Chapter-2

KNOWLEDGE MANAGEMENT AND WHITE COLLAR WORKERS – A CONCEPTUAL FRAMEWORK

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KNOWLEDGE MANAGEMENT AND WHITE COLLAR EMPLOYEES – A CONCEPTUAL FRAMEWORK

2.1 Introduction

The previous chapter was an introductory background of the entire thesis. The following chapter is an attempt to deal with the conceptual framework of the subject matter. The current development of knowledge management economy and capability to control knowledge has become essential for the companies to maintain in the reasonable environment of the economy. Companies’ supreme assets lie in the riches of experience, ideas and insights that are extended across or embedded inside their organizations. The companies can advantage from these logical resources by using active knowledge to improve performance and combine knowledge to generate something recent and innovative. Knowledge Management is a vital issue in the business strategies of any construction organization and it is a complement to the organizational business activities. Moreover, it is the deliberate and systematic coordination of the people of an organization, technology, processes and organizational structure in order to add value through reuse and innovation. This coordination of the people is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning. Knowledge management is newly emerging, interdisciplinary business model that has knowledge within the framework of an organization as its focus. It is rooted in many disciplines of Business Economics, Psychology and Information Management. It is the ultimate competitive advantage for today’s firm. It involves people, technology and process in overlapping parts. (Dawson, 2000).

The challenge to KM implementation in construction organizations is the lack of systematic procedures for developing and applying KM systems. It is a surprising mix of strategies, tools and techniques. Storytelling, peer-topper mentoring and learning from mistakes, for example, all have precedents in education, training, and artificial intelligence practices. KM makes use of a mixture of techniques from knowledge-
based system design such as structured knowledge acquisition strategies from subject matter experts (Dalkir, 2005).

Knowledge is derived from information but it is richer and more meaningful than information. It includes familiarity, awareness and understanding gained through experience or study and results from making comparisons, identifying consequences and making connections. In organizational terms, knowledge is generally thought of as being 'know how' or 'applied action'. However, in applying knowledge management principles and practices in any organization, knowledge is not at their end, but the means for further action (Servin, 2005).

The process of meeting firm collective information in the form of database on paper and in the minds and consequently distributing it within the organization is known as knowledge management. Tacit and explicit knowledge as forms of knowledge are created, stored, saved and disseminated in the organization under the concept of knowledge management (Omar, 2013). It is to be noted that 95 per cent of the knowledge is tacit and not explicit. Tacit knowledge is used in research and development as it is synonyms with innovation in the organization. The challenge for the companies is identification and promotion of tacit knowledge for its future benefits. In this regard, system works as aid. KM is a structure within which the organization views all its processes as knowledge processing, where all business processes involves formation, distribution, regeneration and application of knowledge towards organizational provisions and survival. The following integral parts of knowledge management are as follows (Malhotra, 2000).

- Using reachable knowledge from outside sources.
- Embed and store knowledge in business processes, products and services.
- Representing knowledge in database and documents.
- Promote knowledge development through the organization's culture and incentives.
- Transferring and sharing knowledge throughout the organization (Hussain, Lucas, 2014).
It can be summarized that knowledge management is an approach that optimizes use of KM for achieving organizational goals. The three pillars of KM are people, process and technology. KM thus used these three factors to improve organizational efficiency. A knowledge organization is one that has created an environment for its adherents where ideas, views, expertise are shared freely without any interruption and subsequently produces knowledge assets that add to the efficiency of the organization. Thus, it is clear that the goal of KM is to produce positive returns on people, process and technology.

2.2 Evolution of Knowledge Management

The knowledge has been debated since at least the time of the ancient Greeks. In 369 BC, Plato, through the voice of Socrates in Theaetetus, conceptualized knowledge as a true belief with an account commonly identified as the concept of justified true belief but then acknowledged that this definition remained inadequate. Relating knowledge to action is quite common in the literature; indeed, all of the just cited authors do so. Most definitions of knowledge relate it to experts and experience, ranking knowledge above data and information in terms of abstraction. Similarly deemed knowledge to be the whole set of insights, experience, and procedures that are considered correct and true and that therefore guide the thoughts, behavior, and communication of people. This latter definition shows a combination of the previously detailed themes found in the definitions of knowledge across the literature (Faucher, 2010).

Knowledge management is a recently emerged theory and came into existence just a decade before. KM is still being considered and researched by many academicians and management pioneers and so has a short history.

2.2.1 Knowledge Management during 1960s

When Peter Drucker coined the term "knowledge employees "and then with the passage of time the concept of KM slowly gained attention by the management practitioners and pioneers every decade academicians published their works on KM and in late 1990s organization started considering KM in their strategic planning, post
of CKO (Chief Knowledge Officer) was introduced, KM became an established practice by most of the companies. KM had its rise and downfall, many critics termed it as fad but amongst all criticisms KM is alive and still growing and became the need of every organization for its survival and sustenance in the dynamic market (Drucker, 1957).

2.2.2 During 1970s

The philosopher and practitioner's such as Peter Drucker and Paul Strassman observed the importance of information and explicit knowledge for the achievement of the company. Leonardo Barton's case study of chaperrel steel company where working management strategy was practiced since mid-1970s bring into light the importance of knowledge and strategies of managing knowledge. Organization learning was focused by Peter Senge's work which stressed on the culture dimension of managing knowledge. Other authors who contributed in the study of knowledge management are Chris Argyris, Cristoper Barlett and Dorothy Leonard Barton of Harvard business school. (Barton, 1955) Thomas Allen's research at M.I.T in information technology transfer helped to understand how knowledge can be produced, used and diffused. This was the point where role of computer technology became apparent in knowledge management practice (Peter, 2010).

2.2.3 During 1980s

During this period companies thinking about knowledge management as the advantage of the organization which was earlier not accepted by traditional economic theory knowledge was being considered essential for the competitive advantage of the company. Some journals such as Sloan Management Review, Harvard Business School Review and many others started publishing articles, research and theories on KM. Peter Drucker along with authors like Matsuda Sveiby, wrote in depth about the role of knowledge in organizations. In the late 1980s, the work done on artificial intelligence and expert system introduce the concept of knowledge Acquisition, knowledge engineering and Knowledge based system. These computer based concept further fuelled the growth of knowledge management.
2.2.4 During 1990s

During this period KM became apparent and established business practice by many US, European and Japanese organization. It gained widespread attention by management experts and became even the agenda of conferences organized in this decade. In 1990, Thomas Steward published cover story ‘Brain power’ which was followed by many management experts publishing articles and books on knowledge management. In 1995 Nonaka Ikujiro’s and Hirotaka Tackeuchi’s book ‘the knowledge creating company: How Japanese companies create the dynamics of innovation’ perhaps became the most widely read work (Ikujiro Nonaka, 1995). In the same year, A Andersen and the American productivity and Quality center (APQC) co-sponsored the knowledge imperative symposium in Huston (Thomas, 1994).

Thomas Stewart’s intellectual capital, Karl syeiby’s “the new organization wealth” and Verna Alle’s “the knowledge revolution” became popular titles in the field of KM. Mid-1990 saw worldwide companies including Indian companies implementing KM program, KM forum and international knowledge (Syeiby, 1997).

Management network went online and many KM online journals forums began appearing. Thus, it led to widespread attention of knowledge management. KM entered into top management strategy agenda in corporate entities. Technology advancement added pace to the growth of KM. Many IT firms started developing KM software system and many others software facilitating the KM.

