

KNOWLEDGE MANAGEMENT AND ORGANISATIONAL LEARNING

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ABSTRACT

Knowledge is closely linked to doing and implies know-how and understanding. Knowledge management is essentially about getting the right knowledge to the right person at the right time. This in itself may not seem so complex, but it implies a strong tie to corporate strategy, understanding of where and in what forms knowledge exists, creating processes that span organizational functions, and ensuring that initiatives are accepted and supported by organizational members. Organisational learning is based on applying knowledge for a purpose and learning from the process and from the outcome. This once again links learning to action, but it also implies useful improvement.

Keywords: *knowledge management, organisational learning*

I. INTRODUCTION

1.1 Basics of knowledge management and organisational learning

What is knowledge management? Knowledge management is the process of creating, sharing, using and managing the knowledge and information of an organization. It refers to a multi-disciplinary approach to achieving organizational objectives by making the best use of knowledge.

An established discipline since 1991, KM includes courses taught in the fields of business administration, information systems, management, library, and information. Many large companies, public institutions, and non-profit organisations have resources dedicated to internal KM efforts, often as a part of their business strategy, information technology, or human resource management departments. Several consulting companies provide advice regarding KM to these organisations.

Knowledge management efforts typically focus on organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration, and continuous improvement of the organisation. These efforts overlap with organisational learning and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge.

The overall objective is to create value and to leverage, improve, and refine the firm's competences and knowledge assets to meet organizational goals and targets. Implementing knowledge management thus has several dimensions including:

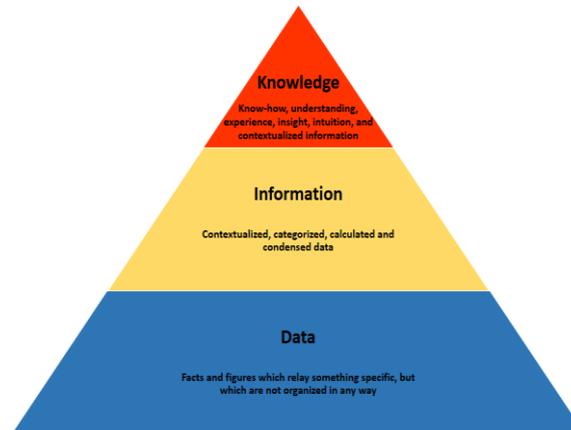


- **KM Strategy:** Knowledge management strategy must be dependent on corporate strategy. The objective is to manage, share, and create *relevant* knowledge assets that will help meet tactical and strategic requirements.
- **Organizational Culture:** The organizational culture influences the way people interact, the context within which knowledge is created, the resistance they will have towards certain changes, and ultimately the way they share (or the way they do not share) knowledge.
- **Organizational Processes:** The right processes, environments, and systems that enable KM to be implemented in the organization.
- **Management & Leadership:** KM requires competent and experienced leadership at all levels. There are a wide variety of KM-related roles that an organization may or may not need to implement, including a CKO, knowledge managers, knowledge brokers and so on. More on this in the section on KM positions and roles.
- **Technology:** The systems, tools, and technologies that fit the organization's requirements - properly designed and implemented.
- **Politics:** The long-term support to implement and sustain initiatives that involve virtually all organizational functions, which may be costly to implement (both from the perspective of time and money), and which often do not have a directly visible return on investment.

1.2 Defining Data, Information, and Knowledge

- "Knowledge is a fluid mix of framed experience, values, contextual information, expert insight, and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. It originates and is applied in the mind of the knowers. In organizations it

often becomes embedded not only in documents or repositories, but also in organizational routines, practices and norms."



- In order for KM to succeed, one needs a deep understanding of what constitutes knowledge. Now that we have set clear boundaries between knowledge, information, and data, it is possible to go one step further and look at the forms in which knowledge exists and the different ways that it can be accessed, shared, and combined.

