1.1 Preamble

Growing interest observed in Organizational knowledge and knowledge management stems from transition into the knowledge economy, where knowledge is viewed as the principle source of value creation and sustainable competitive advantage. At the same time in today’s global enterprises, knowledge management (KM) has become increasingly complex with the stock of knowledge being scattered among so many variants of places with multi-located offices and plants, vast and complex mix of products and services, as well as wide range of customer expectations, business challenges and rapidly advancing technologies.

Organizations have always utilized relevant data, desired information and most prominently better and up-to-date knowledge as well as technology for its existence, which reveals that we are in the Knowledge Age, which is indeed dealing with managing the uncertainties. Moreover knowledge with its applications, are regarded as the primary source of competitive advantage. Knowledge has become the lifeblood of the organization, which constitutes the processing of internally generated information much concerned with the management and control of any business as well as externally sourced information contributing to vital function of an organization.

To remain competitive in today’s business world, the heartbeat of a firm depends on the constant refurbishing systems, that too, in most innovative and cost effective ways. ‘An Enterprise’ in this information age must optimally deploy its most valuable asset – ‘the knowledge’ that is on hand. Knowledge is an extremely valuable resource that can contribute significantly to the organization’s success.
1.2 Power of Knowledge

People have always passed their accumulated knowledge and commercial wisdom on to future generations by telling stories about their thoughts, work and experiences. In the corporate context there are certain individuals or the human resource of the company; recognized as experts within a particular domain. The transfer of expertise occurs via consultation, collaboration, mentoring, and observation, that is, through personal interaction.

Knowledge can be described as - information possessed in the mind of an individual, being personalized and produced as per the need, in the form of information with a precise and relevant context.

Knowledge is believed as “information in action”. It is generated and applied in the minds of the one who knows as an individual, whereas in organization context it is tied to documents, routines, processes, ways and styles of working and norms.

Davenport and Prusak have defined knowledge as - a mixture of organized experiences, value, information and insights, which offer a framework to evaluate new experiences and information.

Today perspectives towards knowledge in business context, is getting recognition with much deeper value than before. A critical business computing is: sharing a pool of information and the resources efficiently and effectively by the entire organization not only in the Information Technology (IT) business context but in every category of business scenario. The exorbitant increase in the volume of information has created a sticky situation in which technological innovations increase the quality and connectivity of information. Information overload signals a threat that can stifle innovations and put a brake to efficiency. Organizations have suffered from additional costs and several inefficiencies with a focus on process; instead of result.

It is observed that the issue of managing knowledge is still not considered as an imperative one in many organizations. The fact today is that the thriving companies in the 21st century do not sell just products and services but much beyond them. They form strategic alliances with their competitors and suppliers to sell knowledge, skill and information, as value-added services for their clients/customers and entrepreneurial companies. Knowledge Management (KM) initiatives as an
enterprise-wide strategy is seen accelerating the locating, managing and nurturing of organizational competencies.

1.3 The Learning Curve and The Hierarchy Of Knowledge:

The hierarchy of Knowledge clearly depicts the Evolution of Knowledge from Data to Wisdom depicting the staircase of the Learning process. It can be viewed as transformation of data with a background of experience resulting in knowledge. Here, there is a need and motivation as well to learn due to which this learning curve progresses.

Learning is a continuous process, in which an individual gathers new knowledge, skills, attitude, experiences and contacts that produce changes in the behavior of that individual.

![Learning Curve and Hierarchy of Knowledge](image)

Figure 1.1: The learning curve and locus of knowledge

(Adapted from: An Intelligent Organization, Pentti Sydannaanlakka, 2002)
Data are objective facts, presented with or without any judgment or context; it being understood as an unprocessed and unorganized matter. Data gets processed and organized to become Information. Here the processed data may be analyzed, categorized, summarized and placed in some context. Information thus can be said to be Data endowed with relevance, purpose and meaningful base. Information gets developed as Knowledge when it is further utilized for some specific contextual purpose: comparisons, assessment of consequences, establishing some relationship based on some base information or experience of individual or other factual data. It is seen as information that is no more stable but it is in action and it is evolving which is Intelligence which is used for making right decisions and/or choices. It may be now loaded with or associated with some experience, intuition or values and termed as Wisdom. The accumulated knowledge is thus used to create a higher level understanding of Intelligence in the progressive learning process.

Learning thus can be described as a continuous process of gathering new knowledge, skills, attitudes, experiences, feelings and values. It constitutes change, development, growth and maturation too. Learning takes place on an individual, a team and at an organization level. With the dawn of the knowledge economy comes the realization that learning occurs and must occur on a continuous basis, with every interaction; both human and electronic.

Knowledge management as one of the latest change management approaches is mainly researched by business, management and ever more by the IT communities, apart from the other communities.

1.4 Knowledge and Modes of Knowledge

Knowledge can be understood as information possessed in the mind of individual, being personalized or subjective information with a specific context. There are four processes of Knowledge creation which are as well called as Knowledge conversion process or modes of knowledge.

Knowledge conversion as proposed by Nonaka takes place in four forms which constitute:

- Socialization (conversion of tacit knowledge to tacit knowledge)
- Externalization (Conversion of tacit knowledge to explicit knowledge)
- *Combination* (conversion of explicit knowledge to explicit knowledge)
- *Internalization* (conversion of explicit knowledge to tacit knowledge)

- **Socialization**: refers to conversion of tacit knowledge in one person to new tacit knowledge in another person, through social interactions and shared experiences among organizational members. (E.g.: Apprenticeship / Internship). It can be observed as direct interaction between individuals, such as with customers or suppliers which are external entities as well people within the organization. This depends on having shared experience, and results in acquired skills and common mental models. Consider one informal situation where an experienced Manager who actually shares his understanding with a younger colleague; by telling him the importance of praising immediately when a subordinate performs well in his team.

