CHAPTER-1

INTRODUCTION

1.1. Introduction

Actual empowerment of women requires their active participation in the ICT production. Because as Gurumurthy (2004); and Salaas and Accesso(2005) explain, new economy rides on the power of ICTs and the influence of ICT professionals in the power centers is increasing. If woman doesn’t enter the field of ICT she will lag behind and will be further marginalized. Further, as explained by Zimmy and Elias(2008); Morgan, Heeks and Arun (2004); Faulkner and Lie(2007); Primo (2003); Ng and Yong (2002); Pande (2004) contrast to the earlier technologies ICT has the potential to bring equality and empowerment but it will not operate as an equalizer on its own. Specific measures are required to provide the universal access to ICT or else it will operate in an opposite manner and will enlarge the already existing gender gap through ‘digital divide’. Ramilo (2002) found women in the deepest end of the digital divide and Morgan, Heeks and Arun (2004) explain that UN places access to ICT as the third most important issue facing women, after poverty and violence. Access to ICT itself is controlled by many factors like cost, infrastructure availability, poverty, educational background etc. along with the gender specific cultural and social norms which are more crucial than the general factors (Zimmy and Alias,2008; Stewart,2002; Primo,2003 and Pande,2004). But mere measures to increase the ‘access’ to ICT is insufficient to increase women’s influence on ICT development. According to Salaas and Accesso (2005); Gurumurthy (2004); Morgan, Heeks and Arun (2004) the digital gap opens the social gap even wider and gender gaps are deepened when professional gaps exist. Hence it is important that beyond merely using ICT, women must gain
access to it professionally. Faulkner and Lie (2007) also justify the same and state that “Particular measures are needed to recruit more women into the ICT profession to curb marginalization within the profession”. Accordingly the number of women entering software profession is on rise. But now questions are raised about the quality of employment and gender dimensions of the industry. In this study an attempt has been made to study the gender unbiasedness and female friendliness of the Indian software sector at various levels.

1.2. Women employment in India

United Nations (2000) finds following features of women employment all over the world:

- Women now comprise an increasing share of the world’s labor force – at least one third in all regions except in Northern Africa and Western Asia,
- Self-employment and part-time and home-based work have expanded opportunities for women’s participation in the labour force but are characterized by lack of security, lack of benefits and low income,
- The informal sector is a larger source of employment for women than for men.
- More women than before are in the labor force throughout their reproductive years, though obstacles to combining family responsibilities with employment persist.
- Women, especially younger women, experience more unemployment than men and for a longer period of time than men,
- Women remain at the lower end of a segregated labour market and continue to be concentrated in a few occupations, to hold positions of little or no authority and to receive less pay than men
and available statistics are still far from providing a strong basis for assessing both quantitative and qualitative changes in women’s employment.

Same condition persists even in India regarding women employment. In general, in India, women works to supplement the family income. Her entry to the labour market is restricted by social and cultural barriers. Occupation segregation and discrimination is faced by them. As Tripathi and Mishra (2010) explain, in India women victimized of passive discrimination rather the active discrimination and prone to both types of discrimination concepts of Sen (2000), i.e. unfair exclusion and unfair inclusion. Women are subjected to multiple discriminations. Discrimination is practiced within an already discriminated section of society based on gender. Women in India are about half as likely to be employed. Most of the white and blue collar jobs are dominated by males. While women workers are discriminated in general, there are many layers of discrimination which are determined by structural factors such as socio-economic status. Women from urban areas are more likely to be engaged in decent work rather rural women. Percentage of women working is higher among the lower caste groups, through their representation is less in decent jobs. Women from lower caste groups are working not by their choice but to support their families. As household asset or income increases number of women going outside for work declines. Religious barriers found to be more for Muslim women whereas christicians are already in the front and Hindu women are growing in the employment field. According to a CSO study in 2000, women spent 17% more time in economic activities plus in extended economic activities.

In spite of the doubts raised about the inclusivity of women’s contribution in the definition of ‘work’ and ‘worker’ by Jain (2008), based on NSSO Surveys compiled by
Neetha(2009) in Table-1.1 provides the information that number of women entering the job market is increasing as WPR reaches 28.7%.

**Table-1.1 Total Women Employment, Workforce Participation Rate and Sector-wise Analysis based on NSSO Survey 2004-05.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Employment</th>
<th>Workforce Participation Rate</th>
<th>Sector-wise Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
<td>Tertiary</td>
</tr>
<tr>
<td>Rural</td>
<td>12,42,09,600</td>
<td>32.7%</td>
<td>41.37%</td>
</tr>
<tr>
<td>Urban</td>
<td>2,47,17,400</td>
<td>16.6%</td>
<td>41.72%</td>
</tr>
<tr>
<td>Total</td>
<td>14,89,27,000</td>
<td>28.7%</td>
<td></td>
</tr>
</tbody>
</table>

Source: compiled by taking various tables given by Neetha (2009)

But still as Chandrashekhar and Ghosh(2009) opined WPR is less than international standard there lies much more potential capacity in terms of women labour that remains unutilized. Another noted feature is WPR is more among rural women compared to urban who are usually more educated and trained. Sectoral analysis shows that rural women are concentrated more in primary sector whereas urban women in service sector. Regarding the status of employment public sector compared to private sector employs more women (ASSOCHAM Survey 2009). But the point to be worried is that 95.9% of the women labours are unorganized workers (Neetha 2009). 42.2% are regularly employed, 40.4% are self employed and 17.4% are casually employed. Reduction in the casual employment cannot be considered with greater happiness because self employed category includes more of domestic servants which is known for its lower pay and low status.

Table-1.2 provides the categorical analysis based on NFHS-3.
Table-2, Categorical Analysis of women employment based on NFHS Survey-3

<table>
<thead>
<tr>
<th>Category</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Professional</td>
<td>6.7%</td>
<td>6.5%</td>
</tr>
<tr>
<td>2. Sales</td>
<td>13.8%</td>
<td>3.7%</td>
</tr>
<tr>
<td>3. Service</td>
<td>5.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>4. Production</td>
<td>22.1%</td>
<td>36.6%</td>
</tr>
<tr>
<td>5. Agriculture</td>
<td>33.4%</td>
<td>58.1%</td>
</tr>
<tr>
<td>6. Others</td>
<td>3.9%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

Source: Tripathi and Mishra (2010)

As per table 1.2, women concentration is more in agriculture, production and service. But in professional category gender balance can be observed. But in this category teaching profession is included which is highly women centered at lower levels like primary and nursery. Chandrashekhar and Ghosh (2008) found concentration of urban women workers in Education, private households, retail trade, Textiles and in apparel. As Jain (2008) describe, in case of employed women in the urban areas occupy stereotyped jobs like that of teachers, nurses, doctors, clerks and typists. Even if women are making inroads into predominantly male-oriented occupations still cultural barriers view women as ‘weaker sex’ and discriminate against their selection, training and promotion. Moreover, women have to work doubly hard to prove their worth.

