CHAPTER - 1

Introduction

1.1 Preamble

The modern world is governed by the corporates section, it is the section of the society consisting of companies, industries and business houses. They account extensively for the industrial development and the economic growth of our society. They contribute very much to the national income generation, infrastructural growth and development of economy. The corporates seek more pinpointed information in order to sustain and progress further. Among the corporate industries, the software companies are booming since nineties, thus there is a high demand for software professionals who are assumed to be updating their knowledge all the time. In order to facilitate this, every IT company is establishing and maintaining its own library internally. Therefore, the software professionals can enhance their knowledge often and this could be possible if they visit their library frequently for the required information which are available in the library. These types of library user differ from other library user since they are highly computer literates and need specific information instantly so as to complete their projects/jobs with in a stipulated time in the sense they mostly require information related to their occupation. As such, their information seeking behaviour may differ from other library users. In this context, this study examines the information seeking behaviours of the corporate library user, especially, the IT sector library user.

Information and Communication Technology (ICT), in general, has changed the information seeking behaviours of the library user as they are not ready to wait for the library anymore. They can opt various information sources for their information needs and have been successful using these sources most of the time. Technology
changes are happening in every field and everyone expects information to be on their hands through new means and new technologies such as handheld devices.

There is an assumption that most of these users are familiar with Social Networking Services for their communication and exchange of information and they professionally use the e-resources available in the networked environments. These aspects of the information seeking behaviours of these types of users are unassessed so far by any studies. Thus, this study is focusing on all these aspects, as such, the development of the corporate sectors in the country needs to be focused as follows:

1.2 **An overview of corporate sectors in India**

Indian economy is the seventh largest economy of the world as per International Monetary Fund (IMF) in terms of nominal Gross Domestic Product (GDP). This ranking is based on the projection of IMF outlook in April 2015. India’s nominal GDP is valued into US$2.308 trillion worth. By 2020, India will be in the 6th position ahead of France with GDP (Nominal) of $3444 billion. This is a result of the effort put up by the corporate companies in the country by successfully running the business with quality service and customer satisfaction provided through products or services. In terms of market capitalization value, some of the top corporates in India are TCS, Reliance industries, ONGC and HDFC bank are the global leaders, according to the online business portal “moneycontrol.com” that takes into account the latest trends in market and as valued by the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). However, it is needed to trace the performances of the top Indian Corporate Companies of India.

1.2.1 **Top corporate companies in India**

The top 10 corporates in India in the year 2015 are listed here under based on the revenue, profit and market capitalization.
1. Tata Consultancy Services (TCS)
2. Reliance Industries Limited (RIL)
3. Oil and Natural Gas Corporation (ONGC)
4. Housing Development and Finance Corporation (HDFC)
5. Imperial Tobacco Company of India Limited (ITC)
6. Coal India Limited
7. Infosys Limited
8. Sun Pharmaceutical Industries Ltd
9. State Bank of India (SBI)
10. Hindustan Unilever Limited (HUL)

In the rank list of the corporates, the IT giant Tata Consultancy Services is placed in the first rank, but it is worthy to note that the other corporate companies ranked in the list are also having multiple portfolios, of which, TCS and Infosys have continued with IT alone.

1.3 Emergence of IT sector and its trend in India

The entry of Information Technology into India has brought forth a great change in the image of India in the world, transforming it into a land of innovative entrepreneurs. India is the world's largest IT sourcing destination, accounting for approximately 55 per cent of the US$ 146 billion market. The country's cost competitiveness in providing Information Technology (IT) services, which is approximately 3-4 times cheaper than US, continued to be its Unique Selling Proposition (USP) in the global sourcing market. The IT sector in India has paved a way to 2.5 million direct employment making India one of the biggest IT capitals of the modern world of today whereas all the major players in the world IT sector have
made their stand. Also, India has a great number of highly qualified and talented technical graduates and thus, it has become one of the largest IT manpower country in the world which is available at a low cost saving of 60-70 per cent human cost to source countries. This large pool of qualified and skilled Indian workforce has enabled Indian IT companies to help clients to save US$ of 200 billion in the last five years. According to the Department of Electronics and Information Technology of the Government of India, most of the Fortune 500 and Global corporations are sourcing IT-ITES from India. More than 600 delivery centres are engaged in providing services in over 200 cities across 78 countries that have been established by the Indian IT companies.

India’s IT industry accounts for 12.3 per cent of the global IT market which is largely due to exports. Export of IT services accounts for 56.12 per cent of the total global IT exports (including hardware) from India. The Business Process Management (BPM) segment accounted for 23.46 per cent of total global IT exports during 2014-15. The IT-BPM sector in India grew at a Compound Annual Growth Rate (CAGR) of 15 per cent over 2010-15, which is 3-4 times higher than that of the global IT-BPM spend, and is estimated to expand at a CAGR of 9.5 per cent to US$ 300 billion by 2020. Having understood the economic roles of the IT sector, the Government of India has extended tax holidays to the IT sector for Software Technology Parks of India (STPI) and Special Economic Zones (SEZs). Further, the country has eased procedural difficulties and implemented single window clearance for setting up of IT companies and IT facilities in the country.

Bengaluru earlier known as Bangalore is considered as the Silicon Valley of India as it has become the leading software exporter with top IT companies, and more than 5000 IT companies on the whole accounting for 35% of the IT companies in India are located in and around the city. This sector is dominated by exports and
contributing 77% of the total industrial revenue from exports. In addition to this, the domestic market is also showing a considerable robust revenue growth. Gartner has depicted the Tata Consultancy Services, Infosys, Cognizant, Wipro and HCL Technologies as the “top Five Indian IT Services Providers”. Apart from Bengaluru, Chennai is the second largest exporter of IT products in India with many major IT MNC companies, IT expressway and other facilities, possessing a strong industrial base to setup new IT companies in and around the Chennai city.