![Figure No. 1.2 Modes of Growing Knowledge](image)

*Figure No.1.2 Modes of Growing Knowledge
Source: Ikujiro Nonaka; SECI Model Organizational Knowledge Creation, 1994*
**Externalization**: is the process for making tacit knowledge explicit. (E.g. articulation of best practices or lessons learnt, experience sharing) It could be in different variants such as - articulation of one’s own tacit knowledge – ideas, images in words/metaphors/analogies. Eliciting and translating of other’s (like customers, expert) tacit knowledge into understandable form; such as a dialogue or a print version or a recorded communication, is another variant of Externalization. In this process people share beliefs, ideas and learn how better to articulate their thinking, through instantaneous feedback and simultaneous exchange of ideas. Consider another situation wherein both the colleagues i.e. the experienced Manager and the younger colleague convert their thoughts and understanding on praising team members into some good instruction guideline quoting “Always praise, wherever possible, promptly as well as give critical feedback wherever necessary!”

**Combination**: refers to the creation of new explicit knowledge by merging, categorizing, reclassifying and synthesizing existing explicit knowledge. (Literature survey reports). Once knowledge is explicit, with the help of technology it can be transferred as explicit knowledge through a process of combination. It could be mailing, printing, recording, generating databases, minutes of meeting, proceedings etc. This process could be within individuals or among groups across the organization. Considering the situation mentioned in the earlier bulleted point , imagine that the management of the organization was impressed by one of the proposals given by the experienced Manager and his younger colleague. As per the proposal the management decides to hire special expert consultants to coach all other managers within the organization to inculcate the idea of praising the team members.

**Internalization**: refers to creation of new tacit knowledge from explicit knowledge (e.g. learning and understanding that results from reading, discussion). Internalization is the process of understanding and absorbing explicit knowledge into tacit knowledge held by the individual. Knowledge in the tacit form is actionable by the owner. Internalization is largely experiential, in order to actualize concepts and methods, either through actual doing or through
simulations. It transfers organization and group explicit knowledge to individuals. In-line with the above narrated situation consider that after undergoing the training from the expert consultants, all the managers in the organization start the practice of praising the team members promptly whenever they perform well. One study found that team members declared that; their contribution towards best ideas occurred while working with colleagues, rather than alone (El Sawy et al, 1998); hence, individuals learned best, according to them, while working in groups. And Leonard and Sensiper (1998) argue that even though the moment of insight itself, is individual in nature, many creative individuals are nevertheless aware of the social nature of knowledge creation.

1.5 Knowledge Management and Knowledge Management Cycle:

The awareness and importance of information and knowledge, followed by a constant search for ways to manage and disseminate them, led to the birth of a revolutionary concept - Knowledge Management.

Knowledge Management (KM) is a process of elicitation, transformation and diffusion of Knowledge, throughout an enterprise so that it can be shared & thus reused. KM initiatives are used by business organizations to maximize corporate knowledge for more enriched and improved business and competitive advantage. KM involves the development and implementation of best practices and methodologies to add value to the company through appropriate utilization of up-to-date relevant and desired information for more efficient, productive and secured business. Knowledge Management (KM) is basically the management of corporate knowledge and intellectual assets that can cover a range of organizational performance characteristics and add value by enabling an enterprise to conduct business more intelligently.

Salleh and Goh (2002) define knowledge management as a process of leveraging knowledge as a means of achieving innovation in process and products/services, effective decision-making, and organizational adaptation to the market for creating business value and generating a competitive advantage to organizations.

Management information system’s researchers and practitioners tend to define knowledge management as an object that can be recognized and controlled in computer-based information systems. Management researchers, on the other hand,
address knowledge as a process based on individual and organizational competencies such as skills and know-how (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Sveiby, 1997).

The KM Cycle in the Figure No.1.3 thus depicts the process of creating, capturing, storing, sharing & applying Knowledge. These sub processes also help in converting Tacit Knowledge to Explicit Knowledge or an individual Knowledge to team Knowledge. The fields of knowledge management and Business Intelligence have evolved in the couple of decades. Wherein, KM can be observed as an integral part or key ingredient of Business Intelligence. Business Intelligence deals with a systematic process for collecting and analyzing information and knowledge to improve organization’s decision-making process and is fairly similar with the definition of ‘Competitive Intelligence’ established by the Society of Competitive Intelligence Professionals. Davenport has defined Knowledge Management as- “information with experience, context, interpretation and reflection”. Knowledge Management helps the organization locate, select, organize, disseminate and transfer vital information and expertise essential for activities such as problem solving, dynamic learning, strategic planning and decision-making. Enterprise Knowledge Management (EKM) entails formally managing knowledge resources in order to facilitate access and reuse of knowledge, typically by using Information Technology.
1.6 Knowledge Management History and Evolution

Business environment is constantly evolving at an alarming speed. To be successful, business firms must redefine and question their current knowledge stored in corporate databases, while creating new practices to fit the business environment. It was the opening point which was the not-so precise beginning of the Knowledge Management (KM) arena in 1991, where the effort represented an early attempt to provide a methodology to determine the value of knowledge to any business. Following table summarizes the evolution of KM over the last five decades-

![Evolution of Knowledge Management]

Figure 1.4 Evolution of Knowledge Management; Adapted from - Knowledge Management; Sudhir Warrier
Although KM as a conscious discipline has appeared as a thinking proposed by Peter Drucker in the 1970s, Karl-Erik Sveiby in the later 1980s and Nonaka and Takeuchi in the 1990s. It was this time wherein economic, social and technological changes were transforming the way companies worked. Globalization emerged and brought new opportunities and increased competition. Companies responded by downsizing, merging, acquiring, reengineering and outsourcing. But here KM was talked about more openly and understood as a technological stunt more than a methodology which later was seen as an overhead activity and argued as another trend that would fade away. Later it is now focused on business objectives, people and culture too.

The systematic study of KM, as a management and scientific discipline, began in the year 1994, with the annual Report of leading Swedish Financial Services Firm, Skandia, who attempted to quantify the value of the company’s intellectual capital.

In today’s economy, knowledge is people, money, leverage, learning, flexibility, power and competitive advantage. Knowledge is the next paradigm shift in computing, following the evolution of data processing (1945-1965) and Information management (1966-1995).

