
UNIT 18 KNOWLEDGE MANAGEMENT

Objectives

After completion of the unit, you should be able to:

- 1 understand the concept of knowledge management;
- 1 know how knowledge management is carried out;
- 1 discuss different approaches to knowledge management; and
- 1 explain how to build knowledge management strategy.

Structure

- 18.1 Introduction
- 18.2 Knowledge Management
- 18.3 Knowledge Management in Organisations
- 18.4 Summary
- 18.5 Self Assessment Questions

18.1 INTRODUCTION

Knowledge Management is a set of organisational processes that create and transfer knowledge supporting the attainment of academic and organisational goals.”
(Townley)

The capabilities by which communities within an organisation capture the knowledge that is critical to them, constantly improve it and make it available in the most effective manner to people who need it, so they can exploit it creatively to add value as a normal part of their work.

“The only irreplaceable capital an organisation possesses is the knowledge and ability of its people. The productivity of their capital depends on how effectively people share their experience with those that can use it.”

“If Hewlett-Packard knew what Hewlett-Packard knows we would be three times more profitable.”

Drivers for Knowledge Management

- 1 Globalisation
- 1 Technological Advances
- 1 Information explosion and knowledge

“The fundamental challenge is to create a knowledge-driven economy that serves our long-term goals of a first-class public service and economic prosperity for all. To do so we need to innovate. We need to use ideas and intelligence in new ways that create higher value added products and better quality services ... and we must extend the opportunities of the information age to all.”

Reasons to Management Knowledge

- 1 Greater opportunities for collaboration
- 1 Easier access to relevant, authoritative information when and where it is needed

- 1 Better access to expertise
- 1 Earlier discovery leading to innovation and research
- 1 Better learning experiences
- 1 Greater re-use of information and knowledge
- 1 Greater focussing of resources on mission critical knowledge
- 1 Competitive advantage

Knowledge

- 1 Published information
- 1 Websites
- 1 Laboratory notebooks
- 1 Filing cabinets
- 1 Departmental collections
- 1 Discs
- 1 Archives
- 1 Museums

Manuscripts

- 1 Theses
- 1 Learning Objects
- 1 Conference papers
- 1 Reports
- 1 Working papers
- 1 Media Files
- 1 Data

Role of Knowledge Managers

[Knowledge] originates and is applied in the minds of the knowers. In organisations, it often becomes embedded not only in documents or repositories, but also in the organisational routines, processes, practices and norms (Davenport and Prusak, 1998)

- 1) recognising our role and potential in the knowledge management agenda and taking the opportunities that it provides.
- 2) fostering collaboration to achieve improved outcomes make the best use of our resources and learn from best practice.
- 3) Investing in people. Bringing people together in communities of practice to solve problems and be creative including re-imagining how we can add greater value to the information we manage using the skills of those around us wherever these can be found.
- 4) Making available the knowledge embedded in our own organisations by identifying and capturing the assets that already exist and providing access to this knowledge.
- 5) ensuring that information is easily accessible and managed according to need and constantly reimagining how to unlock information that is created both internally and externally.
- 6) ensuring that all of our limited investment is well justified by outcomes in research learning and teaching by taking a business approach to selection.

- 7) assisting members of our universities to build reputation through alternative publishing models, thinking outside existing systems.
- 8) ensuring that users have the skills to use information well throughout their professional and personal lives.
- 9) identifying barriers to access and developing plans to overcome impediments to information and knowledge creation wherever they exist.
- 10) becoming collaborators and supporters of knowledge management, recognising that this is what we do well and we have a significant role and responsibility for the knowledge management agenda in what we do now and what we can do in the future.

Distinguishing Between Information and Knowledge

Information is “data”, statistics, facts, phone numbers, names, text, etc.

Knowledge is information with context and understanding. The integration of experience, values, intuition, lessons learned, contextual information, and expert insight that provides the potential for informing decisions and improving actions. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.

Knowledge is an “applied” product; “used and analyzed” information; experience

What is Knowledge Management?

Capturing, distilling and systematically organizing knowledge and experience gained from staff, clients, and development partners; making this knowledge, best practices & lessons learned, readily accessible to a wide audience internally and externally; creating linkages between groups and communities working on similar topics; and empowering knowledge generation and learning.

What is Knowledge Sharing?

- 1 Often used as a synonym for KM.
- 1 Definition sometimes includes methodology and software for the sharing and reuse of knowledge.
- 1 Many practitioners increasingly see “**knowledge sharing**” as a better description of what they are about than “knowledge management”. Drawbacks include the possibility that KS implies that the existence of knowledge precedes the sharing process, thereby (wrongly) separating knowledge management from “innovation” and “research”.
- 1 Requires KM to succeed.

What are the benefits of Knowledge Management?

- 1 Fosters innovation by encouraging the free flow of ideas; Encourages staff innovation and creativity.
- 1 Streamlines response time.
- 1 Streamlines productivity and operations and reduces costs by eliminating redundant or unnecessary processes and procedures.
- 1 Provides a feedback loop to re-work and re-use knowledge for the benefit of the organisation.
- 1 Accelerates advancement of mission.
- 1 Improves performance.

What are the Challenges of and Obstacles to KM?

- 1 Staff “buy-in” [**Who**]; Culture of “hoarding”.
- 1 Distinguishing between information & knowledge. [**What**]
- 1 [**Where**] to find knowledge.
- 1 Defining and achieving the goals of KM. [**Why**]
- 1 Avoiding over-emphasis on technology; Finding the right technology. [**How**]
- 1 Remaining current.
- 1 Low awareness of the value of information for others.
- 1 Lack of resources: People, Funding, Technology, Learning Tools.

What are the Tools of KM?

- 1 Email and synchronous interaction tools.
- 1 Collaboration tools for community-building and networking; shared documents; conversations.
- 1 Document or knowledge repositories.
- 1 Tools for knowledge capture, distillation and presentation.
- 1 E-learning tools and applications.
- 1 Staff and expertise directories; Yellow pages.
- 1 Calendars (personal, group and corporate); personal portals.

