IMPACT OF IT INDUSTRY ON THE INDIAN ECONOMY

A

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SERVICES: AN INTRODUCTION

After decade of slowly expanding behind the scenes, Information Technology has suddenly exploded into public view and seems to be everywhere, in the popular media. It is like a huge wave that has been building offshore. These aspects of information technology are just a few of the thousands of ways in which information technology will affect the way we work, live and play. It you'd been a modern Rip Van Winkle, sleeping soundly for the past few years, you would awake and be astounded by the new technology vocabulary and new issue, and we all have to deal with on a daily basis.

Information technology has changed dramatically. Not long ago, information was processed using electrical or mechanical devices such as typewriters, calculators and telephones, which stood by themselves as if on information processing islands. Calculations made with a calculator had to be typed into a documents. Documents then had to be handcar- ride to a copy machine. Secretaries always had to be on hand to answer the phones. Mail could be sent only in printed form. Today, all these devices and procedures have been automated and many of their functions are controlled by Micro Processors unit. But it is not just that individual machines have been improved. The most dramatic changes how all those old information island are being connected by digital highways. Once information is created in any form, text, sounds, pictures, animation or movies, it can be instantly distributed or changed to other form in a variety of ways. Technology is advancing so rapidly that previously isolated fields such as television, phone, computers,
and radio are all converging into single files. Surfing hundred of digital TV channels for home shopping, infomercials, News and entertainment won't be all that demanding. But that's only the crest of a huge information technology were that is rolling into your path. To be ready of this new wave both at home and, at work, you have to understand the concepts and application of digital information technology. The two fastest growing and strongest economies of the world, China and India, have seen growth rates of more than 7-8% in the last five years. While manufacturing has led the growth in China, it is domestic consumption and the service sector, especially high tech that continues to explode in India. The service sector in India now accounts for more than 50% of GDP. It is interesting to note that unlike much of the western world which evolved from agriculture to industry to service, India appears to have skipped the industrial revolution and leapfrogged to a service economy. This boom in the service economy has been triggered in large measure by outsourcing of information technology (IT) operations by companies in the western world, especially the United States. India’s IT (Information Technologies) capabilities and its presence in the world market for IT software and services are well documented in a number of studies like Radhakrishnan and Sharma 2004, Sudarsan 2004, Radakrishnan 2004, D’ Costa, 2003, Arora and Athreya 2002.

IT and IT Enabled Services (ITES) has emerged as a promising sector for Indian economy as it generated revenue to the tune of US $ 64 billion during 2007-08. Because of the faster growth of IT industry, its contribution to the national economic output (GDP) has increased from a mere 0.38% in 1991-92 to 5.5 % in 2007-08. ‘The rapid growth of ITES-BPO and the IT industry as a whole has made a deep impact on the socio-economic dynamics of the country. The total IT Software and Services employment
has grown from 284,000 in 1999-2000 to 1.63 million in 2006-07 and expected to reach 2.0 million marks in 2007-08 (excluding employment in Hardware faster than in any other Countries of the world of comparable size (Raghavan and Nair, 2001). Such a wonderful and sustained growth rate has been unparalleled in any of the sectors of the Indian economy since independence. Despite the fact that Indian software export still constitutes less than 2% of world software and related services market, ‘according to a World Bank funded study, its share in the global cross country customized software development market, has grown up from 11.9 % in 1991 to 19.5% in 2000 (Sachitananta 2001). Further, ‘with foresighted policies it could become a major force, capturing 5-8 % of the world market’ (Sunder Shyam 2007). All these have not only made the software sector as one of the high value additions and net foreign exchange earning industries but created history of its sorts on the Indian stock exchanges. More importantly, listing of Satyam-InfoTech in NASDAQ (a dream exchange of high tech companies) in the year 1999 was a moment of great pride for Indian software industry and has heightened the international recognition of Indian software companies. Since then a number of Indian software companies have been listed on NASDAQ and New York Stock Exchanges. India exports software and services to more than 100 countries and over half of Fortune 500 companies outsource their software requirements from India.

**OBJECTIVE OF THE STUDY**

In the present study, we have discussed & studied latest contemporary issues regarding Indian IT Industry’s contribution in economy of nation. In addition to these, we have focus attention on other areas such as market profile and product constraints of Indian IT Services, to study performance
of Indian IT industry, catalytic product’s role of IT Industry in Indian Economy, analysis the India’s International Trends in IT Products, strategy for development of IT Trade in India, opportunity for attracting FDI, and Information Technology Agreement for IT Sector. In conclusion, with a view to strengthen the analytical framework for studies in IT sector’s contribution in Indian economy, it is desirable to concentrate the research efforts in above-mentioned areas.

