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Software Industry in Indian Economy: An Overview

DR. MAYA AGARWAL

ASSISTANT PROFESSOR, DEPARTMENT OF BUSINESS ADMINISTRATION, SPC GOVT. COLLEGE,
AJMER, RAJASTHAN, INDIA

ABSTRACT: Today, India is home to some of the finest software companies in the world. The software industry in India has become one of the main pillars of economy. The software companies in India are reputed across the globe for their efficient Information Technology and businessrelated solutions. The Indian Software Industry has brought about a tremendous success for the emerging economy. The software industry is for main component of the Information technology in India. India, the world's largest democracy and home for nearly 1.32 billion people is quietly but quickly emerging as a leader in the field of software engineering and development. The Indian software industry is having a phenomenal compounded growth of about 60 percent per annum. The technological revolutions has brought about tremendous and unexpected opportunities in the field of information technology which lead to the remarkable success story of Indian software industry. It has grown more than 30 percent over last 20 years. India exports software services to more than 96 States. In little over a decade, India has emerged as a major exporter of software in the international economy. Indian software industry has built up valuable brand equity for itself in the global market.

KEYWORDS: software industry, information technology, India, economy

I. INTRODUCTION

Significance of the problem

In India, the software Industries quickly moved up the value chain, from performing low cost programming abroad to providing comprehensive software development services from India for overseas clients an abundant pool of Indian technical manpower, created a series of elite technical and management institution that responded to serve global shortage of technical manpower. Soon India took the lead in promoting software industries on the world stage and emerged as a major exporter in the world. This remarkable feat has been accomplished through the extraordinary growth of Indian software which, in the last 5 years, expanded at a compound annual rate of 56%. More than two-thirds of this was due to exports, making the industry a major export earner for the country. Information technology a wonderful creation of man brought significant shifts in our day to day life. The Indian software industry has made significant strides in the information technology industry, as the software companies are examples of knowledge-based organizations for which people are the most important assets. Software system is required or essential for any growth-oriented and dynamic organization which wants to succeed in a fast changing and competitive environment.

NEED FOR THE STUDY

IT is a "support system" to the other businesses, now assume the business is Travel, Healthcare, Hospitality, Education, Legal, Entertainment, Banking /Finance, Retail, etc. We need IT to make it accessible to the end customers and, this is absolutely true that IT impacts these businesses in a big way.

Methodology Descriptive research method is used.

HISTORY OF SOFTWARE INDUSTRY

The word "software" was coined as a prank as early as 1953, but did not appear in print until the 1960s. Before this time, computers were programmed either by customers, or the few 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.[1,2,3]



The software industry expanded in the early 1960s, almost immediately after computers were first sold in mass-produced quantities. Universities, government, and business customers created a demand for software. Many of these programs were written in-house by full-time staff programmers. Some were distributed freely between users of a particular machine for no charge. Others were done on a commercial basis, and other firms such as Computer Sciences Corporation (founded in 1959) started to grow. Other influential or typical software companies begun in the early 1960s included Advanced Computer Techniques, Automatic Data Processing, Applied Data Research, and Informatics General. The computer/hardware makers started bundling operating systems, systems software and programming environments with their machines.

When Digital Equipment Corporation (DEC) brought a relatively low-priced microcomputer to market, it brought computing within the reach of many more companies and universities worldwide, and it spawned great innovation in terms of new, powerful programming languages and methodologies. New software was built for microcomputers, so the industry expanded greatly with the rise of the personal computer ("PC") in the mid-1970s, which brought desktop computing to the office worker for the first time. In the following years, it also created a growing market for games, applications, and utilities. DOS, Microsoft's first operating system product, was the dominant operating system at the time. In the early years of the 21st century, another successful business model has arisen for hosted software, called software as a service.

THE ORIGIN OF SOFTWARE IN INDIA

The origin of the software industry in India began in 1970 with the entry of Tata consulting Services (TCS) into the domain of outsourced application migration work. In the late 1960s, the Tatas created TCS as a central service centre for Tata Group companies. A few young MIT-trained Indian professionals were recruited, and a large compute system was imported. With IBM having been thrown out of India, the concept of outsourcing application development work had become a necessity for Indian companies. Utilizing its excess computer capacity, TCS began doing outsourced application work for organizations such as Central Bank of India and Bombay telephones. Within a few years TCS began sending young Indian engineers to a joint venture partner in the United States, Burroughs, for training. The trainee engineers excelled at doing platform conversions, and TCs started earning conversion assignments for its engineers in Germany and elsewhere.