Knowledge Management Constituents

- 1 Intellectual Capital and its constructs
- 1 Intellectual Capital and KM
- 1 KM – a definition
- 1 KM Model
- 1 KM Strategies
- 1 Processes and Knowledge Conversion
- 1 Sharing Culture
- 1 People – HRM and KM link
- 1 HR strategies for KW
- 1 Enabling technologies

Intellectual Capital: Definition

Definition (Harvard Management Update, M.Crowe)

“Intellectual material that has been formalised, captured, and leveraged to produce a higher value asset.” Constructs.

- 1 Human Capital.
- 1 Structural Capital.
- 1 Customer Capital.

KM Activities

Efficiency	Synergy	Innovation
Background	Lessons	Application
Documents	FAQs	Discussion
Research	Policies	
Intranet	Intranet	Team Room
Conferences	MMV website	Register
Internal Comms	Team Room	Communities
MMV website	Forum	

18.2 KNOWLEDGE MANAGEMENT

Manage and leverage organizational knowledge. Having greater access to information is useless unless that information is put to use to further the goals and success of the organization. In today's economy, the basic economic resource is no longer capital, or labour, or natural resources, but knowledge. Peter Drucker coined the term knowledge work in the early 1960s but only in recent years have managers begun to recognize knowledge as an important resource that should be managed, just as they manage cash flow, human resources, or raw materials. Particularly for companies that are striving to be learning organizations, knowledge management is a critical job for organization executives. Learning organizations effectively acquire, create, and transfer knowledge across the company and modify their activities to reflect new knowledge and insights.

Knowledge management is a new way to think about organizing and sharing an organization's intellectual and creative resources. It refers to the efforts to systematically find, organize, and make available a company's intellectual capital and to foster a culture of continuous learning and knowledge sharing so that organizational activities build on what is already known. The company's intellectual capital is the sum of its information, experience, understanding, relationships, processes, innovations, and discoveries. A complete knowledge management system includes not only processes for capturing and storing knowledge and organizing it for easy access, but also ways to generate new knowledge through learning and to share knowledge throughout the organization.

What is knowledge?

Knowledge is not the same thing as data or information, although it uses both data are simple, absolute facts and figures that, in and of themselves, may be of little use. A company might have data that show 30 percent of a particular product is sold to customers in Florida. To be useful to the organization, the data are processed into finished information by connecting them with other data—for example, nine out of ten of the products sold in Florida are bought by people over the age of sixty. Information is data that have been linked with other data and converted into a useful context for specific use. Knowledge goes a step further; it is a conclusion drawn from the information after it is linked to other information and compared to what is already known. Knowledge, as opposed to information and data, always has a human factor. Books can contain information, but the information becomes knowledge only when a person absorbs it and puts it to use. Knowledge is based on prior information, hands-on experience, intuition, and understanding—it involves recognizing how to take action on the information to accomplish the organization's goals. For example, a manager might recognize that targeting people over the age of sixty in Florida will double sales, but targeting the same age group in Maine or Minnesota will do nothing but increase

marketing costs. Knowledge is something that is in employees' collective brains, not something stored in a database or printed out by an executive information system.

Organizations deal with both explicit knowledge and implicit, or tacit, knowledge. Explicit knowledge is formal, systematic knowledge that can be codified, written down, and passed on to others in documents or general instructions. Tacit knowledge, on the other hand, is often very difficult to put into words. Tacit knowledge is based on personal experience, rules of thumb, intuition, and judgement. It includes professional know-how and expertise, individual insight and experience, and creative solutions that are often difficult to communicate and pass on to others. Explicit knowledge may be equated with knowing about; whereas tacit knowledge is equated with knowing how. For example, recent graduates of an agricultural college may know about the best times and locations for planting soybeans, the best soils and fertilizers to help ensure a healthy crop, and the appropriate time to harvest the crop. They can test soil samples, track weather conditions, calculate the growing period, and plan for harvesting. A third-generation soybean farmer may not know about any of those things. However, the seasoned farmer knows how to grow a successful soybean crop, based on years of experience. Such farmers know crops, and they use their judgment to know when crops are ready to harvest, which may or may not be the date the first farmers would have calculated.

If asked to explain how to grow soybeans, the college graduate could write a detailed, scientific report. The third-generation farmer might be unable to provide a set of clear, precise instructions, even though he or she knows how to grow a superb crop. The farmer's expert knowledge is not easily codified. Similarly in organizations, there are many people who know how to do certain things that they might not be able to put into clear, precise instructions for others. For learning organizations, finding ways to transfer both explicit and tacit knowledge—the knowing about and the knowing how—across the organization is critical. Although explicit knowledge can easily be captured and shared in documents and through information technology systems, as much as 80 percent of an organization's valuable knowledge may be tacit knowledge that is not easily captured and transferred.

Approaches to knowledge management

Knowledge management is not new, but only recently have organization executives begun thinking about deliberate, systematic ways to create, capture, organize and transfer knowledge. There are three driving forces behind the surge of interest in knowledge management. First, a large part of the momentum comes from the rapid advances in information technology that make it possible to share explicit knowledge more quickly and easily as well as to connect people in networks for the sharing of tacit knowledge. Second, as the economic basis of organizations shifts from natural resources to intellectual capital, top executives have found it imperative to appraise their organizations' knowledge resources and how to leverage them. Finally, the growing interest in knowledge management is closely related to companies' effort to become learning organizations, in which managers strive to create a culture and a system for creating new knowledge and for capturing both explicit and tacit knowledge and getting it to the right place at the right time. A survey of CEOs attending the World Economic Forum's 1999 annual meeting found that 97 percent of senior executives see knowledge management as a critical issue for their organizations.

