Chapter 2

Review of Literature

2.1 Introduction

Review of literature is most important aspect of any research work. It contains a study of past research finding, previous research and related reference materials. Due to literature review researcher can identify the possibility of repetition of research work and also researcher will able to understand the subject in depth. To remove limitations of research and to improve the quality of the research, the literature review will helps to the researcher. Literature review clear concepts and provides the right direction to the research.

As per C.V. Good (1959), “A Survey of related literature is necessary for proper planning, execution and right concept of the problems and solutions. It provides guiding hypothesis, suggestive methods investigation and comparative data for interpretative purpose.”

2.2 Aims and objectives of literature review

The following are the aims and objectives of the literature review.

(1) To understand systematically scope and different aspects of the research.

(2) To establish a theoretical framework for research and subject area.

(3) To avoid duplication of research which are already done in past.
(4) To clear concepts about key terms, definitions and terminology.
(5) To define area of research.
(6) To help in deciding proper hypothesis, objectives, methodology of the research.
(7) To have proper guidance to complete the current research.
(8) To enable researchers to learn from previous theory on the research subject.
(9) To provide a huge amount of literature for the understanding the subject.
(10) To get more knowledge and explanation about the subject.
(11) To expand the researcher's knowledge.
(12) To find out the innovation of the current research.

2.3 Literature Reviewed

This chapter is divided in following six different aspects of Knowledge management.

A. What is knowledge
B. Taxonomies of knowledge
C. Knowledge management in organizations
D. Knowledge management processes
E. Knowledge management systems
   a. Knowledge creation
b. Knowledge storage and retrieval

c. Knowledge distribution

d. Knowledge application

F. KM research issues

All above aspects of knowledge management reviewed separately by researcher which are given below:

A. What is Knowledge

Articles

Machlup (1983) tried to make a difference between information and knowledge. Author discussed information is a flow of messages which is meaningful and which may increase or revise the knowledge of the recipient.

Fahey, Liam and Prusak, Laurence (1998) listed eleven errors made in the practice of KM in their article entitled ‘The eleven deadliest sins of knowledge management’ (California Management Review Vol. 40, Issue No. 3, 1998). As per the authors, the future is very important and authors believe to focus on the past and the present. Authors also advice that not to focus on the future because, future has one of the eleven deadliest sins of KM. Knowledge does not exist independently of a knower, knowledge is shaped by one’s needs as well as one’s initial
stock of knowledge. Knowledge is the result of cognitive processing triggered by the inflow of new stimuli.

*Liam Fahey and Laurence Prusak* have identified eleven errors which are listed below:

1. Working definition of knowledge is not developed.
2. Emphasizing knowledge stock to the detriment of knowledge flow.
3. Viewing knowledge as existing predominantly outside of the heads of individuals.
4. Not understanding that a fundamental intermediate purpose of managing knowledge is to create shared context.
5. Paying little heed to the role and importance of tacit knowledge.
6. Disentangling knowledge from its uses.
7. Downplaying thinking and reasoning.
8. Focusing on the past and the present and not the future.
9. Failing to recognize the importance of experimentation.
10. Substituting technological contact for human interface.
11. Seeking to develop direct measures of knowledge.

*Firestone, Joseph M.* (1998) provides information about Knowledge Base, an introductory conceptual framework for KM, abstract for KM, and the concepts and process of Knowledge Management System (KMS) in his research paper ‘Basic concepts of knowledge management’. In the paper author has developed corresponding
definitions at the slightly lower level of abstraction of human organizations. There are two approaches of KM are identified and characterized by the author. Paper concludes with some issues recommended by the framework.

Newman, Brian (Bo) and Conrad, Kurt W. (2000) stated in their article entitled ‘A framework for characterizing knowledge management methods, practices, and technologies’ that KM is not one single discipline it an combination of numerous endeavors and fields of study. Authors have provided a framework for characterizing the different tools such as practices, methods and technologies which are available to KM practitioners.

ABC of Knowledge Management document authored by NHS National Library for Health and Contributed by Caroline De Brún (2005). They defined knowledge is generally thought of as being “know how” or “applied action”. They have explained KM from its general concept to developing KM environment. There are a so many approaches which are used to measure the value and progress of knowledge and KM in organisations. They have identified some of the more common approaches.

