEC)	Indonesia	73,281.93
86	The ASEAN Foundation Forum: RETHINKING ASEAN! Toward ASEAN Community 2015	MarkPlus, Inc.	Indonesia	17,989.53
87	International Symposium on "Global Health: Borderless Movement of Diseases"	ASEAN Institute for Health Development, Mahidol University	Thailand	14,172.24
		Sub-total (2007)		**615,116.88**
		Sub-Total		**10,890,056.99**

On-going Projects

	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
1	Capacity Building in Poverty Mapping in the ASEAN Member Countries (Jan '07 - Dec '08)	Asian Institute of Technology (AIT)	Thailand	283,013.00
2	ASEAN International Conference on Conservation on the Coastal Environment (10 months)	Ocean Research Institute, The University of Tokyo, Japan	Japan	100,472.00
3	Promotion of One Village, One Fisheries Products (FOVOP) System to Improve Livelihood for the Fisheries Communities in ASEAN Region (2 years)	Southeast Asian Fisheries Development Center (SEAFDEC)	Thailand	241,246.00
4	Capacity Building for Gender, Poverty and Mobility Analysis of Road Transportation Development in GMS Region (Jan '07-dec '08)	Asian Institute of Technology (AIT)	Thailand	329,976.90
5	Regional Conferences : AUN/SEED-Net Project Phase 2 (2 years)	AUN/SEED-Net	Thailand	778,734.00
6	HRD on Poverty Alleviation and Food Security by Fisheries Intervention in the ASEAN Region (2 years)	Southeast Asian Fisheries Development Center (SEAFDEC)	Thailand	463,837.00
7	Regional Seminar on the ASEAN Foundation (July 2001-2004)	ASEAN Foundation Secretariat (AF)	ASEAN 10 Countries	172,042.00

	Project Title	Executing Agency/Body	Implementing Country	Project Cost (USD)
8	ASEAN Foundation Scholarship for Postgraduate Studies (2007)	ASEAN Foundation Secretariat	ASEAN Countries	734,668.00
9	Sharing Information and Experiences on Quality Assurance Procedures at the University Level in ASEAN (Aug '03-Mar '04)	Naresuan University	Thailand	24,884.00
10	Building Capacities of Women Entreprenueurs and Exploring Opportunities for Micro-enterprise Development for Co-operatives in Southeast Asia (Jul '06-Jan '08)	Asian Women in Cooperative Development Forum (AWCF)	Philippines	180,785.00
11	Enhancing Youth Awareness on ASEAN through Information Technology (Jan-Nov '07)	ASEAN Foundation Secretariat	Indonesia	148,874.00
12	HRD in Geographic Information System and Remote Sensing for the Forestry Personnel of ASEAN Countries (7 months)	Forestry Department of Peninsular Malaysia (FDPM)	Malaysia	57,325.00
13	Linking Small Farmers to Market (24 months)	The Asian Partnership for the Development of Human Resources in Rural Asia (Asia DHRRA)	Philippines	439,725.00
14	Communication Information System for the Control of Avian Influenza in Lao PDR and Vietnam (CISCAI-LoVe) (Jan '08-Dec '10)	ASEAN Foundation	Indonesia	1,051,248.00
15	Strengthening Capacity of Small Holder Aquaculture Farmers in ASEAN for Competitive and Sustainable Aquaculture (18 months)	Network of Aquaculture Centres in Asia-Pacific (NACA)	Thailand	192,706.00
16	ASEAN Collaborative Project on Nutrition Surveillance (6 months)	National Nutrition Council (NNC)	Philippines	79,279.00
17	2nd ASEAN Traditional Textiles Symposium 2008 (10 months)	Indonesian Traditional Textile Society	Indonesia	50,406.00
18	Support on 8th ASEAN Science and Technology Week: Scietific Conferences and ASEAN Youth Science Summit (1 year)	ASEAN Committee on Science and Technology, Department of Science and Technology Philippines	Philippines	83,859.00
19	Workshop on Youth, Culture and Development (1 year)	SEAMEO SPAFA	Thailand	212,006.30
20	Promoting Mutual Assistance among Corporate Foundation in the ASEAN (1 year)	Asian Institute of Management	Philippines	100,167.74
21	SEAMEO INNOTECH International Conference: Transitions for Youth Success: Creating Pathways for Work and Life (1 year)	SEAMEO INNOTECH	Philippines	39,546.65
		Sub-Total		**5,764,800.59**

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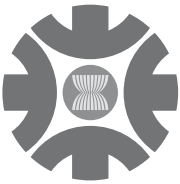

ASEAN
FOUNDATION

The ASEAN Foundation

Established by the ASEAN Leaders in December 1997 during ASEAN's 30th Anniversary Commemorative Summit, the ASEAN Foundation primarily aims to bring about shared prosperity and a sustainable future for the peoples of the ten ASEAN member countries, namely, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. The Foundation is mandated to undertake a two-fold mission: (1) to promote greater awareness of ASEAN, and greater interaction among the peoples of ASEAN, as well as their wider participation in ASEAN activities through human resources development; and (2) to contribute to the evolution of a development cooperation strategy that promotes mutual assistance, equitable economic development and the alleviation of poverty.

Article 15 of the ASEAN Charter further mandates the ASEAN Foundation to support the Secretary General of ASEAN and collaborate with the relevant ASEAN bodies to support ASEAN community-building by promoting greater awareness of the ASEAN identity, people to people interaction and close collaboration among the business sector, civil society, academia and other stakeholders of ASEAN.

The ASEAN Foundation is based in Jakarta, Indonesia.

The Japan-ASEAN Solidarity Fund (JASF)

In May 1998, H.E. Mr. Keizo Obuchi, Minister for Foreign Affairs of Japan, announced a contribution of US$20 million from the Government of Japan to the ASEAN Foundation to support projects in the areas of education, human resources development, business exchanges and other activities to promote development of the ASEAN region and strengthen Japan-ASEAN cooperation.

To date, almost USD 17 million of the Fund has been utilized and allocated to support over 100 social development projects, majority of which were for human resources development and poverty alleviation. Unless otherwise stated, projects of the ASEAN Foundation are funded by the Japan-ASEAN Solidarity Fund.

Filemon A. Uriarte, Jr.
ASEAN Foundation

About the Author

Dr. Filemon A. Uriarte, Jr. is the Executive Director of the ASEAN Foundation. He is a former Cabinet member of the Philippine Government as Secretary (Minister) of the Department of Science and Technology; Principal Officer and Director, Information, Communication and Space Technology Division, United Nations ESCAP; Director for Functional Cooperation, ASEAN Secretariat; and Chairman, Department of Chemical Engineering, University of the Philippines. In the private sector, Dr. Uriarte was President and CEO of several companies such as the LAUDS Technologies, Inc. and TEST Consultants, Inc. and Vice President of Philippine Vinyl Consortium, Inc.

Dr. Uriarte earned his B.S. and M.S. degrees in Chemical Engineering from the University of the Philippines and PhD in Chemical Engineering from Carnegie-Mellon University in the United States. Over the years, Dr. Uriarte has received numerous awards and citations for his outstanding contributions as an engineer, scientist and manager, including Ten Outstanding Young Men (TOYM) in 1974, Outstanding Chemical Engineering Alumnus of the University of the Philippines and Outstanding Chemical Engineer in the Philippines from the Professional Regulation Commission. He is listed among the Outstanding Leaders of the Philippines (Who's Who in 1980) and a member of the Phi Kappa Phi Honor Society. He is an Academician of the National Academy of Science and Technology.

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