CHAPTER 3

INFORMATION TECHNOLOGY INDUSTRY –AN OVERVIEW

Information Technology : Global Overview

The word "software" was coined as a prank as early as 1953 and did not get visibility until 1960's. Before this time, computers were programmed either by customers, or the fewer commercial computer vendors of the time, such as UNIVAC and IBM. The first company founded to provide software products and services was Computer Usage Company in 1955 (Elmer C. Kubie , 1994).

Information technology, and the hardware and software associated with the IT industry, are an integral part of nearly every major global economy. The information technology industry has turned out to be probably the most robust industries in the world. IT, greater than any other industry, has an elevated productivity, mainly in the developed world, and for this reason is a key driver of growth for the global economy. Economies of scale and insatiable demand from both customers and firms symbolize this rapidly growing sector (Economywatch, 2010).

Features of the IT Industry

Economies of scale for the information technology industry are high. The marginal cost of each and every unit of further program or hardware is insignificant compared to the worth addition that results from it. Unlike other customary industries, the IT enterprise is knowledge-driven. Efficient utilization of expert labor forces within the IT sector can aid an economic system and achieve a rapid pace of economic growth.

The IT industry helps many different sectors in the progress system of the economic system including the services and manufacturing sectors.
The role of the IT Industry

IT organizations function as a medium of e-governance, due to the fact it assures useful accessibility to knowledge. The utilization of knowledge science within the provider sector improves operational effectiveness and provides transparency. It additionally serves as a medium of skill formation. Due to its handy accessibility and the broad type of IT merchandise readily available, the demand for IT services has expanded noticeably these years. The IT sector has emerged as a predominant global driver of development and employment.

Size of the industry

According to industry analyst Gartner, the size of the worldwide software industry in 2013 was US$407.3 billion, an increase of 4.8% over 2012. As in previous years, the biggest four software vendors were Microsoft, Oracle Corporation, IBM, and SAP respectively (Gartner, 2013).

The Information Technology (IT) Industry of India: An Overview

Background

The Information Technology Industry of India dates back to 1967 when the Tata Group in collaboration with Burroughs set up the primary program zone, SEEPZ in Mumbai. In 1973 SEEPZ became the first software export zone which noticed 80% of the software export in the 1980s. Since then, the IT sector of India has grown by leaps and bounds and has given India an identity in the IT and ITES (Information Technology Enabled Services) sector in the global scenario. The major hubs for the IT export sector are Bangalore, Chennai, Hyderabad, Delhi, Mumbai and Kolkata. Bangalore has earned the sobriquet, ‘The Silicon Valley of India’ owing to the maximum IT export (generating 77% of the net IT export revenue of India). The IT-ITES sector is broadly classified into two categories (i) Business Process

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Outsourcing (BPO) and (ii) Domestic and IT export. The growth in the BPO sector under the supervision of the IT-ITES sector has been phenomenal. According to NASSCOM, “The IT-BPO sector in India aggregated revenue of US$ 100 billion in FY 2012, where export and domestic revenue stood at US$ 69.1 billion and US $31.7 billion respectively”. The industry is also an employment intensive sector. The estimated employment generation in the FY 2012 was an expected 230,000 thus providing direct employment to 2.8 million and indirect employment 88.9 million people all over the country.

According to a report prepared by Gartner, the top five outsourcing companies of India are TCS, Cognizant, Infosys, Wipro and HCL Technologies. (Joydeep D, 2013).

India is the world's largest sourcing destination for the information technology (IT) industry, accounting for approximately 52 per cent of the US$ 124-130 billion market. The industry employs about 10 million Indians and continues to contribute significantly to the social and economic transformation in the country.

The IT industry has not only transformed India's image on the worldwide platform, however has additionally fuelled fiscal growth by energising the higher education sector particularly in engineering and computer science. India's cost competitiveness in offering IT services, which is approximately three-four occasions cheaper than the U.S., continues to be its specified unique proposition (USP) in the world sourcing market.
Classification of IT Industry in India

The Indian IT and ITeS industry is divided into four major segments – IT services, business process management (BPM), software products and engineering services, and hardware.

The IT-BPM sector in India grew at a compound annual growth rate (CAGR) of 25 per cent over 2000-2013, which is 3-4 times higher than the global IT-BPM spend, and is estimated to expand at a CAGR of 9.5 per cent to US$ 300 billion by 2020 (India Brand Equity Foundation, 2015)

Figure 1: Structure of the Indian IT Industry
Market Size

India, the fourth largest base for young firms in the world and is a home to 3,000 tech start-ups. India is set to increase its base to 11,500 tech start-ups by 2020, as per a report by Nasscom and Zinnov Management Consulting Pvt Ltd (Moulisree Srivastava, 2015).

