CHAPTER II

INFORMATION TECHNOLOGY INDUSTRY -
AN OVERVIEW

This chapter consisting of three sections attempts to give an overview of the global IT industry, IT industry in India and IT industry in Kerala.

2.1 The Global IT Industry

The phenomenal contribution of Information and Communication Technologies (ICTs) to world economy in general and the way business is conducted the world over in particular, has generated a euphoria. Countries around the globe are finding ICT as an indispensable technology for increasing productivity, raising the standard of living, delivering greater educational opportunities, improving healthcare and human services and eliminating barriers to greater participation in world markets.

In 2006, global GDP reached more than 45 trillion dollars.¹ From 2001, it marks an increase of almost 50 per cent. During the same period, the global population increased five per cent. Clearly, the world is using fewer people to produce more goods and services. Many factors contribute to this important productivity trend, including a growing reliance on information and communication technology. ICT helps to level economic barriers to change and enable countries to emerge on the world stage like never before, driving jobs, wages, business opportunities and wealth creation.
The global ICT industry provided employment to 2432.5 millions of workers in 2005, marking an addition of 6% over the 2292.8 millions employed in 2001. The increase is estimated to continue at the same rate and reach 2579.9 millions of workers by 2009.\(^2\)

Following the rapid pace of ICT growth in the late 1990s and into 2000, the global ICT spending fell significantly in 2001 due to the recession, the dot.com bubble collapse, the year 2000 date conversion (Y2K) spending overhang, dropping nearly 7% from its value in 2000. From the depressed level in 2001, the world Information and Communication Technology industry has managed a very healthy 8.9 per cent average annual growth rate between 2001 and 2005. From 2005 through 2009, the compound annual growth rate is expected to be 7.3 per cent. The industry growth rate has added $1 trillion in five years, from $2.1 trillion in 2001 to $3.1 trillion in 2006 and is estimated to increase to $US 3.9 trillion in 2009.\(^3\) The industry represents 6.8 per cent of the global GDP over the period 2001-2005.

![FIGURE 2](http://www.witsa.org)

As indicated in Figure 2 the global ICT industry has four major segments namely computer hardware, software, services and communications. The
communications segment has by far the largest share of total ICT spending, with nearly 51% in 2005. The services group has the second largest share at nearly 23%, while hardware and software hold nearly 17% and 10% of the market respectively.

In terms of growth rate, software is the leading segment. Software spending grew 11.4 per cent between 2001 and 2005, the only ICT sector to strike double digits during the period. During the period 2005 to 2009 also software will post the fastest growth at 10.6% on a compound annual basis. Hardware, services, and communications will grow on a compound annual basis of 8.4%, 9.4% and 5.2% respectively over these four years.

The per capita global ICT spending has increased every year since 2001. It has increased almost $ 29 between 2005 and 2006, from $ 537.91 to 566.89.

2.1.1 The Major Spenders

Among the different categories, government is the largest single ICT spender with $541.8 billion in 2006. Other top spending groups are finance industry with $512.8 billion, manufacturing industry with $472.3 billion and wholesale/retail industry with $299.2 billion. The manufacturing industry registered the highest growth rate (9 per cent) in 2006, which placed it ahead of all other industries. The World Information Technology and Service Alliance (WITSA) forecasts that the finance and wholesale/retail sectors would move ahead in 2007 with a spending rate of over 10 per cent each.

Worldwide, companies allocated almost 40 per cent more for ICT products and services in 2006 than they had done in 2001. Global ICT spending per employee reached $1,277 in 2006 and is expected to top $1,500 by the end of the decade.

The consumer market comprises nearly 23% of total ICT spending as of 2005, while the business and government segments together accounts for 77%.
The consumer market will grow at 5.3% and the business and government markets together at 7.8% during 2005 to 2009. Table 3 gives a picture of the global ICT spending by the various market segments.

**TABLE 3**

**Global ICT Spending by Market Segments**

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>In 2005 ($US Billions)</th>
<th>% growth 2001-05</th>
<th>% growth 2005-09 (Estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>673.7</td>
<td>11.4 %</td>
<td>5.3 %</td>
</tr>
<tr>
<td>Government</td>
<td>505.2</td>
<td>10.2 %</td>
<td>7.4 %</td>
</tr>
<tr>
<td>Finance, Business Services</td>
<td>481.5</td>
<td>6.4 %</td>
<td>7.6 %</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>433.1</td>
<td>9.6 %</td>
<td>8.2 %</td>
</tr>
<tr>
<td>Trade</td>
<td>292.2</td>
<td>3.9 %</td>
<td>6.2 %</td>
</tr>
<tr>
<td>Transport</td>
<td>250.5</td>
<td>9.1 %</td>
<td>8.6 %</td>
</tr>
<tr>
<td>Services</td>
<td>201.9</td>
<td>8.7 %</td>
<td>10.1 %</td>
</tr>
<tr>
<td>Utilities</td>
<td>59.4</td>
<td>7.9 %</td>
<td>8.2 %</td>
</tr>
<tr>
<td>Construction</td>
<td>36.6</td>
<td>10.3 %</td>
<td>7.1 %</td>
</tr>
<tr>
<td>Mining</td>
<td>16.8</td>
<td>24.5 %</td>
<td>8.9 %</td>
</tr>
<tr>
<td>Agriculture</td>
<td>12.5</td>
<td>5.5 %</td>
<td>5.7 %</td>
</tr>
</tbody>
</table>


It can be seen from the above table that the spending levels and growth vary widely across the major segments. Segments like consumer, government, construction and mining posted double digit increase during the four years from 2001 to 2005. All segments are expected to grow over the four year period from 2005 to 2009. The services sector will grow the fastest at 10.1 %, while the consumer segment will grow the slowest at 5.3 %. While the consumer segment is the largest when viewed in terms of amount spent, the government and business segments when taken together is nearly $ US 2.3 trillion which is more than three times the size of the consumer market.
2.1.2 Region and Countrywise IT Spending

In regionwise spending the Americas continued to account for more than half (51%) of the worldwide aggregate in 2005 while Western Europe accounted for 28%, Asia-Pacific 17%, Central and Eastern Europe as well as Middle East and Africa 2% each respectively.\(^4\)

All regions of the globe is expected to grow through the period 2005 to 2009. The Americas will grow the slowest at 4.4% during this period due to the highly matured state of the industry there. Asia-Pacific and Europe, Middle East and Africa (EMEA) are expected to post compound annual growth of 11.1% and 8.0% respectively.

The top ten ICT spending countries remain fixed in rank between 2001 and 2005. In the descending order, these are: the United States, Japan, Germany, United Kingdom, France, China, Italy, Canada, Brazil and Korea.

In 2006, China caught up with France in the total ICT spending race, with outlays of $142.3 billion. In 2007, China is expected to jump ahead of France, and ahead of the United Kingdom in 2008. By 2009, China will be the third largest ICT spending country. China is a powerhouse in rates of spending, with a 20.9 per cent annual increase in 2006 far outpacing any other member of the top ten. In fact, China’s ICT annual growth rates exceed 20 per cent every year between 2001 and 2006. This trend is expected to continue through the decade, growing to almost 26 per cent by 2009.

Also of interest, India is expected to replace Korea as a member of the top ten in 2007 with $65.5 billion. Japan continues to merit an analysis independent of the Asia-Pacific region as it maintains its position as the second highest spending country after the US in this industry. Growing over at seven per cent in 2005, Japan is a large untapped market for the Indian vendors.
2.2 IT Industry in India

The Indian IT industry continues its high growth trajectory with the industry aggregate crossing USD 36 billion in 2005-06, clocking an annual growth of nearly 28 per cent since 1999-2000.\(^5\) It is well-on-track to exceed the targeted USD 60 billion in IT-ITES exports by 2010. Some experts predict that the industry has the potential of $80 billion in 2010.\(^6\)

This explosive growth of India’s IT sector remains a puzzle to many as to how and why India has emerged as a global leader in a leading edge industry when it failed to achieve such leadership in any other technology intensive sector. The issue is even more puzzling if one considers the fact that India ranks poorly when measured by conventional indicators of IT penetration such as Personal Computers (PCs) per thousand population, internet subscribers, telephone connections, and scientists and engineers per million. On exploring this, one may come across several interesting facts in the history of development of the IT industry in India, which are discussed below.

2.2.1 The History of IT Industry in India

The Indian society and its culture, though unknowingly, was nurturing a bundle of attributes essential for the fast adoption of IT industry much earlier than its actual growth in the country. Though the cultural disregard amongst Indian elites to “get their hands dirty” has often been considered as a reason for India’s poor performance in manufacturing, their high regard for abstraction and “clean work” found perfect resonance in software.

The historical roots of the industry lie in the state intervention, while the state’s role changed to that of a facilitative nature from 1980s onwards. Foremost was the historical compromise made by the Indian states in the late 1950s when language policy became a divisive issue. India’s southern states feared that accepting Hindi as the national language would ensure northern political
dominance. The compromise worked out was that while Hindi would remain the national language, English would enjoy the status of the official language. This, over the next few decades resulted in the development of a large pool of human capital that was well versed in the English language leading to India’s comparative advantage in software and IT enabled services.7

The state’s investments in research and development (R and D) institutions and tertiary education were also important in creating human capital and infrastructural clusters. The six major IT clusters in India, namely Bangalore, Chennai, Hyderabad, Mumbai, New Delhi and Pune had the highest concentration of public sector R and D establishments (especially defense) as well as publicly funded science and engineering educational institutions. This is similar to the pattern in the US where the role of Defense Advanced Research Projects Agency (DARPA) and defense-related IT expenditures did much to concentrate IT clusters in Boston, Austin and of course, the Silicon Valley.

1. The Beginning of the Industry

The history of computers in India dates back to the mid 1950s. In its initial stages, the IT industry was as controlled by the state, like any other sector of the Indian economy. C.R. Subramanian in his book ‘India and the Computer: A Study of Planned Development’ notes that the first digital machine in India was a British-made valve-based HEC-2M with one kilobyte (KB) memory imported in 1955. 8 This was followed by a Soviet-made URAL and an IBM 1401 by 1964. Although India began to develop in house software programmes during 1950s and 60s along with the installation of mainframes in the research institutions, extensive development was held back because of the slow rate of computerization. Until the late 1970s, the supply of computers was dominated by International Business Machines (IBM) and International Computers Ltd. (ICL), UK. In 1978, when the government demanded that IBM reduce its holdings in its Indian operations to 40
per cent of equity, IBM decided to withdraw from India rather than comply with the Indian government’s requirement. The exit of IBM from India and the protection of India’s hardware sector discouraged other multinationals from investing in the sector. In the long run this had inadvertently resulted in promoting the growth of indigenous software industry in a form of induced innovation because the very limitations, technological and cost, of hardware in India meant that developing software skills was the only way to overcome them. Similarly the Monopolies and Restrictive Trade Practices (MRTP) Act which limited the entry of existing large industrial houses in new sectors meant that new firms began to enter the sector in the early 1980s. The software industry developed initially in Mumbai and subsequently during the mid 1980s Bangalore emerged as a centre of software industry. Major Indian software service companies like HCL and Infosys emerged during this time.

The Indian software companies entered the world market in the 1980s by exploiting their cost advantage in the most routine, low-value added segments of software production such as coding, testing and maintenance. The software industry was established mainly on the basis of labour contract services, a system known as ‘body shopping’ in which Indian software engineers were hired out to companies abroad to work in ‘on-site’ projects.

2. The Role of Brain Drain

In the past India was regarded as a country suffering the most from brain drain. In fact the brain drain turned out to be a blessing in disguise for this industry. The brain drain to the United States has become a vital mechanism for India’s booming IT sector to have workers trained in software development and the ways of US business. India benefited from those brains once drained from the country, through the reverse flow of talent, know-how, ideas, business
opportunities and similar other contributions of the large and successful Indian diasporic community at Silicon Valley in the US.\textsuperscript{11}

3. Policy Reforms in the Mid 80s

Prior to 1984, the Indian software industry operated within the framework of a highly regulated model of import-substitution led industrialization (ISI) which discouraged imports and stressed the ideology of self-reliance. A Computer policy announced in November 1984 recognised software as an ‘industry’ making it eligible for investment allowance and other incentives. Two years later in 1986, passing of the Computer Software Export, Development and Training Policy marked an explicit rejection of Indian ISI model and the idea of self-reliance in software. This policy was designed to promote the domestic software industry and facilitate a quantum jump in software exports by providing Indian firms with liberal access to the latest technologies and software tools to enhance their global competitiveness and to encourage higher value added exports. Through these policies 100 per cent foreign subsidiaries were allowed to be set up and foreign capital began to flow into the industry again.