In 1990’s, many Indian IT professionals who were highly educated and technically proficient were employed in the United States and thus, the number of Indian Americans reached 1.7 million by 2000 because of the opportunities in IT fields. The success of the information technology in India brought about far-reaching political consequences, in addition to economic repercussion. India the developing nation could improve its relations with a number of world economies as it gained a reputation both as a source and as a destination for skilled work force. The growth of entrepreneurial class of immigrant Indians was facilitated by the relationship between economy and the ICT which was valued by the western world which in turn has aided in promoting technology driven Indian economic growth.

In 1991, the Indian economy went through several economic reforms leading to a new era of globalization and international economic integration. From 1993 – 2002 an annual economic growth of 6% was seen in India. This economic reform was driven in part of significantly by internet usage in the country. Under the administration of Atal Bihari Vajpayee, the then Prime Minister of India, the development of information technology was placed among the top five priorities of the Indian government which led to the formation of Indian national task force on information technology and software developments.
Wolcott and Goodman (2003) reported that this task force produced an extensive report on the background of the state of art technology in India, along with an IT action plan with 108 recommendations within 90 days of its establishment. Most of its proposals were consistent with the recommendations of the international bodies like the World Trade Organization (WTO), International Telecommunication Union (ITU) and World Bank. The experiences of Singapore and other nations that have implemented similar programs were also incorporated by the Task Force and thus it has brought about a sparking action among the networking community and the government. India’s telecommunications sector was further liberalized by the New Telecommunications Policy in 1999 (NTP) and legal procedures for electronic transactions and e-commerce were created by the Information Technology Act 2000.

1.4 Glimpses of the Indian IT industry’s growth

The evolution of the Indian IT industry can be categorized into four phases as follows.

1.4.1 Phase 1: Prior to 1980

Until 1960 the software industry did not come into existence in India. The Government of India started to realize the potentiality for earning foreign exchange as western countries needed software development due to the inadequacy of inbuilt software in their systems to perform all their required operations. As a result, in 1972, the Indian government formulated the software export scheme which made provision for hardware imports in exchange of software exports. Tata Consultancy Services (TCS) was the first firm to agree to this condition in 1974 which was marked as the beginning of software exports from India. Thus, the Tata Consultancy Services is the forerunner of the Indian IT industry.
1.4.2 Phase 2: 1980 – 1990

In the beginning of this phase, the software exports were not up to the mark even though the government had taken many initiatives. This was because of two main reasons namely;

a. Dependency of export of software on import of hardware which was costly during this phase

b. Lack of infrastructural facilities for software developments

Having understood these two, the government formulated a new computer policy in 1984, to tackle these issues which made import procedures simpler and reduced the import duty on hardware for software developers. In 1986 the software policy was formulated by the government to make the software industry independent of the hardware industry which led to the further liberalization of the IT Industry. According to this policy hardware imports were delicensed and duty free for the exporters. In addition, the worldwide reduction in the hardware prices also reduced the entry barriers substantially. In 1991 a scheme called “Software Technology Parks of India” was established by the government to increase the exports of software and services.

1.4.3 Phase 3: 1990 – 2000

In this period, many significant changes in the economy including economic liberalization, opening up of Indian economy to foreign investment, devaluation of the rupee and relaxation of entry business came to be evident which attracted many foreign entities (MNCs) to our nation. Offshore model for software services was used by the companies to provide service to their clients from India itself and later Global Delivery Model (GDM), (a combination of onsite and offshore model) was introduced by the MNC companies. In the GDM, the offshore development Centre is located at
various places across the globe. Entry of many MNCs into the Indian market intensified the competition and so investments in research and development started to distinguish their service from others.

1.4.4 Phase 4: Post 2000

Global problems like the Y2K, the dot com crash and recession in the US economy led to the growth of the IT industry in India. As there was shortage of US based programmer, services of the Indian firms were demanded, thus placing Indian IT industry on the global map. After 2002-2003, the industry registered a tremendous growth due to the increasing number of clients, large sized contracts and a strong global delivery model.

1.5 Growth in the domestic and export revenues in the IT industry

The Indian IT-BPM industry is continuing its growth path without any concerns about others. As per the National Association of Software and Services Companies (NASSCOM), the figure no.1.1 below shows a continuous growth in the domestic and export revenues of the Indian IT industry. The Indian IT and BPM sector (including hardware) are estimated to have generated US$ 146 billion revenue during 2014 - 2015 compared to US$ 118 billion in 2013 - 2014, implying a growth rate of 23.72 per cent. Also NASSCOM has reported that the sector is on the track to reach $300 billion revenue by 2020. The top six corporates’ contribution has been estimated to be 36% of the total industry’s revenue of which TCS alone accounts for about 10.1 percent.
The USA, UK and EU are the major markets for Indian IT software and services exports and accounts for nearly 90% of the total of Indian IT-ITES exports. Continental Europe and Asia Pacific markets are also showing yearly growth. This widening geographical market exposure leads to the positive growth of the industry. The estimated share of export markets in FY 2014-15 is given in figure 1.2.
1.6 Employment opportunities in the IT corporates

The growth of IT - ITES sector has created vast employment opportunities supporting the growth of other industries such as Transportation, Real Estate, Hotels, Telecommunications, Retail, Catering, Security and Housekeeping, etc. The total number of employment opportunities in the IT software and services sector was 3.52 million in 2014 - 2015 along with a 10 million indirect employment in 2014 - 2015 which is attributed to the IT sector. The IT- ITES exports is the segment that has generated a major part of the employment opportunities and its contribution is increasing year by year. The details of direct employment by the sector in both the exports and domestic market segments for the last five years are given below in the table no 1.1.