India’s web economy is expected to touch Rs 10 trillion (US$ 161.26 billion) by 2018, accounting for five per cent of the country’s gross domestic product (GDP), according to a report by the Boston Consulting Group (BCG) and Internet and Mobile Association of India (IAMAI). In December 2014, India’s internet user base reached 300 million, the third largest in the world, while the number of social media users and smartphones grew to 100 million. Public cloud services revenue in India is expected to reach US$ 838 million in 2015, growing by 33 per cent year-on-year (y-o-y), as per a report by Gartner Inc. In another Gartner report, the public cloud market alone in the country was estimated to treble to US$ 1.9 billion by 2018 from US$ 638 million in 2014. The increased internet penetration and rise of e-commerce are the primary reasons for continued growth of the data centre co-location and hosting market in India (India Brand Equity Foundation, 2015).

Investments

Indian IT’s core competencies and strengths have placed it on the international canvas, attracting investments from major countries. The computer software and hardware sector in India attracted cumulative foreign direct investment (FDI) inflows worth US$ 13,788.56 million between April 2000 and December 2014, according to
data released by the Department of Industrial Policy and Promotion (India Brand Equity Foundation, 2015).

India also saw a ten-fold increase in the venture funding that went into internet companies in 2014 as compared to 2013. More than 800 internet start-ups got funding in 2014 as compared to 200 in 2012, said Rajan Anandan, Managing Director, Google India Pvt Ltd and Chairman, IAMA. Most large technology companies may have so far focused primarily on bigger enterprises, but a report from market research firm Zinnov highlighted that the small and medium businesses will present a lucrative opportunity worth US$ 11.6 billion in 2015 and US$ 25.8 billion in 2020. Moreover, India has nearly 51 million such businesses of which 12 million have a high degree of technology influence and are looking to adopt newer IT products, as per the report (Indiainbusiness, 2014).

**Some the most important investments in the Indian IT and ITeS sector are as follows:**

Wipro has won a US$ 400 million, multi-year IT infrastructure management contract from Swiss engineering giant ABB, making it the biggest deal for the technology company.

- Tech Mahindra has signed a definitive agreement to acquire Geneva-based SOFGEN Holdings. The acquisition is predicted to beef up Tech Mahindra’s presence in the banking segment.

- Tata Consultancy Services (TCS) plans to set up offshore development centres in India for Japanese clients in a bid to increase the company's margin in the market.
• Reliance is building a 650,000 square feet (sqft) data centre in India. This will be the 10th data centre in the country and the total funding is about US$ 200 million.

• Intel Corp plans to invest about US$ 62 million in 16 technology companies, working on wearable, data analytics and the Internet of Things (IoT), in 2015 through its investment arm Intel Capital. The Indian IoT industry is expected worth US$ 15 billion and to connect 28 billion devices to the internet by 2020.

• Keiretsu Forum, a global angel investor network, has forayed into India by opening a chapter in Chennai. With this, the Silicon Valley-based network will have 34 chapters across three continents.

Government Initiatives

Some of the major initiatives taken by the government to promote IT and ITeS sector in India are as follows:

The adoption of key technologies throughout sectors spurred through the 'Digital India Initiative' would support enhance India's gross home product (GDP) by means of US$ 550 billion to US$ 1 trillion with the aid of 2025, as per research firm corporation McKinsey.

India and the United States (US) have agreed to jointly explore opportunities for collaboration on implementing India's ambitious Rs 1.13 trillion (US$ 18.22 billion) 'Digital India Initiative'.

• India and Japan held a Joint Working Group conference for Comprehensive Cooperation Framework for ICT. India has also offered Japan to manufacture ICT equipment in India.
The Government of Telangana has begun construction of a technology incubator in Hyderabad—dubbed T-Hub—to reposition the city as a technology destination. The state government is initially investing Rs 35 crore (US$ 5.64 million) to set up a 60,000 sqft space, labelled the largest start-up incubator in the county, at the campus of International Institute of Information Technology-Hyderabad (IIIT-H). Once completed, the project is proposed to be the world’s biggest start-up incubator housing 1,000 start-ups.

Bengaluru has received US$ 2.6 billion in venture capital (VC) investments in 2014, making it the fifth largest recipient globally during the year, a sign of the growing vibrancy of its startup ecosystem. Amongst countries, India received the third highest VC funding worth US$ 4.6 billion.