4. Liberalization of the Economy

By the late 1980s, two simultaneous and independent events occurred: the global IT industry boom accelerated and India began to liberalise its economy. The real take-off for India’s software and other hi-tech sectors occurred in the early 1990s in the era of economic reform. The economic reforms of 1991, were particularly important for the software sector. The government granted the sector preferentially low tax policies. These tax breaks along with the foreign exchange gains became an important non-operating income factor resulting in high average net margins of around 30\% for the Indian IT services companies. Another exogenous factor which stemmed from the technological developments in ICTs
was the shift in the locus of value addition from hardware to software – away from India’s weakness into its strengths.

5. Establishment of STPs

The Software Technology Parks scheme introduced by the Department of Electronics (DoE) in the early 1990s ensured that the telecommunication and other infrastructure and administrative support for the establishment of software exporting units were available in India. It facilitated a gradual shift away from on-site to offshore service provision during the 1990s. The Indian companies began to shift away from body shopping towards the offshore model with the proportion of revenue from on-site contracts falling from 90 per cent in 1988 to 56 per cent in 1999-2000 and further to 41 per cent in 2003. One advantage of offshore production soon became apparent. The twelve and a half hour difference between the United State’s time zone and the Indian Standard Time complemented India’s working hours which allowed Indian firms to perform maintenance and reengineering tasks for US customers by accessing their computers after regular users had finished for the day, thereby allowing for round the clock project work between the two countries. This, combined with the growing shortage of skilled labour in the West, helps to explain why hundreds of US and European corporations increasingly outsourced routine, labour-intensive projects like coding and maintenance to Indian software houses in the 1990s.

6. The National Task Force on IT

In 1998, the software industry benefited from sector-specific reforms. The Indian government established a high level National Task Force on Information Technology and Software Development to promote further development of the sector. The task force completed its report outlining several bottlenecks in India’s IT development and made 108 recommendations for improvement.
government reacted quickly to the recommendations and implemented most of them. The report set as target for 2008, $50 billion in software exports and “IT penetration for all.” The political support for the plan was indicated by the creation of a new Ministry of Information Technology in late 1999 to oversee its implementation. At the same time as the central government was implementing reforms in the IT industry, some of the Indian states too sought to attract software firms. By mid-1999, fourteen out of the then twenty-six states had announced their own IT policies.

7. Pro-activeness of the Domestic Entrepreneurs

It should be emphasized that India’s success in this industry is basically the result of the domestic entrepreneurs and domestic capabilities. Since India was a new comer in the global IT industrial market, in order to overcome the reputation barriers and to enter export markets, the Indian software entrepreneurs adopted several strategies. The first was to structure contracts by taking into account this weakness. A second option was to form inter-firm linkages through joint ventures. Third, firms tried either to open up branches in the US or buy US companies which then served as the ‘front office’ providing a reputation exterior to the parent firm. A fourth option, but one limited only to the large companies, was to list on the New York Stock Exchange. This listing is a signal of quality and helped to build the firms reputation. A fifth option, much in favour with Indian software firms, was to get independent reputation certification. Indian IT firms have aggressively sought out this option.

Unlike other sectors of the economy, collective action on behalf of the private sector has been much stronger in the case of IT industry. The role of National Association of Software and Service Companies (NASSCOM) is particularly noteworthy. It played an active role in shaping the policies of the industry, especially the software and services segment, avoided more detailed
regulations and interventions. It represents almost all major firms in the sector, both domestic and foreign, thus giving the industry a unified voice. It has also managed to work in tandem with the Government of India to jointly promote the sector’s interests.

8. Developments in the United States

The developments in the US economy in the late 90s further fueled IT industry’s growth in India. During 1997-2000 phase, the US IT spending which was typically growing at 9% per annum during 1981-1997, witnessed an explosion, crossing the 16 per cent growth mark. This was due to the technology waves triggered by the Year 2000 date conversion (Y2K) crisis, the rise in the purchase of Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) softwares by medium and large corporations. The dot com rush with the Internet emerging as the next big medium for driving business also facilitated this growth.

The year 2003 showed symptoms of offshore outsourcing by firms in America and Europe becoming a mainstream phenomenon. Continuing pressure on cost basis at a time of growing competitiveness forced companies to look offshore outsourcing as a strategic alternative to remain globally competitive. Since India offers significant savings in cost to the US companies through outsourcing, it has become a major factor accelerating the pace of growth of the industry in India.

9. Enactment of the Cyber Law

Since the country did not traditionally have any laws on IT, the sector was able to flourish in a largely unregulated environment. The Indian IT Act passed in 2000 governs the information technology related activities in the country. It
helped to strengthen the credibility of the country in the international IT industrial scenario besides streamlining the domestic environment.

2.2.2 Segments of the Indian IT Industry

The global ICT industry has four major segments, namely the computer hardware, software, services and communications. The industry segmentation as it exists in India is a little different from this global pattern. According to NASSCOM, the Indian IT industry comprises three segments namely IT services and software, ITES/BPO and hardware. The communications sector is not treated as a separate segment in India; rather it is considered as an integral part of the other segments. The major area of operation of the Indian IT companies is the services segment. At the same time many of them undertake software development also. But the volume of software product development in the country is not substantial enough to consider it as a stand alone segment and hence the IT services and software are considered together as a single segment. Similarly due to its great scope and potential for the country, the ITES/BPO sector has assumed significance as a separate segment in India. Segmentation of the industry as it exists in India is shown in Figure 3 below.
A brief review about these segments is given below.
2.2.2.1 IT Services and Software Segment

The IT services and software segment accounts for a lion’s share of Indian IT industry, contributing over 47 per cent of the total industry revenue in 2004-05. Services exports remain the mainstay of the industry, which grew at 32 per cent in 2005-06. The IT services segment is classified into (1) Project oriented services which includes IT Consulting, System Integration, Custom Application Development and Maintenance (CADM), and Network Consulting and Integration (2) IT Outsourcing which includes IS outsourcing, Application outsourcing, and Network infrastructure management (3) Training and Support which includes Hardware deployment and support, Software deployment and support and IT education and training and (4) R and D services which includes Embedded software and systems and Offshore product development.

Table 4 summarises the performance of these service categories.

**TABLE 4**

Growth Trends of Indian IT Services Exports

<table>
<thead>
<tr>
<th>Service Categories</th>
<th>2003-04 ($)</th>
<th>2004-05 ($)</th>
<th>2005-06 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Project oriented services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a). Custom application development</td>
<td>3.71</td>
<td>4.98</td>
<td>6.60</td>
</tr>
<tr>
<td>(b). IT consulting</td>
<td>0.13</td>
<td>0.25</td>
<td>0.33</td>
</tr>
<tr>
<td>(c). System integration</td>
<td>0.15</td>
<td>0.20</td>
<td>0.26</td>
</tr>
<tr>
<td>(d). Network consulting and integration</td>
<td>0.05</td>
<td>0.15</td>
<td>0.20</td>
</tr>
<tr>
<td>2. IT Outsourcing</td>
<td>2.57</td>
<td>3.29</td>
<td>4.35</td>
</tr>
<tr>
<td>(a). Application management</td>
<td>2.27</td>
<td>2.69</td>
<td>3.56</td>
</tr>
<tr>
<td>(b). IS Outsourcing</td>
<td>0.30</td>
<td>0.60</td>
<td>0.79</td>
</tr>
<tr>
<td>3. Support and training</td>
<td>0.64</td>
<td>1.10</td>
<td>1.45</td>
</tr>
<tr>
<td>4. R and D services</td>
<td>1.70</td>
<td>2.20</td>
<td>2.80</td>
</tr>
<tr>
<td>Grand Total</td>
<td>8.95</td>
<td>12.17</td>
<td>15.99</td>
</tr>
</tbody>
</table>

Source: Compiled from NASSCOM IT Industry Strategic Review 2006
It can be seen from the table that Indian IT services exports increased from USD 8.95 billion in 2003-04 to USD 12.17 billion in 2004-05, and reached USD 15.99 billion by the end of 2005-06. Americas and Europe remain the key markets, accounting for over 90 per cent of Indian IT-ITES exports.

The R and D services is a relatively new area that holds significant opportunity for the Indian IT industry. It could potentially be a key driver of the next phase of growth for the Indian industry since the worldwide spending on R and D is currently estimated to be more than USD 400 billion.

**The Indian Software Product Wing:**

This wing which is at a budding stage includes the engineering of software products in the areas of enterprise application software and packaged software. Most of the software developed in enterprise application wing belong to enterprise resource planning (ERP), customer relationship management (CRM), supply chain management (SCM), and business intelligence areas. The aggregate value of software product exports from India has grown from USD 750 million in 2003-04 to USD 910 million in 2004-05.17

The Indian IT services and software exports are led by the Indian companies, that account for nearly 70 per cent of the aggregate. The share of MNCs has been relatively unchanged at approximately 30 per cent over the past few years. Table 5 gives an idea about the major players in this field.
## TABLE 5
Top IT Service and Software Exporters from India (2004-05)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Name of the Company</th>
<th>INR Billion</th>
<th>USD Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tata Consultancy Services Ltd.</td>
<td>74.5</td>
<td>1,644</td>
</tr>
<tr>
<td>2</td>
<td>Infosys Technologies Ltd</td>
<td>68.1</td>
<td>1,502</td>
</tr>
<tr>
<td>3</td>
<td>Wipro Technologies</td>
<td>54.3</td>
<td>1,198</td>
</tr>
<tr>
<td>4</td>
<td>Satyam Computer Services Ltd.</td>
<td>33.8</td>
<td>745</td>
</tr>
<tr>
<td>5</td>
<td>HCL Technologies Ltd.</td>
<td>26.6</td>
<td>588</td>
</tr>
<tr>
<td>6</td>
<td>Patni Computer Systems Ltd.</td>
<td>15.5</td>
<td>342</td>
</tr>
<tr>
<td>7</td>
<td>I-flex Solutions Ltd</td>
<td>11.1</td>
<td>245</td>
</tr>
<tr>
<td>8</td>
<td>Mahindra British Telecom</td>
<td>9.1</td>
<td>202</td>
</tr>
<tr>
<td>9</td>
<td>Polaries software Lab. Ltd.</td>
<td>7.0</td>
<td>154</td>
</tr>
<tr>
<td>10</td>
<td>Perot Systems TSI (India) Ltd.</td>
<td>6.6</td>
<td>145</td>
</tr>
<tr>
<td>11</td>
<td>Hexaware Technologies Ltd.</td>
<td>5.8</td>
<td>129</td>
</tr>
<tr>
<td>12</td>
<td>Larsen &amp; Toubro Infotech Ltd.</td>
<td>5.6</td>
<td>123</td>
</tr>
<tr>
<td>13</td>
<td>MASTEK Ltd</td>
<td>5.5</td>
<td>121</td>
</tr>
<tr>
<td>14</td>
<td>IGATE Global Solutions Ltd.</td>
<td>5.3</td>
<td>118</td>
</tr>
<tr>
<td>15</td>
<td>Seimens Information Systems Ltd</td>
<td>5.0</td>
<td>111</td>
</tr>
<tr>
<td>16</td>
<td>Mphasis BFL Ltd</td>
<td>4.7</td>
<td>103</td>
</tr>
<tr>
<td>17</td>
<td>Tata Infotech</td>
<td>4.6</td>
<td>102</td>
</tr>
<tr>
<td>18</td>
<td>NIIT Technologies Ltd.</td>
<td>4.5</td>
<td>99</td>
</tr>
<tr>
<td>19</td>
<td>Flextronics Software Systems Ltd.</td>
<td>4.2</td>
<td>94</td>
</tr>
</tbody>
</table>

Source: NASSCOM IT Industry Strategic Review 2006 p. 70-71

The table shows that Indian companies like TCS followed by Infosys and Wipro are the market leaders. They enjoy export revenues of more than USD 1,000 million each.
2.2.2.2 IT-Enabled Services/Business Process Outsourcing (ITES/BPO) Segment

Due to the competitive pressure of the fast pace of globalization, the business world started searching for alternative ways to remain cost effective. Soon it became apparent that many business processes could be outsourced with the help of IT industry to suitable low cost destinations far and wide. This marked the dawn of the Information Technology Enabled Services (ITES) or Business Process Outsourcing (BPO).

