



Management

CONTRIBUTION OF INFORMATION TECHNOLOGY IN GROWTH OF INDIAN ECONOMY

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Abstract

India being a highly connected and digital ready economy remains a high potential market worldwide offering multiple opportunities. India presents a large and burgeoning end user market being world's second largest population in world. India is all set to leapfrog into the digital world with 937 million mobile subscribers, 278 million internet users, an USD 14 billion e-Commerce market. Indian IT industry has grown many manifold since 1980s. The industry has contributed considerably to the economy in terms of GDP, employments and foreign exchange earnings. IT industry is also responsible for increasing the competence and productivity of almost all sectors of the economy like services at banks, post offices, railways, airports etc. e-governance has increased the efficiency of government offices. In this paper we have analyzed different ways in which IT industry has contributed to India's growth.

Keywords: Information Technology; Indian Economy; Digital World; E-Commerce market.

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1. Introduction

Information Technology (IT) is a knowledge based industry. It can be defined as the utilization of hardware, services and infrastructure to create, store, exchange and leverage information in its various forms to accomplish any number of business objective. IT industry embraces production, manipulation, storage and dissemination of information. IT sector has a remarkable potential for accelerating economic growth of the nation. It has the potential to improve the productivity of almost all sectors of economic development. Information technology has made our governance efficient. It enhances access to information, provides access to government services, protects consumers, makes skill development and training more effective, progresses delivery health

services, and promotes transparency. The role of IT industry in enhancing the economic development of the country has been acknowledged by the government of India.

There are five principal components of IT industry - (i) Online business (ecommerce) (ii) IT services, (iii) ITES (IT Enabled Services) e.g. BPO (iv) Software Products (v) Hardware. All these components are progressing well and are responsible for ongoing growth curve of India's economy with a steady rise in revenues as witnessed in the past few years.

IT / ITES industry in India has seen an unparalleled growth since the last decade. Various initiatives of Government of India and the State Governments like, liberalization of external trade, elimination of duties on imports of information technology products, setting up of Export Oriented Units (EOU), Software Technology Parks (STP), relaxation of controls on both inward and outward investments and foreign exchange, and Special Economic Zones (SEZ), have helped IT industry to gain dominant position in world's IT scenario. So we can say that the IT industry has matured over the years and has proved to be a major contributor to the global economic growth. It has helped India to emerge as a global force in today's ever-increasing competitive and demanding environment.

This chapter examines how the IT industry evolved over the years and its predominant role in boosting Indian economy, its contribution to the GDP of India, IT exports and employment opportunities.

2. Evolution of IT Industry in India

The origin of IT industry in India can be traced back to 1974 when Tata Consultancy Services (TCS) got its first US client - Burroughs Corporation, United States. The job assigned was to write software code for the Burroughs machines. With that opportunity started the growth story of TCS, now a \$10 billion company. Other IT giants of today also stated their growth stories with modest beginnings (WIPRO in 1966, Infosys in 1981). During this period private businesses were not easy in India due to Government's strict restrictions and regulations. Things brightened up only after 1991 with the government's policies of liberalization.

Evolution of the IT sector can be studied in 5 stages -

- **Stage 1 (Before 1980):** In this first stage, Indian software industry was almost non-existent. IT industry in India started with hardware products. This sector was protected by the Indian Government through licensing and high tariff rates. When Indian Government realized the potential of software sector to earn foreign exchange, it allowed import of hardware and export of software through its new software export scheme formulated in 1972. TCS was the first beneficiary of this scheme in 1974.
- **Stage 2 1980 to 1990:** Though the software exports were started by some high profile companies like TCS, WIPRO, Infosys etc., the results were not very encouraging. There were some problems with government policies like the export of software was dependent on the imports of hardware. Moreover there were no appropriate infrastructural facilities for software development. IT industry was under a lot of pressure. It was only in 1986 that the

Indian Government took decision to liberalize the IT sector and de-licensed the imports of hardware and for exporters, it was duty free.

- **Stage 3 1990 to 2000:** This period has observed intensified competition in the IT sector. During this stage, there were some substantial changes in Indian economy, including relaxation in the entry barriers, trade liberalization, opening up of Indian economy for foreign investments. Software front was moving more towards standardization and productivity improvement. Due to the liberalization, a flow of foreign investments came in India and MNCs in India were introduced. “Offshore Model”, “Onsite Model” and “Global Delivery Model (GDM) were introduced as part of the services.
- **Stage 4 2000-2010:** 2000-2010 has been a period of rapid growth of the IT industry. Software service companies were earning good amount of foreign exchange as a result of cheap hardware, faster communication, and setting up of Software Technology Parks. In 2005 Special Economic Zone (SEZ) Act was passed. It helped in importing duty free hardware, and income tax exemption on exports for 10 years. The result was an increase in the number of software companies. Information Technology Act passed in 2000 gave a boost to e-commerce. National broadband policy announced in 2004 made broadband available to 20 million Indians by 2010.

