CHAPTER - 4

AN OVERVIEW OF SOFTWARE INDUSTRY

4.1 INTRODUCTION

The Information Technology - Information Technology Enabled Services (IT-ITeS) sector is a field which is undergoing rapid evolution and is changing the shape of Indian business standards. This sector includes software development, consultancies, software management, online services and business process outsourcing (BPO).

According to an article in the Times of India, India's liberalization was possible due to its IT industry. In the 1990s, the industry started off with an export of nearly $100 million with around 5,000 employees. Now it is an industry that thrives globally and India's IT exports are now around $70 billion with 2.8 million employees working in this sector. The IT sector is one of the top two industries in the country today.

A report by Ernst & Young states that the domestic IT demand in India is expected to surpass US $90 billion in the next decade. This clearly shows that information technology is a sector which will likely be one of the emerging markets in the days to come as India's economy requires more hardware, software and other IT services. In a NASSCOM-McKinsey report, India's position in the global offshore IT industry is based on five factors - abundant talent, creation of urban infrastructure, operational excellence, conducive business environment and finally, continued growth in the domestic IT sector.

The IT industry is heavily influenced by factors like the global market and sustenance of its rate of growth. The recession in the United States also impacted the IT community in India negatively. This segment is promising and has vast potential, but there are concerns regarding the demand-supply gap, which is widening. Some challenges which the industry is facing are inadequate infrastructure, tax issues and limited preferential access.
for local firms. China and Taiwan are examples of low cost destinations, and India needs to change its current tax structure so that it can outdo competition from other countries.

One of the biggest benefits that the computer and IT industry provides in India is the employment it can generate. Other benefits are export and Foreign Direct Investments (FDI). New markets have opened up in the Middle East, Africa, Eastern Europe, and South and South East Asia. India is now a major destination for IT outsourcing.

Some leading firms that offer job opportunities in this field are Tata Consultancy Services (TCS), Wipro Technologies, Cognizant, Yahoo!, Google, Tech Mahindra, Infosys Technologies, HP, iGATE Patni, Accenture, L&T, EY, Convergys, Mphasis Genpact, HCL Technologies and Godrej Infotech. Cities like Bengaluru, Delhi, Noida, Gurgaon, Hyderabad, Chennai, Bombay and Cochin are some of the key areas which have developed into potential IT hubs of the country and are key players which contribute to the growth of the Indian economy through telecommunication, software development, design, mobile commerce, e-commerce, BPO and knowledge process outsourcing (KPO).

The IT industry is one which is not limited to software development alone. Technology can be applied in libraries, hospitals, banks, shops, prisons, hotels, airports, train stations and many other places through database management systems, or through custom-made software as seen fit.

Among other sectors, the IT industry has been driving growth for the last decade and more, and has the potential to continue doing so for the next couple of years if shortcomings are met and challenges are faced.

4.1.1 History

Information technology is playing an important role in India today and has transformed India's image from a slow moving bureaucratic economy to a land of innovative entrepreneurs. The IT sector in India is generating 2.5 million direct employments. India is now one of the biggest IT capitals of the modern world and all the major players in the world IT sector are present in the country.
Bangalore is considered to be the Silicon Valley of India because it is the leading IT exporter. Exports dominate the industry and constitute about 77% of the total industry revenue. However, the domestic market is also significant with a robust revenue growth. The industry’s share of total Indian exports (merchandise plus services) increased from less than 4% in FY1998 to about 25% in FY2012. According to Gartner, the "Top Five Indian IT Services Providers" are Tata Consultancy Services, Infosys, Cognizant, Wipro, and HCL Technologies.

Regulated VSAT links became visible in 1994. Desai (2006) describes the steps taken to relax regulations on linking in 1991:

In 1991 the Department of Electronics broke this impasse, creating a corporation called Software Technology Parks of India (STPI) that, being owned by the government, could provide VSAT communications without breaching its monopoly. STPI set up software technology parks in different cities, each of which provided satellite links to be used by firms; the local link was a wireless radio link. In 1993 the government began to allow individual companies their own dedicated links, which allowed work done in India to be transmitted abroad directly. Indian firms soon convinced their American customers that a satellite link was as reliable as a team of programmers working in the clients’ office.

Videsh Sanchar Nigam Limited (VSNL) introduced Gateway Electronic Mail Service in 1991, the 64 kbit/s leased line service in 1992, and commercial Internet access on a visible scale in 1992. Election results were displayed via National Informatics Centre's NICNET.

The Indian economy underwent economic reforms in 1991, leading to a new era of globalization and international economic integration. Economic growth of over 6% annually was seen during 1993-2002. The economic reforms were driven in part by significant the internet usage in the country. The new administration under Atal Bihari Vajpayee 1999 Govt pm—which placed the development of Information Technology among its top five priorities— formed the Indian National Task Force on Information Technology and Software Development.
Wolcott & Goodman (2003) report on the role of the Indian National Task Force on Information Technology and Software Development: Within 90 days of its establishment, the Task Force produced an extensive background report on the state of technology in India and an IT Action Plan with 108 recommendations. The Task Force could act quickly because it built upon the experience and frustrations of state governments, central government agencies, universities, and the software industry. Much of what it proposed was also consistent with the thinking and recommendations of international bodies like the World Trade Organization (WTO), International Telecommunications Union (ITU), and World Bank. In addition, the Task Force incorporated the experiences of Singapore and other nations, which implemented similar programs. It was less a task of invention than of sparking action on a consensus that had already evolved within the networking community and government.


Throughout the 1990s, another wave of Indian professionals entered the United States. The number of Indian Americans reached 1.7 million by 2000. This immigration consisted largely of highly educated technologically proficient workers. Within the United States, Indians fared well in science, engineering, and management. Graduates from the Indian Institutes of Technology (IIT) became known for their technical skills. The success of Information Technology in India not only had economic repercussions but also had far-reaching political consequences. India's reputation both as a source and a destination for skilled workforce helped it improve its relations with a number of world economies. The relationship between economy and technology—valued in the western world—facilitated the growth of an entrepreneurial class of immigrant Indians, which helped aid in promoting technology-driven growth.

