

# Problems and Prospects of Indian IT Industry

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## I. INTRODUCTION

Information technology [IT] includes those forms of technology which are mainly used for creation, storage, exchange and using of Information in various forms like business data, motion pictures still images, voice conversations, multimedia presentations etc. It fact IT has led to the ‘‘Information Revolution’’, so that 21st century has been characterised by application are advancement in Information technology ; Now IT has become an integral part of our daily life. According to Information technology Association of America, IT is defined as ‘‘the study, design, development—application, implementation, support or management of computer based information systems.’’ Advancement and application of IT has been rapidly progressing resulting in to development of cloud computing ,mobile application, revolution in uses interfaces, analytics etc. Thus it can be said that the influence of IT has been growing continuously and it will contribute significantly towards servicing customers by the business units in a better way.

## II. DEVELOPMENT OF IT INDUSTRY IN INDIA

During the later part of 1990’s the Software boom started in India. Initially most of the Indian Software companies were providing limited software services such as the banking and engineering software. The emergence of Y2K problem stimulated software boom as a large number of skilled personnel were required to meet rapidly increasing demand for data base correction to meet the challenges with the advent of new millennium. When the first generation computers were made they had a very small memory. In order to save space the four digit year was reduced to last two digits. But this was suitable for 20th century. During the 21st century two digit approaches was found to be inadequate. It was at this time Indian Software professionals got a golden opportunity to show their skills in solving the Y2K problem, although it was not highly technical still it called for huge data entry. Thus the Y2K problem provided an opportunity for Indian Software professionals until the end of the year 2000. After this period many Indians lost their jobs. The terrorist attack in US worsened the situation, as it led to inevitable mass lay off Indian professionals. In the year 2000 it was estimated that about 70,000 Indian Software graduates were employed in US but the number declined to 30,000 in 2002 after the terror attacks.

In India software industry continued to be successful especially as Indian economy was growing at average rate of 6 percent per annum since 2006—07. The successful progress

of Indian IT industry was the result of effective teamwork between the Government and the Industry, taking into consideration, the performance of Indian Software industry the Government of India provided massive support including fiscal benefits, easy availability of high speed data communications, and infrastructure facilities, and also ensured red –tape free system of administration. Fiscal benefits included trade—free zones, Software Technology Parks schemes zero import duty on software’s and 100% exemption of profits from software exports. Fortunately, for India, the phenomenon of ‘‘reverse brain drain ‘is enriching its workforce, with people having diverse international experience, knowledge of state of art technology, management skills and much more. This has made it easier for Multi National Corporations [MNCs] to establish their back-up offices in India.’’[1] Several sectors of Indian economy, such as Insurance bank, energy financial Institutions, Government administration, defence, Tax system, posts, customs, Telecom, education, small offices, large companies and also individuals,

## III. CHALLENGES FACED BY INDIAN IT

The history of Indian Information Technology [IT] industry is characterised by a series of challenges. Initially it had to face a challenge when ‘‘Y2K work of rewriting the software codes of large computers to enable them to handle new millennium which enabled Indian companies to gain an entry into the bellowed precincts of large western firms. Indian IT faced this challenge successfully but soon came the bursting of the dotcom and telecom bubbles, preceded by huge technology spending that created opportunities for Indian companies to write lots of new code. It was followed by 9/11 which gave sharp bow to global business. After a period of rapid growth came the period of financial crisis of 2008 and its impact on spending of IT which continued even during the period that followed.

In spite of these challenges, the entrepreneur ---driven Indian Software industry evolved, from writing codes simply, to undertaking systems integration and managing clients. IT infrastructure, initially on site and later on remotely. Simultaneously there was growth of the use of automated tools delivering more sophisticated products and engineering software design services and achieving higher levels of domain knowledge by way of acquiring niche players. Next challenge was caused by cloud computing which implied using servers located elsewhere. IT reduced the need for firms to go in for enterprise—wide IT systems that are licensed and specially designed for individual clients. In order to overcome this challenge Indian software firms started acquiring niche

