Knowledge Management

By knowledge shall the chambers be filled with all precious and pleasant riches. A wise man is strong; yea, a man of knowledge increaseth strength.

*The Holy Bible* (Proverbs 24:4, 5)

**Introduction**

“For the Lord giveth wisdom; out of his mouth cometh knowledge and understanding”.¹ This statement was made by the great King Solomon, named as the man of knowledge. He was called the wisest man upon the Earth. From his statement it can be perceived that Knowledge originates from God. In other words God is the origin or source of Knowledge. God created man and blessed him with knowledge of good and evil. So every man has knowledge but it depends on individual how one can utilize it, for one’s benefit.

In today’s world of dynamic environment and cut-throat competition, one should be not only knowledgeable but also know how to manage his knowledge to survive and succeed. In the same way organizations should posses’ knowledge workers and manage their knowledge successfully to have competitive advantage over the other organizations and to stand as a market leader.

In this world of new paradigm for increasingly uncertain and complex business environments, dynamically evolving performance outcomes are the key drivers of how 'smart minds' use 'smart technologies' to leverage strategic opportunities and challenges. So Knowledge Management must be an enabler to achieve strategic business objectives.

At various stages of civilization over the past five thousand years, successions of factors have formed bottlenecks on the efficiency of human
beings, threatening to repress the growth of civilization. Up to the end of 1800s, limits on amount of available are land caused problems as populations were growing and there were more mouths to feed. Then as large-scale manufacturing came into existence, urban labors became the most valuable asset. Following technological breakthroughs, machinery came into picture of production and it began to improve the automation and industry had no longer to depend on labors to that extent. But due to investment in machinery, capital became all-important. Controlling flow of capital was foremost problem for the industrialists at that time and suddenly capital became the bottleneck to efficiency.²

While traditional three factors of production – Land, Labor and Capital – have become easier to handle, in 21st century, a fourth factor is increasingly and fast becoming a hurdle or bottleneck for companies to grow. This is "Knowledge", which is at the heart of much of today’s global economy and managing knowledge has become vital for companies success.

Knowledge is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject, (ii) what is known in a particular field or in total; facts and information or (iii) awareness or familiarity gained by experience of a fact or situation. Philosophical debates in general start with Plato's formulation of knowledge as "justified true belief". There is however no single agreed definition of knowledge presently, or any prospect of one, and there remain numerous competing theories.³

The term knowledge is also used to mean the confident understanding of a subject with the ability to use it for a specific purpose if appropriate.

Knowledge can be defined as a fluid mix of experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information.⁴
Knowledge is information in action. Knowledge is what people in an organization know about their customers, products, processes, mistakes, and successes. Unlike the conventional material assets, which decrease as they are used, Knowledge asset increases with use; ideas breed new ideas, and shared knowledge stays with the giver while it enriches the receiver.

Knowledge

- The state or fact of knowing.
- Familiarity, awareness, or understanding gained through experience or study.
- The sum or range of what has been perceived, discovered, or learned.
- Learning; erudition: teachers of great knowledge.
- Specific information about something.

Synonyms: These nouns refer to what is known, as through study or experience. Knowledge is the broadest: "Science is organized knowledge" (Herbert Spencer).

Information often implies a collection of facts and data: "A man's judgment cannot be better than the information on which he has based it" (Arthur Hays Sulzberger).

Learning usually refers to knowledge gained by schooling and study: "Learning ... must be sought for with ardor and attended to with diligence" (Abigail Adams).

Erudition implies profound, often specialized knowledge: "Some have criticized his poetry as elitist, unnecessarily impervious to readers who do not share his erudition" (Elizabeth Kastor).
Lore is usually applied to knowledge gained through tradition or anecdote about a particular subject: Many American folktales concern the lore of frontier life.

Scholarship is the mastery of a particular area of learning reflected in a scholar's work: A good journal article shows ample evidence of the author's scholarship.

**Knowledge (Word Origin & History)**

a: awareness or understanding esp. of an act, a fact, or the truth: actual knowledge

b: awareness that a fact or circumstance probably exists; broadly: constructive knowledge.

**Note:** Knowledge fundamentally differs from intent in being grounded in awareness rather than purpose.

**Actual knowledge**

1: Direct and clear awareness (as of a fact or condition) actual knowledge that the name and account number referred to different persons.

2. Awareness of such information as would cause a reasonable person to inquire further; specifically: such awareness considered as a timely and sufficient substitute for actual notice (as of a work-related injury or of a bankruptcy proceeding) actual knowledge within 90 days.

**Constructive knowledge**

Knowledge (as of a condition or fact) that one using ordinary care or diligence would possess constructive knowledge of the presence of narcotics on his property.
**Personal knowledge**

It is the direct knowledge of a matter or of the truth or falsity of an allegation. *(personal knowledge of the matter —Federal Rules of Evidence Rule 602.)*

**Superior knowledge**

Knowledge greater than that possessed by another; *especially:*

1) Awareness of a condition or fact that affects another who was not aware of it superior knowledge of the hazard *superior knowledge* of a factor in the performance of a contract

2) The range of one's information, understanding, or expertise *knowledge*.