Table 1.1: Employment growth in IT- ITES Industry

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<tbody>
<tr>
<td>Year/ Segment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Services &amp; Exports</td>
<td>1.00</td>
<td>1.15</td>
<td>1.29</td>
<td>1.60</td>
<td>1.74</td>
</tr>
<tr>
<td>BPO Exports</td>
<td>0.77</td>
<td>0.83</td>
<td>0.88</td>
<td>0.99</td>
<td>1.03</td>
</tr>
<tr>
<td>Domestic Market</td>
<td>0.53</td>
<td>0.56</td>
<td>0.60</td>
<td>0.70</td>
<td>0.75</td>
</tr>
<tr>
<td>Total Employment</td>
<td>2.30</td>
<td>2.54</td>
<td>2.77</td>
<td>3.29</td>
<td>3.52</td>
</tr>
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(Source: Nasscom, E: Estimated)

However, a decline in hiring employees in IT sector due to the recent market recession and global financial crisis is retrieved. But the availability of skilled English speaking workforce has been a major reason behind India’s emergence as a global outsourcing leader. As per NASSCOM report, India will add around 5.8 million more graduates and postgraduates to this talent pool during FY15 and that India has the ability to drive Research and Development and innovation business in the IT-BPM
space, on the contrary, while other sectors like financial service, telecommunications and manufacturing industries have shown a phenomenal growth over the last few years.

**Figure 1.3: Growth of the IT Talent Pool in India (in millions)**

(Source: Nasscom, TechSci Research)

Note: Graduates includes both graduates and post graduates. FY-Financial Year.

1.7 India’s value proposition

The four main reasons for the presence of major IT companies of the globe in India are highlighted below which are considered as growth pillars for India’s value proposition.

- **World’s most attractive market**: The need for improving economic growth, the availability of connected economy, digital-ready market, the growing spending power of 1.2 billion people, the existence of positive investment climate and unmet needs made India the world’s most attractive IT market.

- **Excellence in business delivery**: The assurance of optimum cost got in return for work done, the large number of diverse talented employable people, the presence of strong network of Global Delivery Centers (GDCs) and multi-shore presence, the availability of quality
infrastructure, mature ecosystem, effective collaboration and partnerships enable India to excel in business delivery.

- **A hub for digital skills:** India has an environment that enables skill-set developments and focused training with more than 7000 firms focusing on digital solutions having nearly 1.5 lakh of digitally skilled employees. India also has more than 2000 digitally focused start-ups of which approximately 30 percent start-ups are working on innovative solutions. Thus, making India a global hub for digital skills.

- **Leading innovator in global IT-BPM industry:** The presence of large firms facilitating innovations like collaboration, building scale and co-creating best solutions, the environment which strengthens entrepreneurial activities leading to increase in investments, the rise in technology and digital start-ups which makes innovation and IP available across the world makes India the leading innovator in global IT-BPM industry.

### 1.8 Research and development in the field of IT-BPM industry

As India has become a global leader in providing skillful, and IT services specific to the needs and requirements of the clients and the end users, many multinational IT companies are started to establish their firms in India which created an intense competition in the Indian IT market. As a result many multinational IT companies are started to invest in the research and development (R&D) sector to improve their services when compared to others. Investing in the research and development sectors helps to develop innovate new IT products and services that promotes the growth of the company and the industry as well.

Many IT corporates are focusing on Research and Development activities to develop their engineering and technical capabilities, so that they can sustain in the field and excel in the IT market. Previously, the research in the industry was focusing
towards programming technologies like Java, but recently technologies like mobile computing, cloud computing and software services have gained more importance. This shift is happening due to client preferences for wide-spread computing rather than standalone computing and the increased demand for low cost computing solutions. No doubt, among many states, the southern states like Tamil Nadu, Karnataka, Maharashtra and Andhra Pradesh are top ranking states in the field of IT-BPM industry. However, Tamil Nadu has many strategies for the growth of this industry which are explained as follows:

1.9 An overview of IT industrial growth in Tamil Nadu

Tamilnadu is the first state in India to formulate a comprehensive IT policy. It was in 1997 the state government released an Industry-specific policy to achieve goals of the ninth five year plan focusing on the growth of IT industry in the state. In 2002, due to the changes in the IT industry, a new IT policy was released by the state government which focused on leveraging the IT industry to bring prosperity to the state and to transform Tamilnadu into a knowledge empowered state as well as one of the industrial state in the country. The policies of the Tamilnadu government are formulated, released and implemented by the Department of Information Technology.

According to the 2002 report of NASSCOM, IT and IT-Enabled Indian GDP constituted into 30% of foreign exchange within a decade. This revolution is expected to generate four million jobs in the knowledge sector ‘Information Technology and Information Technology Enabled Services’ (IT-ITES). Tamil Nadu has utilized this opportunity to a great extend due to its educated workforce and excellent administration. Subsequently, an ITES policy was released by the then state government in 2005 to highlight the advantages of ITES investment in the state. A list of various initiatives taken by the Tamil Nadu government for the growth and sustainability of the IT industry are presented below:
a. Pro-active measures have been taken to enable IT and ITES companies to do business with utmost ease and facilities in the state

b. 50% exemption of stamp duty has been granted for IT companies towards land registration and office construction

c. 30% subsidy has been given to small and medium enterprises on stall rent, for participation in national and international exhibitions

d. Floor Space Index (FSI) norms have been relaxed for IT buildings to enable the entry of smaller IT companies

Apart from these developments some of the Research and Development projects that are also carried out by the Tamil Nadu government are as follows:

1.9.1 TIDEL Park: TIDEL Park is a joint venture of Tamil Nadu Industrial Development Corporation (TIDCO) and Electronic Corporation of Tamil Nadu (ELCOT) with a capital of Rs.292 crores and was inaugurated on 4th July 2000 with 1.28 million sq.ft. of quality business area with an employment potential of 12000 software professionals and 2000 service providers.