The policy of allowing companies to have 100% ownership without the need for an Indian partner helped large multinationals open their development centers in India (Accenture, CISCO, DELL, GE, Oracle, Adobe, SAP, Philips, HP, and Google). CDAC designed a parallel machine named PARAM PADMA in 2003 which used 248 processors and a proprietary interconnection network. Its peak speed was 992 gigaflops and it was ranked 171 in the top 500 list of high performance computer in the world. Another important development during the period 1998-2010 was the increasing use of computers in all walks of life like banks, offices, railway stations airports, Income Tax department etc. E-Governance grew rapidly during this period.

- **Stage 5 Post 2010:** Post 2010, India has become world’s largest sourcing destination for IT industry. Online retailing, cloud computing and e-commerce are all contributing to speedy growth of the IT industry. The rate of growth in IT sector for 2016-17 is approximately 12-14%. India’s internet user base is the third largest in the world. Cloud services revenue in India is expected to reach US\$ 1.26 billion in 2016, (growth of 30.4 per cent).

3. Contribution of IT Sector to India’s Growth Story

Indian IT industry has achieved phenomenal growth during the post-economic reform period. The liberalized policy regime, fast technological advancement, declined prices of computer hardware, mushrooming of computer science and Technology education, readiness of a large pool of talent to the industry relatively at lower cost, all together have made significant contribution to the growth of this industry during the last 25 years.

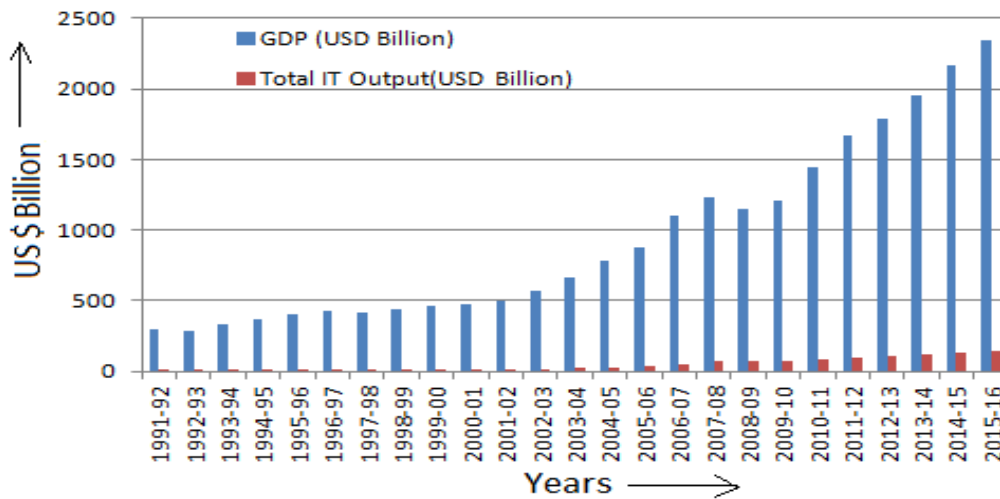
3.1. Contribution to India’s Economy in Terms of GDP

Indian information technology industry has grown manifold during the period 1991-92 to 2015-16 as shown in table 1. The industry has contributed significantly to the economy in terms of GDP, foreign exchange earnings and employments.

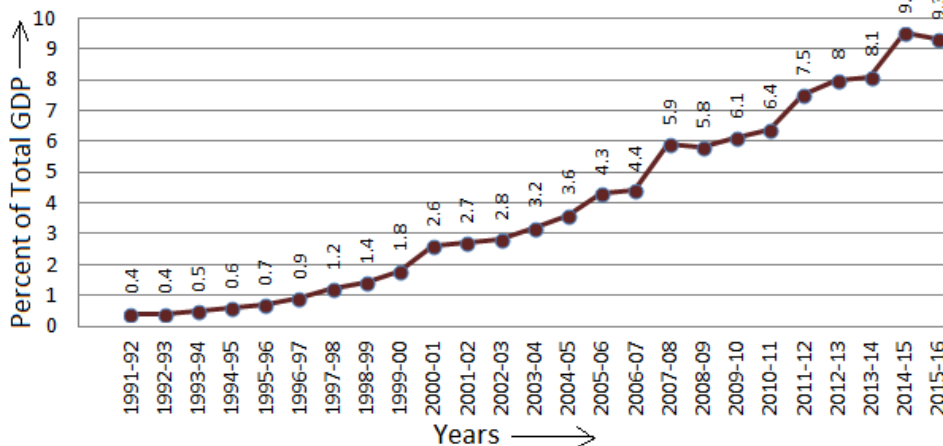
Majority of the Fortune 500 and Global 2000 corporations are sourcing IT-ITES from India. There are around 600 centers set up by Indian IT companies in 78 countries catering to the IT related requirements of people in over 200 cities. They are performing very well and showing remarkable double digit growth in terms of national GDP (NASSCOM analysis reports). In the financial year 2015-16, our revenues have grown from 1.2 per cent to nearly 9.3 per cent. The IT sourcing market of India has grown from 52% in 2012 to about 56% in 2016. By 2020, this sector is expected to reach USD 225 billion target.