2.3. Knowledge Management in Current Scenario

Knowledge is increasingly being recognized as the new strategic imperative of organizations. The most established paradigm is that knowledge is power. Therefore, one has to hoard it, keep it to oneself to maintain an advantage. The common attitude of most people is to hold on to one’s knowledge since it is what makes him or her an asset to the organization. Today, knowledge is in fact considered an enormous power but the understanding has changed considerably, particularly from the perspective of organizations. The new paradigm is that within the organization knowledge must be shared in order for it to grow. It has been shown that the organization that shares
knowledge among its management and staff grows stronger and becomes more competitive. This sharing of knowledge is the core of knowledge management. Some knowledge is embedded in business processes, activities, and relationships that have been created over time through the implementation of a continuing series of improvements. Explicit knowledge exists in the form of words, sentences, documents, organized data and computer programs and in other explicit forms. If one accepts the concept of tacit knowledge, a fundamental problem of KM is to explicate tacit knowledge and then to make it available for use by others (Filemon, 2008).

The Knowledge Management is well recognized and authorized by the practitioners of the management field. Companies all over the world realized the influence of its practice. Presently it is enthusiastically adopted by many developing countries like Malaysia, China, India and generally practiced by the organizations of all shapes and also in academic courses. Moreover Technology such as social networking, groupware, cloud, and mobile knowledge all help to extract the finest way of KM plan. On the other hand KM also established its share of condemnation and started raising questions on its clearness. Theorists measured KM as a trend, as too much publicity creates about it.

2.4 Classification of Knowledge

Before considering definitions of knowledge, it is useful to consider some characteristics of knowledge as defined by the literature. Citing various authors, (Martennson, 2000) identifies some of the attributes of knowledge:

- Knowledge cannot easily be stored.
- Information has little value and will not become knowledge unless processed by the human mind.
- Knowledge should be studied in context.
- Knowledge depreciates in value if not used.

Drucker (1993) describes knowledge as the only meaningful resource in a knowledge society. Knowledge is not impersonal like money. It also does not reside in a book,
data bank or software program. It is always embodied in a person, taught and learned by a person, used or misused by a person.

(Sharifuddin and Rowland, 2004) clearly state that knowledge transfer, capture and dissemination and organizational knowledge are some of the important elements in knowledge and knowledge management. Knowledge emerges from the processing of the perceived information and contextualization of a person. This shows that knowledge can only exist in the context of person and his beliefs and experience. It is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information (Greiner, 2007).

2.5 Sources of Knowledge

It is important to note that knowledge can only be gained or obtained from outside sources or generated internally. It generally originates within individuals, teams or organization processes. Once extracted it may be stored in a repository to be accessed and shared by other individuals or groups within an organization. Davenport and Prusak (1998) suggested five types of knowledge that correspond to the source of each:

- Acquired knowledge comes from outside the organization.
- Dedicated resources are those in which an organization sets aside some staff members or an entire department (usually research and development) to develop within the institution for a specific purpose.
- Fusion is knowledge created by bringing together people with different perspectives to work on the same project.
- Adaptation is knowledge that results from responding to new processes or technologies in the market place.
- Knowledge networking is knowledge in which people share information with one another formally or informally (Anand and Singh, 2011).
2.6 Types of Knowledge

It is the outcome of learning that provides the organization's sustainable competitive advantage. As such knowledge is an essential asset that has become more important than land, labor or capital in today's economy. It can be broadly categorized into two forms:

- Tacit Knowledge
- Explicit Knowledge

Tacit knowledge is stored in the brain of a person while explicit knowledge is contained in documents or other forms of storage other than the human brain. Explicit knowledge may therefore be stored or imbedded in facilities, products, processes, services and systems. Both types of knowledge can be produced as a result of interactions or innovations. They can be the outcome of relationships or alliances.

2.6.1 Tacit Knowledge

Tacit knowledge is personal and is stored in the mind of people in the form of experience and jobs. It is developed through the process of interaction with other people. Implicit knowledge grows through the practice of trial and error and the experience of success and failure. The sharing of implicit knowledge is a great challenge to many organizations. However, it can be shared and communicated through various activities and mechanisms. Activities include conversations, workshops, on-the-job training. Mechanisms include, among others the use of information technology tools such as email, groupware, instant messaging and related technologies. In any organization, implicit knowledge is the essential prerequisite for making good decisions. Therefore, implicit knowledge is crucial to getting things done and creating value for the organization. It is researched that about 95 per cent organizational knowledge is in the tacit form and remaining 5 per cent is stored as explicit knowledge (Polanyi, 1958).
Figure – 2.1: Tacit Knowledge Model


2.6.2 Explicit Knowledge

Explicit knowledge is codified and is stored in documents, databases, websites, manuals, etc. It is the knowledge that can be readily made available to others and transmitted or shared in the form of systematic and formal languages. It can easily be stored and reused for decision making process. It comprises anything that can be codified, documented and archived. This includes in knowledge assets such as reports, memos, business plans, drawings, patents, trademarks, customer lists, methodologies etc. They represent an accumulation of the organization’s experience kept in a form that can readily be accessed by interested parties and replicated if desired. In many organizations, these knowledge assets are stored with the help of computers and information technology (Uriarte, 2008).

Figure – 2.2: Explicit Knowledge Model


2.6.3 Organization Knowledge

The knowledge organizations use different sources to manage knowledge such as products developed, clients, customers, competitors and financial status. This brings forth the concept of organizational knowledge which states all the information and
knowledge that is relevant for the organization and can be tapped comes under the category of organization knowledge. It exists at all levels, i.e. individual level, group and organizational level. According to Hatch (2010), "when group knowledge from several sub-units or groups is combined and used to create new knowledge, the resulting tacit and explicit knowledge can be called organizational knowledge". Another concept similar to organizational knowledge but of paramount importance to the organization is organizational learning. Organizational learning refers to use of existing knowledge for learning from the process. It acts as a bridge between working and innovating (John and Paul, 1991).

2.7 Definitions of Knowledge Management

In the words Peter F. Drucker, "No matter knowledge management is applied to school or enterprises, the principles and norms are the same, and the major difference lies in how things are managed". According to Zack "knowledge management aim to transform personal knowledge into organization knowledge through innovation, storage, sharing, and exploitation of knowledge, so as to help the organization seek higher performance and better competitiveness".

Knowledge Management is to discover, develop, utilize, deliver and absorb knowledge inside and outside the organization through an appropriate management process to meet current and future needs. (Quintas, 1997). Knowledge management is a process that helps organizations find, select, organize, disseminate, and transfer important information and expertise necessary for activities (Gupta et al. 2000). Knowledge management is getting the right information to the right people at the right time, helping people create knowledge and sharing and acting on information (Holm, 2001). Knowledge management is the creation, extraction, transformation and storage of the correct knowledge and information in order to design better policy, modify action and deliver results (Horwitch and Armacost, 2002).

Knowledge originates in the head of an individual (the mental state of having ideas, facts, concepts, data and techniques, as recorded in an individual's memory) and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. KM is achieving
organizational goals through the strategy-driven motivation and facilitation of knowledge employees to develop, enhance and use their capability to interpret data and information by using available sources of information, experience, skills, culture, character, personality, feelings, etc. through a process of giving meaning to these data and information (Beijerse, 1999).