The India Startup Ecosystem Timeline has been compiled with key events from the IT industry, including software services, MNCs, and startups.
4.2 Scope of IT Industry

There is very bright scope for IT-ITES industry as it is strongest industry sector in India. Today the exports for the IT-ITES sectors are growing with increasing rate and the overall global market is very healthy. The IT industry has great scope for people as it provides employment to technical and non-technical graduates and has the capability to generate huge foreign exchange inflow for India. India exports software's and services to approximately 95 countries in the world. By outsourcing to India, many countries get benefits in terms of labour costs and business processes. Also, the Indian companies are broadening the range of services being provided to the customers, which is resulting in more off shoring. Talent acquisition, development and retention initiatives taken by the companies have brought down the employee attrition rates, thereby providing more stability to the employees and increasing their job commitment.

Recently, economic survey revealed that IT-ITES sector created almost 3 million additional jobs this year and number will go on in the immediate future. The main reason behind this is that, the requirement is far more than the current supply of the technical manpower. Thus, the scope for the sector is enormous in India. As the requirement is huge, more and more colleges and courses are offered to meet the manpower needs of the industry. Because of this, more and more students in India are opting for a career in IT-ITES Sector. However, according to some of the top industry experts, the attrition rate is high making jobs in the IT-ITES sector vacant. Moreover, the gap between demand and supply of skilled employees is cause of concern.

The Indian IT Industry has grown at a rate of 30% annually over the last ten years and has an immense scope at present. Backed by skilled manpower, cost effectiveness, lower telecommunication costs and the reduced import duties on hardware and software products, the Indian IT Industry has played a key role in global economy since the last ten years. Asides from the International market there has been a constant focus on the local potential which already has and will continue to prove beneficial for the Indian IT industry. In fact very recently NASSCOM had claimed that the ITES and IT industry has
been able to register a 25% growth annually, sustaining near about two million jobs in the technical and non-technical fields.

The Indian Government has been committed to the development of the IT industry by embracing all out efforts to ensure its steady growth:

- Promotion of Domestic industry so as to realize the potential of small but talented entrepreneurs
- Provision of incentives for entrepreneurs
- Setting up of National Task Force to review the possibilities for the sector
- Efforts to step up U.S investments in India
- The consistent contribution of the Internet to India’s economy also propelled the government to rethink its decision on formation of a global body to review internet content.

BPO, Software and Online Services are some of the sectors in which much penetration has been made. Additionally, these sectors are also aiming for further growth. The figures achieved by these industries will help you to have a better understanding about their scope and future.

BPO: According to NASSCOM, FY2012 has been a milestone year for the BPO Industry with exports pitched at USD 69 billion while the aggregate managed to surpass the 100 billion mark (USD). KPO or Knowledge Process Outsourcing is a direct output of the successful ventures of India’s off-shore BPO sector. The information security and the quality of information delivered by the Indian BPO industry are acclaimed worldwide.

Software: According to an Economic Standard report, shipping increased by 37%, and the Monster Employment Index deemed it as the highest annual growth among sectors.

Online Service: This sector continues to witness astounding success as more and more customers are increasingly getting habituated to the use of internet. The use of Broadband and internet is seen as an effective tool to bolster the nation’s economic as well as social development. No doubt its contribution to the nation’s GDP is impressive.
Mobile commerce in rural areas is seeing a steady rise. Bigger companies like cars are increasingly resorting to online campaigns. According to IAMAI the Mobile Advertising sector is well poised to touch INR 144 cores by the year 2013.

4.3 Growth of IT sector

The Indian information technology sector has been instrumental in driving the nation’s economy onto the rapid growth curve. According to the Nasscom-Deloitte study, the IT/ITES industry’s contribution to the country’s GDP has increased to a share of 5.2 per cent in 2007, as against 1.2 per cent in 1998.

Further, the IT and BPO industries are poised to clock revenues worth US$ 64 billion by the end of fiscal year 2008, registering a growth of 33 per cent with exports expected to cross US$ 40 billion and the domestic market estimated to clock over US$ 23 billion, according to a study. Simultaneously, 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.

India’s IT growth in the world is primarily dominated by IT software and services such as Custom Application Development and Maintenance (CADM), System Integration, IT Consulting, Application Management, Infrastructure Management Services, Software testing, Service-oriented architecture and Web services. By 2015, IT sector is expected to generate revenues of USD 130 billion (NASSCOM) which will create a transformational impact on the overall economy.

- India’s technology and BPM sector (including hardware) is estimated to have generated US$ 146 billion in revenue during FY15 compared to US$ 118 billion in FY14, implying a growth rate of 23.72 per cent
- The contribution of the IT sector to India’s GDP rose to approximately 9.5 per cent in FY15 from 1.2 per cent in FY98
- The top six firms contribute around 36 per cent to the total industry revenue, indicating the market is fairly competitive, with TCS being the leader accounting for about 10.1 percent.
India's spending on IT may rise over 5% to US$ 6.88 billion this year:

**Bengaluru:** Research firm Gartner Inc. expects the Indian government to increase its spending on information technology products and services by 5.2% to $6.88 billion this year as it steps up efforts to connect more people on Internet. The spending on services, which includes consulting, IT outsourcing and back-office related work, is likely to grow 10% to $1.6 billion, the data from Gartner showed.

The research agency expects investments in telecommunications services to grow 3% to $1.6 billion, driven by the rise in mobile network services. Mobile network services may account for half of the spending in telecommunications services, it said.

The government’s initiatives to create a digitally-connected India through greater access to government services on mobile devices, wider reach of broadband network and creating more smart cities will drive its spending on information and communication technology, said Anurag Gupta, a research vice president at Gartner.
The Indian government is set to spend $18 billion on a massive campaign called Digital India that aims to more get people online faster and connect as many as 250,000 villages across the country using Internet by 2019.