Two distinct approaches to knowledge management are outlined. Critical to both approaches is a cultural mindset that encourages collaboration and knowledge sharing. Since knowledge goes to people within the organization, there is a strong impulse to hoard rather than share it. Thus, knowledge management often requires major culture change. For example, Jorma Ollila, CEO of Nokia Telecommunications,

introduced a new cultural direction with the statement, “knowledge in Nokia is power only when it is shared”. Texas Instruments awards the “Not-Invented-Here-But-I Did-It-Anyway” prize to encourage people to share knowledge.

The first approach to knowledge management deals primarily with the collection and sharing of explicit knowledge, largely through the use of sophisticated information technology systems. Explicit knowledge may include intellectual properties such as patents and licenses, work processes such as policies and procedures, specific information on customers, markets, suppliers or competitors, competitive intelligence reports, benchmark data, and so forth. When an organization uses this approach, the focus is on collecting and codifying knowledge and storing it in databases where it can easily be accessed and reused by anyone in the organization. Knowledge is gathered from the individuals who possess it and is organized into documents that others can access and reuse. This “people-to-documents” approach is used by some consulting firms. For example, Ernst & Young collects knowledge such as interview tips, work schedules, benchmark data, and market segmentation analyses and stores them in an electronic database for reuse.

The second approach focuses on leveraging individual expertise and know-how – tacit knowledge – by connecting people face-to-face or through interactive media. Tacit knowledge includes professional know-how, individual insights and creativity, and personal experience and intuition. With this approach, managers concentrate on developing personal networks that link people together for the sharing of tacit knowledge. Although information technology is used, it primarily supports and facilitates conversations and person-to-person sharing of tacit. Knowledge.

Table: Approaches to Knowledge Management

Mechanisms for Explicit Knowledge Management	Explicit Provide high-quality, reliable, and fast information systems for access of codified, reusable knowledge
Knowledge Management Strategy	People-to-document system that codifies, stores, disseminates, and allows reuse of knowledge
Technology	Invest heavily in information technology, with a goal of connecting people with reusable, codified knowledge
Mechanisms	Data warehousing and data mining Knowledge mapping Electronic libraries Tacit Channel individual expertise to provide creative advice on strategic problems
Knowledge Management Strategy	Person-to-Person approach Develop networks for linking people so that tacit knowledge can be shared.
Technology	Invest moderately in information technology, with a goal of facilitating conversations and the exchange of tacit knowledge
Mechanisms	Dialogue Learning histories and Storytelling

Organizations can use a number of mechanisms to support the collection and sharing of knowledge resources. Some mechanisms that are particularly useful for explicit knowledge management are data warehousing, knowledge mapping, and electronic libraries. In addition, intranets or other networks for connecting people throughout the organization are important for sharing both explicit and tacit knowledge. These mechanisms are listed in and described in detail here.

- 1) **Data warehousing and data mining.** Data warehousing allows companies to combine all their data into huge databases for easy access, and data mining helps users make sense of the data by searching for patterns that can help solve organizational problems or take advantage of new opportunities. Data warehousing and data mining can be particularly useful for building customer relationships or entering new markets. Kimberly-Clark Corp. has expanded its customer base by using its data warehouse in the business-to-business sector to identify individuals that distributors sell to and then targeting them with promotional mailings about Kimberly-Clark products. At Ernst & Young, each of the more than forty practice areas has a staff member who helps to codify employee's explicit knowledge and store it in databases, which are linked through a network. An E & Y team preparing a bid to install an ERP system for a large industrial manufacturer used the database to search out previously developed solutions. By reusing the material, the team saved Ernst&Young, as well as the client, more than a year of work.
- 2) **Knowledge mapping.** Some companies are undertaking knowledge mapping projects that identify where knowledge is located in the organization and how to access it. Although there are varied approaches, the purpose of knowledge mapping is to guide people to knowledge resources within the company. Hughes Space & Communications is building a knowledge expressway using Lotus Notes, videoconferencing, employee home pages, and numerous other technologies. The map is used to transfer new management practices, track licenses and patents, gather competitive intelligence, and so forth. For example, the engineering group might tap into a "lessons learned" database using hypertext links to directories, abstracts, and other documents. Hughes also hopes to use knowledge mapping to support tacit knowledge sharing by guiding people to pockets of expertise and fostering communication and storytelling.
- 3) **Electronic libraries.** Databases of specific types of information for specific uses, provide another way to store knowledge and make it available throughout the organization. Users may be able to "check out" and reuse specific pieces of knowledge. For example, Sun Microsystems has created a shared-code library, a central communication hub from which programmers can check out whole pieces of software code without having to recreate them every time. Sequent Computers Inc. He used an indexed library called Sequent Electronic Corporate Library (SECL) since 1995 to hold sales presentations, technical papers, and so forth. In the United Kingdom, Anglian Water Services developing an "encyclopaedia of water" as part of its efforts to become a learning organization. The electronic encyclopaedia contains knowledge about all aspects of water, such as treatment technologies or services management, that has previously been stored in separate books, documents, articles, and process descriptions.

Intranets and other networks are critical tools to give people throughout the organization access to explicit knowledge that is stored in databases, electronic libraries, and so forth. San Jose-based Cadence Design Systems Inc. uses an in-house Web site for new sales representatives that provides a step-by-step guide through the sales process, product specifications, and profiles of customers and leads. The system has helped Cadence get sales reps out into the field two to four months faster, which saves the company millions of dollars. Some

companies, including US West, Paradyne Co., and Metropolitan Life Insurance, use intranets for gathering competitive intelligence. Salespeople, marketing staff, technicians, and others, in addition to competitive intelligence professionals, post information and views on technologies, customers, products, and industry developments.