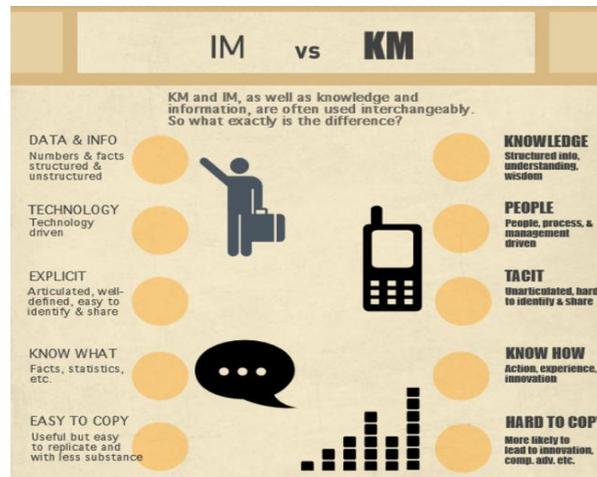
1.3 Why is knowledge management useful?

It is useful because it places a focus on knowledge as an actual asset, rather than as something intangible. In other words:

- It helps firms learn from past mistakes and successes.
- It better exploits existing knowledge assets by re-deploying them in areas where the firm stands to gain something, e.g. using knowledge from one department to improve or create a product in another department, modifying knowledge from a past process to create a new solution, etc.
- It promotes a long term focus on developing the right competencies and skills and removing obsolete knowledge.
- It enhances the firm's ability to innovate.
- It enhances the firm's ability to protect its key knowledge and competencies from being lost or copied.

Unfortunately, KM is an area in which companies are often reluctant to invest because it can be expensive to implement properly, and it is extremely difficult to determine a specific ROI. Moreover KM is a concept the definition of which is not universally accepted, and for example within IT one often sees a much shallower, information-oriented approach.

1.4 Information Management vs Knowledge Management



1.5 Information and IM

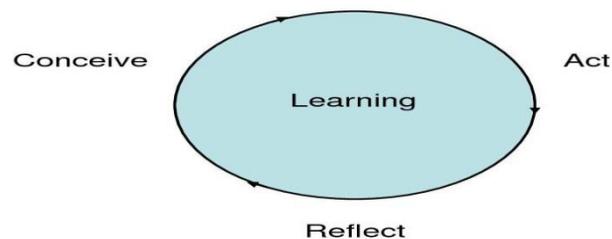
- Focus on data and information
- Deal with unstructured and structured facts and figures.
- Benefit greatly from technology, since the information being conveyed is already codified and in an easily transferrable form.
- Focus on organizing, analyzing, and retrieving - again due to the codified nature of the information.

1.6 Knowledge and KM

- Focus on knowledge, understanding, and wisdom
- Deal with both codified and uncoded knowledge. Uncoded knowledge - the most valuable type of knowledge - is found in the minds of practitioners and is unarticulated, context-based, and experience-based.
- Technology is useful, but KM's focus is on people and processes. The most valuable knowledge cannot effectively be (directly) transferred with technology; it must be passed on directly from person to person.
- Focus on locating, understanding, enabling, and encouraging - by creating environments, cultures, processes, etc. where knowledge is shared and created.
- Is largely about know-how, know-why, and know-who

1.7 What is Organizational Learning?

Learning is the way we create new knowledge and improve ourselves. Although there is ample debate regarding the mechanisms and scope of learning, in its simplest form this is no different for organizations. Botha et al. describe the organizational learning process as follows:



As one can see organizational learning is based on applying knowledge for a purpose and learning from the process and from the outcome. Brown and Duguid (1991) describe organisational learning as "the bridge between working and innovating." This once again links learning to action, but it also implies useful improvement.

1.8 Different Approaches to Organizational Learning

Generally speaking, there are two approaches to organisational learning. The first view looks at the firm as a whole and examines learning from a cognitive perspective. The second view looks at learning as community based, where the firm's practitioners create knowledge in their own networks called communities of practice.

1.9 Organizational Learning Theory from a Company-Wide Perspective

Two of the most noteworthy contributors to the field of organizational learning theory have been Chris Argyris and Donald Schon. Organizational learning (OL), according to Argyris & Schon is a product of organizational inquiry. This means that whenever expected outcome differs from actual outcome, an individual (or group) will engage in inquiry to understand and, if necessary, solve this inconsistency. In the process of organizational inquiry, the individual will interact with other members of the organization and learning will take place. Learning is therefore a direct product of this interaction.

Argyris and Schon emphasize that this interaction often goes well beyond defined organizational rules and procedures. Their approach to organizational learning theory is based on the understanding of two (often conflicting) modes of operation:

Espoused theory: This refers to the formalized part of the organization. Every firm will tend to have various instructions regarding the way employees should conduct themselves in order to carry out their jobs (e.g. problem solving). These instructions are often specific and narrow in focus, confining the individual to a set path. An example of espoused theory might be "if the computer does not work, try rebooting it and then contact the IT department."