Outsourcing is nothing but allowing someone else to do your work for you so that you are able to devote your time to more important jobs. It is leveraging the competency of another company in order to provide value addition to the company that has outsourced the work. Focusing on core competencies, doing what a company does best and outsourcing non-core process to other experts who can bring in their best practice, is the core proposition of outsourcing. The advantages of outsourcing are reduced costs and lesser prices, greater scalability, better technology, process improvement or better management and greater success. It is a smarter way of doing business and is part of the long term strategies implemented by global organizations.

Research reports indicate that there is a range of savings associated with offshoring to the companies in the US. Table 6 shows the extent of savings in cost enjoyed by the US companies from 1995 to 2006 through outsourcing as well as the estimated savings for 2007 to 2010.
TABLE 6
Cost Savings to US Companies Through Outsourcing

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Savings</th>
<th>Year</th>
<th>Average Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>29.2%</td>
<td>2003</td>
<td>36.0%</td>
</tr>
<tr>
<td>1996</td>
<td>30.5%</td>
<td>2004</td>
<td>36.2%</td>
</tr>
<tr>
<td>1997</td>
<td>31.9%</td>
<td>2005</td>
<td>36.4%</td>
</tr>
<tr>
<td>1998</td>
<td>33.0%</td>
<td>2006</td>
<td>36.1%</td>
</tr>
<tr>
<td>1999</td>
<td>34.0%</td>
<td>2007</td>
<td>35.8%</td>
</tr>
<tr>
<td>2000</td>
<td>34.7%</td>
<td>2008</td>
<td>35.6%</td>
</tr>
<tr>
<td>2001</td>
<td>35.3%</td>
<td>2009</td>
<td>35.1%</td>
</tr>
<tr>
<td>2002</td>
<td>35.8%</td>
<td>2010</td>
<td>34.9%</td>
</tr>
</tbody>
</table>

Source: http://www.itaa.org

It can be seen from table 6 that in 1995, the average cost savings across all companies amounted to 29.2%. The average savings rate across users rose to 36.4% by 2005. Though the rising wages in India and other offshoring destination will slightly erode the average cost savings, by 2010 companies can expect to save an average of 34.9%.

Although low cost is the most commonly cited reason for offshore outsourcing, beyond the cost incentive, global sourcing provides several other practical benefits. They are, the ability of multinational organizations to efficiently stage 24×7 (24 hours a day and 7 days of the week) operations, broaden the scope of activities undertaken, the opportunity to customize products and services to meet local needs and the means of geographically deploying workers and facilities to succeed in globally dispersed as well as highly competitive markets.

For India BPO is a huge opportunity since in the today’s fast moving business scenario, more and more business firms are looking for more tasks that can be off shored to high-quality, low-cost destinations. In 2004 it was estimated that the operating cost in India for BPO activities when compared on the basis of certain major elements of cost incurred for a full time employee was just 20 per
cent of the corresponding expenditure in the US. Indian ITES/BPO segment continues to grow in scope, scale as well as number of companies, with over 1,500 firms providing services to clients across 120 countries. India’s demonstrated superiority, sustained cost advantage and fundamentally-empowered value proposition are driving the segment’s growth in the country. Countering the wage inflation averaging 10-15 per cent annually, the Indian companies are able to leverage declines in telecom and other overhead costs, and increase in productivity gains and economies of scale to sustain their cost arbitrage.

1. Performance of the Indian ITES/BPO Sector in the Previous Years

In 2003-04, ITES/BPO exports accounted for over 27 per cent of the total export revenue earned by the Indian IT industry. Indian ITES/BPO exports increased from USD 3.1 billion in 2003-04 to USD 4.6 billion in 2004-05 recording a growth of nearly 48 per cent. In 2005-06 it grew at 37 per cent and reached USD 6.3 billion. In 2002-03 the total number of persons employed in the Indian ITES/BPO sector was 1,80,000 which rose to 2,53,500 in 2003-04 by the creation of 73,500 new jobs during the year. In 2004-05 the sector provided employment to another 94,500 people. By the end of 2005-06 the total employee base of the segment was 4,09,000. The total employment in the sector is forecast to exceed one million people by 2007-08. However, along with the growth in overall employee base, companies are struggling to retain their existing employees. Managing attrition is a major problem in the industry. Since skilled professionals formed the crux of the industry, high rate of attrition impose huge expense on the firms for recruiting, training and development of the workforce. High attrition also affect the quality of services and lead to deterioration in the overall performance of the organisation.

US remains the key market accounting for over two-third of the total ITES/BPO exports from India. Western Europe, primarily UK accounts for 20 per cent. This over emphasis on the English speaking markets resulted in under
exploitation of French, Spanish and German speaking markets from the Western hemisphere and Japanese and Mandarin speaking markets from the Eastern hemisphere.

2. Major ITES/BPO Service Lines

The major services offered by the Indian ITES/BPO firms are in the areas of Customer Interaction, Finance and Accounting, and Human Resource Administration. These three segments accounted for 89 per cent of the industry revenues in 2004-05. The rest 11 per cent is shared by the new and emerging areas in this sector. A brief account of the three major service lines is given below.

i) Customer Interaction Services

The Customer Interaction Services (CIS) segment includes all forms of IT-enabled customer contact, voice or non-voice based support used to provide customer services, sales and marketing, technical support and help desk services. This segment accounts for 46 per cent of Indian ITES/BPO. Worldwide demand for customer care services is projected to grow at between 12-13 per cent through 2009.

ii) Finance and Accounting

Finance and Accounting (F and A) services include activities such as general accounting, cash management including cash flow forecasting and financial planning, accounts receivables and payables management, treasury and risk management, tax management, compliance management and statutory reporting. This segment accounts for 40 per cent of Indian ITES/BPO.

The worldwide demand for F and A services is projected to grow at a CAGR of nearly 15 per cent and reach USD 25.3 billion by 2009. With the offshore component of F and A service delivery expected to increase significantly, India is likely to witness sustained demand for services in this segment.
iii) Human Resource Administration

The HR administration services include payroll and benefits administration, compensation and performance management, staffing, placement, training and development, travel and expense processing, talent acquisition and talent management services, employee and manager self-service delivery services, employee communication design and administration. Though this segment accounts for only three per cent of Indian ITES/BPO, it also is viewed as strong candidates for offshore outsourcing since 70 to 80 per cent of all HR activities are rule-based, repeatable and are required to be done for large groups of employees, making them ideal for offshoring.

In addition to the core categories of CIS, F and A and HR administration, there are several other BPO services such as medical transcription, back-office and administrative functions, content development and publishing, logistics, marketing, facility operations management etc.

Among the different types of industries sourcing services from India, Banking, Financial Services and Insurance (BFSI) sector is the most mature vertical accounting for 35-45 per cent of offshore ITES/BPO business done from India.

3. The Knowledge Process Outsourcing (KPO)

From their BPO experience the corporate world noticed that similar to the outsourcing of their low-end business processes, it is possible to effectively outsource many of the high-end, knowledge intensive processes too. This development is currently taking shape as Knowledge Process Outsourcing (KPO). More and more firms globally are looking to outsource their high-end knowledge intensive work to low-cost destinations like India. The benefit derived out of KPO was not only the labour arbitrage but also the quality of service that could be treated at par with their in-house performance. The essence of KPO is creation, assimilation, validation, storage, and distribution of knowledge such that it could
be used to improve effectiveness and promote innovation. KPO is the highest point of a BPO chain and is expected to bring in a drastic change in the outsourcing scenario.

The difference between KPO and BPO lies in the domain specialization. KPO is knowledge driven where as BPO is process driven. BPO focuses on size, volume, efficiency, physical infrastructure and is capital-centric whereas KPO focuses on depth of knowledge, experience, talent, judgment and is knowledge-centric. There is significant difference between the two segments in the quality of skills attracted by each. The new wave KPO is targeted at attracting high skills namely lawyers, chartered accountants, engineers, doctors, marketing professionals, and researchers. Hence the main challenge in setting up a KPO unit will be to find enough talented knowledge workers. As it involves high level of professionalism and job satisfaction by utilizing the talent of the intellectuals, it is expected that attrition rates in this segment would be only less than half of what it is in the BPO sector which is currently estimated at 40%. The major challenges involved in this field are maintaining higher quality standards, investment in KPO infrastructure, talent pool, confidentiality and enhanced risk management.

With cost advantage on its side, KPO offers great potential for India to explore. But India is not alone in the race. Countries like Russia, China, the Czech Republic, Ireland and Israel are also in the field to bite off India’s share. India is a right destination for KPO since the time difference between India and the US as well as Europe allows sufficient time in India to complete the analysis and furnish feedback to the outsourcer.

Some of the areas addressed under KPO by the Indian companies include various ‘high-end’ knowledge based processes such as financial service research support and analysis for equity/debt/derivatives market, econometrics, data analytics and modeling, business/corporate research/competitive intelligence etc. Two relatively new sectors with significantly under-penetrated offshore potential
are (i) pharmaceuticals, healthcare and life sciences and (ii) legal services. The other emerging areas in the KPO field are remote delivery of education and training, animation, gaming and digital content development, research support for strategic marketing, consulting, and advertising.

2.2.2.3 Hardware Segment

The performance of the hardware segment of the Indian IT-ITES industry continues to remain in the shadows of the stellar growth in services. Regarding hardware India is more a consumer than a producer or supplier. The domestic consumption accounts for nearly 90 per cent of the segment revenue.24

The IT hardware is composed of manufacture and supply of items mainly in three segments namely, Hardware systems, Peripherals, and Networking equipment. The hardware systems segment includes servers and workstations, desktops, laptops and notebooks. The peripherals segment consists of printers, storage, display and power back-up equipment, keyboards, optical disk drivers, scanners, and mouse. Networking equipment include routers, switches and structured cabling, and modems. In 2004-05 the composition of the domestic hardware segment showed that hardware systems accounted for 54 %, peripherals 25 %, networking equipments 15 % and others 6 % of the market.

The Indian hardware manufacturing sector is almost negligible with exports - mostly comprising of peripherals - accounting for less than 11 per cent of the hardware segment revenue and barely 3 to 4 per cent of total Indian IT-ITES exports in 2003-04. Multinational companies like Intel, IBM, HP, Cisco, Toshiba, Acer, Dell, Canon, Lexmark etc. dominate the market while Indian companies like HCL, Zenith etc. have established their presence to a limited extent in certain segments. The MNC’s share in the key segments of hardware components range between 60 to 95 per cent.
The hardware segment of the Indian IT industry grew from USD 2.4 billion in 1999-2000 to USD 4.8 billion in 2003-04. Of this 4.3 billion was contributed by the domestic market consumption and only 0.5 billion was received from exports. In the domestic hardware market, banking, financial services and insurance (BFSI) accounted for 24 % of the market consumption followed by small office home office (SOHO) segment (14 %), telecom (13 %), government (12 %), manufacturing sector (10 %), information technology (4 %) and the remaining 23 % by other sectors of the economy.25

The share of hardware revenue in the total IT-ITES industry revenue has been declining over the last five years. This decline is attributed to the high degree of pricing pressure and the resultant decline in the pricing levels due to the fierce battle fought by the vendors to gain market share in the segment and the relatively faster growth in revenue in the service segment.

With the proliferation of the internet and growing convergence, consumer spend on peripherals is on the rise. A noticeable shift in the PC market is that the consumers started showing a preference to the branded PC vendors against the assemblers in contrast to the past due to the narrowing price difference between them. The second time PC buyers are opting for laptops at the time of their upgrade.