The initiative is also aimed at providing electronic governance and universal phone connectivity across the country, and bridge the gap between those who have and don’t have access to Internet.

Gartner also expects the government’s spending on software to rise nearly 11% to $869 million this year. The spending on salaries and benefits paid to information services providers, including those who plan, develop, implement and maintain IT systems, is likely to grow 8.8% to $1.6 billion, it said.

**4.4 Market Size**

India, the fourth largest base for new businesses in the world and home to over 3,100 tech start-ups, is set to increase its base to 11,500 tech start-ups by 2020, as per a report by Nasscom and Zinnov Management Consulting Pvt Ltd.

India’s internet economy is expected to touch Rs 10 trillion (US$ 151.6 billion) by 2018, accounting for 5 per cent of the country’s gross domestic product (GDP), according to a report by the Boston Consulting Group (BCG) and Internet and Mobile Association of India (IAMAI). India’s internet user base reached over 350 million by June 2015, the third largest in the world, while the number of social media users grew to 143 million by April 2015 and smartphones grew to 160 million.

Public cloud services revenue in India is expected to reach US$ 838 million in 2015, growing by 33 per cent year-on-year (y-o-y), as per a report by Gartner Inc. In yet another Gartner report, the public cloud market alone in the country was estimated to treble to US$ 1.9 billion by 2018 from US$ 638 million in 2014. Increased penetration of internet (including in rural areas) and rapid emergence of e-commerce are the main drivers for continued growth of data centre co-location and hosting market in India.
4.5 Opportunities in IT-ITES industry in India

There is an extremely bright scope for IT-ITES trade, since it is strongest business sector in India. Nowadays the exports for the IT-ITES sectors are on the rise with increasing rate and the overall international market is also very strong. If one wants to identify what the range of IT-ITES sector is, just have a look at the quarter end monetary results of the this sector. The reports are exceptional and it looks as if the growth of the IT trade is not going to come to an end so easily.

Lately, financial study discovered that IT-ITES sector created about 3 million extra employments this year and number will continue in the immediate future, as well. The major cause behind this is that, the need is awfully more than the present availability of the technical manpower. Therefore, the opportunity for the sector is massive in India. Since the need is enormous, more and more institutions and courses are offered to meet the manpower requirements of the industry. Due to this, more and more undergraduates in India are choosing a profession in IT-ITES Sector. But, in relation to a number of the top trade professionals, the attrition rate is high making jobs in this sector vacant. Furthermore, the gap amid demand and supply of capable workforce is a cause of alarm. Due to devoted hard work and successful strategies of the IT companies, India has made an international mark in world trade and there are lots of Companies in India offering work opportunities in IT-ITES Sector.

4.6 Challenges and Positives:

Can we stay Competitive? In the recent past we have seen that the Globalization 3.0 has resulted in Outsourcing and Off-shoring spreading to various other countries like China, Vietnam, Philippines and the Eastern European countries. In the wake of such competition can we still remain competitive? The answer is pretty much yes. We know that our assets are the talented pool of people who are not only competent technically but also linguistically better at English compared to the other competitors. Also the government support, labor pool, infrastructure, educational system, cost, political and economic environment, cultural compatibility, global and legal maturity,
and data and intellectual property security and privacy give Indian IT companies and edge. But contradicting this is the Nasscom survey, which states that majority of the graduates coming out of the colleges today are unemployable. We need to introduce training programs in colleges to train the talent pool of students not only technically but also on soft skills. The training should also be imparted to the faculty to generate a better equipped talent force. These measures have already being taken by the IT companies, which also helps in reducing the training costs incurred by the IT companies after recruitment.

**Dependency on the US:** In the wake of the Sub-Prime crisis and subsequent economic recession in the US, the companies there started cutting down costs and one of them being IT expenditures. Because the majority of the IT companies in India have an export driven business model and majority of it is to the US, the companies have been facing a lot of heat. Some of the clients of these IT companies have gone bankrupt; some others have incurred heavy losses (Citigroup, Bear Sterns, and HSBC etc.) The IT companies should therefore explore options in Europe, the western Asia and Asia-Pacific and reduce direct dependency on the US.

Though it seems paradoxical but recession in the US is only going to make the Industries over there outsource more, primarily to reduce their costs by efficient application of IT, cheaper labor and cost effectiveness.

**Indian IT firms outsourced and Off-shored!** : It is observed that competitive markets have emerged in Latin America, Eastern Europe and South East Asia. Moreover there are emerging economies present in these areas like Brazil, Russia etc. The IT companies have already forayed in these countries for two primary reasons: First, it provides them to take advantages of cost-effectiveness in these areas due to new talent pool, Lower wages and greater advantage by making their exports cheaper and competitive. Second, places like Mexico have emerged as a major outsourcing and offshore development centre for the IT companies due to the proximity to their major business clientele in the
USA. This not only provides cost-effectiveness, but also helping the client in round the clock service providing environment.

**Rupee Appreciation and FII:** In the wake of US crisis it was observed that the rupee appreciated due to the weakened US economy, Federal bank interest cuts and subsequent FII inflows in the country. Due to this IT companies in India incurred lower profit margins. On the flipside it surely gave them a wake-up call to effectively utilize the resources and bench strength. FII inflows and FDI in the IT sector surely helps in rolling out further expansion plans but excess FII also make the exports incompetent. So the govt. should take steps to manage excess FII inflows into the country and hedge the export driven sectors against the rupee appreciation.

**IT SEZ’s:** To further make the IT fraternity competitive, the govt. should take steps to develop IT Sez’s. This will reduce the excess tax burden on these IT companies. Moreover STPI (Software Technology Parks of India) have already enabled the IT companies and new startups to carry out the documentation and licensing and tax payment hassles through a single window system. Moreover the govt. should also relax norms for DTA (domestic Tariff Areas) to promote IT spending in the country itself at a lesser cost leading to development of the country.