Nickols, Fred (2010) discussed in their paper entitled ‘The knowledge in knowledge management’ about explicit knowledge, tacit knowledge, declarative knowledge and procedural knowledge. Author
had focused on three aspects of knowledge capture, sharing and transfer: 1. The process of capturing explicit knowledge that is of making implicit knowledge explicit. 2. The development of procedural knowledge (in the sense that the knowing is in the doing) and 3. Without resorting to verbalization transfer of tacit knowledge from one person to another person.

**Conferences**

The Concept of “Knowledge” in the Knowledge society and religion as 4th Order knowledge by *ISA conference*, Durban (2006) outlines the basic distinction of the knowledge society, the missing concept of knowledge and some categories and forms of knowledge.

**Presentations**

*Sbaffoni, M. Monica* (2010) presented ‘Knowledge management basic approaches and definitions’ by this presentation author outlines the basic concepts of KM, different types of knowledge, different aspects of managing knowledge, KM in action: How, with which tools, what for? and journey of data to knowledge. The author has also focus on KM policies and strategies, human resources development planning and processes, methods, procedures, documentation, processes for continual improving KM, KM culture and KM performance assessment.
Websites

Basic knowledge concepts - data, information, knowledge and wisdom given by Trainmor- Knowmore Partners (2004) on their site provides the basic concept of data, information, knowledge and wisdom with practical example. According to website, knowledge is a mixture of experience, valuable information, expert insight and grounded intuition. Knowledge generates in peoples mind. In organizations, knowledge processed not only in documents, printed forms or repositories but it is also part of organizational practices, procedures, processes and standards.

B. Taxonomies of Knowledge

Articles

Earl, Michael (2001) provided an article on ‘Knowledge management strategies: toward taxonomy’ in the Journal of management information systems. Author has suggested a taxonomy of strategies for KM, primary and secondary data drawn by the author. The primary purpose is to guide executives on choices to initiate KM projects according to goals and organizational character, technological, behavioral or economic biases. It helps in researchers in generating propositions for further study. The taxonomy is grounded in the different experiments organizations have been conducting in KM, there are three possible sets of implications and uses - Pedagogical, practice and research.
Lytras, Miltiadis D. and Pouloudi, Athanasia (2006) discussed in their article entitled ‘Towards the development of a novel taxonomy of KMS from a learning perspective: an integrated approach to learning and knowledge infrastructures’ in the Journal of knowledge management, the dynamic flows in knowledge intensive organizations, the critical issue of learning and knowledge convergence in knowledge-intensive organizations, guide strategies of effective knowledge and learning management, taxonomy of KMS which provides the basis for an extensive specification of KM strategies.

Nie, Kun, Ma, Tieju and Nakamori, Yoshiteru (2007) provided so many different definitions for KM in their paper entitled ‘Building taxonomy for understanding knowledge management’. In the research paper authors have introduced two studies for better understanding of KM. By applying the methodology of domain analysis author have investigated leading peer-reviewed journals regarding KM, the first study covers six fundamental following issues regarding KM:

- why is KM necessary
- what enables the birth of KM and what are the triggers actions on KM
- what does KM deal with
- how to implement KM
- how to support KM by information technology
where has KM been applied.

The second study examined KM within a general disciplinary
called as knowledge science, which gives a description of how KM is
related to other research topics.

Proceedings

A model-based taxonomy of knowledge development scenarios by
Eckhard Ammann, Ismael Navas-Delgado, and José F. Aldana-Montes
(2010) discussed in proceedings of the world congress on engineering
that knowledge expansion in an enterprise is about approaches,
techniques, tools and methods that will support the advancement of
individual and organizational knowledge for the purpose of a
development of organization. A model for knowledge development is
provided in the study with a new conception of knowledge and of
knowledge conversions, which has introduced three dimensions of
knowledge and general conversions between knowledge assets. The
model guides the definition of taxonomy of knowledge development
scenarios and given some examples for implementations of two
knowledge development scenarios.
C. **Knowledge Management in libraries**

**Articles**

*Ramesh Babu, B.* (2003) provided some information on KM in their paper entitled ‘Knowledge management today and tomorrow’. This paper provide brief journey of Aristotle to semantic web’s, in the age of KM and what is the role of information professionals, KM in digital era, and also discussed about GIS which is an effective tool for KM and the role of KM in public libraries. According to author, the main objective of KM in public libraries is to promote knowledge innovation because public libraries are gateway of knowledge.