firms with technologies that will be relevant tomorrow .For example, Infosys acquired Panaya using automation technology. Later on it acquired Skava a mobile e---commerce technology firm. Similarly Wipro acquired the Danish firm. Design it, which was offering design advisory and design innovation services. TCS also acquired Alti a firm specialising in system integration with S A P solutions. Thus Indian software companies acquired larger share in business by way of optimum utilisation of staff, and adopting practices like price discounts. During 2013—15, Infosys, Cognizant and Wipro maintained their operative profit margins, through increasing use of automation, improving productivity and price discounts. The extensive use of automation resulted into lower rate of hiring which according to NASSCOM was about 15 percent to two lakhs during 2015—16, after recording increase of six percent in the earlier year. On account of fall in recruitment, the capabilities to carryout IT jobs also decreased. Indian companies started retraining their staff extensively and those who could make the best use of it got higher level of composition. Still the declining rate employment emerged as a challenge for Indian government.

According to the H R D expert the recent job cuts in IT sector have been largely blown out of proportion, “emplacing that, as industries mature employees must be also to keep up with delivering high quality performance.[3] But IT firms argued that they have reduced their head counts” for building a high performance based work culture. “When the industry has to face challenges of many changes and use of new technology, it becomes necessary to meet evolving standards of performance. In an effect to encourage managers ‘to be at the forefront of disruptions parts and changes, in the work environment , the Infosys in June 2017,rolled out ‘Manager Quotient [MaQ] a platform that utilised crowd sourced feedback and analytics to personalise the learning journey . The programme uses data collected from company surveys through the year, exit interviews and employee feedback to enable managers to know about now they are performing on certain core competencies .The programme aims at achieving more accountability among managers for performance and deliverables. The company also rolled out compass, a digital platform that allows employees to mobilise available opportunities on career path, learning and networks. It also runs the Zero Distance Programme among early initiatives of CEO which aimed at innovation in projects undertaken by the company.

Table1. Performance of Indian IT sector

Year	Output Level	Exports share in total output	Share of GDP in %
1991-92	-	19	-
1996-97	29	35	-
2001-02	10	60	-
2006-07	28	66	-
2011-02	12	76	7.5
2014-15	17	81	-

Source- Richard Hicks, CDI Uni-Manchester.

The table No1 deals with the performance of Indian IT sector which shows that the share of output which was 29% declined to 10% in 2001-02 but stood at 28% in 2006-07 and it stood at 12% in 2011-12 and 17% 2014-15. Thus it shows decreasing tread to which attention need to be paid. However, in terms of experts the share in total output was 19% in 1991-92 which shows continues rising trend so as to reach at 81% in the year 2014-15, indicating more than 4 times increase during the period of two and half decades.

#### IV. DOMESTIC IT PRODUCTION

IT production for Indian domestic market and domestic IT consumption are different. For example domestic computer hardware production 2013-14 was about US \$3 billion, where as domestic IT consumption was U S [s] 12.4 billion,[4] because two figures have different things to count, as consumption figure includes peripherals , network kit, storage etc. In spite of fact that Indian domestic market of IT being very large and growing, production for exports has been growing at a higher rate than that of production for domestic market.

Indian IT sector output level has been fluctuating widely, as it reflected 29/ increase over the earlier year, but this rate declined to 10/ in 2001-02 ,then it increased at 28/ in 2006—07 and recorded 17/ increase over the earlier year in 2014-15. [Table-1]

#### V. INDIAN SOFTWARE EXPORTS

The share of IT sector in Indian exports has been steadily rising as it increased by 19% in 1990-91, and continued to increase over the following years so as to react at 81/ in the year 2014-15.

The contribution of Indian Software in exports has been more significant as stood at US \$ 75bn in 2014 and IT was US \$100bn if BPO services are included. Regarding over all pattern of growth ,it has been steadily decreasing ,for example the ten year annual growth rate average was 40% in 2002, that declined to 30/ in 2008 and 20/ in 2014. Secondly market diversification for Indian Software has remained limited to USA, UK and Europe mainly.

Even the location of production has changed as during early 1990’s about 75% of work was taking place on site, 25% in India. [5] But by the end of 2013-14, it was observed that only 20 percent work took place on site and 80 percent in India, [6] which implies that net foreign exchange earnings have raised significantly.