Theory-in-use: This is the actual way things are done. Individuals will rarely follow espoused theory and will rely on interaction and brainstorming to solve a problem. Theory in use refers to the loose, flowing, and social way that employees solve problems and learn. An example of this might be the way someone actually solves a problem with their computer by troubleshooting solutions, researching on forums, asking co-workers for opinions, etc.

1.10 Organizational Learning Theory: The Three Types of Learning

Argyris and Schon (1996) identify three levels of learning which may be present in the organization:

- **Single loop learning:** Consists of one feedback loop when strategy is modified in response to an unexpected result (error correction). E.g. when sales are down, marketing managers inquire into the cause, and tweak the strategy to try to bring sales back on track.
- **Double loop learning:** Learning that results in a change in theory-in-use. The values, strategies, and assumptions that govern action are changed to create a more efficient environment. In the above example, managers might rethink the entire marketing or sales process so that there will be no (or fewer) such fluctuations in the future.
- **Deutero learning:** Learning about improving the learning system itself. This is composed of structural and behavioral components which determine how learning takes place. Essentially deuteron learning is therefore "learning how to learn."

This can be closely linked to Senge's concept of the learning organization, particularly in regards to improving learning processes and understanding/modifying mental models. Effective learning must therefore include all three, continuously improving the organization at all levels. However, while any organization will employ single loop learning, double loop and particularly deuteron learning are a far greater challenge.

II. BUILDING KNOWLEDGE MANAGEMENT FRAMEWORKS AND MODELS

At this stage we have had a look at the components and definitions that related to knowledge management (KM). This section deals with knowledge management frameworks and models. The old saying that a picture paints a thousand words is very much applicable in this case. A good model can integrate various elements and show relationships in a way that is much harder to do in writing.

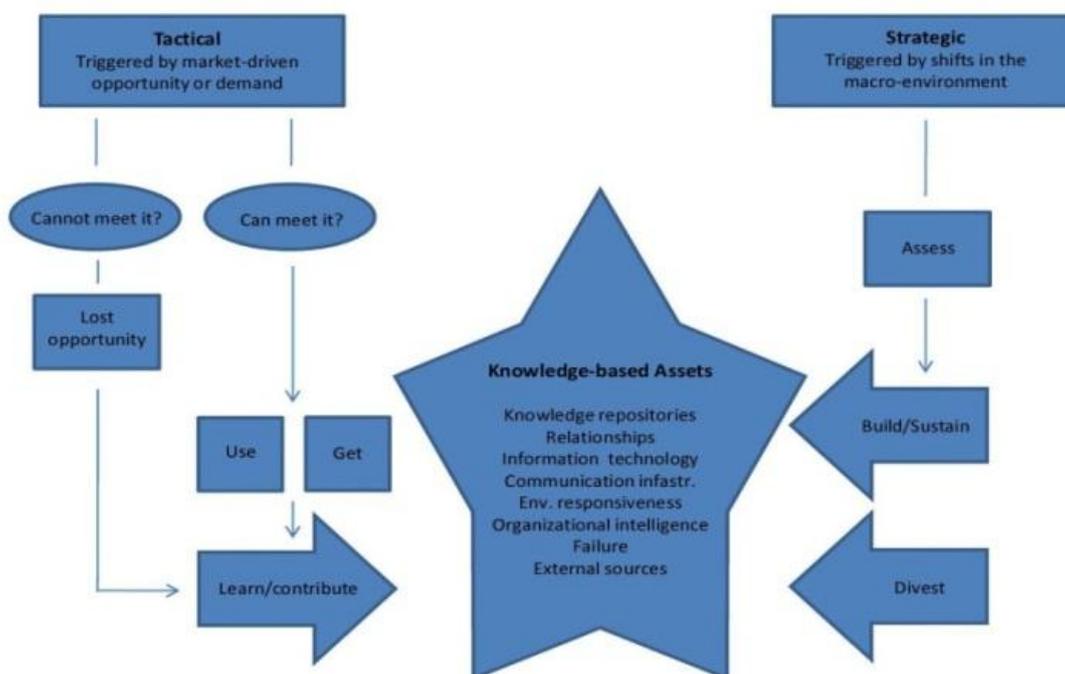
But first, what are the components of a knowledge management framework? At the most basic level, KM consists of the following steps:

- Identification of needs
- Identification of knowledge resources
- Acquisition, creation, or elimination of knowledge related resources/processes/environments
- Retrieval, application and sharing of knowledge
- Storage of knowledge

It is important to note that none of these processes are independent and all of them are affected by countless factors. This is why knowledge management frameworks are typically very different and can be presented in a wide variety of ways.