1.9.2 ASCENDAS IT Park: ASCENDAS IT Park (Chennai) Private Limited (AITPCL) is an associate sector company of Tamil Nadu Industrial Development Corporation Limited (TIDCO) located at Taramani, Chennai. It occupies a floor space of around 1.5 million sq.ft. which was developed in 3 phases. The employment generated by this project is 18,650 IT employees.

1.9.3 Mahindra World City: Mahindra world city (MWCDL) is a world class industrial complex developed by Mahindra World City Developers Limited, an associate sector company of Tamil Nadu Industrial Development Corporation Limited (TIDCO) at an estimated project cost of Rs.350 crores.
The project includes 3 product specific special economic zones (SEZ) such as IT, auto and apparel.

1.9.4 **TRIL INFO PARK LIMITED**: IT-ITES SEZ project was developed by TIDCO with an Integrated International Convention Centre (IICC) and serviced apartments at Kanagam and Thiruvanmiyur, Chennai. The project construction commenced on 15th December 2008 and a total of 3.4 million sq.ft. of built up space was developed in the processing zone.

1.9.5 **IT & ITES SEZ - TIDEL Park III**: This project is operational since 2000, housing leading multinational IT companies in Coimbatore. Due to the success of TIDEL Park at Chennai, the Tamil Nadu government and the main promoters of TIDEL have set up TIDEL III at Coimbatore.

1.10 **Major IT Hubs in India**

The map 1.1 shows the major IT hubs of India. Among 12 IT hubs of India, almost 50% hubs are located in the four southern states such as Tamil Nadu, Andhra Pradesh, Karnataka and Kerala. Bengaluru is considered as the Silicon Valley of India with top IT companies. Thus, 35% of IT companies are located in and around the city making it the largest software exporter in India as mentioned earlier. It has over 5000 IT companies. Further, Chennai is the second largest exporter of IT products in India. The major IT MNC companies are also located in the Chennai city. And this city is also educational capital of India, as such, it produces talented manpower for the industry.
It is evident that almost all major IT companies located in Chennai city are having their own libraries as a supplement to improve the human resources of these companies. Also these libraries are part and parcel of the research and development programmes of the parent companies/IT sector corporates. These libraries are functioning as knowledge resource centres for the research and development projects providing nascent information as and when they are required. Since these libraries are part and parcel of the R&D programmes of the IT sector corporates, they play vital roles such as providing either required information for the project or supply important information sources for career growth of the human resources. Thus, it is pertinent to view the roles played by these libraries which are explained in the ongoing paras.

1.11 An overview of Indian IT corporate library

Every Indian corporate library is committed to the employees in empowering them with “Knowledge at their fingertips - Anytime – Anywhere”. The library
resources and services are available mostly online in the networked environments across the existing technology. This phenomenon helps the users to access library resources from their desks itself or through handheld devices and facilitates the corporate employees who are always on the move for job related issues. As a result, they need not come out of the way to the library but they access all the relevant library resources which are made available at their fingertips and wherever they are. To achieve this level, the corporate library needs to implement various best practices and modern ever changing technologies, so that users can avail these services at any time from their desks itself. The mission of the corporate library is to facilitate acquiring of new knowledge through dissemination of existing knowledge resources and provide value-added services with the use of existing technology which are mandatory for these libraries.

Unlike other industries, the IT sector industries fully depend on its information resource centre or the library for its sustainability and further developments. Thus, every IT corporate has its own library which has been nourished often with the needed infrastructure by the company. Thus, there is need to evaluate these libraries’ performances from the angle of the user point of view so as to enhance them to remodify their functionalities. As far as library user studies are concerned, they are neglected phenomena as there are limited literature available on the corporate library use studies. In this context, this study is intended to bridge this gap as well. However, it is to remember that talented manpower is required to manage these libraries to play critical roles. The critical roles that are needed to be played by the manpower of these libraries are presented as follows:

1.12 The critical roles played by the corporate librarian

A corporate librarian has to manage documentation and information resources within the company business environments. Corporate librarianship is the right choice
for anyone who enjoys working with people who are experts in information technology. Moreover, it is the role of the librarian to see to that all the library resources are helpful to enrich the IT professionals’ knowledge across subjects providing the best opportunity to educate oneself and improvise his/her abilities in the field where they are working.

A successful corporate librarian needs to continuously equip himself and market the library services and competencies so as to overcome the challenges by enhancing the library to compete with current technological advancements. To compete with the current technological developments, the corporate librarians should have additional competencies to implement the best practices in their organizations. Especially most of the software companies are expecting the librarian to possess knowledge about current technologies to market the library services continually to the software professionals at their desks and act as an information centre and knowledge creator for the organization as a whole. In this context, it is noted that unlike other library users, the IT professionals’ information seeking behaviours are different since they work precisely with well-planned work schedules and highly improved physical environments. And the corporate librarian needs to be more capable of dealing with these situations. Failing which, the library professionals are generally sent out or terminated from their services. So, it is mandatory for them to study the needs of their library users and their information seeking behaviours.

1.13 An overview of information seeking behaviour (ISB)

Information seeking is known as the process or activity of attempting to obtain information in both human and technological contexts. It involves searching, locating, retrieving and using of information and is influenced by certain factors like personality, emotions and education of the person who seeks information. Information seeking behaviour refers to the way people search for and utilize information and so it
is an individual's way and manner of gathering and sourcing for information for personal use, knowledge updating, and development. The term was coined by Wilson in 1981 and he described information seeking as the totality of human behaviour in relation to sources and channels of information including both active and passive information seeking and information use. In line with Wilson’s definitions few of the definitions on information seeking behaviour are focused hereunder.