Later a new company named Tata Burroughs was formed Tata was keen to exploit the personnel placement or "body shopping opportunities whereas Burroughs was interested in selling hardware to the Indian market.

The industry was begun by Bombay based conglomerates which entered the business by supplying global IT firms located overseas with programmer. Their success owed to the innovative exploitation of a new global market opportunity and protection from transnational corporations and startups by policy. The explanation on origins is the same as used to explain industry origin in countries such as Korea and Japan with the difference that while government policy favoured large domestic firms and discouraged TNCs and small firms in those countries, in India, government policy disfavoured all types but was least hostile to large, domestic firms. In economic terms, the effect was the same as the more typical protectionist policy. The protected environment restricted the growth of project management and domain skills so that, despite access to a large pool of programmers, the industry could not grow in value-addition

A decade later, mainframe based programming and manufacturer-specific operating systems and languages gave way to workstation based programming and standard operating systems and high level languages. These changes modularized the programming function i.e., programming could henceforth be done independently of the hardware platform and from the other functions of creating software, such as system design. This, along with policy reforms that reduced costs of imported hardware and software, caused the Indian software industry to shift from supplying programmers to supplying software programs. As work moved to India, infrastructural costs increased as a proportion of total costs. This caused the industry to relocate from Bombay to Bangalore.

During the early years of the industry's third decade, beginning in the mid 1990s, the establishment of the Internet facilitated the separation of services, such as software maintenance and email management, from the site where the software was located. Following telecommunications policy reforms in 1999, this opened new opportunities for domestic firms for new future.

II. DISCUSSION

GROWTH OF SOFTWARE INDUSTRIES IN INDIA

The Software Industry in India has gained a brand identity as a knowledge economy due to its IT and ITES sector. The IT-ITES Industry has two major components. IT Services and business process outsourcing (BPO). The growth in the service sector in India has been led by the Software Industry contributing substantially to increase in GDP, employment, and exports. The Industry has increased its contribution to India's GDP from 1.2% in FY 1998 to 7.5% in FY 2012. According to NASSCOM, the Software Industry in India aggregated revenues of US\$100 billion in FY 2012, where export and domestic revenue stood at US\$69.1 billion and US\$31.7 billion respectively, growing by over 9%. The major cities that account for about nearly 90% of this sectors exports are Bangalore, Delhi, Mumbai, Chennai, Hyderabad, Pune, Kolkata and Coimbatore. Export dominate the software industry, and constitute about 77% of the total industry revenue. Though the Software Industries is export driven, the domestic market is also significant with a robust revenue growth. The industry's share of total India's exports are increasing day by day.[4,5,6]

This sector has also led to massive employment generation. The industry continues to be a net employment generator expected to add 530,000 jobs in FY 2020-21, thus providing direct employment to about 5.2 million, and indirectly employing 8.9 million people. Generally dominant player in the global outsourcing sector. However, the sector continues to face challenges of competitiveness in the globalize world, particularly from countries like China and Philippines.

India's growing stature in the information Age enabled it to form close ties with both the United States of America and the European Union. However, the recent global financial crises has deeply impacted the Indian Software companies as well as global companies. As a result hiring has dropped sharply, and employees are looking at different sectors like the financial service, telecommunications, and manufacturing industries which have been growing phenomenally over the last few years.

Recent developments in software industry

The economic effect of the technologically inclined services sector in India-accounting for 40% of the country's GDP and 30% of export earnings as of 2021, while employing only 33% of its workforce-is summarized by Gopal Dutta (2021):

The share of IT software in total exports increased from 1 percent in 10 to 28 percent in 2013. IT-enabled services such as back office operations, remote maintenance, accounting, public call centre medical transcription, insurance claims, and other bulk processing are rapidly expanding. Indian companies such as HCL, TCS, Wipro, and Infosys may yet become household names around the world.