Regarding productivity ,as measured by average revenue per employee , in the Indian Software sector has also increased from US \$ 7000 per head in the mid 1990’s to US \$16,000 in the late 1990’s and to US \$ 38,000 in 2014 .[7].

#### VI. THE EMERGING TREND IN INFORMATION TECHNOLOGY

According to Information Technology Association of America, Information Technology is “the study, design, development application implementation support or management of computer --based information systems.” The 21st century has been described as wider ‘application and advancement of IT so that it becomes an integral part of our daily life. It has brought about revolution in different aspects of business and society and provided tools for resolving socio—economic issues. IT industry has been characterised by rapid advancement and widening application of Information technology .Some of the emerging trends in the IT are discussed below.

#### 6.1 Cloud Computing:

Cloud computing deals with utilisation of computing services, i.e. Software and hardware as a service over a network. This network is the Internet. It offers three types of services, mainly infrastructure as a service [I a s], Platform as a service [P a s] and Software as a service [S a s]. Advantage of cloud computing include 1) reduction in Infrastructure cost of the company ,it promotes virtualisation that enables sever and storage device to be utilised throughout the organisation, and it also makes maintenance of hardware and software easier as installation is not required on each end-user’s computer .Main issues relating to cloud computing are privacy, security, compliance, legal, abuse, it governance etc.

#### 6.2 Mobile Application:

Mobile app is designed to run on Smartphone, tablets, and other mobile devices. They are available as a download from various operating systems like Apple, Blackberry, and Nokia etc. Some mobile apps are available free, while others are available at download cost. The revenue collected is shared by app distributed and app developer.

#### 6.3 User Interfaces:

User interface has been revolutionised since the Introduction of touch screen, which has revolutionised way end-users interact with application .Touch screen enables the user to directly interact with what is displayed and also removes any intermediate hand held device like the mouse. Touch screen capability is utilised in smart phones, tablet, information kiosks and other information appliances.

#### 6.4 Analytics:

Analytics is a process that helps in discovering the informational patterns with data. The field of analytics is a combination of statistics, computer programming and operations research. Analytics is extensively used for data analytics, predictive analytics and social media analytics .Data analytics is a tool used to support decision making process. It converts raw data into meaningful information .Predictive Analytics is used as a tool for predicting future events based on current and historical information .Social media analytics is a tool used by companies to understand and accommodate customer needs.

Thus IT has been characterised by rapid changes and each changing field of IT has led to great advancement especially during the last decade. Its impact on business has been growing significantly which will help business organisations to serve customer in a better way.

### VII. MORE TECHNOLOGY MEANS MORE JOBS

In the present digital age, consumers and business organisations are using technology in an increasing scale, so more technology means more jobs. When technological progress takes place, it calls for new type of skills, to handle new technology effectively .But the rate of new skill formation when lacks in keeping pace with new technology it results in surplus labour specialised in older skills. In order to survive and grow under the new Digital Age there is competition among companies to get the required tech talent needed to help them transform. In the past technology was used to refine and shape every process in the organisation that helped companies to be efficient and optimise their operations. In digital world process maturity has become table stakes. Now data has become the most valuable resource for business. As data increase in every business the demand for data related skills is increasing at a higher rate, from back office systems to supply chains, from logistics to customer facing roles .Thus every job has become data driven and requires more IT support which will lead to increase in huge demand for technology talent. Rapid progress of digital adoption has resulted into higher spending on IT which is estimated to increase to \$3.5 trillion in 2017 which will be 2.9% over that in 2016. Software sales are expected to increase by 7.2% in 2017 while IT services spending will grow by 4.8% in 2017. As a result of continuous increase in investment in technology which led to increase employment of a large number of skilled employees and increase up to \$150 billion revenue of IT industry in 2016. It created 3.7 millions of direct IT jobs and 10 million in direct jobs. Industry is expected to provide 7 million IT direct jobs and 25 million indirect jobs by 2025. But it rest calls for increase in the technology related skills in other industries also. Even the initiatives like Digital India which is estimated by the government at [s]1 trillion by 2014, from [s]270 billion in 2017. India’s investment in technology has been below one percent to Gross Domestic Product as compared to the global average of 2.5 to 3%. However with Digital India technology investment will increase significantly, giving rise to increase in employment and new micro entrepreneurship opportunities. In order to achieve these goals, it is necessary to pay attention towards developing required skilled manpower. [8]