Increasing number of women in the professional category includes recently developed employment in IT industry. Software and ITES segment are employing more women and are brand themselves as women friendly industries. But NSSO estimates as Chandrashekhar and Ghosh(2008) explain, the newer activities that are much cited — such as IT and finance — continue to absorb only a tiny proportion of urban women workers. Women workers in all IT-related activities — that is, computer hardware and software as well as IT-enabled services — account for only 0.3 per cent of the urban women workers in large sample, amounting to an estimated total of 74,000 workers at most.
This whole phenomenon goes in accordance with the Rodgers (2001) explanation that, participation of women in the labour market has increased in accordance with the observed U-shaped pattern. (as in the initial stages of capitalist development women’s labour force participation rate declines and at a more advanced stage of development it increases again). Regarding the status, women are ready to take up any new service sector jobs but their invisibility and qualitative lag continues. Service activities tend to disproportionately employ women, while the goods-producing sector tend to disproportionately employ men. Gender segregation within the service sector is quite extensive. Personal and social services are primarily female-dominated activities, while producer and distributive services are male dominated. Occupational segregation by sex is a world-wide phenomenon. Women are employed in a narrower range of occupations than men. Male dominated non-agricultural occupations are over seven times as numerous as female-dominated occupations. Generally, female occupations tend to be considered less valuable with lower pay, lower status and fewer advancement possibilities compared to male occupations.

Hence in first instance, the employment ability of women is curtailed by many socio-economic and cultural factors. In spite of that if a woman gets employment, status of the work, work conditions, pay and non-wage benefits are usually found to be low. Women employment shows Stereotypical pattern where the usual attributes attached to women has been extended to economic activities like teachers, doctors, nurses etc. Number of women in decent jobs is very less. Of this recently developing ICT industry boasts itself as women friendly industry and a decent employer. But how far the jobs offered by them are decent, gender unbiased and women friendly needs to be verified.
1.3. Development of ICT industry in India

Indian Information and Communication Technology industry accounted for about 5% of the country’s GDP and export earnings in 2009. In 2010-11 annual revenue from IT-BPO sector is estimated to have grown over US$76 billion. Indian IT industry has 450 delivery centers in 60 countries worldwide, which is an unparalleled global value chain. The computers and IT materials which were basically invented and designed to solve numerical problems as explained by Majumdar (2007) are facilitating the transition to a global society by encompassing all walks of our life. Further as rightly observed by Unni and Rani (2000) IT allows leapfrogging which can help countries skip generations of technology and stages of growth and place them directly in a service-dominated economy. That’s why even without having a fully matured manufacturing sector, India is experiencing shift in its economy due to its service sector development which is dominated by IT. And now due to IT industry’s contribution as Sarkar and Mehta (2005) said, there is the emergence of ‘New Economy’. Despite the recent economic slowdown, India’s IT-BPO sector displayed resilience to grow by 5.5 per cent. India continues to take centre stage with 51% of total outsourcing market.

1.3.1 A bird’s view of development of ICT in India

Even if the results of development of IT in India are more visible after globalization its development got rooted almost before 50 years. Today’s evident growth process had about fifty year’s history.

The industry was started during early 70’s by Bombay-based conglomerates which entered the business by supplying programmers to global IT firms located overseas. During that time Indian economy was state-controlled and the state remained hostile to the software industry throughout the 1970s. Import tariffs were high (135%
on hardware and 100% on software) and software was not considered as an "industry", so that exporters were ineligible for bank finance. Government policy towards IT sector changed when Rajiv Gandhi became Prime Minister in 1984. His New Computer Policy (NCP-1984) consisted of a package of reduced import tariffs on hardware and software (reduced to 60%), recognition of software exports as a "delicensed industry", i.e., henceforth eligible for bank finance and freed from license-permit raj; permission for foreign firms to set up wholly-owned, export oriented units and a project to set up a chain of software parks that would offer infrastructure at below-market costs. These policies laid the foundation for the development of a world-class IT industry in India.

In India, the software boom started in the late 1990s. Most of the Indian software companies at that time offered only limited software services such as banking and engineering software. The business software boom started with the emergence of Y2K problem, when a large number of skilled personnel were required to fulfill the mammoth database-correction demand in order to cope up with the advent of the new millennium. Box No. 1 in the appendices provide detailed summary of the whole journey of IT sector development in India.

1.3.2. Contribution to important economic indicators

As per NASSCOM\textsuperscript{1} 2010 report, during 2009 the overall revenue received from IT-BPO industry was $ 69.4 bn. Out of which $47.5 bn was from exports and $ 21.9bn was from domestic market. Further for the year 2010 expected revenue is $73.1bn out of which $50.1 bn. is expected from exports and $23bn from domestic market. With respect to employment, in the year 2009, IT-BPO employed 2,200,000 directly. Out of which 958000 were employed in IT services, 738000 in BPO and 500000 in domestic market segment. Further for the year 2010 the estimated total direct employment is of
2,290,000 out of which 993000 in IT, 768000 in BPO and 525000 in domestic market. Table-1.3 furnishes the information regarding the growth of IT industry.

Table-1.3 Contribution of IT to the economic indicators (Revenue in millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
<th>Domestic Revenue</th>
<th>Total Revenue</th>
<th>Manpower</th>
<th>Revenue / Employee($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>330,000</td>
<td>227.900</td>
<td>557.900,000</td>
<td>90,000</td>
<td>6198.5</td>
</tr>
<tr>
<td>1999</td>
<td>265,000</td>
<td>125000</td>
<td>3,900,000,000</td>
<td>200,000</td>
<td>19,500</td>
</tr>
<tr>
<td>2009</td>
<td>475000,000</td>
<td>219,000,000</td>
<td>69,400,000,000</td>
<td>2,200,000</td>
<td>-----NA--</td>
</tr>
<tr>
<td>2010(E)</td>
<td>501,000,000</td>
<td>230,000,000</td>
<td>73,100,000,000</td>
<td>2,290,000</td>
<td>-----NA--</td>
</tr>
</tbody>
</table>

Source- Nasscom and CMU Software Dataset ((1994 and 1999 data were collected by Arora and others)

Despite the recent economic slowdown, India’s IT-BPO sector displayed resilience to grow by 5.5 per cent India continues to take centre stage with 51% of total sourcing market. The industry has had a significant impact on the Indian economy with 30% of incremental export during 2005-09; providing employment to nearly 8 million people in ancillary industries; and spreading up to the industry to the tier 2 and 3 cities.

