3.1 OVERVIEW OF CURRENT STATUS OF INDIAN SOFTWARE INDUSTRY

India is the world’s largest democracy and the second fastest growing economy. India has grown to become a trillion Dollar economy characterized by foreign investment and direct policy. Of the growth, the dominant role has been played by the private sector which is spurred by deregulation.

The past decade has seen fundamental and positive changes in the Indian economic policies and industry outlook. The Indian economy has witnessed phenomenal growth during the last decade. The country posted a decent growth during the recent slowdown and is among one of the countries to lead the recovery path. The country’s GDP is growing at an average rate of 8.5% every year and is counted as one of the best among the emerging economies.

India’s economy is on the fulcrum of ever increasing growth curve with rising foreign exchange reserves expected to reach US$ 166 billion by the end of this financial year, a booming capital market and more than 22 % surge in exports. It thus projects itself as a leading destination for foreign investment. The key driver of Indian growth is a booming domestic market which is fueled by increasing consumption and a surge in investment supported by inherent fundamental strengths.

The Indian IT sector is poised to become to a USD $225 billion industry by 2020. The industry has played a significant role in changing the bureaucratic economy to a land of innovative entrepreneurs and global players in providing world class technology solutions and business services. The IT sector has become one of the most significant growth catalysts for the Indian economy. The industry has also positively influenced the lives of people by actively contributing both directly and indirectly towards socio economic parameters like employment, standard of living and diversity.

3.1.1 Overall Exports

Electronics and information technology is proving to be the growth engine in the current day economies of the world. The Liberalized policy initiatives of the Government of India in the last decade have propelled the Indian IT industry on to a path of development and prosperity.
The Electronics Hardware and Computer Software/Services industry, a comparatively new entrant in India’s export horizon, has emerged as a forerunner among all industries and has been consistently treading on a high growth path in recent years.

**FIG 3.01: GROWTH IN EXPORTS & COMPUTER SOFTWARE/SERVICES**

Source: ESC statistical year book 2008-2009

**Fig: 3.02 IT SECTOR REVENUE**
The IT industry is estimated to aggregate revenues of USD 88.1 billion in FY2011. During this period, direct employment is expected to reach nearly 2.3 million, i.e., an addition of 90,000 employees, while indirect job creation is estimated at 8.2 million. As a proportion of national GDP, the sector revenues have grown from 1.2 % in FY1998 to an estimated 6.4 per cent in FY2011. Its share of total Indian exports (merchandise plus services) increased from less than 4 per cent in FY1998 to almost 26 per cent in FY2010.

India has embarked on a policy agenda, which aims to restructure its economy with enhanced global participation. Foreign Direct Investment FDI to supplement domestic investment for achieving a quantum jump in growth rate is now an integral part of Government of India policy initiative.

100% FDI is permitted in the electronic hardware sector and the software development sector under automatic approval route. Imparting greater transparency to business procedures and integration with global market place are seen as the hallmark of the new industrial, trade and fiscal policies.

The information technology (IT) industry as shaped up as a major success story in India’s economy. Exports of computer software and IT enabled services have become a large component
of the exports of the country. This is also an area where the government’s role has been very different from that in some other industries. The important contribution of the government in the growth of this industry comprises of telecom policies which enabled low cost computer networking in the country. Today India’s competency in Information Technology, more significantly in computer software and IT Enabled services is recognized globally. Over the last decade, the Indian IT industry has grown by leaps and bounds.

**FIG 3.03: DOMESTIC REVENUE SEGMENTATION**


The country’s IT/ITES exports have grown at a CAGR of 28.7% from 2003-2008. IT services account for 34% of the revenues of the software sector. In recent times software development and information technology enabled services including business process outsourcing, knowledge process outsourcing services have emerged as one of the most dynamic and vibrant sectors of Indian economy. With a small beginning in early 80s, it has now grown into a broad based comprehensive industry.

The Government of India has announced promotion of IT as one of the priorities of the country. India has embarked on a policy agenda, which aims to restructure its economy with enhanced global participation. The foreign direct investment aims to supplement domestic investment for
achieving a quantum jump in growth rate. FDI is now an integral part of Government of India policy initiatives to impart greater transparency to business procedures with global market place. This is seen as a hallmark for new industrial, trade and fiscal policies.

Today, India’s competence in IT, more significantly in computer software and information technology enabled services is recognized globally. Indian IT firms and IT professionals have won world-wide recognition in terms of their technical competence, domain knowledge, experience and expertise for offering quality IT services, and their exposure to working on various platforms and systems.

3.1.2 Presence of global IT Players in India

There are a large number of multinational IT enterprises operating in India in sectors such as; Integrated Chip Design, System software, communication software, RD centers, Technology support sector, BPO sector etc reaping the cost and quality advantages.

**TABLE 3.01: GLOBAL IT PLAYERS IN INDIAN MARKET**

<table>
<thead>
<tr>
<th>HP</th>
<th>Oracle</th>
<th>Cognizant</th>
<th>Microsoft</th>
</tr>
</thead>
<tbody>
<tr>
<td>- One of the largest IT firms in the world, founded in 1939 and is ranked 9th in the 2009 Fortune 500 ratings.</td>
<td>One of the largest software business companies in the world, has been operating for more than 30 years in 145 countries worldwide.</td>
<td>A leading provider of IT, consulting and IT infrastructure management.</td>
<td>The world’s leading developer of software products and services.</td>
</tr>
<tr>
<td>- Total revenues amounted to US$ 118 billion in 2008–09.</td>
<td>- Recorded revenues of more than US$ 23 billion in 2006–09 and was ranked the third largest software company, based on its revenues.</td>
<td>- Founded in 1994 as a captive arm of Dun &amp; Bradstreet; revenues estimated at more US$ 3.25 billion for 2008–09.</td>
<td>- Operates in five business segments — clients, server and tools, online services business, Microsoft business division, and its entertainment and devices division.</td>
</tr>
<tr>
<td>- Workforce of more than 321,000 employees, operating from more than 170 countries.</td>
<td>- Has deep focus on R&amp;D, with more than US$ 3.5 billion dedicated to development of new technology.</td>
<td>- Has client-centric market approach, with major service offerings for various sectors, especially healthcare.</td>
<td>- Recorded revenues of more than US$ 50 billion in 2008–09.</td>
</tr>
<tr>
<td>- Focuses on penetrating class-C and D cities by launching mobile vans and linking them with channel networks.</td>
<td>- Workforce of more than 60,000 employees in more than 50 delivery centres.</td>
<td>- Workforce of more than 63,000 employees worldwide.</td>
<td>- Workforce of more than 93,000 employees worldwide.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dell</th>
<th>Lenovo</th>
<th>Cisco</th>
</tr>
</thead>
<tbody>
<tr>
<td>- A US based IT multinational that develops, sells and supports computers and related products and services.</td>
<td>- A China-based technology firm, develops and manufactures computers, laptops and other IT management software.</td>
<td>- Founded in 1984, one of the largest chip-making companies in the world.</td>
</tr>
<tr>
<td>- Employs more than 76,500 people worldwide and has the third-largest market share in the personal computers segment.</td>
<td>- Has global revenues of US$ 14.9 billion.</td>
<td>- Recorded revenues of US$ 37 billion in 2008–09.</td>
</tr>
<tr>
<td>- Revenues of US$ 52.9 billion in 2009–10 worldwide.</td>
<td>- More than 23,000 employees worldwide.</td>
<td>- Workforce of more than 83,000 employees worldwide.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Asia-Pacific accounting for more than 50.7 per cent of its revenues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Expanding its presence in the chip-making domain through strategic alliances.</td>
</tr>
</tbody>
</table>
These multinationals include Cisco, Flextronics, WNNS, Siemens/Philips, Intel, Texas Instrument etc. chip design; Siemens, Motorola, Lucent Technology, Sony, Nortel etc. communication Software; Google, Yahoo etc RD centers; Axe business Services; Swiss Shared Services. Global IT vendors are increasing their presence in India. Global vendors like Accenture, HP, IBM, Cap Gemini are looking to expand their off shore delivery capability. They aim to grow offshore service providers, who are able to deliver seamless hybrid onshore/offshore services at low cost. Siemens shared services etc. BPO Sector; Accenture, Dell, HSBC, GE Capital, Fidelity etc. Capital support Sector.

Indian firms are also gaining for hold with giants like TCS, WIPRO, Infosys expanding their overseas presence, particularly in Asia and Europe.