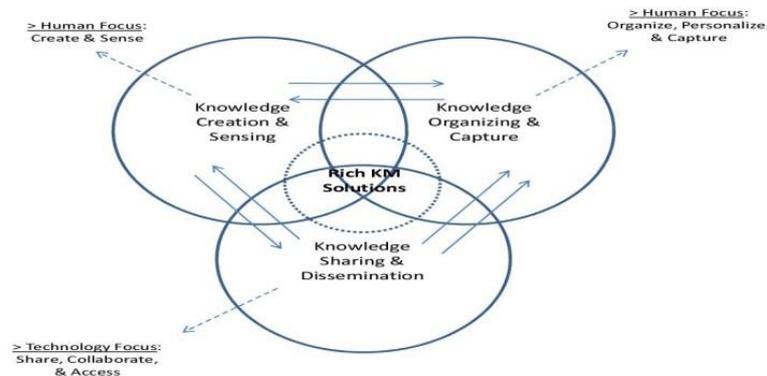
III. THREE KM MODELS

Knowledge management (KM) models that take three very different approaches to KM. The KM Process Framework by Bukowitz and Williams (1999)



KM initiatives are the result of the response to tactical and strategic changes and needs. The model provides a great overview of the strategy behind KM but it does not include any deeper insight into what initiatives are suitable in a given instance.

The Knowledge Management Process Model by Botha et al (2008)



This model attempts to offer a more realistic overview of the KM process. The three broad categories overlap and interact with one another. Like Gamble & Blackwell, the focus is on managerial initiatives. Here too the strategic focus (the "when" and the "why" as opposed to the "what") is omitted. It is noteworthy that this model does include the creation of new knowledge as a specific KM initiative.

The model further shows which of the three categories are more people oriented and which are more technology focused. Whether or not knowledge sharing should be largely technology focused is certainly debatable and it is something that I will address in future sections. However, for better or for worse, this is largely how organizations tend to approach the issue i.e. as a technological rather than organizational and social challenge.

We have now looked at three models that take very different approaches to KM. There is one other important aspect relating to KM that has not been directly dealt with by these models. I am referring now to the measurement of effects that lets management know whether the implemented initiatives are achieving the desired results. This is dependent upon data and information management, but is paramount for future KM initiatives.

IV. TACTICAL KNOWLEDGE MANAGEMENT BEST PRACTICES

- **Knowledge Sharing:** Perhaps the most important process in KM, it plays a determinant role for both knowledge reuse and knowledge creation. The factors below summarize the key considerations with the exception of cultural issues, which are discussed further down.
 - **Explicit knowledge:** Depends on articulation of needs, awareness of knowledge, access to knowledge, guidance in the knowledge sharing process, and completeness of the knowledge sources (Bukowitz & Williams 1999). IT systems and content management are extremely important in this process.

- **Knowledge Reuse:** Involves three roles, the knowledge producer, intermediary, and consumer (Markus 2001), which are involved in creating, preparing, and actually reusing the knowledge. Two key elements here are culture and cost - particularly relating to tacit knowledge (where indexing the source rather than the knowledge itself is often more viable). Markus identifies four reuse situations:
 - ❖ Shared work producers
 - ❖ Shared work practitioners
 - ❖ Expert seeking novices
 - ❖ Miners of secondary knowledge
- **Knowledge Creation:** This process depends upon knowledge sharing (as defined above), collaboration, and access to relevant information and data. Cook and Brown (1999) suggest that knowledge creation is an interplay between knowledge and knowing, or in other words, putting knowledge into practice. The role of management in this process was identified as
 - ❖ Creating suitable work related environments: The focus here is on unstructured work environments where experimentation, trial and error, and theory in use are promoted. Self-organizing, semi- or fully-autonomous project teams are identified as one useful tool in this endeavor.
 - ❖ Providing access to collaborative IT systems: Groupware applications can be used for this purpose. These must support and not interfere with the ideal work environment.
- **Knowledge Acquisition:** The firm can acquire knowledge externally from customers, suppliers, competitors, partners, and mergers. The role of KM varies in each process (as does the type of available knowledge), but at its core its function is to establish the right channels to transfer relevant knowledge from existing partnerships into the firm, and to integrate this knowledge as best as possible. To do so, KM can use a wide range of tools including:
 - ❖ Common IT systems
 - ❖ Common projects
 - ❖ Interaction and socialization
 - ❖ Involvement of partners in certain organizational processes (e.g. design)
 - ❖ Cultural alignment (for mergers or joint ventures)
 - ❖ Setting up the right incentive systems
 - ❖ Identifying and protecting crucial knowledge assets: when such knowledge should not be shared with a partner