Leveraging Professional Knowledge and Expertise

What's the ultimate purpose of all these mechanisms? Why do organization managers encourage and support activities such as dialogue and storytelling? A significant goal of knowledge management systems, whether we are talking about electronic libraries or communities of practice, is to leverage professional knowledge and expertise. Rather than having separate pockets of expertise scattered about the organization, knowledge management systems aim to bring knowledge together and spread it throughout the company. People can use the knowledge that already exists and build on it to create new knowledge. Consulting firms often set up databases of best practices that include detailed descriptions of projects so that consultants around the world can draw on one another's expertise. Other organizations create electronic libraries so workers can "check out" and reuse previously developed components or solutions. Xerox has estimated that sharing best practices through knowledge management has enabled the company to reduce costs by as much as \$1 billion.

Mechanisms such as databases, knowledge mapping, and electronic libraries are excellent tools for the management and transfer of explicit knowledge that can be codified and written down. However, in order to leverage tacit knowledge—professional insights and understanding that cannot be stored in a database—organization use mechanisms such as dialogue, storytelling, and communities of practice. When people talk openly about their project and problems, ideas and solutions often emerge from the collective brain of the group. Technology alone cannot achieve the ambitious goal of leveraging professional knowledge. For example, one large consumer products firm asked all professional staff to document their key work processes in a database. Most employees felt that their jobs insistence of top management, the task was completed. However, the resulting database was of little use—it simply did not capture the nuances, details, and insights that people needed to improve their work. Although computer technology can be highly useful for leveraging knowledge, managers should understand its limitations. In addition, managers should recognize that the ultimate key to leveraging knowledge is changing organizational culture and management practices to encourage and support knowledge sharing. Knowledge management (KM) is undertaken to support enterprise viability and success. It pursues explicit, systematic, and enterprise priority-driven approaches to:

- 1) Identify which Intellectual Capital (Knowledge) needs to be created and maintained – including which knowledge needs to be available for delivery of desired competitive service paradigms and work products;
- 2) Provide and transform the required knowledge- and ascertain that it is continually renewed; and
- 3) Ascertain that- all available knowledge assets (Intellectual Capital) are diligently leveraged wherever appropriate.
- 4) Govern knowledge management-related processes and relationships by providing enterprise-wide support, infrastructure, and leadership.

Incremental knowledge management (IKM), on the other hand, tends to almost arbitrarily identify and pursue a knowledge-related action, often as an extension of an already occurring activity – an incremental improvement on 'business-as-usual' and does not focus on ascertaining that the knowledge assets are applied.

Enterprises that pursue broad and systematic knowledge management – ‘Comprehensive KM’ – find that they pursue several sub-practices that in total contribute to the overall success. They are vigilant in their focus on making knowledge work effectively as the chief enabler of enterprise success. These sub-practices include efforts to:

Foster Knowledge – Supportive Culture: Characteristics of the general culture include a safe environment, ethical and mutually respectful behaviour, minimal politicking, collaboration, and a common focus on delivering quality work without delay – i.e., “getting the right thing done as soon and with as little fuss as possible!”

Provide Shared Understanding: Develop a broadly shared understanding of the enterprise’s mission, current direction, and the role of the individual in support of the enterprise and of the individual’s own interest.

Focus the knowledge Management Practice to Align with Enterprise Direction: Practitioners of comprehensive KM identify the intended business direction of the enterprise to ascertain that associated knowledge-related factors receive appropriate attention and are well maintained.

Practice Accelerated Learning: Pursue a broad range of knowledge transfer activities to ascertain that valuable knowledge is captured, organized and structured, deployed widely, and used and leveraged. The impetus is on making important knowledge flow rapidly, in proper quantities, in well-represented and effective ways, and to all valuable destinations.

Pursue the ‘Four Success Factors’, these factors focus on providing employees with:

- 1) **Knowledge and Resources:** Professional, craft, and navigational knowledge and metaknowledge, information, and other necessary resources must be made available for employees to deliver quality work products that satisfy the requirements of the situation and the general service paradigm. Employees must also possess requisite skills and attitudes (that is, personality traits). They must be supported by their ability to think critically and creatively by being provided with relevant metaknowledge.
- 2) **Opportunities:** Employees must be placed in situations where they have opportunity use their capabilities. Workflows must be organized to take advantage of people’s capabilities and to exploit the potentials for innovation and application of diversity.
- 3) **Permission:** Employees must be provided safe environments in which to do their work. That means that they must be given permission to innovate, improvise, and “stretch” enterprise policies and practices beyond predetermined scopes to serve the enterprise’s, and the stakeholders’, best interest.
- 4) **Motivation:** Employees must be motivated to act intelligently – ‘to do the right thing’ – by being provided with understanding and emotional acceptance of how their actions will be of value to stakeholders, the enterprise, and most importantly, to themselves. This factor is most important, and difficult to effectuate. It requires approaches to effective and active communication that will be new to most.

Create Supportive Infrastructure Capabilities: Implement new or adapt existing capabilities to provide needed and effective supports for KM.

Provide Effective Governance for the Knowledge Management Practice: Monitor, Evaluate, and guide the KM activities and their plans, results, and opportunities.

The models that comprehensive KM practise often use to structure their activities and priorities include the ‘Institutional Knowledge Evolution Cycle’ indicated in Figure 1 and the ‘Personal Knowledge Evolution Cycle’ indicated in Figure 2.

The Institutional Knowledge Evolution Cycle considers five stages in the pathway:

- 1) **Knowledge Development:** Knowledge is developed through learning, innovation, creativity, and importation from outside;
- 2) **Knowledge Acquisition** – Knowledge is captured and retained for use and further treatment;
- 3) **Knowledge Refinement:** Knowledge is organized, transformed, or included in written material, knowledge bases, and so on to make it available to be useful;
- 4) **Knowledge Distribution and Development:** Knowledge is distributed to points-of-Action (PoAs) through education, training programs, automated knowledge-based systems, expert networks, to name a few- to people, practices, embedded in the technology and procedures, etc.; and
- 5) **Knowledge Leveraging:** Knowledge is applied or otherwise leveraged. By using (applying) knowledge, it becomes the basis for further learning and innovation as explained by other mechanisms.

