PERFORMANCE EVALUATION OF INFORMATION TECHNOLOGY INDUSTRY SINCE LIBERALIZATION- A CASE STUDY OF INFOSYS TECHNOLOGIES LIMITED

(Abstract)

The service sector is increasingly accounting for a dominant share of the national output in the developed as well as the developing countries. The Twentieth Century has witnessed the most breath-taking development in science and technology, concern for human development and quality of life. First revolution in the field of communication and technology was globally referred to as "Information Technology Revolution". The impact of Information Technology on the economy has been so pervasive and momentous that it is characterized as a second industrial revolution. Thus, the Information Technology (IT) has become the chief determinant of the progress of nations, communities and individuals. In the current phase of globalization, technology determines the international competitiveness. The famous economist Dr. Solo in his research paper (1957) revealed that 90 per cent increase in per capita output of USA during 1909-1949 was because of the technical change, manifesting the strong linkage existing between technological advancement and consequent improved quality of life of the people. Information Technology is hence quoted as “a magical technology, which combines the skillful hand with the reasoning mind. Information Technology in today’s business ambience is the fastest growing industry in the world and is poised to become the large global industry. No other industry has had such a profound influence on government attention and business, with the exception of perhaps the defense industry. Whether it be flying an aircraft faster and better, or getting an accounting software to take care of the drudgery of repetitive work, IT has changed the way we live.
Abstract

Information technology for some times was used as synonymous to computer. But with the rapid advancement in various information delivery systems such as Radio, T.V. Telephone, Newspaper, fax and of course computer and computer network, information technology refers to the entire gamut of media and devices used to transmit and process information for use by various target groups in the society. IT has therefore, been rightly termed as Information and communication Revolution. With the advancement in IT, information is being regarded as the fourth factor of production along with the land, labour 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 i.e. information industry has emerged. According to Low (2000), the activities of generating, processing, transmitting, disseminating, storing, archiving and retrieving information constitute information Industry. Because of its very high positive impact on employment, wages, labour skills, productivity and research tremendously contribute to the economic growth of the country. IT is now treated as the “Strategic Industry”.

In the knowledge economy, the raw material that matters is intellectual rather than physical. The knowledge economy implies shift in the geographical center from raw material and capital equipment to information and knowledge, especially in education and research centers and man-made brain industries. This new economy depicts the automation of labour-intensive manufacturing of service activities as well as growth in new service industries such as health care, e-learning, software production and multimedia entertainment. The pervasive influence of IT is so strong that there is no sphere of human life in which it is not able to make a niche for itself. The new economy is thus creating high quality employment. It is reshaping the job market. Among the entire sectors at international level, Information Technology is millennium’s most sought industry and holds paramount promises to proliferate in the modern era. India knows that International trade
can make her fulfill the promise of accomplishing the projection of India vision-2020 and information technology is cardinal in making this dream a reality.

The status quo at India's IT in the world is quite impressive and reveals that one company i.e. Infosys Technologies Limited has become the flag bearer in this sector. Infosys provides consulting and IT services to clients globally. It provides solutions for a dynamic environment where business and technology converge. Infosys works with large global corporations and new generation technology companies to build new products or services and to implement prudent business and technology strategies in today's dynamic digital environment. It has been witnessed that the phenomenal escalation of IT at global scenario, Infosys growth is quite remarkable and has wiped out the false perception that 'no Indian company can became global'. The size of Infosys is a role model not only for those Indian companies entering in IT sector but also for other sectors.

Evaluation of performance is widely used in society, parents evaluate their children, teachers evaluate their students whereas owners evaluate their organizations. In simple term, performance evaluation may be understood as the assessment of an organization's performance in a systematic manner. Normally, the performance evaluation of any commercial undertaking is done with reference to its financial performance in terms of profitability and other related aspects. But in the case of Information Technology Industry, the traditional method of evaluation with reference to profitability alone is inadequate in view of socio-economic objectives and other responsibilities cast upon them. Physical performance evaluation is an important yardstick in gauging the performance of the industry. Taking into account the fact that IT Industry has to discharge a number of other socio-economic obligations, the performance of IT is being measured in terms of revenue earnings, foreign exchange earnings through exports, employment generation and production under physical performance, whereas earnings per share, Net Profit, divided per share, debt-equity ratio, return on capital employed and return on net worth come under the roof of financial performance.
Abstract

Information technology in the nineties had significant growth around the world and in particular in India. IT has become a potent force in transforming social, economic and political life globally and without its incorporation it is difficult for countries or regions to develop if not to survive. IT Industry in India is flourishing at an accelerated rate and it is assumed that soon India will be a global IT superpower and flagship bearer in global IT industry. From the forgoing review of the studies on different aspects of IT industry, it peters out that these are dearth of studies focusing on the performance evaluation of IT industry in the post liberalization period.

