Chapter - 6

CONSTRAINTS AND PROSPECTS FOR INDIAN INFORMATION TECHNOLOGY (IT) INDUSTRY WITH SPECIAL REFERENCE TO INFOSYS TECHNOLOGIES LIMITED

1. Introduction
2. Constraints For Indian IT Industry and Infosys
3. Prospects For Indian IT Industry and Infosys
4. Conclusion
5. References
Chapter 6

Constraints and Prospects for Indian Information Technology (IT) Industry With Special Reference To Infosys Technologies Limited

1. Introduction

The present chapter recognizes some of the threat faced by the Indian IT Industry in general and Infosys in particular. This chapter also highlights the future prospects of the industry in new millennium. Indian IT industry as a matter of fact, has proved to be gold standard for the economy. This industry has also taught lesson to other industries in the economy in terms of rising revenue growth, employment generation and global market capitalization. Infosys has its their stewardship to IT industry global recognition and this company is the second largest software exporter of the industry. Infosys has made millionaire, not just of its promoters, employees but also of small investors by giving high ratio of EPS and DPS.

The process of liberalization for globalization of Indian economy was initially started in 1985 by the then Prime Minister (Late) Mr. Rajiv Gandhi and then full-fledged liberalization was introduced in July 1991. The wholesale liberalization package for IT industry came in 1994-95. After this, Indian soil became a cynosure for global IT companies to establish their centers in India. This IT companies were outraced globally due to high equality of skilled IT professionals at a very cheap rates. Besides this, India has strong potential to attract many transnational IT companies to come forward to start operation in India because of this strength with vast domestic market, easy taxation and cooperative nature of government. This chapter
also identifies some of the gray areas of the Indian IT Industry as well as Infosys such as low standard infrastructure, weaker economic condition of people, curse of piracy, lack of cyber laws, imbalanced demand and supply equation of IT professionals etc.

2. **Constraints for Indian IT Industry and Infosys**

The information Technology is invading our lives, human relations and relations in the world. Nevertheless these are some factors that are affecting the growth and development IT Industry in India.

They are explained in detail as under:

- Economic Conditions
- Undeveloped Domestic IT Market
- Infancy of Internet Penetration
- Project Management skills
- Inadequate Cyber Laws
- High Rate of Piracy
- Lack of R&D Investment
- Risk Elements
- Inefficient Marketing and Distribution Services
- Poor Infrastructure
- Improper Communication facilities
- Imbalance Demand and Supply Equation of Professionals
- Underdeveloped Hardware Market
- Language Barrier
- Visa Regulation
India is a developing economy and a quarter of population is residing under below poverty line. Apart from various initiatives and schemes of government to education, 35 per-cent of population are still illiterate and more than 70 per-cent of population are living in small and medium villages with no proper electricity, no proper linkage to urban areas and no more communication facilities. Excluding BPL population around 10 percent are hand to mouth earner. In all these conditions, Indian domestic IT market is under threat. At this juncture, 45 percent of populations are unaware of this Information Technology and not even in condition to know about this magic technology.

The domestic IT market is under-developed for the personal computer and hence it can be said that the software market is under scan and thus business depends mainly an export market. Presently the rate of use of PCs is 0.08 percent of total population and that is 8 per thousand people. The chances for the development in IT Industry especially in software sector will increase if growth takes place in the domestic market. Software market is pillar of the IT industry in India. Government for encouraging domestic computerization provides new schemes on computer. Government departments as well as schools and colleges are made computerized.

Indian companies will be helped if there is growing and profitable market. The growing market will help Indian companies to stabilize their work when exports market in sensitive and slowdown in overseas and to develop skills in terms of quality and reliability of the products.