*Information* - Information is the act of informing or the conditions of being informed, the communication of knowledge, and knowledge derived from study, experience, or instruction.

*Technology* - Technology is the application of science, especially to Industrial or commercial objectives. We may hear terms such as information age, information society, and knowledge workers and wonder what they all mean. What these and other such terms refer to is one aspect or another of the increased role that information technology is playing in our lives and career.

*What is Information Technology?*

The phrase information technology (IT) refers to the creation, gathering, processing, storage, and delivery of information and the processes and devices as tools that makes all the possible. Think of these processes and devices as tools that makes our life and career better or more efficient. The tasks that are handled using information technology continue to increase almost on a daily basis. For example, a few years ago, cinematography and photography didn’t use computers at any point in the process. Now, computers are in cameras, processing nibbles and the editing room. No
matter what field of study we major in, or where we are employed, we will be sure to find information technology at work.

Information technology can do at least three things:

- Information technology can process raw data into useful information. Imagine taking a series of tests Thoughts College. The score on each does not tell us much. We could be sick on the day of a test, or not doing well on the topics currently being covered. Over the semester, we will get a whole range of test score between A and F. Each of these is just one bit of raw data. To turn these scores into information, we need to convert them into a grade for the course, useful information because its measure of our overall performance. The teacher can now decide if we pass or fail the course.

- Information technology can recycle processed information and use it as data in another processing step. For example, already processed data can be combined with other information to increase its impact. The grade we get in a course can be combined with our other course grades to calculate quality point average. This is very useful information because its single grade based ultimately on hundred of pieces of data, all the tests we’ve taken.

- Information technology can package information in a new form so it’s easier to understand, more attractive, or more useful. All the quality point averages of our classmates can be stored into descending order or placed on a chart so we quickly see how our stand in relations to everyone else.
Information technology stands firmly on two legs: HARDWARE AND SOFTWARE: The term **HARDWARE** is applied to any of the physical equipment in a system usually containing electronic components and performing some kind of function in information processing. Hardware includes not only the computer and devices such as screens and printers, but also all the elements used to tie information systems together. For example, the telephone wires that we see overhead are hardware, as are antennas used for cellular phone calls, and even the familiar television set in our kitchen or dorm room.

**SOFTWARE** is instructions that guide the hardware in the performance of its duties. There is a slogan button floating around that makes this distinction very clear Hardware: the part of the computer that we kick. If we can only curse as it, it’s software.

**RESEARCH METHODOLOGY**

The researcher has adopted a dual or a mixed approach, though the approach is more deductive. As in the case of this research, the theory is already created, this is the concept of IT sector development in India especially in IT-ITES sector’s economic aspects relating to the IT Industry in India. Hence the researcher needs to find the data to investigate the impact of IT Industry on Indian Economy because the aim of the research is to investigate the problems, growth and opportunity of IT industry in India and its contribution in Indian Economy. Hence this research requires a highly structured approach, which is possible only through deductive approach. Secondary sources have used to collect data and these data has collected from books, magazines, journals, newspaper & internet. After collection of data, it has arranged according to needs of the study and analyzed with the
help of different statistical devices. Based on the analysis different information and statistical data, important conclusions have been drawn and constrictive suggestions are given to the IT Industry for enhancing their contribution in the economy of India.

**HYPOTHESIS OF THE STUDY**

The proposed research study is based on the presumptions such as: The suitability of Information Technology depends upon the availability of world wide telecommunication network, Inability and inadequate knowledge about computers among small business is the main hurdle., Internet is not merely a new technology but it is the new way of doing business and There will be district improvement in the overall in the structure development and favorable economic policies.