As a reaction to the questionable benefits from downsizing, business process reengineering and other cost-cutting measures in the 1980s and 1990s, knowledge management surfaced as the best step in addressing the competition in a hard-to-predict environment. The information revolution has placed emphasis on sharing huge amounts of information that is now accessible on the Internet. It was in 1995 that the KM as a strategic tool of business emerged into mainstream consciousness and not exactly the mainstream practice. According to a survey conducted in 2000, out of 243 domestic and international organizations, leading consulting firms, over two third of the respondents claimed that they had KM strategy in place, wherein the aim of this particular survey was to assess the current status of KM in business. (Elias Awad and Hassan Ghaziri, 2004).
1.7 Evolving To Enterprise Knowledge Management

**Enterprise Knowledge Management** (EKM) as defined by Gartner is “a centrally guided KM program that supports multiple business objectives.”

Brian Hopkins discussed EKM (blog on Sep 13, 2006) as - "A system or framework for managing the organizational processes that create, store and distribute knowledge, as defined by its collective data, information and body of experience."

Enterprise Knowledge refers to business specific knowledge and not the generic knowledge which may be an enterprise independent one. Enterprise knowledge pertains to particular enterprise settings, whereas generic knowledge would contain information that may be repeatable in many situations or contexts. Thus enterprise knowledge does have a specific pattern associated with that particular enterprise with which it is associated.

EKM can help companies grow in today’s competitive global market by boosting employee productivity and corporate benefits. As a matter of fact it can be seen as an over-arching strategy or a principle. The need of the hour is to provide the relevant training to ensure that the employees have the right knowledge and skill needed to accomplish their tasks, concepts and techniques for developing more capable employees, managers and organizations. (Human Resource Management, Gary Desslers, 2003, page 187).

The goal of EKM initiatives is to make right the knowledge available to the right processors (human or computer) at right times for right cost, that too in a presentable form. Organizational functions like Training and development used to focus only on teaching technical skills and research in some cases, but today employers need to adapt to technological changes, improve quality of product and service and boost productivity to remain competitive in the dynamic business environment. It requires a remedial education on a continuous basis using strong education technology and proven methodology and above all a KM based quality information in order to facilitate the Human resources as well as support the business processes of an organization. Intellectual resources are the key organizational asset that enables sustainable competitive advantage. Knowledge based systems and its association with Human Resource Development (HRD) has been a recent phenomenon, which
has taken the role of the HR Managers at a higher stand and given HR function a multidisciplinary facet.

EKM involves many facets of the information systems domain including technical (business processes, flow of information, etc.), organizational and social (policies, structures and work roles, etc.) and teleological (purposes and reasons) considerations. (Petricles and Vagelio, 1999).

A Knowledge enablement understands the meaning, content and context of information and proactively delivers desired information to the appropriate parties. Knowledge enablement not only overcomes KM breakdowns that occur from misclassification of information, it enables reclassification of documents including the unstructured content that makes up 80% of the information managed by typical enterprise. As the organization’s knowledge and experience increase, there is an urge to enhance the ability to acquire the information. Organization cannot afford dips in productivity that result from the manual unstructured and inefficient way to access the multiple repositories of information.

These may include:

- Individual information repository (local emails, scanned document images)
- Centralized repository (for group, departmental, site and enterprise wide sharing and dissemination of knowledge created from both internal and external data sources)
- Public Information Repository (e-tailers- allowing customers and prospects to easily search their sites for products and information.)

It may be appropriate that before shifting to complex enterprise Knowledge Management programs, most enterprise may initiate one or smaller KM projects focused on high values but limited business objectives. A thought on appropriate mechanism for application of EKM is very much essential in order to avoid a tumble-down. KM is often associated with support for collaboration and cross-functional teams, best practices capture and sharing and innovation processes that rapidly adept workflow to latest knowledge about customer, market and supply chains.

For business unit, project or workgroup management ,EK M is all about building and maintaining a knowledge workspace that integrates the workplace environment, whether a central space or a remote and distributed virtual space, with business intelligence, competitive intelligence and human competencies. The ultimate goal of
EKM will be to provide a disciplined approach to manage the intellectual assets of the enterprise.

Apart from mechanism there are other factors such as organization culture, people and leadership which are vital components responsible for affecting the implementation of EKM. Organizational leaders have become aware of the rise of focused knowledge roles in all the sectors, wherein they understand what their role entails and what kind of contribution is expected to the overall mission of the organization. A successful EKM program will provide individual application and expertise they need to reach a high level of productivity individually and in workspace and to make quick, effective decisions in support of enterprise business objectives. Systems resources and services are all essential for effective and efficient management of KM based information in order to facilitate the Decision Making process of any enterprise. With consistent training and development, employees should be equipped and their skills sharpened regularly due to which they would find right information at right time to take a right and effective decision to meet their obligations. This would raise the probability and quality of net profitability gains and streamlined business operations.

As pointed out earlier, effective knowledge based system implementation hinges upon few vital aspects – the people and the culture along-with the support of technology. Technology alone may not help to meet the challenges in the ever changing environment in an organization and environment cannot be bypassed for that matter. Hence people, business environment and technology together can be considered as a bundle of perspectives in application of EKM implementation.

For the successful application of EKM, the business systems should be supported well with appropriate technological platform with multi-skilled professionals, capturing, distributing and facilitating the understanding of information for the purpose of making good business decision across entire enterprise. This would as well enrich the learning process in the organization.

### 1.8 Enterprise Knowledge Management, IT Industry and HRD:

The changing business environment especially in IT industry has made organizational knowledge a complex, critical factor of sustainable competitive advantage. IT Industry as a term is used synonymously as multiple terminologies like
IT Service Industry, Software Industry, Software and services Industry, IT and ITES Industry, etc.

1.8.1 Indian IT Sector linkage: The Indian Information Technology sector can be classified into the following broad categories - IT Services, Engineering Services, ITES-BPO Services and E-Business.

IT Services can further be categorized into Information Services (IS) outsourcing, packaged software support and installation, systems integration, processing services, hardware support and installation and IT training and education.


IT Enabled Services are services that use telecom networks or the Internet. For example, Remote Maintenance, Back Office Operations, Data Processing, Call Centers, Business Process Outsourcing, etc.

