CHAPTER III

CONCEPTUAL FRAMEWORK AND PROFILE OF IT INDUSTRY

3.1 INTRODUCTION

The in-depth review of the related literature revealed the fascinating facets of the concept “Knowledge management”. The review of supportive literature has enabled the researcher to gain insight into the chosen research topic and also in tracing the research gap. This chapter presents the terms associated with the topic and provides concepts pertaining to the present research. Providing such a framework would enable the reader and the researcher as well, to understand the link among the factors and their relevance to the study. Further the industry profile of the study domain is also presented in this section. This would enable the reader and the researcher to acknowledge the importance of the study with reference to IT industry.

3.2 MEANING AND DEFINITION OF KNOWLEDGE MANAGEMENT

Knowledge management is making more efficient use of the available skills and knowledge of the human resource of the organization. Biswajeet Pattanayak (2005) defines Knowledge management as a systematic, Explicit and deliberate building, renewal and application of knowledge to maximize enterprise knowledge related effectiveness and return from the knowledge assets. In the words of Prasad, L. M. (2001) Knowledge management is the creation, distribution and utilization of knowledge at the individual, group, organizational and community level through harnessing of people, process and technology for the benefit of those involved and affected by it.
3.3 TYPES OF KNOWLEDGE

Knowledge is the basic resource which allows one to think intelligently. The knowledge can be split up into tacit knowledge and Explicit knowledge. The meaning of these two types of knowledge is given below.

3.3.1 Explicit knowledge

It is the formal knowledge embedded in the office manuals and can be converted into an information package by harnessing the IT tools. The Explicit knowledge can be easily created, shared and stored for further reference.

3.3.2 Tacit knowledge

According to Cynthia D. Fisher et al. (2008) tacit knowledge is harder to quantify, expertise or feel. It comes from long experience with the job and the long memory of a vast number of past events and how they were dealt successfully or unsuccessfully. It includes the cognitive and technical skills.

3.4 FACTORS OF KNOWLEDGE MANAGEMENT PRACTICES

The researcher has identified 17 factors under four dimensions of knowledge management to be relevant for the study. The theoretical description of these factors and their relation to knowledge management practices are discussed below.

3.4.1 Survival strategy

Survival strategy refers to the practices that are adopted in an organization to withstand the competition and are considered to be the strategic imperatives. Adoption of KMP is vital for an organization as it helps the organization to retain the intellectual asset, an essential for the survival.
3.4.2 Prerequisites

Prerequisites refer to the basic necessities that enable the organization to adopt or implement certain innovative ideas or practices. In this context, prerequisites refer to the availability of able leaders, the thrust among employees to update the knowledge and necessity to create a knowledge environment which are essential to support KMP.

3.4.3 Career development

It consists of activities undertaken by the individual or the organization to meet career aspirations and job requirements (Gupta, C.B. 2009). Linking career development and KMP can motivate the workforce towards the acceptance of KMP activities of the organization.

3.4.4 Financial facilitators

Finance is the life blood of business activities and this holds good for the implementation of knowledge management too. Organizations need to invest a huge amount for creating a conducive, technologically backed and supportive work environment. Thus the provision of ample financial support propels the organization towards smooth implementation of knowledge management practices.

3.4.5 Resource utilization

The success of any organization or activity lies in making optimum use of available resources. The careful and calculative utilization of manpower, technology can ease the process of knowledge management implementation. Thus resource utilization is found to be a key enabler for the knowledge management practices.
3.4.6 Knowledge extraction

Knowledge extraction can be defined as the process of using various structured and unstructured sources of information to create a cohesive knowledge repository. Knowledge extraction is the primary process in implementation of knowledge management process. Hence it plays a dominant role in the implementation phase.

3.4.7 Planning and communication

Planning and communication are complementary activities in implementation of knowledge management. Clear planning and effective dissemination of KM strategies to the entire workforce can enable the organization to implement the KM program without much hassle.

3.4.8 Senior participation

Successful adoption of knowledge management programs require the unconditional participation from the seniors and executives of the organization as senior leaders provide the authority and credibility needed for a change to be successful. The seniors can effectively demonstrate their commitment and involvement towards the KM programs which in turn provide the necessary motivation to the employees of other levels.

3.4.9 Documentation and ICT

Information and communication technology occupies a remarkable part in substantiating the need for and success of knowledge management. It plays an inevitable role in capturing, storing and transferring the expert tacit and Explicit knowledge of the workforce. Thus using ICT as one of the strategies for implementing knowledge management practices is unavoidable.
3.4.10 System barriers

A system is a group of interrelated or interdependent elements forming part of an integrated activity. Systems barriers refer to the barriers arise out of the lacunae in planning and inadequate IT infrastructure to implement the KM program efficiently. The presence of these barriers create lag in the fundamental system hamper the success of knowledge management programs of the organization.