**REVIEW OF LITERATURE**

*Suman Lata* in her paper "Impact of Information Technology on the Development of Indian Economy in 21\textsuperscript{st} Century" emphasized that information technology being the biggest tool for the success of any project or country, Internet is the most important achievement of 21st Century. It provides us many information in different fields such as agriculture, education, health, manufacturing sector, management, marketing and in service sector. She felt that modernization improve the quality of work and increase the output and reduce the time delay. Modernization and growth in the area of agriculture, education, industries, power sector and trade has been possible due to utilization of IT. She further emphasized that India's institutes of technology and management are recognized as the world class. It brought India fore front of the global map. It has provided of more job apportioning to million of people in different fields like in computer people
need and hardware and software systems analysis and webmaster. **Pooja Gupta** in her paper "Impact of Information Technology on the Development of Indian Economy" revealed that the growth of India's IT sector can be fuelled by appropriate policy adjustments, technological progress, including domestic innovation. Suitable IT policies, massive injections of resources in poor countries are needed to develop infrastructure facilities and incorporating all the necessary ingredients to foster sustainable development.

**MARKET PROFILE OF INDIAN IT INDUSTRY**

India has been deemed the IT engine of the world. It has also become a preferred destination for Business Process Outsourcing (BPO) services. Over the past decade, the Information Technology (IT) industry has become one of the fastest growing industries in India, propelled by exports (the industry accounted for more than a quarter of India’s services exports in 2004-05)\(^1\). The key segments that have contributed significantly (96% of total) to the industry’s exports include Software and services (IT services) and IT enabled services (ITES) i.e. business services. Over a period of time, India has established itself as a preferred global sourcing base in these segments and they are expected to continue to fuel growth in the future. 2008 was a transformational year for the Indian Information Technology-Business Process Outsourcing (IT-BPO) sector, as it began to re-engineer itself to face the challenges presented by a macro-economic environment which witnessed substantial volatility in commodity prices, inflation, and decline in GDP rates, cross-currency movement, finally culminating in the economic downturn. In an increasingly globalised world, significant complexity and

\(^1\) NASSCOMM Report, 2005, Indian IT Industry, pp 12
uncertainty is getting attached to this unprecedented economic crisis. The Indian economy has also been impacted by the recessionary trends, with a slowdown in GDP growth to seven %. The focus and exponential growth in the domestic market has partially offset this fall and insulated the country, resulting in net overall momentum. IT-BPO industry in India has today become a growth engine for the economy, contributing substantially to increases in the GDP, urban employment and exports, to achieve the vision of a “young and resilient” India. The Indian Information Technology (IT) and IT Enabled Services (ITES) success story and its paradigm changing impact on global service delivery is now a well acknowledged fact. However, much of the success achieved by the sector has been attributed to the meteoric growth in exports – that has overshadowed the latent opportunities unlocked and growth observed in the domestic market over the past few years. Top Software Companies includes:

✓ TCS
✓ Infosys
✓ Satyam
✓ Wipro
✓ IBM and

Top BPO Service Companies:

✓ Genpact
✓ WNS
✓ Wipro-BPO
✓ HCL- BPO Service
✓ ICICI One Source
✓ IBM Daksh
✓ Progeon
✓ 24/7 Customer

One of the peculiarities of the domestic IT market is that it is dominated by foreign multinationals (MNCs) like IBM India, Accenture and HP. This seems quite ironical given the presence of so many large Indian IT service companies that have made their mark in the international market. Apart from TCS and NIIT, which receive significant revenues from their domestic operations. Other Indian IT majors are almost entirely dependent on export revenues. Although many foreign players have partnership agreements with Indian IT service providers, the extent of participation by the leaders like TCS, Infosys, and Wipro has been limited. According to experts, Indian companies have low levels of confidence in Indian IT majors for providing higher end services, and prefer to have MNCs employed for an end-to-end service agreement. Most of the MNCs who have their own branded products, for example Oracle and SAP, prefer to supply the product and carry out the necessary implementation through smaller IT service partners.