V. STRATEGIC KNOWLEDGE MANAGEMENT BEST PRACTICES

- **KM and Organizational Structures:** Two types were defined: formal and informal.
 - ❖ Formal structure: These will interfere with KM if very rigidly enforced. The choice of structure, and the physical division of the firm, will also affect knowledge flows. Studies seem to show that decentralized structures seem to be best for KM (Choi & Lee 2000, Claver-Cortés et al 2007, Chen & Huang 2007).

- ❖ Informal structures: The firm should be perceived as a community consisting of a collection of communities (Brown & Duguid 1992). Management can affect these through the use of project teams, teamwork, social functions, etc.
- **KM and Organizational Culture Change:** This must be recognized and managed carefully and deliberately. By introducing anomalies that challenge the accepted premises of organizational culture, management can influence organizational members to abandon certain aspects in favor of others (Gardner 1997).
- **KM and Knowledge Retention:** Knowledge retention is the part of KM that is concerned with making sure that important knowledge assets remain in the firm over time, e.g. when key employees leave the firm or retire.
- **KM and Core Competencies:** The management of core competencies consists of four processes: identifying, sustaining, building, and unlearning. KM plays a key supporting role throughout this process by:
 - ❖ Identifying what the firm knows, and what its main expertise is.
 - ❖ Leveraging knowledge assets across the organization.
 - ❖ Building the right know-how and expertise to match strategic requirements.
 - ❖ Isolating and removing/changing obsolete knowledge.
- **KM and the External Network:** As mentioned before, external knowledge sources include customers, suppliers, competitors, partners, mergers, etc. KM plays a role in the assessment of potential partners, by helping to determine what the organization knows, what it needs to know, and the best ways of getting that knowledge. It is also a key element during the cooperation process to ensure that the right knowledge is transferred and integrated into the organization.
- **KM and Knowledge Management Systems:** This very ambiguous category of systems refers to most systems used in the sharing, discovery, and creation of knowledge. Failures are generally due to an over reliance on technology, a lack of understanding of the limitations of these systems, improper fit with organizational practices, lack of acceptance, etc. Proper implementation implies paying attention to:

This concludes the summary of knowledge management best practices. KM is a process that spreads throughout the organization. Its scope is difficult to define and its effects are hard to measure - e.g. how do you determine the ROI on a discipline designed to subtly improve most aspects of the organization? Nonetheless, if properly implemented, it is a worthwhile investment that will promote efficiency, learning, innovation, and competitive advantage.

VI. KNOWLEDGE MANAGEMENT BEST PRACTICES

According to Botha et al (2008) these are:

- ❖ **Culture:** One which is supportive of knowledge management, and the processes it implies - particularly knowledge sharing.
- ❖ **Infrastructure:** Support systems, teams, structures, and collaboration.
- ❖ **Measures:** Developing a process and design for managing change.
- ❖ **Technology:** Can offer great advantages in certain areas. Similarly, if misused, it can sabotage the KM process. Whether technology deserves its status as an enabler is debatable, but it is nonetheless important.

According to the authors, these aspects are what make KM possible. For instance, KM initiatives implemented in a company with a competitive culture that shuns knowledge sharing are doomed to fail from the start. I would not go as far as to call technology an enabler, but it is an important aspect nonetheless and an unavoidable part of any modern knowledge management best practices.

VII. KNOWLEDGE MANAGEMENT SYSTEMS

Knowledge management systems refer to any kind of IT system that stores and retrieves knowledge, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge, or in some other way enhances the KM process.