Number of players in Internet Service Providers (ISPs) was restricted due to which domestic market was directly affected but new private ISP
policy will help to improve the scenario. Presently there is only 26 million people are using Internet services.\(^3\)

Although the IT Industry is growing with lightening speed, it is facing some major problems. As most of skillful project managers becoming entrepreneurs, a gap is created in demand and supply of the project management skills.\(^4\) Another obstacle in the development of IT industry are inadequate cyber laws. With regard to regulatory constraints producers consider poor enforcement of copy right protection and security law, both at home and abroad is the most important reason for the insignificant market share of prepackaged Indian software products.\(^5\)

Beside these, piracy of software in India is the role rather than exception. Software is one of the most precious technologies in this knowledge economy. But unfortunately, because of software is highly valuable and computer may create any exact copy of the programmes, software piracy is most interspersed in India. With pirated versions of sophisticated software frequently costing less than Rs. 500, domestic producers are affected negatively in direct and indirect ways. While the direct affect defines the shrinkage in their market share, the indirect effects reflect the downward pressure on their prices.\(^6\)

Low level of R&D investment made by Indian companies defines a major constraint for software industries. Software developers along with entrepreneurs in many sector of IT Industry have experienced poor levels of R&D investments. This has resulted in missed opportunities for the development of indigenous technologies and new software products.\(^7\)

Software products, together with the continuously changing nature of production technology and demand in this market, raise the associated risks of Indian producers to a very high level. Since rapid diffusion of innovation
prevents full appropriation of returns on investment, individual producers are unwilling to commit themselves to significant investment in these areas.⁸

Capturing a major share of international market requires development of a global distribution network to respond effectively to clients' need and standards and setting up of after-sales-services shops to provide support, maintenance and upgrades for the product line. Most of Indian IT companies are lag behind on both of these fronts because developing distribution capabilities and after sales service workshops are time consuming and expensive.⁹

Industrial infrastructure defining provision of power, communication and transport is a preliminary requirement for production irrespective of its specific form. Infrastructure is not available of required standard. It is a hurdle in the promotion of Indian IT industry. Two major IT hub of India are NCR and Bangalore, NCR includes Delhi, Gurgaon, Faridabad and Noida and facing worst condition of power supply.¹⁰

The infrastructure that is the provision of telecommunication network and it may be called as other side of the same coin. IT companies in India encountered a number of telecommunication problems including shortage of telecom links, time lag in accessing such links, poor transmission and high cost of installation and use. Export prospects of the software are hampered due to inadequate communication facilities.¹¹ There is huge requirement for the expansion as still the ratio of telephones is 33 telephones per thousand people and thanks to mobile revolution India and it has given a new momentum and done better in comparison to fixed line phone. Mobile phone also gone ahead as 34 mobile per thousand people.¹² The some problem with the transport facilities. India is the largest rail network in Asia and second in the world but till now there are some places where neither rail nor road

(201)
transport is available. This scenario of infrastructure has restricted the
development of Indian IT industry is full boom.\(^{13}\)

India is famous world wide for giving large number of talented IT professionals but still it is lacking to meet the demand of IT professionals within the country. According to Nasscom-McInseey study, the demand for IT professionals in 2004 is 8 lakhs, while it is expected 12 lakhs in 2008 ad it has supplied only 7 lakhs in 2004.\(^{14}\) In order to meet this crisis government has planned to start new educational institutions, which will be especially for the development of IT professionals. This problem is further enhanced by an increased demand for IT professionals at other countries. Indian IT professionals are highly skilled having greater knowledge at their field. Majority of IT professionals prefer to work at overseas companies as they are offered lucrative packages. This turn adversely affects the internal IT market.\(^{15}\)

IT industry depends mainly on software sector as hardware sector is under developed. Some of the problems faced by hardware sector as per acknowledged by the Group of Members from Ministry of Information Technology, Planning Commission and sector itself are tariff structure, under developed infrastructure and high cost of finance. Government has made several plans to put the hardware section on right track.\(^{16}\)

India is the largest country having people speaking different languages and English language and their knowledge is restricted to minor portion. Most of software are available in English in Indian market, so the penetration rate is very low. If such software are available in local language, then this will help greatly in the spread of computer penetration in the non-English speaking population.\(^{17}\) Recently Microsoft has launched some software in local languages.
Temporary visa and permission for the employees of the software exporters for on site software assignments in US and European countries are different. After 9/11 attack, US has restricted H1 visa for Indian IT professionals. Major part of the exports takes place an onsite services, hence the problem in of greater concern for software export. The same problem is also affected the working of Infosys.

Indian software industries are in danger as several other countries especially china is producing efficient IT professionals. China is also giving tough competition to India in matter of low cost. The major problem with the Chinese IT professionals is the English language. But now Chinese government is organizing English teaching and learning programmes. Thus, there is every possibility of full in demand of India IT professionals in coming years. To compensate the problems, quality professionals, timely delivery etc. should be provided and that can lead over China remains intact.