The following are some of the strengths of the Indian IT sector:

- Highly skilled human resource;
- Low wage structure;
- Quality of work;
- Initiatives taken by the Government (setting up Hi-Tech Parks and Implementation of e-governance projects);
- Many global players have set-up operations in India like Microsoft, Oracle, Adobe, etc.;
- Following Quality Standards such as ISO 9000, SEI CMM etc.;
- English-speaking professionals;
- Cost competitiveness;
- Good Quality telecommunications infrastructure.

The following are some of the weaknesses of the sector:

- Absence of practical knowledge;
- Dearth of suitable candidates;
- Less Research and Development;
- Contribution of IT sector to India’s GDP is still rather small;
- IT development concentrated in a few cities only.
The Information Technology (IT) sector in India is amongst the fastest growing in the country and the world. The Indian Software Industry has been growing at over 50% per year since 1991. (Nirupam and Vanita, 1998). As per the survey conducted by NASSCOM, the export rate ($1.75 billion) and growth rate was observed satisfactory (58%) in 1997-98 considering the Indian Software export in various segments like software development and maintenance, back-office operations, data transcription, etc. But at the same time the share of the world market was not so impressive with just 1%. In this regard there were several key policy issues as well as issues associated with operations, Manpower, Finance, Marketing and HRD which have been studied their considerable association with the growth of this Industry both in domestic as global market.

In 2005 India’s share of global market for outsourced IT services stood 3.3% which served nearly half of all Fortune 500 companies. Foreign MNCs arrival in India accounts about only quarter of its exports as compared with the actual Indian and Indian MNCs together. Multi-National firms use their Indian operations primarily as export platforms. Increasingly Multinationals are setting up shops in India to conduct sophisticated software development activities and as a captive source of R & D, utilizing India’s pool of highly trained engineers. (Bhatnagar Subhash; 2006)

Exports contribute nearly 65% of the Indian IT sector revenue in the year 2007. In this year the Indian IT services market was estimated to remain the fastest growing in the Asia-Pacific region with a CAGR of 18.6 per cent.

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<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>CAGR-07-12</th>
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<tbody>
<tr>
<td>Domestic IT/ITeS Market</td>
<td>90,014</td>
<td>110,177</td>
<td>133,100</td>
<td>158,053</td>
<td>182,991</td>
<td>209,698</td>
<td>18.40%</td>
</tr>
<tr>
<td>IT/ITES Exports Revenue</td>
<td>156,594</td>
<td>186,142</td>
<td>218,107</td>
<td>250,087</td>
<td>284,666</td>
<td>320,278</td>
<td>15.40%</td>
</tr>
<tr>
<td>India IT/ITES Industry Size</td>
<td>246,609</td>
<td>296,319</td>
<td>351,207</td>
<td>408,139</td>
<td>467,657</td>
<td>529,976</td>
<td>16.50%</td>
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Table No 1.1 : Growth in Indian IT/ITES Industry Size (2007-12)
Source: www.indialawoffices.com
As per the Ministry of Communications & Information Technology (Government of India) the IT/ITES exports have grown to a staggering US$ 46.3 billion in 2008-09, the IT sector currently employing 2.2 million professionals directly and another 8 million people indirectly accounts for over 5% of GDP. A majority of the Fortune 500 and Global 2000 corporations are sourcing IT/ITES from India and it is the premier destination for the global sourcing of IT/ITES accounting for 55% of the global market in offshore IT services and garnering 35% of the ITES/BPO market.

According to NASSCOM year 2011-12 was a Milestone year for Indian IT-BPO industry-aggregate revenues crossing the USD 100 billion mark, exports at USD 69 billion. Within the global sourcing industry, India was able to increase its market share from 51 per cent in 2009, to 58 per cent in 2011. Export revenues (including Hardware) estimated to reach USD 69.1 billion in FY2012 growing by over 16 per cent; Domestic revenues (including Hardware) at about USD 31.7 billion, growing by over 9 per cent, Software and services revenues (excluding Hardware), comprising nearly 87 percent of the total industry revenues, expected to post USD 87.6 billion in FY2012; estimated growth of about 14.9 percent over FY2011. The industry’s share of total Indian exports (merchandise plus services) increased from less than 4 percent in FY1998 to about 25 percent in FY2012. Embracing emerging technologies, increased customer-centricity, deepening focus
on new markets, adopting new business models are some successful growth strategies followed by the industry.

The Indian IT-BPO industry has proved to be a premier source of mass employment across the country. However, to attain ‘industry-ready’ status, organizations were required to equip their employees with a new set of skills – foreign language capabilities, global business process knowledge, sales and marketing skills, research (business, market, financial) and business analytics.

Knowledge-based systems, Decision Support System, Management Information Systems are widely used not only in the IT sector but in other sectors too; are heavily information-based systems working with strong support of technology. These are understood as person-computer systems with specialized problem-solving expertise and skill-sets. The "expertise" consists of knowledge about a particular domain, understanding of problems within that domain, and "skill" at solving some of these problems. These are corporate assets or knowledge assets that an organization should nurture. Knowledge assets are intangible capabilities, and there is a recognized need to “make a greater effort to quantify the value of such intangible assets”. As rightly quoted by Power (2002), Knowledge-driven DSS suggests or recommends actions to managers.

1.8.2 The Multinational linkage: I.L.O. (Indian Labor Organization) defines a MNCs as, company which has its operational headquarters based in one country with
several other operating branches in different other countries. The country where the head quarter is located is called the home country whereas; the other countries with operational branches are called host countries.

According to Business Dictionary,

*An enterprise, operating in several countries, but managed from one (home) county can be called as an Multinational corporation.*

Generally, any company or group that derives a quarter of its revenue from operations outside of its home country is considered a multinational corporation. A Multinational Corporation is referred as "transnational corporation".

The Indian multinationals seem to “represent a new breed of multinationals that build their competitive advantage in novel ways; multinational corporations that derive their advantage from service rather than technological innovations and manufacturing MNCs that straddle a low-cost and medium technology position” (Jonsson, 2008). The Indian firms are showing a clear preference for overseas acquisition as an entry strategy largely in North America and Europe. (Pradhan, 2007).