1.14 Definition of information seeking behaviour

Different information scientists have attempted to define the term information seeking behavior. Wilson is one among them and considered to be a pioneer in the discipline of information seeking behavior. Few of the definitions are as follows:

Wilson, T.D, (1997) ISB as a “consequence of a need perceived by an information user, who, in order to satisfy that need, makes demands upon formal or informal information sources or services, which result in success or failure to find relevant information”.

Pettigrew, et al., (2001) defined information seeking behavior as “how people need seek, give and use information in different contexts”. Building on the definition information seeking behavior is conceptualized to include how people need, seek, manage, give and use information in different contexts.

Krikelas, James (1983) “Information seeking behavior refers to an activity of an individual to identify a message that satisfies a perceived need”.

The review of all these definitions reveals that all these definitions are the same in one or the other way which are focusing on searching, seeking, accessing, using, sharing of information and characters of the library users. To explain these aspects, many information seeking behaviour models are developed by various scholars in different times which are explained in the following paragraphs.
1.15 An overview of information seeking behaviour models

In the past a plenty of information seeking behaviour models have been presented by many researchers. Among them, T.D.Wilson’s information seeking behaviour models are impressive, more acceptable and recognized in every field. Many scholars tend to follow T.D.Wilson’s information seeking behaviour models and many theories have been formulated in the recent years using Wilson’s models as a base. However, certain ISB models are presented here to address issues at various levels of information seeking behaviour.

1.15.1 Wilson’s information seeking behaviour models (1981 and 1996)

Wilson in 1981 first created a model that focuses on the origin of information needs and barriers to seeking information. The model states that the relationship between personal, primary needs (physiological, affective needs and cognitive needs), a person’s social needs (work-related responsibilities and performance expectations from individuals) and external environmental factors (work environment, socio-cultural environment, politico-economic environment and physical environment) enables a person to understand their information needs and helps them to overcome personal, interpersonal and environmental barriers.

Wilson in 1996 revised his information seeking model developed in 1981 as shown in Figure 1.4. The revised model (Wilson’s model 1996) is based on two key propositions. The first proposition states that information needs are a secondary type of needs created by a set of primary needs that arises out of everyday life; the second one emphasizes on the different personal and external barriers faced by users during information search and acquisition.
Figure 1.4: Wilson’s Model of Information Seeking Behaviour (1996)

The above revised model shows three concepts. They are context of information needs, information seeking, and information processing and use. The model also expresses two moderating variables like activating mechanism and intervening variables that denotes the effects of different external conditions on the information behaviour of the individuals.

1.15.2 Krikelas' model of information seeking behaviour (1983)

Following the footsteps T.D.Wilson, James Krikelas (1983) was the one who first developed an information seeking model based on the published Library and Information Science (LIS) literature about information needs and uncertainty. The model comprises of 13 components, claiming to be a general model that would be applicable to everyday life. Krikelas model represents two separate actions namely information gathering and information giving. The model states that Information gathering occurs in response to the deferred needs motivated by an event or the general environment of the seeker. Krikelas defines information gathering as "an
attempt to continually construct a cognitive environmental 'map' to facilitate the need to cope with uncertainty" ascertaining uncertainty as a key concept. Krikelas clarifies uncertainty as a motivating factor, and highlighted on the potential an information seeker to retrieve an answer from his own memory or from nearby persons or from information sources like books, journals etc.

**Figure 1.5: Krikelas' Model of Information Seeking Behaviour (1983)**

Secondly, Krikelas defined information giving as the act of disseminating messages through written (graphic), verbal, visual or tactile forms. Krikelas pinpoints that individuals are naturally both senders and receivers of information. Krikelas also emphasized on the necessity to consider “the situational factor” in addition to social, personal and cultural characteristics which denotes the direct bearing of the situation on the information needs of an individual at a particular time concludes that over a period of time the information seeking behaviour of an individual change as the nature of the problem will differ to a significant extent.
1.15.3 Ellis, 1989 and Ellis, Cox and Hall, 1993

Ellis in his model elaborates the different behaviours involved in information seeking. Ellis uses the term ‘features’ rather than ‘stages’ to illustrate the different constituents of information seeking behaviour. The features are named and defined below:-

- **Starting**: It is the means employed by the users to begin seeking information (e.g. asking some knowledgeable colleague).

- **Browsing**: It is the semi-directed or semi-structured searching.

- **Differentiating**: It is the filtering of information obtained using known differences in information sources.

- **Monitoring**: This denotes keeping up to date or performing current awareness searching.

- **Extracting**: It is the identification of relevant materials from an information source.

- **Verifying**: This involves checking of the accuracy of the information obtained.

- **Ending**: This stands for the winding up of the search through a final search.

**Figure 1.6: Ellis, Cox and Hall, 1993 Model**
The success of Ellis model lies on the fact that it is based on empirical research and that it has been tested in subsequent studies, including a recent study done in an engineering company. Ellis also suggests that the detailed interrelation or interaction of the features in any individual information seeking pattern depends on the unique circumstances of the information seeking activities of the individual concerned at that particular point of time. Ellis’s model on considering the different kinds of features fits between the micro-analysis of search behaviour (starting, chaining, extracting, verifying, ending) and a more macro analysis of search behaviour generally (browsing, monitoring, differentiating).

In conclusion, Ellis model like Wilson’s model is intended to function at different levels of the overall process of information seeking.

