

# **BIA UNIT 4**

- **Knowledge Management:**
- **Introduction to Knowledge Management,**
- **Organizational learning and transformation,**
- **Knowledge management initiatives,**
- **Approaches to knowledge management,**
- **Information technology in knowledge management,**
- **Knowledge management system implementation,**
- **Roles of people in knowledge management,**
- **Ensuring success of knowledge management.**

**Textbook 2 : Chapter 9 :9.2,9.3,9.4,9.5,9.6,9.7,9.8,9.9**

# Introduction to Knowledge Management

## Intellectual Assets:

- It is very important to identify organization's knowledge and sharing it throughout the organization
  - **Case study: Siemens AG initiative on ShareNet and other KMS**
    - Objective was to leverage its intellectual assets (also called intellectual capitals), the valuable knowledge of its employees
    - Siemens transformed its culture as KMS was deployed, leading to significantly lower operating costs and more collaboration throughout the global enterprise
- Organizations recognize the value of their intellectual assets
- Many companies utilize their intellectual assets by transforming themselves into organizations that foster the development and sharing of the knowledge
- Successful managers have always used intellectual assets and recognized their values

## Cons of Intellectual Assets:

- Not systematic
- No guarantee that knowledge gained was shared and dispersed appropriately for maximum organizational benefits

# Introduction to Knowledge Management

## Knowledge Management:

- **Knowledge Management** is a process that helps organizations identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner
- The structuring knowledge enables effective and efficient problem solving, dynamic learning, strategic planning, and decision making
- Knowledge management initiatives focus on identifying knowledge, explicating it in such a way that it can be shared in a formal manner, and leveraging its value through re use.

The information technologies that together make knowledge management available throughout an organization are referred to as a knowledge management system (KMS)

# Introduction to Knowledge Management

## Knowledge Management:

- Knowledge Management System refer to made **use of modern information technologies** to systematize, enhance and expedite **intra and inter firm knowledge management**
- KMS are **intended to help an organization cope with turnover , rapid change, and downsizing** by making the expertise of the organization's human capital widely accessible
- They are being **built in part** because of the increasing pressure to **maintain a well informed , productive work force.**
- Moreover, they **are built to help large organizations** provide a **consistent level of customer service**

# Introduction to Knowledge Management

- Through a supportive organizational climate and modern information technology, **an organization can bring its entire organizational memory and knowledge** to bear upon any problem anywhere in the world and at any time.
- For organizational success, **knowledge, as a form of capital, must be exchangeable** among persons, and it must be able to grow.
- Knowledge about **how problems are solved can be captured**, so that knowledge management **can promote organizational learning, leading to further knowledge creation**

# Introduction to Knowledge Management

**Knowledge management is the systematic and active managing of ideas, information, and knowledge residing in an organization's employees.**

- When people leave an organization, they take their knowledge with them.
- **One critical goal of knowledge management is to retain the valuable know-how that can so easily and quickly leave an organization.**

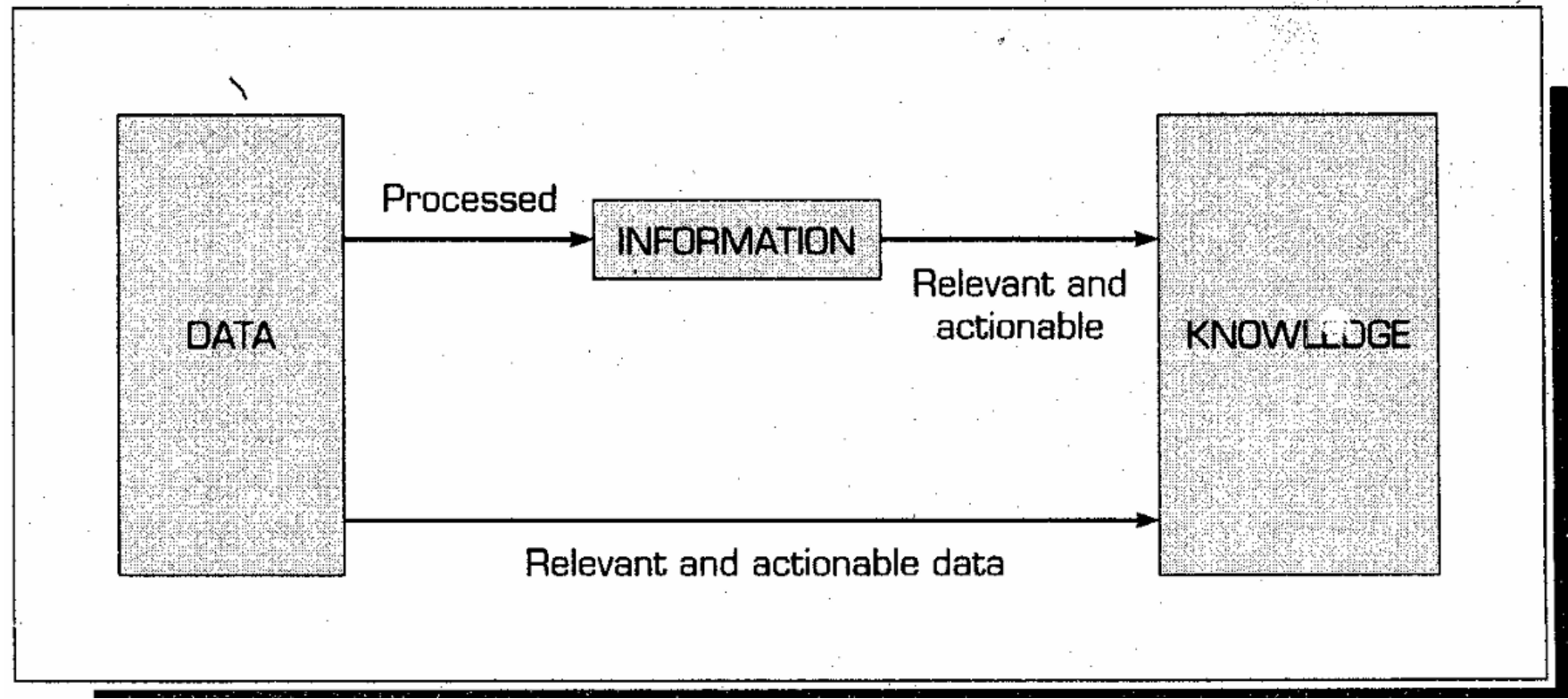
# Introduction to Knowledge Management

## KNOWLEDGE:

**Knowledge is very distinct from data and information in the information technology context**

(see Figure 9.1).

**FIGURE 9.1 DATA, INFORMATION, AND KNOWLEDGE.**



# Introduction to Knowledge Management

## KNOWLEDGE contd...:

- Data are a collection of facts, measurements, and statistics,
- Information is organized or processed data that are timely and accurate
- Knowledge is information that is **contextual, relevant, and actionable**.
  - For example, a map giving detailed driving directions from one location to another could be considered data.
  - An up-to-the-minute traffic bulletin along the freeway that indicates a traffic slowdown due to construction several miles ahead could be considered information.
  - Awareness of an alternative, back-roads route could be considered knowledge. In this case, the map is considered data because it does not contain current relevant information that affects the driving time and conditions from one location to the other.
- The implication is that **knowledge has strong experiential and reflective elements** that distinguish it from information in a given context.
- Having knowledge implies that **it can be exercised to solve a problem**, whereas having information does not carry the same connotation.
- An ability to act is an integral part of being knowledgeable.
  - For example, two people in the same context with the same information may not have the same ability to use the information to the same degree of success. Hence there is a difference in the human capability to add value.
  - The differences in ability may be due to different experiences, different training, different perspectives, and other factors.
- While data, information, and knowledge may all be **viewed as assets of an organization**, knowledge provides a higher level of meaning about data and information.
- Knowledge conveys **meaning, and hence tends to be much more valuable, yet more ephemeral**



# Introduction to Knowledge Management

## Styles:

### Knowledge has the following characteristics (Gray, 1999):

#### 1. Extraordinary leverage and increasing returns:

- Knowledge is not subject to diminishing returns.
- When it is used, it is not consumed.
- Its consumers can add to it, thus increasing its value.