The personal Knowledge Evolution Cycle also has five stages that depict how knowledge, as it becomes better established in a person’s mind, migrates from barely perceived notions to be better understood and useful. The five stages are:

- 1) **Tacit subliminal knowledge:** This knowledge is mostly nonconscious and is not well understood. It is often the first glimpse we have of a new concept.
- 2) **Idealistic Vision and Paradigm Knowledge:** Part of this knowledge is well known to us and explicit—we work consciously with it. Much of it—our visions and mental models—is not well known, it is tacit, and only accessible nonconsciously
- 3) **Systematic Schema and Reference Methodology Knowledge:** Our knowledge of underlying systems, general principle, and problem-solving strategies is, to a large extent, explicit and mostly well known to us.

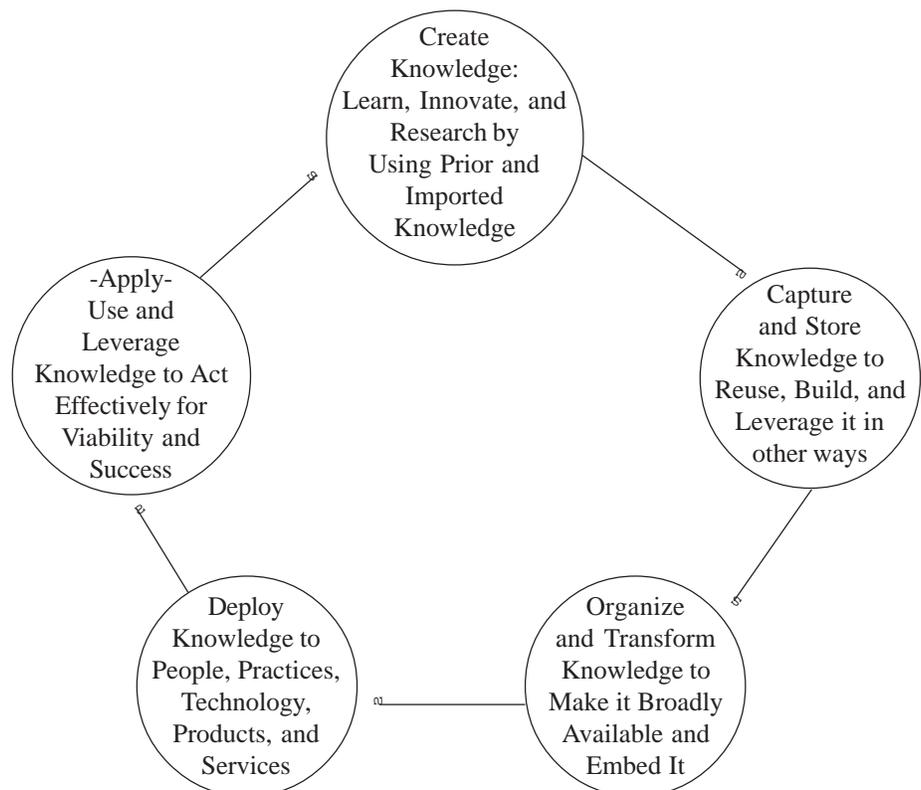


Figure 1: The Organizational Knowledge Evolution Cycle

- 4) **Pragmatic Decision: Making and Factual Knowledge.** Decision-making knowledge is practical and mostly explicit. It supports everyday work and decisions, is well known, and is used consciously.
- 5) **Automatic Routine Working Knowledge:** We know this knowledge so well that we have automated it. Most has become tacit – we use it to perform tasks automatically – without conscious reasoning.

Knowledge may grow from subliminal to idealistic as it becomes better established and understood, then to systematic, then to pragmatic, and finally to automatic knowledge when very well understood. From well established knowledge we then start to glimpse new ideas and concepts through creativity and innovation.