Today, Bangalore is known as the Silicon Valley of India and contributes of Indian IT software exports India's second and third largest software companies are head-quartered in Bangalore, as are many of the global companies of Mumbai too has its share of IT companies that are India's first and largest, like TCS and well established like Reliance, Patni, Ln T Infotech, i-Flex, WNS, Shine, Naukri, etc. are head-quartered in Mumbai. And these IT and dot com companies are ruling the roost of Mumbai relatively high octane industry of Information Technology. Such is the growth in investment and outsourcing, it was revealed that Cap Gemini will soon have more staff in India than it does in its home market of France with 21,000 personnel in India.

On 25 June 2002 India and the European Union agreed to bilateral cooperation in the field of science and technology. A joint EU-India group of scholars was formed to further promote joint research and development. India holds observer status at CERN while a joint India-EU Software Education and Development Centre is due at Bangalore.

CHARACTERISTICS OF THE INDIAN SOFTWARE INDUSTRY

The Indian software sector displays many unusual features from an Indian perspective. The most obvious one is its export orientation, accounting for 65% of the, total software revenue. There are important qualitative differences between the export market and the domestic market) The first relates to different types of software developments which, gives the composition of the domestic and export software development and services market, domestic market has a higher proportion of revenues from the sale of software packages and products. Whereas products accounted for nearly 40% of the domestic market, they account for a little under 10% of exports. Over 80% of exports are software services including custom software development, consultancy and professional services.



The second difference between the domestic and export sectors relates to the stages of software development as described earlier, Indian firms usually provide low-level design, coding and some types of testing services for export. For domestic clients the industry provides a wider range of services that usually spans the entire lifecycle of software development. Some of the domestic projects are much larger and more challenging than export projects, with the screen based trading system for the Bombay Stock Exchange and the Reservation System for Railways, both by executed by CMC, an experienced public sector firm, being two recent examples.

Domestic

A large fraction of the domestic software industry consists of resale of software packages developed by foreign, principally US, firms, thus overstating the extent of software written for the domestic market. On the other hand, there is a great deal of in-house software written by users, especially large Indian firms that is not being captured by these figures.

A number of Indian software firms have also developed software packages aimed at the domestic market. However, with very few exceptions, these packages have not been very successful. Although it is tempting to point to weak intellectual property rights as a culprit for the failure of Indian firms to develop successful packages, our interviews suggest that at least as important, if not more, has been the lack of experience, especially design and marketing experience, necessary to produce a successful product. Firms that have had domestic experience with consulting do not appear to derive any advantage from it in the export market. Given the simpler and more routine tasks involved in current software exports, the sophisticated capabilities and expertise that firms had developed from serving domestic customers have not been of great value to them in the export market.[7,8,9]

Exports

As we have seen, Indian software exports consist primarily of software services. The activities carried out by most firms in India are essentially maintenance tasks for applications on legacy systems such as IBM mainframe computers, development of small applications and enhancements for existing systems, migration to client-server systems, often referred to as porting or re-engineering. Y2K projects were an important source of revenue, most of the leading Indian software firms have limit their dependence on such projects. US accounts for over half of all export revenues compared with 21% for Europe and 4% for Japan.(Y2K is the shorthand term for "the year 2000." Y2K was commonly used to refer to a widespread computer programming shortcut that was expected to cause extensive havoc as the year changed from 1999 to 2000. The Y2K bug was a problem in the way computer programs stored and processed dates. Many programs used only two digits to represent the year, such as 99 for 1999, to save memory space. This worked fine until the year 2000, when the two digits would become 00.)

III. RESULTS

SWOT ANALYSIS OF SOFTWARE INDUSTRY

Strength	Weaknesses
<ul style="list-style-type: none"> • Highly skilled human resource • Low wage structure • Quality of work • Initiatives taken by the Government (setting up Hi-Tech Parks and implementation of e-governance projects) <p>Many global players have set-up operations in India like Microsoft, Oracle, Adobe, etc.</p> <ul style="list-style-type: none"> • Following Quality Standards such as ISO 9000, SEI CMM etc. • English-speaking professionals • Cost competitiveness <p>Quality telecommunications infrastructure</p> <ul style="list-style-type: none"> • Indian time zone (24 x 7 services to the global customers). Time difference between India and America is approximately 12 hours, which is 	<p>Absence of practical knowledge among fresh graduates</p> <p>Dearth of suitable candidates</p> <ul style="list-style-type: none"> • Less Research and Development <p>Contribution of IT sector to India's GDP is still rather small.</p> <p>Employee salaries in IT sector are increasing tremendously. Low wages benefit will soon come to an end.</p>