**EXPORT PERFORMANCE OF INDIAN IT INDUSTRY**

This is evident from the fact that exports of India IT Services and BPO services grew by 28% over the past year to reach $34 billion. The industry directly employs about 2 million people and is expected to sustain an export growth rate of 18 to 20% annually for the next five years. Year 2008 was a
transformational year for the Indian Information Technology-Business Process Outsourcing (IT-BPO) sector, as it began to re-engineer itself to face the challenges presented by a macro-economic environment which witnessed substantial volatility in commodity prices, inflation, and decline in GDP rates, cross-currency movement, finally culminating in the economic downturn. In an increasingly globalised world, significant complexity and uncertainty is getting attached to this unprecedented economic crisis. The Indian economy has also been impacted by the recessionary trends, with a slowdown in GDP growth to 7%. The focus and exponential growth in the domestic market has partially offset this fall and insulated the country, resulting in net overall momentum. The IT-BPO industry in India has today become a growth engine for the economy, contributing substantially to increases in the GDP, urban employment and exports, to achieve the vision of a “young and resilient” India. The Indian IT-BPO industry is estimated to achieve revenues of USD 71.7 billion in FY2009, with the IT software and services industry accounting for USD 60 billion of revenues. During this period, direct employment is expected to reach nearly 2.23 million, an addition of 226,000 employees, while indirect job creation is estimated to touch 8 million. As a proportion of national GDP, the sector revenues have grown from 1.2% in FY 1998 to an estimated 5.8% in FY 2009. Net value-added by this sector, to the economy, is estimated at 3.5-4.1% for FY 2009. The sector’s share of total Indian exports (merchandise plus services) has increased from less than 4% in 1998 to almost 16% in 2008. Indian IT-BPO grew by 33% in FY 2008 to reach USD 64 billion in aggregate revenue, thus revalidating its strong fundamentals, despite concerns of a slowing US economy and supply constraints. Of this, the Software and Services segment accounted for USD 52 billion, growing by
28% (currency-adjusted) over FY 2007. IT-BPO exports (including hardware exports) reached USD 40.9 billion in FY 2008 as against USD 31.8 billion in FY 2007, a growth of 28%.

Software and services exports (includes exports of IT services, BPO, Engineering Services and R&D and Software products) reached USD 40.4 billion, contributing nearly 63% to the overall IT-BPO revenue aggregate. While the US (61%) and the UK (18%) remained the largest IT-BPO export markets in FY 2007, the industry footprint was steadily expanding to other geographies - with exports to Continental Europe in particular growing at a CAGR of more than 55% over FY 2004-2007. The industry’s vertical market exposure was well diversified across several mature and emerging sectors. Banking, Financial Services and Insurance (BFSI) remained the largest vertical market for Indian IT-BPO exports, followed by High-technology and Telecom. These sectors together accounted for nearly 60% of the Indian IT-BPO exports in FY 2007. Manufacturing, Retail, Media, Healthcare, Airlines and Transportation, and Utilities were the other key segments. Domestic IT market (including hardware) reached 23.1 billion in FY 2008 as against USD 16.2 billion in FY 2007, a growth of 43%. Hardware remained the largest segment of the domestic market with a growth rate of 44% in FY 2008. Software and services spending supported by increasing adoption, grew by over 41% during the year. As a proportion of national GDP, the Indian technology sector revenue has grown from 1.2% in FY 1998 to an estimated 5.5% in FY 2008. Net value-added by this sector, to the economy, was estimated at 3.3-3.9% for FY2008. Direct employment in Indian IT-BPO crossed the 2 million mark, an increase of about 389,000 professionals over FY 2007, indirect job creation is estimated at about 8-9 million. IT services (incl. engineering services, R&D, Software
products) exports, BPO exports and Domestic IT industry provides direct employment to 860,000, 700,000 and 450,000 professionals respectively. Since value added services are already include in 44 schedules (representing 55 governments) that are force as a result of Uruguay Round, the services like on-line data processing, on-line data base storage and retrieval, EDI, E-mail or Voice mail telecommunications, for which suppliers" Add Value" to the customer's information by providing for its storage or retrievable, where not kept as part of these negotiations.

**STRATEGY FOR IT EXPORTERS: CHALLENGES & OPPORTUNITIES**

India's exports have grown much faster than GDP over the past few decades. For example, its exports have grown over 11% per annum while growth in GDP is about 5% during 1970-98 periods. Exports have grown even faster since 1945-95. Several factors appear to have contributed to this phenomenon including foreign direct investment (FDI) which has been rising consistently especially from the early 1990s. By 1997 India became the ninth largest recipient of such investment among the developing economic (World Bank, 1998:20). However, despite increasing inflows of FDI there has not been any attempt to assess its contribution to India's export performance- one of the channels through which FDI affects growth.