While studying the knowledge management aspect in the multinational companies whether Indian or Foreign MNCs; the model which was developed by Marquardt and Reynolds about global learning organizations can be referred, which reveals that there exist lot many variety of factors that have to be considered. Three levels of knowledge transfer can be identified in this context, and each level expands the dimensions of the knowledge related characteristics of multinational enterprises. These levels are mentioned as:

- individual and group level,
- organization level and
- global level,

In the learning processes of organizations operating internationally, critical factors are location, the distance between the involved units, political issues, the organizational culture of the company, characteristics of the strategy, structures and communication processes, language skills or intercultural skills of the leaders. (Snejina Michalalova and Bernard Nielson, 2006).

In the MNC context, cultural and functional similarity or diversity can have a very powerful impact on knowledge processes and knowledge sharing, and, since international business life is connected to people’s mobility and their interaction,
with crossing national borders, factors such as understanding, tolerance, value system, impacts of multinational environment, languages, accent, behavioral diversity have become more important than ever. (Makela K. et-al, 2011; Bender, S,2000)

1.8.3 The HRD linkage: Globalization has re-energized the vital environmental factors shaping the work of HRD professionals in local as well as global software companies. Globalization comprises a multiplicity of issues, including the growth in global, multinational and transnational organizations developments in technology, mergers, acquisitions, and strategic alliances. In such a scenario these organizations look to HR professionals for better innovative and enriching advice and support. As a consequence HRD face a number of traditional as well as new challenges.

It would be imperative to consider that HRD should now focus more strongly on maintaining and developing knowledge workers smartly and manage knowledge innovatively. The influences associated to culture, competencies and technological advancements are points to ponder while scrutinizing the HRD perspective and their contribution in application or implementation of EKM.

On strategic level it would as well indicate that the HRD should be more creative and agile for designing better organizational structure applicable to the organization. In this study the researcher has considered Indian and Indian MNCs and Foreign MNCs in India which are implementing best practices of managerial knowledge and techniques in India locally as well as internationally.

Each step in the entire knowledge management effort would be at risk unless organizations recognize, nourish and appropriately reward the contribution, flow and application of knowledge. Supportive work environments and user-friendly, cost effective technology are key enablers for this entire process. (Smith, 2001)

1.9 Research Problem Description:

For business unit, project or workgroup management, KM is all about building and maintaining a knowledge workspace that integrates the workplace environment, whether a central space or a remote and distributed virtual space; with business intelligence, competitive intelligence and human competencies. With the expansion of business, there is voluminous data playing a major role being further progressed and the complexity of managing & communicating such knowledge gets elevated.
Furthermore, in today’s business climate, along-with so many uncertainties and risks in trade, it’s a herculean task to manage enterprise knowledge, where employees change jobs much more frequently. Thus IT firms cannot rely on longtime employees to transfer knowledge to other. This dependency is crucial at the same time very difficult to eliminate or overcome.

In IT sector today it has been observed that EKM as a methodology has been utilized mostly in the actual software engineering or process like CMM (Capability Maturity Model), etc. In context to the HRD in IT sector; relatively less research has been conducted in examining the existence and impact of the application of EKM.

It can be proposed that EKM provides a disciplined approach for HR personnel to manage the intellectual assets of the IT enterprise and reinforce the business process. Given that application of KM is critical at the same time very much essential, HR personnel of any organization playing a vital role would become an imperative facet for this study. So it was worthwhile to focus on the set of people in Human Resource Department, who meticulously manage the resources and is now-a-days partially associated with strategic functions too. Therefore the researcher attempted “Application of Enterprise Knowledge Management in HRD: A Comparative Analysis of the Selected Companies in IT Sector in and around Pune.”

1.10 **Scope of the Research:**

One of the important facets of the study is about application of EKM in the area of *Human Resource Development*; wherein HRD as a discipline spans in various functions in the organization such as recruitment and selection, Training and Development, Payroll and appraisals, etc. Furthermore, there are certain recreational, motivational and welfare aspects associated with this discipline.

IT (*Information Technology*) Sector has profoundly contributed in today’s dynamic business world. The IT Sector in India can be classified into the following broad categories - IT Services, Engineering Services, ITES-BPO Services, E-Business, etc. IT Services can further be categorized into Information Services (IS) outsourcing, packaged software support and installation, systems integration, processing services, hardware support and installation and IT training and education. EKM can help these companies grow in today’s competitive global market but in that
regard EKM must be seen as an over-arching strategy or a principle especially in context to HRD. There are many companies in Information Technology (IT) sector, which are local and global enterprises, both Indian as well as Foreign Multinational Companies (MNCs) flourishing their trade on Indian soil.

**Conceptual Scope:** The scope of the research is to comparatively analyze and understand the existing Knowledge Management Systems that facilitate the business processes in organization and as well examine the challenges faced and HR Measures to overcome the challenges of HR as well as challenges of application of EKM. A detailed study about the organization profile, vision and mission, stakeholders and more importantly, the contribution of the Human Resource Department towards this effort with the changing environment in business and technology has been considered.

**Geographical Scope:** For undertaking a comparative analysis of different categories of companies, the study is restricted to the selected companies in IT Sector, in and around Pune (Maharashtra State-India), from which the target companies were Indian and Indian MNCs in one set and another set of companies were Foreign MNCs.
Map No.1.1: Map of India showing Top IT firms in India

Source: business@mapsofindia.com
The researcher has considered the Pune region for the study and the fact is that Pune is India’s first wireless city. It is as well the second largest city in the western Indian state of Maharashtra. The geographical location of Pune is shown as in context to Map of India showing Top IT Companies in India(Map No:1.1) , Political Map of Maharashtra State (Map No: 1.2) and Pune city area( Map No: 1.3).