**TABLE 3.02: INDIAN IT/ITES GIANTS REVENUE**

<table>
<thead>
<tr>
<th>Leading Indian IT/ITES firms by revenue (2008–09)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tata Consultancy Services</td>
</tr>
<tr>
<td>Infosys Technologies Limited</td>
</tr>
<tr>
<td>Wipro Technologies Limited</td>
</tr>
<tr>
<td>Mahindra Satyam Computer Services Limited</td>
</tr>
<tr>
<td>HCL Technologies Limited</td>
</tr>
</tbody>
</table>

**3.1.3 Spectrum of IT services/ITES from India**

India has already established her brand equity in the global IT market. Indian IT software and services firms offer software product/packages; a wide spectrum of IT services including system management and maintenance, consultancy services, system integration, chip design, E-Governance, E-Commerce, IT enabled services covering banking/financial/insurance sector. Their IT enabled services also include cad cam Multimedia, animation work, BPO Business
process outsourcing assignments, call centre related assignments, as well as Knowledge process outsourcing/Legal process outsourcing medical lab, diagnostic and dental services, medical transcription services, e-publishing data conversion or digitization, type-setting, copy editing, content and design, graphics etc. The software industry is not only growing exponentially, it is moving up the value chain. It is evolving, from the initial staffing to software development—where it is currently the world’s major supplier of engineers— to integration and IT business consulting.

FIG 3.04: SERVICE PORTFOLIO OF INDIAN IT SECTOR

3.1.4 Advantage Indian IT industry

- Young demographic profile and academic infrastructure is strengthening its potential to cater to the growing demand for IT/ITES.
- One of the largest pools of technically qualified high class IT manpower. Abundant talent pool producing close to 6, 75,000 technical graduates a year of which 4, 00,000 are engineers.
- More than 50,000 M.B.As graduates every year.
• Enormous skilled human resource compared to developed countries leading to lower manpower cost nearly one tenth of those in developed nations, thus giving India a comparative advantage.
• Rich experience of working with large global companies and enjoy high credibility.
• Freight cost in India is 20% less with faster delivery as compared to China.
• Offers a wide range of services from support/ data processing to sophisticated software systems etc. Expertise on a wide variety of platforms. India’s service offering have evolved to high end integrated solutions.
• More than 85 Global SEI-CMM level 5 firms have presence in India.
• Sector has deregulated in 1990’s to allow private sector participation. 100% FDI is allowed under automatic route.

3.1.5 Quality of Indian information technology expertise
Today the world recognizes India as a high quality IT manpower. 151 out of total 379 SEI-CMM for Software describes the principles and practices underlying software process maturity and icons intended to help software organizations improve the maturity of their software processes in terms of an evolutionary path from adhoc, chaotic processes to mature, disciplined software processes. Over 300 Indian computer software and services have already obtained ISO 9000 or CMM level 2 certifications. Over half of the fortune 500 companies are outsourcing their software requirements to India.

3.1.6 Manpower employed and educational institutions
Software is a knowledge driven industry. It requires a team of highly skilled professionals for its success. Today, the Indian IT services and ITES sector employs over 20 lakh knowledge professionals. Almost all major IT players in the world have set up subsidiaries or collaborations in India. The major attraction to India as a destination is the abundance of technically qualified and cheap software manpower.

3.1.7 IT /ITES Sector trends
The Information Technology (IT) sector in India is amongst the fastest growing in the country and the world. In the year 2008, IT software and services industry accounted for 6.4 per cent of India’s GDP.

The Indian domestic IT market grew by 29% in the financial year 2007-08 to report revenues of Rs 288, 810 Cr. The revenue of the information technology sector has grown from 1.2 per cent of
the gross domestic product (GDP) in FY 1998 to an estimated 5.5 per cent in FY 2008. The net
value added by this sector, to the economy, is estimated to be 3.3 to 3.9 per cent for FY 2008.
The Indian IT-BPO sector grew by 33 per cent in FY 2008 to reach US$ 64 billion in aggregate
revenue (including hardware). Of this, the software and services segment accounted for US$ 52
billion, growing by 28 per cent over FY 2007. Software and services exports (including exports
of IT services, BPO, engineering services and R&D and software products) reached US$ 40.4
billion, contributing nearly 63 per cent to the overall IT-BPO revenue aggregate. IT-BPO exports
(including hardware exports) grew by 28 per cent from US$ 31.8 billion in FY 2007 to US$ 40.9
billion in FY 2008.
Domestic IT market (including hardware) reached US$ 23.1 billion in FY 2008 as against US$ 16.2 billion in FY 2007, a growth of 43 per cent. Hardware remained the largest segment of the
domestic market with a growth rate of 44 per cent in FY 2008. Software and services spending
grew by over 41 per cent during the year. The Indian IT services market is estimated to remain
the fastest growing in the Asia-Pacific region with a CAGR of 18.6 per cent. The Indian ITES-
BPO exports grew significantly from US$ 8.4 billion in FY 2007 to US$ 10.9 billion in FY 2008
while the revenues of domestic BPO grew to US$ 1.6 billion in FY 2008 from US$ 1.1 billion in
FY 2007. The sector provided direct employment to 700,000 in FY 2008 up from 5, 53,000 in
FY 2007. The sector employed 2.3 million in FY 2010 and is expected to employee 2.35 million
in 2011.

**TABLE 3.03: INDIA IT/ITES INDUSTRY SIZE**

<table>
<thead>
<tr>
<th>India IT/ ITeS Industry Size (2007-12)</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>CAGR 07-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic IT/ ITeS Market</td>
<td>90,014</td>
<td>110,177</td>
<td>133,100</td>
<td>158,053</td>
<td>182,991</td>
<td>209,898</td>
<td>18.4%</td>
</tr>
<tr>
<td>IT/ ITeS Exports Revenue</td>
<td>156,594</td>
<td>186,142</td>
<td>218,107</td>
<td>250,087</td>
<td>284,666</td>
<td>320,278</td>
<td>15.4%</td>
</tr>
<tr>
<td>India IT/ ITeS Industry Size</td>
<td>246,609</td>
<td>296,319</td>
<td>351,207</td>
<td>408,139</td>
<td>467,657</td>
<td>529,976</td>
<td>16.5%</td>
</tr>
</tbody>
</table>

The Indian IT and ITES market is estimated to grow at the rate of over 16 per cent to become a
US$ 132 billion industry, significantly, the domestic market alone is expected to become over
US$ 50 billion, with a CAGR of about 18.4 per cent. Simultaneously, the IT and ITES exports are estimated to more than double to US$ 78.62 billion by 2012. Leading international companies have identified custom application development and maintenance as priority areas due to high off shore able component. The demand for domestic BPOs has been largely driven by faster GDP growth and by sectors such as telecom, banking, insurance, retail, healthcare, tourism and automobiles.

**FIG 3.05: DOMESTIC IT/ITES REVENUES**

![IT-BPO Domestic revenues*](image)

The maturing domestic market is the key thrust area for the sector. IT services growth is 16.8%, which is driven by localized strategies by service providers. Domestic BPO growth is 16.9% which is driven by demand for new verticals and technology platforms. New waves of startup companies are driving the growth of software products to 14%.

**FIG 3.06: IT-BPO EXPORT REVENUES**
India’s share in Global outsourcing is 2010 is 55%, up from 51% in 2009. The industry accounts for 26% of India’s exports and 11% of services revenue. IT services are exhibiting fastest growth at 22.7% and BPO growing at 14%.

A recent report by NASSCOM authorities states that export revenues to gross US$ 59 billion in FY 2011 and contribute 26% as its share in total Indian exports.

Within export, IT services segment was the fast growing segment, growing by 22.7% over FY2010 and aggregating export revenue of US$ 33.5 billion, accounting for 57% of total exports.

**3.1.8 BPO Markets**

Domestic BPO segment is expected to grow by 16.9% in FY 2011, to reach US$ 2.8 billion, driven by demand for voice based services in addition to adoption from emerging verticals, new customer segments and value based transformational outsourcing platforms.

**Source: NASSCOM Strategic Review**
According to NASSCOM BPO sector is expected to touch US$ 30 billion in exports by 2012 and has been growing at a rate of 35% for the past 5 years. The verticals such as banking, retail and telecom offer more possibilities for the future.

Indian software product segment is estimated to grow by 14% to reach US$ 3.36 billion fueled by replacement of in house software applications to standardized products from large organizations and innovative start ups.

3.1.9 Investments

Between April 2000 and December 2010, the computer software and hardware sector received a cumulative foreign direct investment (FDI) of US$ 10,601 million, according to the Department of Industrial Policy and Promotion.

According to NASSSCOM reports government, IT spending was US$ 3.2 billion in 2009 and is expected to reach US$ 5.4 billion by 2011. Further NASSCOM says that there is US$ 9 billion business opportunity in e-governance in India.