2.8 Models of Knowledge Management

There are number of knowledge management models available. Some of the important models are as follows:

2.8.1 Ikujiro Nonaka and Hirotaka Takeuchi Model

Nonaka and Takeuchi (1995) proposed a model of the knowledge creating process to understand the dynamic nature of knowledge creation and to manage such a process effectively. They studied the success of Japanese companies in achieving creativity and innovation and quickly found that it was far from a mechanistic processing of objective knowledge. Instead, they discovered that organizational innovation often stemmed from highly subjective insights that can best be described in the form of metaphors, slogans or symbols.

The Nonaka and Takeuchi model of KM has its roots in a holistic model of knowledge creation and the management of “serendipity.” The tacit/explicit spectrum of knowledge forms (the epistemological dimension) and the individual / group / organizational or three-tier model of knowledge sharing and diffusion are both needed in order to create knowledge and produce innovation. Its argue that a key factor behind the Japanese enterprises' successful track record in innovation stems from the more tacit-driven approach to knowledge management. They maintain that Western culture considers knower and known as separate entities. In contrast, the Japanese, through the structural characteristics of their language and through influences such as Zen Buddhism, believe in the oneness of humanity and nature, body and mind, self and other. They underline the necessity of integrating the two approaches, from the cultural, epistemological and organizational points of view, in order to acquire new cultural and operational tools for better knowledge-creating organizations. Their
construct of the hypertext organization formalizes the need for integrating the traditionally opposed concepts of Western and Japanese schools of thought. There is a spiral of knowledge involved in their model, where the explicit and tacit knowledge interact with each other in a continuous process. This process leads to creation of new knowledge. The central thought of the model is that knowledge held by individuals is shared with other individuals so it interconnects to a new knowledge. Therefore, the amount of knowledge grows all the time when more rounds are done in the model.

![Diagram of Ikujiro Nonaka and Hirotaka Takeuchi Model]

**Figure - 2.3: Ikujiro Nonaka and Hirotaka Takeuchi Model**


### 2.8.2 The Choo Sense-Making KM Model

Choo (1998) has described a model of knowledge management that stresses sense creation (largely based on Weick, 2001), knowledge creation (based on Nonaka and Takeuchi, 1995) and decision making (based on, among other concepts, bounded rationality; see Simon, 1957). The Choo KM model focuses on how information elements are selected and subsequently fed into organizational actions. Organizational action results from the concentration and absorption of information from the external environment into each successive cycle, as illustrated in Figure. Each phase, sense making, knowledge creation, and decision making, has an outside stimulus or trigger.
In the sense-making stage, one attempts to make sense of the information streaming in from the external environment. Priorities are identified and used to filter the information. Individuals construct common interpretations from the exchange and negotiate information fragments combined with their previous experiences. Weick (2001) proposed a theory of sense making to describe how chaos is transformed into sensible and orderly processes in an organization through the shared interpretation of individuals. Loosely coupled system is a term used to describe systems that can be taken apart or revised without damaging the entire system. A human being is "tightly coupled," whereas the human genome is "loosely coupled." Loose coupling permits adaptation, evolution, and extension. Sense making can be thought of as a loosely coupled system whereby individuals construct their own representation of reality by comparing current with past events. (Kimiz, 2005).

Figure – 2.4: The Choo Sense-making KM Model


2.8.3 The Wiig Model for Building and Using Knowledge

Wiig (1993) approached his KM model with the following principle in order for knowledge to be useful and valuable, it must be organized. Knowledge should be organized differently depending on what use will be made of the knowledge. For example, in our own mental models, we tend to store our knowledge and know-how
in the form of semantic networks. We can then choose the appropriate perspective based on the cognitive task at hand.

Knowledge organized within a semantic network can be accessed and retrieved using multiple-entry paths that map onto different knowledge tasks to be completed. Some useful dimensions to consider in Wiig’s KM model include: completeness, connectedness, congruency and perspective and purpose. Completeness addresses the question of how much relevant knowledge is available from a given source. Sources may be human minds or knowledge bases (i.e., tacit or explicit knowledge).

![Diagram of a semantic network](image)

**Figure – 2.5: The Wiig Model for Building and Using Knowledge**

The knowledge may be complete in the sense that all that is available about the subject is there, but if no one knows of its existence and/or availability, they cannot make use of this knowledge. Connectedness refers to the well-understood and defined relations between the different knowledge objects. Very few knowledge objects are totally disconnected from the others. The more connected a knowledge base is (i.e., the greater the number of interconnections in the semantic network), the more coherent its content and the greater its values. However, the concept of definitions should be consistent and the knowledge base as a whole needs to be constantly “fine-tuned” to maintain congruency.

Wiig’s KM model goes on to define different levels of internalization of knowledge. Wiig’s approach can be seen as a further refinement of Nonaka and Takeuchi’s fourth quadrant, internalization. In general, there is a continuum of internalization, starting with the lowest level, the novice, who “does not know he does not know” who does not have even an awareness that the knowledge exists and extending to the mastery level where there is a deep understanding not just of the know what, but the know-how, the know-why, and the care-why (i.e., values, judgments and motivations for using the knowledge). Wiig (1993) also defines three forms of knowledge: public knowledge, shared expertise, and personal knowledge. Public knowledge is explicit, taught, and routinely shared knowledge that is generally available in the public domain. An example would be a published book or information on a public website.

2.8.4 The Boisot I-Space KM Model

The Boisot KM model is based on the key concept of “information good” that differs from a physical asset. Boisot distinguishes information from data by emphasizing that information is what an observer will extract from data as a function of his or her expectations or prior knowledge. The effective movement of information goods is largely dependent on senders and receivers sharing the same coding scheme or language. A knowledge good is one that also possesses a context within which it can be interpreted. Effective knowledge sharing requires that senders and receivers share the context as well as the coding scheme. Together, they underpin a simple conceptual framework, the Information Space or I-Space KM model. Data is structured and understood through the processes of codification and abstraction. Codification refers
to the creation of content categories the fewer the number of categories; the more abstract the codification scheme. It is assumed that the well-codified abstract content is much easier to understand and apply than the highly contextual content.

Boisot's KM model addresses the tacit form of knowledge by noting that in many situations, the loss of context due to codification may result in the loss of valuable content. This content needs a shared context for its interpretation and implies face-to-face interaction and spatial proximity which is analogous to socialization in the Nonaka and Takeuchi model (1995). The I-Space model can be visualized as a three-dimensional cube with the following dimensions: codified uncodified; abstract concrete; and diffused undiffused. The activities of codification, abstraction, diffusion, absorption, impacting, and scanning all contribute to learning. Where they take place in sequence and to some extent they make up the six phases of a Social Learning Cycle (Mishra, 2009).

The Boisot model also incorporates a theoretical foundation of social learning and serves to link together content, information and knowledge management in a very effective way. In fact, the codification dimension is linked to categorization and classification; the abstraction dimension is linked to knowledge creation through analysis and understanding and the third diffusion dimension is linked to information access and transfer. However, the Boisot model appears to be somewhat less well known and less accessible and as a result has not widespread implementation.

![The Boisot I-Space KM Model](image)

Figure – 2.6: The Boisot I-Space KM Model

2.9 Components of Knowledge Management

One popular and widely-used approach is to think of knowledge management in terms of three components, namely people, processes and technology.