**Informative Knowledge**

Databases can store records of facts, figures, data, rules, patterns and connections. At present, they have limited power to create anything new or to innovate.

**Knowledge is power**

It enables a person to innovate. Possession of knowledge enables people to create new knowledge. This is what distinguishes knowledge from information. Karl Wigg, a consultant and practitioner of Knowledge Management in the USA, sums it up succinctly by saying 'Information describes circumstances, situations and problems whereas knowledge enables people to handle problems and to solve them'.

An individual possesses his or her knowledge: it is loaned to the company or group only if the individual wishes to make it available. An individual can
share knowledge and can co-operate with others to use knowledge only if that person is motivated to do so.

It is generally accepted by commentators that there are two types of knowledge: -

(i) **Explicit (Articulated) Knowledge**

Knowledge that can be formally articulated or encoded; can be more easily transferred or shared; is abstract and removed from direct experience. The articulation may be through

- speech
- writing
- drawings
- patents
- computer programs or mathematical relationships

Explicit knowledge is knowledge codified and digitized in books, documents, reports, white papers, spread sheets, memos, training courses and the like. Explicit knowledge can be retrieved and transmitted more easily than tacit knowledge. Because it is knowledge learned directly from experience.

(ii) **Tacit Knowledge**

Knowledge in practice; developed from direct experience and action; highly pragmatic and situation specific; subconsciously understood and applied; difficult to articulate usually shared through highly interactive conversation and shared experience. This cannot be verbalized. It cannot be articulated. It dwells within peoples' minds and governs their interactions with and responses to other people in a particular context.

Tacit knowledge is knowledge embedded in human mind through experience and jobs. Coined by Hungarian Medical Scientist Michael Polanyi
(1891-1976), it includes intuitions, values and beliefs that stem from years of experience.5

**MANAGEMENT**

Management is simply the act of getting people together to accomplish desired goals and objectives. Management comprises planning, organizing, staffing, leading or directing, and controlling an organization (a group of one or more people or entities) or effort for the purpose of accomplishing a goal. Resourcing encompasses the deployment and manipulation of human resources, financial resources, technological resources, and natural resources.6

Management of an organization in modern economies is not only complex and sophisticated but it is also vital influencing the economic growth of a country. It’s efficiency determines the property and well-being of the people of the nation. “Perhaps today there is no other latest activity which is as important and dynamic as management – the oldest of arts and newest of profession”. One of the fundamental areas of Management is the management of Human Resources. Thus, “in the management of four Ms – Money, Materials, Machines and Men – it is needless to belabour the obvious point that, considering the nature of man, the management of men…” is not only fundamental but also dynamic and challenging.

Mary Parker Follett (1868–1933), who wrote on the topic in the early twentieth century, defined management as "the art of getting things done through people". She also described management as philosophy. One can also think of management functionally, as the action of measuring a quantity on a regular basis and of adjusting some initial plan; or as the actions taken to reach one's intended goal. This applies even in situations where planning does not take place. From this perspective, Frenchman Henri Fayol considers management to consist of seven functions:
**Planning:** Deciding what needs to happen in the future (today, next week, next month, next year, over the next 5 years, etc.) and generating plans for action.

**Organizing:** (Implementation) making optimum use of the resources required to enable the successful carrying out of plans.

**Leading:** Determining what needs to be done in a situation and getting people to do it.

**Co-ordinating:** Making different people or things work together for a goal or effect.

**Controlling:** Monitoring, checking progress against plans, which may need modification based on feedback.

**Staffing:** Job analyzing, recruitment, and hiring individuals for appropriate jobs.

**Motivating:** The process of stimulating an individual to take action that will accomplish a desired goal.

**KNOWLEDGE MANAGEMENT**

Knowledge Management is a new branch of management for achieving breakthrough business performance through the synergy of people, processes, and technology. Its focus is on the management of change, uncertainty, and complexity. It evolved from the need for advancing beyond the failing paradigm of Information Technology Management that accounts for 70%-80% system failures. As 'IT' becomes more of a commodity and endowed with more complex 'potential' capabilities, there is need for re-focusing on strategic execution. As we transition from an era of information scarcity to information glut, there is need
for re-focusing on human sense-making processes underlying decisions, choices, and performance. In this new paradigm for increasingly uncertain and complex business environments, dynamically evolving performance outcomes are the key drivers of how 'smart minds' use 'smart technologies' to leverage strategic opportunities and challenges.\(^7\)

Knowledge Management is the process by which a company both values its knowledge resource and seeks to manage it effectively within the main stream of company activities.

Knowledge Management is the pulling together of knowledge from several sources and in several formats into a shared focus and language for a particular set of objectives and activities.

Knowledge Management is primarily focused on knowledge possessed by people. Most commentators on knowledge management also include systems that store and process information, such as databases, knowledge bases and distributed information systems.