3.1.10 India share in world Software/services market percent in US terms

World software and services market is dominated by USA with a share of 41 percent followed by Japan with a share of 12 percent. World total software/services market during the year 2008-9 is estimated to be Us 940 billion. India’s share in global market has increased to 4% of the IT segment and close to 12% of ITES in 2008-2009, as quoted by IBEF, December 3rd 2009.

3.1.11 Major Destinations for Software and Services Exports

North America remains the top destination for India’s export of Computer Software /services during the year 2008-09 as well. Although there has been a decline of 5% in the percentage share of computer software and services exports, there has been a growth of 23.67 percent & 8.26 percent in terms of export to North America during the year 2008-2009 over the year 2007-2008. In value terms, export to North America increased from RS 107625 crore USD26.73 billion estimated in 2007-08 to Rs 133100 crore USD28.94 billion in the year 2008-09. Export to EU Countries registered a growth of 48.72% during the year 2008-2009.

In value terms, export of software and services from India to EU countries during 2008-09 is estimated to be RS 69489 Cr USD15.11 billion up from RS 46725 Cr USD11.60 billion in the year 2007-08.
With a high Growth of 161 percent, Middle East countries have emerged as 3rd top destination for India software and services exports during the year 2008-09. Export to this region increased from RS2292 crore USD569 million estimated in 2007-08 to RS 6835 crore USD1486 million in the year 2008-09.

FIG 3.07: MAJOR DESTINATIONS OF EXPORTS FOR COMPUTER SOFTWARE/SERVICES

Source: ESC statistical report 2008-2009

There has been a decline in export to Singapore, Hong Kong other south Asian countries, Japan, Korea and other Far East countries and Latin America during the year.

3.1.12 EMERGING MARKETS

FIG 3.08: GEOGRAPHY WISE BREAK UP OF EMERGING MARKETS
3.2 EVOLUTION OF IT INDUSTRY A REVOLUTION

Technology revolutions sometimes bring unexpected opportunities for countries. India, a relative laggard among developing countries in terms of its economic growth, seems to have found an opportunity in the information technology revolution as an increasingly favored location for customized software development.¹

The evolution of the software industry in India took place since its evolution in the 1970s. Compared to offshore software industries of Ireland & Israel, Indian software industry was on a different standing. In India, instead of multinationals starting the industry, local conglomerates started the industry by sending the programmers to the client’s sites overseas. In the mid-1980s, many of the domestic firms started outsourcing the services to the foreign firms. Due to very large restrictions and government policies for the private sector, despite the presence of a large pool of programmers, the industry could not accelerate the growth in the way it could have done.²

After the election of the new prime minister Rajiv Gandhi, in 1984 the New Computer Policy (NCP-1984) was introduced, which came up with many facilities to foreign firms with drastic reduction like 60% reduction in import tariffs on hardware and software.³ Also, permission to establish wholly owned, export units with the external support from the government was offered.
with the offering of infrastructure below the current market rates. At this time many foreign firms established Indian operations.


With increase in the amount of work which moved to India, the infrastructural costs and living costs increased as a proportion of the total costs. This made many big industrialists shift their location from Mumbai to Bangalore the present IT hub of India. The transnational corporations (TNCs) slow reaction allowed big family firms to maintain share all way through the 1990s although this had reduced subsequently as more foreign firms and start ups have entered. One main reason behind the success of the Indian IT industry is its low labor cost and the tremendous number of software professionals. Local firms became more serious with work and started supplying modular software programs exclusively developed in India. This transfer was gradual and the strength of the software firms started to increase in number from 35 in 1984 to 700 in 1990. Bangalore was chosen as a perfect location for software development as it was cheaper as compared to many new firms started at that point hold a strong position in the Indian software market today such as Infosys & Wipro were located in Bangalore.

The beginning of 1990 started to make India appear as the most attractive and dynamic centers of IT development world wide. The software industry became the motor driving the upswing in the Indian technology sector. In the fiscal year 1999-2000, total revenues within the industry were 5.7 billion USD Dollar. The software industry accounted for 4, 00,000 new jobs, and was expected to create an additional 2 million jobs which would then represent more than 7.5% of the entire Indian GDP.

2. Premji, A. (2003), Chairperson of Wipro: Personal communication with author, 12/2/03
The shift from self reliance strategy to an open market economy at the beginning of 1990’s and the prioritization of information technology as a key Indian Industry had lead to an increase in the flexibility of software industry.  

In the boom years of mid and late 1990s software exports grew 50% -60% annually reaching 6 billion by 2001. Software industry exports are primarily information and software services rather than products. While firms export to more than 60 countries, the United States represents half the global market. By 2005 India’s share of the global market for outsourced IT services was at 3.3%. India portfolio included nearly half of all the fortune 500 companies. India’s market share has grown rapidly and in terms of absolute share its position is second only to United States of America. IT industry continued its strong performance in 2007 -2008 with outsourcing remaining the primary growth driver of ITES-BPO industry. However some shift was observed with growing traction in Europe Asia Pacific offering a marginal decline in share of America. Currently India continues to be the most preferred destination for global IT sourcing due to its talent pool. The Indian IT industry has increased its exposure to other geographical regions in recent times. The industry has weathered ups and downs of the global market, maintaining a high growth rate. The industry has moved center stage in the domestic media because of its visibility in the United States, high market capitalization and wealth creation for its employees.


Software companies are increasingly being recognized for their leadership in adopting best practices in management. Indian companies have fine suited their “off shore model” and project brand as service companies. Companies have moved further up the value chain, improving productivity, targeting new geographies, vertical domains and businesses.
Mr. Som Mittal, President NASSCAOM said, “A significant highlight of the current year was the industry thrust to re-engineer itself to partner itself with its clients in testing times. Increase in fixed price contract, shift from onsite to offshore and end to end transformational deals helped the industry to get over 90% repeat business from its clients. At the same time the thrust on diversification emerging verticals and geographies grow almost three times than the core markets. The domestic market witnessed focus in FY 08-09, with large transformational deals in telecommunications and E-government and contract value of the outsourcing deals growing by 32%. Domestic BPO got a special boost with over 40% growth in this period.

Mr. Pramod Bhasin, Chairman NASSCOM, said “In face of severe economic downturn in key markets, the industry was able to deliver a high growth of over 16% and retain its position as a strategic global outsourcing destination. The industry also enhanced its thrust on building a globalised value chain, with 35% increase in global delivery centers since 2007.”

The last few months have witnessed some stabilization in the demand environment with improvements in the GDP growth rates, stock indices upswing that could indicate early signs of recovery. However the world wide IT spending growth is expected to decline in 2010. The environment continues to be challenging with the global ecosystem being week; absence of large deals; vendor consolidation and pricing pressure. Industry in the first quarter results has demonstrated sustained focus with increased operating margins and enhanced utilization. The NASSCOM survey estimates that IT BPO export revenue will grow by 4-7% to reach USD 48-50 Billion in FY 09-10. The IT BPO domestic revenues are expected to grow by 15-18% to reach INR 650-670 Billion. Global sourcing today is an essential component for organizational competitiveness. The industry in India will continue to invest in offering transformational solutions and enhance its value proposition in sync with client requirements.

NASSCOM predicts that the demand for software products will grow by almost $130- $ 150 over the next seven years and the Indian companies can grab about 10% of this incremental market by 2015.

3.3 INDIAN SOFTWARE INDUSTRY: CHARACTER & PERSONALITY

We begin with a few basic observed characteristics of the Indian Software Industry. It has been widely accepted that the structure of the industry is long tailed, barring a few firms who are engaged in high-tech areas; most of the industry is actually engaged in low tech, low skill and high volume activities. Despite this fact it has contributed significantly about (3% to GDP) and
more significantly to employment generation at a comparatively lower capital investment and minimal government support and intervention. The industry is export dependent and that too mainly on a single country that is USA.


The vulnerability of the industry is the inadequate development of the hardware industry and limited exposure to core software technology. India is one of the main destinations of outsourcing for global software industries. The Indian software industry is thriving on the externalization of knowledge of firms in the developed countries. Therefore the industry can be broadly categorized as the back yard of the global software industry.

NASSCOM has attempted some kind of classification of software companies according to 22 different areas of specialization ranging from low technology Y2K, various ERP telecom and chip design. It is interesting to note that maximum number of firms specialize in web technologies, internet and intra net. More than 66% of all the total firms fall under this classification.

Other crowded areas of specialization are software product development, E-Commerce/EDI, software maintenance and migration, RDBMS, ERP/MRP solutions; whereas 40% of the total firms are pursuing their activity in each category. Large number of firms caters to legacy problems which are considered as low value added software services. Telecom and chip design. It is interesting to note that maximum number of firms specialize in web technologies, internet and intra net. More than 66% of all the total firms fall under this classification.