India is becoming one of the most preferred destinations for business process outsourcing (BPO) as far as IT enabled services are concerned. These services are boosting Indian economy and this is evident in their contributions to national gross domestic product (GDP).

Graph 1 Share of IT Sector in Total GDP (in US \$ Billion)



Graph 2 IT Sector's Share in GDP (in %) of Total GDP



3.2. Establishing India's Position among the Top Nations

Outsourcing a large number of experts for various IT related jobs all over the world and exporting knowledge – intensive goods has completely reversed India's image of being a poor and underdeveloped country. Indian MNC's have noticeable presence in several locations across the world. India is successfully delivering several off-shore projects thus playing a dominant role in global IT industry.

3.3. Foreign Investments in IT Industry in India

A number of foreign investors are investing in Indian software industry thus contributing to the growth of Indian economy. These investments are mainly in the form of -

1) Foreign Direct Investment

There are a number of multinational companies in India that invest directly in their businesses in India e.g. Google, Accenture, Microsoft etc. Apple is also planning to manufacture its products in India. These companies get the benefit of employing Indians (India produces good number of software engineers every year from a large number of reputed educational institutions) at very reasonable salaries.

As per Department of Industrial Policy & Promotion, Government of India, Ministry of Commerce and Industry, FDI Equity Inflows for Computer Software & Hardware from April 2000 to December 2016 was ₹124,333 crores i.e. US\$ 22,832 million. It was 7% of the total FDI Equity Inflows.

2) Foreign Institutional Investments

Indian economy is growing fast and has attracted the attention of foreign investors as a promising market for investment. Many countries like US, Malaysia, Singapore, China, and Dubai have invested in Indian stocks that include the IT sector.

India has been placed in third rank among the countries that are considered to be most attractive investment destinations for technology transactions as per the report of Ernst & Young's (EYs) Global Capital Confidence Barometer (CCB).

Foreign Institutional Investors (FII) holdings in all National Stock Exchange (NSE) listed companies ₹ 19.32 lakh crores in the quarter ending March 2015. Out of this ₹ 2.77 lakh crores is in Indian IT sector. Cumulative value of investments by FIIs during April 2000-December 2015 stood at US\$ 179.32 billion.

3.4. Earning from Offshore Destinations

India is one of the leading offshore destination in delivering engineering research and development (ER&D) services with a greater market share. In 2004-05, India earned US \$ 18.05 billion through software exports and in 2014-15 it reached 99.64 billion USD. Currently, export accounts for around 80% of the total IT sector revenue.



Source: Dataquest (India); Indian Dept. of Electronics/IT reports; Interviews; ESC India
 Creator: Richard Heeks <http://www.cdi.manchester.ac.uk>

3.5. Generation of Employment Opportunities

The rapid growth of IT industry in India has created a large number of jobs thus raising the socio-economic level of a large number of families. The big and small software companies, BPOs, and other related business centers employ a large number of skilled and even unskilled people. The total employment in IT-ITES industry has been rising over the years and reached around 3.688 million in 2015-16. Around 5% of the employees working in IT-BPO industry come from the economically backward sections of the society. Employment to one person per family brings a large difference to their economic status.

Table 1: Employment in IT-ITeS Industry (in millions)

Year	IT Services & Exports	BPO Exports	Domestic Markets	Total Employment
2001-02	0.17	0.11	0.25	0.52
2002-03	0.21	0.18	0.29	0.67
2003-04	0.3	0.22	0.32	0.83
2004-05	0.39	0.32	0.35	1.06
2005-06	0.51	0.42	0.38	1.29
2006-07	0.69	0.55	0.38	1.62
2007-08	0.86	0.7	0.45	2.01
2008-09	0.92	0.79	0.5	2.21
2009-10	0.99	0.78	0.52	2.29
2010-11	1.15	0.83	0.56	2.54
2011-12	1.15	0.83	0.56	2.54
2012-13	1.29	0.88	0.6	2.77
2013-14	1.6	0.989	0.699	3.288
2014-15	1.74	1.03	0.745	3.515
2015-16*	1.844	1.086	0.758	3.688