Knowledge should be thought of as a strategic asset which is an essential organizational component. The strategic nature of knowledge means that it must be part of the decision making process during the management of change. To fail to account for knowledge during managed change can lead to serious problems. Unless one is managing knowledge, one is very probably not managing change. Therefore, we view knowledge management at a strategic level - a level which does not require precise detail but which can provide decision support during the management of change.

The creation and subsequent management of an environment which encourages Knowledge to be created, shared, learnt, enhanced, organized and
utilized in and out of the organization. "The focus of Knowledge Management is on 'doing the right thing' instead of 'doing things right'. It provides a framework within which the organization views all its processes as knowledge processes and all business processes involve creation, dissemination and application of knowledge towards organizational sustenance and survival."

Clearly the goal of knowledge management is sustained individual and business performance through ongoing learning, unlearning, and adaptation. Lessons learned from the world's greatest organizations show that even simple technologies can generate great performance when empowered by smart minds of motivated and committed humans. Conversely, 'intelligent' technologies may produce dumb results if those smarts are missing as evident from the cases of companies once considered great in the past era. Importantly, unless data and information are translated into 'meaningful' decisions and actions for sustained performance, there is no point of the whole exercise... whether you call it "knowledge management, wisdom management, creativity management, or something else!".

In practice, knowledge management often encompasses identifying and mapping intellectual assets within the organization, generating new knowledge for competitive advantage within the organization, making vast amounts of corporate information accessible, sharing of best practices, and technology that enables all of the above — including groupware and intranets.

Knowledge management is all about getting the right knowledge, in right place at right time.
THE SEVEN LAYERS OF A KNOWLEDGE MANAGEMENT:

According to World Bank group the seven layers of KM are:

**EXHIBIT 1.1**

| Layer 1 | Training and Development  
|         | Building and skill based |
| Layer 2 | Information sharing       
|         | Knowing the best practices within firm |
| Layer 3 | Using information         
|         | Extracting contextual knowledge |
| Layer 4 | Leveraging sources of competence  
|         | Ease of access, visibility and dialogue |
| Layer 5 | Mobilizing action teams    
|         | Creating new initiatives   |
| Layer 6 | Facilitating discovery     
|         | Incorporating diverse insights |
| Layer 7 | Co-creating value          
|         | Creating new practices     |

Source: Knowledge management by Dr. Rathan Reddy, p 2.27

**DEFINITIONS OF KM:**

- “**KM is the process through which organizations generate value from their intellectual and knowledge-based assets. Most often, generating value from such assets involves sharing them among employees, departments and even with other companies in an effort to devise best practices.”**

- “**KM is a framework within which the organisation views all its processes as knowledge processes. This involves Creation, Dissemination, Renewal and Application of knowledge towards organisational sustenance and survival”**.
• “KM caters to the critical issues of organisational adoption, survival, and competence in face of increasingly discontinuous environmental change. Essentially, it embodies organisational processes that seek synergistic combination of data and information – processing capacity of information technologies, and the creative and innovative capacity of human beings”.
  - Yogesh Malhotra

Peter F Drucker invented the term “Knowledge Worker”. He says...

• “The biggest shift, bigger by far then the changes in politics, government, or economics, are the shift to the knowledge society in all developed countries.”

• “Knowledge has become the capital of a developed economy, and knowledge workers the group that sets society’s values and norms”

• Knowledge Management is a systematic leveraging of information and expertise to improve organizational innovations, responsiveness, productivity and competence. By Sarvary & Ruggles (Scholars)

• Working definition of Knowledge Management is also popular among corporate strategists and military, airforce, and navy commanders. KM is: 'Knowing what you know and profit from it' and 'Making obsolete what you know before others obsolete it.'

• "Knowledge management is a relatively new and developing area which has introduced a methodology for the planned capture and re-use of organizational knowledge. ... Our analyses have concentrated on how techniques can enable a more efficient access, sharing and usage of accumulated knowledge as a means of enabling different functions within the organization to perform their tasks more effectively.”
  - Colquhoun-John Ferguson & Scott Goldie
Knowledge Management is the explicit and systematic management of vital knowledge - and its associated processes of creation, organization, diffusion, use and exploitation.

- David Skyrme

Knowledge Management is a business practice with two primary aspects:

• Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy and practice at all levels of the organization.

• Making a direct connection between an organization’s intellectual assets - both explicit [recorded] and tacit [personal know-how] and positive business results.