#### 2. Fragmentation, leakage, and the need to refresh:

- As knowledge grows, it branches and fragments.
- Knowledge is dynamic; it is information in action.
- Thus, an organization must continually refresh its knowledge base to maintain it as a source of competitive advantage.

#### 3. Uncertain value:

- It is difficult to estimate the impact of an investment in knowledge.
- There are too many intangible aspects.

#### 4. Uncertain value of sharing:

- Similarly, it is difficult to estimate the value of sharing the knowledge, or even who will benefit most

# Introduction to Knowledge Management

## TACIT AND EXPLICIT KNOWLEDGE

TACIT	EXPLICIT
<ul style="list-style-type: none"><li>• Tacit knowledge is usually in the domain of <b>subjective, cognitive, and experiential learning</b>, it is <b>highly personal and difficult to formalize</b></li><li>• Tacit knowledge is the <b>cumulative store of the experiences, mental maps, insights, acumen, expertise, know-how, trade secrets, skill sets, understanding, and learning</b> that an organization has, as well as the organizational culture that has embedded in it the past and present experiences of the organization's people, processes, and values</li></ul>	<ul style="list-style-type: none"><li>• Explicit knowledge deals with more <b>objective, rational, and technical knowledge</b> (data, policies, procedures, software, documents, etc.)</li><li>• Explicit knowledge comprises <b>the policies, procedural guides, white papers, reports, designs, products, strategies, goals, mission, and core competencies of the enterprise and the information technology infrastructure</b></li><li>• For example, a description of how to process a job application would be documented in a firm's human resources policy manual</li></ul>
<ul style="list-style-type: none"><li>• Tacit knowledge typically involves expertise or high skill levels.</li><li>• Sometimes tacit knowledge is easily documentable but has remained tacit simply because the individual housing the knowledge does not recognize its potential value to other individuals. It is either localized within the brain of an individual or embedded in the group interactions within a department or a branch office</li><li>• Other times, tacit knowledge is unstructured, without tangible form, and therefore difficult to codify.</li></ul>	<ul style="list-style-type: none"><li>• It is the knowledge that has been codified (documented) in a form that can be distributed to others or transformed into a process or strategy without requiring interpersonal interaction</li></ul>
<ul style="list-style-type: none"><li>• Tacit knowledge has been called <b>sticky knowledge</b> because it is relatively difficult to pull it away from its source</li></ul>	<ul style="list-style-type: none"><li>• Explicit knowledge has also been called <b>leaky knowledge</b> because of the ease with which it can leave an individual, document, or the organization, since it can be readily and accurately documented</li></ul>

# ORGANIZATIONAL LEARNING AND TRANSFORMATION

- Knowledge management is **rooted in the concepts of organizational learning and organizational memory**
- When members of an organization collaborate and communicate ideas, teach, and learn, knowledge is transformed and transferred from individual to individual

## THE LEARNING ORGANIZATION:

- **The term learning organization refers to an organization's capability of learning from its past experience**
- Before a company can improve, it must **first learn**.
  - Learning involves an interaction between experience and competence
  - In communities of practice, these are tightly related
  - Communities of practice provide not only a context for newcomers to learn, but also a context for new insights to be transformed into knowledge
- To build a learning organization, three critical issues must be tackled:
  1. **meaning (determining a vision of what the learning organization is to be),**
  2. **management (determining how the firm is to work), and'**
  3. **measurement (assessing the rate and level of learning).**
- A learning organization as one that performs five main activities well:
  1. **Systematic problem-solving,**
  2. **Creative experimentation,**
  3. **Learning from past experience,**
  4. **Learning from the best practices of others, and**
  5. **Transferring knowledge quickly and efficiently throughout the organization**

# ORGANIZATIONAL LEARNING AND TRANSFORMATION

## ORGANIZATIONAL MEMORY

- A learning organization must have an **organizational memory** and a means to save, represent, and share its organizational knowledge
- Estimates vary, but it is generally believed that only 10-20 percent of business data are actually used
- Organizations "remember" the past in their policies and procedures
- Individuals ideally tap into this memory for both explicit and tacit knowledge when faced with issues or problems to be solved
- Human intelligence draws from the organizational memory and adds value by creating new knowledge
- A knowledge management system can capture the new knowledge and make it available in its enhanced form

# **ORGANIZATIONAL LEARNING AND TRANSFORMATION**

## **ORGANIZATIONAL LEARNING**

- Organizational learning is the **development of new knowledge and insights that have the potential to influence an organization's behavior.**
- It occurs when associations, cognitive systems, and memories are shared by members of an organization
- **Learning skills include (Garvin, 2000)**
  1. **Openness to new perspectives**
  2. **Awareness of personal biases**
  3. **Exposure to unfiltered data**
  4. **A sense of humility**
- **Establishing a corporate memory is critical for success**
- **Information technology plays a critical role in emphasis on this area to organizational learning, earning, and foster**
- Since organizations are becoming more virtual in nature ,they must develop methods for laborative technologies can help in effective organizational learning.
- **Organizational learning and memory depend less on technology than on the people issues**

# **KNOWLEDGE MANAGEMENT INITIATIVES**

**Most KM initiatives have one of three aims:**

- 1. To make knowledge visible mainly through maps, yellow pages, and hypertext.**
- 2. To develop a knowledge-intensive culture, or**
- 3. To build a knowledge infrastructure**

These aims are not mutually exclusive, and, indeed, firms may attempt all three as part of a knowledge management initiative.

# KNOWLEDGE MANAGEMENT INITIATIVES

## KNOWLEDGE CREATION

- **Knowledge creation is the generation of new insights, ideas, or routines.**
- Nonaka (1994) describes knowledge creation as an interplay between tacit and explicit knowledge and as a growing spiral as knowledge moves among the individual, group, and organizational levels.
- There are four modes of knowledge creation:
  1. **socialization,**
  2. **externalization,**
  3. **internalization, and**
  4. **combination.**
  - The socialization mode refers to the conversion of tacit knowledge to new tacit knowledge through social interactions and shared experience among organizational members (e.g., mentoring).
  - The combination mode refers to the creation of new explicit knowledge by merging, categorizing, reclassifying, and synthesizing existing explicit knowledge (eg, statistical analyses of market data).
  - The other two modes involve interactions and conversion between tacit and explicit knowledge. Externalization refers to converting tacit knowledge to new explicit knowledge (e.g., producing a written document describing the procedures used in solving a particular client's problem).
  - Internalization refers to the creation of new tacit knowledge from explicit knowledge (e.g., obtaining a novel insight through reading a document)

# KNOWLEDGE MANAGEMENT INITIATIVES

## KNOWLEDGE SHARING

- **Knowledge sharing is the willful explication of one's ideas, insights, solutions, experiences (i.e., knowledge) to another individual either via an intermediary, such as a computer-based system, or directly**
- However, in many organizations, information and knowledge are not considered organizational resources to be shared, but individual competitive weapons to be kept private
- **Organizational members may share personal knowledge with a certain trepidation-the perceived threat that they are of less value if their knowledge is part of the organizational public domain.**
- **Research in organizational learning and knowledge management suggests that some facilitating conditions include trust, interest, and shared language , fostering access to knowledgeable members and a culture marked by autonomy, redundancy, requisite variety, intention, and fluctuation**



## KNOWLEDGE SEEKING

- Knowledge seeking, also referred to as knowledge sourcing is **the search for and use of internal organizational knowledge.**
- While lack of time or lack of reward may hinder the sharing of knowledge, the same can be said of knowledge seeking.
- Individuals may sometimes prefer to not reuse knowledge if they feel that their own performance review is based on the originality or creativity of their ideas.
- Individuals may engage in knowledge creation, sharing, and seeking with or without the use of information technology tools.
  - For example, storytelling is an ancient approach to transmitting and gathering knowledge.

# **APPROACHES TO KNOWLEDGE MANAGEMENT**

- Two fundamental approaches to knowledge management:

**1. the process approach**

**2. the practice approach**

(see Table 9.1).