*Lee, Hwa-Wei* (2005) authored ‘Knowledge Management and the Role of Libraries’. This paper outlines the growth and development of KM in past few years. KM becomes a very important for libraries and also for librarians. Author has reviewed the development of KM and given comparison and differences between information and knowledge. Information management and KM is also compared by author and examined the role of libraries and librarians in KM.

*Wasim Raja, Zubair Ahmad and Sinha, Arun K.* (2009) discussed in their paper ‘Knowledge management and academic libraries in IT Era: problems and positions’ that how information technology and related automated systems can support libraries and librarians’ of better implementation of KM. Paper describes transformation of data to
wisdom. As per their presentation, a pro-active outlook and professional training and provision of adequate budgetary support are the key factors for an effective KM strategy. Author has explained cycle of knowledge creation to development of human society. The objectives of KM in academic libraries and tools and benefits of it in KM are very useful in modern trend.

Riccio, Holly M. (2011) authored a paper entitled ‘Knowledge management everything old is new again’ which briefly provides the development and bright future of the profession. Author stated that librarian is key point and is very essential. KM practices are done by librarians from hundreds of years ago. The role of traditional libraries has always been one of identifying and organizing, sharing information resources and connecting people to the right information they required. Author has given six skills transitions librarians need to make to be effective in KM.

Book

Wen, Shixing (2005) has documented ‘Implementing knowledge management in academic libraries: a pragmatic approach’ which states that KM is an emerging field tooted since late 1990s. It is very difficult to show the value of KM due to the complex nature of knowledge its consequent management. Academic libraries has limited budget and limited human resources, so it may hesitate to follow the business sector
and plunge into the uncharted sea of KM. Author has suggested a pragmatic approach for implementation of KM for academic libraries and utilizing at present employment, technology and organizational management.

D. Knowledge management processes

Article

Zaim, Halil (2006) in Journal of economic and social research provided a paper entitled ‘Knowledge management implementation in IZGAZ’. Author believes that the management of knowledge effectively is a core competence for organizations to survive in the long run. The capability of organizations to power their knowledge resources seems to be one of the most important parameters from the strategic perspective. The evolution and implementation of KM is still in its infancy in Turkey, leading to the difficulty in composing a comprehensive and applicable KM framework for organizations in Turkey. Author analyzed KM implementation in a local natural gas distributor and to clarified basic KM processes and their comparative effects on KM performance.

Jennex, Murray E. (2008) provided detailed information about KM process in their paper entitled ‘Knowledge management, organizational memory and transfer behavior: global approaches and advancements.’ Author has provided depth knowledge base for industry as well as
academic on the most useful current concepts, applications and processes which are relevant to the successful management of knowledge assets.

*Anantatmula, Vittal S.* (2009) discussed in their paper entitled ‘Designing meaningful km processes to improve organizational learning’ about trends in information management that there is an urgent need to develop and also implement KM processes for capturing tacit knowledge of individuals who leaving the organizations. Generation, exchange, leveraging and maintaining of knowledge are integral to KM processes. As per author, the leveraging knowledge is manifested in learning and thus, KM and institutional learning are intricately related. The basic KM processes are crucial to capture and utilizing them to improve effectiveness of performance organization. Using literature review findings and two independent research studies, author has identified KM processes at four levels -organization process, knowledge flow process, learning flow process and management and leadership process. Author has provided some recommendations to integrate all these KM processes to improve organizational performance.

The effect of knowledge management processes on project management: an empirical study on information technology industry in Jordan by *Abdel Naser Al-Zayyat, Firas Al-Khaldi, Ibrahem Tadros, Ghassan al-Edwan* (2009) stated that KM and Project Management (PM) are useful to organizational change in the new era of the knowledge
Authors have examined the relationship between KM processes and PM in the context of the IT industry in Jordan. As per authors, IT projects are failing or are challenged due to their failure to get the right knowledge or information to the right persons at the right time. Objective of research work is to identify a positive relationship between KM and PM. Hundred and fourteen project practitioners taken as sample for the study. Author has adopted positivistic approach using quantitative data. Data collected through survey to investigate the KM activities and to examine the relationship of KM processes and the improvement of PM.