1.3.3. Important features of Indian ICT Industry

Indian IT industry is dominated by software and BPO operations. Indian IT industry which includes the sub-sectors like Hardware, Software, ITES-BPO and recently KPO is highly dominated by software and BPO operations. The capital intensive nature of Hardware sector is found to be the reason for its declining share where as more of labour intensive nature of software industry and BPO is grooming in India. Software products attract no import duty whereas Hardware products, parts, and peripherals attract import duty ranging from five per cent to 40 per cent. Upward movement in the value chain is another feature. Earlier IT sector growth was mainly with ‘body shopping’ or ‘onsite’ work which was considered to be at the lower level of
the value chain. As Chakraborty and Jayachandran (2001) puts it, the on-site work was characterized by low skill, low-tech, low investments and low-return. But NASSCOM 2003 report visualize upward movement in the value chain and Indian companies offered services such as System interaction package implementation, IT outsourcing and IT consultancy. Indian IT industry is mainly export driven: The fact observed by Heeks (1996) has not changed much till date and many other researchers like Chakraborty and Jayachandran 2001; Varma and Sasikumar 2004; Sarkar and Mehta 2005 and others found excess export orientation in the Indian IT sector. The export direction is highly skewed towards U.S. about 60% and Europe about 20%. Slowly developing domestic market is the another feature. Despite IT industry being export driven, the glimpses of slowly growing domestic market can be visualized through the development of SOHO (small offices and home offices), banking and E-governance initiatives. Quality of the products and services is increasing as Indian companies are acquiring global nature as indicated by Bajpai and Shastri they are adopting global practices and increasing the standard of quality. Further, following the global standards as Kumar and Joseph (2005) points out, many Indian companies equipped themselves with international certifications like ISO 9000, SEI level 5, CMM etc. IT industry is branded as High-wage industry. Indian IT industry, specifically software industry is rewarding its employees with excellent pay and perks. This is inevitable to retain the short-supplied technical labor and avoid them being grabbed by some other company. Foreign Investment is being attracted by the industry. As observed by Sarkar and Mehta (2005), IT industry is attracting foreign capital in three ways; first, direct FDI is attracted as MNCs start their own subsidiaries or through the joint venture; second FII’s are investing heavily in stocks and equities of IT-BPO
companies; and third Non-Resident Indians also are investing in Indian IT sector by starting their own units.

1.3.4. Reasons for the growth of ICT industry

There are various reasons for the growth of IT industry in India. Some were more visible and spontaneous and others were much subtle and in a very slow but steady manner paved way for the development of IT which is now experienced. Many considered this as a ‘demographic dividend ‘for India. Availability of manpower at a comparative cheap price was the main factor according to the researchers. India’s most prized resource is its readily available technical work force. India has the second largest English-speaking scientific professionals in the world, second only to the U.S. It is estimated that India has over 4 million technical workers, over 1,832 educational institutions and polytechnics, which train more than 67,785 computer software professionals every year. The enormous base of skilled manpower is a major draw for global customers. India provides IT services at one-tenth the price. No wonder more and more companies are basing their operations in India.

Some quote “Indian Education System” which places strong emphasis on mathematics and science, resulting in a large number of science and engineering graduates. Mastery over quantitative concepts coupled with English proficiency has resulted in a skill set that has enabled India to reap the benefits of the current international demand for IT. ‘Infrastructure’ development too cannot be neglected as Indian IT industry gained immensely from the availability of a robust infrastructure (telecom, power and roads) in the country. NASSCOM-Mercer (2003) report recognizes the strong domain knowledge and global exposure along with the above said reasons. As per NASSCOM report Besides the Indian software companies, a number of
multinational giants have also plunged into the India IT market. India is the hub of cheap and skilled software professionals, which are available in abundance. It helps the software companies to develop cost-effective business solutions for their clients. As a result, Indian software companies can place their products and services in the global market in the most competitive rate. This is the reason why India has been a favorite destination for outsourcing as well. Many multinational IT giants also have their offshore development centers in India.

But Kumar and Joseph(2005) mentions the governmental institutional measures like STPI policy and liberalization policy. As Union Minister Jairam Ramesh explained in his address, the role of Indian government’s policies cannot be neglected. It may be the highly subsidized education in India because of which many IIT and Engineering professionals were generated. As our country couldn’t absorb the excess ‘educated’ ‘technical, and ‘proffessional’ manpower created by our education system, the brain drain that was allowed especially to U.S. made Indians to dominate the Silicon Valley. Then the return of those NRI’s powered with money, networking ability, prestige and technology started their units here further the liberalization process, establishment of STPI and the IT policy made them to excel along with the MNCs.

1.3.5. Challenges faced by Indian ICT Industry

Still this growth is not free from some inherent problems and criticisms. First of all Sustainability of this growth itself is questioned by the researchers for several reasons. Too much export orientation besides the composition and direction is a cause of concern. Extreme export orientation which inherently succumbed to international pressures is highly volatile. It requires diversification in terms of product structure and destination too. Because even today our 60% of the software export is to U.S. Already
2009 and 2010 experienced the surge due to the U.S. crisis. Excess dependence on Government concessions as Magazine (2008) reports “despite the various advantages of the STPI policy and its evident success, a major point of contention is that the STPI policy was the inbuilt “Sunset Clause” which stipulates that all incentives offered under the policy will cease to exist as of March 31, 2009 which has recently been extended to March 2010. Any change in STPI policy will lead to the drastic decline in the cost advantage”. Even if the STPI policy has been extended for further a year due to the recession definitely one or the other day this provision will be removed. Declining technical efficiency is explored by Reddy and Bhat (2007) and according to them, there lies huge gap between actual and potential performance. On an average the Indian software industry is utilizing less than 50% of their potentiality. The average technical efficiency of Indian software companies recorded highest at 45.22% in 1996 and it declined thereafter. Further they found more of a negative effect on the efficiency of software companies in India due to deregulation. Inadequate attention to the domestic market as Kumar and Joseph (2005) observed the Enclave nature of the operation of IT industry generated little knowledge spill over for the domestic economy. Emerging competitors like Ireland, Canada, China, Mexico and Russia, Phillipines, Thailand and other countries are in the race. It is probing serious threat to the Indian IT industry. Because attrition pushing up the manpower cost which is eroding the cost advantages other countries are becoming comparatively cheap. Problem of attrition and shortage of manpower is haunting IT industry. After recession again it reached double digit. Shifting of companies from employees in search of better salary, status growth opportunities and other reason is quiet common. This is increasing the costs of the firms in two ways. To retain the employees firms have to increase their expenditure on pay and perks at another side attrition leads to increased HR costs for further
recruitment, training etc. Already Indian IT industry is experiencing the shortage of technical manpower. And as per NASSCOM the shortage is of 2 million for the year 2008.