# APPROACHES TO KNOWLEDGE MANAGEMENT

**TABLE 9.1** Process and Practice Approaches to Knowledge Management.

	<i>Process Approach</i>	<i>Practice Approach</i>
<b>Type of Knowledge Supported</b>	Explicit knowledge—codified in rules, tools, and processes (DeLong and Fahey, 2000)	Mostly tacit knowledge—unarticulated knowledge not easily captured or codified (Leonard and Sensiper, 1998)
<b>Means of Transmission</b>	Formal controls, procedures, and standard operating procedures with heavy emphasis on information technologies to support knowledge creation, codification, and transfer of knowledge (Ruggles, 1998)	Informal social groups that engage in storytelling and improvisation (Wenger and Snyder, 2000)
<b>Benefits</b>	Provides structure to harness generated ideas and knowledge (Brown and Duguid, 2000) Achieves scale in knowledge reuse (Hansen et al., 1999)	Provides an environment to generate and transfer high-value tacit knowledge (Brown and Duguid, 2000; Wenger and Snyder, 2000) Provides spark for fresh ideas and responsiveness to changing environment (Brown and Duguid, 2000)
<b>Disadvantages</b>	Fails to tap into tacit knowledge. May limit innovation and forces participants into fixed patterns of thinking	Can result in inefficiency. Abundance of ideas with no structure to implement them.
<b>Role of Information Technology</b>	Heavy investment in IT to connect people with reusable codified knowledge (Hansen et al., 1999)	Moderate investment in IT to facilitate conversations and transfer of tacit knowledge (Hansen et al., 1999)

## APPROACHES TO KNOWLEDGE MANAGEMENT: Process Approach

- The process approach attempts to codify organizational knowledge through formalized controls, processes, and technologies
- Organizations adopting the process approach **may implement explicit policies governing how knowledge is to be collected, stored, and disseminated** throughout the organization.
- The process approach frequently involves the use of information technologies, such as intranets, data warehousing, knowledge repositories, decision support tools, and groupware, to enhance the quality and speed of knowledge creation and distribution in the organizations.
- The main criticisms of the process approach are that **it fails to capture much of the tacit knowledge embedded in firms and forces individuals into fixed patterns of thinking.**
- This approach is favored by firms that sell relatively standardized products that fill common needs. Most of the valuable knowledge in these firms is fairly explicit because of the standardized nature of the products and services.

# APPROACHES TO KNOWLEDGE MANAGEMENT: Practice Approach

- In contrast, the practice approach to knowledge management assumes that a great deal of organizational knowledge is tacit in nature, and that formal controls, processes, and technologies are not suitable for transmitting this type of understanding.
- **Rather than building formal systems to manage knowledge, the focus of this approach is to build the social environments or communities of practice necessary to facilitate the sharing of tacit understanding**
- These communities are informal social groups that meet regularly to share ideas, insights, and best practices.
- **This approach is typically adopted by companies that provide highly customized solutions to unique problems.**
- For these firms, knowledge is shared mostly through person-to-person contacts. Collaborative computing methods (e.g., GSS or e-mail) help people communicate.
- **The valuable knowledge for these firms is tacit in nature, which is difficult to express, capture, and manage.**
- In this case, the environment and the nature of the problems being encountered are extremely dynamic.
- **Because tacit knowledge is difficult to extract, store, and manage, the explicit knowledge that points to how to find the appropriate tacit knowledge (people contacts, consulting reports) is made available to an appropriate set of individuals who might need it.**
- **Consulting firms generally fall into this category. Firms adopting the codification strategy implicitly adopt the network storage model in their initial knowledge management system**

# APPROACHES TO KNOWLEDGE MANAGEMENT: HYBRID Approach

## HYBRID APPROACHES:

- Many organizations use a hybrid of the process and practice approaches.
- Early in the development process, when it may not be clear how to extract tacit knowledge from its sources, the practice approach is used so that a repository stores only explicit knowledge that is relatively easy to document
- The tacit knowledge initially stored in the repository is contact information about experts and their areas of expertise. Such information is listed so that people in the organization can find sources of expertise (e.g., the process approach).
- From this start, best practices can eventually be captured and managed, so the knowledge repository will contain an increasing amount of tacit knowledge over time.
- Eventually, a true process approach may be attained. But if the environment changes rapidly, only some of the best practices will prove useful.



# APPROACHES TO KNOWLEDGE MANAGEMENT: BEST PRACTICES

## BEST PRACTICES:

- Best practices are the activities and methods that the most effective organizations use to operate and manage various functions.
- Chevron, for example, recognizes **four levels of best practices**
- They include:
  1. **A good idea** that is not yet proven but makes intuitive sense.
  2. **A good practice**, an implemented technique, methodology, a procedure, or process that has improved business results
  3. **A local best practice**, a best approach for all or a large part of the organization based on analyzing hard data. In other words, the scope within the organization of the best practice is identified: Can it be used in a single department or geographical region, or can it be used across the organization, or anywhere in between
  4. **An industry best practice**, similar to the third level but using hard data from industry.

# APPROACHES TO KNOWLEDGE MANAGEMENT:

## THE KNOWLEDGE REPOSITORY

- A knowledge repository is neither a database nor a knowledge base in the strictest sense of the terms
- Rather, a knowledge repository stores knowledge, which is often text-based and has very different characteristics
- Do not confuse a knowledge repository with the knowledge base of an expert system. They are very different mechanisms
- Capturing knowledge is the objective of the knowledge repository.
- The structure of the repository is highly dependent upon the types of knowledge stored
- The repository can range from simply a list of frequently asked (and obscure) questions and solutions, to a listing of individuals with their expertise and contact information, to detailed best practices for a large organization



# APPROACHES TO KNOWLEDGE MANAGEMENT:

## DEVELOPING THE KNOWLEDGE REPOSITORY

- Most knowledge repositories are developed using several different storage mechanisms, depending upon the types and amount of knowledge to be maintained and used.
- Each has its strengths and weaknesses to be utilized for different purposes within a KM system. Developing a knowledge repository is not an easy task.
- The most important aspects and difficult issues are making the contribution of knowledge relatively easy for the contributor and determining a good method for cataloging the knowledge.
- The users should not be involved in running the storage and retrieval mechanisms of the knowledge repository.
- Typical development approaches include developing a large-scale Internet-based system or purchasing a formal electronic document management system or a knowledge management suite.
- The structure and development of the knowledge repository are a function of the specific technology used for the knowledge management system.

## KNOWLEDGE MANAGEMENT SYSTEM CYCLE

- A functioning knowledge management system follows six steps in a cycle (Figure in next slide).
- The reason for the cycle is that knowledge is dynamically refined over time.
- The cycle works as follows:

### 1. **Create knowledge:**

- Knowledge is created as people determine new ways of doing things or develop know-how. Sometimes external knowledge is brought in. Some of these new ways may become best practices.

### 2. **Capture knowledge:**

- New knowledge must be identified as valuable and be represented in a reasonable way.

### 3. **Refine knowledge:**

- New knowledge must be placed in context so that it is actionable. This is where human insights (tacit qualities) must be captured along with explicit facts.