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Large number of firms caters to legacy problems which are considered as low value added software services\(^1\). This observation suggests that the software industry belongs to the bottom of the global knowledge hierarchy. Another interesting characteristic of the industry is that the firms operate in a market where price competition rules.
Large number of firms are offering the same kind of services and competing with each other on the basis of cost price advantage. As a result the market gets segmented among large number of small players. The character can be further explained through the following points:

*The Indian comparative advantage is based on cost and availability of software talent: The ability to offer the services of a large number of software professionals at costs substantial lower than those in the US. US firms do not outsource analysis requirements, specification and high-level design nor do they outsource larger scale integration types of activities to India. However the leading Indian software firms do have the ability to provide these kinds of services.

*The domestic market is small: Although PCs are diffusing rapidly communication bandwidth is still limited. The band width problem is further compounded with the intransigent attitude of the department of Telecommunications as it tries to retain control over telecommunications in India. The result is that internet is still slow and expensive. In addition further infrastructural constraints have combined to slow the adoption of IT for business and government operations, insufficient electricity and transportation system, limited competition in the economy and uncertain and less informed top manger.

1. Dcosta (2002) Export growth& path dependence; The locking in the innovations in the software industry, science technology & society vol, 7, No 1

*Industry is diffused geographically: Although Bangalore is home to many of the leading firms, the industry is no longer confined to Bangalore alone and is diffusing to regions other than Bangalore and Mumbai, with substantial presence in Hyderabad, Chennai, Pune, Noida and growing presence in places like Calcutta.

*Few software products of any significance are being developed, partly as a consequence of undeveloped domestic market. However, Indian firms have had some success in other developing countries and the Middle East with vertical products such as banking products, accounting packages and ERP packages tailored to the developing country environment.
Project management expertise is scare, because the industry is still young in India and large scale projects where project managers are trained are still relatively rare. This problem is further exacerbated by a large number of experienced professionals who emigrate to the U.S.

Software talent is plentiful but experienced engineers and managers are not: Although Indian software firms complain of shortage of engineers, many engineers working in the industry are under-utilized: as much of the work does not require extensive engineering knowledge. Rather it requires familiarity with standard platforms, software languages like VB, C++, Java as well as familiarity with development environment and tools that can be acquired on the job or through specialized course (Offered by private firms like, Aptech and NIIT). In addition many of the existing engineering colleges have added IT and software development courses to their curricula and there are both public and private initiatives to increase the supply of skilled software engineers. However, as the industry continues to grow, the shortage of skilled and experienced software engineers and project managers will become increasingly evident.

3.4 OPPORTUNITIES & CHALLENGES FACING THE INDUSTRY
India compared to competitors ranks high on several critical parameters, including the level of government support, record of quality and delivery, early mover advantage of brand recognition, quality of labor pool, English language skills, project management skills, strong focus on process, a favorable time zone difference with United States that permits 24/7 internal operations.

As we all know the IT industry has tremendous capability and remarkable strength to grow with marvelous advantage of low cost of labor, English proficiency, geographical advantage, policy circumstance, education and training, the legal environment, quality management and software technology parks cultivation. The addressable market size is expected to triple from US$500 billion to about US$ 1.6 trillion by 2020, according to the IT apex body NASSCOM. Most importantly the incremental growth will be driven by opportunities outside the current core markets, verticals and customers.

3.4.1 OPPORTUNITIES
3.4.1.1 IT services The range and depth of capabilities have enabled the Indian IT services industry to gain a respectable position in the global IT services. The key factors that have enabled the industry success end to end solutions capability focus on stringent process and
quality of execution, global delivery model and strong project management methodologies and expertise.

**FIG 3.09: OPPORTUNITIES WITHIN IT**

Some multinational corporations have leveraged the India advantage for IT services through captive unit or outsourcing are Hewlett Packard, Microsoft & Siemens.

3.4.1.2 Customer interaction services

Customer interaction services are one of the largest services within the IT segment. The outlook for this segment is still favorable due to strong demand from customers who have outsourced in the past and as well as expansion of customers to include more complex activities such as high end technical support.

3.4.1.3 Transaction processing

Cost advantage and access to abundant skilled pool and commitment to quality delivery have enabled rapid growth of this segment. The range of capabilities outsourced to India in business process outsourcing has been illustrated below. Select multinationals who have leveraged the advantage are IBM, British Airways, General Electric and American Express to mention a few.

**FIG 3.10: BPO CAPABILITY RANGE OUTSOURCED TO INDIA**
3.4.1.4 Content Development

The Indian Software Industry offers a wide range of services to various Multinationals organizations catering to their digital content development needs of website management and production. Key players offering / sourcing content development services from India are Walt Disney, Laser woods and Tech books.

According to a study by CRISIL, engineering services outsourcing (ESO) is likely to be the next big thing in the outsourcing industry. This sector is expected to increase to US$7.5 billion by 2012. The animation industry is growing fast in India and is attracting investors. This sector shows signs of growth rate of 30%. This industry also shows a lot of promise.

3.4.1.5 Engineering Design

A significant emerging opportunity for the Indian IT industry is in the realm of engineering design. While the scope of engineering design covers a broad spectrum of services of complexity levels, different players have emerged across the spectrum by building requisite capabilities.

3.4.1.6 Knowledge Process Outsourcing

The KPO industry which is currently estimated at USD$ 4 billion is set to grow to USD$ 10 billion by 2012. Internet publishing is gaining popularity with offshore deals being made. While this trend is particularly evident in financial services it has also gained ground in industries like pharmaceuticals, biotechnology, entertainment and aerospace.
BPO global market share in 2009 was close to 12%, if India capitalizes on this opportunity it would be able to generate an export beyond USD$ 330 by 2020. Thus the scenario for the Indian software industry looks good and potential investors can turn towards this industry.

3.4.2 CHALLENGES CURRENTLY FACING THE IT INDUSTRY.

3.4.2.1 INFRASTRUCTURAL DEVELOPMENT

World is divided into two categories one developed nation and the other developing nation. India is a developing nation and is one of the leading economics in the world. Infrastructural developments in one supports and it plays a very key role in economic development of any nation. After independence since 1947, one of the very main problems is infrastructure. According to various authors India lacks industrial infrastructure which is required for software development and its outsourcing.¹ A number of issues related to infrastructural development, marketing and distribution network are together responsible for keeping Indian software developers from venturing into the packaged software market². Also for the continuous growth of software industry it should have good communication infrastructure especially dependent on software service exports and offshore software development. The Indian cellular market is rising at 100% approximately. In terms of power, India is the sixth biggest power generator in the world with an installed capacity of 104,961.76 MW of capacity needs to be added by the year 2012. In order to achieve this target over 8500 MW need to be added on annual basis. Poor road conditions were a major trouble during the last
decade, but now government has taken proper initiatives in order to maintain the quality in transport.

3.4.2.2 DOMESTIC MARKET

India’s software market is mostly reliant on world market. 80% of the software products are put in by software exports mainly by the American market.

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Generally speaking any industry will experience high risks if the core market of the industry is available outside the country. Lack of a sophisticated domestic market further exacerbates the situation. ¹ The growth of such an industry will come to a standstill, & the whole economy will face problems if any dispute between the two countries occur.² Excessive dependence on outsourcing limits the synergy between vibrant domestic and foreign markets.³

Domestic market has recorded 34% as compared to 27% of the export growth during 2007-2008, is the exact reverse of last year when exports had recorded 35% while the domestic market had managed to expand by only 27%. The main reason for this growth is rapid economic growth along with increased spending in IT by government and Corporate. Even though domestic market growth rate has taken over the export market still the revenue generated by the export market is extraordinarily high as compared to domestic market. That is why domestic market still remains a challenge for the Indian IT industry.⁴


4. Dataquest report 2008

**FIG 3.12: INDIAN IT INDUSTRY OVER THE YEARS**
3.4.2.3 TALENT CRUNCH

The key to success of an Indian Software Development firms is talented low cost developers.\(^2\) Even though there is a large pool of talent present in India the fast growth of demand worldwide and in India particular will lead to a condition of excess demand. This is the main reason for shortage of talent. This is indicating a talent crunch. Moreover even if India has a number of fresh graduates, issue is productivity of entry level talent.

This is because of the lack of quality equipment, labs, and poor resources.\(^1\)

Due to the lack of onsite experience many of the fresh graduates are not prepared to work on live projects. This would be a major speed brake to the development of Indian Software Industry.
Though this is the situation India still possesses the biggest pool of suitable offshore talent than other competitor destination.

According to recent NAASSCOM report the Indian IT industry will contribute 7% of the country’s GDP, providing direct employment to more than 2.2 million people and indirect employment to nearly twice that number.