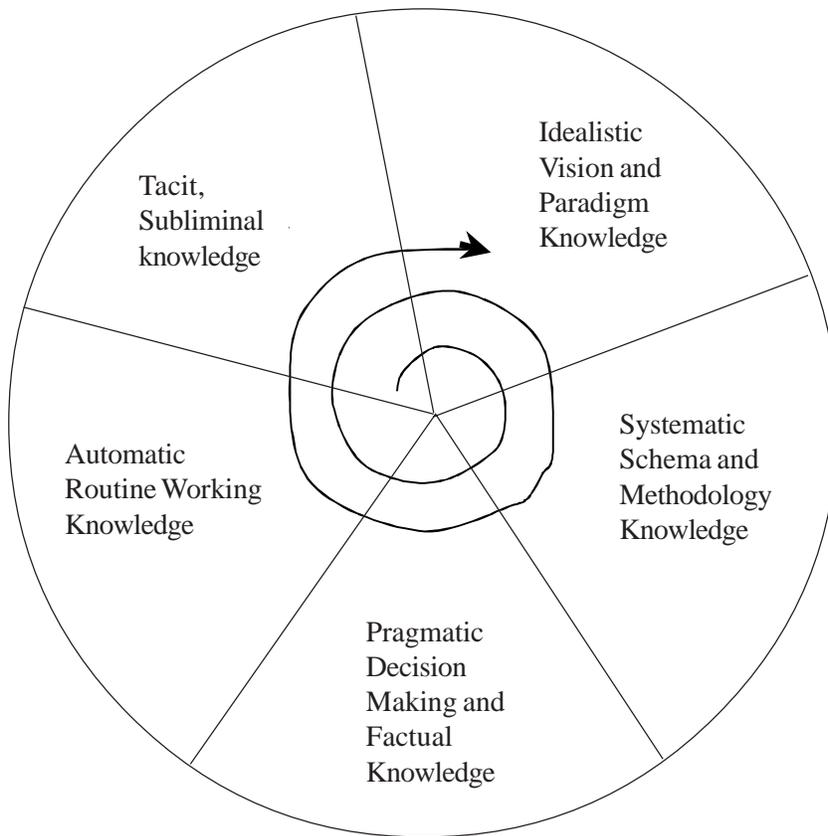


Figure 2: The Personal Knowledge Evolution Cycle

18.3 KNOWLEDGE MANAGEMENT IN ORGANISATIONS

“If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas

George Bernard Shaw

Knowledge is the accumulated experience and actionable information that exists within an organisation. It is information that has already been put into use and has a capacity to be acted upon. Knowledge is what people know – about their work, about how to get things done, about their products and services, their customers, competitors and their capabilities. It’s there in their minds, it’s in the documents and it’s often hidden in the processes that connect people together in teams and workgroups. As Peter Drucker puts it “*In the new economy, knowledge is not just another resource alongside the traditional factors of production, labour, capital and land, but the only meaningful resource today.* The challenge we face is simple – knowing what we know

– and realizing that there is often a huge difference between a process outlined in the company manual and the realities of every day business life.

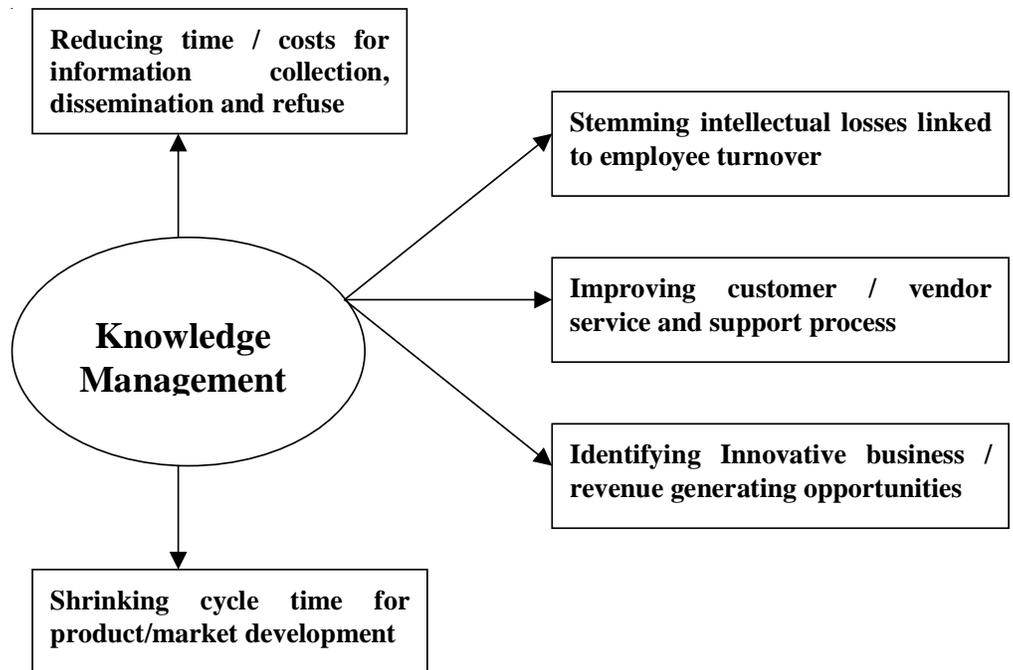


Figure 3: Knowledge Management aims to enhance an organization's return on intellectual capital

KM-Myth vs. Reality

Perhaps unavoidably, KM suffers from a certain amount of hyperbole, resulting from overenthusiastic efforts to sell it. We try to diffuse some of the myths and explore what the reality can mean.

- 1 **Myth:** Knowledge is a company's only / most important resource.
Reality: However knowledge-intensive a company's work may be, it cannot survive on knowledge alone. It is the overall human capital, harnessed via organizational structures and processes, that ultimately determines success. Knowledge is one critical component of human capital, the others being social and emotional capital.
- 1 **Myth:** There is a perfect solution to KM. Knowledge can be perfectly codified and its sharing institutionalized.
Reality: Knowledge is amorphous, elusive, often tacit, and difficult to pin down. Its codification and sharing must be promoted, but the expectations must be tempered by organizational realities.
- 1 **Myth:** KM is all about technology.
Reality: Technology is certainly important, but hardly the sole consideration. Cultural and human aspects matter far more.
- 1 **Myth:** All of an organization's knowledge grows monotonically
Reality: Like any other resource, knowledge grows selectively – some of it grows, some becomes obsolete, some loses relevance. Like any other resource, it must be managed on a continuous basis.
- 1 Knowledge is owned by one or two groups in the organization.
Reality: Knowledge is not owned by the Research or Training or MIS groups, or even top management. It is the responsibility of all wings of the organization.

The three fundamental components of KM are People, Process and Technology. It is important to realize that people are at the center of all KM initiatives; Technology and Processes but play more of an enabling role.

The knowledge management process has four distinct steps; knowledge creation, knowledge capture, knowledge application and knowledge measurement. While knowledge creation can result in either tacit or explicit knowledge, it is the process of capturing and sharing this knowledge that makes it available across the enterprise.