**Diversification In Verticals:** In the wake of US crisis, one of the Indian IT company suffered major drop in profits because majority of its clientele in the BFSI (Banking Financial Sector and Insurance). This was the sector which took the brunt of the recession. And the company’ BFSI clients cut down on their IT spending leading to lower profits. Thus the companies should balance their presence in various verticals which will surely make them immune to unforeseen events.

**Telecom and 3G:** The roll out of 3G of mobile phones in India should be seen as a positive development for the IT companies. In the long run it is going to provide basic communication facilities in the rural areas of the country. Unlike the US where 3G brings luxury, In India it is going to provide basic communication and broadband access to the
rural youth. This will result in dissemination of information and creating further talent pool for the country. We have already seen the IT industry moving to Tier-II and Tier-III cities to tap local talent and maintain cost-effectiveness. Moreover Growth in Telecom industry also demands greater IT application in terms of **VAS (Value Added Services), Telecom Billing Solutions, IVRS** etc.

**Domestic Markets:** Dalian in China has been growing as the major IT hub there. If actually compared China’s IT spending is five times that of India, most of it being domestically. This could be also seen in the organization of retail sector in China showcasing the presence of Retail majors like Wal-Mart there. Hence IT companies should also focus more on the domestic markets with major projects lining up inside the country as well for instance the **Railways ERP project**, the **BSNL systems integration, networking projects, IT work from ministry of finance and private telecom companies, banks** and others are offering multi-year contracts that are over **US$ 100 million.** Moreover multinationals have been lining up in India further strengthening the IT growth in India.

**4.7 Employment Generation**

This sector has also led to massive employment generation. The industry continues to be a net employment generator — expected to add 230,000 jobs in fiscal year 2012, thus providing direct employment to about 2.8 million, and indirectly employing 8.9 million people, making it a dominant player in the global outsourcing sector. However, it continues to face challenges of competitiveness in the globalized and modern world, particularly from countries like China and Philippines.

India's growing stature in the Information Age enabled it to form close ties with both the United States of America and the European Union. However, the recent global financial crises have deeply impacted the Indian IT companies as well as global companies. As a result, hiring has dropped sharply, and employees are looking at different sectors like financial services, telecommunications, and manufacturing industries, which have been growing phenomenally over the last few years. India's IT
Services industry was born in Mumbai in 1967 with the establishment of Tata Group in partnership with Burroughs. The first software export zone SEEPZ was set up here way back in 1973, the old avatar of the modern day IT park. More than 80 percent of the country's software exports happened out of SEEPZ, Mumbai in 1980s.

4.8 Investments

Indian IT's core competencies and strengths have attracted significant investments from major countries. The computer software and hardware sector in India attracted cumulative foreign direct investment (FDI) inflows worth US$ 17.575 billion between April 2000 and May 2015, according to data released by the Department of Industrial Policy and Promotion (DIPP).

The private equity (PE) deals increased the number of mergers and acquisitions (M&A) especially in the e-commerce space in 2014. The IT space, including e-commerce, witnessed 240 deals worth US$ 3.8 billion in 2014, as per data from Dealogic.

India also saw a ten-fold increase in the venture funding that went into internet companies in 2014 as compared to 2013. More than 800 internet start-ups got funding in 2014 as compared to 200 in 2012, said Rajan Anandan, Managing Director, Google India Pvt Ltd and Chairman, IAMA.

About 554 start-ups received funding this year compared to 342 during last year. Seed and venture capital funds made investments worth US$ 3.4 billion this year, three times the investment made last year. VC funding to the IT/ITes sector amounted to 55 per cent of total VC funding made this year.

Most large technology companies looking to expand have so far focused primarily on bigger enterprises, but a report from market research firm Zinnov highlighted that the small and medium businesses will present a lucrative opportunity worth US$ 11.6 billion in 2015, which is expected to grow to US$ 25.8 billion in 2020. Moreover, India has nearly 51 million such businesses of which 12 million have a high degree of technology influence and are looking to adopt newer IT products, as per the report.

Some of the major developments in the Indian IT and ITeS sector are as follows:
A recent study by research firm International Data Corporation (IDC) suggests that India may soon be able to catch up with the global technology trends that have disrupted enterprises, industry and the way consumers behave and transact.

Wipro has won a US$ 400 million, multi-year IT infrastructure management contract from Swiss engineering giant ABB, making it the largest deal for the technology company.

Reliance is building a 650,000 square feet (sq ft) data centre in India—its 10th data centre in the country—with a combined capacity of about 1 million sq ft and an overall investment of US$ 200 million.

Intel Corp plans to invest about US$ 62 million in 16 technology companies, working on wearable, data analytics and the Internet of Things (IoT), in 2015 through its investment arm Intel Capital. The Indian IoT industry is expected be worth US$ 15 billion and to connect 28 billion devices to the internet by 2020.

Wipro announced in July its plan to acquire Designit, a global strategic design firm from Denmark for US$ 94 million.

Maharashtra government has received a proposal worth Rs 4,500 crore (US$ 682 million) investment from global investment and advisory firm Blackstone. The proposed investment will be made at various places like IT parks in Pune, Central Mumbai, among others.

Indian e-commerce industry is expected to grow at a CAGR of 35 per cent to reach US$ 100 billion size in the next five years, as per a study by Assocham-PricewaterhouseCoopers.
4.9 Government Initiatives.

Some of the major initiatives taken by the government to promote IT and ITeS sector in India are as follows:

The Government of India has launched the Digital India program to provide several government services to the people using IT and to integrate the government departments and the people of India. The adoption of key technologies across sectors spurred by the 'Digital India Initiative' could help boost India's gross domestic product (GDP) by US$ 550 billion to US$ 1 trillion by 2025, as per research firm McKinsey.

- India and the United States (US) have agreed to jointly explore opportunities for collaboration on implementing India's ambitious Rs 1.13 trillion (US$ 18.22 billion) ‘Digital India Initiative’. The two sides also agreed to hold the US-India Information and Communication Technology (ICT) Working Group in India later this year.