**Road Ahead**

India continues to be the topmost offshoring destination for IT companies followed by China and Malaysia in second and third position, respectively. Emerging technologies gift a complete new gamut of possibilities for IT businesses in India. The US$ 12 billion plus rising Indian e-commerce business market is witnessing a rush of hiring and may need 100,000 people over the following six months, as per industry experts. The industry presents a slew of opportunities and scope for innovation thereby attracting the young intellect to push their limits. As per the studies conducted NASSCOM and IMaCS, it is estimated that industry would employ around 7.5 million of manpower by FY 2022 and around 2.3 million employees in the IT & ITES industry by FY 2015.
In the Indian IT industry, 80% of the employed workforce hold software engineering degrees and MCA qualifications. The skill gap analysis projects that the proportion of science and IT graduates engaging in software development will be significantly grow to 15% from about its share of 10% currently.

**Market size of IT industry in India**

India's technology and BPM sector (including hardware) estimated revenue in financial year 2013 was US$ 108 billion.

![Figure 2: Market size of IT industry In india](image)

Source: ibef.org

**Sector-wise breakup of export revenue**

Export of IT services has been the major contributor, accounting for 57.9 per cent of total IT exports (excluding hardware).
Figure 3: IT Export Revenue
Source: ibef.org

Challenges faced by the IT sector in India

- The IT sector of India needs to discard its old model of service providing and operations. The old model popularly referred to as the ADM (Application, Development and Maintenance) is out of date. It is relevant that the IT sector resorts to the new model of ‘outcome based billing’ and fixed contract based services.

- The maturity of the offshore models has created a demand among the customers for a close proximity of the service providers which will even involve setting up of near shore stations for support.

- India is also facing stiff competitions from China, Philippines and Eastern Europe which are additionally proving to be low cost and competitive international locations. It is estimated that by using 2020 they're going to have 20% stakeholding in the global IT export scenario.

- A shrinking skill pool in our country can be mostly affecting the IT sector. The number of employable graduates within the business sector is as low as 10% to fifteen% whilst that of certified and employable engineers is 26% handiest.
• IT giants like IBM and Accenture have now opened up their own centers in India with the equal target audience as that of the Indian IT Sector.

• The proposed development of the tier 2 and 3 cities has not gone as planned

• It is imperative that the IT sector of India should center of attention on the new rising tendencies like Social media, Mobility, Analytics and Cloud (SMAC)

• There is a want for a whole revamping of the infrastructure of the IT sector which sadly is pending as a result of fund unavailability. Fund scarcity is also affecting the medium and small IT corporations which need a common economic injection for their start-up.

Conclusion

Software Services Industry Body NASSCOM is confident concerning the progress of India’s IT sector. According to NASSCOM, “‘newer geographies’ are set to double their contribution to India to 20% by 2020”. As per the estimation of NASSCOM purely domestic and export services of the Indian IT sector is anticipated to generate US$ 225 billion by 2020. The panorama of the worldwide IT and ITES market is changing quickly and it is totally up to the Indian IT sector now to adapt to this changing panorama. After all India still remains to be a main brand name in the world IT and ITES sector.

IT Industry in Karnataka

Karnataka is the main IT hub of the nation with Bengaluru as the 4th greatest technological cluster in the world after Silicon Valley, Boston and London. Major IT activities in Karnataka is concentrated in Bengaluru. Bengaluru. is popularly known as the Silicon Valley of India. NASDAQ opened its office in Bangalore on Feb 12, 2001. This was considered as a major recognition to Bengaluru. Karnataka contributes
highest to the IT exports of India with twenty percent of the IT companies operating located in Karnataka. Fifty percent of the world's SEI CMM Levels 5 certified companies are located in Bengaluru. Leading IT companies like Infosys, Wipro, Tata Consultancy services, Oracle, Dell, IBM, Microsoft, Accenture, Cognizant and many others have their offices in Karnataka. Indian IT companies Infosys and Wipro have made an entry to the Forbes 2000 list. The top ranked global IT companies have based their India operations and R&D centers from Bangalore including Microsoft, IBM, Oracle and IBM.

Karnataka state contributes five lakh IT professionals from leading engineering institutes to the nation's IT workforce of 2.5 million.

Figure 4: Human Resource in IT Export Activity Karnataka
Source: www.karnatakaindustry.gov.in
Massachusetts institute of technology (MIT) review magazine placed Bangalore amidst eight of the world’s largest technology innovation clusters. To be incorporated in a renowned and respected magazine brings Bangalore and its software population gratification and recognition. Apart from Bangalore, other countries that received this recognition are Boston, Israel, Silicon Valley and Beijing, Paris-Saclay in France, Skolkovo Innovation City in Russia and Tech City in London.

Apart from MIT, Bangalore also received recognition in November 2012 from Genome, a global research startup firm. Genome ranked Bangalore amidst 20 of the most influential startup environments in the world. A high risk taking talent, a deep-rooted work ethic and abilities to overcome the challenges of startups in Bangalore has created a niche in Bangalore in the network of worldwide startups.

References: Media Reports, Press Information Bureau (PIB), Department of Industrial Policy and Promotion (DIPP) statistics, Department of Information and Technology