Indian ITES-BPO sector of IT Industry is not without problems and facing a lot of problems especially in the field of human resources. Noteworthy problem of this sector is the ill health of the employees due to high stress. The employees in this sector work in the night in India to account for the 12 hours time lag between US and India. And this leads changes of the rhythms and dysfunctional behavior of employees specially who works in call centers. BPO wing of Infosys, Progeon Limited is also facing the same problems and creates high attribution rate in this sector.

Apart from these problems, Nasscom has identified same problems faced by Indian IT Industry. These are as follows:

1. Lack of global parity in telecom tariffs and even some private telecom operator has different tariffs in India.
2. **Lack of standard level of infrastructure, especially in power supply and transport facility.**

3. **Domination of exports of export services rather then export of software products in form of package, this is due to low level of investment in R&D.**

Location disparity is another problem is front of Infosys and it has ignored northern and eastern areas of India to open the development and business centers in these areas.

### 3. Prospects for Indian IT Industry and Infosys

The future prospects of this industry are great despite several problems. The potential for all the sectors of the IT Industry and Infosys as well has shown tremendous growth in the last decades. The future and the Indian IT Industry are glorifying because still a vast global market remained undeveloped. Presently India’s share in global market is around one present, therefore, there is immense potential in the international market of outsourcing product and package.

The following part of this chapter discusses the future prospect for growth and development of Indian IT Industry and Infosys. The rate of growth of PC market in India is quite good and it is considered that growth of any industry comes through high demand on domestic market. Presently the population of PC penetration is around 10 million on 8 percent 1000 people. It is expected to increase as the population increases and government’s target is to increase the penetration rate to 20 PCs per 1000 people till 2008.22

The prospects of India’s IT Industry is very bright regarding outsourcing. Because IT industry is that the outsourcing business growth rate will increase 19-20 percent annually.23
A new era has been unleashed by the announcement of new Internet Service Providers (ISP) policy. Presently more than dozen ISPs are operating in India. VSNL has dominated the market as ISP before some other private and public companies appeared in the market. Such companies are BSNL, Reliance Web World, Tata Nova, Satyam Online (Sify), Wipro's Net Cracker, Mantra Online, VSNL, Bharti Enterprises, Essar, Rida Online, and Dish Net etc. are providing Internet services.

Most of the overseas stock exchanges are interested to list Indian software companies. Infosys was first Indian Companies to be listed in NASDAQ and it expected that 25 more companies would be soon in the list of New York Stock Exchange (NASDAQ) and London Stock Exchange in the coming years.

The next major driver of technology led service industry is IT enabled services better known as business processing. Call centers, data entry, back office operations, web designing and medical transcription are some of the IT enabled services. By 2010, it is expected that world wide IT enabled services market grow from the present US$ 12 billion to US$ 200 billion. According to Mckinsey. It is estimated that the Indian employees strength will rise to 1.3 billion by 2010.

Technically skillful professionals are the basic raw material for any industry. India has the second largest English speaking, scientific trained manpower in the world. Indian IT professionals acquaintance with English makes it easy for them in USA and UK markets. The government of India has taken step to cultivate other languages like Korean, French, Russian, Japanese and Chinese etc. This measure is taken that the IT professionals do not face Communication problems in countries like Korea, France, Russia, Japan and China. The government of India has also committed to provide computer
education in every schools and colleges by the year 2006 under scheme “Rajiv Gandhi Computer Sakchharta Mission” and “Sarva Sikchha Abhiyan”.29

Average monthly salary of skilled IT professionals in US is around US$ 600 whereas in India it is Rs. 20,000 per month. This has enabled Indian Companies to export manpower to European countries for routine programming, maintenance and data jobs at cheaper rates. Thus low cost of labour is another advantages factor for India over other countries. But now this advantages is receiving minor threats from China and Malaysia, but still India has some positive places in this regards. This has also helped to more foreign companies to set up business in India especially in software sector. India is fast emerging as a software development hub in the world.30

Since 1991, the Government of India has accorded “Thrust Area Status” to the IT Industry specially providing attention to software sector. The government has amended copyright law to make it toughest in the world, eliminated import duty on computer software, income tax exemption on profit derived from export.