Secondly ICT industry is criticized for creating and increasing the ‘digital divide’ based on region, gender and socio-cultural norms. Even if as argued by researchers ICT products and services are inherently equalizing tools still the inherent bias to the access and employment opportunities leads to the inequalities. Then ICT enlarges the ‘digital divide’. Regional divide increased as Indian IT industry is highly concentrated and clustered around metropolitan cities and suburbs as Varma and Sasikumar (2004), Kumar and Joseph (2005) found in their studies. IT is developed comparatively more in Southern and western regions. Due to clustering, only five cities Bangalore, Hyderabad, Chennai, Mumbai and Delhi NCR account for 80.5% of the top companies. Jairam Ramesh in his address delivered to the Nasscom executive board puts forth these bothersome features of glittering IT industry. The slow geographical spread of IT as only 7 cities Bangalore(33%), Delhi(15%), Chennai(14%), Hyderabad(13%), Pune(10%), Mumbai(8%) and Kolkata(2%) accounted 95% of the total exports and another 7 cities accounted for 3% and four cities accounted for another 0.6%. Furthermore, SEZ appear to be increasing the digital divide as out of total 142 notified SEZs 86 were for IT and ITES. And of these 86, 26 in Andhra Pradesh, 14 in Tamil Nadu, 13 in Karnataka and 10 in Maharashtra, making total of 80% in these four states alone. Gender-divide is already evident as Heeks (1996), Vijaybhaskar et al (2001), Varma and Sasikumar (2004) and many others found male domination in Indian IT industry. Even if nasscom claims increasing women employment in IT industry and expects to reach 45:65 male-female ratio at the entry level jobs, that too accepts that less than 4% reach the top level. Top positions are
dominated by men whereas lower entry level jobs are filled with women. Especially BPO has seen 60:40 ratio but this sub-sector is in the lower strata. Hence jobs with more status and pay and technical expertise are with men and jobs with less status, pay and technical knowledge are with women. Rural-Urban divide has been widened as Vaasanthi and Upadhya (2008) Sarkar and Mehta (2005) explains urban people are dominating the industry. Rural people lacking the required language proficiency, soft skills and access to ICT products, education and training are not making their way to this high-wage industry. Division based on caste and other socio-cultural norms too enlarged Vaasanthi and Upadhya (2008), Upadhya (2008) and Vijay bhaskar et.al (2001) found the employment in IT industry is not as meritocratic and equal to all as publicized. There is a more bias in favor of high and middle cast and upper and middle class society. As requisite soft skills require some socio-cultural and economic background they witness inherent bias in the supply pool of labor itself. Wage inequality is evident between IT and non-IT jobs, Within IT again in its sub-sectors like soft skills and BPO, further within sector based on size and form of the companies, education and expertise of the worker pay differentiates. Large companies, MNCs and foreign subsidiaries pay more to the highly qualified and expert workers. Biradar (2009) explains de-skilling (raised unemployment among the illiterates and literates at lower levels),re-skilling (withdrawal of labour force in favor of educational institutions to acquire more knowledge and skills), skill-polarisation( better career and jobs for the skilled workers and leaving the rest of the workforce in dead-end low paid jobs is witnessed.

Thirdly, IT is not considered to be the reliable employer. Even if employment opportunities are created by IT industry compared to the total work force IT employment is not significant. But it has changed the whole set of employment
conditions, recruitment pattern, work conditions etc. IT employs minimal as found by Heeks (1996) and Mukherjee (2008) only 0.08% of the aggregate workforce. The remarkable changes to urban lifestyle and landscape it has fostered are responsible for its tremendous visibility nationally and globally. IT employment has changed all the traditional employment patterns and conditions. Neither the industry provides ‘employment security’ nor do the employees want to work for the same company till retirement. Basically IT jobs are considered to be ‘Footloose industries’ (Ramesh, 2009). Main change in the required character of workers today is along with the technical knowledge high level of adaptability and capacity to work in a team. The traditional qualifications of physical strength and individual work ability no longer suffice”. There is no longer a guarantee of lifetime employment but lifetime employability is assured through continuous up gradation. The right kind of education in the knowledge society is a new form of security as employability is assured (Low, 2000) recent recession cleared how illusive the bubble was. Many of the employees lost their jobs and highly stressful pattern of work and typical work patterns leading to social and family tensions among employees. There were reports regarding increasing suicide cases among IT employees. As many Indian companies are acquiring global companies Reverse Off shoring is witnessed. As reported by the media Indian companies are hiring aggressively, in the US, reversing the earlier trend. Tata Consultancy Services Limited, Software giant’s Infosys and Wipro re-employing American workers in Indian outfits after training in India.

Finally, serious doubts are raised about the contribution of ICT industry due to the high opportunity cost involved. Kumar and Joseph (2005), Joseph and Harilal (2001) doubts the contribution stated by the IT industry to the economy. As the government concessions based on which they are stating the revenue, the loss of revenue to the
government due to the concessions and tax benefits has been not measured. Further as Joseph and Harilal (2001) observes there is an adverse effect on other sectors. IT development had a high ‘opportunity cost’ and it grabbed the best talent from other industries due to which others suffered a lot. Any movement of highly specialized personnel from high paying Global companies to domestic firms is impossible hence domestic economy suffers.

1.4 Development of ICT in Karnataka

As Narayana(2008) explains Karnataka is the first state in India to announce a separate policy for promotion and development of information technology in the State through IT Poicy 1997 with objectives to increase domestic and export earnings. Over the years, to encourage information technology in educational institutions, government, industry and infrastructure sectors, separate sub-policies are formulated. In addition, incentives and concessions and special assistance are provided. For instance, special assistance package is formulated by KSFC for equity contribution in small and medium enterprises. Software industries are treated as industrial consumers for tariff purposes and are exempted from pollution control acts. Fiscal incentives and exemptions are given to industries with investment on fixed assets upto Rs.100 crore.

Subsequently, the state has announced the Millenium IT Policy in 2000 called ‘Mahithi’. The objectives of the policy included important social and cultural aspects. First, to utilize the power of IT Technology in the overall goal of the Government of Karnataka in eradicating poverty and empowering women. Second, to promote the usage of Kannada in IT. Third, to encourage business with non-English speaking countries. The important areas for use of IT technology included eradication of poverty and empowerment of women, education and governance in the department of
registration, revenue, tax and transport, police and silk. To professionalise the policy making, the Chief Minister’s Task Force on IT is set up with globally eminent and successful IT industrialists in the state.