3.4.2.4 MAN POWER GAP

FIG 3.13: IT MANPOWER GAP

![IT Manpower Gap Chart]


FIG 3.14: ANNUAL DEMAND FOR IT PROFESSIONALS
According to NASSCOM (Strategic Review Report 1996-2001), India will need about 3,70,000 IT professionals by the year 2010, and consequent recruitment managers are exploring new sources of IT manpower. Several initiatives have been taken by NASSCOM which can be understood by the NASSCOM 2006 report with a motive to strengthen India’s long term talent advantage. Some of them are mentioned below¹.

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1. NASSCOM Strategic Review of Indian IT/ITES Industry, 2010

**FIG 3.15: TALENT AVAILABILITY AND CRUNCH**
NASSCOM is concentrating on expanding the National Assessment of Competence which is the industry standard of assessment and certification program. Its main is to transform “trainable workforce” into “employable workforce” as per the industry requirements.

- Facilitating higher education infrastructure such as science and Technology Park to promote technical research.
- Government is planning to set up 8 new IIT’s, 7 new IIM’S, 20 NIIT’S & 20 IIT’S by the end of 2014 to promote higher education.
- Many companies have set up their own training facilities and MNCs are promoting assistant researchers in the labs.

Finally Indian firms should improve software development practices and develop tools to reduce cost and to provide higher value services.

### 3.4.2.5 HIGH ATTRITION RATE

Attrition of employees is the main concern of Indian IT companies. Once a fresher is recruited he is being trained for several months for the fulfillment of a purpose. Once he leaves after training then all the efforts of the company are of no use. They again have to recruit another person for the same post. High rate of employee turnover constitute one of the major challenges facing the
industry. Large numbers of professionals have been going to U.S every year. Many professionals use B-1 (Business Visa) visa which permits for a short stay and then later convert it into H-1B.\(^1\) Considering this problem of attrition seriously firms are responding to it in several ways.

- Providing opportunities for career growth
- Pay extra than rival firms to attract and retain employees
- Attractive schemes are offered like soft loan for the purchase of house & automobiles.
- Some corporations offer employee stock option plan.

### 3.4.2.6 RISING WAGES

Indian software industry has experienced a wage inflation of 15-18 % year after year. This is not because of the shortage of talent pool but due to the shortage of required talent pool. NASSCOM says that most of the engineers are not matching the required standard of the industry and they are unemployable. This is one the reasons that the big runners of Indian IT are thinking of alternative markets.


Shifting their work to china Companies as it is cheaper to relocate than deal with education sector’s failure to do what it should have done.\(^1\) Initiatives have been taken by responsible sectors and the government and they are, the “backward integration” approach that NIIT (National Institute of Information Technology) pioneered is probably the most well know which assures of high quality of supply of talent. Also many IT/ITES companies are setting up training and internship programs.\(^2\)

### 3.4.2.7 US ECONOMIC SLOW DOWN & RISING RUPEE AGAINST DOLLAR

The sudden rise of the rupee against the dollar and pound affected many young BPO firms and lowered the profitability of this segment compared to the industry majors in IT services puts most companies at risk with the dollar likely to seek lower and lower levels against the rupee in coming future. As the local labor rates are rising and the Indian rupee in the long term will appreciate against the weakening U.S dollar. The U.S recession has affected Indian IT/ITES firms in many ways.
The recent credit crunch in the U.S found that two US big players viz. Investment Banking giant Lehman brothers filed for bankruptcy in U.S and Merrill Lynch one of the world’s leading financial management and advisory companies sold itself to bank of America( Times of India, 16th September 2008). Also in the continuing meltdown in the U.S market, world largest insurer, American International Group (AIG) was downgraded by the credit rating agencies. (www.IBNLive.com, 16th Sep 2008)

The disaster of the two big institutions could not have come at a worse time for the Indian IT companies already reeling under the hold back in their largest market U.S. The U.S financial crisis is only likely to add to the troubles of the Indian Tech majors. (Times of India 16th Sep 2008).

However looking ahead all the players have highlighted concerns about the impact of the tightening economic situation in their biggest export market, and as a result; The Indian firms are:

- Diversifying into new markets and services. The Indian IT industry is aiming to diversify from the US markets towards European Markets, especially due to the recent sub-prime crisis.
• Focusing on demonstrating value add. To prove the industry is not just about cost arbitrage the industry is putting efforts to add value. This is done by investing on training, research & development and high value services like consulting.

• Tightening recruitment and training practices. U.S slow down will provide breathing space and Indian companies can take time now to tighten their recruitment policies. This will help them to cut down costs. (NASSCOM strategic Report 2008). During 2008, recruitments in IT/ITES Sector have seen a fall 20-22% as compared to the same period last year.

3.4.2.8 INNOVATION

The term innovation refers to changes to products, services, processes or business models. In India the kind of work being performed is typically fairly mundane. The export orientation and the routine tasks that exports involve have narrowed learning potential for Indian firms. India needs innovation in product development, services, processes or business models.  

The various reasons for this could be attributed to several factors, here are few to mention:

- Clear tradeoff between investing in innovation and short term profit where the latter always wins.
- Firms perceive that the current level of innovation could be enough for the business.
- For innovation collaboration between firms is not necessarily required in services space.
- Share holders do not value innovation
- Firms think that if employees are intelligent and motivated- innovation will take care of itself.


These perceptions have a strong impact on the decision making and behavior of a firm’s leadership and thereby then to limit the firms innovation agenda.  

According to NASSCOM BCG Innovation Report 2007 firms in order to promote
innovation should follow the following path.

Fig 3.17: DIAGRAMATIC REPRESENTATION OF INNOVATIVE PATHWAY


3.4.2.9 EMERGENCE OF CHINA, PHILIPPINES AND RUSSIA
Emergence of China, Philippines, Russia, Brazil, and South Africa among others as developing market alternative to India’s IT workforce has endangered India’s preeminence in this area. China has maintained its lead over India in the manufacturing sector for decades. And now China has emerged a potential threat to India’s dominance in the IT services sector. A McKinsey study examined China’s advantages in detail and concluded that the country has all the resources and capabilities to develop its IT services and IT enabled services sector rapidly. The country not only has the scientific workforce but also has been very aggressive in pursuing training programs specifically targeting their English deficiency. The Chinese premier has also been seeking India’s help in technology transfer and business cooperation in this regard. Some researchers argue that the benefit for Indian firms to tap into the huge Chinese market can only come at the cost of developing the intellectual asset of China by Indian companies.

3.4.2.10 GOVERNMENT INITIATIVES

Among the third world countries India has the largest software industry with longest history. On the other hand India has been pursuing a government policy in software and services production since 1970, which is much earlier than any developing country. The growth of India’s software industry can be explained in terms of how shifting domestic policy conditions allowed her to take advantage of global demand.


Although the story of Software Industry is a private initiative, the government played a supportive role with public funding of a large well trained pool of engineers and management personnel who could forge the Indian IT industry into a world class treasure in a short time.
Early government came in the form of visionary support from civil servants who championed the cause and helped the industry. Later policies helped industries and Foreign Direct Investment was introduced. As early as 1972, the department of Electronics introduced a policy to permit duty free imports of computer systems.

This policy helped a number of leading companies in the inception stage. In the 80’s the Department gave software developers a further boost by initiating software friendly policies. It formed software export council and liberalized import rules for material required by the industry. In the late 90’s the government created four major task forces to study the Industry and acted on those recommendations.¹

At that time the Department of Electronics became the Ministry of Communication and Technology Information. With the beginning of economic reforms in the early 1990’s efforts were made to attract foreign as well as domestic investment.

1. The prime minister’s task force was formed May 22 1998, submitted 108 recommendations in an IT action plan aimed at increasing software exports to US$50 billion by 2008 and creating 1 million new jobs over the next five years. Recommendations included: - blanket approval for overseas acquisitions from export earnings, broadening the definition of IT to include the entire range of IT software as per WTO –IT norms. Creating Engineering development units (EDU), Software Technology Parks (STPI) and Export Processing Zones (EPZ).

Source: IT task force suggests way to turn India into a super power, Information Technology Review, June 1998. [http://www.ipan.com/reviews/archies0789it.htm](http://www.ipan.com/reviews/archies0789it.htm)

The RBI took several measures to support the IT industry. Some of them are the simplification of filling of Software Export Deceleration Forum (SOFTEX). India direct investment in joint venture and wholly owned subsidiaries abroad were simplified and a fast track window was is available for large investments.