### 4. **Store knowledge:**

- Useful knowledge must then be stored in a reasonable format in a knowledge repository so that others in the organization can access it

### 5. **Manage knowledge:**

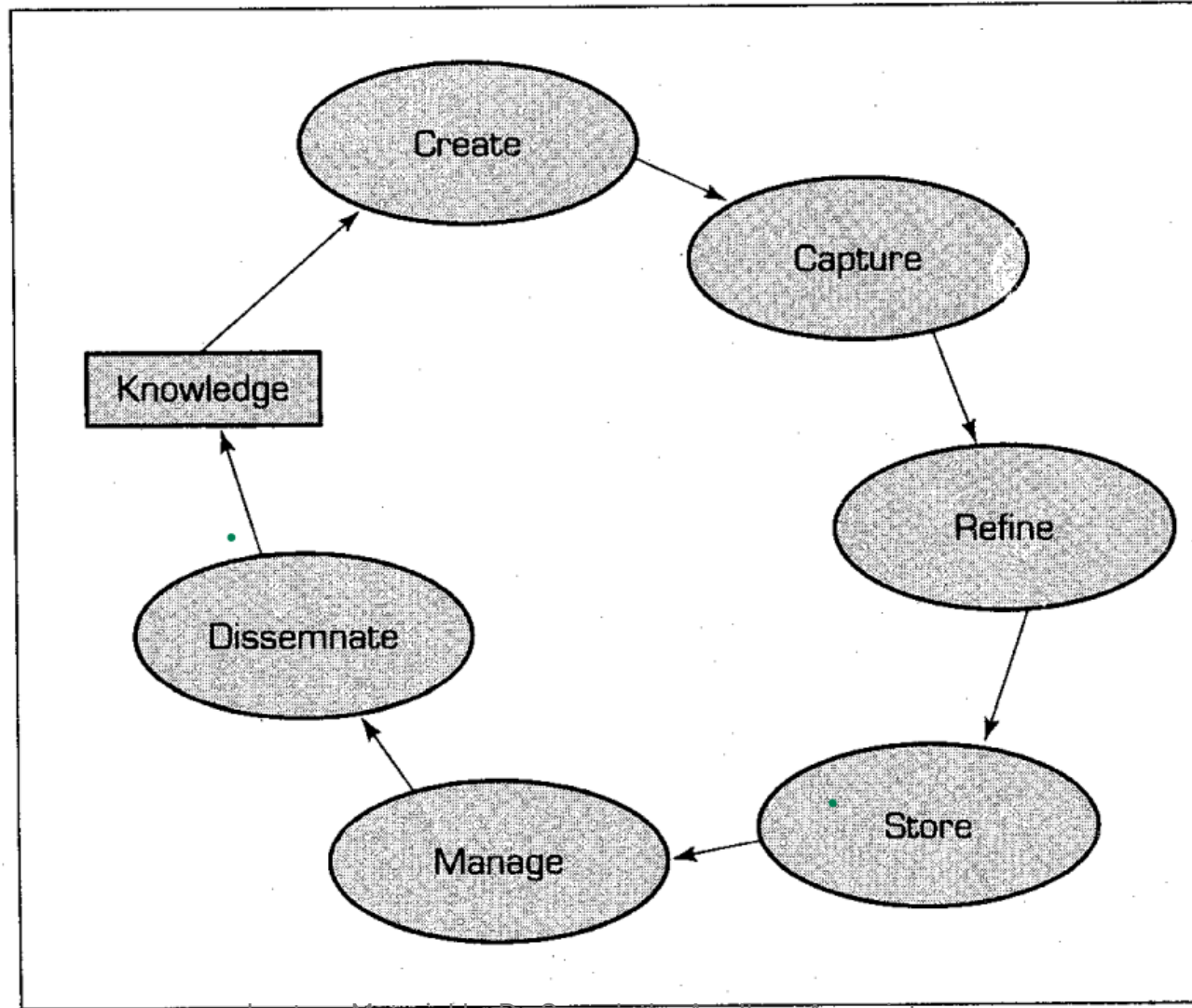
- Like a library, the knowledge must be kept current. It must be reviewed to verify that it is relevant and accurate

### 6. **Disseminate knowledge:**

- Knowledge must be made available in a useful format to anyone in the organization who needs it, anywhere and anytime
- As knowledge is disseminated, individuals develop, create, and identify new knowledge or update old knowledge which they replenish into the system

## KNOWLEDGE MANAGEMENT SYSTEM CYCLE

FIGURE 9.2 THE KNOWLEDGE MANAGEMENT CYCLE



# INFORMATION TECHNOLOGY IN KNOWLEDGE MANAGEMENT

## COMPONENTS OF KNOWLEDGE MANAGEMENT SYSTEMS

- Knowledge management is more a **methodology applied to business practices** than a technology or a product.
- Nevertheless, **information technology is crucial to the success** of every knowledge management system.
- Information technology **enables KM by providing the enterprise architecture** upon which it is built.
- Knowledge management systems are developed using three sets of technologies:
  1. **communication,**
  2. **collaboration, and**
  3. **storage and retrieval**
- Communication technologies **allow users to access needed knowledge, and to communicate with each other**-especially with experts
  - E-mail, the Internet, corporate intranets, and other Web-based tools provide communication capabilities
  - Even fax machines and the telephone are used for communication, especially when the practice approach to knowledge management is adopted

# INFORMATION TECHNOLOGY IN KNOWLEDGE MANAGEMENT

## COMPONENTS OF KNOWLEDGE MANAGEMENT SYSTEMS..contd..

- Collaboration technologies provide the means to **perform group work**.
- Groups can work together on **common documents at the same time (synchronous) or at different times (asynchronous); in the same place, or in different places**.
- This is especially important for members of a community of practice working on knowledge contributions
- **Other collaborative computing capabilities, such as electronic brainstorming, enhance group work, especially for knowledge contribution.**
- Additional forms of group work involve experts working with individuals trying to apply their knowledge. This requires collaboration at a fairly high level.
- **Other collaborative computing systems allow an organization to create a virtual space so that individuals can work online anywhere and at any time.**
- Storage and retrieval technologies originally meant using a database management system to store and manage knowledge.
- This worked reasonably well in the early days for storing and managing most explicit knowledge, and even explicit knowledge about tacit knowledge.
- However, capturing, storing, and managing tacit knowledge usually requires a different set of tools.
- Electronic document-management systems and specialized storage systems that are part of collaborative computing systems fill this void.
- **These storage systems have come to be known as knowledge repositories.**

# INFORMATION TECHNOLOGY IN KNOWLEDGE MANAGEMENT

**TABLE 9.2** Knowledge Management Technologies and Web Impacts

<i>Knowledge Management</i>	<i>Web Impacts</i>	<i>Impacts on the Web</i>
Communication	Consistent, friendly, graphical user interface for client units Improved communication tools Convenient, fast access to knowledge and knowledgeable individuals Direct access to knowledge on servers	Knowledge captured and shared is utilized in improving communication, communication management, and communication technologies
Collaboration	Improved collaboration tools Enables anywhere/anytime collaboration Enables collaboration between companies, customers, and vendors Enables document sharing Improved, fast collaboration and links to knowledge sources Makes audio and video conferencing a reality, especially for individuals not using a LAN	Knowledge captured and shared is utilized in improving collaboration, collaboration management, and collaboration technologies (GSS)
Storage and Retrieval	Consistent, friendly, graphical user interface for clients Servers provide for efficient and effective storage and retrieval of knowledge	Knowledge captured and shared is utilized in improving data storage and retrieval systems, database management/ knowledge repository management, and database and knowledge repository technologies



## **TECHNOLOGIES SUPPORTING KNOWLEDGE MANAGEMENT**

Several technologies have contributed to significant advances in knowledge management tools.

- ☐ **Artificial intelligence,**
- ☐ **intelligent agents,**
- ☐ **knowledge discovery in databases, and**
- ☐ **Extensible Markup Language (XML) are examples of technologies**

➔ enables advanced functionality of modern knowledge management systems and form the base for future innovations in the KM field.

## **ARTIFICIAL INTELLIGENCE**

- In the definition of knowledge management, artificial intelligence is rarely mentioned.
- However, practically speaking, AI methods and tools are embedded in a number of knowledge management systems, either by vendors or by system developers.
- AI methods can assist in identifying expertise, eliciting knowledge automatically and semiautomatically, interfacing through natural language processing, and intelligent search through intelligent agents.