The success stories of East and South East Asian countries suggest that FDI is a powerful tool of export promotion because multinational companies (MNCs) through which most FDI is undertaken have the well established contacts and up to date information about foreign markets. However, the experience of these countries cannot be generalized to India given the lower level of infrastructure, and the rigidity in both the factor as well as
commodity markets (Srinivasan, 1998). Furthermore, the role of FDI in export promotion in developing countries remains controversial and depends crucially on the motive for such investment. India has opened up its market since the beginning of the last decade (especially from July 1991) by lowering tariff and non-tariff barriers (NTBs), and liberalizing investment policy. However, by any standard India is far less open than many developing economies. Furthermore, its factor market including infrastructure sector is less efficient compared with many East and South East Asian countries with whom India competes in international market (Srinivasan, 1998). Hence, it is possible to argue that even with the policy liberalization India may have failed to attract a significant amount of export oriented FDI and the export growth may have been brought about by factors other than FDI namely the real depreciation of Indian currency, improvements in price competitiveness and provision of export subsidies etc. Despite the commendable performance of the industry so far, it is estimated that there is still significant room for growth. As pointed out earlier, though India now accounts for only less than 2% of the world software and related service market, with farsighted policies it could become a major force capturing 5-8% of the software and related service market. Broader base of the market, high quality standards and domain expertise attained by Indian players in niche areas etc. are favorable factor for further growth of Indian software export. It is also expected that the rate of flow of work to India through off shoring would increase considerably, in the context of mounting pressure on developed countries and global majors to resort to further cost cutting. It is in this context that lot of projections for the further growth of the software industry is made by industry association and committees and task forces appointed by the Government of India. The IT
task force 1998 appointed by Government of India has put the targets for the Computer industry. It shows the targets for software export is $ 50 million out of a production of $ 87 billion. Given the present growth rate of this sector the industry can very well achieve this target. Out of the US $ 50 billion $ 23 billion is expected from IT services whereas Software products contribute $ 8 billion and $ 15 billion and $ 4 billion are expected from IT enabled services and E-business respectively. Software is expected to provide 3.2 million jobs by 2009. Despite these bright and encouraging facets of the software industry there are certain areas of concern, which need to be given the desired attention and weight-age.

GLOBAL AGREEMENT FOR IT SECTOR

To meet all these growth, the Global Telecom Pact has come into force from 1st January, 1998. There are 55 schedules, which are annexed to the Fourth Protocol the General Agreements on Trade in services. At the outset of the negotiation, nation agreed to set aside national differences like how the basic telecommunication might be defined domestically and negotiate and how telecommunication both public and private that involve end-to-end transmission of customer Supplied information. They also agreed that basic telecommunication services provided over network Infrastructure, as well as those provided through resale over private leased circuit will fall within the scope of commitments. Market access commitment will not only cover cross-border supply of telecommunication but also service provided through is establishment of foreign firms, or commercial presence, including the ability to own and operate independent telecom network telecom network infrastructure. The main aim of the Global Telecom Pact is to allow market access to basic telecommunication services. Europe, USA with 1/3 each and
Japan with 15% are the main beneficiary of these Pacts, which account for about 93% of the global telecom market. It is believed that for big telecom investment companies, it would bring predictability and stability to the market. Initially India made its offer in April, 1996 in accordance with National Telecom Policy (NTP) of duopoly in basic services with one of the operators being government companies. India also made an offer of cellular services to be provided by two private companies in each service area, and kept reserved the right of DOT / MTNL (Government) to enter into each service area. India, however, made certain additional agreed in its revised offer submitted to WTO during discussions in February, 1997. In case of regulatory framework, Government of India has committed to adopt most of the international well known regulatory principles like competitive safeguards, interconnection, universal services, public availability of licensing criteria, allocation and use of limited resources. Government of India has also offered to review the opening of inter-circle long distance domestic sector in 1999 and opening of international long distance services in the year 2004.