James Robertson (2007) goes as far as to argue that organizations should not even think in terms of knowledge management systems. He argues that KM, though enhanced by technology, is not a technology discipline, and thinking in terms of knowledge management systems leads to expectations of "silver bullet" solutions. Instead, the focus should be determining the functionality of the IT systems that are required for the specific activities and initiatives within the firm.

VIII. KNOWLEDGE MANAGEMENT PROGRAM

KM programs tend to have either a managerial/business or an IT focus. Since KM is now inextricably linked to technology at least to some degree, there will be a certain degree of overlap; however, the educational programs available in the various institutions do tend to have a "business school" or "IT school" focuses. This means that some programs will focus more extensively on the details of KMS architecture, the design/implementation of expert systems and so on, while others will focus more on the tacit nature of knowledge, on organizational culture issues, and on the management of people & teams.

Whichever kind of program you choose, it is important to remember that even though technology is an important part of KM today, it is never a solution in itself and it should be used carefully as part of a broader KM strategy.

IX. KNOWLEDGE MANAGEMENT SKILLS

The Skills of Knowledge Workers: On a very general level, Mohanta (2010) identifies six characteristics that all knowledge workers need to some degree:

1. Possessing factual and theoretical knowledge
2. Finding and accessing information
3. Ability to apply information
4. Communication skills
5. Motivation
6. Intellectual capabilities.

This provides a foundation for understanding the basic knowledge management skill set, but it does not include the skills needed for more specialized positions, e.g. within management or IT systems.

According to their research, they defined the following general categories, each consisting of a large set of skills:

- **Strategic & Business Skills:** Includes business planning, industry knowledge, strategic thinking, leadership, and organizational skills.
- **Management Skills:** Includes business processes, people management, process mapping, team building, and measurement.
- **Intellectual & Learning Skills:** Includes problem solving, mentoring, conceptual thinking, being analytical, and the ability to deal with ambiguity.
- **Communication and Interpersonal Skills:** Includes listening, negotiation, marketing, team working, and consulting.
- **Information Management Skills:** Includes codification, content management, information processes, taxonomies, and IT applications.
- **IT skills:** Includes database management, information architecture, programming, software applications, and workflow.

X. KM FAILURE FACTORS

KM Failure factors are categorized into two different factors, namely "causal" and "resultant".

Causal factors refer to fundamental problems within the organization, which lead to conditions that are not suitable for KM. They are not always easily visible and they lead to a number of symptoms, which I have termed "resultant" factors.

Below I have included an overview of these factors. For each of these points, there is substantial empirical evidence as well as theoretical deliberations linking them to KM failure (and conversely, to KM success). Please

note that these factors are not listed in order of importance, nor does anyone causal factor correspond to a specific resultant factor.

Causal Failure Factors:

- Lack of performance indicators and measurable benefits
- Inadequate management support
- Improper planning, design, coordination, and evaluation
- Inadequate skill of knowledge managers and workers
- Problems with organizational culture
- Improper organisational structure

Resultant Failure Factors:

- Lack of widespread contribution
- Lack of relevance, quality, and usability
- Overemphasis on formal learning, systematization, and determinant needs
- Improper implementation of technology
- Improper budgeting and excessive costs
- Lack of responsibility and ownership
- Loss of knowledge from staff defection and retirement

XI. KNOWLEDGE MANAGEMENT TOOLS FOR IT BASED SECTOR

- An overview of the IT-based tools and systems that can help knowledge management (KM) fulfill its goals. The scope of KM tools is to provide the reader with an overview of the types of KM tools available on the market today and to gain an understanding of what their role is in the KM process.
- Knowledge management systems implementation for IT based tools fall into one of the following categories:
 - ✓ The intranet and extranet
 - ✓ Decision Support Systems
 - ✓ Content management systems
 - ✓ Document management systems
 - ✓ Artificial intelligence tools
 - ✓ Simulation tools
 - ✓ Semantic networks

XII. KNOWLEDGE MANAGEMENT TOOLS FOR NON-IT BASED SECTOR

- Various resources and techniques that knowledge management (KM) practitioners can use to introduce KM and its supporting practices to an organization.

- Knowledge management systems implementation for non-IT based tools:
 - ✓ Cross-functional project teams
 - ✓ KM training & education
 - ✓ Storytelling
 - ✓ Mentoring

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