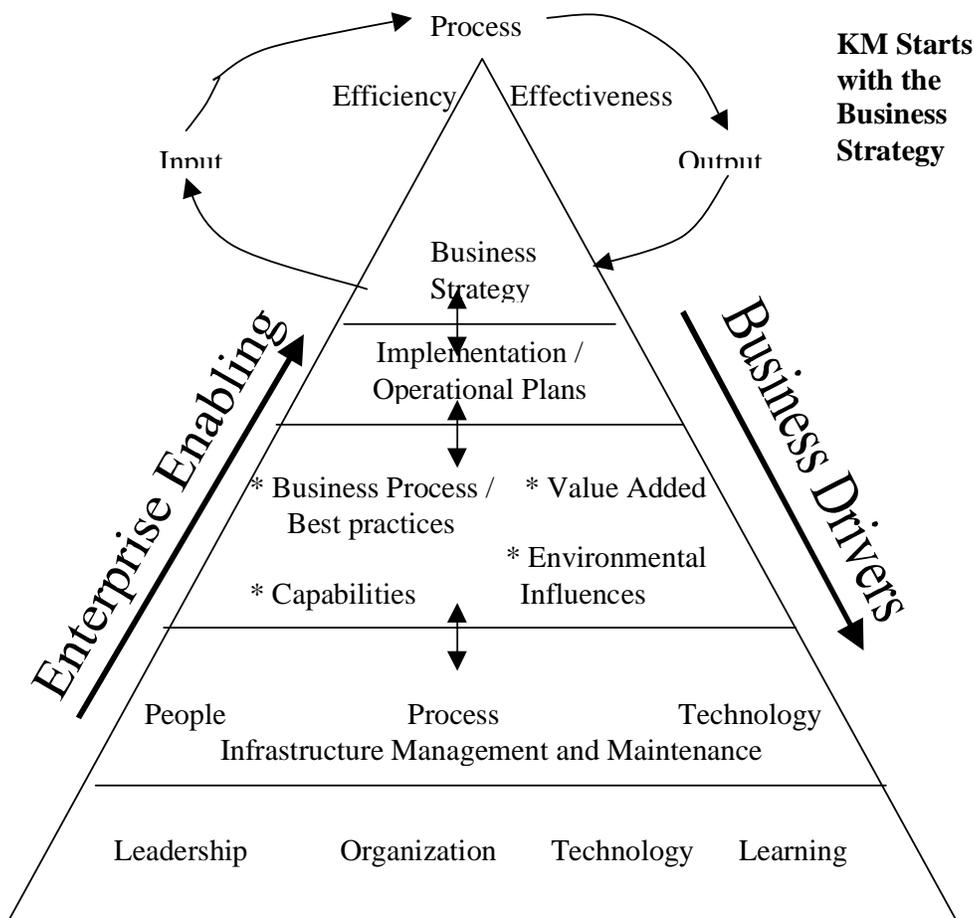


Figure 4: Knowledge Management for the New World of Business

Knowledge management can be best understood in terms of a discipline rather than a 'silver bullet' or a technological solution. KM became popular because 'programmed' and 'automatic' business models are not adequate any more. More problematic is their emphasis on inputs rather than processes and outcomes. As ICT becomes more of a commodity worldwide, processes and people form a more critical part of the KM-enabled business performance equation. This is all the more important as business processes and people are less and less captive to organizational or geographic boundaries. It is time enterprises realized that KM caters to the critical issues of organizational adaptation, survival and competence in the face of increasingly radical discontinuous change. To thrive in this environment, businesses need to rely not only on the data processing capacity of IT but also on creativity and innovation of people – both inside and outside the organisation. The key is to constantly assess and reassess routines embedded in business processes to surface and correct assumptions that may inhibit continuous learning and innovation.

The Need for a Staged Framework for KM

There is widespread recognition among knowledge-intensive organizations of the need to leverage their knowledge assets effectively. This is however tempered by the realization that the path to achieving this involves significant change in terms of process, mindset and culture within the organization. It is unlikely that this change can be achieved in one giant leap, and a staged framework is thus desirable. In defining such a framework, we have borrowed from what is perhaps the most well established model available today for managing change in a staged manner: the SEI's Capability Maturity Model (CMM). To quote SEI, "continuous process improvement is based on many small, evolutionary steps rather than revolutionary innovations". Mirroring this philosophy in the knowledge management (KM) context, we have defined five maturity levels for KM in an organization. The objectives of such a model are two fold:

- 1 To provide a framework which an organization can use to assess its current level of KM maturity
- 1 To act as a mechanism to focus, and help prioritize, efforts to raise the level of KM maturity.

In recognition of its CMM legacy, we have christened the model as the *KMM Model, or the Knowledge Management Maturity Model*.

Preliminary remarks

Before embarking on details of the KMM model, we place a few key assumptions and issues here.

- 1 Each level has a set of prerequisites the organization is required to meet (which also has cost implications).
- 1 A given maturity level implies a certain level of organizational capability (from level 4 onwards, quantitatively) subject to the prerequisites being met.
- 1 Each maturity level clearly maps on to the company's business goals (i.e. , the meaning of each level in business terms is clear).
- 1 We conceive the **knowledge life cycle** as consisting of the following stages, and characterize each maturity level in terms of the efficacy of each of these stages:
 - i) **Knowledge Acquisition / Updation:** This is the stage where the knowledge is first generated / absorbed by any organizational unit (the term organizational unit here denotes an individual, project team, department, task force, or any aggregation of one or more of these).
 - ii) **Knowledge Sharing / Dissemination:** Sharing implies packaging the knowledge / expertise in a form fit for use, and delivering it to the point of use, at the time of use. Sharing may be synchronous – direct person-to-person, or asynchronous – through capture, storage and subsequent delivery.
 - iii) **Knowledge Refuse:** This represents the stage where the knowledge / expertise shared is actually put to use for performing a task.

We also include a fourth dimension - **Virtual Teamwork** – to the characterization, as we consider the ability to support working across geographical distances with people who have perhaps never met each other to be a bellwether of the organization's culture and mechanisms for knowledge-sharing in general.

- 1 We conceive KM as being represented by three prongs - **People, Process and Technology**. Each maturity level can thus be characterized by certain observable capabilities along each of these three prongs, with successive levels

exhibiting higher capabilities. Accordingly, at each level, we define a set of Key Result Areas (KRAs). Each KRA is specific to one of People, Process or Technology, and the KRAs at a given maturity level collectively serve to represent the organization’s observable KM capability at that level. There are 15 KRAs in all. Level 1 does not have any KRAs as it is the default level; level 5 KRAs are not classified as people, process or technology-related.