The description and data pertaining to the three major segments of IT industry in India which is presented in the preceding pages shows that the industry is fast growing in the country. But in spite of the growth observed so far, it is estimated that only less than 10 per cent of the addressable market for globally sourced IT-ITES has been captured by the country to date, indicating significant headroom for growth.
2.2.3 Factors Influencing IT Industry in India

The Indian export-oriented IT industry is one of the most successful sectors of the country’s economy. Several factors have contributed to this achievement of the industry. Strong fundamentals including significant cost advantage, a large base of skilled talent, demonstrated quality and service delivery expertise and a congenial environment with GDP growth of over 7% per annum in the last few years and 8% in 2005-06, have ensured that India attracts a disproportionately larger share of the global IT-ITES demand and continues to drive India’s export led growth. The major factors influencing the growth of this industry in the country are discussed in the following section.

2.2.3.1 Cost Effectiveness

Cost effectiveness is the primary factor driving the growth of IT industry in India. India is a very cost efficient destination for this industry. The major reason is the significant difference in wage rates of knowledge professionals in software as well as outsourcing sectors in India and other developed countries. It is complemented by relative advantages in other elements of the cost structure.

Table 7 illustrates the savings achieved in each of the cost structure for a typical ITES/BPO process during 2005, over the cost of undertaking the same process in the US.
### TABLE 7
Comparison of Cost Structure in the US and India

<table>
<thead>
<tr>
<th>Cost Element for a Full Time Employee per year</th>
<th>US</th>
<th>India</th>
<th>Savings in India on US cost base</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Share in</td>
<td>Value</td>
</tr>
<tr>
<td></td>
<td>(USD)</td>
<td>total cost</td>
<td>(USD)</td>
</tr>
<tr>
<td>Personnel Costs</td>
<td>42,927</td>
<td>73.3 %</td>
<td>6,348</td>
</tr>
<tr>
<td>IT/Telecom Costs</td>
<td>2,400</td>
<td>4.1 %</td>
<td>3,770</td>
</tr>
<tr>
<td>Office Facility Costs</td>
<td>3,700</td>
<td>6.3 %</td>
<td>1,991</td>
</tr>
<tr>
<td>Other General and Administration Expense</td>
<td>9,571</td>
<td>16.3 %</td>
<td>1,012</td>
</tr>
<tr>
<td>Total Cost</td>
<td>58,598</td>
<td>100 %</td>
<td>13,121</td>
</tr>
</tbody>
</table>

Source: NASSCOM IT Industry Strategic Review 2005, p.167

As indicated in the above table, the total cost of a full time employee amount to USD 58,598 per annum in the US. The corresponding cost of the same sourced from India is only USD 13,121, delivering a gross saving of 78 per cent on the US cost base. The only element of cost which is higher in India per employee than the US is telecom cost. It is 57% more in India. But it is offset by the higher savings in other sectors.

India’s cost competitiveness stands out even when compared to other popular low-cost destinations. Table 8 gives a comparison with a few competing countries in this field.
### TABLE 8
Comparison of Indian Cost Structure with a Few Competing Countries

<table>
<thead>
<tr>
<th>Element of cost per employee per annum</th>
<th>India (USD)</th>
<th>Philippines (USD)</th>
<th>Malaysia (USD)</th>
<th>China (USD)</th>
<th>Russia (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People Management costs</td>
<td>5,300</td>
<td>5,500</td>
<td>11,000</td>
<td>7,700</td>
<td>14,450</td>
</tr>
<tr>
<td>Recruitment and Training</td>
<td>211</td>
<td>232</td>
<td>232</td>
<td>232</td>
<td>580</td>
</tr>
<tr>
<td>ICT and Utility</td>
<td>992</td>
<td>1,476</td>
<td>1,584</td>
<td>1,584</td>
<td>1,000</td>
</tr>
<tr>
<td>Infrastructure Facility</td>
<td>1,520</td>
<td>1,605</td>
<td>1,900</td>
<td>1,900</td>
<td>2,600</td>
</tr>
<tr>
<td>Tax</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3,350</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,023</strong></td>
<td><strong>8,813</strong></td>
<td><strong>14,716</strong></td>
<td><strong>11,416</strong></td>
<td><strong>21,980</strong></td>
</tr>
</tbody>
</table>

Source: NASSCOM IT Industry Strategic Review 2006 p. 179

As depicted in the table above, India offers the best package with the most competitive cost structures across leading offshore destinations.

#### 2.2.3.2 Manpower

India has emerged as a significant player in the IT industry essentially because of its greatest resource, the largest talent pool of educated and English speaking manpower in the world. Engineers and other graduates account for 72 per cent of the work force of IT industry in India.\(^{27}\) Three-fifths of the Indian technical workforce has more than four years of experience. Thus India is one of the largest producers of the human capital required by this industry. Although much of this human capital is modestly trained, it is one of the few available pools of talent when global demand-supply imbalances increase. The Indian export-oriented IT industry successfully exploited the global imbalances in the availability of knowledge workers. The large and growing pool of skilled professionals has been a key driver of the rapid growth in the Indian IT-ITES
sector. A large, expansive and established network of academic infrastructure in the country was instrumental to this availability of the vast pool of manpower.

The demographic profile also is highly favorable for India. Once considered a liability, our large population and its growth rate have resulted in a demographic structure that provides a unique competitive advantage. With nearly 60 per cent of its population between the age of 15-59 and more than 50 per cent of the total population below the age of 25, India will continue to have a significantly higher number of people in the working age group than in the dependent age group and hence it is very unlikely that India will face a shortage of working age population in the foreseeable future. In contrast, the US, Europe, Japan and China have more aged population with dependency ratios likely to increase over the same period.

2.2.3.3 Infrastructure Facilities

Sufficient availability of quality infrastructure facilities is an important factor influencing the growth of this industry. The various infrastructure facilities required for this industry and their status in the country are discussed below.

1. Telecommunication and Allied Facilities

Telecommunication facilities are the nerve system of the IT industry. The availability of the best telecom connectivity is indispensable for the growth of this industry. Recognising this imperative, the Indian government accords high priority to the development of telecom infrastructure in the country, especially since the economic liberalization. Several major initiatives like the adoption of the National Telecom Policy in 1994, establishment of the Telecom Regulatory Authority of India (TRAI) in 1997 and the implementation of the New Telecom Policy in 1999 were undertaken by the central government.

Due to these reforms which deregulated the Indian telecom sector and allowed private participation, the country witnessed rapid transformation in the
field. From the stature of monopoly service provided by the government, the sector changed into a competitive regime with multiple players, both public and private. Tariffs were reduced substantially. The overall tele-density grew from the less than 2% rate in March 1998 and reached around 14.80% in August 2006.\(^{29}\) The subscriber base increased from 18 million fixed line subscribers in March 1998 to 48.9 million by December 2005. The mobile subscriber base increased from less than one million in March 1998 to 123.44 million at the end of August 2006.

In order to facilitate the augmentation of internet usage and penetration, the Broadband Policy was adopted in 2004. Internet penetration continues to rise steadily with the total subscriber base crossing six million by the end of September 2005. As on 31\(^{st}\) March 2006, the Internet subscriber base touched 69.35 lakhs (nearly 7 million) through the 153 Internet Service Providers (ISPs) that were operational on that date.\(^{30}\)

2. Other Infrastructure Facilities

In addition to the telecom links, major cities across the country have witnessed steady growth in the supply of office facilities required for the industry, hotels and other supporting business infrastructure matching global standards. Though not the sole driver, the IT-ITES sector has been a key contributor to growth in demand for several elements of infrastructure, more directly in business and basic infrastructure including commercial and residential real estate, airline and road transport, and indirectly in organized retail, hospitality and entertainment.

2.2.3.4 Process Quality and Expertise in Service Delivery

Efforts to achieve and improve quality in business process are of great significance in this industry. Continuous striving of the Indian firms to advance in
this regard has created an impact globally. Demonstrated process quality and expertise in service delivery has been a key factor driving India to the leadership in global service delivery. Since the inception of the industry in India, IT firms have been focusing on quality initiatives to align themselves with international standards. Today, India-based centres (both Indian as well as MNC owned captives) constitute the largest number of quality certifications achieved by any single country.

Quality Practices in India

The quality practices in the Indian IT industry have evolved through three distinct stages. The first stage was the creation of basic process to handle all activities relating to order fulfillment. Many companies demonstrated this by aligning their Quality Management Systems (QMS) with ISO 9000 standards. This highly popular certification of the International Organisation for Standardization (ISO) Geneva aims to enhance customer satisfaction and continually improve performance in this regard.\(^{31}\) This ensured consistent and orderly execution of customer engagements and provided a framework for measurable improvement.

The second stage was associated with a focus on software engineering, which was achieved by companies aligning their Quality Management Systems with the Capability Maturity Model (CMM) framework formulated by the Software Engineering Institute (SEI), Carnegie Mellon University, Pittsburgh USA. The CMM is a framework that provides software organizations with guidance on how to gain control of their processes for developing and maintaining software and how to evolve towards a culture of software engineering and management excellence. The assessment which consists of five maturity levels varying from CMM level 1 to 5 establish a yardstick against which it is possible to judge in a respectable way the maturity of an organization’s software process and compare it to the state of the practices of the industry. As of December 2005, over 400 Indian companies had acquired quality certifications with 82 companies
certified at SEI CMM Level 5 – higher than any other country in the world and 90 more companies reported to be in the process of being certified.\textsuperscript{32}

The third stage was driven by the desire to institute processes, metrics and a framework for improvement in all areas including those relating to sales, billing and collection, people management and after sales support. This was characterized by companies aligning their internal practices with People Capability Maturity Model (PCMM) framework and by the use of the ‘Six Sigma’ methodology and other globally renowned quality assessment certifications for assuring ‘end-to-end’ quality in all company operations. The PCMM framework helps organizations to successfully address their critical people issues by continuously improving the management and development of human assets of an organization.\textsuperscript{33} The Six Sigma is a methodology which relies heavily on statistical analysis to provide the organization with techniques and tools to improve the capability and reduce the defects in any process. Six Sigma stands for six standard deviation from the mean. It refers to a statistically derived performance target of operating with only \(3 \cdot 4\) defects for every million activities, opportunities or transactions\textsuperscript{34} i.e. it strives for perfection. The adoption of these stages ensured the quality culture increasingly pervasive in the Indian IT industry.

\textbf{2.2.3.5 Information Security and Regulatory Environment}

Along with the growing importance of IT in the different walks of human life, the incidence and visibility of cyber crimes involving loss or misuse of data across the world is also on the increase. The vulnerability of existing systems and processes to such breaches highlights the importance of a robust security policy and environment-both at the company as well as at the country level. India has advanced considerably in this respect by enacting and updating several rules and regulations with foresight. The significant ones among them are discussed below.
The Key Information Security Regulations

The Information Technology Act 2000 is the primary legislation that outlines the broad policy framework for ensuring the safety of information in India. This is efficiently supported by provisions in relevant laws including the Indian Copyright Act, the Indian Contract Act and the Indian Penal Code.

1. Information Technology Act, 2000

In May 2000, the Indian Parliament passed the Information Technology Bill, now known as the Information Technology Act, 2000. The Act covers cyber and related Information Technology laws in India.\(^{35}\)

Accessing, downloading, copying, and extracting data without authorization or permission is punishable. Tampering with, damaging, manipulating or denying access to any person authorized to access any computer/computer system, introducing viruses or causing disruptions in a computer, wrongful loss or damage or destruction of information, deletion or alteration of any information in a computer network, ‘hacking’, publishing obscene information, and misrepresentation are also included in the scope of cyber crimes and are punishable under the Act. Further the Act deals with breach of confidentiality and privacy stating that any person who secures any electronic record, book, register, correspondence, information, document or other material without prior consent and discloses the information to a third-party is punishable.

Specific initiatives in India are underway to enhance the legal framework through proposed amendments to the IT Act 2000, by increasing interaction between the industry players and enforcement agencies to help create greater awareness about information security issues and facilitate mutual support as and when required.\(^{36}\) A draft of proposed amendments to the Act was made in August 2005\(^{37}\) which is currently under review by the government. It incorporates inputs from a thorough gap analysis of current Indian laws vis-a-vis international laws, as
well as progressive inclusions based on the recommendations of a panel of experts.