<p>beneficial for outsourcing of work.</p> <p>Opportunities</p> <p>High quality IT education market</p> <ul style="list-style-type: none"> • Increasing number of working age people India's well developed soft infrastructure • Upcoming International Players in the market 	<p>Threats</p> <p>Lack of data security systems</p> <p>Countries like China and Philippines with qualified workforce making efforts to overcome the English language barrier</p> <ul style="list-style-type: none"> • IT development concentrated in a few cities only
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SCOPE OF SOFTWARE INDUSTRY IN INDIA

The Software industry has great scope for people as it provides employment to technical and non-technical graduates and has the capability to generate huge foreign exchange inflow for India, India exports software services to approximately 95 countries in the world. By outsourcing to India, many countries get benefits in terms of labour costs and business processes. Also, the Indian companies are broadening the range of services being provided to the customers, which is resulting in more off shoring. Talent acquisition, development and retention initiatives taken by the companies have brought down the employee attrition rates, thereby providing more stability to the employees and increasing their job commitment.

Many financial institutions are providing funds for the expansion of IT and ITES businesses. In order to support software industries the Indian Government is also taking many steps. For example:-

1. The Govt. has provided incentives including tax holiday up to 2022 and competitive duty structures.
2. The Govt. is trying to reduce the international communication cost.
3. It is providing infrastructure support through organizations such as software technology parks.

All these factors collectively crate a number of opportunities in the ITSector.

FUTURE OF SOFTWARE INDUSTRY

Software will continue to go momentum; telecom and wireless will follow the trend immense expansion in networking technologies is expected to continue into the next decade also. Software will bring about a drastic improvement in the quality of life as it impacts application domains and global competitiveness. Technologies that are emerging are Data Warehousing and Data Mining. They involve collecting data to find patterns and testing hypothesis in normal research. Software services that are being used in outsourcing will go a long way.

The Sector can be classified into 4 broad categories:-

1. software Services
2. Engineering services
3. ITES BPO
4. Services, E Business

Software Services can further be categorized into Information Services (IS) outsourcing, packaged software support and installation, systems integration, processing services, hardware support and installation and software training and education.[6,7,8]

Engineering Services include Industrial Design, Mechanical Design, Electronic System Design (including Chip/Board and Embedded Software Design), Design Validation Testing, Industrialization and Prototyping.IT Enabled Services are services that use telecom networks or the Internet. For example, Remote Maintenance, Back Office Operations, Data



Processing, Call Centre, Business Process Outsourcing, etc. E Business (electronic business) is carrying out business on the Internet, it includes buying and selling, serving customers and collaborating with business partners.

NATURE OF SOFTWARE INDUSTRY

Introduction With the advent of the information technology industry underwent a quantum change. Suddenly computers were all pervasive and work automation took off in a big way. The software revolution totally changed the way we work. Availability of cheap and easy to use software packages increased productivity levels manifold. Probably no sector is untouched by information technology. Manufacturing, Finance, Banking, Marketing, Entertainment, Education and several other fields are reaping the benefits of Information Technology. As a result the IT industry employs not only staff trained in computers but also professionals from all other fields which could also be non-technical in nature. The rapid development of technologies such as networking, multimedia and the Internet have created totally new job categories where none existed a few years ago. This sector is also the one that is witnessing the fastest growth and change rate. New software and techniques come out every month and professionals have to keep pace with the rapid advancements. The hardcore technical jobs in the software industry can broadly be classified as hardware jobs and software jobs. Non technical jobs include functional expert consultants, web designers, data entry professionals etc. Hardware job Software Jobs Specialised Jobs Internet Related Jobs Multimedia Jobs.