In India, the Information Technology (IT) sector has tremendous potential to generate foreign exchange earnings, high quality employment and also contribute to productivity in rest of the economy. In industrialized countries, IT Penetration in different Sectors is leading to a sea of change in the pattern of working in almost every walk of life. While penetration level in India is low at present, the new technology provides tremendous opportunities for the country to benefit from the international boom in IT and also use IT in domestic economy to achieve efficiency gains. India being in forefront for providing IT related services in global map, it is high time we look into exploiting the expertise to help address various issues related to Indian rural
development which, until now have been achieved on a slower pace. IT can
give it a much needed boost and put the Indian Rural Sector on fast track of
development contributing significantly to Indian GDP-year on year. With
new technological developments, new communication technologies such as
satellite television broadcasting; long distance Telephony, computers and
telecommunications have sparked of optimism about their potential to
harness overall development in India. The convergence of satellite
technology and with the new information technologies at the global level can
provide impetus to using information and communication technologies for a
variety of applications including distance education, training, adult literacy,
opening up of new market opportunities, improved awareness, overcoming
distance barriers for doing business and overall improvement in the lifestyle
of the Indian rural masses. The hallmark of new technology is its distributive
power and its ability to reach a large geography in dispersed locations.
However, discussions and debates on implications of new Information
Technologies for these applications have certain issues that need be to
focused on and overcome before we can make it a success story. Effective
efforts made to encourage collaboration between private, public, academic
and other interests on applications of Information Technology, could
promote economic development in the rural areas of India. A pragmatic
approach for collaborative effort in this direction could be to identify
existing IT activities, projects or Initiatives in the private and public sectors,
and apply the benefits from such dans-national collaboration between
companies, projects or other initiatives. With advancement in Information
Technology, information is being regarded as the fourth factor production,
along with the Land, Labor and Capital. Information has therefore become
an important and distinct input in production. Thus along with three sector
model of primary, secondary and tertiary industries, a fourth sector information-related industries has emerged. Information is therefore used as a raw material of knowledge just as iron is a raw material for machinery.

**EXPLANATION OF STRATEGIES OF IT INDUSTRY**

To expand the IT Industry, Some important suggestions can be listed as:

Development of inter-personal means of Information Technology and democratization of media of Information Technology of development. We have to eradicate the rural poverty. Literacy should be increased in rural areas. Youth-participation should be increased. Women education and adult education is necessary for transformation. Caste and religious conflict should be checked and controlled. Means of transportation should be developed properly, village roads should be linked with main road to help the Information Technology and also villagers to come about the various beneficial schemes. Schools and colleges particularly for girls in rural community should be opened. This will help to uplift the condition of the girl child in the society. Rural migration towards urban areas should also be controlled. Means of Information Technology should not be very costly, so they can reach the common people. Sources of programmes, communication channels and receivers should be properly arranged and correlated. Villagers have to come out from the bondage of superstitions and mores. Key communicators and change agents will have to take their responsibilities about rural uplift.
CONCLUSION

India is very much ahead in this area and it is hoped that India would emerge as a major player at global IT hardware and software makers. The world Information Technology (IT) Industry will cross the trillion US dollars mark in annual revenues by the year 2009 with more than a third of the working population in industrialized countries becoming knowledge workers. The Government of India recognized that the impressive growth the country has achieved since the mid-eighties is still a small proportion of the potential to achieve, has resolved to make India a global IT software superpower and a front runner in the age of Information Revolution. Towards this end India has set the objectives of Info-Infrastructure drive, export of Information Technologies and IT for all by 2008. The role of IT in governance is increasingly growing. The electronic governance can provide secure, reliable and controlled interface between the government and citizens. Andhra Pradesh is a successful case where governance has come to stay. But there are challenges to face which any visionary government can overcome for reaping the full benefits of Information Technology. Indian economy has reached in the orbit of high rate of economic growth. It is being widely acclaimed and recognized as an emerging global economic power. The rate of growth recorded during the period 1950-51 to 2007-08 clearly showed a tendency of steady upward trend. However, the decade of eighties emerged as a beginning of the high rate of economic growth or at least a dramatic departure from the past growth performance. This tendency had continued in the 1990s and further growth stimulus has occurred in the early 21st century. The structural change based on sectoral income shares showed a rapid
economic transformation of the Indian economy from predominantly agrarian to the service oriented like IT Sector. IT Sector inflows have been increased in the post-reform period and India now seems to be quite attractive place for such kind of investments. In quantitative terms, India’s global share of IT is still very low. However, the FDI still is shying away from the most important IT sectors and regions where it is direly needed. Since the employment elasticity in the IT sector has gone down in the post-reform period, creation of employment opportunities will be a gigantic task for the policy makers. IT has come in the most capital intensive sectors; therefore, the desired employment opportunities could not be created especially for the manual and the semi skilled labor. High skilled labor gained substantially. That is why high growth is called urban centric and thus has created a wedge between the rural and urban economy. In fact, any employees’ cars would not start so they'd have to walk them. The proposed research study was based on the presumptions such as: The suitability of Information Technology depends upon the availability of world wide telecommunication network, Inability and inadequate knowledge about computers among small business is the main hurdle., Internet is not merely a new technology but it is the new way of doing business and There will be district improvement in the overall in the structure development and favorable economic policies. The aforesaid conclusion support the presumption of hypothesis mentioned above.