AI methods, notably expert systems, neural net works, fuzzy logic, and intelligent agents, are used in knowledge management systems to do the following:

- **Assist in and enhance searching knowledge (e.g., intelligent agents in Web searches).**
- **Help establish knowledge profiles of individuals and groups.**
- **Help determine the relative importance of knowledge when it is contributed to and accessed from the knowledge repository.**
- **Scan e-mail, documents, and databases to perform knowledge discovery, determine meaningful relationships, glean knowledge, or induce rules for expert systems**
- **Identify patterns in data (usually through neural networks).**
- **Forecast future results using existing knowledge.**



## **ENTERPRISE DECISION SUPPORT SYSTEMS, AND KNOWLEDGE MANAGEMENT**

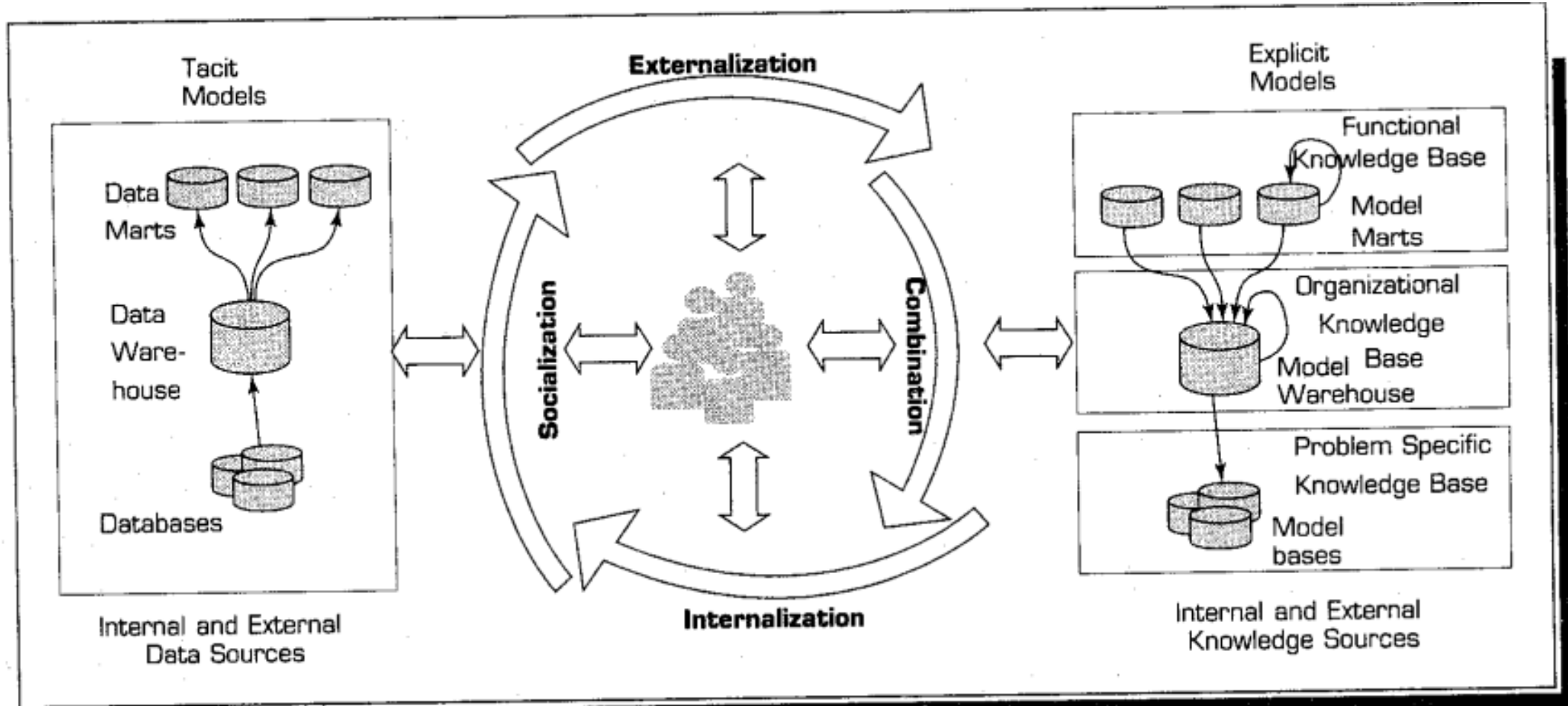
- Provide advice directly from knowledge by using neural networks or expert systems
- Provide a natural language or voice command-driven user interface for a knowledge management system

## **INTELLIGENT AGENTS**

- Intelligent agents are software systems that learn how users work and provide assistance in their daily tasks.
- There are other kinds of intelligent agents as well.
- There are a number of ways that intelligent agents can help in knowledge management systems.
- Typically they are used to elicit and identify knowledge.
- Examples are: IBM (ibm.com) offers an intelligent data mining family, including Intelligent Decision Server (IDS), for finding and analyzing massive amounts of enterprise data.
- Combining intelligent agents with enterprise knowledge portals is a powerful technique that can deliver to users exactly what they need to perform their tasks.
- The intelligent agent learns what the user prefers to see, and how the user organizes it. Then the intelligent agent takes over to provide it at the desktop, just as a good administrative assistant would.

## **KNOWLEDGE DISCOVERY IN DATABASES**

- Knowledge discovery in databases is a process used to search for and extract useful information from volumes of documents and data.
- It includes tasks known as
  - knowledge extraction,
  - data archaeology,
  - data exploration,
  - data pattern processing,
  - data dredging, and
  - information harvesting.
- All of these activities are conducted automatically and allow quick discovery even by nonprogrammers.
- Data and document mining is ideal for eliciting knowledge from databases, documents, e-mail, and so on.
- Data are often buried deep within very large databases, data warehouses, text documents, or knowledge repositories, all of which may contain data, information, and knowledge gathered over many years.
- AI methods are useful data mining tools that include automated knowledge elicitation from other sources.
- Intelligent data mining discovers information within databases, data warehouses, and knowledge repositories that queries and reports cannot effectively reveal.
- Data mining tools find patterns in data and may even (automatically) infer rules from them.
- Patterns and rules can be used to guide decision-making and forecast the effect of these decisions.
- KDD can also be used to identify the meaning of data or text, using KM tools that scan documents and e-mail to build an expertise profile of a firm's employees.
- Data mining can speed up analysis by providing needed knowledge.
- Extending the role of data mining and knowledge discovery techniques for knowledge externalization systems. Their framework, shown in Figure 9.3



**FIGURE 9.3** FRAMEWORK FOR INTEGRATING DECISION-SUPPORT AND KNOWLEDGE MANAGEMENT SYSTEMS.

- Their framework, shown in Figure 9.3, includes model marts and model ware- houses.
- Model marts and model warehouses are analogous for models to data marts and data warehouses.
- They act as repositories of knowledge created by employing knowledge-discovery techniques on past decision instances stored in data marts and data warehouses.
- The model marts and model warehouses capture operational and historical decision models, similar to the data in data marts and data ware- houses.
  - For example, a model mart can store decision rules corresponding to problem- solving knowledge of different decision-makers in a particular domain, such as loan approvals in a banking environment.
  - This integrated framework accommodates different types of knowledge transformations.
- Systems built around this framework are expected to enhance the quality of support provided to decision-makers, support knowledge management functions such as acquisition, creation, exploitation, and accumulation, facilitate discovery of trends and patterns in the accumulated knowledge, and provide means for building up organizational memory.

## **EXTENSIBLE MARKUP LANGUAGE (XML)**

- Extensible Markup Language (XML) enables standardized representations of data structures so that data can be processed appropriately by heterogeneous systems without case-by-case programming.
- This method suits e-commerce applications and supply chain management systems that operate across enterprise boundaries. XML not only can automate processes and reduce paperwork but also can unite business partners and supply chains for better collaboration and knowledge transfer.
- XML-based messages can be taken from back-end repositories and fed out through the portal interface and back again. A portal that uses XML allows the company to communicate better with its customers, linking them in a virtual demand chain where changes in customer requirements are immediately reflected in production plans.
- Wide adoption of XML can pretty much solve the problem of integrating data from disparate sources.
- Due to its potential to tremendously simplify systems integration, XML may become the universal language that all portal vendors embrace.
- Vendors are quickly moving to integrate the advantages offered by XML standards.

# KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION

KMS challenge is to identify and integrate the three essential components

- 1. communication technologies,**
- 2. collaboration technologies, and**
- 3. storage and retrieval technologies**

to meet the knowledge management needs of an organization.

- The earliest knowledge management systems were developed with networked technology.
  - (intranets),
  - collaborative computing tools (groupware), and
  - databases (for the knowledge repository).
- They were constructed from a variety of off-the-shelf IT components
- Many organizations, especially large management consulting firms like Accenture and J.D. Edwards, developed their knowledge architecture with a set of tools that provided the three technology types
- Collaborative computing suites such as Lotus Notes/Domino and Group Systems OnLine provide many KMS capabilities.
- Other systems were developed by integrating a set of tools from a single or multiple vendors.