*McInerney, Claire R. and Koenig, Michael E. D. (2011)* stated in their paper entitled ‘Knowledge management processes in organizations: theoretical foundations and practice’ that KM is an attempt that will increase useful knowledge in the institutions. As per their view KM is a natural development of late 20th century movements to make institutional operations and management more effectively and more responsive to changing universal environment. Authors have traced the evolution of KM in organizations and also summarized the most important literature and research in the field of KM. Authors have also presented an overview of practices in KM and provided information on relationship between KM and decision making. The value of social capital is increased by the use of web applications and social networking. Author have covered some important points on knowledge emergence, KM in

Pinho, Isabel, Rego, Arménio and Pina e Cunha, Miguel (2012) stated in the Journal of knowledge management, paper entitled ‘Improving knowledge management processes: a hybrid positive approach’. Authors discussed about barriers and facilitators affecting to four processes of KM. These four important processes was KM acquisition, KM creation, KM sharing, and KM transfer. They have considered Technological, socio-organizational and individual barriers and facilitators. They have reviewed literature from the time period between January 1985 and August 2010. Authors have found some important factors which affecting KM processes. The authors conclude that KM increase in positive contexts of organization and fails when the infrastructure establishing positive contexts is absent.

A review on knowledge management process models in former two decades by Mostafa Jafari, Mansour Maleki (2013) reviewed KM process models which are provided between 1991 and 2012 and which have been grounded in the Km literature. KM defined as an issue deal with some processes such as development, retrieval, storage and dissemination of information, knowledge and expertise within an organization to support and improve its professional performance and achieve organizational
goal. Generally KM processes applied to improve an organizational operational efficiency and competitive advantage.

**Book**

Book chapter entitled ‘The effect of knowledge process capabilities and knowledge infrastructure capabilities on strategy implementation effectiveness’ authored by *Sineenad Paisittanand, L. A. Digman, and Sang M. Lee* (2010) providing wide range of studies which have investigated during the past decade. The two aspects of knowledge capabilities in an organization and their effect on strategy implementation effectiveness are investigated by authors, the first aspect is Knowledge Process Capabilities (KPC) and another is Knowledge Infrastructure Capabilities (KIC).

**E. Knowledge Management Systems**

**Articles**

A framework for the development of computerized management and control systems for use in dairy farming by *D. Pietersma, R. Lacroix and K.M. Wade* (1998) in Journal of Dairy Science has developed framework to support the creation of computerized management and control systems in dairy farming. Using this framework management and control system was defined as a network consisting of the management
and control activities and the information flows that are involved in dairy farming.

_Nevo, Dorit_ (2003) examines possible shortfalls in the design of KMS in their paper ‘Developing effective knowledge management systems’ and also proposed a way to design more effective KMS using meta-knowledge. Author has developed a theoretical framework for identifying the best design features necessary to support effective KM in organizations. For application of this framework author has identified possible weaknesses from 40 KMS and which was divided in four different categories of tools: i) knowledge sharing, ii) content management, iii) knowledge retrieval and iv) general KMS. The finding shows that one of the problems in the design of existing KMS is the lack of a unified approach to meta-knowledge (knowledge about the knowledge). An experimental evaluation of user’s meta-knowledge requirements using the Delphi method described in the second part of the paper.

_Baqir, Muhammad Naveed_ (2004) focused on Strategic knowledge management for futuristic organizations. Author discussed that BA is helping the conversion of information into knowledge where BA (Japanese word) means “place or platform”.

_Bhojaraju, Gunjal_ (2005) discussed about KM and its requirement, definition, KM assets and components, challenges and processes of KM
in their article entitled ‘Knowledge management: why do we need it for corporates’. Author has given outlines for the use of KM for the ICICI OneSource Company and given suggestions for the future policy.

Robles-Flores, Jose-Antonio and Kulkarni, Uday (2005) discussed in their paper entitled ‘Knowledge management systems: a business value model at pacific asia conference on information systems’. Author has tried to show business values of KM and also effectiveness of KM. Author proposed KMS value model to examine performance of business processes.