This study is significant in terms of its scope, which encompasses the relevant aspects of performance evaluation of Indian IT industry in general, and Infosys in particular in the post liberalization period (1991-2004) when many of the Indian IT firms were established and the government also embarked upon bringing out concrete plans and policies for the overall growth and development IT industry. The universally recognized parameters of performance evaluation are used to evaluate the performance of Indian IT industry and Infosys. Physical and financial performances are mainly taken into consideration. It is an endeavor to make a holistic study of Indian IT industry by applying statistical tools to calibrate as to how Indian IT industry incorporated the attributes of global competitiveness. Infosys Technologies Limited is one of the cynosures of IT sector in India hence, a case study is undertaken to assess the performance of this company.

The nature of availability of data on IT as a whole were insufficient to evaluate the performance of IT industry hence, six select star companies of Indian IT industry namely, TCS, Wipro, Satyam Computers, HCL Technologies, Pentasoft Technologies and I-Flex Solutions are undertaken to evaluate the physical as well as financial performances on the basis of size of revenues which is around 22 percent of the total revenue generated by Indian IT industry.
The objectives of the study are, to assess performance of Indian IT Industry in terms of revenue, export of software, hardware and ITES since the advent of economic liberalization, to measure the performance of Infosys Technologies Limited in terms of output, production, export as well as net profit, EPS, DPS, etc, to analyze the policy implications with regard to Indian IT Industry as well as Infosys, and finally, to evolve a set of strategy for IT industry to sustain and maintain the global leadership in IT industry.

Hypotheses of the study are as follows:

H01- The null hypotheses assume (i) that the IT industry’s share in Indian exports is not increasing, (ii) that FDI inflows in India is not functionally related to FDI inflows in Indian IT industry, (iii) that the Exports revenue of Indian IT industry is not significantly contributing to the total revenue of Indian IT industry (iv) and that the revenue from software is not significantly contributing towards the total revenue of Indian IT industry.

Failing to accept the null hypotheses will automatically lead to accept the alternative hypotheses.

H02- The null hypotheses presume that the six select Indian IT companies i.e. TCS, Wipro Technologies, Satyam Computers, HCL Technologies, I-Flex Solutions and Pentasoft Technologies are neither contributing towards the exports revenue nor do seem to be major contributors to total revenue of Indian IT industry. Rejecting to accept the null hypothesis will automatically lead to accept the alternative hypothesis signifying that the six select Indian IT companies are contributing towards the exports and the total revenue of Indian IT industry during the period under reference.

H03- The null hypothesis presumes that neither the domestic revenue nor do the export revenue earnings from Software, Hardware and ITES-BPO segments have increased the total domestic revenue earnings and exports revenue earnings of Indian IT industry. The alternative hypothesis would support that the domestic revenue earnings as well as export revenue
earnings from Software, Hardware and ITES-BPO segments have increased the total domestic revenue earnings of Indian IT industry for the referred period.

H04- The null hypothesis assumes that Infosys is not contributing to the growth and development of IT industry in India in terms of revenue generation, exports revenue and employment generation. However, the alternative hypothesis would be that the Infosys is contributing to the growth and development of IT industry in India in terms of revenue generation, exports revenue and employment generation.

H05- The null hypothesis suggests that the profitability and liquidity of Infosys Technologies Limited is not good enough as compared to profitability and liquidity of six select Indian IT companies in terms of Net Profit Ratio, ROCE and Current Ratio. Rejecting to accept the null hypothesis will automatically lead to accept the alternative hypothesis signifying that the profitability and liquidity of Infosys Technologies Limited is better than profitability and liquidity of six select Indian IT companies in terms of Net Profit Ratio, ROCE and Current Ratio for the period under review.

