CHAPTER 3

INDIAN INFORMATION TECHNOLOGY INDUSTRY
– A PROFILE

This chapter encompasses detailed profile of Indian information technology (IT) industry. The profile encompasses definition of information technology, IT industry’s evolution, performance of IT industry in terms of contribution to gross domestic product (GDP) and employment generation. SWOT analysis of IT industry, careers in IT industry, government initiatives to promote the industry, growth scenarios along with list of top IT companies are presented.

3.1 INTRODUCTION

Indian information technology industry has played a vital role in positioning India on the global business scenario. The IT industry has transformed rural based agrarian economy into knowledge based digital economy. In recent decades, IT industry is one of the economically important growth catalysts of the Indian economy. The industry has made significant contributions to the various social and economic parameters like, creation of direct and indirect employment opportunities, improvement in standard of living, infrastructure, educational facilities, exports, balance of payments, etc.

Information technology can be defined as ‘a computing technology that processes, stores and communicates information through programmed systems’. In short, IT is managing information effectively and efficiently.
Software and hardware technologies are the two major components of information technology.

In IT industry, software companies are classified as (i) software product companies and (ii) software service companies. Primary activities of software product companies are to develop softwares, software testing, research and development, and sell them. Whereas, primary activities of software service companies are product support, training and education, hardware and software maintenance, system integration, and IT outsourcing.

Significant feature in economic development, globally, is rapid expansion of the information technology industry. In India, IT industry has become a major source of export earnings. Indian IT industry went through a radical revolution in the decades of the 1990s and 2000s. This revolution is a resultant of availability of knowledgeable and skilled human resources at a low cost. Favourable business environment created by governments through policy decisions acted as a catalyst.

IT industry in India is expected to play an important role in the growth of Indian economy. Ability of the industry to contribute for overall long-run growth will depend upon its ability to cater to the needs of global customers. India’s position as a leader in software services exports is being challenged by many Asian countries like, China, Japan and others. To sustain the leadership for longer time, India has to be proactive in terms of developing software products along with software services.
Liberalised economy and abundant talent pool available at comparatively lesser cost have attracted many multi-national companies to India. There are many foreign multi-national companies operating in India like, IBM, Motorola, Oracle, Samsung, HP, etc. At the same time, there are many Indian multi-national companies, like, Infosys, HCL, TCS, Wipro, etc., are operating in domestic and foreign markets. IT industry is also recognised as one of the highly paid industries in our country.

3.2 EVOLUTION OF IT INDUSTRY IN INDIA

Evolution of IT industry in India can be understood in following four phases.

3.2.1 PHASE 1: INITIATION PHASE – TILL 1984

Origin of Indian IT industry can be traced to 1970s. At that time Indian economy was state-controlled and the governments remained unfriendly to the software industry. During that time import tariffs were very high (100% on software and 135% on hardware). Software was not at all considered as an ‘industry’, hence, exporters were ineligible for bank finance.

In 1970, The Government of India established the Department of Electronics. The objectives of the Department were to promote research, development and industrial operations in the field of electronics and information technology. And also to formulate and implement appropriate policies to attain self-sufficiency in these fields.
In 1974, IT industry in India originated under unfavorable business environmental conditions, like, absence of local markets and unfriendly government policy toward private enterprises. The industry was begun by Tata Consultancy Services, which supplied programmers to Burroughs, US based mainframe computer manufacturer for installing software programs.

3.2.2 PHASE 2: GROWTH PHASE – 1984 TO 1990

In 1984, Government policy towards IT sector changed with the introduction of New Computer Policy, 1984. According to the Policy, import tariff on hardware and software was reduced to 60%. One of the major highlights of the Policy was recognition of software as a ‘delicensed industry’. This paved way for companies to avail bank finance. Foreign companies were permitted to set up fully-owned export units. The Computer Software Export, Development and Training Policy was introduced in 1986 to boost exports. These policies along with Electronic Policy, 1985 and Software Policy, 1986, ushered the liberalised development of IT industry in India. National Association for Software and Services Companies (NASSCOM) was formed in 1988.

3.2.3 PHASE 3: LIBERALISATION PHASE – 1990 TO 2000

In 1991, Government of India established the Electronics Commission. During 1990s, many Software Technology Parks with state-of-the-art technology were established to aid software companies with required infrastructure at economical costs. Further, liberalisation, privatisation and
globalisation ushered in New Economic Policy, 1991, gave impetus to the growth of IT industry in India.

In 1999, The Central Government created a new Ministry of Information Technology by merging the Department of Electronics, National Informatics Centre and Electronics and Software Export Promotion Council. As a result scenario of IT industry in India changed drastically from providing onsite services to offshore services. Many multi-national corporations established offshore software development centres in India during this phase.