2. Intellectual Property Right (IPR) Laws

The importance of Intellectual property is well established in India at all levels - statutory, administrative and judicial. The IPR issue of software is unique because it is easy to duplicate, and the copy is usually as good as the original. In India the Intellectual Property Rights of computer software are covered under the copyright law. That means under the Indian law computer programmes have copyright protection, but no patent protection. India has one of the most modern copyright protection laws in the world with regard to protection of IPR in harmony with international practices and in compliance with Indian obligations under the Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement. The Copyright Act of 1957 was amended in 1994 and 1999. The amendment in 1994 provided computer software and digital technology copyright protection. The amendment in 1999 made it fully compatible with the provisions of the TRIPS Agreement.

IT-ITES companies in India are also required to comply with the basic provisions of the laws like the Companies Act, Foreign Exchange Management Act (FEMA) and FDI Guidelines relating the establishment and operation of any business enterprise in the country with the exception of specific waivers and relaxations introduced to promote the growth of this sector.

2.2.3.6 Incentives Offered to Promote the Industry

Progressive policy reform in the post liberalization era was a key contributor to the stellar growth of the Indian economy over the past 15 years. The policy of reforms followed by Government of India in the post 1991 period recognizes the important role of foreign capital in the industrial and economic
development of the country. Foreign capital inflow is encouraged not only as source of financial capital but also a facilitator of knowledge and technology transfer. To suitably exploit the potential of IT industry for India, the investment climate in the country is made attractive by offering various incentives.

**The Different Incentive Schemes**

In order to create a suitable investment climate and to promote the growth of IT industry in India, the central and state governments have introduced a range of incentives, concessions, subsidies and simplification of procedural requirements for companies operating in India. These include relaxation of policies relating to inbound and outbound investments, exchange control relaxations, incentives for units located in a Domestic Tariff Area (DTA) or under Export Oriented Units (EOU)/Software Technology Parks (STP)/Special Economic Zones (SEZ) and Electronic Hardware Technology Parks (EHTP) schemes; and state level incentives, waivers and subsidies. The major incentives offered by the central government are the following.

1. **Income Tax Holiday**

   To foster balanced regional economic growth and to promote inflow of foreign exchange, attractive exemptions and concessions in respect of Income Tax are available to IT-ITES companies if they are set up and operated under approved schemes of Government of India like STP, EOU and SEZ schemes.

   Under STP/EOU scheme Income Tax holiday is available for a total period of 10 years up to March 31, 2009 on 100% of export profits. Under the SEZ scheme Income Tax holiday is available for a total period of 15 years from date of commencement of manufacturing provided the unit commences manufacture after April 1, 2005, subject to 100% of export profits for the first five years, 50% for
next 5 years and up to 50% for balance five years (subject to transfer of profits to specific reserves).  

2. **Service Tax Exemptions**

   The software industry has generally been kept out of the ambit of service tax vide definitions of the various taxable services or vide notifications/circulars issued by the Central Board of Excise and Customs (CBEC). Definition of ‘business auxiliary services’ specifically excludes information technology services from the purview of service tax.

3. **Excise and Customs Concessions**

   In line with honoring international commitments, the central government has exempted 217 items specified under the Information Technology Agreement imported into India from the levy of basic customs duty. Further, IT software manufactured in India attracts nil rate excise duty. Microprocessor for computers (other than motherboards), floppy disc drive, hard disc drive, CD-ROM drive are exempt from excise duty. CD-ROMs containing books of educational nature, journals periodicals, or news papers are also exempt from excise duty.

4. **‘Served from India’ Scheme**

   Service providers having a total foreign exchange earning of at least Rs.10 lakhs in the preceding or current financial year are entitled to a duty credit equivalent to 10 per cent of the foreign exchange earned by them in the preceding financial year.

5. **Beneficial Depreciation**

   Beneficial depreciation provisions have been provided to enable IT-ITES companies to claim depreciation on computers and computer software at a higher rate of 60 per cent of written down value at the beginning of the relevant financial year for income tax purposes. Therefore, under the written down value method, 84
per cent cost of computers and software can be depreciated in the first two years. This has been specifically done in view of the high pace at which the computer/software technology gets outdated.

6. Concession in Respect of Fringe Benefit Tax (FBT)

Chapter XII-H of the Finance Act 2005 introduced a Fringe Benefit Tax (FBT)\(^{32}\) that is payable by all employers at the rate of 30 per cent on the prescribed value of fringe benefits deemed to have been provided by the employer to the employees. The chapter lays down an exhaustive list of expenses of which, the 20 per cent of the cost incurred or payment made by the employer are deemed as fringe benefits. In order to support this industry, a concession in the FBT rates has been accorded for the employers engaged in the business of manufacture or production of computer software. In their case the deemed fringe benefits would be valued at 5 per cent of the amount incurred instead of 20 per cent.

7. State Level Incentives, Waivers and Subsidies

Most state governments in India have announced special promotional schemes offering various packages of incentives and procedural waivers for the IT-ITES sector. These schemes focus on the key issues of infrastructure, electronic governance, IT education and providing a facilitating environment for increasing IT proliferation in the respective states. While these are state specific initiatives, there is a fair degree of uniformity across states as newer locations have modeled their schemes on those offered in the states that have successfully nurtured a thriving IT-ITES industry.

A majority of the states have either promulgated a government order or a notification permitting all establishments in the respective jurisdictions engaged in IT-enabled services including call centres to work on national holidays, allow women to work in night shifts, and offices to function 24 hours a day all through the year. Further, to leverage private sector investments, the state governments
have proactively come out with several special incentive schemes and concessions. Most states in India have STP schemes and SEZ schemes offering world class infrastructure with reliable data communication facilities.

2.2.4 Socio-Economic Impact of the Growth of IT

The rapid growth of IT industry has a significant impact on the socio-economic dynamics of the country. The Indian IT success story has not only highlighted the nation’s attractiveness as an investment destination, but also contributed in several other spheres of nation building. The penetration of ICT is reshaping the way work, markets and leisure will be organized and the way in which individuals and communities can trade and access information and services, leading to changes in the structure of markets, improvement in the quality of life, a deepening democracy and major advances in terms of human development indicators.

The industry’s contribution to the country’s national GDP, employment creation and export earnings are noteworthy. The industry’s contribution to the national GDP has risen from 1.2 per cent in 1999-2000 to 4.8 per cent in the 2005-06.\textsuperscript{43}

The most significant impact of growth in the industry is the increase in the employment generation effected by the industry. In 2006 this industry employed over 1.3 million people as against 2.84 lakhs in 1999-00. It is estimated that by 2010 the demand for professionals in this industry will cross 2.3 million.\textsuperscript{44} The sector has risen to become biggest employment generator in the Indian economy. It has spawned a number of ancillary businesses such as transportation, real estate and catering and has contributed to a rising class of young consumers with high disposable incomes.

In addition to the 1.3 million strong workforce employed directly in the industry, the industry is estimated to have created an additional 3 million job
opportunities through indirect and induced employment in the fields of telecom, power, construction, facility management, IT transportation, catering, security and house keeping and other services.\textsuperscript{45} Induced employment is driven by the consumption expenditure of employees on food, clothing, utilities, recreation, health and other services.

The rapid hike of wages in this sector raised the wage premium to human capital and in turn the demand for education. The demand for and supply of education sharply increased in the 1990s, accelerating growth in the country’s human capital.

The export oriented IT industry is a major contributor to the foreign exchange earnings of the country. Export earnings accounted for 64 per cent of the total IT-ITES aggregate in 2004-05. IT-ITES exports from India grew from USD 13.3 billion in 2003-04 to USD 18.2 billion in 2004-05 and has exceeded USD 23.9 billion in 2005-06.\textsuperscript{46}

The total value of tax deducted at source (TDS) by the IT-ITES industry in 2003-04 amounted to USD 226 million (over INR 10 billion).\textsuperscript{47} Of this taxes deducted on salaries paid alone accounted for over USD 173 million (nearly INR 8 billion).

The sudden increase in disposable income in the hands of a relatively young generation is contributing to the rapid growth in consumer demand in the fields like passenger cars, two-wheelers, mobile phone, and real estates. Further this industry accounts for an estimated 26 per cent of the hotel room occupancy in the metro cities and over 18\% of all airline seat capacity which are higher than any other single sector of the economy.

In a sense the software industry has produced a new kind of capitalist class in India. Most of the founders of software firms have come from the middle class, building on their cultural capital of higher education and on the cultural and social capital of knowledge and networks acquired through professional careers as
software professionals/managers in majors IT companies. The middle class origins of many of the entrepreneurs have lent a distinctive culture and orientation to the industry.

Entrepreneurs, rather than bureaucrats, became the new role models, spreading the message that one could make substantial wealth, but without the manifest corruption associated with business. For India whose public and private sectors have both been less than a paragon of virtue this realization is revolutionary.

State governments have begun to compete with each other to the extent that IT is emerging as the wedge, driving reforms in a country whose political economy would otherwise make change even less likely. Some of the lesser observed impacts of the IT revolution include the evolution of e-governance and the potential it holds for narrowing the digital divide between urban and rural India.

The use of ICT in the agricultural, non ICT manufacturing and services sectors is expected to fundamentally transform the nature of production in these sectors with major implications in terms of labour productivity, growth and employment.

With India’s software industry moving upwards to higher value-addition, its success has spilled over into other knowledge-based services. Capabilities built up in software can be leveraged in other high-technology fields such as bio-informatics, pharmaceuticals, and media and entertainment.

If a country is to succeed, it needs to have the confidence that it can succeed. The IT industry may just possibly have served that purpose for India. Increasing India’s confidence in herself may be IT’s largest contribution to the nation’s socio-economic development.
2.3 IT Industry in Kerala

The most significant structural transformation in Kerala’s economy during the last two decades was the relative decline of the traditional agriculture as well as industrial sectors and the rapid rise of the service sector. Although the traditional sectors continue to contribute a fairly sizable part of the State’s GDP, their ability to generate surpluses and new employment opportunities is limited and the primary growth impetus in recent years has come from the service and tertiary sector. Therefore the growth and employment strategy for Kerala in the coming years would have to focus on the development of new sunrise sectors, particularly the service and knowledge sectors like IT, where the State has inherent core competencies and high growth prospects.

IT is characterized by its two distinct roles. In the first role it functions an industry sharing attributes common to other industries like employment generation, capital investment and contribution to domestic income. In its other role, IT is a service, catalyst and tool, much like other instruments such as education or health services that scale to improve the quality of life of citizens of the country. Accordingly the investment in ICT sector in the State covers areas like Industrial units, Physical and Information Infrastructure, Training and other services, E-governance and ICT for Development.

2.3.1 Origin of the Industry in the State

Kerala is one of the states to make pioneering attempts towards developing electronics industry which was the forerunner of IT industry, at the regional level as early as in 1972. Accordingly substantial investments were made by the State in setting up of Kerala State Electronics Development Corporation (KELTRON). KELTRON was engaged not only in the production of wide range of electronics equipments and components but also in the promotion of electronics industry in the State. In the later years KELTRON was not able to adapt to the dynamics of
change in the going business environment which affected the operations of the corporation very adversely. But from this experience in the field of electronics, the State understood the tremendous potential offered by software development as an industry in creating maximum employment opportunities with comparatively less capital investment. At that time apart from Electronic Research and Development Centre, Govt. of India (ER and DC) and KELTRON, software development on a commercial basis was practically non-existent in the State. The growing level of unemployment among the educated manpower of the State induced it to take concerted efforts to develop this skill based people intensive industry. Accordingly in 1989 the Government constituted a Working Group to look into the possibility of establishing technology parks in Kerala. The Working Group entrusted Tata Consultancy Service (TCS) to make a study and submit a pre-feasibility report. TCS studied the functioning of such parks in Singapore, Taiwan and other parts of the world and a report was submitted to the Government in April 1990 based on which Technopark was registered as an autonomous society on 28th July 1990. The detailed project report for Technopark was submitted by TCS in June 1992. Construction of the buildings started in April 1993. Companies started operations from the first building in October 1994. Technopark, the first Electronics Technology Park in India was dedicated to the nation on 18th November 1995. With the setting up of the park, the State witnessed a substantial improvement in the software development activity.