## 9.7 KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION

### KNOWLEDGE MANAGEMENT PRODUCTS AND VENDORS

- Technology tools that support knowledge management are called **knowware**.
- Most knowledge management software packages include one or more of the following tools:
  - collaborative computing tools,
  - knowledge servers,
  - enterprise knowledge portals,
  - electronic document management systems,
  - knowledge harvesting tools,
  - search engines, and
  - knowledge management suites.
- Many packages provide several tools because they are necessary in an effective knowledge management system.
  - For example, most electronic document management systems also include collaborative computing capabilities.
  - Knowledge management systems can be purchased in whole or in part from one of numerous software development companies and enterprise information systems vendors, they can be acquired through major consulting firms, or can be outsourced to the application service providers (ASPs).
- Information sources and makes structured and unstructured corporate information searchable via a standard browser
- Electronic Document Management (EDM) :
  - Electronic document management systems focus on the document in electronic form as the collaborative focus of work.
  - EDM systems allow users to access needed documents, generally via a Web browser.
- A new approach to electronic document management, Content Management systems (CMS), are changing the way documents and their content are managed.

## **9.7 KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION**

### KNOWLEDGE MANAGEMENT APPLICATION SERVICE PROVIDERS (ASPs)

- Application service providers (ASPs) have evolved as a form of KMS outsourcing on the Web.
- There are many ASPs for e-commerce on the market.
  - For example. Communispace is a high-level ASP collaboration system that focuses on connecting people to people to achieve specific objectives, regard less of geographic, time, and organizational barriers.
- As a hosted ASP solution, it is easy to rapidly deploy within organizations.



# 9.7 KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION

## **INTEGRATION OF KM WITH OTHER BUSINESS INFORMATION SYSTEMS**

- Companies are attempting to realign these technologies and the resultant products with knowledge management.
- The AI technologies most often integrated with knowledge management are intelligent agents, expert systems, neural networks, and fuzzy logic.

## **INTEGRATION WITH DATABASES AND INFORMATION SYSTEMS**

- Since a KMS utilizes a knowledge repository, sometimes constructed out of a database system or an electronic document management system, it can automatically integrate to this part of the firm's information system.
- As data and information updates are made, the KMS can utilize them.
- knowledge management systems also attempt to gain knowledge from documents and databases through artificial intelligence methods, a process known as knowledge discovery in databases (KDD).

## **INTEGRATION WITH CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS**

- Customer relationship management (CRM) systems help users in dealing with customers.
- One aspect is the help-desk notion described earlier.
- But CRM goes much deeper. It can develop usable profiles of customers and predict their needs, so that an organization can increase sales and better serve its clients.
- A KMS can certainly provide tacit knowledge to people who use CRM directly in working with customers

## **INTEGRATION WITH SUPPLY CHAIN MANAGEMENT SYSTEMS**

- The supply chain is often considered to be the logistics end of the business. If products do not move through the organization and go out the door, the firm will fail. So it is important to optimize the supply chain and manage it properly.
- A new set of software called supply chain management (SCM) systems attempts to do so SCM can benefit through integration with KMS because there are many issues and problems in the supply chain that require the company to combine both tacit and explicit knowledge. Accessing such knowledge will directly improve supply chain performance.

## **INTEGRATION WITH CORPORATE INTRANETS AND EXTRANETS**

- Communication and collaboration tools and technologies are necessary for KMS to function.
- KMS is not simply integrated with the technology of intranets and extranets, but is typically developed on them as the communications platform.
- Extranets are specifically designed to enhance the collaboration of a firm with its suppliers and sometimes with customers. If a firm can integrate its KMS into its intranets and extranets, not only will knowledge flow more freely, both from a contributor and to a user (either directly or through a knowledge repository), the firm can also capture knowledge directly with little user involvement, and can deliver it when the system "thinks" that a user needs knowledge.

# ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT

- Managing a knowledge management system requires great effort.
- Like any other information technology, getting it started, implemented, and deployed requires a champion's effort.
- Many issues of management, people, and culture must be considered to make a knowledge management system a success.
- Managing the knowledge repository typically requires a full-time staff (similar to a reference library staff).
  - This staff examines, structures, filters, catalogs, and stores knowledge so that it is meaningful and can be accessed by the people who need it.
  - The staff assists individuals in searching for knowledge, and performs "environmental scanning:" If they identify specific knowledge that an employee or client might need, they send it directly to whoever needs it, thus adding value to the organization
  - Finally, the knowledge repository staff may create communities of practice to gather individuals with common knowledge areas to identify, filter, extract, and contribute knowledge to a knowledge repository.

# ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT

- Most of the issues concerning the success, implementation, and effective use of a knowledge management system are people issues.
- And since a knowledge management system is an enterprise wide effort, many people are involved.
  - They include the chief knowledge officer (CKO), the CEO, the other officers and managers of the organization, members and leaders of communities of practice, KMS developers, and KMS staff.
  - Each person or group has an important role in either the development, management, or use of a KMS.
  - By far, the CKO has the most visible role in a KMS effort, but the system cannot succeed unless the roles of all the players are established and understood.
  - And the team must consist of the right people, possessing the appropriate level of experience, to take on the various roles

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## **THE CHIEF KNOWLEDGE OFFICER**

- Knowledge management projects that involve establishing a knowledge environment conducive to the transfer, creation, or use of knowledge attempt to build cultural receptivity.
- These attempts are centered on changing the behavior of the firm to embrace the use of knowledge management.
- Behavioral-centric projects require a high degree of support and participation from the senior management of the organization to facilitate their implementation.
- Most firms developing knowledge management systems have created a knowledge management officer, a chief knowledge officer (CKO), at the senior level.
- The objectives of the CKO's role are to maximize the firm's knowledge assets, design and implement knowledge management strategies, effectively exchange knowledge assets internally and externally, and promote system use.
- He or she is responsible for developing processes that facilitate knowledge transfer . A chief knowledge officer must do the following :
  - Set knowledge management strategic priorities.
  - Establish a knowledge repository of best practices.
  - Gain a commitment from senior executives to support a learning environment.
  - Teach information seekers how to ask better and smarter questions.
  - Establish a process for managing intellectual assets. Obtain customer satisfaction information in near real-time.
  - Globalize knowledge management.

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## **THE CHIEF KNOWLEDGE OFFICER..contd..**

- The CKO is responsible for creating an infrastructure and cultural environment for knowledge sharing.
- He or she must assign or identify (and encourage/motivate) the knowledge champions within the business units.
- The CKO's job is to manage the content their groups produce , continually add to the knowledge base, and encourage colleagues to do the same.
- Successful CKOs should have the full and enthusiastic support of their managers and of top management.
- Ultimately, the CKO is responsible for the entire knowledge management project while it is under development, and then for management of the system and the knowledge once it is deployed.

A CKO needs a range of skills to make KM initiatives succeed. These attributes are indispensable according to CKOs and consultants :

- Interpersonal communication skills to convince employees to adopt cultural changes Leadership skills to convey the KM vision and passion for it.
- Business acumen to relate KM efforts to efficiency and profitability.
- Strategic thinking skills to relate KM efforts to larger goals
- Collaboration skills to work with various departments and persuade them to work together.
- Ability to institute effective educational programs. :
- Understanding of information technology and its role in advancing KM.