An endeavor has been made in the present study to cull up relevant statistics from secondary source of information. The objectives have been set to analyze the performance evaluation of Indian IT Industry and Infosys pertaining to aspects of revenue earnings, foreign exchange through exports, and employment in all segments of IT i.e. software, hardware and ITES-BPO. The study has approached to make analytical study through the use of significant statistical tools and financial ratios.

The meteoric growth and development of Indian IT industry in the last decade of the 20th century has attracted the attention of both the corporate and the government alike. There is no gainsaying the fact that Indian IT industry has shown a promising future in terms of rising revenue earnings, exports and huge employment potentials. Since mid 80's, the government of India had been making all out efforts in terms of multifarious pronouncement
of policies, programmes and plans for the sustained growth and development of IT Industry. In order to further develop and promote this emerging sector, the government has declared IT as a thrust sector with the advent of New Economic Policy (NEP) of July 1991. The government announced specific policy package with regard to income tax exemption from profits of software exports and later, reduced import duty on computer software from a high of 114 percent to nil. Intellectual Property Rights of computer software is covered under Indian Copyright Act. India became the 12th nation in the world to adopt a cyber law regime during 2000 by drafting Information Technology Act 2000.

The study has brought forth that the IT industry has contributed 3.82 percent share in India's GDP i.e. to the tune of US$ 21.5 billion during 2003-04. This industry has proved to be a hallmark at global market. The export market has been identified as a major contributor to Indian IT industry with 64 percent earnings of the total market. With regard to destination of India's software exports, North America with USA and Canada have claimed the major chunk of share i.e., to the tune of 59.0 percent of total exports in 2003-04. The share of hardware in IT industry has nevertheless decreased from 28.6 percent in 1999-2000 to 22.4 percent in 2003-04 which is attributable to insufficient infrastructure facilities and zero import duty under WTO-IT agreement. This segment is also receiving high degree of threats from Singapore, Taiwan, China and Hong Kong. ITES – BPO is sun rising segment in IT industry, which has been witnessed to have registered US$ 3.9 billion revenue earnings in 2003-04. ITES-BPO services of India are able to deliver superior quality because of large pool of english speaking people and low cost advantages. Geographical location is another advantage for India. This segment too is confronted with threats from Ireland, Malaysia and China.

The IT revolution in fact has given birth to a new economic culture and social transformation for the potential benefits to the developed and the developing nations. In the last decade of the 20th century and early period of the new millennium, the IT industry in India has shown meteoric growth, which
none of the industry of the economy has followed before. Despite the global economic slowdown in 2001-02, desperate socio-economic environment due to terrorism, the Indian IT Industry registered revenue earnings of US$ 21603 millions in 2003-04. India’s most prized resource in this knowledge economy is its large pool of technical and English speaking human resource. Indian IT Industry had strengths of 813,000 IT professionals in 2003-04 with the average annual growth rate of 28.56 percent during the period under study. The domestic market of Indian IT industry is though passing its infancy period yet there are vast opportunities to grow in this market. Domestic market of Indian IT Industry has recorded revenue earnings of US$ 5460 million during the period 2003-04. This industry has proved its hallmark at international market by supplying high quality products and services to other nations. Even Indian soil has become the global supplier of highly efficient IT professionals. Revenue earnings of US$ 16143 million have come through exports market of IT industry with the growth rate of 22.52 percent. Industry has successfully received the attention of the government due to increased share of exports at 28.08 percent in total India’s exports in 2003-04 registering an increase of 26.7 percent from just 1.44 percent in 1991-92 attaining this tremendous growth in the span of last 13 years. The software sector of the industry has truly symbolized India’s strength at the global market. The software sector of IT industry has registered growth of 32.83 percent and revenue earnings of US$ 16500 millions during 2003-04. This sector has also shared 2.64 percent in the India’s GDP and 21.3 percent in Country’s exports for the year 2003-04.

Hardware sector of this industry is passing through a lean patch mainly due to underdeveloped domestic market and low class infrastructure facilities to manufactures. It is also receiving millions of threats after zero import duty on IT products under WTO-IT Agreement. Despite all these, Hardware sector has however managed to earn revenue amounting to US$ 1203 million in 2003-04.