2.3.2 Suitability of IT Industry for Kerala

Kerala has long been ailing from the problem of unemployment/underemployment of the educated manpower. The number of job seekers in the live register of employment exchanges in Kerala as on 31.12.04 was 37.56 lakhs which increased to 37.86 lakhs by June 2005. Of these only 18% were below SSLC qualifications. The tenth five year plan (2002-07) targeted to bring down
the unemployment rate from the level of 20.4% in 1999-2000 to 10% by 2007 and near zero by 2012. The role of IT industry which is an intelligence intensive as well as labour intensive industry is crucial for addressing the question of the educated unemployed. Hence its development suits a State like Kerala where there exists a vast source of unutilized/underutilized manpower.

Availability of natural resources is not a significant requirement for IT industry’s development. Given the ease with which almost all IT products and services that could be delivered anywhere in the world, proximity to markets is also not an essential requirement for the development of this industry. The fact that IT industry exerts very little pressure on land is of high importance to Kerala where the land-man ratio is the lowest among all the Indian states and no unused land exists. IT industry has the highest employment generation potential per unit of investment among the modern industries. It is also an environment friendly and less energy intensive industry.

The State has universal literacy and exposure to the different media. High proportion of citizens living outside the State who are exposed to the best from the latest in terms of products, services, technologies and life styles has a strong ‘demonstration effect’ on those living in the State. Further the high degree of awareness of and willingness to adapt the latest, and high tolerance for cultural diversities also make the State a fertile field for the growth of the industry.

Kerala has the highest density of science and technology personnel in India. It has the lowest employee attrition rate among all the IT industrial destinations of the country. Probably the biggest advantage that the State offers is in the cost factor. In the State the fully burdened cost is just $8 per hour, compared to the global average of $15, and salaries are only one fifth of the international average. The start up and operational cost are less than 50% when compared to other Indian cities, rentals are lower by 60% of those other major IT parks in the country. The power and water tariffs are one of the lowest in the country.
The Draft Plan Guidelines of the State Planning Board declare that the central objective of the 10th Five Year Plan is “to reverse the trend of low growth and to take bold and positive steps to increase investment, efficiency or resource use and employment for making the State attain a leading position in infrastructure, economic growth, social justice and human development by the year 2010.” On employment the guidelines affirm that “the core objective of the plan will be reduction in unemployment. For this, a labour intensive growth strategy suited to the needs of the educated labour force of Kerala has to be followed.” Thus what the State has and what it needs find a match in the IT industry. If a congenial atmosphere is created and supported by the right mix of policy measures, IT has the potential to emerge as a leading sector which will accelerate the growth momentum of the economy and will provide employment opportunities to our educated manpower.

2.3.3 Performance of the Industry in the State

In spite of the several suitabilities of the State for this industry, the performance of the industry in Kerala is frustratingly low. This is clear from Table 9 which compares the number of registered IT industrial units and the export revenue earned in respect of the State with that of the three neighboring States.
TABLE 9
Performance of IT industry in Kerala, Andhra Pradesh, Tamil Nadu and Karnataka

<table>
<thead>
<tr>
<th>Year</th>
<th>Kerala</th>
<th>Andhra Pradesh</th>
<th>Tamil Nadu</th>
<th>Karnataka</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>Exports (Rs.Crores)</td>
<td>Units</td>
<td>Exports (Rs.Crores)</td>
</tr>
<tr>
<td>97-98</td>
<td>23</td>
<td>26.41</td>
<td>112</td>
<td>284</td>
</tr>
<tr>
<td>98-99</td>
<td>59</td>
<td>53.00</td>
<td>194</td>
<td>574</td>
</tr>
<tr>
<td>99-00</td>
<td>194</td>
<td>66.64</td>
<td>977</td>
<td>1,059</td>
</tr>
<tr>
<td>00-01</td>
<td>219</td>
<td>112.37</td>
<td>1,206</td>
<td>1,917</td>
</tr>
<tr>
<td>01-02</td>
<td>250</td>
<td>147.00</td>
<td>1,322</td>
<td>2,907</td>
</tr>
<tr>
<td>02-03</td>
<td>277</td>
<td>165.00</td>
<td>1,401</td>
<td>3,668</td>
</tr>
<tr>
<td>03-04</td>
<td>301</td>
<td>248.55</td>
<td>909</td>
<td>5,025</td>
</tr>
<tr>
<td>04-05</td>
<td>336</td>
<td>300.00</td>
<td>1,061</td>
<td>8,270</td>
</tr>
<tr>
<td>05-06</td>
<td>387</td>
<td>443.00</td>
<td>1,234</td>
<td>12,521</td>
</tr>
</tbody>
</table>


The table gives the details of number of IT industrial units registered and their exports from Kerala, Andhra Pradesh, Tamil Nadu and Karnataka for the last nine years. It can be seen that in all these years Kerala is much behind the other three States in both the aspects.

2.3.4 Major Factors Influencing the Industry in the State

Several factors influence the growth of IT industry in the State. From them six major factors having special significance in the context of Kerala have been identified through the survey of various literature and discussions with industry experts. Each of these factors is constituted by a number of variables. The important factors and their variables identified for detailed exploration in this study are discussed below.
2.3.4.1 Manpower Supply in the State

IT being a people intensive industry, the quality and availability of human capital in a place exerts much influence on the growth of the industry. The manpower requirement of this industry is unique. The IT professionals are expected to possess good academic knowledge and technical skills in computer operations. Apart from this they are expected to have a handful of other traits which are collectively known as ‘soft skills’. Aspects like managerial ability, leadership skills, human relations skills, aptitude for team work, linguistic and communication skills especially in English, logical thinking and values for the exercise of the profession constitute the soft skills. The nature of work in this field call for lot of team work, keeping smooth and cordial human relationships, accepting challenges, managing changes, sharing of responsibilities, handling different and difficult situations, effective communication with subordinates, peers, superiors, and clients and that make soft skills an essential requirement of IT professionals. The cost of the human resource available in a place and the rate of attrition/retention also have become pertinent issues now. The availability of such suitable manpower in plenty in an area makes it attractive for the industry.

Kerala has an edge in this respect over the other states. The State is in the forefront in the creation of IT literate and technically competent manpower which is a prerequisite for the development of an indigenous IT industry. The State’s higher education system comprises of 7 universities and 2 deemed universities. At the end of 2005 there were 356 arts and science colleges. There were 84 engineering colleges with a sanctioned intake of 23,196 seats in a year. There were 31 institutions conducting MCA course with an annual intake of 1520 students. These numbers are on the increase year after year. Added to this is the large number of Keralites graduating in engineering and other related areas from institutions outside the State. This scenario gives the State an advantage in the manpower requirement of the industry.
2.3.4.2 Infrastructure Facilities in the State

To a great extent, the success of any effort in developing and promoting IT industry is dependent on the availability of quality infrastructure facilities. Typically the IT industry worldwide tends to be centered in and around large metros and developed urban centres, where the availability of good physical infrastructure would be an important prerequisite. The position of the State in the fields of important infrastructure facilities needed for the industry are presented below.

1. IT Parks

It was from the understanding that concerted efforts are required to improve the infrastructural framework existing, that the State started promoting IT parks with all in built infrastructural facilities from the beginning of 1990s. Technopark at Thiruvananthapuram and Infopark at Kochi are the major contributions of the State in this regard. They offer state of the art built in office space and data communication facilities needed for the industrial units. Recently two small scale IT parks, namely the Technopolis and Techtower were promoted by the private sector at Kochi.

There is a long pending proposal of establishing a world class IT township named as ‘Smart City’ in the premises of the Infopark campus under the joint venture of the State government and the Dubai-based Technology and Media Free Zone Authority (TECOM) with the main objective of generating large scale employment opportunities in a phased manner in ten years. On 13th May 2007 the final agreement for the implementation of the project was signed between the State and TECOM. When implemented the project is expected to provide a fillip to the IT infrastructure as well as employment opportunities in the State.
2. Telecommunications

Telecommunication facilities are the nerve system of the IT industry. The availability of the best telecom connectivity is indispensable for the growth of this industry. Kerala has the unique connectivity advantage of being the landing point of two major international submarine cables at Kochi namely SEA-ME-WE-3 (South East Asia- Middle East-Western Europe) and SAFE (South Africa and Far East) cables linking to more than 30 countries including US, Europe, China, the Gulf countries and the Far East facilitating high bandwidth data transmission. These cables offer 15 Giga bytes per second (Gbps) data transmission capacity. Technopark has an additional linkage to a third high speed international submarine cable namely the FLAG which connects 134 countries and has its landing point in Mumbai, through an arrangement with the Reliance Internet Data Centre. The VSNL’s primary international gateway in India is in Kochi which leads to better reliability and reduced tariffs. This gateway handles close to 70% of the country’s internet traffic and in fact are used to support cities including Bangalore. The State has extensive fiber optic network which reaches right down to the block level.

Kerala is the first State in India to fully automatise all telephone exchanges, the first to link all exchanges through STD facility, the first to provide public telephone facilities in every village. Most of the telephone exchanges have ISDN capability. The State’s tele-density is double the national average. These represent a formidable backbone for the making of a fully networked intelligent State. BSNL and private mobile phone operators like Idea Mobile, Airtel, Hutch/Vodafone, Bharati Cellular, Reliance, and Tata are operating in the State.

3. Internet and PC Penetration

There is a spurt in the use of internet and computers in the State. At the end of 2005 the total internet connections in the State is approximately 2.5 lakhs (2,33,319 as on 30.09.2005). Broadband service has been introduced at all
Secondary Switching Area headquarters and is being extended progressively to other towns also. On 30.09.2005 there were 5952 connections. More than 10 Internet Service Providers (ISPs) are operating in the State.\(^{64}\)

There has been a surge in the sale of Personal Computers and accessories in the State. Besides commercial use, PC is now being considered as an aid for education and entertainment by household users. The sale of hardware is also growing in the State.

4. **Transport Infrastructure**

Transport system of the State consists of 1.54 lakh kms of road, 1148 kms of Railways, 1687 kms of Inland Waterways and 111 statute miles of Airways and one major and 17 minor ports.\(^{65}\) The National Highways in Kerala which is spread over a length of 1525.570 kms in 2004-05 equals 2.3% of the total NH length of the country. On the road front, traffic has been growing at a rate of 10 to 11 per cent every year resulting in excessive pressure on the road in the State. The railway network in Kerala is only 1.818 per cent of the national network in 2003-04. The rail route length has remained stagnant in the State for a number of years.

Kerala has three international airports at Thiruvananthapuram, Kochi and Kozhikode.

5. **Other Infrastructures**

Supporting infrastructure facilities like good schools, health care institutions and hotels also have an influence on this industry. The school education infrastructure in the State in 2005 consisted of 6,827 Lower Primaries, 3042 Upper Primaries and 2781 High Schools following the state syllabi. Besides there were 483 CBSE schools, 78 ICSE schools, 26 Kendriya Vidyalaya and 13 Jawahar Navodaya Vidyalaya. Higher Secondary (Plus Two) course has been conducted in 1656 schools and the Vocational Higher Secondary courses in 375 schools.\(^{66}\)
The number of classified hotels in the State in 2004 was 204 with 7011 rooms available. The health care system of the State consists of allopathy, ayurveda and homoeopathy. The three systems of medicine together have 2696 institutions in the government sector alone with 48,834 beds. The private sector which runs medical institutions several times more than the government sector plays a key role in this field.

2.3.4.3 Government Policies and Support

No industry can survive without governmental support and patronage. The IT industry is no exception. In the case of this industry, many of the States in India are competing to attract investment by framing suitable policies and offering incentives and other needed supports. For Kerala too, bold and imaginative policy initiatives are a pre-condition for exploring the possibilities of this industry. The government has taken several steps in this regard. The major initiatives of the State government to support this sector are taken through its IT and labour policies. Through the implementation of these policies the government envisages to extend its support to the investors.

1. IT Policy 1998

Govt. of Kerala’s first IT Policy was announced in 1998 and consequently, the Department of IT was constituted to co-ordinate, monitor and facilitate the initiatives to implement the objectives envisaged in the IT Policy.  