1.16 An overview of information seeking behaviour of software professionals

The corporate library users’ information seeking behaviour or patterns are different from that of other types of library users as they are trying to get pinpointed information for their project and enhancing their technological knowledge for career advancement. In the information society, obtaining and sharing of information plays a decisive role. At the time when software industries were booming, the software professionals visited the libraries to develop new innovation or understand the existing software technology. After the boom is over, their information seeking behaviour has also changed and it is evident that they are not willing to directly access the library due to many reasons and are expecting to access through online. Thus, the information seeking behaviour of the software professionals has been changed with new technologies and it is evident that they are not willing to wait to get the information of their interest as they are pressurized to complete their tasks on time. As such, they are expecting information through online.
As they are exposed to technology to a greater extent and well-versed in handling of software devices and tools, they prefer to access information through online resources, looking for a new paradigm shift in the libraries which is the main reason for their fewer visits to the library. Some studies also show that they prefer to obtain information through Social Networking Sites (SNS) such as twitter, Facebook, My space, online news and blogs etc. and various internet sources whenever needed as they feel that they could save the time spent in going to the library physically searching the library for their needed information.

Due to these changes the corporate librarian is forced to acquire all the available information into online including migration of full text to online sources, library catalogues, databases, access to digital resources, Online database search and training. In view of this, the study tries to examine the information seeking behaviour patterns of software professionals, barriers to access information and to provide solutions to solve the barriers for providing them efficient and effective library services in the corporate industry.

1.17 Information seeking behaviour of software professionals according to their levels in the IT industry

The term hierarchy in the context with software jobs refers to all possible job titles that exist in the Information Technology industry. The hierarchy of a software company reflects the roles, authorities and responsibilities of software professionals that contribute towards the growth and development of the company.

It is observed that the IT Sector has a wide range of technologies that offers different kinds of jobs in different fields associated with computers and information technology. The software industry is offering career opportunities for graduates and post graduates in all disciplines under different kind of jobs in varied hierarchies
based on their qualifications. They may be employed in entry level, middle level or higher level based on their qualification and the institutions they studied. Most of the software companies are offering entry level jobs for engineering graduates and middle level jobs for top institute graduates particularly from IITs and IIMs. Higher level jobs are given to candidates who have the required minimum experience in the industry. The major levels in the software industry, job hierarchies, roles assigned and the information seeking behaviour of the professionals are explained below in ascending order:

I. Entry level software professionals

II. Middle level software professionals

III. Senior or top level software professionals

1.17.1 Information seeking behaviour of entry level software professionals

Most of the IT companies appoint freshers or candidates with little experience in the IT fields for entry or lower level jobs. This level is a stepping stone for their career. The professionals appointed in this level, focus on moving up the hierarchy chain with their field of specialization. These professionals are involved in software programming, designing, developing, and reviewing application code, writing documentation, testing, providing production support and developing software solutions to meet customer requirements through team and individual efforts.

In this level also they have the responsibilities of preparing reports, maintaining records of work accomplishments and reporting to the middle level officials. As this is to be a new environment to them, they need information relating to their jobs from the library which will support their career growth. Most of the software companies are organizing many entry level training and learning programmes, conducted by the training department or senior level professionals to
motivate and encourage the new entrants to do their job efficiently and confidently. It is the prime duty of the IT sector library to support these professionals.

In view of all the above responsibilities assigned to the entry level software professionals, their information seeking behaviour would be searching for software programming, software development/fundamentals, SW process, testing and training materials. They expect relevant information sources that will be helpful for their current work and career growth.

1.17.2 Information seeking behaviour of mid-level software professionals

Middle Level Software Professionals are IT professionals having considerable experience in technically and managerially leading the team. The primary responsibilities of the Middle Level Managers/Tech. Leads/Business Analysts are towards Technical Delivery and People Management/HRM Management - growth, goal setting, controlling attrition, project-level decision making and growth of the software company forming a bridge between the lower level professionals who report into them and the senior level professionals under whom they are working/Client SPOCs (Single Point of Contacts). They play a vital role in the performance and development of the organization when compared to other professionals in the organization. Thus, they are the backbone of the corporate. These professionals use their immense technical knowledge acquired from their years of experience to design business plans, corporate strategy and management systems of the organization.

They are expected to summarize the weekly or monthly reports acquired from their project team and forward to their senior managers about the current status of project execution and the delivery status to the end client. These professionals are also responsible to make sure whether the project delivery meets the expectation of the clients and check whether it is completed on time. They also manage the individual
activities, tasks, and project segments to lead the project towards completion within the assigned budget and stipulated deadline. They also need to give an account of the day to day operations of the project to the next level management, keep a watch on their duties assessing the success of their project, resource procurement and they are required to identify bad projects which may not be fruitful in terms of business modalities.

These middle level software professionals’ information seeking could be more on technical resources to be good leaders and innovators, equipped with performance management skills to lead their team efficiently through creativity and positive visions making accurate and precise decisions. The information resources of their interest mostly include research reports and sources concerning technical architecture, project management, project strategy and project execution, marketing plan and strategies of the companies and the corporate library should be well equipped to meet their information need at any point of time with these resources.

1.17.3 Information seeking behaviour of senior-level software professionals

The professionals in this level are predominantly involved in strategic management and delivery account level decision-making processes. They look over the entire company’s functions and take steps to maintain company strategies and policies. They act as the company’s policy makers and decision makers and they are responsible for the success of the company through their positive accurate decisions. They are responsible for the company’s growth and thereby support the company to move on to achieve its vision and overall goals. These top level managers work towards the growth of the revenue incurred by the company. As it is necessary for the middle level management, the top level management also requires leadership skills but to a much greater extent.
Considering all of the above responsibilities entrusted with the top level professionals, their information seeking behaviour would be focused on high level, accurate and helpful information that would bring more opportunities to the organization. The information sources of their interest mainly include market intelligence report, competitors results and news, IT expenditure- geography-wise analysis, top companies’ performance dashboard, knowledge management, new opportunities/bids from the market, strategic review report, high level statistics, request for information (RFI)/request for proposal (RFP), analysis of client satisfaction dashboard, IT research reports from NASSCOM, Forrester Research, McKinsey, Gartner IT Research Reports and HBR.