Figure – 2.7: Components of Knowledge Management


2.9.1 People

Getting an organization's culture right for knowledge management is typically the most important and the most difficult challenge. KM is first and foremost a people issue. Does the culture of your organization support ongoing learning and knowledge sharing? Are the people motivated and rewarded for creating, sharing and using knowledge? Is there a culture of openness and mutual respect and support? Is the organization very hierarchical where “knowledge is power” and so people are reluctant to share? Are people under constant pressure to act, with no time for knowledge-seeking or reflection? Do they feel inspired to innovate and learn from mistakes?

2.9.2 Processes

In order to improve knowledge sharing, organizations often need to make changes to the way their internal processes are structured and sometimes even the organizational structure itself. For example, if an organization is structured in such a way that different parts of it are competing for resources, then this will most likely be a barrier to knowledge sharing. Looking at the many aspects of “how things are done around
here” in the organization which processes constitute either barriers to or enablers of knowledge management? How can these processes be adapted or what new processes can be introduced to support people in creating, sharing and using knowledge?

2.9.3 Technology

A common misconception is that knowledge management is mainly about technology – getting an internet, linking people by e-mail, compiling information databases etc. Technology is often a crucial enabler of knowledge management it can help connect people with information and people with each other but it is not the solution. It is vital that any technology used “fits” the organization’s people and processes otherwise it will simply not be used. These three components are often compared to the legs of a three-legged stool if one is missing, then the stool will collapse. So, one leg is viewed as being more important than the other people. An organization’s primary focus should be on developing a knowledge friendly culture and knowledge friendly behaviors among its people which should be supported by the appropriate processes which may be enabled through technology.

2.10 Process of Knowledge Management

In bringing knowledge management into your organization, you will need to select and implement a number of processes that will help your organization to be better at creating, finding, acquiring, organizing, sharing and using the knowledge it needs to meet its goals. There are many such processes, which include:

- Conducting knowledge audits to identify knowledge needs, knowledge resources and knowledge flows.
- Creating knowledge strategies to guide the overall approach.
- Connecting people with people to share tacit knowledge using approaches such as communities of practice or learning events.
- Connecting people with information to share explicit knowledge using approaches such as best practices databases, and using content management processes to ensure that explicit knowledge is current, relevant and easily accessible.
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- Creating opportunities for people to generate new knowledge, for example through collaborative working and learning.
- Introducing processes to help people seek and use the knowledge of others such as peer assists.
- Teaching people to share knowledge in ways that inspire people by using storytelling techniques.
- Encouraging people to prioritize learning as part of their day-to-day work, by learning before, during and after the tasks and projects they have performed.

Some knowledge management processes are fairly new to organizations but many are not. They are simply being considered from a new perspective, that focusing on knowledge. KM has emerged as a label for consciously perceiving and addressing the issues raised by the importance and the availability of knowledge. It consists of more than directly managing knowledge as a resource: it is concerned with managing the environment of knowledge employees, creating and maintaining favorable conditions for value creation based on knowledge. KM is not a discipline with well defined boundaries. It draws on many different fields of study including business studies, psychology, sociology, educational science, cognitive science, computer science, and library and information science.

2.11 Aspects of Knowledge Management

There are two main aspects of knowledge management, namely, information management and people management. Viewed from this perspective, KM is about information on one hand and people on the other. Most entrepreneurs and managers are familiar with the term information management. This term is associated with the management of knowledge related to objects that are identified and handled by information systems. The practice of information management developed and became widely accepted when executives realized that information was an important corporate resource that could and should be managed to improve the company’s competitiveness. As a consequence of the growth in the practice of information management, the concepts of ‘information analysis’ and ‘information planning’ developed, thus providing additional tools for practitioners.
As academics and theorists continue to reflect on the subject, information management has further developed into knowledge management. Entrepreneurs and managers have become more aware that knowledge is differentiated from mere information is an even more valuable resource of the organization. Consequently, the idea that processes for knowledge management must be developed in a manner similar to the management processes applied to information has gained more and more followers. This trend has resulted in a number of techniques being developed and applied such as knowledge technology which analyzes knowledge sources. By using these techniques, organizations are able to implement 'knowledge analysis' and 'knowledge planning' in the same manner as the application of earlier tools of information analysis and 'information planning'. KM draws upon a vast number of diverse fields such as:

- Organizational Science
- Cognitive Science
- Linguistics and computational linguistics
- Information technologies such as knowledge-based systems, document and information management, electronic performance support systems and database technologies
- Information and Library Science
- Technical Writing and Journalism
- Anthropology and Sociology
- Education and Training
- Storytelling and Communication Studies
- Collaborative Technologies such as Computer Supported Collaborative Work and groupware, as well as intranets, extranets, portals and other web technologies

The multidisciplinary nature of KM represents a double edged sword. On the one hand, it is an advantage because anyone can find a familiar foundation on which to base their understanding and even practice of KM. For example, someone with a background in journalism, can quickly adapt his or her skill set to the capture of knowledge from experts and reformulate them as organizational stories to be stored in
corporate memory. Someone coming from a more technical database background can easily extrapolate his or her skill set to design and implement knowledge repositories that will serve as the corporate memory for that organization. However, the diversity of KM also presents some challenges with respect to boundaries. Skeptics argue that KM is not and cannot be said to be a separate discipline with a unique body of knowledge.

2.12 Knowledge Management Life Cycle

The sequence or systematic set of activities performed in implementing the KM practices i.e. termed as KM life cycle or KM process. KM life cycle includes three layers with knowledge organization in the center. The middle layers shows the various activities performed during the KM process. The activities are knowledge creation, collection, organize, refine disseminate and maintain. The final layer describes the enablers of KM process as leadership, technology, culture and intelligence. The KM process consists of various activities which begin with capturing the knowledge available, then organize the captured knowledge and eventually its dissemination From time to time. The knowledge is refined and updated according to its use and situation.

2.12.1 Knowledge Capture

When knowledge from different areas of the organization is captured and stored it is termed as knowledge capture. It includes the process of gathering both explicit and tacit knowledge from all the available sources. Explicit knowledge includes data entries, emails, documents stored as archive, feedback of customers and clients, past projects reports etc. Tacit knowledge involves capturing of knowledge with the help of interviews, questionnaires outside observation, insights, brainstorming etc. Whereas it is difficult to capture tacit knowledge but it is more important to do so.

2.12.2 Knowledge Modifying/ Organizing

In this stage the captured knowledge (both tacit and explicit) is organized with the objective of reusing and disseminating it. Adding to the knowledge assets, codifying process is an important tool used for organizing knowledge. This tool converts the
tacit knowledge into explicit knowledge. Interviews, brainstorming, discussion etc are used to capture tacit knowledge and then they are coded in the form of physical documents with the objective of reusing it and disseminating it. The codified knowledge is further organized on the basis of cataloging and indexing technique. Ultimately the result of this stage is to convert the capture tacit knowledge into explicit organized knowledge.

2.12.3 Knowledge Refining

After organizing the knowledge, the next step comes of refinement of the knowledge. It focuses on the decision of knowledge on the basis of its context. For this task, data mining software are used which result revealing patterns and trends from the organized knowledge. Its benefit is that management and decision makers understand the trend of the knowledge available to be used for achieving the objective of organization. Data mining helps to discover new tacit knowledge from the explicit knowledge. Thus, the eventual outcomes of this stage are the availability of refined knowledge with respect to context in the patterns, tutorials, insights, white paper, graphical representation projections etc.

2.12.4 Knowledge Sharing

The last stage of KM life cycle attempts to create more knowledgeable human resource in the organization. This stage includes dissemination, sharing and refinement of knowledge across the organization without any interruption. The key objective is not to let knowledge be idle but use it or who may be benefited out of it. Knowledge dissemination helps employees to update their knowledge while increasing their adaptability to learn new techniques and process. This also helps in retention of employees.