- Union Human Resource Development Minister Mrs Smriti Irani has launched the National Web Portal for promotion of National Apprenticeship Scheme for graduates, diploma holders and 10+2 pass-outs vocational certificate holders, with a view to bridge the gap between the students and the industry.

- The Government of Telangana has begun construction of a technology incubator in Hyderabad—dubbed T-Hub—to reposition the city as a technology destination. The state government is initially investing Rs 35 crore (US$ 5.3 million) to set up a 60,000 sq ft space, labelled the largest start-up incubator in the county, at the campus of International Institute of Information Technology-Hyderabad (IIIT-H). Once completed, the project is proposed to be the world’s biggest start-up incubator housing 1,000 start-ups.

- Bengaluru has received US$ 2.6 billion in venture capital (VC) investments in 2014, making it the fifth largest recipient globally during the year, an indication of the growing vibrancy of its startup ecosystem. Among countries, India received the third highest VC funding worth US$ 4.6 billion.
4.10 Future of the IT Industry in India

The future is definitely bright as more and more students are opting for the IT jobs thus bringing their own ideas to contribute in a significant way. Additionally significant attempts are being made at infrastructural improvement matching international standards. Cities like Bengaluru, Delhi, and Gurgaon etc are some of the key players in the IT field which have brilliant commercial exploits to their credit. The emergence of tier II cities in the IT scenario is also expected in near future. Telecommunication, software, designing, and KPO are some of the sectors which are expected to register further growth.

The current scenario in the IT industry of India and the tremendous growth registered in recent years has generated much optimism about the future of the Indian Information technology industry. Analysts are upbeat about the huge potential of growth in the Information Technology industry in India.

The major areas of benefit that the future growth in the IT industry can generate for the Indian economy are -

**Exports** - The IT industry accounts for a major share in the exports from India. This is expected to grow further in coming years. The information technology industry is one of the major sources of foreign currency or India.

**Employment** - The biggest benefit of the IT industry is the huge employment it generates. For a developing country like India, with a huge population, the high rate of employment in the IT sector is a big advantage. The IT industry is expected to generate employment of 2.2 million by the end of 2008 which is expected to increase significantly in coming years.

**FDI (Foreign Direct Investment)** - High inflow of FDI in the IT sector is expected to continue in coming years. The inflow of huge volumes of FDI in the IT industry of India has not only boosted the industry but the entire Indian economy in recent years.
The NASSCOM-Mckinsey report on the IT industry of India projects that the Indian IT industry will reach 87 billion US Dollars by the end of 2008. 2.2 million Employment is expected to be created in the IT industry according to this report. The report also projects 50 billion US Dollars of IT exports from India by the end of 2008.

Software exports from India are expected to grow in coming years. New Markets for software exports from India have opened up in the Middle East, South and Southeast Asia, Africa, and Eastern Europe. The reputation that India has earned as a major destination for IT outsourcing has opened further possibilities. Many developing countries are now using the Indian model for growth in the IT sector.

Another important area of future growth for the IT industry of India is the domestic market. While exports dominate the IT industry at present, there is huge scope of growth in the domestic market which can be tapped in the future.

The US recession has had its share of negative impacts on the Indian IT industry. However, the industry has faced the challenges posed by the global market and is sustaining its rate of growth. The focus for the future is to ensure that the benefits of the IT industry percolate to the grassroot levels.

**4.11 IT sector to touch $350 bn in revenues by 2025**

**New Delhi:** Nasscom, apex body for the information technology sector, said the segment would nearly triple its annual revenue to $350 billion by 2025. A report issued on Monday by Nasscom and McKinsey, titled 'Perspective 2025: Shaping the digital revolution', said the sector was "well on track" to grow from $132 bn in FY15 to $225 bn by 2020 and $350 bn by 2025. Of the $350 bn, exports are expected to account for about $280 bn.

But this growth would depend on a number of actions by the firms in this space, including making a significant investment in building the digital business and creating new service catalogue, pursuing an active merger and acquisition strategy.
"There is a continued progression of double-digit growth, despite expansion of base. But, below the calm waters, there is a lot of churn happening as well and firms will have to do a lot of things to address the challenges," Nasscom President R Chandrashekhar said.

It has said the range of products and services requiring enabling of IT is widening. "The industry is expected to grow at over 11 per cent (annually). About 1.2-2 million people will be added with the next $100 bn revenue."

Chandrashekhar added the sector faced various obstacles, geopolitical to regulatory. Also, there was a need for innovation and 'disruption'.
The sector today employs around three million people directly.
The total addressable market for global technology and business services is likely to expand to about $4 trillion by 2025, said the report.
The global and domestic market presents a huge opportunity for companies that can build expertise in these technologies and deliver value through these.

"The technology and services industry in India has become a transformational partner for its customers. The report identifies innovative and disruptive technologies that will shape the enterprise of the future," said B V R Mohan Reddy, chairman of Nasscom.

He said taxation issued and difficulties around starting and exiting of businesses are major problems the sector is facing. "We are engaging with the government to suggest how it can be made easy for entrepreneurs to start a business. We are looking at rebranding Nasscom and the role we play to reflect the changes in the environment."

Noshir Kaka, managing director in India of McKinsey, said IT companies trying to prosper in this day and age will have to work in six new areas - the internet of things, cyber security, social, mobility, analytics and cloud.
"Probably the most pressing need is for companies to develop offerings, along with new digital service lines, even as they re-invent their traditional ones," he said. "The focus on Digital India, Skills India and other such initiatives will drive consumption in India."

4.12 Company profiles

4.12.1 Infosys Limited

Infosys was co-founded in 1981 by Narayan Murthy, Nandan Nilekani, N. S. Raghavan, S. Gopalakrishnan, S. D. Shibulal, K. Dinesh and Ashok Arora after they resigned from Patni Computer Systems. The company was incorporated as "Infosys Consultants Pvt Ltd." with a capital of 10,000 or US$1,250 (about $3,243 in 2015) in Model Colony, Pune as the registered office. It signed its first client, Data Basics Corporation, in New York. In 1983, the company's corporate headquarters was relocated from Pune to Bangalore.