According to Nasscom, Cyber laws in India could soon be brought at par with global standards. It will ascertain protection against cyber violations. It will also be helpful to penalizes the theft of digital soft ‘immovable property’ because 150 years old Indian Penal Code does not came to the rescue of the affected.31

An agenda under the special Action Plan of the Prime Minister is to make India a global Information technology super power and one of the largest generation and exports of software in the next 10 years. In May 1998, Prime Minister Atal Bihari Vajpayee has appointed a National Task Force on Information Technology. The task force has submitted three reports on Software, hardware and services and recommended more than 200 recommendations and the government has approved all these. Department of
Information Technology of Ministry of Communication and IT, Government of India is a nodal agency for facilitating all the activities of IT in central and state government as well as academic institutions in India.\(^{32}\)

In order to expand the IT industry, the governments of many states are providing state of the art building with all supporting infrastructure. This will boost the foreign companies to establish there operations and development in India. Nowadays companies are using latest technologies in client networking. E-Commerce, M-Commerce, Internet, OOP, 4GL, JAVA, Case tools etc. by the majority of Indian software companies.\(^{33}\)

Indians has good sense of Mathematical and logical ability. This contributes towards India's success in providing efficient and quality software solutions. Mathematical and logical ability coupled with intelligence provides wonder for the world. The quality is cynosure for the providing a galore opportunities to Indian professionals strong base of national institutes, engineering colleges, universities and some e-learning centers are producing best among the best IT professionals in the world.

The highest yardstick of quality in the software is the Software Engineering Institute Capability Maturity Model (SEI-CMM) Level 5 certification and Indian software industry has emerged as a real champion with 66 Indian Companies has acquired SEI-CMM Level 5 certification. Only 150 companies from all over the world have received the certificate and by this calculation 44 percent of total came under Indian agencies companies. Besides these around 275 Indian software companies have snatched International quality certificate 150-9000 and presently 80 companies are under pipeline to acquire this. It is just because of just quality of product and their reliability in the global market.\(^{35}\)

India can be differentiated from others in having quality and low cost. Indian vendors are preferred first in the matter of outsourcing software.

(207)
Outsourcing and offshore services are dominated in the software export sector. Offshore services are contributing 62% in the software export.

Another reason for the future prospect of Indian "IT" Industry is the presence of strong global business lobby. International business community has been very supportive of Indian IT Industry mainly due to win-win business relation.

Software piracy is a curse for Indian IT Industry. NASSCOM has initiated to prevent the piracy and organized many programmes anti-piracy programmes and establish Anti-Piracy Raid Forum. In the Berne Convention, UGC and TRIPS of WTO has introduced one of the toughest copy right law in the world and India has signed at treaty. This is the main reason to decreased the piracy rate significantly over the years.

The working group on Information Technology of Tenth Five Years Plan (2002-07) laid the following targets. To achieve a production of Rs. 282,000 crore by 2006-07, with the software accounting for Rs. 213,000 crore (75 percent) and hardware production Rs. 69,000 crore (25 percent). Software and IT services exports are expected to grow to US$ 87 billion by 2008. While the software export target is set as 45$ 50 billion, hardware has been kept at 45$ 10 billion by 2008. IT exports are likely to constitute 35 percent of India’s total export in 2008. The software and IT services industry is likely to contribute 7.7 percent of GDP in 2008. India’s share in the overall global software market is expected to 6 percent by 2007. The Internet subscribers base is expected to cross 35 million by 2007. IT industry is expected to generate 7 million jobs by 2008 out of these 4.8 million jobs in hardware and 2.2 million jobs in the software and ITES. PC penetration is expected to become 20 per 1000 by 2008. (Table-6.1)
Table - 6.1
Target of Tenth Five-Year Plan for IT by 2008

<table>
<thead>
<tr>
<th>Components</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Export</td>
<td>50 billion</td>
</tr>
<tr>
<td>ITES Export</td>
<td>27 billion</td>
</tr>
<tr>
<td>Hardware Export</td>
<td>10 billion</td>
</tr>
<tr>
<td>Share of IT Export in India’s total Export</td>
<td>35 percent</td>
</tr>
<tr>
<td>Contribution to GDP</td>
<td>7.7 percent</td>
</tr>
<tr>
<td>Internet Subscribers</td>
<td>35 million</td>
</tr>
<tr>
<td>PC Penetrations (Per 1000 people)</td>
<td>20</td>
</tr>
<tr>
<td>Jobs in IT</td>
<td>7 million</td>
</tr>
</tbody>
</table>