2.13 Knowledge Management Drivers/Enablers

The successful implementation of KM practices depends on KM drivers. KM drivers are also important factors that optimize the benefits of implementing KM systems. They also decide the success or factors of KM practice in the organization. The
knowledge management affects the KM process. The key factors which effect failure
or success of KM system are as follows.

2.13.1 Leadership

Leadership is most essential and primary driver of knowledge management. The
human aspect is most vital in KM which is based on sharing and acquiring
knowledge. It is very difficult to make people allocate their knowledge. Leadership
excellence plays a crucial role here and an efficient leader can set an example for
sharing knowledge. A leader can create belief among its employees and once belief is
developed among the management and employees, the organization can achieve its
goal effectively. KM activities want participative performance from each worker
within the organization. A good leader can encourage his staff and generate in them
KM process and make it productive. The Leader who don’t understand the value of
distributable and actionable knowledge he not only limit opportunities, but also limit
building huge contingent operating liabilities. Only a good leader can understand that
hoarding knowledge diminish its value and leveraging knowledge can create value.

2.13.2 Finance

This is the vital objective of knowledge management. It is to create position returns
on investment on people, process and technology. It must increase the efficiencies in
production, sales and services on a daily basis.

2.13.3 Culture

A good Organizational culture initiates the knowledge management process and helps
in the evolution of the same. It can make KM practice more fruitful. It is defined as a
set of implicit assumptions held by the members of a group that determines how the
group behaves and responds its environment. It includes the organizational values,
visions, norms, working language system, symbols, beliefs and habits. It is the pattern
of such collective behaviors and assumptions that are taught to new organizational
member as a way of perceiving and even thinking and feeling. Organizational culture
also affects the way people and groups interact with each other, with clients and
stakeholders.
2.13.4 Technology

The backbone of the knowledge management process is Technology. Technological advancement in communication, networking and internet could effectively facilitate the KM Process. In this scenario of employees working on remote sites, technology makes it easier to share information which is crucial for the success of KM implementations. Newly emerged concept of Big Data where every organization is generating huge amount of data, is managed efficiently with data warehousing and data mining. Knowledge creation, storage, organizing and analyzing has become more effective and optimized with the advent of data warehousing and data mining technologies. Many companies are implementing groupware software such as Lotus, Share Point or Web 2.0 which helps to capture, store and share tacit knowledge which is considered most crucial for KM. This groupware software helps to implement communities of practices. Organizational based social networking can be created which eliminates the barrier between the employees and allow to interact informally. Moreover further enhances trust among them and this later on make showing of tacit knowledge easier. Thus, technology plays a vital role in successful implementation of KM activities and acts as one of the pillars of knowledge management.

2.13.5 Process

Booming execution of KM activities results in enrichment of the processes of the organization. Knowledge management targets to make the process of the organization more efficient, responsive and optimized to cope with the changing business environment. KM activities improve the processes by identifying and eliminating the previous mistakes, reusing the knowledge of previous projects thereby optimizing the process time, development coordination among the team members and further encourage innovations in the process, and help the organizations to sustain and survive in the dynamic business environments. Thus, process is another vital driver for knowledge management.

2.13.6 Personnel

The employees of the organization are also termed as KM knowledge management focuses on creating cross-functional teams of these knowledge employees. Today,
there is a need of collective and collaborative approach rather than departmental division of knowledge employees. KM tends to upgrade the knowledge of every individual and make him multi-disciplinary knowledge worker. It increases the strength of an individual and the overall organization. It reduces damage caused by knowledge walkouts or brain drain when employees shift job or retire. It concentrates on capturing the expertise of every individual and stores it in explicit for further reuse and thus reduces the disasters of knowledge walkout. Moreover, it nurtures the culture of trust and harmony among the employees and also reduces the knowledge gap between the management and employees. This further develops coordination among the employees and creates a healthy knowledgeable culture of the organization and results in employee retention.

2.14 Tools of Knowledge Management

The range of KM tools is to supply the outline of the types of KM tools accessible on the marketplace and to gain an understanding of what their role is in the KM process. There are literally thousands of options for tools. The selection is based on tactical management initiatives outlining its role in knowledge discovery, organization, sharing, etc. The KM tools are basically IT based tools and fall in one of the following categories:

Figure – 2.8: Tools of Knowledge Management

Source: https://www.google.co.in/search?q=knowledge+management&espv=2&biw=1280&bih=858&imgrc=FWeNhQhooXIswRMpercent253Apacer253BMJH3XEAgm0ckMpercent253Bhttpaper25253Apercent2
2.14.1 Groupware systems and KM 2.0

Groupware is a term that refers to technology designed to help people collaborate and includes a wide range of applications. Three handy categories for groupware are as follows:

- **Communication Tools**: These tools are for sending messages and files including email, web publishing, wikis, file sharing, etc.
- **Conferencing tools**: These tools are for video/audio conferencing, chat, forums, etc. Collaborative Management Tools: These tools are for managing group activities e.g. project management systems, workflow systems, information management systems, etc (Frost, 2010).

2.14.2 Web 2.0, Enterprise 2.0 and KM 2.0

In the current scenario, the term web 2.0 has appeared to describe the increasingly popular tools that promote two way communications on the internet. These social tools include blogs, wikis, social bookmarking, commenting, shared workspaces, micro blogging and polling. They differ from traditional publishing because they put the knowledge sharing power in the hands of the users themselves. (Gurteen, 2012).

2.14.3 The Intranet and Extranet

The intranet is basically a small-scale version of the internet, operating with similar functionality but existing solely within the firm. Like the internet, the intranet uses network technologies such as Transmission Control Protocol/Internet Protocol. It allows for the creation of internal networks with common internet applications that can allow them to communicate with different operating systems. It is projected not only to enhance group effort, productivity and socialization but also to influence organizational culture and to act as a repository for embedded knowledge. Robertson (2009) identifies seven key roles of the intranet homepage (Frost, 2010)

- News
- Navigation
- Key Tools
- Key Information
- Community And Culture
- Internal Marketing
- Collaboration

The focus is to provide a useful site that enhances work practices, communicates key information, provides the right navigation tools and helps to define organizational culture. Many factors have to be balanced to create the right homepage including quality of the content, site design, site navigation, site and content maintenance and updates and the application of tools that are directly useful to the business processes and networks.

The Extranet: The extranet is an extension of the intranet to the firm's external network, including partners, suppliers and so on. The term is sometimes used to refer to a supplementary system working along with the intranet or to a part of the intranet that is made available to certain external users. The extranet provides a shared network with limited controlled access to the organizational information and knowledge resources and uses security protocols such as authentification to limit access.

2.14.4 Warehousing Data: The Data Warehouse, Data Mining, and OLAP

Warehousing Data: It is based on the premise that the quality of a manager's decisions is based, at least in part, on the quality of his information. The goal of storing data in a centralized system is thus to have the means to provide them with the right building blocks for sound information and knowledge. (Tanler, 1997).

Data Mining: These tools and techniques can be used to search stored data for patterns that might lead to new insights. Furthermore, the data warehouse is usually the driver of data-driven decision support systems (DSS) explained in the following subsection (Thierauf, 1999).