The government has also enacted many regulations in the area of intellectual policy rights (IPRs). Now IPRs have been recognized as an effective tool in protecting innovations in the Indian Software industry.¹
Several reforms in the telecom sector helped the domestic and export industry. In 1998 national telecom policy was announced the role of regulator transition from license fee to a revenue sharing model and opened domestic long distance to private operators. The ISP gateway monopoly ended in 2000 and permitted private companies to export software. Recognizing the need for manpower in the software industry the Ministry of Human Resource Development took the following actions:

- Helped create and expand computer science departments in existing engineering colleges.
- Encouraged private sector to open training institutions.
- Introduced quality control systems in engineering colleges and training institutions.


In order to promote quality movement in India’s software industry, various initiatives have been taken by the Government, NASSCOM and other organizations. Some of these initiatives are in the form of incentives and grants, while others include promotion and Memorandum of Understandings (MOU). Some of these initiatives as listed by NASSCOM 1:

1. Software developers who have acquired the quality status of ISO 9000(Series), SEI CMM (Software Engineering Institute Capability Maturity Model) Level 2 and above or equivalent certifications 2 are eligible for a grant of Special Import Licenses (SIL) by the Directorate General of Foreign Trade (DGFT), Ministry of Commerce. The entitlement is calculated at 5 percent of the FOB value of export of product or services made during the preceding licensing year. SIL can be sold in the open market at a premium.

2. Exim Bank has announced a scheme whereby the bank could subsidize software-exporting companies with up to 50 percent of the cost for acquiring the quality certification. Towards this end, NASSCOM and Exim Bank have already signed a MoU.

2. In India, quality certification is provided by many agencies. However, there is a list of organizations recognized under the Exim Policy of the Ministry of Commerce. The Government of India has also published a list of SEI CMM Level 2 and above certificate issuing authorities, which includes Software Engineering Institute, Carnegie Mellon University; TeraQuest Metrics Inc., USA; Process Transition International Inc., USA; Global Systems Technology, USA; Software Technology Transition, USA; John yskowski Consulting, USA; The Process Group, USA; ChangeBridge Inc., USA; Theta Information Systems Inc., USA; and PRT Corporation of America, West Indies. The Government of India constantly updates this list.

The Ministry of Information Technology has taken the initiative in bringing the best in the world in the area of Software Testing and Assessment of Software Maturity through licensing arrangements with Software Engineering Institute, Carnegie Mellon University, USA. Under this scheme, STQC Directorate of Ministry of Information Technology is undertaking the job of Certification, Testing and Training of trainers and assessors in India.

While the Indian state combined restrictive regulation with attempts to substitute state-owned for private production during the 1960s and 1970s, conscious attempts have been made by the central government regulatory agencies and state-owned enterprises in the high technology industry to increase state actions aimed at complementing and promoting private entrepreneurship during the 1980s. This change in the orientation of the Indian state has been reinforced more strongly since the adoption of liberalized economic policy in July 1991 and more so since May 1998 as the above analysis suggests. Moreover, announcement of IT policies by many state governments has further strengthened India’s position in the software driven IT sector in the world.

3.5 National Association of Software Services Companies (NASSCOM)

NASSCOM was set up in 1988, at Mumbai to facilitate business and trade in software and services and to encourage advancement of research in software technology. It is a not-for-profit organization, registered under the Indian Societies Act, 1860.

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Currently, NASSCOM is headquartered in New Delhi, India with regional offices in the cities of Mumbai, Chennai, Hyderabad, Bangalore, Kolkata and Pune. NASSCOM is the premier trade body and the chamber of commerce of the IT-BPO industries in India. NASSCOM is a global trade body with more than 1200 members, which include both Indian and multinational companies that have a presence in India. NASSCOM’s member and associate member companies are broadly in the business of software development, software services, software products, consulting services, BPO services, e-commerce & web services, engineering services off shoring and animation and gaming. NASSCOM’s membership base constitutes over 95% of the industry revenues in India and employs over 2.24 million professionals. NASSCOM’s Vision is to maintain India’s leadership position in the global sourcing IT industry, to grow the market by enabling industry to tap into emerging opportunity areas and to strengthen the domestic market in India.

3.5.1 AIMS & OBJECTIVES

NASSCOM aims to drive the overall growth of the global off shoring market and maintain India’s leadership position, by taking up the role of a strategic advisor to the industry. NASSCOM’s varied strengths include advocacy on public policy, international trade development, research and market intelligence services, and access to an international network through 20 MOUs and linkages with 40 industry associations across the globe.


This enables NASSCOM to advise members – both established and emerging companies to further their growth. Other goals include accelerating trade development efforts, improving talent supply, strengthening local infrastructure, building partnerships and driving operational excellence. It also boosts the process of Innovation; IT workforce development and enhanced cyber security.

3.5.2 NASSCOM Membership - NASSCOM welcomes as members, companies and firms that are incorporated and/or are registered in India, which have made and will make positive
contributions to the IT industry in India and globally. Member companies are expected to comply with NASSCOM’s code of conduct.

3.5.3 Membership Strength - The membership of NASSCOM has been steadily increasing. In 1988, NASSCOM had 38 members, who together contributed close to 65 percent of the revenue of the software industry. Since then, membership of NASSCOM has grown multifold to reach over 1300 members in 2008. These members currently account for over 95 percent of the revenues of the software industry in India.

3.5.4 NASSCOM’s seven fold strategy towards achieving these objectives:

1. Strengthen the brand equity of India as a premier global sourcing destination
2. Partner with Government of India and State Governments in formulating IT policies and legislation. Partner with global stakeholders for promoting the industry in global markets
3. Strive for a thought leadership position and deliver world-class research and strategic inputs for the industry and its stakeholders
4. Expand the quantity and quality of the talent pool in India
5. Continuous engagement with all member companies and stakeholders to devise strategies to achieve shared aspirations for the industry and the country.
6. Encourage and facilitate members to uphold world class quality and service delivery standards
7. Aim to uphold Intellectual Property Rights

NASSCOM is a consortium that serves as an interface to the Indian software industry and Indian BPO maintaining a state of the art information database of IT software and services related activities for use of both the software developers as well as interested companies overseas. NASSCOM's Vision is to maintain India leadership position in the global offshore IT-BPO industry, to grow the market by enabling industry to tap into emerging opportunity areas and to strengthen the domestic market in India. By 2010 India's IT-BPO industry could potentially generate US$60 billion in export revenues, account for 5.8 percent of the GDP, pay for a massive infrastructure build-out, and sustain around 10 million jobs. To achieve this, NASSCOM is constantly raising the bar across processes and quality standards – within its member companies
and making them partners of choice for customers across the globe. It also enables the Indian IT-BPO industry to evolve in accordance with the rapidly changing technology landscape by adopting, implementing and often creating world class practices.

3.5.5 NASSCOM INITIATIVES

- **Innovation Initiative:** It seeks to address the specific needs of the large, medium and small companies and create a favorable ecosystem in the country.
- **Education Initiative:** Under this initiative, NASSCOM aims to enhance graduate employability through appropriate skill enrichment and act as bridge between industry, academia and government.
- **Women in Leadership-IT Initiative:** NASSCOM has launched the Women in Leadership-IT Initiative to enhance participation of women into the workforce and create more women leaders in the IT-BPO industry.
- **Security Initiative:** Aim towards creating an enabling environment in the country for information security and compliance through awareness and favorable legal framework.  

3.6 SOFTWARE TECHNOLOGY PARKS OF INDIA

As of now, a total of 51 STPI Centre’s are operational across the country. Out of these 51 centers, 44 centers are in Tier II and Tier III cities.

Software technology parks of India; (STPI) is a government agency in India, established in 1991 under the ministry of communications and information Technology that manages the Software technology park scheme. It represented a fundamental approach to policy making for software industry. Established in 39 locations including most major towns they provided ready to plug in IT and telecom infrastructure. It is an export oriented scheme for the development and export of computer software, including export of professional services.


**FIG 3.18: STPI CENTERS**
It provides physical infrastructure, including dedicated high speed connectivity to technology parks, freedom for 100% foreign equity investment and tax incentives. STPI provides physical hosting for the National Internet Exchange of India.

STPI claims to have played a seminal role in India having earned a reputation as an information technology superpower. More than 6000 businesses are registered under the STPI umbrella.

Source: NASSCOM
STPI has established its foot prints in cities like, Hyderabad, Visakhapatnam, Tirupati, Kakinada, Vijayawada & Warangal to achieve the IT exports growth from the state of Andhra Pradesh. STPI has a presence in many of the major cities of India including the cities of Bangalore, Chennai, Hyderabad, Nodia (NCR), Mumbai, Visakhapatnam etc. STP scheme provide facilities for the IT industry, helping them undertake software development and IT enabled services for 100% exports that include professional services. For that, data communicator links have been established, providing high speed connectivity. STPI is also focusing on supporting SMES and create incubation centers in order to ensure the sustained growth of the IT industry.