- Rebecca O. Barclay and Philip C. Murray

Evolution of Knowledge Management:

An overarching theory of knowledge management has yet to emerge, perhaps because the practices associated with managing knowledge have their roots in a variety of disciplines and domains. A number of management theorists have contributed to the evolution of knowledge management, among them such notables as Peter F Drucker, Paul Strassmann, and Peter Senge in the United States. Drucker and Strassmann have stressed the growing importance of information and explicit knowledge as organizational resources, and Senge has focused on the "learning organization," a cultural dimension of managing knowledge. Chris Argyris, Christopher Bartlett, and Dorothy Leonard-Barton of Harvard Business School have examined various facets of managing knowledge. In fact, Leonard-Barton’s well-known case study of Chaparral Steel, a company which has had an effective knowledge management strategy in place since the mid-1970s, inspired the research documented in her Wellsprings of Knowledge

Everett Rogers’ work at Stanford in the diffusion of innovation and Thomas Allen’s research at MIT in information and technology transfer, both of which date from the late 1970s, have also contributed to our understanding of how knowledge is produced, used, and diffused within organizations. By the mid-1980s, the importance of knowledge (and its expression in professional competence) as a competitive asset was apparent, even though classical economic theory ignores (the value of) knowledge as an asset and most organizations still lack strategies and methods for managing it.

Recognition of the growing importance of organizational knowledge was accompanied by concern over how to deal with exponential increases in the amount of available knowledge and increasingly complex products and processes. The computer technology that contributed so heavily to superabundance of information started to become part of the solution, in a variety of domains. Doug Engelbart’s Augment (for "augmenting human intelligence"), which was introduced in 1978, was an early hypertext/groupware application capable of interfacing with other applications and systems. Rob Acksyn’s and Don McCracken’s Knowledge Management System (KMS), an open distributed hypermedia tool, is another notable example and one that predates the World Wide Web by a decade.

The 1980s also saw the development of systems for managing knowledge that relied on work done in artificial intelligence and expert systems, giving us such concepts as "knowledge acquisition," "knowledge engineering," "knowledge-base systems, and computer-based ontologies."
The phrase "knowledge management" entered the lexicon in earnest. To provide a technological base for managing knowledge, a consortium of U.S. companies started the Initiative for Managing Knowledge Assets in 1989. Knowledge management-related articles began appearing in journals like Sloan Management Review, Organizational Science, Harvard Business Review, and others, and the first books on organizational learning and knowledge management were published (for example, Senge’s The Fifth Discipline and Sakaiya’s The Knowledge Value Revolution).

By 1990, a number of management consulting firms had begun in-house knowledge management programs, and several well-known U.S., European, and Japanese firms had instituted focused knowledge management programs. Knowledge management was introduced in the popular press in 1991, when Tom Stewart published "Brainpower" in Fortune magazine. Perhaps the most widely read work to date is Ikujiro Nonaka’s and Hirotaka Takeuchi’s The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation (1995).8

By the mid-1990s, knowledge management initiatives were flourishing, thanks in part to the Internet. The International Knowledge Management Network (IKMN), begun in Europe in 1989, went online in 1994 and was soon joined by the U.S.-based Knowledge Management Forum and other Knowledge management related groups and publications. The number of knowledge management conferences and seminars is growing as organizations focus on managing and leveraging explicit and tacit knowledge resources to achieve competitive advantage. In 1994 the International knowledge management network published the results of a knowledge management survey conducted among European firms, and the European Community began offering funding for KM-related projects through the ESPRIT program in 1995.
Knowledge management, which appears to offer a highly desirable alternative to failed Total Quality Management and business process re-engineering initiatives, has become big business for such major international consulting firms as Ernst & Young, Arthur Andersen, and Booz-Allen & Hamilton. In addition, a number of professional organizations interested in such related areas as benchmarking, best practices, risk management, and change management are exploring the relationship of knowledge management to their areas of special expertise (for example, the APQC [American Productivity and Quality Council] and ASIS [American Society for Information Science]).

Learning Organization

In recent years, an increasing amount of global business school research and literature has focused on concepts such as the “knowledge-based economy,” “organizational learning,” “knowledge workers,” “intellectual capital,” “virtual teams,” and the like in order to make sense of this “new discipline” (Gittell & Vidal, 1998). Organizational learning is a fairly recent way to think about learning in organizations. In a time of less organizational change (technological, societal, and economic), it was possible for an organization to develop a strategy for functioning and, assuming the strategy was initially effective, maintain that strategy for several decades. Current organizations, however, must change constantly in order to survive for even one decade. But change in and of itself is not sufficient. The change must be based on appropriate data gathered externally from the environment and internally from lessons learned. Both are a part of organizational learning, and both are critical to effective organizations (Skyrme, 1998, 2000, 2001). Learning organizations or organizational learning are defined in many different ways. 9
Definition of organizational learning:

“The essence of organizational learning is the organization’s ability to use the amazing mental capacity of all its members to create the kind of processes that will improve its own” (Dixon, 1994);

Four different levels of learning (Types of learning):

Level of Learning and Description

Level 1.- Learning facts, knowledge, processes and procedures - Applies to known situations where changes are minor.

Level 2.- Learning new job skills that are transferable to other situations - Applies to new situations where existing responses need to be changed. Bringing in outside expertise is a useful tool here.

Level 3 - Learning to adapt - Applies to more dynamic situations where the solutions need developing. Experimentation and deriving lessons from success and failure are the mode of learning here.