Pune's economy is driven by its manufacturing industry, although information technology has become increasingly prominent in the last decade. Now Pune is transforming into a vibrant modern city with bubbling activities in the IT and Hi-Tech sectors.
1.11 Objectives Of the Research Study:

The main objective of the research study undertaken is;

To conduct a Comparative analysis of the Application of EKM in HRD of the selected companies in IT Sector in and around Pune (Maharashtra State-India);
Wherein 2 sets of companies have been considered namely;

i. Indian and Indian Multi-National Companies (Indian&IndianMNCs):
   Type A Company

ii. Foreign Multi-National Companies (Foreign MNCs):
    Type B Company
Furthermore, following subsets of the above objective is proposed for the study:

1. To know and understand the application of EKM in IT companies
2. To examine the mechanism of application of EKM in IT companies.
3. To study the impact of application of EKM in HRD in IT companies.
4. To make a comparative analysis of application of EKM in HRD of selected companies in IT sector.
5. To study the impact of technological advancements in HRD and the value of EKM in that direction.
6. To assess the attitude and role of HR in application of EKM in IT company.

1.12 Research Hypotheses

In the context of the mentioned objectives, following hypotheses were designed:

| Hypothesis 1: | “Understanding of Application of EKM is effectively reflected in the key business processes and KM initiatives in IT companies” |
| Hypothesis 2: | “Application of EKM is carried out step-by-step, to foster constant growth of the individual and the organization” |
| Hypothesis 3: | “Application of EKM in HRD majorly leads to successful management of business challenges” |
| Hypothesis 4: | “There is similarity between application of EKM in HRD in Indian AndIndian MNCs and Foreign MNCs in IT companies” |

1.13 Research Design

Research is an art of scientific investigation. Some people consider as a movement - A movement from the known to the unknown.

Advanced Learner’s Dictionary of current English defines Research as –

“A careful investigation or inquiry specially through search for new facts in any branch of knowledge”
Redman & Mory define research as – “Systematized effort to gain new knowledge.” Research, being a fact-finding process, profoundly influences business decisions. The business manager is interested in choosing that course of action, which is most effective in attaining the goals of the organization. Research not only provides facts & figures in support of such business decisions, but also enables one to choose a measuring rod to judge the effectiveness of each decision.

The next step after stating the research problem, research purpose and objectives, research hypotheses and questions, is to formulate an appropriate research design. The research design is a plan of action indicating the specific steps that are necessary to provide answers to those questions, test the hypotheses, and thereby achieve the research purpose that helps choose among the decision alternatives to solve the management problem or capitalize on the market opportunity.

**Definitions Of Research Design:**

- According to David J. Luck and Ronald S. Rubin,
  
  "A research design is the determination and statement of the general research approach or strategy adopted on the particular project. It is the heart of planning. If the design adheres to the research objective, it will ensure that the client's needs will be served."

- According to Kerlinger,
  
  "Research design in the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance."

- According to Green and Tull,
  
  "A research design is the specification of methods and procedures for acquiring the information needed. It is the over-all operational pattern or framework of the project that stipulates what information is to be collected from which source by what procedures."

A stepwise approach has been followed for conducting this research study wherein, **Survey Method** is predominantly used for this research study. The steps in Research Design as shown in the diagram 1.5 have been followed.
The magnitude of the research is to evaluate the application of EKM in HRD; that facilitate the business processes in organization; to study the influencing factors in the changing environment in business and technology in different companies namely; Indian plus Indian MNCS and Foreign MNCs. For undertaking a comparative analysis of different categories of companies, the study is restricted to the selected companies in IT Sector, in and around Pune (Maharashtra State- India).
A detailed study about the organization profile, vision and mission, stakeholders and the strategic context of the HRD in the changing environment in business and technology has as well been considered.

1.13.1 Data Collection Methods

The research study focused on comparatively critical and debated area of Knowledge Management, wherein the data collection was not only time consuming but tedious too. Hence dependability on just one source of data and one method of data collection was not sufficient. The modes adopted for collecting data in order to achieve the research objectives are primary and secondary sources.

Multiple data collection tools were used namely;

i) Structured Questionnaire, which was designed based on the objectives and the Hypotheses of the research study.

ii) Planned Interview with the Mid-senior level employees especially HR personnel.

iii) Discussion with the senior Managerial employee, employees especially from the HR Forum, KM kind of Forum, Talent Group, etc.

1.13.2 Pilot Study:

Before initiating the actual data collection, a pilot study was conducted in 10 known IT companies in Pune. It helped in improving the questionnaire and gave a better roadmap to carry out the data collection. After conducting a detailed literature survey, to get the existing body of knowledge in this area; the answers of the following new questions were discussed to come up with a preliminary set of Questionnaire:

- What are the criteria of measuring EKM success?
- What is the effectiveness/impact of the implementation of KM
- What are the KM enablers of successful implementation of KM?

<table>
<thead>
<tr>
<th>Reliability test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>.734</td>
</tr>
<tr>
<td>N of Items</td>
</tr>
<tr>
<td>19</td>
</tr>
</tbody>
</table>

Table No.1.2: Cronbach’s Reliability Statistics using SPSS

Cronbach’s Reliability Test is used to determine the internal consistency.
The Cronbach’s Alpha values for the items should be more than 0.6 (Sekaran & Bougie, 2010). Table 1.2 shows that the items to be examined had fulfilled the criteria. The alpha coefficient for the dataset of 19 items is .734, suggesting that the items have relatively high internal consistency. Reliability coefficient of .70 or higher is considered “acceptable”.

1.13.3 Sources Of Data:

The data collected was deliberately from the IT companies operational in India and providing services. In order to carry out the data collection four important lists were considered as given below;

a. The main lists considered was the IT directory for Pune published by MCCIA (Maharatta Chambers of Commerce, Industry and Agriculture-Pune) and fundoodata.com (year 2010). Apart from these lists, three more lists were referred for cross-reference and to get few more details of these companies.

b. These lists include: List from Bombay Stock Exchange (year 2009),

c. List of Indian IT Software and services published by NASSCOM (year 2010); and

d. List published by SICSRWiki list of IT companies in Pune (year 2011) have been referred for this research study.

a. **Primary Data:** Primary data is the real data or real prime fact of information. Based on the pilot survey draft questionnaire was prepared & discussed with a few industry specialists/practitioners and made ready for further research survey with improvisation.