3.4.11 Organizational barriers

It refers to the internal factors from organization’s perspective that block the adoption or implementation of the KM practices. The organization’s participation in terms of financial support, being committed towards the knowledge management process, and creating a conducive atmosphere by clear organizational hierarchy is considered as one of the major boosters for the human resource. The paucity of these elements creates the organizational barriers which in turn can hinder the KM initiatives.

3.4.12 Attitudinal barriers

Attitudinal barriers refer to the behaviours or perceptions formed by an individual's opinions or personal feelings on a subject that prevent him / her from understanding a concept clearly. The attitudinal barriers can be either internal if they arise from the individual himself or external if influenced by the opinions and responses of peer groups, family and friends. Attitudinal barriers play a notable role in influencing the employees’ attitude towards acceptance and adoption of knowledge management.

3.4.13 Semantic barriers

Semantic barriers denote the misunderstandings that occur in people when communicating an idea and simultaneously having completely different meanings in mind for the words. In this research context semantic barriers
refer to the problems encountered by the organization while conveying the idea of KMP among its workforce. Semantic barriers share a prominent role in determining the employees’ participation in the implementation and success of knowledge management practices in any organization.

### 3.4.14 Organizational benefits

Organizational benefits are the benefits offered to an organization by adopting knowledge management activities. Through the review of literature, the researcher has identified the adherence to knowledge management offers several benefits to the organization in terms of cost reduction, time saving and increasing the opportunities for enhancing the core competencies.

### 3.4.15 Career development benefits

These are the benefits experienced by the workforce in the form of enhanced learning capability and flexibility to adopt the change. The presence of these benefits can convince the employees to accept the knowledge management process and ensure their cooperation.

### 3.4.16 Motivation boosters

Motivation can be defined as the force that induces a human being towards attainment of certain goals and targets. Certain benefits of knowledge management are peculiar in nature and occupy a conspicuous position in motivating the workforce.

### 3.4.17 Skill development

Skill Development means developing oneself and one’s skill sets to add value for the organization and for own career development prospects. Knowledge management activities of the organization offer an environment in which the employees can upgrade their skill sets. The possibility of reaping such benefits has the ability to influence the employees.
3.5 KNOWLEDGE MANAGEMENT TECHNIQUES AND TOOLS

- Knowledge portals create a platform for storage, exploitation and sharing of information and knowledge into multiple places. It helps organizations to articulate their knowledge base.

- The Intranet can be a very useful tool in the knowledge management process. It allows for the integration of multimedia communication and can act as a platform for groupware applications and publishing. It is intended to enhance collaboration, productivity, and socialization, and also to influence organizational culture and to act as a repository for embedded knowledge.

  Source: (http://www.knowledge-management-tools.net)

- A discussion forum is a virtual place on the internet where conversations can take place and information can be shared more easily among a geographically dispersed group of people. Discussion forums are typically created around a specific topic of common interest or for a specific user group around a particular piece of work.

- According to Wenger, E. et al. (2002) communities of practice is “Groups of people who share a concern, a set of problems or a passion about a topic and who deepen their knowledge and expertise by interacting on an ongoing basis”.

- Internet is a huge network of several different interlinked networks relating to the business. These networks enable the file transfer, online chat and even the sharing of the documents on web sites.

- Videoconferencing can enable individuals in distant locations to participate in meetings on short notice, with time and money
savings. It enables face-to-face business meetings without leaving the desk, especially for businesses with widespread offices.

- **Vicing** is the practice through which the employees exchanging their position to gain expertise.

- **Matrix management** is a technique in which people with similar skills are pooled for work assignments, so that exchange of expertise knowledge becomes possible.

- A blog is an easy-to-publish personalized web page consisting primarily of articles posted by the blogger. The Blogs can be project Blogs in which project participants share frequent updates, reflect, ask questions of the larger community and learn or leadership Blogs, through which the leaders share their ideas, reflect, pose questions and concerns to their staff, and initiate knowledge sharing.

- **Cross training** is training an employee to do different jobs in the organization to provide more flexibility in learning. It lets them learn new skills, makes them more valuable, and can combat worker boredom.

- Training the employees to be specialized or developed for a particular purpose or area of knowledge is called **specialized training**.