### 3.2.4 PHASE 4: BLOOM PHASE – 2000 TILL PRESENT

Continued governmental initiatives resulted in enacting the Information Technology Act, 2000, Semiconductor Integrated Circuits Layout-Design Act, 2000, and National E-governance plan. Some of the Indian immigrants who had been to foreign developed countries like United States of America, United Kingdom, Canada, etc., returned to India. India became engineering design house of the world, due to achievements in the field of semi-conductor design, embedded systems, etc.

During this phase, IT companies gradually started producing customised software products from being outsourced application developers. They created either their own brands or became co-creators of products. But, the dot-com scam of 2000s had relatively mild and temporary effect on growth of IT industry. In this phase significant expansion was witnessed in software product development, engineering services, and research and development.
Growth of domestic markets, diversification in terms of sector specific (also called as verticals) applications (for example: banking, telecommunications, etc.) and catering services to various geographical areas were observed. Eventually, India became a global leader in software services exports.

### 3.3 PERFORMANCE OF INDIAN IT INDUSTRY

IT revenue has continued to grow year after year. The estimated total revenue (domestic and exports put together) for the financial year 2014-15 is USD 118 billion. In which, contribution of domestic market is expected to be meagre USD 32 billion and remaining USD 86 billion revenue contribution is from exports. This growth is largely attributed to exports. Due to variable impact of Indian currency, domestic market has witnessed growth of negative 1.2% compared to financial year 2013-14. IT industry is estimated to grow more than USD 225 billion by 2020. Compounded annual growth rate of approximately 14% is essential to achieve this goal.

Indian IT industry is broadly divided into four segments, viz., (i) software products, engineering and development, (ii) IT services, (iii) IT enabled services (ITeS – BPM / BPO), and (iv) hardware products. Segment-wise estimated contribution to the total revenue is highest by IT (software) services segment at USD 64 billion. It is followed by business process management (BPM) or business process outsourcing (BPO) segment at USD 23 billion. Software products, engineering and development segment is estimated to contribute USD 18 billion and lastly hardware segment is
estimated to contribute USD 13 billion during 2014-15 financial year as shown in the figure No. 3.1.

Whereas, the total revenue (domestic and exports put together) for financial years 2009-10 and 2013-14 were USD 68 billion and USD 109 billion respectively. Domestic market’s contribution for financial years 2009-10 and 2013-14 were USD 20 billion and USD 32 billion. Export market’s contribution for financial years 2009-10 and 2013-14 were USD 47 billion and USD 76 billion.

![Figure No. 3.1: IT Revenues](image)

Source: NASSCOM

There are more than 15,000 IT companies in India. Large 11 companies have contributed revenue more than 40 per cent of total revenue. Approximately, 35 - 40 per cent contribution is made by 120 - 150 medium sized companies. There are approximately 15,000 small scale companies in India. They have contributed revenue approximately 9 - 10 per cent of total revenues as shown in figure No. 3.2.
Interestingly, approximately 1,000 - 1,200 companies are emerging as considerable contributors at 9 – 10 per cent of the total revenues of USD 118 billion.

Figure No. 3.2: Percentage share of different sized companies to total revenues

IT industry in India has emerged as highest impact sector in the economy. Significant contribution of 8.1% to national gross domestic product (GDP) is made by the IT industry.

IT industry has directly employed more than 3.1 million people. It is the largest private sector employer in India. Indirect employment created by IT industry is approximately 10 billion which is almost 3 times the direct employment. IT industry is the 4th largest urban women employer with more than 1 million women employees which accounts for 35 – 38% share in total employees (see figure No. 3.3).
Figure No. 3.3: Impact of IT industry

IT industry is highest attractor of venture capital investment with USD 2.4 billion. IT industry adds highest new value at 60 – 70% when compared to other sectors. In the recent years IT companies are expanding their operations into Tier II and Tier III cities. There are 99 IT Special Export Zones in these cities. Nearly half (45%) of India’s oil import bill is offset by the information technology industry. At 38%, IT industry has the largest share in total service exports.

Figure No. 3.4: IT exports by service line

Source: NASSCOM
The IT exports by segments for financial year 2014-15 are projected to be USD 52 billion by IT services, USD 20 billion by ITeS (BPO / BPM), USD 14 billion by software products, engineering and development segment and meagre USD 0.4 billion by hardware segment as depicted in figure No. 3.4.

Consumption of IT products and services by various sectors has been growing year after year. It is projected that consumption by banking sector will grow by 14% from USD 31 billion in financial year 2013-14 to estimated USD 35 billion in financial year 2014-15. Banking sector consumes 40% of the total IT products and services (see figure No. 3.5).