Initial data collection was done by face to face interviews and in-person questionnaire; later utilized Google’s document facility ‘Gdoc’, to design, distribute and receive Questionnaire feedback, online. It was collected by administering Structured Questionnaire and conducting In-depth Interviews with the HR personnel, Knowledge Officers and other knowledge workers from the selected Companies in IT Sector in and around Pune. Informal talks and discussions were also carried out with the employees working in few of these enterprises initially.

b. **Secondary Data:** Secondary data is already existing data or compiled data with individuals or enterprise that need to be referred for the desired study.

The researcher has visited several Libraries such as Indian Institute Of Institute management, Ahmedabad (IIM-A)-India; IndSearch Library, Pune-India; Jaykar
Library, Pune University, India; Sinhgad Institute Of Management, Pune-India; Bharati Vidyapeeth’s IMED Library, Pune-India; Tech Mahindra Library, Pune-India; San Francisco State University Library, San Francisco-USA; and Harvard Business School Library, Boston-USA.

Study of published sources includes books, monographs, journals, research papers and research articles, conference proceedings, press clippings, company documents, project reports, published thesis and dissertations. Information on the internet and websites having data related to the research topic has been referred along-with the published data. This data is used to support primary objectives and hypotheses; wherever required further in the data analysis stage.

The data is collected through interviews - Telephonic and face-to face; and questionnaires both in-person and online. (Interview and the Questionnaire forms used, have been included in the appendix at the end of this Thesis). A questionnaire was designed that could map the objective of the research undertaken as well as address the proposed hypothesis. In the current research work undertaken, the researcher has used multiple scales. There are few questions having Nominal scale class of YES / NO; which are assigned numbers as 1 and 2 respectively. As per Ordinal scale ranking or rating are assigned in ascending or descending order and later the weights are assigned to the variables and score calculated. Summated scale or Likert scale is as well another important scale used. To create the scale, each answer choice was assigned a score (1 to 5) and the answers for several Likert items were summed together for each individual to get an overall Likert score.

1.13.4 Data Sampling:

The selection of the sample units was planned based on certain criteria such as:

i) The selected companies in IT sector located in and around Pune were to be considered.

ii) The Enterprises having annual turnover of around five Crores of Indian Rupees and above, have been chosen.

iii) The category of the IT company should be company in IT sector should fall under either Indian or Indian Multinational or Foreign Multinational Corporation.
Sampling Design:

The total companies in IT sector, as per the list obtained from MCCIA were 1030, in and around Pune in the year 2010. This list is supported by the details published on the website of Ministry of Foreign Affairs of India. The directory has listed software enterprises that include Small Scale, Medium Scale and Large Scale companies. These enterprises were classified as IT Education (ITEDU) as well as IT Enabled Services (ITES) along-with service / product development companies. In view of the sample selection, the researcher has chosen only the MNCs from this list which counts 108 IT companies located in and around Pune. and remaining 922 were Indian Companies.

Fundoodata.com is looked upon as a website which empowers corporate with online database. It is a site which can be relied upon as one of the strongest databases of Companies in India and it facilitates in accessing the information of Companies in plethora of domains like IT /ITEs, Retail, Consulting, BFSI, Manufacturing, Services, etc. From this list total IT companies in Pune filtered were 472 from which 108 were MNCs.

There were 90 IT companies listed by NASSCOM (National Association of Software and Service Companies) (www.nasscom.org).

The list published by SICSRWiki had 474 Small and Big Scale IT Companies located in and around Pune(SICSR stands for Symbiosis Institute of Computer Studies and Research)

As per the criteria specified, the researcher had planned to select 7-10 % of the sample from the available companies in and around Pune.

Based on the 2 main lists obtained from MCCIA and fundoodata.com, 75 companies were chosen which fulfilled the criteria framed for the sample selection.

<table>
<thead>
<tr>
<th>Source Organization</th>
<th>No. of MNC Companies</th>
<th>No. of Indian Companies</th>
<th>Total Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCCIA</td>
<td>98</td>
<td>936</td>
<td>1030</td>
</tr>
<tr>
<td>Fundoodata.com</td>
<td>108</td>
<td>1887</td>
<td>1995</td>
</tr>
<tr>
<td>NASSCOM</td>
<td>90</td>
<td>901</td>
<td>991</td>
</tr>
<tr>
<td>SICSRWiki</td>
<td>96</td>
<td>378</td>
<td>474</td>
</tr>
</tbody>
</table>

Table No. 1.3 Total IT companies in Pune upto year 2010.

The given table no.1.3 gives the total number of companies in Pune all together including both MNC and Non MNC.
Purposive Conventional Sampling Technique has been followed in the research survey. Stratified Disproportional Sampling Technique was applied based on the types of the companies-namely:

A) Indian&Indian MNCs and B) Foreign MNCs.

Further based on the addresses of the companies whose base address or branch address fall in and around Pune were short listed, contact details of around 100 companies were selected and communicated. Based on the validity and completeness of Questionnaire responses, 56 respondents were considered. There were 28 responses drawn from each type of companies. Apart from this, 12 respondents were interacted with for Interviewing and discussion.

The sources shows different number of companies and some companies were not included in the given list sr. no. a to d. Now considering all the sources, in over all 1995 companies all together fall in Pune area. Based on the selection of sample and given criteria, the researcher has selected only Foreign MNC’s and Indian & Indian MNC’s which it has more than 5 Crore INR as annual turnover and more than 50lac INR initial capital. Based on the criteria, the researcher has chosen given sample indicated in table 1.4.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of the IT company</td>
<td>Total No. of Companies in Pune</td>
<td>no. of companie s falls as per criteria</td>
<td>no. of companies selected for sample (in % of III and IV)</td>
<td>Complete data set filled by respondent (In % of III&amp;V)</td>
<td>in % IV and V</td>
</tr>
<tr>
<td>Indian and Indian MNCs</td>
<td>1887</td>
<td>364</td>
<td>66 (18.13)</td>
<td>28 (7.69)</td>
<td>42.42</td>
</tr>
<tr>
<td>Foreign MNCs</td>
<td>108</td>
<td>108</td>
<td>34(31.48)</td>
<td>28 (25.92)</td>
<td>82.35</td>
</tr>
<tr>
<td>Total</td>
<td>1995</td>
<td>472</td>
<td>100(21.19)</td>
<td>56 (56)</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 1.4 various percentages of companies

Based on the validity and completeness of Questionnaire responses, 56 respondents are considered in table 1.4. Apart from this, 12 respondents were interacted for Interviewing and discussion. These interview data collected has been used for data analysis and interpretation.
1.13.5 **Schedule and Period of the Study:**

Data collection including the pilot study was carried out from **June 2009 till March 2012** for various respondents in the IT companies selected particularly the HR personnel in Mid-Senior category like the Managers and Senior Executives and Top Management category like the HR-Heads and Vice-Presidents. The Interview and discussion mode was applied for interaction with the Top management which was documented and integrated later into the qualitative analysis as supportive data to the final results obtained through the quantitative analysis result data.