In addition to above public policies and programmes, growth of external market demand, growth and cluster of electrical, electronics and communication technology industries, existence of a large potential domestic demand and accumulation of a large pool of high skilled, communicative and low cost technical manpower, are presumed to be the driving factors for growth of ICT industries and services in Karnataka. For instance, with more than 13 universities, 712 general education colleges, 97 medical colleges, 96 engineering colleges, 181 polytechnics, 300 industrial training centres and several premier institutes of research in pure and applied science, management, and information, manufacturing and foundry technology, the state has been providing with technical manpower for growth of ICT sector. Consequently most of the 20 top IT companies in the country are located in the State. As Bangalore has shown tremendous progress in attracting national and MNCs in IT sector, it is called ‘Silicon Valley of India and IT Capital of India’. Karnataka Government is taking actions to spread ICT industry in other than Bangalore region hence established STP’s in Hubli, Mysore, Mangalore/Manipal. Anyhow this lead to the emergence of ‘New Economy’ within the State economy. Following box provides a glimpse of the performance of ICT sector in Karnataka state.
Box 1.1 Performance Indicators of ICT Sector in Karnataka State

Software Companies – Bangalore STP

- Cumulative number of companies is equal to 1154 with a total investment of US $1.3 billion and employment of 80,000 software professionals (2002-03)
- Composition fo 682 companies by their value in US $ million (2001-02); Above 200 million (0.29%); Between 20 million and 200 million (1.91%); Between 20 million and 200 million (13.93%); less than 2 million (36.07%); and less than 0.5 million (47.80%).
- Total value of exports is equal to Rs. 12350 crore of US$2.67 billion and annual growth is 25%(2002-03)
- Share in total exports (2002-03); Small and medium enterprises (18.03%), major Indian companies (41.40%), and foreign equity companies (40.57%).
- Annual growth of exports (2002-03): Small and medium enterprises (63%), major Indian companies (14%) and foreign equity companies (22%)
- Highest exports(Rs. 7475 cr.) among 12 STPs in Indin in 2000-01.
- BPO-ITES companies in 2002-03 is equal to 41 (annual growth is 46%) with total investment of Rs.512 crore(annual growth is 23%), employment of 18,000 persons and exports of Rs.988 crore (annual growth is 275%)

Software Companies –Mysore STP

- Number of companies has increased from 24 in 2000-02 to 26 in 2002-03.
- Total exports are equal to Rs.65 crore in 2002-03 (annual growth is 66%).

Software Companies –Mangalore/Manipal STP

- Number of companies has increased from 13 in 2001-02 to 15 in 2002-03.
- Total exports are equal to Rs.330 crore in 2002-03 (annual growth is 36%).

Hardware Companies in EHTP- Karnataka State

- Number of approved companies is equal to 31 in 2002-03 (annual growth is 15%.
- Total exports are equal to Rs.1403.85 crore in 2002-03(annual growth is 67.50%)

Overall Export Performance

- Electronic and computer software constitute 53.18% in total exports from the State amd 25% in total exports from India in 2002-03.

Source: Compiled by Narayana (2008: 299-300)
1.5. ICT sector and Employment

The industry had a significant impact on the Indian economy with 30% of incremental export during 2005-09; providing employment to nearly 8 million people in ancillary industries; and spreading up the industry to the tier 2 and 3 cities. Many considered this as a ‘demographic dividend ‘for India. It is estimated that India has over 4 million technical workers, over 1,832 educational institutions and polytechnics, which train more than 67,785 computer software professionals every year. The enormous base of skilled manpower is a major draw for global customers. India provides IT services at one-tenth the price (NASSCOM, 2009).

In the initial stages of IT revolution or computerization there was a fear of increased ‘unemployment’ and ‘workers redundancy’ but afterwards the same IT industry became a great employer. Panchamukhi (2000) noted this potential of IT industry and opined “If the sectors of agriculture, knowledge and information industries are encouraged to grow in a consistent manner then the problems of poverty, unemployment can be solved”. And IT industry has turned out to be an aspiring industry for the young generation. IT industry with its different emerging branches employed both highly skilled youth in hardware and software sectors and people with less technical and formal education in ITES-BPO industry. Hence it has created employment opportunities for both highly skilled and formally graduated. According to Kumar and Joseph(2005) apart from creating jobs software industry has provided opportunities for expanding the local base of entrepreneurship. Further the industry not only helped to reduce the extent of the brain drain by creating rewarding employment opportunities within the country but also prompted a number of non-resident Indians to return to start software ventures.
With respect to employment, in the year 2009, IT-BPO employed 2,200,000 directly. Out of which 958000 were employed in IT services, 738000 in BPO and 500000 in domestic market segment. Further for the year 2010 the estimated total direct employment is of 2,290,000 out of which 993000 in IT, 768000 in BPO and 525000 in domestic market (NASSCOM 2009).

But Heeks (1996) and Mukherjee (2008) found employment opportunities created by IT industry compared to the total work force is not significant i.e. only 0.08% of the aggregate workforce. But it has changed the whole set of employment conditions, recruitment pattern, work conditions etc. The remarkable changes in urban lifestyle and landscape it has fostered are responsible for its tremendous visibility, nationally and globally. IT employment has changed all the traditional employment patterns and conditions. Regarding the quality of the IT employment, ‘high stress’ is highlighted as prime negative feature. Corporate HR practices are under concern for creating inexperienced workforce in the industry. There have also been raising concerns on violation of laws by corporate and harassment.

1.6. Review of Literature

Abundant literature is available that explains the development of IT Sector in India. Reports of NASSCOM, Government bodies, periodicals i.e. Dataquest, PC Quest, newspapers provides the necessary data. But regarding employment in IT sector, there too especially regarding women employment in IT sector available information is very little and even the available information provide a cursory look only. Even if NASSCOM brings out regular reports but contradictory to its own observations that condition of women working in software sector is altogether different from ITES-BPO Segment, it covers them as similar in its reports.
From the available literature regarding women employment in IT following issues can be framed.

1. For the actual empowerment of women, women must enter the ICT production field as a producer/professional employee.
2. For Companies too, there lies a strong business case for employing women in the IT field. Hence their policies to attract women are more of a necessity rather the CSR activities.
3. Large differences were observed among countries in employing women in the IT sector.
4. Number of women employees in the IT industry even if is increasing; shows clear gender bias. Stereotypical professional roles, glass ceiling and lack of visibility in the profession is faced by women IT professionals.
5. There are multidimensional barriers faced by women. Hence it requires multidimensional approach to remove the barriers.