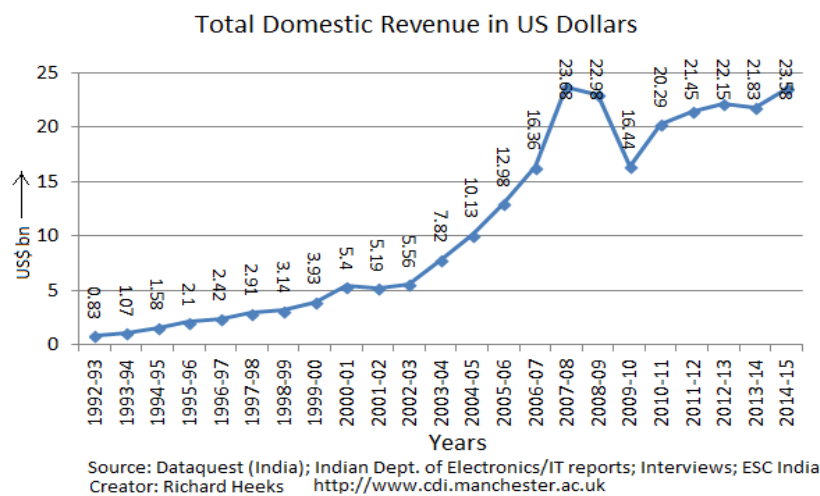
* estimated

Source: NASSCOM <http://www.mit.gov.in/content/employment>

Increase in employment in IT-ITES services have helped other associated businesses like security, housekeeping, catering, transportation and real estate to grow. All these activities are contributing to the Indian economy in the form of taxes paid to the government.

3.6. Indian Software in Domestic Market

The Indian software industry had grown at a compound annual rate of over 50% in the 1990s, the highest for any country during that period. As per current trends, the domain specific solutions focusing on convergence, customization, efficiencies and localization, M2M technology and newer technologies around SMAC are playing a significant role in driving the growth of ER&D and software products. With over 3,100 firms, India is emerging as a hotbed for software products with SMAC (Social media, mobility, analytics and cloud) and a supportive ecosystem creating successful stories.



India is a well-established digital economy. It is largely driven by the consumers. Around 75% of the population is mobile enabled. There are 278 million internet users. Online population is increasing at a fast pace and the e-commerce market is around 14 billion US Dollars showing a growth rate of more than 30%.

After demonetization, the shortage of cash is mobilizing more and more people to go digital. The government is providing a number of incentives to people to go digital. A number of mobile apps have been launched (BHIM), Paytm etc. Digital India campaign plans to ensure mobile connectivity throughout the country, creating a cashless society, promoting e-services to the masses.

3.7. Resource Development

Growth of IT industry in India requires a large number of knowledgeable and skilled human resources. A number of professional colleges all over India are producing the required workforce and so there is no dearth of skilled employees to work in IT industry and BPOs. They are globally at par with the best human resources available and are available at very reasonable salaries.

Knowledge Process outsourcing (KPO) is one of the new dimensions of BPO that has given global outsourcing scenario a new meaning. KPO means outsourcing of basic information related to business activities which are important for a company to add value to its functioning, manage the shortage of skilled labour and help in cost reduction. It requires a high degree of expertise, analytical and technical skills. KPO in India has shown a tremendous growth in the last decade. Many countries look to India for their job work as Indians knowledgeable, skilled, good in English and cost effective as well.

India's IT outsourcing companies traditionally billed clients on the basis of staff working on their projects, linking revenue directly to headcount. That is changing with the industry increasingly adopting automation to do repetitive and low-level jobs. The new focus is on niche areas such as artificial intelligence and cloud, and people with skills in these domains are in high demand. Others, especially fresh graduates, may find it tougher to find job.

3.8. Towards Gender Parity

About the position of women in IT industry, NASSCOM states, “In the Indian IT industry, women now account for close to 30 per cent of the total workforce and this is expected to go up to 45 per cent by 2010. What is noteworthy is the steady rise of the figures. The figure, according to the Registrar General of India, as in 1981 was 19.7 per cent, which rose to 22.7 per cent in 1991, further rising to 25.7 per cent in 2001”.

India is much ahead of the United States in terms of women working in the information technology services.

4. Conclusion

The IT Industry in India has shown a remarkable growth in the last two decades. It has moved very far from minimal percentage of GDP to an impressive percentage. As the global economy improves, and consumer confidence increases, investing in new technologies such internet of things, products and platforms, cloud computing, mobility and analytics etc. will enable vendors to gain efficiency, agility, access to consumers, and innovation. The Indian IT-BPM industry's continued success is providing a big boost to business and is expected to provide revenues up to USD 300 billion by 2020. But the road is full of challenges like competition, customer understanding, protectionism, economic volatility etc. The concerned stakeholders have to address all these challenges in order to survive. They will have to go for IT enabled digital transformation in order to compete in the globally connected world.

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