The response rate for both Interview scheduling and execution as well as the response rate for Questionnaire was very slow but content wise fruitful. The initial phase of data collection was very heavily affected due to non-availability of desired personnel, and in many cases they were reluctant to share any information due to hesitation. In second or in some cases third meeting, gaining faith and breaking the ice was possible discussing any further concerns. For online questionnaire too there were multiple follow-ups required to get it done which in some cases took even months.

The data collected through interviews and questionnaires was compiled in 82 tables based on various parameters. Data coding sheet was prepared before advancing towards data analysis. Measurements and Scaling Techniques were applied for registering differences in degree of responses, received through interviews and questionnaires. Scaling involves assigning numbers to the degree of opinion.

The period of the data collection was defined as those IT companies in and around Pune fulfilling the criteria given and have been in business since at least last 3 year (2009-2010-2011) and as well fulfill the given criteria for sample selection.
1.13.6 Chapter Scheme

Overall review of the chapter design and brief contents of each one is as follows:

| Chapter 1. Introduction and Research Methodology. |
| Chapter 2. Review Of Literature |
| Chapter 3. Application Of Enterprise Knowledge Management In IT Business Context |
| Chapter 4. Application Of Enterprise Knowledge Management: Mechanism And Challenges |
| Chapter 5. Impact of application of Enterprise Knowledge Management in HRD |
| Chapter 6. Comparative Analysis Of Application Of Enterprise Knowledge Management |
| Chapter 7. Conclusions and Suggestions |
| Chapter 8. Selected Bibliography |

Appendices:
- Annexure 1: Preliminary Interview Questionnaire
- Annexure 2: Online Survey Questionnaire
- Annexure 3: List Of IT Companies Approached, In And Around Pune

The First Chapter is ‘Introduction And Research Methodology’ which introduces the topic of application of EKM in HRD in the IT companies. It described the purpose of the research study undertaken, the objectives and hypotheses stated and the overall research design is declared, wherein the type of research methods and techniques used is proposed.

The Second Chapter is ‘Review Of Literature’ which discusses the flow of reviewed literature which helped in identifying the research gaps and supported in defining the problem statement bringing out a foundation for the current research study.

The Third Chapter ‘Overview Of Enterprise Knowledge Management’ explains the conceptual details about EKM in business organizations. EKM Methodology, Practices, Framework and tools have been discussed.

The fourth Chapter ‘Mechanism and Challenges of Application of EKM in IT Business Context’ discusses about applying and practicing EKM in IT Business context. The Key business processes and its association with EKM, the factors affecting EKM Implementation and the challenges associated with EKM implementation are highlighted.
In the Fifth Chapter- ‘Impact of Application of EKM in HRD’; a background of the stakeholders involved in formulation of EKM system, the role, proficiency and competencies of HR Managers in today’s business context have been highlighted. HR work mechanisms, HR outlook towards the technological advancements undertaken; while applying EKM in HRD has been as well depicted.

Chapter Sixth; ‘Comparative Analysis Of Application Of EKM’ consist the representation of comparative analysis of application of EKM in IT companies and the related HR perspectives under study. Observations, Hypotheses Testing and important findings are included that constitutes the main body of the research study.

The Seventh Chapter summarizes ‘Conclusions And Suggestions’ of the present study.

References have been cited at the end of each Chapter and a selected bibliography has been included at the end of this thesis.

A Master Bibliography is the Final Chapter in which the selected references of Books, Research Articles and Papers, and Websites referred and used has been cited.

1.14 Utility Of The Study

Enterprise Knowledge Management is viewed as a strategic tool in support of enterprise transformation for a new economy. Most of the companies have realized that focusing on knowledge is not some trend but it is a business necessity. Since organization cannot afford dips in productivity that result from the manual unstructured and inefficient way to access the multiple repositories of information either stored or implicit.

In this context better and newer but well-established methodology, would leverage the task of involvement of the stakeholders; and in the process would result in achieving qualitative knowledge sharing and knowledge dissemination. The current Research Study addresses these issues. Moreover, the study focuses on following major outcomes:

- To study and understand the application of EKM and its association of HRD.
- To understand the hurdles in application of EKM in IT companies.
- Study the challenges and factors influencing effective application of EKM.
- To explore the apparent benefits of EKM in an enterprise.
To examine the impact of application of EKM on business processes.

- Comparative assessment of the application of EKM in HRD stakeholders in selected companies in IT sector in and around Pune.
- Identify the work mechanisms depicting its association with EKM initiatives and ranking.
- Highlight the challenges and factors influencing in effective application of EKM in the IT companies.
- Scrutinize the worthiness of EKM as a supportive strategy in HRD to build innovation friendly culture encouraging productive KM workers, positively facilitating the IT business enterprises.
- In order to analyze, understand and respond to the information with human like intelligence; empowering people with the support of HRD is strongly recommended, so as to proliferate business by making desired knowledge available to make faster and better decisions.

1.15 Concluding Remarks:

A successful application of EKM would provide individual application program as well as expertise required to reach a higher level of productivity individually and in workspace and to make quick, effective decisions in support of enterprise business objectives.

With the essence of knowledge-based economy, knowledge management has the capacity to nurture technological and organizational innovations for a more effective operation and thereby enable an organization to better compete in the marketplace and for survival.

The ultimate goal of EKM would be to provide a disciplined approach to manage the intellectual assets of the enterprise innovatively and efficiently.