- **Mentoring** is a term generally used to describe a relationship between a less experienced individual (mentee), and a more experienced individual (mentor). Traditionally, Mentoring is face to face, long term relationship between a supervisory adult and a novice student that fosters the mentee’s professional, academic, or personal development (Donaldson, Ensher, & GrantVallone, 2000).
- Coaching provides individuals with feedback, insight, guidance and direction to enhance potential. This structured facilitation process helps employees to achieve specific outcomes through changes in behaviour. It aims to unlock potential and build skills, experience and confidence to address gaps and maximize individual effectiveness.

- Networking is the practice of linking two or more computing devices together for the purpose of sharing data. Networks are built with a mix of computer hardware and computer software.

- Narrative documentation enables effective transfer of tacit knowledge into Explicit knowledge in a narrative communication of the experience. The narrations of experts are converted into a permanent knowledgebase. It allows the reader to make informed decisions on the knowledge.

- Concept mapping is a technique for representing knowledge in graphs. Knowledge graphs are networks of concepts. Concept mapping helps to generate ideas, to design and to communicate complex ideas and to aid learning by Explicitly integrating new and old knowledge.

3.6 PROFILE OF INFORMATION TECHNOLOGY INDUSTRY

Wikipedia defines Information technology (IT) as the application of computers to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. It encompasses the functions of design, development, and implementation of computer based systems including software applications for the purpose of transacting business. The major players in the international market are Microsoft, HP, Dell and IBM. Infosys, Wipro and Patni computers are some of the pioneers in Indian IT arena.
The IT and ITES industry in India act as a growth engine for the economy by offering a substantial contribution to the GDP, creating urban employment and attracting more foreign exchange through exports. It aids to achieve the vision of a powerful and resilient India.

The Indian IT industry offers its service to the numerous industrial sectors. A number of Indian firms, across all sectors, largely depend on the IT and ITES service providers to revitalize their business processes. Indian manufacturing sector has the highest IT spending followed by automotive, chemicals and consumer products industries.

The contribution of India's IT industry to economic progress is of noteworthy. The tremendous changes in the socio-economic infrastructure have triggered the growth of Indian information technology industry.

IT industries are highly localized and clustered in major cities like Bangalore, Hyderabad, Chennai, Gurgaon, Noida, New Delhi, Kolkata, Mumbai and Pune. The restricted infrastructural facilities and paucity of land have recently led to expansion of these industries to other places like Ahmedabad, Bhubaneshwar, Chandigarh, Coimbatore, Jaipur, Kochi, Mysore, Madurai, Mangalore and Trivandrum.

3.6.1 Market share of IT industry

The Indian IT industry (including hardware) occupies a total of 7 percent share in the global market. The industry is dominated by large integrated players consisting of both Indian and international service providers. The contribution of Indian companies went up to 65 percent - 70 percent due to the emerging trend of monetization of captives.

The projections of Nasscom reports that the IT services sector in India to grow by 13 -14 per cent in 2013-14 and to touch US $ 225 billion by 2020.
while India's IT and BPO sector exports are expected to grow by 12-14 per cent in fiscal year 2014 to touch US $ 84 billion – US $ 87 billion.

3.6.2 Recent trends in the industry

The core competencies of the Indian IT companies have attracted more investments from major countries towards India. The Department of Industrial Policy and Promotion’s (DIPP) statistical data reveals that the computer software and hardware sector attracted cumulative foreign direct investment (FDI) of Rs.53,757.60 crore (US $ 7.97 billion) between April 2000 and June 2013. The rapid growth of IT industry is attributed to online retailing, cloud computing and e-commerce as these trends acts as the growth drivers.

3.6.3 Major investments in Indian IT and ITES sector

- Wipro has won a large technology outsourcing contract from Citigroup, potentially valued at close to US $ 500 million (Rs.2,900 crore).

- Infosys and IBM have won a contract to develop the computer system for Williams and Glyn’s bank. The value of the contract is estimated to be € 300 million (about Rs.2,535 crore).

- Infosys and Tata Consultancy Services (TCS) have bagged a contract from US-based Northeast Utilities to manage a part of its IT department.

- L & T Infotech has won new outsourcing contracts from Indian Railways for deploying enterprise resource planning (ERP) solutions which will help to automate its freight and locomotive management systems.
Tata Consultancy Services (TCS) and outsourcing services firm Capgemini have acquired contracts worth US $ 43 million each from Norway post for operating and managing its applications.

HCL Technologies has won a multi-million dollar contract from US. The contract aims to modernise unemployment insurance services in various states of US.