Change in name: The company changed its name to "Infosys Technologies Private Limited" in April 1992 and to "Infosys Technologies Limited" when it became a public limited company in June 1992. It was later renamed to "Infosys Limited" in June 2011. The credit rating of the company is A- (given by Standard & Poor's on 13-Dec-2013). In February 2015, Infosys announced it would acquire the US automation technology company Panaya for around $200 million. On 31 March 2015, Infosys had 950 clients across 50 countries. Infosys has a global footprint with offices and development centers across the world. In 2012, Infosys announced a new office in Milwaukee, Wisconsin to service Harley-Davidson, being the 18th international office in the United States. Infosys hired 1,200 United States employees in 2011, and expanded the workforce by an additional 2,000 employees in 2012.

Products and Services

Infosys is into IT Services, Engineering Services, BPO Services, Product and Platforms. It provides software development, maintenance and independent validation services to
companies in banking, finance, insurance, manufacturing and other domains. One of its known products is Finacle which is a universal banking solution with various modules for retail and corporate banking.

**Employees**

Infosys has a total of 187,976 employees as of 30 September 2015, of which 35% were women. Its workforce consists of employees representing 122 nationalities working from 32 countries (37 countries as per the base location). Out of its total workforce, 93.8% are software professionals, 17% are working in its BPO arm and remaining 6% work for support and sales. The attrition rate of Infosys Ltd., excluding its subsidiaries, for 12 months ending 30 September 2015, was 14.2%. And following the annual hike for employees during 2015-16, the attrition rate is likely to increase.

**Training centre in Mysore**

As the world's largest corporate university, the Infosys global education centre in the 337 acre campus has 400 instructors and 200 classrooms, with international benchmarks at its core. Established in 2002, it had trained around 125,000 engineering graduates by June 2015. It can train 14,000 employees at a given point of time on various technologies.

The Infosys Leadership Institute (ILI), based in Mysore, has 96 rooms and trains about 400 Infoscians annually.

**List of CEOs**

Vishal Sikka is the CEO and MD of Infosys. Prior to joining Infosys, Dr. Sikka was a member of the Executive Board of SAP AG and the Global Managing Board, leading all SAP products and innovation globally. He took over from S.D. Shibulal, one of the founders, on 1 August. He was inducted as a whole-time director of the Board and CEO & MD (Designate) of Infosys on 14 June. He receives $5.08 Million (30 Crores) and stock options worth $2 million as annual compensation.
Awards and Recognitions

- Infosys was ranked 15th largest IT services provider in the world by HFS Research in its 2013 ranking.
- Infosys was ranked 19th on the world's most innovative companies list by Forbes.
- Infosys was in the list of top twenty green companies in Newsweek's Green Rankings for 2012.
- The company has been voted India's most admired company in The Wall Street Journal Asia 200

4.12.2 Oracle Corporation

The Oracle Corporation is an American global computer technology corporation, headquartered in Redwood City, California. The company primarily specializes in developing and marketing computer hardware systems and enterprise software products – particularly its own brands of database management systems. In 2011 Oracle was the second-largest software maker by revenue, after Microsoft.

Oracle India provides the Asian subcontinent with enterprise software for managing business data, supporting business operations, and facilitating collaboration and application development. Companies use its database management software to store and access data across numerous platforms. The company also offers business applications for data warehousing, customer relationship management, and supply chain management. Oracle opened its first office in India in 1991, and formed its first Indian subsidiary in 1993. Oracle's other Indian operations include the India Development Center, which is its largest research facility outside the US.

Oracle is the world’s largest business software company, with total revenue of $23.3 billion for the fiscal year 2009, with more than 345,000 customers including 100 of the Fortune 100 representing a variety of sizes and industries in more than 145 countries around the globe with an employee strength of 85000. We, at Oracle, are always
searching for brilliant employees with an entrepreneurial spirit, looking for a work culture where innovation is the goal, hard work is expected, and creativity is rewarded.

**Key Executives For Oracle Corporation**

Larry Ellison, a co-founder of Oracle, served as Oracle's CEO from founding. On September 18, 2014, it was announced that he would be stepping down (with Mark Hurd and Safra Catz to become CEOs). Ellison became executive chairman and CTO. He also served as the Chairman of the Board until his replacement by Jeffrey O. Henley in 2004. On August 22, 2008, the Associated Press ranked Ellison as the top-paid chief executive in the world.

**Products and Service**

Oracle designs, manufactures, and sells both software and hardware products, as well as offers services complementing them (such as financing, training, consulting, and hosting services). Many of the products have been added to Oracle's portfolio through acquisitions.

**Marketing-Sales Practices**

In 1990, Oracle laid off 10% (about 400 people) of its work force because of accounting errors. This crisis came about because of Oracle's "up-front" marketing strategy, in which sales people urged potential customers to buy the largest possible amount of software all at once. The sales people then booked the value of future license sales in the current quarter, thereby increasing their bonuses. This became a problem when the future sales subsequently failed to materialize. Oracle eventually had to restate its earnings twice, and also settled (out of court) class-action lawsuits arising from its having overstated its earnings. Ellison stated in 1992 that Oracle had made "an incredible business mistake."
4.12.3 Tata Consultancy Services Limited (TCS)

Tata Consultancy Services (TCS) is an IT services, consulting and business solutions organisation that delivers real results to global businesses, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT, BPO, infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model, recognised as the benchmark of excellence in software development.

A part of the Tata group, India’s largest industrial conglomerate, TCS has over 318,000 of the world’s best-trained consultants in 46 countries. The company generated consolidated revenues of US $13.4 billion for the year ended March 31, 2014, and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

Tata Consultancy Service (TCS) is a global leader in IT Services, digital and business solutions that partners with its clients to simplify, strengthen and transform their businesses. We ensure the highest levels of certainty and satisfaction through a deep-set commitment to our clients, comprehensive industry expertise and a global network of innovation and delivery centers.