Based on location and people attractiveness, India is identified as strong contenders for the global ITES-BPO market and has made a
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India has attained high growth in the sector mainly due to cost advantage, large pool of English speaking people and its geographical location. FDI has started to bite the Indian Information Technology industry in its full swing since economic liberalization. Indian IT industry has attracted inflows of FDI to the tune of US$ 218 million, which accounts for 6.58 percent share in the total FDI inflows in India during 2003-04.

The revenue earnings of sampled six big bosses of Indian IT industry namely TCS, Wipro, Satyam, HCL Technologies, Pentasoft and I-Flex Solution were Rs. 20138.61 crore in 2003-04. Tata Consultancy Services (TCS) becomes the largest Indian IT Company after acquiring government owned CMC Limited. Total net profit earnings and export revenue earnings of these companies stood at Rs. 4740.04 crore and Rs. 14579.57 crore respectively in 2003-04. There is a large demand of the most sophisticated software products and solution developed and designed by these companies at the international market.

Infosys Technologies Limited is one of the leading Indian software companies engaged in effective business of IT services in Internet technology product development, engineering product design and data management. It was incorporated in 1981 as a private company and later became a public company in 1993. In the financial year 2003-04, the total revenue of this Company stood at Rs. 4760.89 crore and the Profit After Tax (PAT) was Rs. 1243.47 crore. The share of exports earnings of Infosys registered 74.43 percent of its total earnings and foreign exchange inflows stood at Rs. 4532.56 crore in 2003-04. Infosys has the credit of successfully capturing the global market by providing quality IT services.

Besides some constraints confronted with by the Indian IT industry, such as, weaker economic conditions of Indian people, low standard of infrastructure, underdeveloped domestic IT Market, inadequate cyber law, high rate of software piracy, language barriers etc; the Indian IT Industry in
general and Infosys in particular are yet glorified in terms of vast potentials in global and domestic markets both, availability of cheap but highly skilled labour and qualified and efficient IT professionals. Indian IT Industry has galore business opportunities to reach its zenith of success, however it needs some more government's arm candy in terms of high investment in R&D, infrastructure and adequate cyber laws as par global standard.

From the application of statistical tools for testing of hypotheses, it is inferred that the export revenue from IT industry is significantly contributing towards the growth of India's total exports during the study period. FDI inflows in Indian IT industry is functionally related with the total FDI inflows in India. The total revenue of Indian IT industry is statistically related to the exports revenue of Indian IT industry. The study reveals that the exports revenue of the Indian IT industry is significantly contributing to total revenue of the industry. Analysis further brings forth that most of the revenue of the Indian IT industry is dependent on the revenue from the software.

The six select Indian IT companies are found to be the major contributors in the total revenue and exports revenue of the Indian IT industry for the period under reference. The domestic revenue of Indian IT industry and domestic revenue from software are statistically significant. Domestic revenue from the hardware is also significantly contributing to the growth of the total revenue of India IT industry. ITES-BPO is also responsible for the growth of Indian IT industry. However, exports revenue from software is the biggest contributor towards the total revenue of Indian IT industry. Exports revenue from hardware is also gaining momentum. The exports revenue from ITES-BPO is also fairly contributing towards the development of the Indian IT industry.

Infosys Technologies Limited, which has been undertaken as a case study, is found to be positively contributing towards the growth of Indian IT industry in terms of total revenue and exports revenue. However, the employment situation of Infosys is not found statistically significance. Further
more, the performance of Infosys is better than the six selected Indian IT companies in terms of Net Profit Ratio, Return on Capital Employed and Current Ratio for the reviewed period.

Indian Information Technology Industry is a boon of liberalization and globalization, which is fast shaping the destiny of global economy. Indian IT Industry is a white hope for the Indian economy. Indian software sector of IT Industry has proved its hallmark at the global market. Indian soil has become the world supplier of high quality and efficient IT professional at a competitive cost.

Although Indian IT Industry is performing well in all the spheres of its operations, still there is wide scope for improvements in the financial and physical performance of the IT Industry. Further improvement can be achieved with the help of successful implementation of the following suggestions.