Level 4 - Learning to learn - Is about innovation and creativity; designing the future rather than merely adapting to it. This is where assumptions are challenged and knowledge is reframed.

Significance of Knowledge Management

Several case studies which were carried out during 1993 and 1994 demonstrated that companies are making costly mistakes by ignoring knowledge management. The cost to a company can often be both immediate and long lasting. Indeed, a company may suffer severe damage from the loss of a crucial part of its knowledge asset. Managers may be left wondering what happened as they frantically try to repair a situation which could have been avoided.
Knowledge Management is likely that the results of pressures on business to down size, become more efficient and to streamline have also resulted in businesses operating much closer to their critical level than before. Staff reductions mean that staff are now almost fully committed, leaving little spare staff resource to deal with the unforeseen. This has lead to greater pressure on management who must now predict as much as possible leaving less to chance. Part of this need to predict the effects of change and of future activity is the need to manage the knowledge asset. It is of course, likely that knowledge related mistakes were made in the past, and however they may not have had such catastrophic consequences.

Based on a number of published studies, Knowledge Management had a positive impact on business processes. The goal is to capture the tacit knowledge required by a business process and encourages knowledge workers to share and communicate knowledge with peers. With such knowledge, it is easier to determine which processes are more effective or less effective than others. The main constraint in KM, however, is initially capturing it. However, if an organization can succeed in capturing and dispersing Knowledge, the benefits are endless. A company can leverage and more fully utilize intellectual assets. It can also position itself in responding quickly to customers, creating new markets, rapidly developing new products, and dominating emergent technologies.

**Need of Knowledge Management in present era…**

Why do we need to manage knowledge? Ann Macintosh of the Artificial Intelligence Applications Institute (University of Edinburgh) has written a "Position Paper on Knowledge Asset management" that identifies some of the specific business factors, including:
Marketplaces are increasingly competitive and the rate of innovation is rising.

Reductions in staffing create a need to replace informal knowledge with formal methods.

Competitive pressures reduce the size of the work force that holds valuable business knowledge.

The amount of time available to experience and acquire knowledge has diminished.

Early retirements and increasing mobility of the work force lead to loss of knowledge.

There is a need to manage increasing complexity as small operating companies are trans-national sourcing operations.

Changes in strategic direction may result in the loss of knowledge in a specific area.

**EXHIBIT 1.2**
Knowledge Management Process Model

<table>
<thead>
<tr>
<th>Acquisition</th>
<th>Refinement</th>
<th>Storage/Retrieval</th>
<th>Distribution</th>
<th>Presentation</th>
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<tr>
<th>Expertise</th>
<th>Data</th>
<th>Storage and</th>
<th>Intranets and</th>
<th>User Profiles</th>
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<tbody>
<tr>
<td>Domain</td>
<td>Cleansing</td>
<td>Indexing of</td>
<td>internet</td>
<td>for dynamic</td>
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<tr>
<td>Model</td>
<td>Metadata</td>
<td>Knowledge</td>
<td>Knowledge</td>
<td>tailoring links</td>
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<td>Knowledge</td>
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<td>Discussion</td>
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<td>threads etc.</td>
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<td>Taxonomy</td>
<td>Knowledge</td>
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<td>collaboration</td>
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Source: Knowledge Management, Murray E. Jennex, p5
<table>
<thead>
<tr>
<th>KM Practices and Processes</th>
<th>Creation and Discovering</th>
<th>Sharing and Learning</th>
<th>Organizing and Managing</th>
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<td>Creativity Techniques</td>
<td>Data Mining</td>
<td>Communities of Practice</td>
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<td>Text Mining</td>
<td>Learning Networks</td>
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<td>Environmental Scanning</td>
<td>Sharing Best Practice</td>
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<td>Knowledge Elicitation</td>
<td>After Action Reviews</td>
<td>Information Audits/Inventory</td>
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<td>Business Simulation</td>
<td>Structured Dialogue</td>
<td>Measuring Intellectual capital</td>
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<td></td>
<td>Content Analysis</td>
<td>Share Fairs</td>
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Source: Knowledge Management, Murray E. Jennex, p7
## EXHIBIT 1.4
TOOLS AND TECHNOLOGIES AVAILABLE FOR KNOWLEDGE MANAGEMENT