Warehousing Data: Design and Implementation: There are three stages in the plan and execution of the data warehouse. The first stage is largely concerned with identifying the critical success factors of the enterprise, so as to determine the focus of
the systems applied to the warehouse (Tanler, 1997). The next step is to identify the information needs of the decision makers. This involves the specification of current information lacks and the stages of the decision-making process (i.e. the time taken to analyze data and arrive at a decision). Finally, warehousing data should be implemented in a way that ensures the users to understand the benefits from it. (Frank 2002).

2.14.5 Content Management Systems

Content management systems are very imperative to knowledge management that is accountable for the creation, management and distribution of the content on the intranet extranet or a website. The content management is a discipline in itself, so this section will be relatively brief only outlining the basic considerations.

2.14.6 Document Management Systems

Document management systems are the systems that aid in the publishing, storage, indexing, and retrieval of documents. Although such systems deal almost exclusively with explicit knowledge the sheer volume of documents that an organization has to deal with makes them useful and in some cases even mandatory. The functions of document management system are as follows (Frost, 2010)

Capturing: In order for paper documents to be useable by the document management system, they must be scanned in. For companies that need to carry out this process and who have numerous paper documents this may be time consuming and expensive.

Indexing: There are different forms of indexing and a good indexing system is crucial. The index function will use metadata, Searching and retrieval. The document management system's search function is one of its most important elements.

Versioning: Storage and management of different versions of documents are useful for documents that require frequent updating.

Administration and Security: It may include a host of possible features including multiple platform support, multiple/customizable interfaces, workflow modules,
file/format conversions, etc. Prices vary accordingly and solutions should be carefully matched to organizational requirements.

2.15 Implementation of KM System

The KM System supports and enhances the firm’s knowledge process. KM system can be defined as the information system developed to support and enhance the organizational knowledge process of knowledge creation, storage, retrieval, transfer and application.

The implementation of KM system in an organization is an evolutionary process rather than a ‘big bang’ approach. Companies may take years to evolve from one stage to another stage and a well planned steady approach can make the KM system implementation successful. There may be failures in implementing KMS from ‘All Flight Magazine Syndrome’ which means a manager or an officer reads an article on KM in a magazine during his flight and he lands up in office and suddenly implements KM system. These types of implementation are subject to failure as they lack proper planning and strategy. Implementation of KM system requires a planned strategy with a collaborative involvement from all the layers of organizations.

2.15.1 Success Factors in Implementation of KM System:

Successful implementation of KM system depends on many factors. The factors which include top management support, functional aspect of implementation and the proper management of human resource of KM, has listed out the following success factors for the implementation of KM system:

- **Workforce Planning:** The organization must have a well planned workforce. This planning should be linked to origination’s strategic planning efforts. The efforts are taken to create a citizen-centered, result oriented and market based organization.

- **Workforce Deployment:** The workforce is positioned both geographically and organizationally to serve citizens and helps the organization to achieve its goal and missions.
• Leadership Planning and Implementation: This is related to organization's recognition of leadership competency objective and strategies to address them.

• Change Management: The role of leaders is important in understanding what it takes to effectively bring changes in management so that there is significant and sustainable improvement in the performance.

• Integrity and Inspiring Employees' Commitment: Leaders should be such that they set example for others and become role model for their team and employees. It is about the qualities of leader which shows the honesty and ethics and inspires others to follow the same. A good leader can promote teamwork, develop trust among the employees and get an honest and ethical feedback from them.

• Strategic Knowledge Management: Organizations must provide all the resources and tools required for the knowledge sharing within the organization which is the main mission of KM system.

• Continuous Learning and Improvement: The employees are provided an environment and leadership which foster continuous learning culture and explore more opportunities for them. Leaders invest in training, education and other development activities to support self development in the employees. This also helps in employee retention and his loyalty towards the organizations.

• Result Oriented Performance Culture: This is related to human capital of KM system, the workforce should be result-oriented, dedicated and determined towards their job. A good performance management system can facilitate in identifying the low and high performing employees.

• Performance Management: A good performance management system helps organization to identify individual and teams with respect to their performance and thereby helps the organization to encourage good performance by rewarding or appreciations and motivate low performing teams of employees.

• Diversity: Organization constitutes diverse group of employees, efficiently managing this diversification can yield fruitful result. Efficient management
of this diversification and differences in the culture of employees will help company to achieve goals.

- **Employee/Labor Management Relations**: A proper strategy to manage employee and management relations can increase cooperation, communication, unions among the employees, reduces employee related disputes, keeps harmony among them and as a result helps in smooth functioning of the organizations towards achieving its goals.

- **Workforce Analysis**: There is systematic process developed to identify mission critical occupations and competencies needed in the current and near future of workforce and also develop strategy to fill the gaps. (Raddy, 2007)

### 2.15.2 Challenges in KM Implementation

- **Getting Employees On-Board**: This is perhaps the biggest challenge to make employees participation in the KM process. KM implementation challenges to compel employees to share their knowledge and skills due to which they are surviving in the organization. Some psychological barriers such as fear of developing competency, losing the job because their knowledge is no more unique, jealousy or complex. All these factors may become a barrier in KM implementation.

- **Allowing Technology to dictate**: Knowledge management is highly influenced by Information Technology but not to be misunderstood as an Information Technology concept. It only facilitates efficient functioning of KM activities. Due to of overshadowing of information technology on knowledge management, the real essence of KM might be lost and misunderstood as an Information technology discipline.

- **Not Having Specific Business Goals**: The end result of KM system is to bring best out of the organization so as it can successfully achieve its goals. If goals are not properly defined, the complete process of KM system will head towards a wrong direction and result in a mess and wastage of time and money.
- Not All information is Knowledge: KM system is all about knowledge gathering, organizing and sharing. It is very important to identify which knowledge needs to be shared and which not. Sharing wrong knowledge can result in disaster. Thus, organization must scrutinize the knowledge before being disseminated.

2.16 Knowledge Creation

A discussion of knowledge creation will be lacking if it does not consider the contribution of Nonaka. Alavi (2000) draws special attention to the emphasis that Nonaka places on appropriate organizational mechanisms to support and nurture each of the modes of knowledge creation discussed earlier. For the sake of convenience, Nonaka’s modes of knowledge conversion are again listed; they are socialization, externalization, combination and internalization. (Davenport and Prusak, 2000) propose five options available to organizations through which knowledge is created:

**Acquisition:** It refers to knowledge acquired by the organization from external sources including knowledge internally generated. This is not necessarily new knowledge it includes knowledge copied from competitors or other industries.

**Rental:** it is hiring a consultant with specific expertise.

**Dedicated Resources:** It is utilizing resources exclusively for the purpose of Research and Development units.

**Fusion:** The deliberate introduction of complexity, diversity and conflict to create new synergy.

**Adaptation:** An external change causes organization to “adapt or die”; warns against the complacency, “core rigidities” or the tendency to stay on well-known paths. Some organizations sometimes generate a crisis in order to stimulate creativity.