2. IT Policy 2001

In 2001 the Information Technology Department came out with a new IT Industry Policy revising the earlier one. This policy recognizes the potential of the IT industry to transform the economy of the State and envisages the role of government as being primarily that of a facilitator for creating an enabling environment where the energies of the private sector and of civil society can be
most effectively deployed. Through this policy the government aims to put in place a package of supportive measures and incentives, which would make Kerala one of the most attractive investment destinations for IT industry.68

The policy initiatives delineated in this document comprise a three pronged strategy aimed at (1) creating an appropriate pro-business, pro-enterprise, legal, regulatory and commercial framework to facilitate the rapid growth of IT industry in the State (2) establishing Kerala as a global centre for excellence in human resource through the creation of a large pool of diverse, multi-skilled, technically competent manpower in the State and (3) establishing an internationally competitive business infrastructure and environment for the industry in the State, on par with the best facilities and practices worldwide.

In line with these broad strategies, the government have set up immediate objectives for the promotion of the IT industry in the State such as:
(1) to establish Kerala as a leading IT destination in the country within five years
(2) to provide a nurturing and enabling environment conducive to the vigorous growth of the local IT industry in the State
(3) to significantly enhance direct and indirect employment creation in the IT sector
(4) to attain a minimum growth level of 100% every year in IT
(5) to significantly accelerate the levels of investment inflows including foreign capital into the hardware, software and ITES sectors
(6) to aggressively promote the State as the destination of choice for emerging IT business opportunities and to establish ITES as the definitive core competence of the State and
(7) to develop Kochi as an international ICT hub.

The policy measures delineated in it addresses the two broad objectives of providing adequately trained manpower to meet the requirements of the IT industry and to upgrade the productivity, skill and knowledge levels of the
The IT Policy of 2001 released a scheme known as IT industry incentive scheme to be effective for a period of four years from 1st of December 2001. Following are the major incentives offered:

1. An investment subsidy ranging between 20 to 40 % on fixed capital investment subject to a ceiling between Rs. 25 to 40 lakhs depending upon the number of employees employed.

2. A flat one time incentive payment of Rs. 50 lakhs for companies employing a minimum of 250 permanent employees and set up operation in Kerala before 30th June 2002.

3. A special one time incentive of Rs. 5 lakhs to companies which obtain the specified quality certifications.

4. The Policy offers special customized incentive packages to companies that seek to employ a minimum of 500 employees.

5. Exemption from stamp duty, registration fee and the transfer duty of land for infrastructure developers.

6. Rebate in the cost of land allotted by KINFRA to an IT industrial unit at Rs. 20,000 per job created.

3. IT Policy 2007

In attempting to revise the policy of 2001, the government has come up with a new IT Policy in the first half of 2007. This policy aims to turn Kerala into a knowledge society with sustainable economic growth. The policy contains proposals to make use of ICT to ensure transparency, efficiency and quality of service to the citizens of the State, to create a favourable climate in the State for increased investments in ICT, ITES and knowledge based industry sector, to make
Kerala the cradle of highly skilled manpower for the knowledge based industry, to develop law enforcement mechanisms to detect and prevent cyber crimes, to establish an international centre for free software development and to promote free and open source software especially in e-governance programmes, to start an ITES training centre at Kochi and extension of internet to all educational institutions and villages by 2010 etc. among others. It offers special fiscal incentives to companies commencing operations outside the main IT hubs of Thiruvananthapuram and Kochi. The other fiscal incentives offered are mostly in similar lines with that of the 2001 policy. These incentives shall remain in force for a period of five years with effect from 1\(^{st}\) December 2005.

4. Labour Policy 2001

The major objectives of this policy were the following.\(^70\)

1. Adopting a new labour policy for the State which is responsive to the changing needs of the labour and industry
2. Creating a favourable environment facilitating industrial promotion
3. Promote ideal employee-employer relationship
4. Rapid employment generation through enhanced private and public investment

2.3.4.4 Contribution of the IT Promotional Agencies

The Government of Kerala is the primary body working for the growth of IT industry in the State. The government is attempting to develop this industry through the contributions of the different promotional agencies functioning in the State for the purpose. These agencies try to attract investments and IT industrial units to the State by propagating Kerala’s suitabilities and advantages for the industry. They provide state-of-the-art built up office space and communication infrastructures required by the units. They distribute the incentives offered by the
State in its IT policy to the eligible industrial units. They serve as the link between the industry and the government and work for the dissemination of IT to the grass root level. The major promotional agencies functioning in the State and their contributions to this industry are briefed below.

1. The Department of IT

There is a separate portfolio and department in the State for Information Technology. It controls and directs the IT related activities in the State. The department of IT is supported by and functioning through the Kerala State Information Technology Mission (IT Mission).

2. IT Mission

The IT Mission is a society registered under the Travancore Cochin Literary, Scientific and Charitable Societies Registration Act 1955. With its headquarters at Thiruvananthapuram it is an autonomous nodal IT implementation agency for the department of IT, Govt. of Kerala which provides managerial support to the department’s various initiatives. IT Mission’s responsibilities are interfacing between the government and the industry from a business perspective, interacting with the potential investors, enhancing the IT industry base, ICT dissemination among the State citizenry to bridge the digital divide, promoting E-governance, developing HR for IT and ITES, and advising the government on policy matters.

3. Technopark

Electronics Technology Parks-Kerala, popularly known as Technopark, which is situated at Kazhakoottam near Thiruvanaanthapuram was registered on 28th July 1990 as an autonomous society under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act 1955. Technopark is India’s first successful experiment in the Science Park movement, as a powerful tool for
regional economic development, bringing together industry, institute and government. It is the fulfillment of a strategy that the Kerala Government dared to sketch years ago, even before the days of economic liberalization as well as the Software Technology Parks scheme of the Government of India.

Technopark at Thiruvananthapuram is a Capability Maturity Model Integration (CMMI) Level 4 organisation, the first park in India achieving it. The park is spread over nearly 300 acres with 1.5 million sq. ft built up space which is leased to IT and ITES companies. In February 07 another 6 lakh more sq. ft of built up space is made available in the new building named as Thejaswini. The existing buildings are named after the enchanting rivers of Kerala such as Pampa, Periyar, Nila, Chandragiri, Gayathri and Bhavani. The supports available at all these buildings include central air-condition for the units functioning, 100% power back up with stand by generators, restaurants, covered and open car parking lots, enough number of passenger and passenger cum freight lifts, and common toilets. All the buildings have electrical cables, data lines, sewage lines, water supply, maximum light and ventilation facilities, central fire fighting system and building security services.

Apart from the industrial modules Technopark has other ancillary support facilities like Park Centre, Restaurant, Guest House, Club House and shopping malls. Park Centre is the support facilities complex. It houses the reception, administrative wing, business incubators, conference hall, library, exhibition space. It is also home to the Indian Institute of Information Technology and Management, Kerala (IIITM-K). A 110 K V electrical sub station is established in the premises to ensure quality power supply.

At the end of 2005 the campus is host to over 108 international and domestic companies including one Capability Maturity Model Integration (CMMI) level 5 and People Capability Maturity Model (PCMM) level 5 company each, four Capability Maturity Model (CMM) level 5, two CMM level 3 and over 15
ISO 9001 certified companies with a total investment of Rs. 634.25 crores. The exports from Technopark has crossed Rs. 350 crores and the employment is over 12, 500 IT professionals. Of the companies in the park 30 per cent are US based, 40 per cent from Europe, 5 per cent from Middle East, 20 per cent from within Kerala and the rest 5 per cent from outside Kerala.74

Government has exempted the campus from many clearances. Technopark acts as a single point contact for most of the Government of India clearances and approvals. Single window service of Technopark facilitates interface with various agencies, right from taking space in the park to power and water connections, and telephone connectivity.

The first phase of the park was constructed on an area of 156 acres. During 2004-05 eighty six acres of land was acquired for further expansion of the then existing campus. This 86 acres was declared by central government as a Special Economic Zone. The process of acquisition of 100 acres in the same area is at the final stage. As and when the acquisition process of this 100 acres is completed, it will also be added to the Special Economic Zone. Besides the space allotted to companies in the buildings of the park, land for constructing own buildings by companies also was allotted. Accordingly a total of 145.15 acres of land has been allotted to 13 companies including the 40 acres to TCS, 50 acres to Infosys and 36 acres to US Technologies. Further a proposal for the acquisition of 500 acres of land at Pallipuram, a near by place, for creation of knowledge city with private participation is also under consideration.

Technopark has established a Technology Business Incubator (TBI) with funding from Department of Science and Technology, Government of India for incubating successful knowledge. The project involves identifying the business opportunities in advanced technology and undertake entrepreneurship development activities, offer assistance to the start up entrepreneurs in building small and medium enterprises (SMEs) and micro enterprises through the concept
of technology and business incubation. This facility helps entrepreneurs transform innovative ideas into commercial success by availing facilities starting from ready-to-move in office space to mentoring, business consultancy and advisory services. It tries to foster the start up and growth of technology-based businesses. The different modules available for occupation at the Technopark business incubation centre (T-BIC) are 20 seats, 16 seats, 8 seats and 4 seats.

4. Infopark

Infopark established at Kakkanad Kochi is a project of the Kerala State IT Mission. Infopark was registered as a society under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act 1955 on 27th October 2004. The park spreads over in an area of 91.90 acres of land and has a built up area of 3.5 lakh sq.ft in its two IT buildings namely Thapasya and Vismaya. In the campus the ‘Leela group’ has commissioned a 3,50,000 sq. ft multi tenanted facility on land leased out by the park. An area of 25.18 acres has been leased out to Wipro to establish their own campus. Another 4 acres has been allotted to Larsen and Tubro (L&T) for constructing building for renting out to IT entrepreneurs. As at the end of 2005 the total number of companies was 35 which invested an amount of Rs. 80.43 crores, employed over 1400 people and made export worth Rs. 32.00 crores. The Smart Business Centre in the park offers incubation facility for start up entrepreneurs.

5. Software Technology Parks of India - Thiruvananthapuram (STPI-T)

The Software Technology Parks of India (STPI) is a society set up by the ministry of Communication and Information Technology, Govt. of India in 1991 with the objective of encouraging, promoting and boosting the software exports from India. It has units in almost all States. The concept of STP scheme was evolved with the objectives of establishing and managing infrastructure resources needed for the industry, providing single window statutory services such as project
approvals, import certification, software valuation and certification of exports for software exporters. The STPI scheme is a 100% export oriented scheme for the development and export of software.

The STPI-Thiruvananthapuram was established in 1992. In the State their performance is more of a regulatory nature. They are the registering authority for the IT companies functioning in the State. Since the STPI-T came into existence 387 companies have been registered and by the end of 2005-06, 139 companies are exporting software regularly.\textsuperscript{77} Because of the very low investment requirement of just Rs. 5 lakhs and the incubation facility in the STPI-T complex, it is one of the most favorable locations for small and medium level export oriented companies. It has opened an office at Infopark Kochi campus also.

6. Special Economic Zone (SEZ) Kochi

The Special Economic Zone at Kochi is a multi-product zone which is run directly by the Government of India. Though not exclusively dedicated to this industry, it also is a major agency trying to promote the industry by becoming home to several IT industrial units and a recently commissioned private sector IT park in its campus. As on March 2006, 20 IT industrial units with an investment of Rs. 17 crores function in the SEZ employing 1388 IT professionals.\textsuperscript{78}

2.3.4.5 Investment Climate in the State

Investment climate prevailing in a place is a crucial factor affecting the growth of industries in that area. Good investment climate prevailing in a place is capable of attracting industries and investments towards it. On the other hand if the investment climate is obstructive, growth of industries in the place would be difficult, even if the place has got several other suitabilities.

Investment climate means the institutional, policy and regulatory environment in which firms operate.\textsuperscript{79} Investment climate in a place is a function
of several aspects. The quality and skills of the manpower, supply of infrastructure, and regulatory policies discussed in the preceding sections play a major role in shaping it. Besides these, in the context of Kerala, several other elements also could make strong impacts on the investment climate of the State.