<table>
<thead>
<tr>
<th>Technologies &amp; Tools</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Expert systems</strong></td>
<td>An expert system is regarded as the embodiment within a computer of a knowledge-based component from an expert skill in such a form that the system can offer intelligent advice or make an intelligent decision about a processing function. Expert systems are computer-based programs which are designed to record human expertise (knowledge) and then apply this knowledge to applications in a certain domain.</td>
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<td><strong>Distributed hypertext systems</strong></td>
<td><em>Distributed hypertext systems</em> have been concerned with the generation and leveraging of organizational knowledge for more than a dozen years. Theodor Holm Nelson coined the term “hypertext” in the 1960s, and his writings about representation, access, and management of knowledge -- embodied in his vision for Project Xanadu, a global “docuverse” that pre-figured the World Wide Web – are useful for managing information and knowledge.</td>
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<td><strong>Document management</strong></td>
<td><em>Document management</em> systems originally were primarily concerned with providing online access to documents stored as bit-mapped images. Document management technology -- already in widespread use in large, information-intensive companies-- is likely to become an integral part of virtually every “intranet” in one form or another</td>
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<tr>
<td><strong>Geographic information systems</strong></td>
<td><em>Geographic information systems</em>, a term associated with knowledge management, <strong>systems</strong> is used as a graphic tool for <strong>knowledge mapping</strong>. Known by the acronym GIS for short, the technology involves a digitized map, a powerful computer and software that permits the superimposition and manipulation of various kinds of demographic and corporate data on the map.</td>
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<tr>
<td><strong>Help desk technology</strong></td>
<td><strong>Help desk technology</strong> is primarily concerned with routing requests for help from information seeker to the right technical resolution person within an organization. <strong>Intranets</strong> -- intra-corporation networks that use the Internet’s IP (Internet Protocol) standard -- not only permit sharing of information, but they also view the organization’s information (including structured resources like relational databases as well as unstructured text) through Web browsers like Internet Explorer and Netscape Navigator.</td>
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<tr>
<td><strong>Concept mapping</strong></td>
<td><strong>Concept mapping</strong> seems to be rooted primarily in educational techniques for improving understanding, retention, and as an aid to writing. A concept map is a picture of the ideas or topics in the information and the ways these ideas or topics are related to each other. It is a visual summary that shows the structure of the material the writer will describe.</td>
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<tr>
<td><strong>Semantic networks</strong></td>
<td><em>Semantic networks</em> are often closely associated with detailed analysis of texts and networks of ideas. One of the important ways they are distinguished from hypertext systems is their support of semantic typing of links -- for example, the relationship between “murder” and “death” might be described as “is a cause of.” The inverse relationship might be expressed as “is caused by.” Semantic networks are a technique for representing knowledge.</td>
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<tr>
<td><strong>Hypertext (an expanded Semantic network)</strong></td>
<td><em>Hypertext</em>, known to most people these days by its implementation in the World Wide Web, is sometimes described as a semantic network with content at the nodes. But the content itself -- the traditional document model -- seems to be the driving organizational force not the network of links. In most hypertext documents, the links are not semantically typed, although they are typed at times according to the medium of the object displayed by traversing the link.</td>
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<tr>
<td><strong>Information modeling</strong></td>
<td><em>Information modeling</em> is concerned with precise specification of the meaning in a text and in making relationships of meaning explicit -- often with the objective of rapid and accurate development of new software applications for business requirements. Some of the essence of information modeling is expressed in the following definition “The process of eliciting requirements from domain experts, formulating a complete and precise specification understandable to both domain experts and developers, and refining it using existing (or possible) implementation mechanisms.”</td>
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### Conceptual index

*Conceptual* (or “back-of-the-book”) indexes are rarely discussed in the same breath as hypertext, conceptual maps, and semantic networks -- perhaps because indexers themselves sometimes relish the aura of “black art” surrounding indexing -- but the connection is fundamental. Conceptual indexes traditionally map key ideas and objects in a single work. An index is a structured sequence -- resulting from a thorough and complete analysis of text -- of synthesized access points to all the information contained in the text. The structured arrangement of the index enables users to locate information efficiently.

### Metadata

*Metadata* is simply information added to a document (or a smaller unit of information) that makes it easier to access and re-use that content. It’s also referred to as simply “data about data.” You’ll find metadata in many different forms, including key words in a software help system, the document profile information attached to documents in a document management system, and the classification information in a library card catalog.

Source: knowledge Management, Murray E.Jennex,p14

**International perspective of Knowledge Management**

As companies of all sizes and experience increase the extent of their international operations in the 21st century, a key challenge will be to capture the potential efficiencies from global operations. The ability to identify and disseminate global best practices throughout an organization is an important source of these efficiencies - and a key trend for the workplace of the future. HR professionals can play a crucial role in helping their organizations develop the organizational structures, human resource management practices and compensation systems that are required to produce and manage the learning that can result from the transfer of knowledge among global operations.
Examples abound of the increased efficiency that can result from incorporating global best practices throughout an organization.

A major European oil company was able to draw on its experience with certain geological structures in the Middle East to bid more effectively for oil leases on the North Slope of Alaska. A major U.S. auto manufacturer found that in the face of distinctive problems presented by the local environment, Brazilian engineers developed superior seals, which the company then incorporated in its models globally.

More generally, companies that proactively seek global efficiencies often find that, while their performance may be adequate when benchmarked regionally, it can be poor when benchmarked globally. Adapting global best practices also can increase regional competitiveness.

The way that an organization manages global learning depends on the type of knowledge being transmitted. Business has been changed by the information revolution, and organizations establish information technology (IT) systems to manage knowledge and operations more effectively.