**Networks:** Informal self-organizing networks of people that might become formalized, e.g. Community of Practice (Vlok, 2004).
2.17 Benefits of Knowledge Management

Knowledge management is far reaching. The impact of a successful KM program can be seen in terms of new and better product developments, higher customer satisfaction, reduce in input cost, higher productivity etc. There are many organizations who achieve all these without having a formal KM program. These organizations have strong culture of innovation and sharing. They must be spiraling through the knowledge creating process without even knowing the SECI model. A formal KM program accelerates this knowledge creating process in a structured way. With the global nature of today's business, companies are setting up their units and opening new marketing offices in any part of the world. The advantage of being local does not exit any more. Internet has given opportunity by providing a level playing field to all, create and operate new business without having a office near the customer or consumer. These opportunities are to be tapped to enter into a new market or customer segment. At the same time one has to innovate and improve to protect the existing market with a knowledge driven business management process. Retrieved from: http://www.fao.org/docrep/w5830e/w5830e0f.htm

(a) Knowledge Employees Carry their Product

An organization can become learning or innovative one because of its intellectual assets and knowledge employees. These knowledge employees are the key to success and can bring tremendous improvement and change to the organization. But these knowledge employees do not need the traditional ways of providing motivation like financial rewards. Better financial packages are must to the bring fruitful results. They prefer better challenging jobs and peer respects. So the organization has to provide or facilitate better knowledge creation process to motivate knowledge employees.

(b) Knowledge Management depends on Culture not on IT

Many KM programs fail because of excessive dependence on technology. So to get the maximum out of any KM program the organization should focus on culture building. Technology just provides a platform for exchange of knowledge but it itself can't be called as KM program. A strong culture of sharing and innovating is what
brings success to a KM program. So through KM program a culture is developed which can't be copied by any competitor.

(c) Decision Support System

Knowledge Management creates a platform for extensive data mining and triggers many trend analysis and business intelligence knowledge. It assists today's managers with better decision support systems. With sharing of data and information across the organization and getting the details from customers and suppliers, managers can forecast the future trend and take better decision.

(d) Collaboration across the Industry

Knowledge creation process does not limit itself within the organization. The knowledge Customer of supplier and its feedbacks create or trigger a new knowledge creating process. Conferences and seminars bring new learning to the organization and introduce ones knowledge and expertise to others. It encourages partnership and collaboration to develop new products and services leveraging the experience of different organizations. Many academicians join hands with technocrats to develop or improve existing or new process.

(e) Why to Re-invent the Wheel

A company after a thorough research finds the solution for a problem and when it goes to patent office to take the patent on its name, it surprises to find that four years back the same solution has been patented by it. Many times precious resource and time gets wasted in finding a solution which is already done before. KM provides platform in the form of community of practices, discussion boards, ask expert system, yellow pages etc to provide or build the existing successful solutions. Such tools assist knowledge worker in developing and sharing such best practices and innovation across the community.
(f) Leader in Change Management

Through innovation and sharing knowledge management helps in developing new products and services or improves the existing practices. Some of these innovations or an improvement sets a new trend in the market and the organization takes the leading role among the peers. Knowledge driven organization always takes a leader’s role and set a new standard for others to follow. It develops a new trust among its customers and suppliers and gets the confidence of them as a innovative organization.

(g) Flexible Business Approach

Because of the strong networking culture knowledge management creates and helps in developing collaborative decision making and threat analyzing capability of any organization. The organization faces new challenges successfully and became a flexible organization to adopt new business environment. New product and services development in new areas became easy as KM encourages collaboration among customers and suppliers by frequent interactions. Organizations enter into new line of business with their knowledge and collaborations with others.

(h) Knowledge Intensive not Capital Intensive

Today's business is not located near availability of raw materials or capital. They are flowing to the areas where knowledge is available. Companies’ future valuation heavily depends on its future market potential based on today's knowledge creating capability. Equipment or the capital is not the key differentiator among the organizations. Capital flows to the areas where knowledge is available to create more business product and services. (Retrieved: http://www.allkm.com/km-basics/benefit-of-km.php)

Globalization of Business: in the present business scenario the organizations are more global multisite, multilingual and multicultural in nature.

Leaner Organizations: The organizations are not only doing it more and faster, but need to work smarter as knowledge employees adopting an increased pace and workload.
Corporate Amnesia: It is more mobile as a workforce, which creates problems of knowledge continuity for the organization and places continuous learning demands on the knowledge worker. The knowledge employees no longer expect to spend their entire work life with the same organization.

Technological Advances: Advances in information technology not only have made connectivity ubiquitous but have radically changed expectations. The organizations are expected to be “on” at all times, and the turnaround time in responding is measured now in minutes, not weeks (Dalkir, 2005).

2.18 Stages of Knowledge Management

There has to be a progression of KM goals and stages:

(a) Smart Processes

Knowledge management activities often initially focus on improving processes (focusing on continuous improvement through lessons learned, best practices, process innovation, getting the right information/knowledge to the right people at the right time, etc.). Many e-business initiatives are merely speeding up existing processes by enhancing the flow of information and data, such as electronic ordering, providing product and service information and support over the internet, and promoting just-in-time delivery. These process-oriented improvements can eventually focus on developing more knowledge-infused, smart processes.

(b) Knowledge

The focus next turns towards creating new and increasingly knowledge-infused products and services with an emphasis on enhancing creativity and more effective and efficient Research and Development.

(c) Innovative Business Concepts

Innovation in the literature has recently been directed at developing new business concepts changing the rules of the game and the game itself.
(d) Constructing Critical Knowledge Systems and Conjoining Work Systems with Knowledge Systems

The ultimate goal of knowledge management is to construct and continually enhance knowledge systems and to conjoin knowledge systems and work systems. All levels of work should be embedded within the appropriate knowledge systems, including strategic decision-making operations, research and development, engineering, maintenance, marketing, etc. Building better and better knowledge systems and conjoining work systems with these knowledge systems is the on-going motor of innovation. The challenge is to determine what knowledge systems are critical to the various work systems and constructing these to facilitate and improve work system (Cornican, 2002).

2.19 Concept of White Collar Employees or Knowledgeable Employees

A worker using knowledge in a more productive manner is a knowledge worker or white collar employee. Knowledge employees in their regular business activities use all varieties of knowledge. Usage of any form of recorded knowledge is the criteria of judging knowledge worker. A knowledge worker actively completes the tasks by using knowledge. For example, a knowledge worker might be someone who works at any of the tasks of planning, acquiring, searching, analyzing, organizing, storing, programming, distributing, marketing or otherwise contributing to the transformation and commerce of information and those who work by using the knowledge so produced.

Creative and non linear thinking are the key characteristics of knowledge worker. Another distinguishing feature of knowledge work is that it produces more knowledge. When the software professional uses his/her knowledge of writing codes to increase the efficiency of the programme, he/she is creating new ways of applying knowledge. Thus, knowledge-work is more than mere application of known knowledge. The outcome of knowledge-work is creation of new knowledge. Generally ‘white collar’ refers to the social status of the worker. For example, answer.com defines white collar worker as “office worker in professional, managerial
or administrative position. Such employees typically wear shirts with white collars”. Other definitions of white and blue collar work are based on whether the worker performs manual work. For example, Prandy, (1982) used the term ‘white-collar’ to refer to non-manual labor, e.g., supervisors, clerks, professionals and senior managers. Still other definitions of white collar work focused on job categories.

Knowledge employees or white collar employees are obviously non-manual employees employed by firms to carry out innovative activities. A Knowledge Worker is anyone in the organization who uses his brain at some point during the day to accomplish his task. A person who has been schooled to use knowledge, theory and concept rather than physical force or manual skill is known as a KM worker. The man/woman who puts to work what he/she has between his/her ears rather than the drawn of his/her muscles or the skill of his/her hands. Knowledge employees use their intellect to convert their ideas into products, services or processes. Knowledge employees create knowledge, know how to tap and share it across an organization, and then reuse this knowledge whenever necessary. Knowledge worker solves problem. It is a manipulator of symbols, someone paid for quality of judgment rather than speed of work (Mohanta, 2006).