Actual empowerment of women requires active participation of women in the ICT production. Hence women must enter the IT profession. Because as Gurumurthy (2004) and Salaas and Accesso(2005)explain, new economy rides on the power of ICTs and the influence of ICT professionals in the power centers is increasing. If woman doesn’t enter the field of ICT she will lag behind and will be further marginalized. Even if as explained by Zimmy and Elias(2008); Morgan,Heeks and Arun (2004); Faulkner and Lie(2007); Primo (2003); Ng and Yong (2002); Pande (2004) contrast to the earlier technologies ICT has the potential to bring equality and empowerment but it will not operate as an equalizer on its own. Specific measures are required to provide the universal access to ICT or else it will operate in an opposite manner and will enlarge the already existing gender gap through ‘digital divide’.
Ramilo (2002) found women in the deepest end of the digital divide and Morgan, Heeks and Arun (2004) explain that UN places access to ICT as the third most important issue facing women globally, after poverty and violence. Access to ICT itself controlled by many general factors like cost, infrastructure availability, poverty, educational background etc. along with the gender specific cultural and social norms which are more crucial than the general factors according to Zimmy and Alias (2008); Stewart (2002); Primo (2003) and Pande (2004). But mere measures to increase the ‘access’ to ICT is insufficient to increase women’s influence on ICT development. According to Salaas and Accesso (2005); Gurumurthy (2004); Morgan, Heeks and Arun (2004) the digital gap opens the social gap even wider and gender gaps are deepened when professional gaps exist. Hence it is important that beyond merely using ICT, women must gain access to them professionally. Faulkner and Lie (2007) too justifies the same and states that. Particular measures are needed to recruit more women into the ICT profession to curb marginalization within the profession. Today women too realizing the importance of ‘New Technology’ and as Accenture (2009) reports technology is the skill that women overall deem most important to success in the future, and the one they are most willing to embrace as an enabler of new business models. As a result number of women learning the IT related course is increasing in India (Parikh and Sukhatme, 2004; Sucheta, 2008 and Indiresan, 2008).

It is not only essential for women to enter the IT profession rather the IT companies too in the urge to employ women. Earlier any women oriented policy was considered to be an “CSR” (Corporate Social responsibility) activity but now it is essential for the survival of the companies according to Nasscom Report (2009) and “Women Matter” report by Mckinsey (2008). Salaas and Accesso (2005) finds women
as better abled to establish caring relationships, effective communication and comprehensive analysis. Kaul and Gupta (2009) in a case study of IBM Daksh opines that the business case for diversity is undeniable. Nasscom (2009) lists the qualities of women that makes them crucial for employment and further increased profitability too observed in case of existence of many women members on the board. That’s why many companies are adopting gender inclusivity measures but their success and impact needs to be analyzed. Misra and Gupta (2009) emphasized the need of acceptance of reality and lack of organizational flexibility to reduce the cost and adopt policies of gender inclusivity and women retention measures. Ramesh (2009) and Joshi (2009) in their case study of Infosys (IWIN) , Sudarshan and Sircar (2009) of Wipro, and Veeraraghavan (2009) of IBM explains the need and benefits of such gender policies. But according to Nasscom-PWC 2010 report there are large differences among companies while adopting inclusivity measures and these Gender Inclusivity initiatives have yielded better retention only in very few instances. And some of the short-sighted inclusivity measures turned out to become the reason for their biased job settings eventually according to Faulkner and Lie (2007).

With respect to women employment in IT large differences between countries were observed by Stewart (2002); Faulkner and Lie (2007); Ng and Mitter (2005); Hafkin and Taggart(2001). Because in most of the western countries, in spite of the sustained inclusion efforts women’s participation in ICT careers and courses is static or in decline, where as in some parts of Asia the trend is positive. Across Europe, the overall picture is a contradictory one; optimistic with respect to women and ICT (that is women as users) and pessimistic with respect to women in ICT (that is, women within the ICT profession. Hafkin and Taggart(2001) in their study explained that In the first phase of industrialization in Asia and Latin America, women found many IT-related
jobs in the assembly of electronics i.e. hardware manufacturing. As automation entered and required greater technical and cognitive skills required many women became redundant in IT manufacturing. But service sector created many jobs in information processing particularly in data entry. Early leaders were West Indies and Philippines followed by China, India, Singapore, and Vietnam. recently Ghana and Uganda. Other new jobs in call centers, in Geographical information systems and software development require higher skill levels which were mainly captured by India and Malaysia.

According to Basant and Rani (2004) in the information economy, there is potential for two kinds of service activities to increase, namely, the software and ITES services. IT industry propagated that employment in the industry is totally unbiased and meritocratic. Specifically imaged itself as ‘gender neutral’ and better suited to women due to its non-physical, flexible working nature. Upadhya(2007) based on Bangalore IT work force study rejects the notion that employment in IT industry is totally unbiased and meritocratic in its employment and working conditions. Most of the international studies (May and Fall,2002; Wajcman and Lobb,2007; Ng and Yong,2005; Gaio,1992; Zimmy and Elias,2008; Hafkin and Taggart,and ILO Report on work in the New Economy 2001) rejects the notion that IT is ‘Gender neutral’ industry. Indian studies (Mukherjee,2008; Pillai,2008, Pande,2004; Vijaybhaskar et.al,2001; Varma and Sasikumar,2004, Babu,2004 and 2008) too found gender bias in the Indian IT work force.

Stereotypical professional roles were observed. Women concentration was more at the lower level. And lack of visibility was found. Faulkner and Lie (2007) recommends inclusion of more number of women in the profession as a solution to the visibility problem. But Salaas and Accesso (2005) finds ‘high invisibilisation’ inspite of
many working women in the industry. Women’s work is not recognized. There exists pay and career progression differentials according to Wajman and Lobb (2007). In India cautiously NASSCOM – PWC report 2010 hints this. Ramilo (2002) and Gurumurthy (2004) suggests that women must take up the decision making role. But all over the world researchers find lack of women in the decision making roles. But Hafking (2008) in his study of Philipines had a view that leadership and high level of participation do not necessarily result in equality.

Inspite of such differences and discrimination some researchers are optimistic. Gaio (1992) hopes, that, women may well become core agents in the technical and social changes necessary for the further diffusion of information technologies. Mitter finds room for upwards mobility into more skilled occupations and development work. Chawla (2008) reports slight improvements in the stereotypes as concentration of women is declining proportionately in HR and PR. Pande (2004) finds benefit (specially in ITES) to those men and women who have limited skills and lack the resources to invest in higher education. Further the author finds increased mobility of single women due to the industry. ITES-BPO according to Pillai (2008) and Babu (2004, 2008) were ‘Sweatshops’ equally like the traditional manufacturing industry. As per Gurumurthy (2004) in Software sector women enjoys opportunities which they never experienced so far.

As found by Sarkar and Mehta (2005) the proportion of ICT employment to total was still minimal and even if as Gurumurthy (2004) states, nowhere are these jobs the majority of those held by women in the workforce, nor are women the majority of workers in these occupations. Still the analysis of the problems and barriers faced by women in this industry is important because the IT industry is enthusiastic to adopt gender inclusivity measures. In India role of NASSCOM is very much important in
bringing the awareness and popularizing such measures. These measures being IT industry the front runner can be further adopted by other industries and can help their women employees.