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## **CEO, OFFICERS, AND MANAGERS OF THE ORGANIZATION**

- CEO is responsible for championing the KM effort.
- He or she must ensure that a competent and capable CKO is found and that the CKO can obtain all the resources (including access to people with knowledge sources) needed to make the project a success.
- The CEO must also gain organization-wide support for contributions to and use of the KMS.
- The CEO must also prepare the organization for the cultural changes that are about to occur. Support is the critical responsibility of the CEO. ‘
- The CEO is the primary change agent of the organization.
- The officers the CFO, COO, CIO and others-generally must make available to the CKO the resources needed to get the job done.
- The chief financial officer (CFO) must ensure that the financial resources are available.
- The chief operating officer (COO) must ensure that people begin to embed knowledge management practices into their daily work processes.
- There is a special relationship between the CKO and chief information officer (CIO).
- Usually the CIO is responsible for the IT vision of the organization and for the IT architecture, including databases and other potential knowledge sources.
- The CIO must cooperate with the CKO in making these resources available and it is wise to use existing systems if they are available and capable.
- Managers must also support the KM effort and provide access to sources of knowledge. In many KMS, managers are an integral part of the communities of practice

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## **COMMUNITIES OF PRACTICE**

- The success of many KM systems has been attributed to the active involvement of the people who contribute to and benefit from using the knowledge.
- Consequently, communities of practice have appeared within organizations that are serious about their knowledge management efforts.
- A community of practice (COP) is a group of people in an organization with a common professional interest. Ideally, all the KMS users should each be in at least one COP.
- Creating and nurturing COPs properly is one key to KMS success
- COPs are where the organizational culture shift really happens when developing and deploying KMS. A supportive culture must be developed for a KMS to succeed
- In a sense, a community of practice owns the knowledge that it contributes because it manages the knowledge on its way into the system and must approve modifications to it.
- The community is responsible for the accuracy and timeliness of the knowledge it contributes, and for identifying its potential use.
- A number of researchers have investigated how successful COPs form and function



# ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT

- Table 9.3, illustrates, the many ways that communities of practice add value to the organization through knowledge management efforts.
- Basically, COP make organizations run smoothly. because they enable knowledge flow.
- Informed people make better decisions.
- People who are involved are happier at work.



**TABLE 9.3 How Communities of Practice Add Value to the Organization**

<i>Name of Added Value</i>	<i>Attributes That Create Value</i>
Creation of higher-quality knowledge	<ul style="list-style-type: none"> <li>• Diversity in membership and less emphasis on hierarchical status reduce the likelihood of groupthink</li> <li>• Limited requirements for formal reporting allows people to perform riskier brainstorming</li> <li>• Reflection process occurring at the end of meetings consolidates learning</li> </ul>
Fewer surprises and plan revisions	<ul style="list-style-type: none"> <li>• Broad participation diffuses knowledge across business units</li> <li>• Openness of interaction format results in effective conflict resolution</li> </ul>
Greater capacity in dealing with unstructured problems	<ul style="list-style-type: none"> <li>• Work occurs under a set of superordinate goals; not task goals</li> <li>• The sponsoring organization accepts self-evolving community role</li> <li>• Knowledge leaders can emerge based on issues instead of by assignment to a team or roles within a team</li> </ul>
More effective knowledge sharing among business and corporate staff units	<ul style="list-style-type: none"> <li>• Voluntary participation implies higher motivation leading to faster, deeper learning internalization</li> <li>• Trust increases due to indeterminate life span and long-term relationships</li> </ul>
Improved likelihood of implementing joint goal	<ul style="list-style-type: none"> <li>• The community yields greater external validity because it exists external to the formal organizational structure</li> <li>• The community has more influence than an individual, given the organizational level of the community members</li> </ul>
More effective individual development and learning	<ul style="list-style-type: none"> <li>• Group learning is more effective than learning alone</li> <li>• The community's development process embodies learning opportunities through practice</li> </ul>



# ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT

- Wenger, McDermott, and Snyder (2002a, 2002b) recommend seven design principles for successful communities of practice.
- Each of these facilitate knowledge creation and use.

## DSS IN FOCUS 9.6

### SEVEN PRINCIPLES FOR DESIGNING SUCCESSFUL COMMUNITIES OF PRACTICE



Here are seven ways to encourage vibrant communities of practice in an organization:

- 1. Design for evolution.** Communities of practice are organic, and many organizational factors influence their direction. Plan carefully. One does not so much manage a community as shepherd it.
- 2. Open a dialog between inside and outside.** Good community design requires an understanding of the community's potential to develop and steward knowledge, but it often takes an outside perspective to help members see possibilities. The COP should not close in on itself.
- 3. Invite different levels of participation.** There are typically three main levels of community participation. The first is a small core of people who actively participate in discussions. As the COP matures, this group evolves into the leadership. The next level is the active group. These members attend meetings regularly and participate occasionally in the community forums, but not regularly or as intensely as the core group. A large portion of the COP is peripheral and rarely participates. Do not exclude these people. They often utilize the knowledge generated. The key to good community participation, and a healthy degree of movement between levels, is to design community activities that allow participants at all levels to feel like full members.
- 4. Develop public and private spaces.** The heart of a community is the web of relationships among community members, and private space is necessary to get the relationships to grow.
- 5. Focus on Value.** Since participation is generally voluntary, the COP must provide value. Communities must create events, activities, and relationships that help their potential value emerge and enable them to discover new ways to harvest it rather than determine expected value in advance.
- 6. Combine familiarity and excitement.** Vibrant communities supply divergent thinking and activity. Routine activities provide stability for relationship building.
- 7. Create a rhythm for the community.** There is a tempo associated with the members' interactions. This rhythm is the strongest indicator of its aliveness and potential. The COP should contain a balance between large and small group sessions, and between idea-sharing forums and tool-building projects. The rhythm will evolve with the community, but it is important to find the right one at each stage.

Source: Adapted from Wenger, McDermott, and Snyder, 2002a, 2002b.

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## **KMS STAFF**

- Enterprise wide KM systems require a full-time staff to catalog and manage the knowledge.
- This staff is either located at the firm's headquarters or dispersed in knowledge centers throughout the organization.
- Most large consulting firms have more than one knowledge center.
- Earlier we described the function of the staff as similar to that of reference librarians.
- They actually do much more.
- Some members are functional area experts who are now cataloging and approving knowledge contributions, and pushing the knowledge out to clients and employees who they believe can use the knowledge.
- These functional experts may also work in a liaison role with the functional areas of the communities of practice.
- Others work with users to train them on the system or help them with their community captured the sense of responsible, independent action that characterized the group, which continued to function within the standard boundaries of the large organization.
- Management sponsored the community, but did not mandate it. Community members were volunteers.

# **ROLES OF PEOPLE IN KNOWLEDGE MANAGEMENT**

## KMS DEVELOPERS

- These are the team members who actually develop the system.
- They work for the CKO.
- Some are organizational experts who develop strategies to promote and manage the organizational culture shift
- Others are involved in system software and hardware selection, programming, testing, developing and managing the system

### SEVEN PRINCIPLES FOR DESIGNING SUCCESSFUL COMMUNITIES OF PRACTICE



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Source: Adapted from Wenger, McDermott, and Snyder, 2002a, 2002b.

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## **9.9 ENSURING SUCCESS OF KNOWLEDGE MANAGEMENT**

- Organizations can gain **several benefits** from implementing a knowledge management strategy.
- Tactically, they can accomplish some or all of the following:
  - Reduce loss of **intellectual capital** due to people leaving the company;
  - Reduce costs by **decreasing the number of times the company must repeatedly solve the same problem**, and by achieving economies of scale in obtaining information from external providers;
  - **Reduce redundancy of knowledge-based** activities;
  - **Increase productivity by making knowledge available** more **quickly and easily**;
  - **Increase employee satisfaction** by enabling greater **personal development and empowerment**.
- The best reason of all may be a strategic need to **gain a competitive advantage in the marketplace**
- There are **many factors necessary** for knowledge management to succeed.
  - For example, **how a knowledge infrastructure consisting of technology, structure, and culture along with a knowledge process architecture of acquisition, conversion, application, and protection are essential "preconditions" for effective knowledge management.**
- The situation in an organization must be **"right"** in order for a knowledge management effort to succeed.