Bera, Palash and Rysiew, Patrick (2006) indicated in their paper entitled ‘Analyzing knowledge management systems: a veritistic approach’ important of organizational knowledge. Authors have checked the usage level and applicability of KMS. Using a philosophical angle authors have analyzed the KMS. To analyze KMS, veritistic social epistemology used by the authors. They divided knowledge in two parameters, one is KMS that manage structured knowledge and second is those that manage unstructured knowledge. Based on study, structured knowledge is more credible than unstructured knowledge to the users.

McCall, Holli and Sutton, Steve G. (2008) discussed about use of KMS and the impact on the acquisition of explicit knowledge. Author has used an experimental methodology for the study and 188 participants selected as sample for explicit knowledge acquisition. The participants
are divided in two groups using a KMS. They concluded KMS may impact the knowledge acquisition of the user.

a. Knowledge Creation

Articles

Byounggu Choi, Heeseok Lee (2002) stated in their paper entitled ‘Knowledge management strategy and its link to knowledge creation process’ strategies and knowledge creation process for KM. As per authors view a continuous creation of knowledge is not done by any organization, the performance of organization became very poor. As per the author, it is not very clear how the strategies affect knowledge creation. KM strategies categorized by it is human or system oriented. Author has given a model which link between the strategies and creating process of strategies. On the basis of 58 Korean firms which were selected as a sample, author has derived a model and it denotes how the companies should align the strategies with socialization, combination, externalization and internalization which are the four knowledge creation modes.

Proceedings

Bajaria, H. J. (2000) presented a paper entitled ‘Knowledge creation and management: inseparable twins’ in the fifth world congress for total quality management. Author has stated that knowledge is as what
we already know and KM is the practice of making knowledge rapidly available in a usable format. Knowledge Creation known as KC is what we know at present that we didn’t know it before. As per author the knowledge creation depends on 1) the completeness and authenticity of data, 2) meaningful summary of the data, 3) newly acquired knowledge when the summaries are viewed and interpreted with the aid of basic principles, and 4) circumstances surrounding a specific application that make the knowledge usable or unusable.

b. Knowledge Storage and retrieval

Articles

LaBrie, Ryan and St. Louis, Robert (2003) defined information retrieval is a key component of KMS in their paper entitled ‘Information retrieval from knowledge management systems: using knowledge hierarchies to overcome keyword limitations’. KMS depend on keyword searches which are a primary mechanism for retrieval. Keyword searches are very useful but it’s have some limitations. To overcome some keyword searches limitations, knowledge hierarchies have been used. They show use of multidimensional database technologies and dimensional modeling to implement knowledge hierarchies and suggested that many of the limitations inherent in keyword searches can be
eliminated from KMS by exploiting the benefits of the hierarchical structure that underlies multidimensional databases.

_Stanoevska, Katarina_ (2011) defines in their paper entitled ‘Efficient information retrieval: tools for knowledge management’ that knowledge as the internal state of an agent following the acquisition of information and processing. Success of an institute depends on its ability to transform individual knowledge of its human resources into organizational knowledge and it will be made widely available to the entire organization and be reused when required. Appropriate retrieval procedures and classification are the necessary requirement for reuse of knowledge, coding and storing it in documents. Classification accompanies the procedure of knowledge externalization and retrieval supports the process of knowledge internalization by enabling the capturing of appropriate coded knowledge. Author has evaluated currently available retrieval mechanism with their effectiveness in knowledge management and given a comprehensive classification and retrieval technology based on the QTechnology, which provides support for the automated and intelligent classification and retrieval of knowledge.