EMERGING TECHNOLOGIES IN SOFTWARE INDUSTRY

E-commerce The Internet revolution is sweeping the world and is changing the way companies traditionally dealt with customers. Now customers can compare and shop without moving out of their homes by using the Internet, electronic commerce relates to all commercial transactions that take place through the Internet. It is estimated that the quantum of e-commerce will jump to 490 billion US dollars by the year 2019. In order to enter this field, in addition to a basic degree in computer science/engineering one must have sound knowledge of software used in the front end such as Java, DHTML, Visual basic etc, the backend which is generally databases such as Oracle and SQL server as well as networking and web server maintenance. In addition an understanding of business transactions is also essential.

Supply Chain Management In any industry there are lot of vendors providing various material inputs used in final production. On the distribution side there are channels comprising of wholesalers, distributors and retailers. Supply chain management software cuts down the time taken for the supplies to arrive from the vendor and reduces the inventory levels thus cutting cost. On the marketing side, it ensures that products reach the end customers in time to fulfil their demand. Customer Relationship Management Companies offering products and services have to deal with a number of customers. Customer relationship management software provides a record of all previous dealings with customers so that the company personnel can take the right decision while dealing with them.

Software and Services will contribute over 8.5% of the overall GDP growth of India.

.IT exports will constitute 45% of the total exports of India. There will be 2.9 million jobs in IT sector.

IT industry will attract FDI of US\$ 5-6 billion.

Market capitalization of IT shares will be approximately US\$235 billion.

IT Sector-Career Opportunities in software industry

Career opportunities in IT sector are bright and growing in India as well as abroad, IT is a diverse industry in which companies are looking for a multi- skilled, tech savvy workforce. Even if you are not planning to enter the sector directly, you will still need IT skills for employment in other sectors. India's large population is more of a strength than weakness. It is a huge potential market, In the year 2017-18, the industry hired approximately 3, 92,000 people. Out of these, the IT's sector hired 2 50,000 people and the rest were taken by IT sector.

GOVERNMENT ATTITUDE TO SOFTWARE INDUSTRY

The Government has also played a vital role in the development of the India Software Industry. In 1986, the Indian government announced a new software policy which was designed to serve as a catalyst for the software industry. This was followed in 1988 with the World Market Policy and the establishment of the Software Technology Parks of India (STP) scheme. In addition, to attract foreign direct investment, the Indian Government permitted foreign equity of up to 100 percent and duty free import on all inputs and products.



The software industry in the main component of the IT Industry in India has also help IT sector in India to grow good pace. As per the proceedings taking place the software industry the future of the India Software industry looks promising.

India, compared to its competitors, ranks high on several critical parameters, including level of government support, strong track record of quality and delivery, early-mover advantage of brand recognition, quality of labour pool, English language skills, project management skills, strong focus on

processes, and a favourable time zone difference with the United States that permits 24/7 internal operations. Some of the weaknesses that persist are slow growth in the domestic market and a lack of innovation and product orientation in the bulk of small and medium sized companies. Infrastructure needs improvement in many areas such as roads, electricity, venture capital and airports. Markets continue to be concentrated in North America and are therefore subject to nontariff barriers such as visa denials. There has been some domestic political backlash against outsourcing in the United States and Europe. However, a comparison of India with competitors in software exports on strengths and weaknesses seems to suggest that India's current position is quite sustainable in the near future.[8,9]

It is difficult to say whether India's success can be replicated in other countries. Any country hoping to emulate India's example would have to define a strategy that matches local capability to global opportunity and discover niches that can be exploited. The niche could very well be in terms of the market to be served on the basis of language competency. Late movers can take advantage of the demonstrated success of the offshore model and how it works. There is only one necessary condition, which is the existence of high quality, trainable manpower and strong entrepreneurial and managerial talent. If countries cannot wait for a high quality technical education system, it may still be possible to mount focused training and certification programs in targeted niche areas. This would of course require a foundation of a good university education system that is producing easily trainable manpower. Key infrastructure for offshore services such as telecom could be created selectively through technology parks. Policy support and incentives can also be provided selectively. Since trust is a key issue in offshore work, the country's Diaspora and intermediaries can play a critical role in the beginning.