**IT in Business**- In many ways computers are integrated into business and industry. *Transaction Processing* -Most business activity involves transactions with suppliers, employees and customers. Computers can make these transactions possible. *Desktop Publishing*-Producing finished business literature is one of the uses of computers in business using desktop
publishing programmes, or even sophisticated work processing programmes, people can create sales letters, brochures, price list, news letters and even book-length manuals. **Financial Analysis** - Financial analysis is performed throughout the company from top management to down. People can analyze investments, sales, expenses, markets and other aspects of the business using both numbers and graphs.

**IT in Industry** - Computers have had a major impact in industry where product are designed and manufactured. Computer Aided Design (CAD) is used, to develop products. Computer-Aided Manufacturing (CAM) is used to produce them. **Product Design** - Designing complicated products can require the efforts of thousands of people working together. This teamwork is greatly enhanced throughout the use of computerized design. **Factories** - Factory floors are becoming increasingly populated by computers used for many purposes including inventory control and planning and process control. Computers are also used to run robots that create, finish, assemble and test products and their components. **Architectural Walk Through** - To help visualize what a building's design will really be like when it's built, computerized "walk through" are prepared. One application of this technology on the web is to walk through an auditorium or stadium to select a seat for an event. Before we purchase a ticket, we can even "sit" in the seat to see what our angle of view will be like. Recent surveys indicate that computers are in almost one half of American homes. This is an amazing statistic and it is still rising. Originally a computer in the home was used to duplicate the role of the computer at work or to play games. However those simple roles are changing. Home computers are rapidly becoming major information tools.
IT in Education- Computers have been used in schools since the first apples, were introduced in the 1970s. However, their impact was limited then because there weren't enough of them and educational computer programming was poor. As technology has advanced, educational software has become a major influence at all levels from elementary schools to universities. The ability to connect computers and students together over a network such as the internet opens up fantastic educational opportunities. At college computers are increasingly being used to teach course like the one we are taking. For example, this text has a computer application integrated into it. For another view of what's discussed here, we can use the PACE DC a multimedia programme that parallels this text. To get more in depth and up-to-date material, we can use the PACE web site and tour up-to-the minute topics that have been preselected for us. Computers are especially valuable for students with special needs. A computer's voice recognition capabilities and its connection to the internet make it possible for special education users to participate in learning experience from which they may have previously been excluded.

IT in the Arts- We might think the arts would be the last place to look for computers but we'd be wrong. Computers play a growing role in dance, photography, painting and many other arts. Dance: The fluid movements in the dance are difficult if not impossible to convey through printed text and drawings. However with computers the movements can be brought to life through animation. On the right, reflectors and mounted at key points on a dancer's body and the computer complies a simple animation of her movements for later analysis. Painting: The computer and the web allow us to visit most of the art museums in the world from our homes. It may not be quite the same as being there, but we have access to much that we might
never otherwise see. Computers are also being used by experimental artist. Whenever new tools appear, artists are among the first to use them to explore the frontiers of their medium. Photography: Photos can be digitized by dropping them off at our local photo store, or we can take digitized photo with one of the newer digital cameras. Once photo are digitized, we can manipulate them in hundred of ways. We can cut people from one photo and paste them into another seamlessly. We can no longer trust photography to be a faithful witness, as photos once were called.

**IT in Entertainment**- Computers are used in entertainment to create or enhance a production or Performance. The tools have become so sophisticated that it's becoming almost impossible to distinguish between the real and the artificial in film and photography. Movies: Computers are widely used to create special effects in big budget movies. They are also extensively used behind the scenes to edit film during the production process. Below, in a scene from the movie death becomes her, sculpted models of Meryl Streep’s head were scanned with a 3D scanner to help create complex twisting motions: Music: Music software allows us to edit recorded music or even create our own. With the computer connected to a stereo or synthesizer, we can be our own composer and audience. Both artist and sound engineers are finding novel application for computers in their work. Some of the earliest users of information technology were scientists, engineers and mathematicians. Their relation on IT has only grown with the development of high powered desktop workstation.