1.18 Research problem

In the closing years of the last century many software companies were established in this country because of the available talented manpower for minimum wages and growing needs of the software market in the world. Thus, IT giants like TCS, Infosys, Wipro, Tech Mahindra, HCL Technologies, Mphasis, Oracle Financial Services and Polaris Technology were established themselves as major MNCs of Indian origin. These companies are mostly located in Chennai, Bengaluru, Pune, Bombay, Hyderabad and few other places of the country. As per NASSCOM (2015) about 1800 companies including both small and tiny IT companies have registered of which over 250 are from US, UK, European Union, Japan and China and the member organizations represent 95 percent of the industry revenue.

Due to the tremendous growth of information technology advancement, the corporate sectors have realized the importance of the libraries and as a result corporate libraries have been established to serve the working communities of the corporate. The corporate sector libraries are ranging from financial institution libraries to IT sector libraries. They have been primarily established for the purpose of meeting
the information needs of the human resources of the corporate. Subsequently, most of these libraries are headed by the library science professionals. The users of these libraries have search access to both print media and non-print media that are available in the libraries. Apart from these, many of the IT professionals also cope up with information resources available in the networked environment. The major problems that are seriously affecting information seeking behaviour of software professionals are identified and highlighted as below:

- Online resources are dominating the users’ interest leading to the fall in the number of users’ library visits showing a tremendous change in the information seeking behaviour of the software professionals.

- Every IT professional relies on internet, wiki, intranet and other resources which are being used widely when compared to the library resources, affecting the information seeking behaviour of the software professionals.

- Another technological expectation of the software professionals is to access information resources over mobile/hand held devices. Every professional is using hand held devices (Tablet PCs and Mobile) to access instant and accurate information at their desk itself, expecting the resource to be available anywhere-anytime rather than coming to the library. This also seriously affects the information seeking behaviour of the software professionals.

- Knowledge transfer from colleagues and clients are noted to be predominant, leading to the decreased importance given to library resources, affecting the information seeking behaviour of the software professionals.
• Social networks are critically affecting the information seeking behaviour of the software professionals as this generation has become addicted to using Twitter, Face Book, WhatsApp etc., to seek any needed information.

• Organisational changes like market recession, company loss, leadership changes, merger/acquisition of companies have led to uncertainty of job, altering the information seeking behaviour of the software professionals.

• All the IT Companies possessing online training tools make it mandatory for the employees to use them to promote their required skills, thus affecting the information seeking behaviour of the software professionals.

There are very few studies that have been conducted so far to identify the information seeking behaviour of the IT sector professionals. In the modern ICT world, the corporate library users are expecting information instantaneously at their hands and so they rely preferably on online databases, mobile devices, social network sites, their own memory or colleagues, corporate intranet sites, personal files etc. The primary aim of these libraries is to cater to the needs of IT professionals to solve and fix the issues/problems within the Service Level Agreements (SLAs) as they work for application development or support. In this context, it is very essential to study what they need, search, access, use and share so as to make the IT library perform in better ways to serve them effectively.

In this backdrop, the present study is proposed to identify the information seeking behaviours of the software professionals of selected IT corporate companies of TCS, CTS, Capgemini and Mphasis which are some of the major MNCs of Indian origin. Besides, the study aims to identify the user needs, information seeking behaviour of the software professionals, purpose/problems of information seeking,
user preferences on library resources/services, rating effective usage of library software, service excellence rendered for career growth and job related usage, information sought for their daily work, environment affecting their information seeking, accessing e-resources with preferred format, place, device to access e-resources, frequency of accessing online resources by using hand held devices in and out of the work place and its reasons, identify to what extent resources have enabled IT Professionals to meet their information needs and the level of satisfaction towards e-resources availability, hurdles/obstacles in information seeking, future expectations, improvement opportunities, notable strengths, capture competencies, feedback, success factors and lessons learned from the software professionals and recommend strategies/best practices to enhance library resources/services that are offered by corporate libraries in Chennai.

1.18.1 Need for the study

The review of available literature reveals that very few studies have been conducted so far to identify the information seeking behaviour of IT sector professionals. There are hardly few studies in India too. Thus, the information seeking behaviours of corporate library users belonging to the uncharted area in the field of library and information science. IT sector library users are mostly computer literates and it is expected that they are well aware of the access and download mechanisms of e-resources in the networked environments. And also it is believed that they highly depend on the online resources rather than the print forms of resources, the IT skills and their proficiency on software and networked environment make them different from the other library users.

In this age of information explosion where information is available everywhere through online, a diminished interest in reading books is noted. The information seeking behaviour and patterns have also changed tremendously. Most of
the corporate professionals are giving more preference to online resources and social networks as they feel that they are more reliable and need not depend on the library or OPAC to get right information at right time.

In addition, the availability of internal sources like working documents from the clients, manuals, process documents and online training courses like SkillPort has reduced the library usage. The practice of knowledge transfer from clients or seniors or colleagues also defies the information seeking behaviour and pattern. Also professionals working under pressure related to completion of the project on time, training, travel, working in shifts, and work from home etc., are unable to use the library.

Certain issues like market recession, company loss, leadership changes, merger of companies, company acquisitions leading to uncertainty of job affects the information seeking behaviour of corporate professionals. In some organizations, there is a decreased emphasis on the library, lack of policy and regulations regarding the library which leads to the diminishing value of the library among users.

Many corporates have started patronizing online libraries because they are cheaper compared to physical libraries. They cut down the cost of space, purchase of books and librarian. IT corporates have stopped allocating budget to physical libraries and online libraries started flourishing are they are also convenient to use. This is paving way for the decline of physical libraries.