3.6.1 STPI scheme benefits & highlights

- Approvals are given under single window clearance scheme.
- A company can set up unit anywhere in India.
- Jurisdictional STPI authorities’ clear projects with Indian Investment & 100% Foreign Equity is permitted.
- All the imports of Hardware & software in the STP units are completely duty free, import of second hand capital goods also permitted.
- Re-Export of capital goods is also permitted.
- Simplified Minimum Export Performance norms i.e. “positive net Foreign Exchange Earnings”.
- Use of computer system for commercial training purposes is permissible subject to the condition that no computer terminals are installed outside the STP premises
- The sales in the Domestic Tariff Area (DTA) shall be permissible up to 50% of the export in value terms.
- STP units are exempted from payment of corporate income tax up to 2010.
- The capital goods purchased from the domestic Tariff area(DTA) are entitled for benefits like exemption of excise Duty & reimbursement of Central Sales tax(CST)
- Capital invested by Foreign Entrepreneurs, Know-how Fees, Royalty, Dividend etc, can be freely repatriated after payment of Income Taxes due on them, if any.
- The items like computers and computers peripherals can be donated to recognized non-commercial educational institutions, registered charitable hospitals, public libraries, public funded research and development establishments, organizations of Govt. of India,
or Government of a state or union Territory without payment of any duties after two years of their import.

- 100% Depreciation on Capital Goods over a period of five years.

3.6.2 STPI Major Roles

- Extend the Statutory services and implement the STP scheme
- Data com services to enable the IT exports
- Incubation services
- Facilitation and promotion support for the IT industry.
- IT Infrastructure management and consultancy services.

STP Scheme, which is a 100% export oriented scheme, has attracted many entrepreneurs in the area of software and services. As on 31st March 2009, 8455 units were operative out of which 7214 units have exported software in FY 2008-09.

**TABLE 3.04: EXPORTS BY STPI REGISTERED UNITS REPRESENTED STATE WISE.**

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148

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<td>20</td>
<td>West Bengal</td>
<td>3500.00</td>
<td>4500.00</td>
<td>5129.00</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>144214</td>
<td>180155.31</td>
<td>207357.92</td>
</tr>
</tbody>
</table>

Source: http://www.stpi.in/index1.php?langid=1&level=1&sublinkid=168&lid=177

3.6.3 Performance of STPI Registered Units

During the year 2008-09, 572 new units were registered under STP Scheme. As on 31st March 2009, 8455 units were operative out of which 7214 units were actually exporting.

The remaining units are at various stages of gestation as the scheme allows three years for companies to start commercial production. The growth in the number of operating and exporting units during the last 8 years is as under:

The following graph indicates STPI trends of revenue and expenditure. Software Technology Parks of India (STPI) scheme has played a pivotal role in catalyzing the growth of this sector and supporting its rapid proliferation across the country.

**FIG 3.19: PERFORMANCE & EXPENDITURE OF STPI REGISTERED UNITS**
The tax holiday has helped attract much needed investments (MNC and Indian) in the sector and the virtual model has allowed firms to avail benefits without constraints on their choice of location – encouraging entrepreneurship and integrated growth. Although the existing term of the STPI scheme is nearing its end (in 2009) the Government intends to continue the benefits offered, by introducing similar provisions in the Special Economic Zones (SEZ) policy – and further relaxing the minimum area requirements (to qualify for an SEZ status), for the IT-BPO sector.

While welcoming the government’s continued commitment to supporting the growth of the IT-BPO sector, experts have cautioned that losing the universal nature of the STPI is a regressive step that is likely to have a negative impact on the growth of the small and medium enterprises (SMEs) in the sector. It is argued that unlike the larger companies, SMEs will not have the capacity to build or occupy independent SEZ units, and will have to settle for sub-optimal (and likely more expensive) alternatives of renting parts of a large multi-product SEZ.

There has been an impressive growth of software exports made by STPI registered units, despite the Global recession. The exports grew from 180155.31 Cr in 2007-2008 to 207357.92 Cr in 2008-2009. The growth of software Export registered by the STP Units from the beginning of the decade is as follows.

**FIG 3.20: GROWTH OF SOFTWARE EXPORT REGISTERED BY THE STP**

![Graph showing growth of software exports](image-url)
The industry has voiced these concerns and is encouraged by the appreciative stance adopted by the government on this matter. Other aspects of continuing policy reform that will aid the sectors growth include the rationalization of international taxation policies, mutual trade agreements with partner nations, and a proactive and positive stance on international free trade.

3.7 SPECIAL ECONOMIC ZONES (SEZS)

3.7.1 Introduction

Asia’s first EPZ was set up in Kandla in 1965. Seven more zones were opened later, however they were not able to emerge as effective instruments in export promotion. While correcting the shortcomings of the EPZ model, some new features were incorporated in the Special Economic Zone (SEZ) policy announced in April of 2000.

The Government of India had announced a SEZ scheme in April, 2000 with a view to provide an internationally competitive environment for exports.

The objectives of SEZs include making available goods and services free of taxes and duties supported by quality infrastructure and an attractive fiscal package both at the center and State level with single window clearance and also with minimum regulations.

The SEZ concept recognizes the concept related to economic development and provides for self sustaining Industrial Townships so that the increased economic activity does not create pressure on the existing infrastructure. A comprehensive Special Economic Zone Act, 2005 was passed in the parliament in May 2005 and received Presidential approval on 23rd June 2005.

As a result of the Act and its rules it envisaged that the SEZ’S would attract a large flow of foreign and domestic investment in infrastructure and productive capacity leading to generation of additional economic activity and the creation of additional employment opportunities.

The main objectives of the SEZ Act are: Generation of additional economic activity Promotion of exports of goods and services Promotion of investment from domestic and foreign services Creation of employment opportunities Development of infrastructural facilities
3.7.2 The incentives and facilities offered

The incentives and facilities offered to the units in SEZs for attracting investments into the SEZs, including foreign investment include:-

- Duty free import/domestic procurement of goods for development, operation and maintenance of SEZ units
- 100% Income Tax exemption on export income for SEZ units under Section 10AA of the Income Tax Act for first 5 years, 50% for next 5 years thereafter and 50% of the ploughed back export profit for next 5 years.
- Exemption from minimum alternate tax under section 115JB of the Income Tax Act.
- External commercial borrowing by SEZ units upto US $ 500 million in a year without any maturity restriction through recognized banking channels.
- Exemption from Central Sales Tax.
- Exemption from Service Tax.
- Single window clearance for Central and State level approvals.
- Exemption from State sales tax and other levies as extended by the respective State Governments.

3.8 OUTLOOK THE YEARS AHEAD-THE INDIAN SOFTWARE INDUSTRY

The beginning of the new decade heralds the slow, but steady end of the worst recession in the past 60 years. Global GDP, after declining by 1.1 per cent in 2009, is expected to increase by 3.1 per cent in 2010, and 4.2 per cent in 2011, with developing economies growing thrice as fast as the developed economies.

The software and services exports expected to grow by 16% - 18% by FY2012. Broad based growth across service lines and verticals is expected. Improving economic conditions signifying return of consumer confidence and renewal of business growth, is expected to drive IT spending going forward.

FIG 3.22: IT/BPO EXPORTS
IT companies coming out of recession have to harness the need for information technology to create competitive advantage. Organizations now recognize IT’s contribution towards economic performance extending beyond managing expenditures.

FIG 3.23: IT/BPO DOMESTIC REVENUE
Software and services and growth forecast 15%-17% (INR). Technology enabled inclusion witnessing new products and solutions. IT expected to play a role in reducing enterprise costs, not merely with cost cutting but by changing business processes, workforce practices and information use. Movement toward cloud computing, shared services, and more selective outsourcing will take firmer shape as near-term priorities to address constrained IT budgets change.

Government IT spending continues to rise across the world, focusing on infrastructure, and security. Growing forward the growth in worldwide IT/BPO spending is on the increase.

FIG 3.24: WORLDWIDE IT/BPO SPENDING
Other areas of spending include BPM, data management, on demand ERP, virtualization, and efforts to increase and deliver enterprise managed services on IP networks. Business process outsourcing spending in 2010 is expected to be increasingly driven by F&A segment and procurement, followed by HR outsourcing. Providers will increase their focus on developing platform BPO solutions across verticals and services.

2010 has witnessed an IT hardware refresh year with Windows 7 driving the replacement cycle, albeit in a highly cost constrained environment. Lower configured systems, lower ASPs, virtualization and consolidation which mean that the increase in replacement demand will not necessarily be reflected in increased levels of spend.