India’s Outsource progressed during Y2K crisis of the late 1990’s as there was urgent need to repair corporate IT system. With the advent of tablets and smart phones and their applications in the 2010’s user got access to better technology than the IT departments of the companies could provide. They could download ‘‘cheap, elegant and powerful apps on their tablets that made their corporate system look primitive.’’ Companies such as Amazon, Microsoft and Google, with the

help of cloud computing began to take over the functions of data centres. As a result outsourcing declined rapidly. Modern applications are user –customisable and can be anybody having basic programming skills. Although technical progress has affected Indian IT adversely, it also provides new opportunity for reinventing itself and even gets support of U S A who is modernising its old infrastructure and bringing manufacturing back from China. ‘Technologies such as robotics , artificial intelligence and sensors enable development of smart cities ,automated factories and wholesale upgrading of national infrastructure .’

According to Malcolm Frank, chief strategy officer at Cognizant, ‘‘As the world becomes more technical and the clients are digitizing then there should be more services.’’ ‘‘If we look at next ten years ,the whole IT industry won’t be 100% digital .Hence the entire IT work force can’t be rescaled and shouldn’t be .’’ So employees can self –select whether they want to go all digital or want to do traditional technology.’’[9]

#### VIII. FUTURE OF IT

Now business organisations are heading towards becoming digital companies, enabling their customers to perform most of the functions on their smart phones or on the web without visiting the shop .This change is the result of technology becoming the core of business elf. Ola, Amazon, Flipcart are technology businesses. The increasing use of technology by businesses has resulted in rapid growth of Indian technology services business. During the last decade the industry grew to \$ 132 billion from [s] 28 billion .The IT--B P O business is expected to reach at \$350 billion by 2025 according to NASSCOM----McKinsey study.

According to Malcolm Frank this is fourth wave of technology services .The first wave of technology was main

frame where the IBM Global services Model was popular. The second was the client server model [the desktop era] where the companies like Accenture played a dominant role. The third was the Internet Services that saw the rise of off shoring and global sourcing and rise of the companies like TCS, Cognizant, Wipro, HCL, and Infosys. Now it is the fourth wave where business are becoming digital and are viewing transformation due to the use of technologies and platforms like social ,cloud , mobile ,and analytics. Thus as result ‘‘there will be fewer jobs ,more automation, decreasing size of deals ,start-up will take on multibillion dollar services players more aggressively ,according to industry stakeholders and tech analysts.’’[10]

#### REFERENCES

- [1]. Mahato Madhuri (2012): ‘‘HR Focus within the Indian Information Technology Industry ‘‘in ‘Prahodhan : Indian Journal of Management : vol 5, No 5, pp.14.
- [2]. Subir Roy (2015): ‘‘Another Challenge for Indian IT’’ in Business Standard, Vol x, No 21, Pune 29 July p 9.
- [3]. K Shankar (2017): ‘‘Job cuts in IT blown out of proportion ‘‘The Economic Times, Pune Edition July 4,2017 Page 8.
- [4]. Chawla M (2014): Indian Hardware market stands at \$12.43bn’’ Economic Times June 25, 2014.
- [5]. Heeks R (1996): ‘‘India’s software industry’’ sage, New Delhi.
- [6]. Reserve Bank of India (2015): Survey of Computer Software and Information Technology Exports 2013-14, RBI Bulletin.
- [7]. Malik A and Nilkant V (2015): ‘‘Context and Evolution of the Indian Business Models and people ‘‘in ‘‘Management in the Indian IT Industry’’, A.M Rowley (eds) Rutledge, Abingdon UK, 15-34
- [8]. N Chandrashekharan (2017):‘‘IT’s Alive and Kicking ‘‘Economic Times, Pune, Monday 29 May 2017, p12.
- [9]. Malcolm Frank (2017): ‘‘The Entire IT workforce can’t be Reskilled –and shouldn’t be’’ in Economic Times, Pune , Thursday 31 August 2017, P 14.
- [10]. Shelley Singh (2015): ‘‘Bigger, Learner and Faster: Future of IT’’, in The Economic Times Pune, Tuesday December 15, p.14.