KEY FACTORS THAT EXPLAIN THE SUCCESS OF INDIAN SOFTWARE INDUSTRY

- Software industry can be built entirely on human capital requires limited infrastructure and upfront investment has good cash flows and is highly profitable..
- India had an early-mover advantage: repeated positive experience built trust in outsourcing and validated the Indian brand.
- Role of human capital, including software engineers, project managers and corporate leaders.
- Early investments in engineering education and privatization of education created a large talent pool.
- Body shopping exposed a large population to new ways of working.
- Professionally trained entrepreneurs.
- Vigorous efforts at assimilating new technology and good management practices helped companies offer competitive costs for high quality and delivery performance.
- Selective support to industry in an otherwise constraining environment by a few enlightened bureaucrats and the role of NASSCOM in influencing policy.
- Lack of effective implementation of restrictive policies allowed market forces a significant play in the early phase. The ecology was liberalized in later years.
- Highly entrepreneurial IT training and private education industry. Responded quickly to fill skill gaps and opportunities. Positive government policies and lack of regulation meant few barriers.
- Large population created competition for engineering seats and jobs. Software industry faced no internal competition for technical talent. Competition from MNCs came when indigenous firms were prepared.

SOFTWARE INDUSTRY IN INDIA STATES

The software industry in Karnataka state in India has become one of the main pillars of economy. Karnataka stands first among all the states of India in terms of revenue generated from software exports. Software exports from Karnataka amounted to excess of 50,700 crores (\$1 L7 billion) in the year 2018-2019 This achievement has earned Karnataka & capital city, Bangalore the sobriquet of Silicon Valley of India This is because of the presence of major software companies in Bangalore and the revenue generated by exports of computer software. Though most software companies are located in Bangalore, some have settled in other cities like Mysore, Mangalore and Hubli in Karnataka.

Bangalore has for long been known as Indian answer to Silicon Valley, and this is the city where most large software companies have set up shop and operate out of state-of-the-art facilities. This is the reason it is fast becoming.



IV. CONCLUSIONS

In this paper, we have argued that the rapid advance of software exports from India is a consequence of the country's comparative advantage in the production of these services rather than the result of an absolute advantage in terms of wage differentials alone. This comparative advantage, in turn, is based on the availability of a large English-speaking and technically qualified workforce as well as the relative disadvantage in manufacturing due to poor infrastructure investments in the past. In the context of the growing software industry in India, it seems that the economy of India's domestic and foreign businessmen will also become completely digital between 2023-2025, which will be easiest transaction for the most of the people of the society and will help in maintaining a better economy of India's. Information of Technology will give India the status of Super Power in the World. As per Internet source that "India is set to become the third-largest economy by 2030, and we expect it will be the fastest growing major economy in the next three years," S&P Global Ratings said. Currently, India holds the fifth position among the world's largest economies, following the US, China, Germany, and Japan. The Global Credit Outlook 2024 report by S&P anticipates a 6.4 per cent GDP growth in the fiscal year ending March 2024, compared to 7.2 per cent in the previous financial year.

Soon, India is trying to develop new technologies in the IT sector so that India move ahead in the global Information Technology market. India's IT industry has been growing rapidly in recent years and is expected to grow in the coming years also. According to a report by the National Association of Technology and Technology Companies (NASSCOM), India's IT industry is expected to reach \$350 billion by 2025 at a CAGR of 8.7%. [9]

REFERENCES

1. D. Arnold :Supply and demand for software developers in India(2001)
2. Ashish, A., Arunachalam, S.S., Assundu M., Fernandes, R., 2002. The globalization of software: The case of the Indian...
3. The Indian software services industry. Research Policy,...
4. F'Disuja, A.P., 2003. Technology leapfrogging: software industry in India. Paper presented at the 2nd International...
5. N.Roy, India's Software Industry: State Policy, Liberalization and Industrial Development(1998)
6. A Hard Drive on the Software Front (2002)
7. G.D. Gopalan International Financial Statistics. IMF, Paper published ..International Journal, London (Aug, 2006)
8. Dutta, Goppa Vasuki; Future of software industries in India (2021), paper presented in the National conference at Assam University.
9. India set to become the world's third-largest economy by 2030. <https://www.indiatoday.in/business/story/india-worlds-third-largest-economy-2030-7-percent-gdp-growth-forecast-2026-28-sp-2472135-2023-12-05>



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