Growth in outsourcing is expected to supersede overall IT spend reaffirming its potential to not only support short term, tactical goals of cost savings, but also long term advantages of increased competitiveness, efficiencies and access to emerging markets.

**FIG 3.25: GLOBAL SOURCING MARKET SIZE**
Within outsourcing, offshoring will see increased acceptance as offshore based providers grow and traditional service providers ramp up offshore delivery capabilities.

Even though India has a 51 per cent market share of the offshoring market, there is tremendous headroom for growth as current offshoring market is still a small part of the outsourcing industry. Significant opportunities exist in core vertical and geographic segments of BFSI and US, and emerging geographies and vertical markets such as Asia Pacific, retail, healthcare and government respectively. Development of these new opportunities can triple the current addressable market, and can lead to Indian IT-BPO revenues of USD 225 billion by 2020. The government is taking up E-commerce and increasing its IT outlay with an allocation of more than US $ 4000 million outlay for Unique Identification Authority of India (UIDA) in 2010-2011.

**FIG 3.26: COST COMPETITIVENESS COMPARISON**
The software industry also has the potential to transform India by harnessing Technology for growth. However, realization of this potential will involve mitigation of several challenges that India faces currently. Costs are expected to rise with wage inflation and increased attrition. While India has ample supply of talent, it is largely trainable in nature, not employable. This leads to incremental training costs and increased downtime for the industry, which is challenging keeping in mind quality talent availability in competing countries.

Despite the cost increase and inflation, India continues to leverage its cost advantage. In India salary costs are only 50% of development cost. Hence exposure to wage inflation is substantially less than US where salary accounts for 80% of the total cost.

Currently India has 72% cost advantage compared to the US. Even if we assume that US cost to increase by 3% CAGR and wages and other costs in India increase by 15% and 3% CAGR respectively, then too India will enjoy a 53% cost advantage.

Hence India’s long term cost advantage will remain robust.

Currently, over 90 per cent of total revenues are generated from the seven 10 Tier-I locations, which are nearing peak capacities in terms of infrastructure support. India has to quickly develop other delivery locations to achieve its 2020 vision. There are concerns around security – both physical and data related, in service delivery, which would need to be addressed.
Currency fluctuations have also dented India’s competitiveness, and steps need to be taken to address India’s increased risk perception. A key impact of the recession has been the rise of protectionist sentiments in major markets for the industry.

The impending discontinuation of fiscal incentives and frequent changes in fiscal regulations are making the business environment more challenging. Last but not the least, a number of new outsourcing destinations seeking to emulate India’s success have emerged, offering multiple fiscal and training incentives, making them cost competitive.

Concerted action by all stakeholders around below parameters is required to capture the opportunities and mitigate future risks. In doing so, stakeholders (industry, NASSCOM and the government) will need to act together in an unprecedented manner:

• **Catalyzing growth beyond today’s core markets:** Breaking ground in new markets (verticals, geographies, segments) through reinvented offerings and business models.

• **Establishing India as a trusted global hub for professional services:** Building a favorable business environment (improved infrastructure, public services, corporate governance, and security) and a strong global image. This will require the stakeholders to address risk issues associated with India, and make serious efforts to build a strong global brand.

• **Harnessing ICT for inclusive growth:** Stimulating inclusion of citizens by enabling technology led solutions in healthcare, financial services, education and public services, leading to increased connectivity, improved soft infrastructure, and a balanced regional development.

• **Developing a high caliber talent pool:** Bridging a crucial talent gap by addressing gaps in tertiary education, at the same time fuelling efforts to upgrade curriculum, faculty and training methodologies.

• **Building a pre-eminent innovation hub in India:** Encouraging intellectual property, establishing distinctive capabilities and fuelling entrepreneurship.

India’s technology and business services industry has flourished in the last decade. A bright future lies ahead and the industry has much to look forward to, with the potential to quadruple its revenues over the next decade. Macro-economic and social trends will support the rise of the IT-BPO sector in the future, in core and emerging markets. However, it is imperative for industry stakeholders to break out of the traditional mould that resulted in past successes and step up to the aspirations as it would need new business models, reinvented service offerings and an enabling environment supported by adequate levels of infrastructure and talent. India faces
serious competition from other global sourcing locations, and to retain its advantage, concerted effort is needed by all stakeholders. Development of Tier-II/III cities to support major delivery locations is an imperative, along with upgrading the overall quality of talent pool. The government needs to continue nurturing this industry with incentives and a simplified tax structure that will promote investments, and also will need to drive the domestic industry by spending on e-Governance projects.

**Fig 3.27 IT SECTOR REVENUE**

![Graph showing IT sector revenue comparison between FY2009, FY2010, and FY2011](image)

Source: NASSCOM Strategic review IT/ITES 2011

The sector aggregated revenues of USD 73.9 billion in FY2010, a growth of 5.4 per cent over FY2009, and generated direct employment for 2.3 million people.

**FIG 3.28: DIRECT EMPLOYMENT GENERATED BY IT SECTOR**
10% employee growth corresponds to 18.7% of the revenue growth signifying growing non-linearity. The industry today has diversified beyond traditional IT into many more service lines, with Indian and MNC service providers collaborating and competing to build the industry. Technology enabled inclusion is witnessing new products and solutions.

FIG 3.29: INDIA’S VALUE PROPOSITION

India’s growth is driven by strong fundamentals and unique multipliers
There are a number of other factors that are fueling the growth of IT/BPO Industry.

Source: NASSCOM strategic review IT/ITES 2011
Due to these push factors and India’s value proposition India continues to take center stage in Global sourcing strategies. Shared vision with customers on driving transformation and enterprise wide efficiency supports India to maintain its cost effective destination image.

By 2020 the industry will generate direct employment to the extent of 10 million and indirect employment to the extent of 20 million. According to NASSCOM by 2020 four million people will be employed by IT/ITES industry from TIER 2/3 locations a 20-fold jump in the number of employees operating from these destinations. Around 8-10 satellite townships are expected to come up in Tier 2 locations with 10-15 Tier 2 cities providing high quality talent.
Clearly the Indian IT industry is expected to emerge as a strategic growth engine for the country by 2020, impacting country’s annual GDP and exports, employment, regional growth, fiscal burden and innovation in the future.

President of the industry lobby group NASSCOM (National Association of Software & Services Companies) Som Mittal said growth has come back to India’s IT and ITeS industry and “the growth is going to be very different from the growth that we had in the past”. “...as per our analysis, in the coming decade (2011-2020), 80% of the new opportunities are going to be from new areas such as new geographies, new verticals, new customer segments”, he said. 80% of the fresh opportunities for India's IT and ITES sector in the current decade (2011-2020) is going to come from new geographies, verticals and customer segments.

The Indian information technology sector continues to be one of the sunshine sectors of the Indian economy showing rapid growth and promise. According to a report prepared by McKinsey for NASSCOM called 'Perspective 2020: Transform Business, Transform India' released in May 2009, the exports component of the Indian industry is expected to reach US$ 175 billion in revenue by 2020. The domestic component will contribute US$ 50 billion in revenue by 2020. Together, the export and domestic markets are likely to bring in US$ 225 billion in revenue, as new opportunities emerge in areas such as public sector and healthcare and as geographies including Brazil, Russia, China and Japan opt for greater outsourcing.

4.1 INTRODUCTION
Andhra Pradesh is the fifth largest state /province in India covering an area of 2,74,054 sq.Kms with a coast line of 970 nautical miles. Andhra Pradesh is a resourceful land of minerals which include gold, bauxite, coal, oil and much more. It is well connected by all modes of surface transport - east coast railway, national highway No.5 and domestic air linkages.
The city of Visakhapatnam was originally a small fishing village but due to its natural harbour it developed into a major port. It has experienced rapid industrialisation with the growth of major industries.

Visakhapatnam, popularly known as Vizag, is a fast developing port city with a land area of 530 square kilometres, Visakhapatnam is the country’s largest city in terms of land and Andhra Pradesh’s second largest urban agglomeration in population. On account of rapid industrialisation, there has been significant migration into the city.

This strategic geographical location coupled with the availability of the other associated factors in logistics has enabled the city to attract large commercial investments and the major public and private sector industries. In recent years, there has been a spurt in investments in the city and its surrounding areas giving further impetus to transform the city as a future mega city. Vizag has been the first city in the country to implement e-governance and still leads in offering a variety of services to its residents online.

It is considered as the hub of industrial activity in south India. Hyderabad and Visakhapatnam have become the nerve centers for manufacturing, Information Technology, tourism and services. The state provides a cosmopolitan environment with good quality of life. (www.apinvest.co.in).

FIG 4.01: INDUSTRIAL CLUSTERS IN ANDHRA PRADESH