## KNOWLEDGE MANAGEMENT VALUATION

- In general, companies take either an asset-based approach to knowledge management valuation or one that links knowledge to its applications and business benefits
  - The former approach starts by identifying intellectual assets and then focuses management's attention on increasing their value.
  - The second uses variants of a balanced scorecard, where financial measures are balanced against customer, process, and innovation measures.
- Among the best-developed measurement methods in use are the
  - ***balanced scorecard approach***,
  - Skandia's ***Navigator***,
  - Stern Stewart's ***economic value added (EVA)***,
  - M'Pherson's ***inclusive valuation methodology***,
  - the ***return on management ratio***, and
  - Levin's ***knowledge-capital measure***.
- Another method of measuring the value of knowledge is
  - ***to estimate its price if it were offered for sale.***

Most firms are reluctant to sell knowledge unless they are expressly in the business of doing so.

## **KNOWLEDGE MANAGEMENT VALUATION contd..**

- Success indicators wrt KM are similar to those for accessing the effectiveness of other business-change objects.
  - They include
    - growth in the resources attached to the project,
    - growth in the volume of knowledge content and usage,
    - the likelihood that the project will survive without the support of particular individual or individuals or some evidence of financial returns



## FINANCIAL METRICS

- Even though traditional accounting measures are incomplete for measuring KM, they are often used as a quick justification for a knowledge management initiative,
- **Returns On investment (ROI) are reported to range from 20:1 for chemical firms to 4: 1 for transportation firms, with an average of 12:1, based on the knowledge management projects assisted on by one consulting firm.**
- **In order to measure the impact of knowledge management, experts recommend focusing KM projects on specific business problems that can be easily qualified .**
- **When the problems are solved, the value and benefits of the system become apparent**
  - The financial benefit might be perceptual, rather than absolute, but it needs to be documented in order for the KM system to be considered a success

## NON-FINANCIAL METRICS

- **Traditional methods of financial measurement may fall short when measuring the value of a KMS, because they do not consider intellectual capital as an asset.**
  - Therefore, **it is necessary to develop procedures for valuing the intangible assets** of an organization, as well as to incorporate models of intellectual capital that in some way quantify innovation and the development and implementation of core competencies
- **When evaluating intangibles, there are a number of new ways to view capital.**
- **In the past, only customer goodwill was valued as an asset.**
- Now the following are included :
  - **External relationship capital:** how an organization links with its partners, suppliers, customers, and regulators
  - **Structural capital:** systems and work processes that leverage competitiveness such as information systems
  - **Human capital:** the individual capabilities, knowledge, skills and so on, that the people have
  - **Social capital:** the quality and value of relationships with the larger society
  - **Environmental capital:** the value of relationships with the environment

## **CAUSES OF KM FAILURE**

- No system is infallible. There are many cases of knowledge management failing
- Estimates of KM failure rates range from 50 percent to 70 percent, where a failure interpreted to mean that all of the major objectives were not met by the effort
- Failures typically happen
  - **when the knowledge management effort mainly relies on technology and does not address whether the proposed system will meet the needs and objectives of the organization and its individuals**
  - **lack of commitment and not providing reasonable incentive for people to use the system**

## **FACTORS LEADING TO KM SUCCESS**

- To increase the probability of success of knowledge management projects, companies must assess
  - **whether there is a strategic need for knowledge management in the first place.**
  - **The next step is to determine whether the current process of dealing with organizational knowledge is adequate and whether the organization's culture is ready for procedural changes.**
  - **Only when these issues are resolved should the company consider technology infrastructure and decide whether a new system is needed**
- **When the right technological solution is chosen, it becomes necessary to properly introduce it to the entire organization and gain the participation of every employee**
- **One should not rely too heavily on technology to succeed**
  - Typically a management effort is only about 10 to 20 percent technology. The rest of the effort is organizational

- **The KM project success includes the factors such as:**
  - **A link to a firm's economic value**, to demonstrate financial viability and maintain executive sponsorship
  - **A technical and organizational infrastructure** which is to build
  - **A standard, flexible knowledge structure** in match the way the organization performs work and uses knowledge.
  - Usually, **the organizational culture must change** to effectively create knowledge-sharing environment. **A knowledge-friendly culture leading directly in use**
  - A **clear purpose and language**, to encourage users to buy the system
  - Sometimes **simple, useful knowledge applications** need to be implemented first
  - A **change in motivational practices, to create a culture of sharing.**
  - **Multiple channels for knowledge transfer**-because individuals have different ways of working and expressing themselves. The multiple channels should reinforce one another. Knowledge transfer should be easily accomplished and as unobtrusive as possible.
  - **A level of process orientation** to make a knowledge management effort worthwhile. In other words, new, improved work methods can be developed.
  - **Nontrivial motivational methods**, such as rewards and recognition, to encourage users to contribute and use knowledge.
  - **Senior management support**. This is critical to initiate the project, provide resources, help identify important knowledge on which the success of the organization relies, and market the project



A recent study of the knowledge management practices of six firms identified several knowledge “traps” into which even the best firms fell. These can help show the way to avoid failure in KM efforts. The lessons include:

1. Formal databases must be treated as strategic tools rather than mere storage facilities. Sometimes database systems are perceived as too complicated to utilize, and so they are underutilized. Strategic information is overlooked because it is too hard to get to. The organization must make it possible to get to the information, and to really capture and codify knowledge.
2. Managing formal database systems per se does not equate to knowledge management. Databases are important for capturing information, but a strong, informal network is necessary for good access. Also, databases are only one component of a knowledge management system. When textual data are stored, we really consider this a knowledge repository, not a database.
3. Informal networking is an important source of knowledge, but over-reliance on it can be detrimental. Even though informal channels often contain critical information, there is an inherent risk that informal interactions may be too dependent on chance. Lack of structure can lead to knowledge loss.
4. To ensure that informal networking is less susceptible to randomness, it should be made more structured. See above. Structure helps
5. Senior management may not know the true state of their firm’s knowledge systems. There is a distinct difference between the perceptions of senior managers and junior managers in their view of the effectiveness of their knowledge management systems. This is mainly because the senior managers do not actively use the system, while junior managers do. The attitudes of senior managers may not be the best measure of the success of a KMS.
6. You can’t teach an old dog new tricks. Basically, older managers do not absorb new training well.
7. Unless carefully managed, knowledge is a dark power. It is difficult to determine how to generate knowledge that is truly useful for an organization. Organizational factors may hinder the capture and free distribution of knowledge. Trust is critical.
8. Creativity in problem-solving is the main driver of new knowledge creation and innovation. But creativity must be supported by appropriate mechanisms. Resources must be provided to help employees be creative. Often lack of time hinders individuals. They may be expected to contribute and use knowledge in a KMS, while not diminishing any other aspect of their jobs.

*Source:* Adapted from C. Soo et al., “Knowledge Management: Philosophy, Processes, and Pitfalls, *California Management Review*, Vol. 44, No. 4, Summer 2002, pp. 129–150.

## **POTENTIAL DRAWBACKS TO KNOWLEDGE MANAGEMENT SYSTEMS**

- **While managing knowledge has many positive outcomes, it would be short sighted to not consider the potential negative outcomes associated with reusing knowledge.**

### **Example:**

- Henfridsson and Söderholm analyze the situation that faced Mrs. Fields cookies. Mrs. Fields grew remarkably fast and successfully during the early 1980s.
- A key aspect of the company's strategy was to provide expertise directly from the headquarters to every store. As the number of stores increased, the only feasible way to achieve direct control was through the use of information systems, designed to mimic the decision-making of the real Debbi fields.
- Systems placed in each store would input data (e.g., temperature, day of the week, date): the system would process them and output instructions telling the store manager, say, how many cookies of each type to bake each hour, in essence, the software provided each store manager with explicit direction for planning each day's production, sales, and labor scheduling, along with inventory control and ordering, because of the well-functioning computer systems, which in principle were systems designed to make the company's tacit knowledge available to all stores, Mrs. Field was able to successfully function with few managerial levels. However, Mrs Field was very slow to respond as the market began to change and consumers became more health conscious
- By embedding so much knowledge into system incapable of the adaptation, the organization tied itself to a certain way of doing things and **failed to engage in knowledge creation**
- **By the early 1990s, the company had fallen into bankruptcy.**
- Mrs. Fields's situation illustrates that while organizations may machine significant short-term gains through knowledge management systems, **they must not neglect the creative process of new knowledge creation, less they find themselves applying yesterday's solutions to tomorrow's problem**