TCS has been recognized by brand Finance as one of the Big4 Global IT Services Brands. Our continued industry-leading growth is a testament to the certainty our clients experience every day.

**Mission**

Our mission is to maximize the business success of our customers through the installation, maintenance, and support of superior financial management software solutions.
Objectives

We have set a number of strategic and tactical objectives that reflect our mission, aim and collective goals:

- **To establish** the company as the best global organization for large-scale deployment of financial management software solutions on the Caché platform.
- **To establish** a fully object-oriented component based application, which will enable us to deliver robust software quicker and more efficiently than any competitor.
- **To ensure** that customers can operate their business software solutions on infrastructures that match their needs.

Products and Services

TCS and its 67 subsidiaries provide a wide range of information technology-related products and services including application development, business process outsourcing, capacity planning, consulting, enterprise software, hardware sizing, payment processing, software management and technology education services. Its established software products are TCS BaNCS and TCS Master Craft.

Service lines

TCS' services are currently organized into the following service lines:

- Application development and maintenance (43.80%) value;
- Asset leverage solutions (2.70%);
- Assurance services (7.70%);
- Business process outsourcing (12.50%);
- Consulting (2.00%);
- Engineering and Industrial services (4.60%);
- Enterprise solutions (15.20%); and
- IT infrastructure services (11.50%).
**Operations**

TCS have 230 offices across 46 countries and 147 delivery centers in 21 countries. At the same date TCS had a total of 58 subsidiary companies.

**India Locations**

TCS has operations in the following locations:

**India:** Ahmedabad, Bangalore, Baroda, Bhubaneswar, Chennai, Coimbatore, Patna, Delhi, Gandhinagar, Goa, Gurgaon, Guwahati, Hyderabad, Bhopal, Indore, Jamshedpur, Kochi, Kolkata, Lucknow, Kalyanpur, Mumbai, Nagpur, Noida, Pune and Trivandrum.

**Employees**

TCS is one of the largest private sector employers in India, and the second-largest employer among listed Indian companies (after Coal India Limited). TCS had a total of over 335,620 employees as of October 2015, of which 31% were women. The number of non-Indian nationals was 21,282 as at March 31, 2013 (7.7%). The employee costs for the FY 2012-13 were US$4.38 billion, which was approx. 38% of the total revenue of the company for that period. In the fiscal year 2012-13, TCS recruited a total of 69,728 new staff, of whom 59,276 were based in India and 10,452 were based in the rest of the world. In the same period, the rate of attrition was 10.6%. The average age of a TCS employee is 28 years. The employee utilization rate, excluding trainees, for the FY 2012-13 was 82%. TCS was the fifth-largest United States visa recipient in 2008 (after Infosys, CTS, Wipro and Mahindra Satyam). In 2012, the Tata group companies, including TCS, were the second largest recipient of H-1B visas.
4.12.4 International Business Machines Corporation (IBM)

International Business Machines Corporation (commonly referred to as IBM) is an American multinational technology and consulting corporation, with headquarters in Armonk, New York. IBM manufactures and markets computer hardware, middleware and software, and offers infrastructure, hosting and consulting services in areas ranging from mainframe computers to nanotechnology.

The company originated in 1911 as the Computing-Tabulating-Recording Company (CTR) through the consolidation of The Tabulating Machine Company, the International Time Recording Company, the Computing Scale Company and the Bundy Manufacturing Company. CTR was renamed "International Business Machines" in 1924, a name which Thomas J. Watson first used for a CTR Canadian subsidiary. The initialize IBM followed. Securities analysts nicknamed the company Big Blue for its size and common use of the color in products, packaging and its logo.

In 2012, Fortune ranked IBM the second largest U.S. firm in terms of number of employees (435,000 worldwide), the fourth largest in terms of market capitalization, the ninth most profitable, and the nineteenth largest firm in terms of revenue. Globally, the company was ranked the 31st largest in terms of revenue by Forbes for 2011. Other rankings for 2011/2012 include №1 company for leaders (Fortune), №1 green company in the United States (Newsweek), №2 best global brand (Interbrand), №2 most respected company (Barron's), №5 most admired company (Fortune), and №18 most innovative company (Fast Company).

IBM has 12 research laboratories worldwide, bundled into IBM Research. As of 2013 the company held the record for most patents generated by a business for 22 consecutive years. Its employees have garnered five Nobel Prizes, six Turing Awards; ten National Medals of Technology and five National Medals of Science. Notable company inventions include the automated teller machine (ATM), the floppy disk, the hard disk drive, the magnetic stripe card, the relational database, the Universal Product Code (UPC), the financial swap, the Fortran programming language, SABRE airline reservation system, dynamic random-access memory (DRAM), copper wiring in semiconductors,
the silicon-on-insulator (SOI) semiconductor manufacturing process, and Watson artificial intelligence.

**Rank**

In 2012, *Fortune* ranked IBM the second largest U.S. firm in terms of number of employees, the fourth largest in terms of market capitalization, the ninth most profitable, and the nineteenth largest firm in terms of revenue. Globally, the company was ranked the №31 largest firm in terms of revenue by Forbes for 2011. Other rankings for 2011/2012 include the following:

- No1 company for leaders (*Fortune*)
- No2 green company in the U.S. (*Newsweek*)
- No2 best global brand (*Interbrand*)
- No2 most respected company (*Barron's*)
- No5 most admired company (*Fortune*)
- No18 most innovative company (*Fast Company*)

For 2012, IBM's brand was valued by Interbrand at $75.5 billion.

For 2012, *Vault* ranked IBM Global Technology Services №1 in tech consulting for cyber security, operations and implementation, and public sector; and №2 in outsourcing.

For 2015, *Forbes* ranked IBM №5 as the world's most valuable brands.