The Saudi Electricity Company (SEC) has awarded a contract to Cognizant technology solutions to develop a comprehensive billing and revenue management solution based on SAP utilities enterprise software to meet the functional, technical, and operational requirements of the organization.

Tech Mahindra has signed a five year agreement with UBS Fund Services (Luxembourg). Tech Mahindra’s Managed Data Services (MDS) is designed to support asset managers, wealth managers, investment banks, custodians and administrators. The company’s Brazilian subsidiary Complex IT has also signed two deals to deliver enterprise solutions for oil and gas, and banking sector.

3.6.4 Growth prospects

India’s development trajectory is sustained despite global market hurdles, due to revised business models, enhanced organizational efficiencies and social media. The IT sector continues to be one of the largest employers in the country directly employing 2.8 million professionals. For the fiscal year 2013, the export revenues are expected to grow by 11-14 percent while the domestic revenues will grow by 13-16 percent.
The growth and prosperity of India’s IT industry depends on some crucial factors. These factors are as follows:

- Indian IT industry possesses abundant skill and expertise to meet the demands and expectations of the global IT industry.
- The Indian workforce is reasonably cost advantageous compared to the developed nations. This has led to the enormous growth of Business Process Outsourcing and Knowledge Process Outsourcing in India.
- Abundance of English-speaking IT professionals in India mandates the US and the UK to depend on the Indian IT industry for outsourcing their business processes.
- Rapid adoption of IT technologies in major sectors as Telecom, Manufacturing and BFSI.
- Steady growth in export demand from new verticals and non-traditional sectors as public sector and media.

3.6.5 Impact of IT industry on Indian economy

The vibrant and enthusiastic Indian IT industry has played a transformational role in changing the face of the society. The notable growth of this industry has enabled India to emerge and sustain as a strong competitor in the global arena. The industry serves as a major employment creator and has narrowed down the social imbalances. The Indian Information Technology industry has continued to perform its role as the most consistent growth driver for the economy. IT has brought in more employment opportunities, thereby acts as facilitator of a progressive Indian economy.

3.6.6 Software industry in Tamilnadu

The IT industry of Tamilnadu has the largest pool of technically qualified high class IT manpower in India. Out of annual turn-out of 136,000
Engineering Graduates from 355 Engineering Colleges in Tamilnadu, 37 percent are with Computer Science or IT or Electronics and Communication discipline. The availability of enormous skilled human resource compared to developed countries leads to lower manpower cost nearly one tenth of those in developed nations, thus giving Tamilnadu a big competitive advantage. Rich experience of working with large global companies and enjoy high credibility. The features of IT industry of Tamilnadu are listed below.

- The industry possesses expertise on a wide variety of platforms.
- There are 28 IT Special Economic Zones in Tamilnadu. There are 1683 software exporting units with an export performance of Rs.36,680 Crore employing about 2,85,000 software professionals.
- Tamilnadu had the highest growth rate in software exports in India 29.04 percent. Tamilnadu has exported 58% of its total IT exports to USA followed by UK (12%).
- ELCOT is currently developing IT SEZs in Tier II cities namely Coimbatore, Madurai, Tirunelveli, Salem, Trichy and Hosur.

**Source:** STPI

### 3.6.7 IT industry in Chennai

The IT industry can be classified into two major categories such as IT Products and IT consulting. Dell, Intel, IBM are the industries based on developing IT hardware products. Microsoft and Sun Technologies develop IT software products. IT consulting companies work on producing software solutions. Infosys, TCS, Cognizant provides excellent software solutions for the business needs of the clients. In Chennai, more than 90% of the IT industries are IT consulting companies. Thus the IT product based companies focus on designing the hardware and software products and the IT consulting companies focus on the ability to learn and apply the software and hardware.
3.6.8 Scope of IT industry in Chennai

Chennai is the third largest IT servicers in India. The IT industry has great scope in Chennai as it provides employment to many technical and non-technical graduated professionals. Most of the graduates are recruited in IT industries with high salary and other special offers. Thousands of college students are recruited every year in the IT parks all over Chennai. The leading IT companies in Chennai are INFOSYS, TCS, HCL, WIPRO, IBM, HP, DELL, POLARIS etc. These IT Parks have increased the living standard and economy of the state. The Chennai Government has taken many steps to boost the IT industry. It allocates many acres of land and provides infrastructure support, and reduces the international communication cost. The industry is expected to develop in manifold in the near future.

3.7 SUMMARY

The concepts discussed in this chapter would help in understanding the objectives and background of this research work. The theoretical basis of the research model, which has been developed as a result of the gaps identified from the literature review, is presented in this chapter.