**Websites**

Tools enabling Knowledge storage processes located on _NETCOACH_ site (2012) shows knowledge storage in five different parts,
Data warehouses, knowledge warehouses, data marts, data repository and content and document management systems. While knowledge organization technologies for better access to knowledge resources within the organization and facilitate knowledge retrieval given in three parts, topic maps, skill maps and controlled vocabularies.

c. **Knowledge Distribution**

**Articles**

*Al-Tahat, Mohammad D. and Al-Shoubaki, Hasan* (2012) provided a structure in their paper entitled ‘Knowledge management of maintenance activities for potable water distribution business’. The structure developed for water distribution companies to maintain KMS for enhance management competence and operations activities. Basic design principles of expert systems are given. New KMS designed from five main components which are given below:

- Knowledge database
- relationships
- rule-based expert system
- reporting and history
- links and interfaces.
d. Knowledge Application

Articles

*Probst, Gilbert J. B. (1998)* provided some practical approaches for knowledge management in their article entitled ‘Practical knowledge management: a model that works’. These approaches of KM were very useful for different types of organizations. The article discusses about building blocks of KM. Knowledge identification, knowledge acquisition, knowledge goals, knowledge preservation is the some of the building blocks of given by the author. It also gives some examples of successful KMS. The detail explanation of building blocks given by Arthur D. Little for KM is presented.

*Song, Michael, Weggeman, Mathieu and Van Der Bij, Hans (2005)* discussed in their paper entitled ‘Determinants of the level of knowledge application: a knowledge-based and information- processing perspective’ in the Journal of product innovation management discussed that in the development of effective new products, the knowledge application is key importance factor. Knowledge application refers to an organization's timely response to technological change by utilizing the knowledge and technology generated into new products and processes. Authors used knowledge-based theory of the firm and consider its roots in the information-processing approach to organization theory to identify and structure potential antecedents of application of knowledge. Four
hypotheses developed by authors which concerning antecedents of knowledge application. The data collected from 277 firms to testing of hypotheses. These firms are very high-technology. Empirical results indicate that a long-term orientation supported by a research and development budget, information technology and formal rewards directly increases the level of knowledge application, while research and development co-location increases indirectly the level of application of knowledge. The findings also suggest that supplier networks, information technology and lead user do not appear to significantly influence organizational redundancy.

F. KM Research Issues

Articles

Alavi, Maryam and Leidner, Dorothy E. (2001) reviewed in MIS quarterly on ‘knowledge management and knowledge management systems: conceptual foundations and research issues’. They stated that knowledge is a wide and abstract concept that has defined epistemological debate in western philosophy since the classical Greek era. They stated that in the past few years there has been a growing awareness in treating knowledge as significant organizational resources. Consistent with the interest in KM, organizational knowledge and information systems researchers have begun promoting a class of
information systems referred as KMS. The objective of KMS is to support creation, transfer and application of knowledge in the organization. Knowledge and KM both are different and complex concepts. For the effective development and implementation of KMS requires a foundation in rich literatures.

Gupta, Saurabh and Bostrom, Robert (2006) discussed in their paper entitled ‘Using peer-to-peer technology for collaborative knowledge management : concepts, frameworks and research issues’ on organizations struggle and also discussed about the ways to develop and use organizations expertise, the importance of KM and collaboration has grown in both practitioner communities and academic communities. The article provides an outline concept of CKM (Collaborative Knowledge Management), which is associated with two fields. The conceptual framework for understanding the concepts of collaborative knowledge management presented briefly in the paper. The use of new technology, P2P (peer-to-peer), fits in the CKM model. Authors discussed on peer-to-peer tools and provided comparison of these tools with client server tools which will support the collaborative KM process. P2P has great appeal for CKM because it permits persons to work in a more natural fashion. Author has identified the existence of various CKM levels in the organization and suggested a framework in five different levels.
d'Armagnac, Sophie (2014) discussed on their paper entitled ‘Issues in the management of embedded knowledge in project-based organizations: the project actor’s role’ that in KMR (Knowledge Management Research) and application of that KM in industries and organizations has received a very important attention in last few years. To manage knowledge in project-based organizations, the important role of project actor is described briefly. Problems raised by knowledge embeddedness are identified as a key issue to link project knowledge and institutional knowledge as an actor’s perspective. Author has developed conceptual framework which provides three important aspects of knowledge embeddedness: 1. relational dimension 2. temporal dimension and 3. structural dimension. Study covers three cases which cover varying organizational forms from different regions. On the basis of result recommendations for KM are concern with both Human Resource Management (HRM) practices and organizational design.
References:


Karagiannis, D., & Woitsch, R. The PROMOTE approach: Modelling Knowledge Management Processes to describe an organisational KMS.