Table 6.2 gives the projection as regards export potential of the IT industry by the year 2008. The target fixed of IT industry for export is US$ 60 billion up to 2008. The target for export of software product and hardware is US$ 8 billion and US$ 10 billion respectively. Target for the IT services is US$ 23 billion and IT enabled services is US$ 15 billion for the projected year under reference.

Table - 6.2
Exports Opportunities For IT Industry By 2008
(US$ billion)

<table>
<thead>
<tr>
<th>Components</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Products</td>
<td>8</td>
</tr>
<tr>
<td>Hardware Products</td>
<td>10</td>
</tr>
<tr>
<td>IT Services</td>
<td>23</td>
</tr>
<tr>
<td>IT enabled services</td>
<td>15</td>
</tr>
<tr>
<td>E-business</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 6.3 throws light on the target fixed by Ministry of Information Technology in terms of total market capitalization by the year 2008. The target for software product and IT services is fixed at US$ 19.5 billion and US$ 38.5 billion. The total target stood as US$ 60 billion, and of this IT enabled services is stood at US$ 19 billion and E-business at US$ 10 billion by the year 2008.

<table>
<thead>
<tr>
<th>Components</th>
<th>Total Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Products</td>
<td>19.5</td>
</tr>
<tr>
<td>IT Services</td>
<td>38.5</td>
</tr>
<tr>
<td>IT Enabled Services</td>
<td>19.0</td>
</tr>
<tr>
<td>E-business</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>87.0</td>
</tr>
</tbody>
</table>

Source: Data Bank, Ministry of Information Technology, Government of India, 2004 and www.nasscom.org

The Table 6.4 provides an account of the target has to achieve in terms of employment generation in hardware and software sectors of the Indian IT Industry. The table demonstrates that software sector will generate 2.2 million, hardware 4.8 billion and IT enabled services at 1.8 million by the year 2008. All these three major sector of IT Industry will generate 8.8 million employments for the period under references. The table also reveals that the growth in employment generation by hardware is more than the software and ITES sector.

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Employment Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software</td>
<td>2.2</td>
</tr>
<tr>
<td>Hardware</td>
<td>4.8</td>
</tr>
<tr>
<td>ITES</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Source: Data Bank of Ministry of Information Technology Government of India, New Delhi.
Table 6.5 reveals the future prospect for Infosys Technologies Limited by the year 2008. It shows that the income of the company will reach at 9026 crore with 26.6 percent growth rate, whereas its employees strength will stand at 49,350 with 25.53 percent growth rate. This table also describes the earnings per share in terms of rupees and it will be 85.90 with the 24.9 percent growth rate.

<table>
<thead>
<tr>
<th>Items</th>
<th>Target</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>9026 crore</td>
<td>26.6</td>
</tr>
<tr>
<td>EPS</td>
<td>Rs. 85.90</td>
<td>24.9</td>
</tr>
<tr>
<td>Employees</td>
<td>49350</td>
<td>25.53</td>
</tr>
</tbody>
</table>


4. Conclusion

From the foregoing discussion, it may be inferred that besides some of the constraints such as weaker economic conditions of Indian people, low standard of infrastructure, underdeveloped domestic IT Market, inadequate cyber law, high rate of software piracy, languages barriers etc. the Indian IT Industry is in general and Infosys in particular are glorified in terms of vast market potentials global as well as domestic, availability of cheaper cost on labour and high qualitative and efficient IT professionals. Indian IT Industry has galore opportunities to reach its zenith however there is an urgent need for some more government’s arm candy for this industry in terms of high level of investment in R&D, infrastructure and adequate cyber laws as par global standard.

5. References

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20. “Ensure Your Success with the Hottest IT Programs” (2000), Competition Success Review, September, p. 26


28. “Ensure Your Success with Hottest IT Programmes”, op.cit


31. Times of India (2005), New Delhi, June 10, p. 9


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