**Work Environment**

IBM's employee management practices can be traced back to its roots. In 1914, CEO Thomas J. Watson boosted company spirit by creating employee sports teams, hosting family outings, and furnishing a company band. IBM sports teams still continue in the present day; the IBM Big Blue continue to exist as semi-professional company rugby and American football teams. In 1924 the Quarter Century Club, which recognizes employees with 25 years of service, was organized and the first issue of *Business Machines*, IBM's internal publication, was published. In 1925, the first meeting of the Hundred Percent
Club, composed of IBM salesmen who meet their quotas, convened in Atlantic City, New Jersey.

IBM was among the first corporations to provide group life insurance (1934), survivor benefits (1935) and paid vacations (1937). In 1932 IBM created an Education Department to oversee training for employees, which oversaw the completion of the IBM Schoolhouse at Endicott in 1933. In 1935, the employee magazine *Think* was created. Also that year, IBM held its first training class for female systems service professionals. In 1942, IBM launched a program to train and employ disabled people in Topeka, Kansas. The next year classes began in New York City, and soon the company was asked to join the President's Committee for Employment of the Handicapped. In 1946, the company hired its first black salesman, 18 years before the Civil Rights Act of 1964. In 1947, IBM announced a Total and Permanent Disability Income Plan for employees. A vested rights pension was added to the IBM retirement plan. During IBM's management transformation in the 1990s revisions were made to these pension plans to reduce IBM's pension liabilities.

In 1952, Thomas J. Watson, Jr., published the company's first written equal opportunity policy letter, one year before the U.S. Supreme Court decision in Brown vs. Board of Education and 11 years before the Civil Rights Act of 1964. In 1961, IBM's nondiscrimination policy was expanded to include sex, national origin, and age. The following year, IBM hosted its first Invention Award Dinner honoring 34 outstanding IBM inventors; and in 1963, the company named the first eight IBM Fellows in a new Fellowship Program that recognizes senior IBM scientists, engineers and other professionals for outstanding technical achievements.
4.12.5 Wipro Ltd

Wipro Ltd (NYSE:WIT) is a global information technology, consulting and outsourcing company with 160,000+ workforce serving clients in 175+ cities across 6 continents. The company posted revenues of $7.6 billion for the financial year ended Mar 31, 2015.

Wipro helps customers do business better by leveraging our industry-wide experience, deep technology expertise, comprehensive portfolio of services and vertically aligned business model. Our 55+ dedicated emerging technologies ‘Centers of Excellence’ enable us to harness the latest technology for delivering business capability to our clients.

Wipro is globally recognized for its innovative approach towards delivering business value and its commitment to sustainability. Wipro champions optimized utilization of natural resources, capital and talent. Today we are a trusted partner of choice for global businesses looking to ‘differentiate at the front’ and ‘standardize at the core’ through technology interventions.

In today’s world, organizations will have to rapidly reengineer themselves and be more responsive to changing customer needs. Wipro is well positioned to be a partner and co-innovator to businesses in their transformation journey, identify new growth opportunities and facilitate their foray into new sectors and markets.

Milestones

Wipro, one of the world’s most trusted brands, is a name with a long history. Here’s a snapshot of our journey to date:

- 2015 – Carved out Wipro Digital business as a separate unit. Announced its intention to acquire Designit, global strategic design firm specializing in designing transformative product-service experiences.
- 2014 – Wipro selected as Dow Jones Sustainability Index (DJSI), World member for the 5th consecutive year and recognized as the Global Sector Leader for the Software & Service Industry.
• 2013 – Wipro Ltd. demerges its ‘Diversified Business’ into a separate company to be named ‘Wipro Enterprises Ltd’. Wipro Ltd. to focus exclusively on IT Business.
• Entered the Eco-energy business in 2008
• Entered the BPO business in 2002
• The first company in the world to be assessed at PCMM Level 5 in 2001
• Listed on NYSE in 2000 (NYSE:WIT)
• Software business assessed at SEI-CMM Level 5 in 1998
• Entered IT services in the 1990s – we were among the pioneers in developing the ODC (Offshore Development Center) concept
• Established a Joint venture with GE in 1989
• Pioneers in marketing indigenous Personal Computers in 1985
• Established software products and exports subsidiary, Wipro Systems Ltd. in 1983
• IPO for capital in February 1946
• Established in 1945 as Western India Vegetable Products Limited in Amalner, Maharashtra

Employees

At the end of FY 2014-15, its employee strength was 158,217. Its global workforce consists of 101 nationalities working from 58 countries, 175+ cities across 6 continents. Wipro maintains gender diversity with more than 30% of its employees being women. It has more than 30,000 employees outside India, out of which 40% are locals. The average age of a Wipro employee is 30.3 years. During 2014-15, the company incurred $197 billion on employee benefit expenses. Wipro has introduced TREND next for assessing the skills of employees. Abid Neemuchwala is appointed as Wipro's CEO.
Awards and recognitions/Achievements

- In May 2013, it was ranked 812th on the Forbes Global 2000 list.
- Wipro was ranked 2nd in the Newsweek 2012 Global 500 Green companies.
- Wipro received the 'NASSCOM Corporate Award for Excellence in Diversity and Inclusion, 2012', in the category 'Most Effective Implementation of Practices & Technology for Persons with Disabilities'.
- In 2012, it was awarded the highest rating of Stakeholder Value and Corporate Rating 1 (SVG 1) by ICRA Limited.
- It received National award for excellence in Corporate Governance from the Institute of Company Secretaries of India during the year 2004.
- In 2014, Wipro was ranked 52nd among India's most trusted brands according to the Brand Trust Report, a study conducted by Trust Research Advisory.
- In March 2015, Wipro has been recognized as the world’s most ethical company by US-based Ethisphere Institute for the fourth consecutive year.
- Wipro won 7 awards, including Best Managed IT Services and Best System Integrator in the CIO Choice Awards 2015, India.
- In 2014 Wipro Rated as a 'High Performer' in HfS Blueprint Report on Insurance BPO