Jorgensen (2008) explains the problems faced by women during recruitment and during their career progression in US. According to Agarwal (2009) there is no discrimination prevailing in the Information Technology sector. Career mobility is determined on the basis of one's performance at the workplace. NASSCOM-IIM Ahmedabad (2008) report analysed the career progression and retention problem of women in the Indian IT-ITES industry where they reject the stereotypical professional allocation. NASSCOM-Mercer (2009) exhibited the increasing number of women in the workforce and reducing concentration of women in HR functions and increasing entry level women employees considered to be a positive indication and visualized as a ‘stronger pipeline of future leaders’. NASSCOM-PWC 2010 reports more workforce diversity in BPO and new companies compared to IT companies. But support function diversity is more matured in IT companies. Again contradictorily, promotion rate is lowest in IT companies.

Multidimensional barriers found at personal level, industry level, organizational level, governmental level and societal level. And according to Jensen (2008), and Judith Glover, gender barriers have to be analysed at four stages in SET career. Firstly at the qualifying stage, secondly at the stage of translating scientific qualifications into scientific employment, third persistence in scientific employment(retention) and Finally advancement or career progression. But most of the studies concentrates on the career progression only and the societal barriers. According to Ng and Yong (2002) impact of the introduction of IT cannot be analyzed apart from its immediate context of social relations and the existing organization of work. Salas and Acceso (2005) takes a
detailed view and opines that the reasons for the lagging women employees start with social system, develops through education system and enlarges due to the work environment in IT and IT training courses. The ILO Report on Work in the New Economy 2001 highlights the problem of work-life balance as double-burden of family responsibilities combined with the paid work so that women end up acquiring new tasks on top of the old. Mukherjee (2008) too concentrates on social construction of skills and gender and class-based stereotypes about work.

Fuller and Narasimhan (2008) With their small sample of ICS workers at Chennai explains how the women engineers face the difficulty of managing work and life especially after marriage and child birth. And how the individuals’ equality provided in the work premises failed to utilize by the women engineers due to the persisting social inequalities and traditional gender roles. Pillai (2008) explains the industry working conditions, the flexible work schedules and high workloads to reinforce gender inequalities. Pillai (2008), Parikh and Sukhatme (2004), Babu (2004) found lack of interest in ‘vertical mobility’. Even if the reason seems to be ‘personal’ the root cause can be addressed to the ‘social set up’. According to Das (2009) the biggest challenges that prevent women from the entrepreneurship was the ‘work-life balance’, Gurumurthy (2004) too supports the same. According to Agarwal (2009) women’s abilities are affected by the gender and lifecycle factors. If adequate support system is provided to women equally she can prosper in the job. Wajcman and Lobb (2007) explain the influence of employer’s perception while allocating the work which is basically based on social elements. NASSCOM-MERCER REPORT (2009) Potential barriers for gender inclusivity were at three levels. At personal level; attitudes, behaviours, expectations, confidence levels, definitions of what is possible and experience/education. Managerial barriers include attitudes, behaviors and
expectations. An organizational barrier includes policies, practices, HR systems, Communications and expectations.

IT industry is adopting many measures to remove these barriers but Jane (2008) Criticizing all the support strategies in engineering profession as focusing on getting women to fit engineering and not the other way round.

So far the available literature explains the gender based division of labour and problem of vertical mobility. But in Indian context much needs to be analyzed. Because most of the studies in India analyzed the ITES-BPO segment and not the software segment which carries a very high social image. NASSCOM reports provide only the cursory look and not the detailed analysis. Along with the industry studies and company studies, independent studies too are required for unbiased, in-depth analysis. In Indian context existing literature concentrates on the barriers faced during the career progression. But these barriers has to be analyzed at various levels like while preparing to enter the profession, while entering the profession, while retaining and finally career progression. Today retention of the employees is the major problem faced by the industry where gender based analysis is absent so far. This study extensively takes up the ‘Entry level barriers’, problem of retention and gender based analysis of attrition, and career progression hurdles. Additionally it touches on the socio-economic empowerment of women working in the software sector. IT companies are not open to such researches and doesn’t disclose their HR information. Company employees too hesitate to provide information either due to lack of interest as (Jorgenson 2002:374-375). findings highlight that “women engineers are to a large extent not interested in entering into a gender discourse and do not understand discrimination that they have experienced as having anything to do with gender issues because this would be at odds with their professional identity”. Or companies never allow them to react. Hence doing
research about IT companies’ employees remains a difficult task for independent researchers. Inspite of all this, present study will be a real contribution to understand the women employment aspects in Software sector.

1.7 Objectives and Hypothesis

Prime objective of the study is to verify whether Indian software sector employment is gender neutral and female friendly. This gender neutrality has been studied at various stages viz. ‘entering to the job’, ‘working conditions for retention’ and ‘career progression’. Additionally the problem of attrition is also dealt with gender base to analyze female employee’s stability in the sector. The specific objectives are as under:

a. To analyze the gender bias and female friendliness of the entry conditions to the software job.

b. To understand the factors affecting vertical progression and further to check any presence of gender bias among those factors.

c. Analysis of the female stability considering the problem of attrition based on gender.

d. Finally to have an idea about the gender inclusivity measures adopted by the companies, reason for such adoption, and to verify its effectiveness.

Based upon these objectives following broad hypothesis are framed.

H1: Entry conditions to the software sector are gender neutral and

H2: Software sector working conditions are gender unbiased

H3: Career progress conditions in Indian software sector are equal for male and female employees.

H4: Attrition behavior is same for both male and female software employees.
Each hypothesis has been verified in individual chapter. And accordingly sub hypothesis are framed in respective individual chapters.

1.8 Database and Methodology

1.8(i) Database

The study is based on both primary and secondary data. Primary data has been collected through structured questionnaires canvassed to the software employees at Bangalore Electronic City and IT Park in the year 2010. However, participation approach and unstructured interview method also was adopted. Through participation in the NASSCOM’s “Diversity and Inclusivity Summit’ for the year 2009 and 2010 observations were made. During that summit unstructured interviews were conducted with software employees and HR managers of software companies.

Secondary data is collected from Dataquest, Economic and Political Weekly, Indian Journal of Labor of Economics and various journals, Reports of NASSCOM, books, websites and News Papers etc.

1.8(ii) Study Area

Study is carried out at ‘Electronic City’ and ‘IT Park’ Bangalore. Bangalore has been selected as it is imaged as ‘Silicon Valley of India’ due to the concentration of numerous software companies. And many of the software employees are found at Bangalore.

1.8(iii) Sampling and Sampling size

Due to the nature of the industry and service conditions therein, it was difficult to get the total number of employees, hence the population. In order to overcome this problem ‘snow-ball random sampling technique’ was adopted to get the sample
respondents. Because officially software companies restrict their employees from providing any information relating to their work related issues. Secrecy is maintained with respect to their HR issues due to the excess problem of ‘poaching’ and ‘attrition’ in the industry. Totally 200 employees responded out of which 129 were female and 71 were male.