In contrast, the transfer of complex, tacit knowledge within global organizations requires personal mechanisms of learning transfer, and here, HR mechanisms become crucial. Some mechanisms have existed for many years but have been underused by many organizations. For example, rotation of managers through assignments in different regions provides opportunities for some transfer of knowledge.

Likewise, repatriation of assignees to headquarters provides an opportunity to determine which aspects of operations from other parts of the world could be adopted more generally in the company to provide efficiency
gains. Yet research on repatriation policies indicates that in many global companies, repatriation is not structured to capture and transfer knowledge from the expatriate experience. North American firms appear to be notably poor on these dimensions.

Some global companies are far more proactive at knowledge management. To facilitate the internal dissemination of best practices, British Petroleum (BP) initiated a program of peer assists. Under this program, BP managers confronting a particular problem can request expert assistance from any division of BP. Other managers are expected to release their experts for the duration of the assist. This procedure not only can provide the knowledge to solve the problem - or validate that the problem - cannot be solved - but it can expand the experience and network of the peers.

Integrating this approach into global organizations raises significant questions of organizational structure and compensation, including how performance-related compensation systems should address the global knowledge transfer activities of employees.

The foregoing mechanisms facilitate the management of global knowledge within a particular organization. This can be supplemented with external benchmarking against other successful global companies. In choosing external benchmarks, it is important to recognize that no single global company is likely to provide an adequate model for all aspects of an organization’s operations. Sophisticated global organizations often benchmark different aspects of their operations against different global organizations and do not necessarily limit their benchmarks to private sector organizations.

As we look forward to the 21st century, the development and implementation of sophisticated global knowledge management systems would
appear to be a major contribution of human resource management to capturing the efficiencies of global operations.

**Indian perspective of Knowledge Management**

With the concept like globalization gaining its world-wide acceptance, these days’ firms are setting up new marketing branches in different parts of the world. The benefit of being local does not exit any more. In fact the boom of internet has provided a new opening to operate any business without having an office near the customer. However at the same time one can not deny from the fact that one has to improve constantly in order to survive in the existing market with a knowledge driven business management process. In other words, running organizations knowledge and exploiting it in the marketplace is the newest quest for having a competitive advantage. The biggest challenge for any business these days is to provide the correct information that can lead to effective knowledge and can be further used to make better decisions. Certainly, the interest in knowledge management has grown during the last few years. Knowledge management solutions create a platform for extensive data mining. With sharing of information across the firm and getting the details or feedback from consumers and managers can further help in predicting the future trend and thus take a better decision. Knowledge management is a concept in which an enterprise gathers, organizes, shares, and analyzes its knowledge in terms of resources, documents, and people skills. KM involves data mining and some method of operation to push information to users. Knowledge management can also be a business process that formalizes management and leverage of a firm's intellectual assets. KM is an enterprise discipline that promotes a collaborative and integrative approach to the creation, capture, organization, access and use of information assets, including the tacit, un-captured knowledge of people.

In some organizations such as educational institutions, research labs and marketing services companies, “knowledge” is “the” backbone. Indeed in all
organizations, the appropriate utilization of knowledge towards collective intelligence and wisdom plays a critical part in improving its own operations. These organizations seek to enforce a discipline that can be used to systematically leverage expertise and information to improve organizational efficiency, responsiveness, competency, and innovation. Systematically means that the discipline does not rely on informal water cooler conversations, but on planned processes, technology, measurement techniques, and behaviors. Knowledge management seeks to exploit all the key resources that an Organization has in place and that can be put to use in more effective way.

In a Global world “knowledge” is crucial. It provides the basic framework to connect, collaborate, coordinate and communicate in a highly complex and competitive market place.

India has done fabulously well so far in this era. Thanks to nation’s topnotch educational institutions, we have been leading our way into Nirvana in globalization. Going forward it is up to the Indian companies to nurture its employees with training in new technologies, management mantras, concepts and ideologies.

In fact, many Indian companies do offer a decent career path and comprehensive training programmes as well. The only problem in all these training programmes is that they can be pursued only in India, the so called its off-site employees.

But companies fail to impart training and extend support in education to many of the employees working onsite at client's locations across world. The reason is the cost, effort and management of such a programme.
Here is a solution, which could be adopted by firms to provide a seamless educational framework for its employees globally.

Knowledge Management (KM) has been a predominant trend in business in the recent years. Scaling-up research prototypes to real-world solutions usually requires an application-driven integration of several basic technologies.

Typical characteristics to be dealt with are: many logically and physically dispersed employees and knowledge sources, different degrees of formalization of knowledge,

Possible conflicts between local (individual) and global (group or organizational) goals.

**Approaches of knowledge management**

The term "knowledge management" is now in widespread use, having appeared in the titles of many new books about knowledge management as a business strategy, as well as in articles in many business publications, including *The Wall Street Journal*. There are, of course, many ways to slice up the multifaceted world of knowledge management. However, it’s often useful to categorize them.