**IT in Science and Engineering**- Powerful computers are used to simulate dynamic process in the practice of science and engineering. Chemistry: Supercomputers have numerous applications in chemistry and physics.
Below a chemical process is explored on the computer and colors are used to distinguish various reaction. **Medicine:** Physicians use information technology to understand the human body and to diagnose disorders. Below is a computer-generated scan of a human brain. **Satellites:** Satellites are commonly used in information technology. They may simply really signal from one point to another, eliminating the need for wires between two locations. They also broadcast TV and even internet signals so they can be picked up by small dish antennas. **Topography:** Topographic image can be created from raw data supplied by U.S. geological surveys using a computerized geographic information system, a map can be created. The map indicates what parts of the orca narrow viewed are visible from the specified point of observation. **Seismology:** In an attempt to better understand earthquakes, scientists use computer to gather and plot data. To the right, a map of southern California earthquake activity has been prepared for viewing on the internet. **Astronomy:** The Hubble space telescope is one of the most expensive information processing machines ever created. This powerful telescope, launched into orbit around the earth, is free of the distortion introduced by the atmosphere when ground based telescopes are used. It can look back almost to the beginning of the universe and transmit the data back to earth where it is processed and analyzed. Below is one of the thousands of the pictures the Hubble telescope has taken, this one of the Cygnus Loop Supernova blast Wave. On the right, three Hubble images show the deepest-ever view of the universe stretching all the way to the visible horizons of the universe. Some of the galaxies may have formed less than one billion years after the Big-Bang.

To conclude, whatever may be the precise pattern of the emerging "Information age", developing countries like India need to take urgently
steps to anticipate its full implication and use the inevitable emergence and availability of communication technologies for its benefits and to address some of its major problems of illiteracy, education, poverty and health services in our own economic, social and cultural context.

In the technology vision documents, software engineering and associated IT products and services are important core competencies. Fortunately, already a decision has been taken at the national level to make India an information technology superpower in about a decade, when this task force of IT is deliberating its final report.

**SUGGESTIONS**

To enhance IT industry contribution in the Indian economy, a few of the suggestions emanating from the study are: we need effective Govt. policy, managerial attitudes and cyber-savvy leaders to encourage high risk, long term investment. Comprehensive curricula must be put in place to cater to the demands of the emerging technologies and changing needs of the industry. Industry-Academia collaboration has to be strengthened. More private participation, both domestic and foreign, is crucial for providing high quality power supply and communication facilities like high band width. Efforts must be paid to tap the best talents of Indian software experts for promoting the original software like Windows by investing more on Research and Development (R&D), providing facilities of international standards and by paying attractive salary. There is also a need to attract substantial amounts of Foreign Investment and Technology to rejuvenate Indian IT Industry and make it more competitive globally. An influx of foreign capital and Technology would expose Indians to the latest technologies. Last but not least, making available cheap hardware by
reducing excise duty, sales tax can go a long way to provide a growth spurt to the Industry. The also study brings out exhaustive suggestions, which may be considered by business, industry, national governments and international organization viz. trade policy-makers, independent experts and academia they are: Internalize the critical success factors for competitiveness such as customer orientation, market intelligence, developments in technology and acceptance of quality products from suppliers in order to build-up vibrant organizations. Build-up technological edge by investing heavily in R&D and upgrading the technical skills for survival in the fiercely competitive technology based environment. Pursue the cluster approach of locating industries and invest in a focused manner on specialized industry or sector based on core competency, to consolidate businesses rather than diversify. Formulate export-oriented policies and strategies for developing a base of industry in their respective countries having large-scale production to take advantage of economies of scale, technology and the huge investment involved. Encourage usage of bar codes for diffusion of IT, meeting the importers' requirements as well as speeding up formalities in exports and imports. Modify national rules for tree movement of technical human resources. This would attract FDI both in manufacturing and services areas, particularly in telecom services and development of software applications. Also, evolve a mechanism for certification of software professionals. Set-up or enhance a national information infrastructure for launching electronic commerce, electronic data interchange and other networked management services to improve the efficiency of business and enhance the efficiency of the economy.

With above mentioned suggestions, the industry can achieve an export target of USD 60-62 billion by FY 2011, employing 2.5-3 million professionals
directly and contributing substantially to the socio-economic development of the country. The size of the opportunity in hand can be gauged from the fact that India currently accounts for just over 4% of worldwide technology related spend. That will return good revenue to Indian economy and attract FDI in IT sector in India.