The image of the State among the investment community at large is very important. There is a strong perception in the world outside that Kerala is not an industry friendly State. Another element is the occurrence of bandhs, hartals and strikes of different sorts badly hitting the normal social life which has become very frequent in the State. State wide, district wise or even block or panchayath level bandhs, hartals and other strikes have become the most common method of exhibiting protest to some causes by political parties, trade unions, and such similar organized groups. The Hon. High Court of the State declared bandhs as illegal. Even then they are taking place in the name of hartals or such similar names. When such incidents take place vehicles keep off the road, most of the offices, educational institutions and shops remain closed. People are forced to remain at home abstaining from work. The productivity of the State as a whole is affected due to this. Practically no week passes in the State without witnessing the occurrence of these types of anti-social incidents. To give a recent example, nine such hartals turned bandhs took place in the State during the month of January 2007 alone. The impact of such unhealthy practices on this industry could be very severe. In an IT industrial unit when employees are unable to turn out for duty due to these distractions, the whole schedule gets affected. Non-completion and delivery of projects, services or products within the time schedule are detrimental to the vendor companies.

Similarly there is a widespread contention that the State’s industrial scene is characterized by militant trade unionism and unlawful practices. The trade unions in the State are infamous for their militant approach against the management and entrepreneurs in case of disputes. Numerous examples are
available in the State for the closure of different types of industrial units due to the prolonged strikes by the employee’s unions. Similarly the rudeness of trade unions of loading and unloading labourers resulted in the stoppage of different types of construction works for long time. In several such cases the outcome was the abandoning of the project itself by the promoters.

It has almost become a curse for the State that allegations and controversies on different grounds arise from various corners like environmentalist, political and social organizations and other similar lobbies whenever a major investment or developmental proposal comes up. The ‘Smart City’ project aimed to expand the Infopark into a world class IT campus with the co-operation of Dubai-based Technology and Media Free Zone Authority (TECOM) and the ‘Express Highway’ project which proposed to bridge the north and south ends of the State with a world standard highway are only latest examples to this tendency. This tendency may affect the investment climate.

For the advancement of any industry, sufficient and continued patronage from the political arena irrespective of governments in power is required. The experience of the State which has been ruled alternatively by the two different coalitions is that when government changes, the policies, focus and attitude towards industries also change. This could create hesitations in the minds of prospective investors.

In the past many entrepreneurs operating in the different types of industries in the State underwent several unnecessary hardships in their functioning from various corners. Such bitter experiences have compelled several of them to even shift their units from this State to the neighboring States.

The people of the State want industrialization and its benefits but at the same time they have an indifferent attitude towards those elements hindering the investment climate. Such things seem to be left as the sole responsibility of the government. For example whenever a call for hartal or similar strike is made by
even a small but organized group, the society at large yields to it to such an extent that it actually hinders the day’s normal life. This indifference in the attitude of the people is not helpful for industrial growth.

Keralites are employed in almost all of the Indian States and many nations around the globe. They are noted for their hard work and commitment anywhere they work outside the State. The paradox is that inside the State they do not exhibit the same enthusiasm to work. Here they are much demanding, the first priority is rights rather than duties and are often not ready to put in their best efforts on job, but never hesitates to demand higher wages and other privileges. This dichotomy in the work attitude can create problems in the smooth conduct of enterprises and can exert influence on the investment climate in the State.

Kerala is basically an agricultural economy. Those who are not in this primary sector try to make a living by getting employment in the public or private sector inside or outside the State. Becoming entrepreneurs remains as the choice of a very few only. This has resulted in the shortage of capable entrepreneurs from the State who can take advantage of the potential of Kerala in this industry. Hence the State is inviting industrialists from outside to invest here so that employment opportunities are generated. The absence of a strong community of entrepreneurs also could diminish the State’s attraction as an investment destination.

Destinations like Bangalore, Chennai, Hyderabad, Delhi/Noida region, Pune, and Mumbai where IT industry is deep-rooted in India, are all metropolitan cities offering the required facilities and ambiance for this industry. Though Kerala is a semi-urban State, Thiruvananthapuram and Kochi or any other cities in the State do not offer equivalent facilities of the IT hubs mentioned above. This also can be a factor telling upon investment attractiveness of the State.
2.3.4.6 Competition in the IT Industry

IT industry is not location specific. It can grow in any part of the world which meets its requirement. Since the industry is a tool offering immense potentials for growth and development of the economy, multidimensional competition exists in this field. There is strong competition between different nations for attracting IT business as well as investments from the world around. This can be seen in the case of India, China, Canada, Ireland, Israel and South Africa who are all established competitors in this field. Countries like Argentina, Brazil, Ukraine, Russia, Poland, Pakistan, Malaysia, and Singapore are upcoming and potential competitors. Different regions or States within these nations are also competing in this regard. Within India there is stiff competition among the established as well as emerging IT destinations for attracting business and investment from sources inside and outside the nation.

The competition in this field has other dimensions too. Every day new and new IT companies are getting registered in India. Technocrats having rich experience from the leading IT companies as well as ambitious young technopreneurs are behind this phenomenon. The existence of large number of companies increases the inter company competitions between them to canvas business from the market.

The Indian IT companies receive business mostly from foreign multinational companies. Recently many such foreign companies have started setting up their own IT subsidiaries, called as captive centres in India to meet their in house IT needs instead of outsourcing the work to Indian firms. The existence and operations of these captive centres can considerably reduce the extent of business available to the domestic IT companies and has added another dimension to the competition already existing in this industry.

On the other hand competition can prove to be advantageous too. As the competition in this field is intensifying, the industry is looking for new suitable
low cost destinations to remain cost effective. Kerala can take advantage of its edge in this regard. Similarly the competitive pressure can be instrumental in increasing efficiency of the individual companies and the industry in the State as a whole. For example promotion and marketing strategies would be sharpened, quality conscience may increase in the case of the services and products offered, earnest attempts to further improve cost effectiveness will take place, infrastructure provision would be improved and more governmental patronage would be granted if a positive approach to competition is adopted by the industry and the State.

2.3.5 Problems and Prospects of the Industry in the State

The State’s prospects in IT industry depends on the nature and extent of influence exerted by the factors and their variables mentioned above on the IT industry in the State. If all of them are exerting supportive influence on the industry of the State, then Kerala’s prospects in this field is bright. On the other hand if some of them are exerting obstructive influence, they are the problems faced by the industry in the State.

Whether the factors and their variables mentioned above are supportive or obstructive to the growth of the industry in the State is ascertained through collecting and analyzing the opinion of the sample respondents representing the IT industry of the State. The analysis of the primary data conducted in the next chapter is envisaged to distinguish between the supportive and obstructive factors and variables.

2.3.6 IT as a Tool for Social Development

The State has shown considerable interest in using the potential of ICT for social development through several initiatives basically focusing on bridging the
digital divide by enhancing e-literacy level and implementing e-governance programmes. Brief description of such major initiatives are given below.

2.3.6.1 Electronic (E) Literacy Programmes

Initiatives like Akshaya and IT@ School are the important E-literacy programmes undertaken by the State. These programmes are aimed at bridging the digital divide as well as to empower the common man with computer enabled learning.

1. Akshaya

Akshaya is a major initiative of the State which for the first time ever targets to familiarize one person from every family in Kerala with the basic use of computers (e-literacy) and empower him/her to access relevant e-content in the regional language and thereby bringing the benefits of IT to the common man. This programme which was launched on 18\textsuperscript{th} November 2002, intents to achieve its objective through the active participation of local bodies and private enterprises. Akshaya is in the process of setting up information dissemination hubs named ‘Akshaya e-centres’ across Kerala within 2 km of every household catering an average of 1000 families so that every family in the State has easy access to the power of information technology. Run by entrepreneurs, each centre will be a self-sustaining unit networked together over the Internet, manned by trained personnel with support facilities like webcams, scanners, printers, fax machines and the proposed e-literacy programme assuring baseline revenue. This programme which ensures hands on skill in operating a computer and using the internet is expected to create a 100% e-literate State and transform the trainees into ambassadors of change in the society. These centres will also provide services like data-entry, desktop publishing, advanced e-learning, computer training, and internet telephony.
The Akshaya project which was first initiated in the Malapuram district of North Kerala has made it India’s first e-literate district. In the second phase the project is being extended to seven more districts.

2. IT @ School

The project aims at empowering schools to undertake computer-enabled education to high school students for qualitative improvement in the conventional learning systems and also to equip teachers to use computer as an education tool and thereby usher in a paradigm shift in the conventional teaching methodology. The stakeholders are school management, teachers, students and the local community. This project is now being implemented in all high schools of the State. Already 2776 modern computer labs have been set-up in high schools and as such 99% of the high schools in the State now have computer lab of their own. About 50% of the high school teachers in the State have already been given basic training. IT is now a compulsory subject from standard 1 to 10. IT subjects, both theory and practical, have been included in the public examination of standard X (SSLC). IT @ School project is also making use of the facilities of ‘Edusat’ for promoting e-learning and made Kerala the first State to do so.

2.3.6.2 Electronic (E) Governance

IT offers an opportunity for radically improving and transforming the structures and processes of governance; through increased transparency, greater participation and more effective delivery of citizen services. If stimulated, the e-governance market will help the industry also to grow. For successful e-governance implementation the preconditions to be fulfilled include creation of applications and content; availability of adequate access to internet by the population; having minimal IT literacy; and above all, ensuring government’s commitment to the success of the programme. The State has taken a number of significant initiatives in this regard which are briefed below.
1. ‘FRIENDS’

‘FRIENDS’ (Fast Reliable Instant Efficient Network for Disbursement Services) ‘Jenasevana Kendrams’ are a single window mechanism set up by the department of IT in association with the local bodies where citizens have the opportunity to pay all taxes and other financial dues to departments and organizations under the State and Central Governments like the State Electricity Board (KSEB), Water Authority (KWA), Local Bodies, Civil Supplies, Revenue, Motor Vehicles, Universities, and BSNL.

The project was launched in Thiruvananthapuram in June 2000. It is now operational in all the 14 district head quarters of the State. The centres work from 9.00 AM to 7.00 PM on all days including Sundays, except national holidays. The counters are equipped to handle around 1000 types of bills in various combinations originating from the various departments. The overall investments in FRIENDS Centres amounts to Rs. 4.50 crores. Each FRIENDS centre has multiple counters and citizen can remit any payment at any counter. The total collection from all the centres increased from Rs. 5.30 crores through 1,23,709 transactions in 2000-01 to Rs. 202 crores through 34,00,181 transactions in 2004-05.86

2. E-Payment Facility (E-pay) is an online bill payment facility introduced in Malappuram district for remitting KSEB, BSNL mobile and landline bills. At present 162 e-payment centres are functioning in the district.

3. Citizen Call Centre is the first of its kind in the country, set up in the State capital which provides information on transactions pertaining to various government departments which are required by common citizens, over telephone. The information which can be ascertained includes details of government schemes, programmes, entitlements, welfare benefits etc. The Call Centre is equipped with full-fledged data base having details of more than 200 government processes.
4. **Information Kerala Mission (IKM)** is a project which seeks to computerize and establish a statewide network connecting State Planning Board and its 14 District Offices, Directorates of Panchayath and its 14 District Offices, Directorate of Urban affairs and its 3 Regional Offices and 1219 local bodies to develop a mechanism for the regular monitoring of the plan implementation and targets achieved by the local bodies over the network.

5. **Secretariat WAN**

   The government is setting up a Secretariat Wide Area Network (SWAN) connecting the secretariat, its annex, Vikas Bhavan and Public Office Complex located in Thiruvananthapuram.

6. **Police Portal**

   This is a community interaction portal of the Thiruvananthapuram city police to identify the problems of crime and disorder.

7. **Karshaka Information Systems Services and Networking (KISSAN)**

   ‘KISSAN’ has a digital studio, which has already published more than 100 hours of Video, a web interface to establish linkages with market, suppliers, experts, institutions and a call centre to provide services to farmers. Indian Institute of Information Technology and Management Kerala (IIITM-K) is the implementing agency of the project.

   Through their e-governance efforts the Vellanad and Talikkulam Panchayaths in the State have become India’s first and second fully computerized Grama Panchayaths and Palakkad, India’s first fully computerized District Collectorate.\(^\text{87}\)
Notes


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