Figure No. 3.5: Sector-wise (verticals) growth of IT industry

Source: NASSCOM
It is projected that consumption by telecom sector will grow approximately by 9% from USD 14 billion in financial year 2013-14 to estimated USD 15 billion in financial year 2014-15. Consumption by manufacturing sector is estimated to grow by 14% from USD 12 billion in financial year 2013-14 to USD 14 billion in financial year 2014-15.

Consumption of IT products and services by retail sector, healthcare sector is estimated to grow at more than 14% from USD 19 billion in financial year 2013-14 to estimated USD 22 billion in financial year 2014-15 which accounts for 25% share in exports.

There is an increased demand from foreign markets for Indian IT products and services. The demand is estimated to increase from USD 76 billion in financial year 2013-14 to USD 86 billion in financial year 2014-15.
USA continues to lead the demand scenario at estimated USD 53 billion in financial year 2014-15 from approximately USD 47 billion in financial year 2013-14 with growth rate little more than 13% (see figure No. 3.6).

In the financial year 2013-14, UK’s demand was USD 13 billion which is estimated to increase to USD 15 billion in financial year 2014-15 with growth rate of 13.5%. Rest of the Europe is also showing similar results. The demand growth rate from rest of the Europe is little more than 14% from USD 9 billion in financial year 2013-14 to estimated USD 10 billion in financial year 2014-15.

Demand from Asia Pacific countries is rising at little more than 10% from USD 5.9 billion in financial year 2013-14 to estimated USD 6.5 billion in financial year 2014-15. Interestingly, Russian market is slowly picking up with respect to Indian IT products and services. It has registered a growth of 9.4% from USD 1.7 billion in financial year 2013-14 to estimated USD 1.9 billion in financial year 2014-15.

Figure No. 3.7: Employment status

Source: NASSCOM
World’s largest and most diverse talent pool can be seen in Indian information technology industry. IT industry has added approximately 1,66,000 people in financial year 2014-15 totalling to approximately 31,32,000 people as compared to 29,66,000 people during financial year 2013-14 as shown in figure No. 3.7. Approximately 1,50,000 people are working in IT services exports segment, 9,56,000 people are working in ITeS (BPO / BPM) segment and remaining 6,76,000 people are working in IT-BPM domestic operations.

![Industry Skill base](image)

Source : NASSCOM
Note : Total does not equal to 100 due to rounding off

Indian information technology industry has employed most diverse professional in terms of qualifications and skill base (see figure No. 3.8). Out of approximately 31,32,000 people estimated to be employed in IT industry during financial year 2014-15, 45% are graduates other than engineering, 32% are engineering graduates, 13% are post-graduates, 5% are financial specialists and remaining are other graduates and specialists.
The Indian information technology industry has added more than 2 million people in the last decade. The industry spends about USD 1.6 billion on training the workforce.

Top 20 players IT companies during the financial year 2012 – 13 are shown in table No. 3.1.

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<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Company</th>
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<tbody>
<tr>
<td>1.</td>
<td>Tata Consultancy Services Ltd.</td>
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<td>2.</td>
<td>Infosys Ltd.</td>
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<td>3.</td>
<td>Wipro Ltd.</td>
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<td>Syntel Ltd.</td>
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<td>Genpact India Pvt. Ltd.</td>
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<td>12.</td>
<td>MindTree Ltd.</td>
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<td>13.</td>
<td>Robert BOSCH Engineering and Business Solutions Ltd.</td>
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<td>14.</td>
<td>KPIT Technologies Ltd.</td>
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<td>15.</td>
<td>Polaris Financial Technology Ltd.</td>
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<td>16.</td>
<td>Hexaware Technologies Ltd.</td>
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<td>Infotech Enterprise Ltd.</td>
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<td>18.</td>
<td>NIIT Technologies Ltd.</td>
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<td>19.</td>
<td>Zensar Technologies Ltd.</td>
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<td>20.</td>
<td>CGI Information Systems and Management Consultants Pvt. Ltd.</td>
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Source: NASSCOM

3.4 SWOT ANALYSIS OF IT INDUSTRY

In this section SWOT analysis of the Indian information technology industry is presented. Key strengths of Indian information technology industry are:

- Indian IT companies have mastered in IT consulting and knowledge process management.
- India is most attractive country in terms of low cost labour market. Hence, cost advantage exists for foreign multi-national companies to establish their business in India.

- Abundant young and dynamic workforce is available in India. It is estimated that approximately 5.3 million graduates are added to the labour market in the financial year 2014-15.

- Indian workforce is highly flexible, talented and can speak good English.

- Most of the IT companies in India have adopted CMMI quality standards. Therefore, products and services are defect-less and error-less.

- State-of-the-art infrastructure enables Indian companies to operate round the clock. They provide 24 X 7 service and support to their clients.

Indian information industry suffers from some of the weaknesses. They are:

- There is high labour turnover (attrition) among IT companies. IT professionals are more career / profession oriented than company oriented. They often change companies.