In a posting to the Knowledge Management Forum, Karl-Erik Sveiby identified two "tracks" of knowledge management:

**Management of Information**: To researchers in this track, according to Sveiby, "... knowledge = Objects that can be identified and handled in information systems."
Management of People: For researchers and practitioners in this field, knowledge consists of "… processes, a complex set of dynamic skills, know-how, etc., that is constantly changing."

There are various approaches to Knowledge Management

(1) Mechanistic approaches
(2) Cultural/behavioristic approaches
(3) Systematic approaches to knowledge management.

1. Mechanistic approaches to knowledge management

Mechanistic approaches to knowledge management are characterized by the application of technology and resources to do more of the same better. The main assumptions of the mechanistic approach include:

- Better accessibility to information is a key, including enhanced methods of access and reuse of documents (hypertext linking, databases, full-text search, etc.)
- Networking technology in general (especially intranets), and groupware in particular, will be key solutions.
- In general, technology and sheer volume of information will make it work.

Assessment: Such approaches are relatively easy to implement for corporate "political" reasons, because the technologies and techniques — although sometimes advanced in particular areas — are familiar and easily understood. There is a modicum of good sense here, because enhanced access to corporate intellectual assets is vital. But it’s simply not clear whether access itself will have a substantial impact on business performance, especially as mountains of new information are placed on line. Unless the knowledge management approach incorporates methods of leveraging cumulative experience, the net result may not be positive, and the impact of implementation may be no more measurable than in traditional paper models.
2. Cultural/Behavioristic approaches to knowledge management

Cultural/behavioristic approaches, with substantial roots in process re-engineering and change management, tend to view the "knowledge problem" as a management issue. Technology — though ultimately essential for managing explicit knowledge resources — is not the solution. These approaches tend to focus more on innovation and creativity (the "learning organization") than on leveraging existing explicit resources or making working knowledge explicit.

Assumptions of cultural/behavioristic approaches often include:

- Organizational behaviors and culture need to be changed … dramatically. In our information-intensive environments, organizations become dysfunctional relative to business objectives.

- Organizational behaviors and culture can be changed, but traditional technology and methods of attempting to solve the "knowledge problem" have reached their limits of effectiveness. A "holistic" view is required. Theories of behavior of large-scale systems are often invoked.

- It’s the processes that matter, not the technology.

- Nothing happens or changes unless a manager makes it happen.

Assessment: The cultural factors affecting organizational change have almost certainly been undervalued, and cultural/behavioristic implementations have shown some benefits. But the cause-effect relationship between cultural strategy and business benefits is not clear, because the "Hawthorne Effect" may come into play, and because we still can’t make dependable predictions about systems as complex as knowledge-based business organizations. Positive results achieved by cultural/behavioristic strategies may not be sustainable, measurable,
cumulative, or replicable... and employees thoroughly "Dilbertized" by yet another management strategy may roll their eyes. Time will tell.

3. **Systematic approaches to knowledge management**

   Systematic approaches to knowledge management retain the traditional faith in rational analysis of the knowledge problem: the problem can be solved, but new thinking of many kinds is required. Some basic assumptions:

   - It’s sustainable results that matter, not the processes or technology … or your definition of "knowledge."
   - A resource cannot be managed unless it is modeled, and many aspects of the organization’s knowledge can be modeled as an explicit resource.
   - Solutions can be found in a variety of disciplines and technologies, and traditional methods of analysis can be used to re-examine the nature of knowledge work and to solve the knowledge problem.
   - Cultural issues are important, but they too must be evaluated systematically. Employees may or may not have to be "changed," but policies and work practices must certainly be changed, and technology can be applied successfully to business knowledge problems themselves.
   - Knowledge management has an important management component, but it is not an activity or discipline that belongs exclusively to managers.

**Assessment:** Unrepentant rationalists in the business world are taking a systematic approach to solving the "knowledge problem." We’ll also find evidence of such approaches — as well as a less formal use of the term
systematic knowledge management. Systematic approaches show the most promise for positive cumulative impact, measurability, and sustainability.\textsuperscript{11}

\textbf{Artificial Intelligence and Knowledge Management:}

"Knowledge management (KM) is a topic of growing interest to large organizations. It comprises activities focused on the organization acquiring knowledge from many sources, including its own experience and from that of others, and on the effective application of that knowledge to fulfill the mission of the organization. The knowledge management community has been eclectic in drawing from many sources for its methodologies and tools. Typical approaches to the management of knowledge are based on concept maps, hypermedia, and object-oriented databases. Techniques developed in artificial intelligence for knowledge acquisition, representation and discovery are seen as relevant to KM. However, there is as yet no unified underlying theory for KM, and the scale of the problem in large organizations is such that most existing AI tools cannot be applied in their current implementations. The objective of this symposium was to bring together KM practitioners and applied AI specialists from KA, KR and KDD, and attempt to formulate the potential role of various AI sub-disciplines in knowledge management."\textsuperscript{12}

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