There is an urgent need for enhancing total contribution of IT industry in the GDP of the country. In order to increase the share of IT industry in GDP, concrete initiatives from the corporate world and government in the form of new market exploration, new product development and standardized infrastructural facilities are needed. Hardware sector of IT Industry is still in its infancy, which requires concessions and relaxation in order to make it commercial, viable and competitive. Government should come forward to grant various types of incentives to this sector, especially tax holidays, subsidies, loan and advances at a concessional rate so that it can face global competition from the imported hardware.

Seven IT companies under the study are sharing major chunk of the market shares in terms of revenue, exports and employment. There are numerous small enterprises budding in the IT industry, but mostly they are out of the preview of organized sector. As a result, these small but important players are not able to derive benefits from major scheme of the government. There is an immediate need to organize these small enterprises so that they
can sustain and survive the competition from the companies from China, Philippines and other fast growing IT countries. Small business houses should try to form big organization by merging their small business ventures with other suitable entities. It will enhance their productivity as well bargaining capacity.

Infosys has attained a fast growth and it should try to maintain this fast track of growth. There is need for developing new product and diversify its existing line of products. Mostly Indian companies are engaged in the production of front office related product, such as, pay roll muster etc. Infosys should make an endeavour to pool its resources in order to develop more attractive products besides the traditional products.

Indian IT industry has been found to be gradually losing its cost advantages and other countries like Ireland, Malaysia, South Africa, Philippines and China are coming up with the cheap products and services. In order to maintain its cost advantage every effort should be made to increase productivity and efficiency. Current ratio of Infosys seems quit high, company management can take prudent decision to reduce ratio and the excess amount invested in current assets can be judiciously employed in more profitable fixed assets especially in R&D area. Hardware prices in India are quite high and it takes about one year worth of PCI to buy a PC in India. There is a need to lower duties like custom duty, VAT and other local taxes, which contribute 30-40 percent of assembled hardware process. This can spread PC penetration rate in India.

Due to distorted tariff structure, poor infrastructure, high cost of finance and stiff competition from TNCs, IT hardware production is facing high degree of threats. This would require a comprehensive packages of measures, both short term and long term and world class products to be made available at competitive prices, providing standard class of infrastructure and easy financing system by commercial banks. As recommended by the Working Group on IT of Planning Commission, the creation of an Electronic
Component Development Fund with Rs. 100 crore, should be established as early as possible and loan should be provided to credible entrepreneurs at subsidized rate of interest. Special incentives should be given for IT manpower to cultivate other languages like Korean, Chinese, Japanese, German, Russian and French. There should be more promotional schemes via organizing lectures, demonstrations and exhibitions in different countries by CII, FICCI, Nasscom as well as Ministry of Information Technology, the Government of India in order to explore new markets.

The Government is found to have failed to provide uninterrupted power supply and high linkage transportation facilities. Government should give more attention on upgrading the infrastructure at global level. There is necessity of establishing more Indian Institutes of Information Technology, REC and computer centers to train the IT professionals. It will help to remove the imbalance equation of demand and supply of IT professionals. This requires an urgent attention of the Ministry of Information Technology as well as the Ministry of Human Resource Development. To revoke the brain drain in this knowledge economy, there is a need to provide handsome packages of salary, perks and incentives to IT professionals in India. However, increased payment of salary may adversely affect the cost competitive advantage enjoyed by India so due attention should be paid while deciding new salary packages. Low level of R&D investment defines major constraints for software and services sector. This has resulted in missed opportunities for the development of indigenous technologies and software products. Government should change its strategic policy regarding R&D and should increase the share of R&D in its budget outlays.

India’s fast growing software industry is becoming a victim of its own success. In the past years, Indian IT companies have been subjected to unprecedented harassment by immigration authorities in Europe, Asia and USA. Following are the recommendations in this regard:

a. Simplification of the sanctioning visa within short time.
b. Reduce the documentation needs within the security framework for IT professionals.

c. Avoid double taxation and social security taxes through bilateral arrangement.

d. Issue separate ‘Professional Services’ visa for IT professionals with minimal restriction of movement across European Union.