1.8(iv) Statistical Tools for the data analysis

Various statistical tools were used for the data analysis. Mean, standard deviation and ‘Independent Sample ‘t’ test’ have been used for quantitative data analysis. χ² test is used for qualitative data analysis. ‘Logistic Regression Analysis’ is also used to find out the significant factors that influence possibility of getting promotion. Percentages, contingency tables and bar diagrams are used for presentation of the findings.

1.9 Importance of the study

So far the available literature explains the gender based division of labor and problem of vertical mobility but it needs to be verified in the Indian context. Because most of the studies in India analyzed the ITES-BPO segment and not the software segment which carries a very high social profile. NASSCOM reports provide only a cursory look and not the detailed analysis. Along with the industry surveys and company reports, independent studies too are required for an in-depth, unbiased analysis. In Indian context existing studies concentrate on the barriers faced during the career progression. But these barriers have to be analyzed at various levels like while preparing to enter the profession², while entering the profession, while retaining and finally career progression. Today retention of the employees is the major problem faced by the industry where gender based analysis is so far absent. This study extensively
takes up the ‘entry level barriers’, ‘problem of retention’, gender based ‘analysis of attrition’, and ‘career progression’.

IT companies are not open to such researches and do not disclose their HR information. Company employees too hesitate to provide information either due to lack of interest or as part of company rules. (Jorgenson 2002:374-375) Findings highlight that “women engineers are to a large extent not interested in entering into a gender discourse and do not understand discrimination that they have experienced as having anything to do with gender issues because this would be at odds with their professional identity”. Some times companies do not allow them to interact. Hence conducting research about IT companies and employees remains a difficult task for independent researchers. In spite of all this, present study has made an attempt to understand the women employment aspects in Software sector.

Present study provides a clear picture about the features of female employees in Indian software sector. Even if IT earlier imaged as ‘gender neutral’ industry doubts are raised about industry’s such image. This study provides detailed view of such ‘neutrality’ at various levels. Findings and analysis of the study is useful to government, public and industry to understand both the boosting and curbing factors for female software employees. Based on the findings of the present study the society, government and industry can frame proper action to strengthen industry’s capacity as an ‘enabler’ for female empowerment and this will benefit both women and Indian IT industry.
1.10 Limitations of the study

‘ICT’ industry is a broader term which includes both Information and Communication technology companies. Earlier it was termed as IT industry and there are sub-sectors; software, hardware, ITES-BPO and KPO. Considering the vastness of the industry present study limits itself to the analysis of female employees of software sector. Software sector is booming in many parts of India but the study area is restricted to Bangalore. The reluctance of companies and employees to provide reliable and quantifiable information made present study more of qualitative in nature. Due to the small sample size generalibility of findings is limited.

1.11. Organization of the chapters

Thesis has been divided in to Seven Chapters. A brief overview of each chapter is given below:

CHAPTER: 1- Introduction

First chapter is an introduction to the research subject. It discusses and explains the development of IT industry in India and its increasing importance as an ‘Employer’ with special emphasis on female employment. It also provides a glimpse of the need, objectives, scope and limitations of the study, besides detailing the research methods and techniques used. Review of literature presents the early information available along with the emerging gaps, based on which research issues are framed.

CHAPTER: 2 - Gender based analysis of the entry conditions

Demographic features of the sample employees are presented in this chapter. Further the main issue tested is, whether the ‘entry conditions’ are similar for both male and female employees. These entry conditions include personal, socio-economic,
educational and industry level conditions. Presumption is that compared to male, to enter software profession female employees needs to be interested in the profession, should possess working relatives in the same sector, should posses good socio-economic status, needs to be technically qualified and English medium educated, career guidance and placement cells should be available at college. Recruitment method adopted by the company and presence of female member in the recruitment committee too influences her entry to the job. Analysis has been done through contingency tables and \( \chi^2 \) test.

**CHAPTER: 3 - Gender based analysis of Salary and working conditions**

After entry into the profession, retention of the employees depends on the work environment. Work environment needs to be equitable in terms of salary paid and work conditions. Through \( \chi^2 \) it is tested whether there is any significant gender based difference in terms of salary level, salary satisfaction, work allotment, project assignments, work hours, negotiation opportunities, visibility and recognition, freedom of choosing work hours, necessity of working for longer hours, free time availability for interaction with the colleagues and information sharing, participation in recreation activities conducted by the company, selection for on-site, challenging nature of the job and overloaded nature of the work.

**CHAPTER: 4 - Gender Neutrality in Career Advancement**

Objective of this chapter is to find out the condition of promotion opportunities for both male and female employees. Based on the means and standard deviations of the number of promotions received, using Independent Samples’ \( t \) test. Afterwards through ‘Logistic Regression Analysis’ found out the significant factors influencing
odds of being promoted. Further by 'χ2' analyzed whether any gender based difference persist in those significant factors.

CHAPTER: 5 - Problem of attrition and gender based implications

Attrition is one of the prime problems faced by IT industry. In this chapter through 'χ2 ' it is verified whether attrition behavior is same for both males and females. Further through independent samples ‘t’ test, it is tested whether the extent of attrition is the same. Notable point in the available literature is that female attrition is highlighted for family reasons. It is implied that men exit from company to grow and women to take care of their family. Through χ2 ‘it is tested how far female consider attrition as a tool for faster growth.

CHAPTER: 6- Gender Inclusivity Measures and other issues

To control female attrition software companies are providing many facilities and have taken several steps and policy measures. This chapter based on participation method during the NASSCOM ‘Inclusivity and Diversity Summit’ and informal interviews held with the employees try to find out following aspects such as; why gender inclusivity measures are required for the industry? Which are the important measures so far adopted? Whether these measures are effective? If not, why lack effectiveness?

CHAPTER: 7 - Conclusion

In last chapter major findings of the study and suggestions are briefed along with conclusion.
Notes:

1. NASSCOM is the association of software companies in India and strongly lobbies for the IT sector. Through its various forums it has taken many initiatives to bring required improvements in the industry and before government strongly lobbies for Indian IT industry. But it covers software companies and ITES-BPO companies and not the hardware.

2. Whether Software employment can be considered as profession? There is a strong disagreement from some researchers as it doesn’t fulfill the typical ‘professional’ conditions. Hence according to them it has to be considered as ‘job’ rather ‘profession’. But in this article both the terms were used as synonyms.

3. According to technological developments concept of IT industry is widening. Earlier it was only referred as computer industry then widened it’s scope and concept Information Technology Industry was coined. Further broadened the scope and with it’s various sub-sectors it is referred as ICT industry at present. In this study both IT and ICT are used in similar sense.
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