2.20 Historical Background of White Collar Employees

Occupations have always centered on the use of specialized information. The persons employed in these types of occupation do not require intensive use of specialized knowledge. Today the frequent increase in knowledge work concerns business administrators, professors, management consultants and others interested in learning to increase business profits or improve, quality of life in a holistic manner.

The old and traditional knowledge work has recently been replaced by new types of knowledge in view of the changing environment. Their numbers grew as the population of Europeans in North America increased in the 1700s and early 1800s. Industrialization then forced the creation of new categories of employees who used the information to make their livings: inventors, consultants, and managers. The growth in the economy added to the expansion of knowledge worker and knowledge management. In the 1950s, computer science and other knowledge based professions
rapidly expanded. Economist Fritz Machlup examined the distribution, use, and creation of information in the United States. He used statistical information to show that manual employees' share of the labour force was decreasing while the white-collar employees share was increasing. He tried to differentiate among various types of knowledge employees. Machlup showed that knowledge-producing occupations were growing much faster than manual labour occupations and he redefined the word "work" in terms of a way to manage and use knowledge. (Retrieved from: http://www.referenceforbusiness.com)

Peter Drucker who wrote extensively on the subject of the knowledge worker identified and described the reasons for the decline of the blue collar worker and the rise of the knowledge worker which are now considered accurate predictions about the knowledge worker's place in the society. He described how knowledge-based positions evolved from manufacturing and agricultural jobs mechanization or activities have increased, expanded and diversified causing the number of knowledge employees to grow. He further explained how emphasis on developments in science and technology fostered the creation of new knowledge professions while an expanding economy enabled their growth.

2.21 Characteristics of White Collar Employees

Knowledge work is multifaceted and those who achieve it need converted skills and abilities as well as knowledge with actual and theoretical information. These people must be able to find, access, recall and apply information, interact well with others and possess the ability and motivation to acquire and improve these skills. While the importance of one or more of these characteristics may vary from one job to the other the following are the characteristics of the knowledge employees.

(a) Possessing Factual and Theoretical Knowledge

Knowledge employees are conversant with specific factual and theoretical information. The teachers possess information regarding specialized subject matter, teaching strategies and learning theories. The sales representative commands factual knowledge concerning the product he or she sells and theoretical knowledge about how to interest customers in that product. Prospective knowledge employees may
need years of formal education to master the information needed to enter a particular field of work. The employee who always creates knowledge will be acquiring additional information on a continual basis.

(b) Finding and Accessing Information

Today the society depends on knowledge that is continually growing and changing. The distribution of information within organizations has become problematic due to the massive amount of information with which employees need to be familiar. Knowledge employees must therefore know how to independently identify and find such material. Such employees need to know which sources provide the information they need and how to use these sources in order to locate information successfully.

(c) Ability to Apply Information

Knowledge employees use information to answer questions, solve problems, complete writing assignments and generate ideas. Use of analogical reasoning and relevance judgment enables employees to address successfully personal and customer service-related issues. Analogical reasoning is a knowledge based problem solving process in which persons apply information from precedents to new situations. Relevance judgment is the process by which individuals decide whether or not a precedent is applicable to the problem at hand. The non-repetitive nature of knowledge employees' jobs makes crucial the ability to apply information to new situations.

(d) Communication Skills

Knowledge work is characterized by close contact with customers, supervisors, subordinates and team mates. Successful knowledge employees present clearly in spoken and written word, both factual and theoretical information. These employees listen with understanding and ask for clarification when they do not understand what is being said to them. Knowledge employees must be able to speak, read, write and listen in one-by-one and group settings. Emphasis on quality customer service and customization of goods and services to meet individual customer needs and wants brings knowledge employees into close contact with customers. The goals of organizational effectiveness and continual improvement of products together with the need to continually consider new information in order to accomplish work, require communication between supervisor and supervised and among team mates or
colleagues. Knowledge employees possess communications skills that enable them to collaborate with one another for goal-setting, decision-making and idea generating purposes.

(e) Motivation

The nature of knowledge work requires continual growth in terms of mastery of information and skill development, on the part of those who do this type of work. Knowledge employees must become and remain interested in finding information, memorizing that information, and applying it to their work because new technological developments call on knowledge employees to change continuously the way they accomplish their work. These individuals must maintain a desire to apply their talents towards incorporating new information and new technologies into their work.

(f) Intellectual Capabilities

Knowledge employees must have the intellectual capabilities to acquire the skills. Such intellectual capacities include those concerned with the understanding, recall, processing and application of specialized information. Persons who perform knowledge work must possess the abilities needed to acquire appropriate communication skills and to learn how to figure out where and how information can be located. Knowledge employees are able to learn how to read and write at post secondary levels and to perform abstract reasoning.

2.22 Types of Knowledge Employees

Knowledge employees can be grouped into various categories based on the amount of time spent on individual tasks or on the type of information or skills possessed. The fact that knowledge employees can be classified in different ways is indicative of the variety of jobs they hold. Knowledge employees can be categorized according to the amount of time engaged in routine versus innovative behaviors. On one end of the scale, employees perform tasks that are primarily repetitive and routine in nature but occasionally use complex information to make independent decisions, often with regard to customer service issues.

Employees at the spectrum’s opposite end spend most of their time accessing information and making independent decisions with regard to that information. A
second way to categorize those whose work focuses on information and ideas is as follows: specialized knowledge employees, portable knowledge employees, and creative of knowledge employees. Specialized knowledge employees possess a significant amount of knowledge related to a specific company's products or services. These individuals can be thought of having vital corporate assets in their heads. Portable knowledge employees possess information of wide and immediate utility. They are familiar with knowledge that is in demand by a variety of organizations. Software programmers, librarians, and persons with business degrees are examples of portable knowledge employees. Creative of knowledge employees focuses the majority of their efforts on innovative behaviors, such as product design and development. Examples of creative of knowledge employees include scientists and information systems designers. There are three types of knowledge employees. (Retrieved from: http://www.encyclopedia.com/doc/1G2-3273100151.html)

2.22.1 Knowledge Generators

These are primary sources of new knowledge, the people who know, the experts, practitioners, talkers, explorers. They answer questions, proffer theories, discuss ideas and find solutions for others.

2.22.2 Knowledge Consumers

These are the people who use the system to find information but have little to offer them. They ask questions search the repositories and listen instantly.

2.22.3 Knowledge Brokers

These are the people who do not generate significant knowledge themselves but are well-versed in finding information. The classic example of a knowledge broker is the secretary. A good secretary is a storehouse of knowledge about how to get things done. Brokers are the ones who know where to look (Gent, 2007).

2.23 Conclusion

The foregoing conceptual framework brought into light that the impact of knowledge management can be seen in terms of new and better products developments, higher customers satisfaction, reduces in input cost, higher productivity etc. there are many
organizations who achieved all these without having a formal KM programme. The
global nature of today’s business are setting up their units and opening new marketing
offices in any part of the world .the advantage of being local does not exit any more .
Internet has given opportunity by providing a level playing field to all creates and
operate new business without having a office near to the customer or consumer. These
opportunities are to be taped to enter into a new market or customer segment. At the
same time one has to innovate and improve to protect the existing market with a
knowledge driver business management process. In the next chapter a profile of
Bhilai Steel Plant has been highlighted in length.
2.24 References


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