Table: Level-Organizational Capability Mapping

Level		Organizational Capability
Level 1	Default	Complete dependence on individual skills and abilities.
Level 2	Reactive	Ability to perform tasks constituting the basic business of the organization repeatably.
Level 3	Aware	Restricted ability for data-driven decision-making Restricted ability to leverage internal expertise. Ability to manage virtual teams well.
Level 4	Convinced	Quantitative decision-making for strategic and operational applications widespread. High ability to leverage internal and external sources of expertise. Organization realizes measurable productivity benefits thru knowledge sharing. Ability to sense and respond proactively to changes in technology and business environment
Level 5	Sharing	Ability to manage organizational competence quantitatively; Strong ROI-driven decision making Streamlined process for leveraging new ideas for business advantage; Ability to shape change in technology and business environment.

The KMM Model

We now proceed to elaborate on the 5 levels of the KMM Model. Lists the KRAs by level

Table: Key Result Areas

Level	Key Result Areas		
	People	Process	Technology
Level 1 – Default	-	-	-
Level 2 – Reactive	<i>Knowledge Awareness</i>	<i>Content Capture Management</i>	<i>Basic Information</i>
Level 3 – Aware	<i>Central Knowledge Organization Knowledge Education</i>	<i>Content Structure Management</i>	<i>Knowledge Technology Infrastructure</i>
Level 4 - Convinced	<i>Customized Enabling</i>	<i>Content Enlivenment Knowledge Configuration Management</i>	<i>Knowledge infrastructure Management</i>
Level 5 – Sharing		<i>Expertise Integration Knowledge Leverage Innovation Management</i>	

Key Result Areas

We explain the KRAs for Level 4 and 5 which are the desired levels for any organization which aspires to be a 'Knowledge Leader'.

Level 4 KRAs

Content Enlivenment (Process): There is a high level of synchronization between knowledge entering repositories and its being used, thus ensuring that content grows in areas where the demand for it is greatest.

Customized Enabling (People): Training (all modes) is available at time and point of need.

Knowledge Infrastructure Management (Technology): Quality, currency and utility of knowledge in the systems is high. The physical technology and content architectures for knowledge-sharing are seamless. An integrated working environment exists, that supports virtual teamwork.

Knowledge configuration Management (Process): An organization-wide process has been defined for integrating and managing the knowledge content configuration – logical as well as physical.

Quantitative Knowledge Management (Process): Knowledge sharing is measured quantitatively to reduce variance across the organisation. The benefits of knowledge sharing and reuse at the individual project / function level are quantified, and the business impact of sharing and reuse are clearly recognized.

Level 5 KRAs

Expertise Integration: The organization provides a commitment that content and human expertise will be available as an integral package. This is the highest level of maturity of the sharing process, as true sharing requires a judicious mix of synchronous and asynchronous mechanisms, to achieve significant gains with optimal utilization of experts' time.

Knowledge Leverage: The organization has the ability to measure the contribution of knowledge to competence. The availability of knowledge inputs needed by individuals to perform tasks is guaranteed in quantitative terms. Knowledge ROI becomes integral to decision-making.

Innovation Management: Organization has the ability to assimilate, use and innovate based on ideas both external and internal. Processes exist for leveraging new ideas for business advantage. Knowledge base considerations are explicitly used in taking on a new customer / project.

Box 1

How Infosys' Deploys its KM Strategy?

Infosys' KM vision is to be an organization where every action is fully enabled by the power of knowledge; which truly believes in leveraging for innovation; where every employee is empowered by the knowledge of every other employee; which is a globally respected knowledge leader. The company thus aims to move towards a "Learn Once, Use Anywhere" paradigm.

Infosys Organizational Practices

- 1 The company maintains an organization-wide Body of Knowledge (BoK), which enshrines experiential learning gained by past projects.

- 1 A “Process Assets” system has been developed to capture these assets into an intranet-based repository. As part of project closure a Project Leader fills in a brief description of the project, the target audience and others details while uploading into the system. This helps in classification and focused search.
- 1 Given the knowledge-intensive nature of Infosys business, Infosys has adopted various models for evaluating its intangible assets, and disclosing them in its financial reports. In the Annual Report for fiscal 1998, Infosys has published data on some of its internal and external assets in the form of a score sheet. The methodology used was based on Dr. Karl-Erik Sveiby’s Intangible Assets Monitor framework.
- 1 A Knowledge Directory, providing pointers to expertise available within the organization has been developed and deployed. Called the People – Knowledge Map (PKM), it provides an intranet-based interface via which people can register or locate expertise.
- 1 The company-wide intranet christened Sparsh, acts as a central information portal. The intranet consists of about 5000 nodes spread throughout the various India-based development centers and the US-based marketing offices.
- 1 A web-based virtual classroom has been developed and deployed on the intranet and allows access to various courses whose content has also been developed internally.

The organization is well aware that knowledge is the currency of the information era. Recently acknowledged as the Most Admired Knowledge Enterprise, for Infosys, knowledge management is a way of life.

18.4 SUMMARY

The key ideas that influence the current global business scenario can be summed up simply in one phrase: radical discontinuous change. Ideas such as change management, learning and unlearning, adaptation, agility and flexibility have been popular over past few years. However, in the post-1990s era, the rapidity and radical nature of change has assumed unprecedented proportions that defy the past logic based on pre-determination and pre-definition. This has put a premium on thinking beyond benchmarking and best practices, and developing innovative business models that self-obsolete marginal value propositions and processes before competition does so.

From a business strategic perspective, knowledge management is all about obsolescing what you know before others do, and profiting by creating the challenges and opportunities others haven’t even thought about. In the bigger picture, the focus of knowledge management is on the ever-changing environment in which societies, organizations and individuals live, work, learn, adapt and survive.

18.5 SELF ASSESSMENT QUESTIONS

- 1) What is Knowledge Management? Discuss its importance citing examples.
- 2) Explain how Knowledge Management is carried out.
- 3) Discuss different approaches to Knowledge Management.