At this crucial juncture, there is a need to conduct a study on the information seeking behaviour of the software professionals so as to assess their purpose / problems of information seeking, current hurdles in information seeking, user preferences on library resources/services, usage of library software, information sought by corporate users in relation to their daily work, environment affecting information seeking, analyze behavioral aspects of library staff and suggest strategies
to improve the usage of services offered by the corporate libraries and to change their functional and service modalities. Since the proposed study is a maiden study, this may be a role model for the future researchers in the field of the information seeking behaviours in IT sector libraries.

1.19 Limitations of the Study

The study has been limited to the software professionals working in Chennai-based IT companies in different locations. The reason for selecting these four IT corporates are that they have been found to have their own libraries from the day of their origin with proper professional librarians being appointed. In addition, these corporates have also been found to have global presence, good company performance, stock values, listed in the Top 20 IT-BPO Export Companies/Top 20 IT-BPO Employers based on a survey conducted by NASSCOM, Member of the NASDAQ-100/Fortune 500 and listed in the Fortunes “World Most Admired Companies”. These corporates libraries under the study are listed as follows:

- Mphasis library;
- Tata Consultancy Services library;
- Cognizant Technology Solutions library and
- Capgemini library.

1.19.1 Statement of the Problem

“Information Seeking Behaviour of Software Professionals in Information Technology Sector Libraries in Chennai”.
1.20 Objectives of the study

The following objectives are framed for the study.

1. To find out the profiles of corporate library users under the study along with their competencies and working domains etc. so as to assess their nature of working.

2. To identify their library visits, their access mechanisms of the library and types of resources and formats they preferred to use and devices they are using to access and browse the resources of the library.

3. To study the user perceptions about the library resources and services and the benefits for their career advancements such as obtaining IT certifications by using the library resources.

4. To study the purposes of sharing of information with the fellow software professionals and methods of information sharing for their career growth.

5. To study their perceptions about the library resources and their opinions about the performances of the library professionals and to identify their level of satisfactions with the library resources and services.

6. To identify the barriers for them to access and use the library resources and services and to study their opinions about the future improvements of the library.

1.20.1 Hypotheses

The following hypotheses are framed for the purpose of the study:

H1: Most of the respondents follow uniform patterns of the access mechanisms to access the library resources.

H2: Most of the respondents perceived that the library services are supporting their career growth.
H3: Most of the respondents preferred to use handheld devices for accessing the library resources.

H4: A majority of the respondents preferred to use Social Networking Sites (SNS) extensively for the purpose of sharing of information.

H5: Lack of time is the major barrier for the software professionals to access and use the library resources.

H6: A majority of the software professionals perceived that the library staff members are more helpful.

H7: Most of the respondents preferred to access digital resources than that of the printed.

H8: Most of the respondents intensively need the library resources during their Project Life Cycle.

1.20.2 Research Design

For the purpose of the study the researcher employed purposive sampling technique to select the samples. For the primary data collection, the researcher visited each corporate library for a few days and administered 250 questionnaires to whoever visited the library at that time. Thus, in each library 250 questionnaires were administered but the rate of responses vary from one library to another library. As such in total 720 questionnaire were received from the respondents of the libraries under study.

1.20.3 Data collection tool

Based on the purpose and objectives of the study, a structured questionnaire is designed for the collection of the primary data. The questionnaire has the following parts:
Part I - Profiles of the corporate library respondents and their nature of working

Part II - Library visits, access mechanisms, types of resources and formats/devices preferred to use by the respondents

Part III - Familiarity with the library resources.

Part IV - Use of library resources for career growth and job related issues.

Part V - Methods of sharing information.

Part VI - Rating of library resources and services.

Part VII - Rating of the library staff and their performances.

Part VIII - Assessment of the respondents opinions on library automation and ICT applications.

Part IX - Barriers to use library and the suggestions for further library enhancements.

1.20.4 Data analysis and the use of statistical tools

The collected data has been entered in the excel sheets and exported to SPSS (Statistical Package for the Social Sciences) data sheets. The exported data has been analysed with various statistical tools ranging from percentage methods to multivariate statistical tools such as Cluster Analysis and Principal Component Analysis. And wherever deemed to be fit suitable diagrams, graphs and maps are used for better presentations of the data.

1.20.5 Chapterisation

The thesis comprises of five chapters as explained below:
CHAPTER – 1 The first chapter of the study is introductory in nature. This chapter presents an overview of the corporate sector in India, emergence of IT sector and its trends in India, glimpses of the IT industry growth, India value proposition, IT industrial growth in Tamil Nadu, corporate library and critical roles played by the corporate librarian, the information seeking behaviour of the software professionals at various levels in the IT industry, ISB models, the research problem in detail and also provides background of the research problem along with the research design. This chapter also presents the objectives, hypothesis, data collection tool and limitations of the study.

CHAPTER – 2 The second chapter of the thesis presents Review Literature. In this chapter, few of the important studies which are relevant to the research problem are reviewed and presented in the following headings:

- Information Seeking Behaviour studies on Corporate Library Users
- Information Seeking Behaviour studies in an Electronic Environment
- Information Seeking Behaviour studies in Academic Library Environments
- Information Seeking Behaviour studies in Special Libraries

CHAPTER – 3 The third chapter presents the profiles of the corporates and their libraries under study along with the growth and developments of corporate sector in India and more emphasis is given for the role and contributions of the corporate libraries.

CHAPTER – 4 The fourth chapter deals with the Data Analysis and interpretations. Further, the chapter also presents hypotheses testing.

CHAPTER – 5 The last chapter is summary and conclusions. This chapter gives a summary of the research findings, suggestions for the improvement of the corporate libraries, direction for future research along with conclusions.
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