- There is excessive dependence on USA for export revenues. Dependence on one country is more risky. If polices are changed unfavourably by that country, export revenues are badly affected.

- Indian IT companies are depending more on banking sector for revenues. Globally, banking sector is not performing all that well.
Excessive dependence on such a poor performing sector can lead to collapse of the industry.

There are brighter opportunities exist for Indian information technology industry as follows:

- There is greater scope for high end IT consulting and knowledge process management in both domestic and international markets.
- There are greater opportunities for IT products and services in segments like infrastructure, financial services (other than banking), transportation and logistics, e-governance, education and so on.
- Hitherto untapped domestic market is most attractive for IT companies to target.

Major threats for Indian IT industry are as follows:

- There is huge competition from Asian countries like China. They are even more cost advantageous than India.
- Some of the developed countries like USA are against outsourcing. This may affect the IT business in India.
- Presently, IT companies in India are experiencing reduction in profits due to wage inflation.

3.5 CAREERS IN INDIAN IT INDUSTRY

Information technology industry comprises of knowledge workers. Major activities of these knowledge workers are to design, develop, test and implement software and hardware products and services. They also establish
computer networks for data transfer. Indian information technology industry offers wide range of career opportunities for knowledgeable, skilled and qualified aspirants.

Primarily jobs in IT industry are classified into two broad categories, viz., (i) technical and (ii) non-technical. Technical jobs comprise of software and hardware categories. Software group of jobs comprise of computer programmers, application programmers, system programmers, content developers, database administrators, database specialists, quality assurance, software engineers, systems analysts, technical writers, web designers, software testers and many more.

Hardware group of jobs comprise of computer engineers, design engineers, network specialist and others. Whereas, non-technical jobs comprise of human resources, finance, accounting, facilities, sales, marketing and others.

Information technology industry is ‘people oriented’, hence, managing people is one of the major activities. Knowledge workers are sensitive to human and career related issues. These professionals seek a rapid growth in their careers. They seek highly challenging jobs and strive for excellence. IT professionals seek informal environment and expect the organisation to follow flat organisation structure. The major challenge faced by IT professionals is skill erosion. Hence, to avoid skills erosion, these professionals continuously
learn and practice new skills according to the latest developments in the field of science and technology.

3.6 GOVERNMENT INITIATIVES

On realising the potential of information technology industry, governments have taken many policy initiatives. These policy initiatives have accelerated the growth of IT industry. Some of the initiatives include enactment of policies and setting up of autonomous organisations. Following is the list of acts and autonomous organisations formed by the Ministry of Information Technology, Government of India:

- Information Technology Act, 2000
- Communication Convergence Bill, 2001
- National Task Force on Information Technology and Software Development, 1998
- Centre for Development of Telematics
- National Informatics Centre
- Education and Research Network
- Centre for Development of Advanced Computing
- Computer Maintenance Corporation Ltd.
- Software Technology Parks of India
- Standardisation, Testing and Quality Certifications Directorate
- Controller of Certification Authority
- National Centre for Software Technology
- Society for Applied Microwave Electronics Engineering and Research
- ERNET Society
These organisations are playing a vital role in training and development of human resources, creating required infrastructure, policy support, design, IT consultancy, training and development, software testing, market support and research and development activities.

### 3.7 FUTURE OF IT INDUSTRY

NASSCOM in its report entitled ‘India 2020: IT-BPO Industry Growth Vision’ has identified three major growth scenarios for the Indian IT industry during 2010-2020 period. Following are the three growth scenarios:

1. **Low growth scenario:** Low growth scenario is bit pessimistic. According to this scenario, IT industry revenue is expected to reach USD 185 billion by 2020. It comprises of export revenue of USD 140 billion and domestic revenue of USD 45 billion.
2. **Medium growth scenario:** Mediocre growth is proposed in this scenario. It is expected that IT industry revenue reaches USD 255 billion by 2020 which comprise of exports revenue of USD 200 billion and domestic market revenue of 55 billion. This implies that IT industry will grow at a compounded annual growth rate of 14% during 2010-2020.

3. **High growth scenario:** This optimistic scenario expects IT industry revenue to be USD 350 billion by 2020. According to this scenario exports revenue accounts for USD 270 billion and remaining USD 80 billion will be accumulated by the domestic market. Though compounded annual growth rate is little higher, it will not cross the growth rate of 2000s.

3.8 **CHAPTER SUMMARY**

It is most advantageous to Indian economy to achieve high growth scenario in order to become a super power nation. In this chapter a detailed profile of Indian information technology industry is presented. IT industry's financial performance, number of companies, employment generation, skill base, exports, contribution to GDP, impact and list of top IT companies are discussed in this chapter.