The Government should pay more attention and assistance to researchers who are working on the development of Information Technology. It will be helpful to identify the basic problems in the path of growth and development of IT and beside this it will also assist to recognize new future opportunities for Indian IT industry. The Nasscom and Ministry of Information Technology, Government of India can successfully implement the policies and strategies related to assistance to researchers. Piracy of software in India is the rule rather than the exception. This has affected producers negatively both directly and indirectly. There is alarming need to make toughest cyber laws and adopt and implement Anti-Piracy law strongly. Indian civil aviation policy should be reviewed. Government should allow international flights from some more cities in India especially for US, Australia and Ireland. It will remove the transportation barrier in the way of growth of IT industry. The IT related courses should be started and made compulsory from the junior level education in the country even in schools run by local bodies. In order to reduce the illiterate population in India, presently, which stood at 35 percent of the total population, there is a need to start more e-learning and online education programmes. It has two way positive effect, one to increase the literacy rate and second to increase the penetration of computer networking in India.

In order to increase PC penetration, the government should come up with new schemes, which should focus upon organizations, researchers, teachers and students to purchase computers at subsidized prices in easy installments. It is vital to create a strong local market. There are strategic
reasons for focusing initially at the domestic market to develop experience and capabilities before becoming a super power at international market. The Government Policy of IT for all by 2008 "requires a new momentum. Ambitious target likes ‘Two PC’ for every department is meaningless if these department officials are not trained to operate their computers. The Government should start compulsory orientation classes, training and workshop to all government officials.

Government departments should spend 3 percent of the budget on IT development to initiate Simple, Moral, Accountable, Responsive and Transparent (SMART) governance. Promotion of software in Indian languages is also required to increase IT penetration in domestic markets. There is an urgent need of updating the syllabi of computer engineering, electronic and IT in various technical and management institutes to fall in line with the global industry’s requirements. It is essential to create confidence in our own people so that they can use the network with absolute faith for commerce, communication, entertainment and software development. So information sharing through the internet requires some strong measures to prevent prowlers from taking away the digital assets.

Vidya Vahini and Gyan Vahini programmes to provide connectivity and IT infrastructure to schools and higher learning institutions should be spread all over the country. Presently these projects are running only in seven districts of the India. Government should establish more Community Information Centers (CICs) to provide connectivity at the block level for accelerating socio-economic development. There are only 487 centers at block level mainly in North-Eastern states. There is urgent need to launch these projects in bigger states especially in Uttar Pradesh, Madhya Pradesh and Rajasthan.

The State Government should establish one ‘Internet Café’ on per five villages to make rural population familiar to this magic technology. There is also a need to set up ‘Public Internet Café’ in urban areas to beat high rate
charged by private café operator. Wi-Fi technology should be installed to increase the speed of data transfer. Presently, India is using UAI OFC as compare to UAIW OFC in US.

In order to tackle the stress issue in Indian BPO, it is essential to provide employees the freedom to choose flexi-time, employees Orientation Programme (EOPs) and Reward and Recognition Programme (R&R). More Software and Hardware Technology Parks need be established for the development of new products and more export Processing Zones (EPZs) are needed to increase the exports. Each state should establish a Silicon city like Bangalore. This will be helpful to create more opportunities in each state. Cybrabad in Hyderabad is one such example.

Indian IT companies should pay attention to set up Research and Development centers, which are needed to stay in competition by rapid technological advancement and to maintain their monopoly in the global market specially in the field of software, so that they can create a niche for their hardware. Government should also liberalize the laws related to issue of ADRs and GDRs because it is an important source of capital for Indian companies from the foreign market. Infosys should set up some development centers in north India, it will remove the geographical disparities among the regions, and it should also start some philanthropic activities in these areas.

The present study was devoted to appraise the physical and financial performance of Indian IT industry with special reference to Infosys since economic liberalization. The researcher feels that there is always a room for further researches in specific thematic research sphere. For the purpose of the study six IT companies were selected as sample based on their revenue generation capacity, which accounted for 22 percent of total revenue of IT industry by 2004. It is felt that a research programme can be undertaken by adding some more medium sized IT companies to delve deeper into the problems faced by IT industry. The study may also be undertaken for productivity performance in terms of labour productivity and capital
productivity of Indian IT industry. A full-fledged research programmes may also be ventured in the different aspects of ITES-BPOs and KPOs, which are currently, considered backbone of Indian IT industry.