IMPACT OF ECONOMIC REFORMS ON IT INDUSTRY & ITES

The Information Technology (IT) industry is an essential component of the technology-driven knowledge economy of the 21st century. In fact, globally India has been recognised as a knowledge economy due to its impressive IT industry.

The IT industry mainly encompasses IT services, IT-enabled services (ITES), e-commerce (online business), Software and Hardware products. This industry is also instrumental in creating infrastructure to store, process and exchange information for important business operations and other organisations.

Meaning

Information technology (IT) involves the study and application of computers and any type of telecommunications that store, retrieve, study, transmit, manipulate data and send information. IT involves a combination of hardware and software that is used to perform the essential tasks that people need and use on the everyday basis.

The 1958 article published in the Harvard Business Review refers to information technology that consists of three basic parts: computational data processing, decision support, and business software. Information technology refers to anything related to computing technology, such as networking, hardware, software, the Internet, or people working with these technologies.

What is the Full form of ITES?

The full form of ITES is Information Technology Enabled Services. The other names of ITES are remote services or web-enabled services. ITES includes a wide range of approaches and processes that use IT to enhance and increase an organization's efficiency. India claimed to be the most prestigious companies in the world for outsourcing ITES (Information Technology Enabled Services).

Services offered by the ITES

ITES provides certain services including medical transaction & coding, e-CRM, data mining & editing, electronic publishing and so on. Some other ITES services are listed below.

- KPO (Knowledge Process Outsourcing)
- BPO (Business Process Outsourcing)
- LPO (Legal Process Outsourcing)
- GPO (Game Process Outsourcing)
- Call Centres
- Operations at Back Office

- Logistics Management.

Famous Indian IT-ITES companies

- CMC Limited
- HCL Technologies Limited
- Infosys Technologies Limited
- TCS (Tata Consultancy Services Ltd)
- Tech Mahindra Limited
- NIIT Technologies

IT is the study of the design, management, development, implementation, and support of computer-based information systems, typically about computer hardware and application software. ITES is part of IT. ITES Self means IT with enabled services. ITES is the study of outsourced service which has arisen due to involvement in various fields of IT such as banking and finance, BPO, call centers, etc.

Uses of Information Technology

We can see the uses and role of of information technology in our society in many fields:

1. **Business**
   Since the arrival of computers, the entire face of the business world has been changed. To run the different departments of business swiftly, use of Information Technology is important and it is possible with computers and softwares. The use of information technology can be seen in departments such as finance, human resources, manufacturing, and security. Role of IT can't be ignored.
2. **Education**
   Technology enables teachers to be up to date with new techniques and help their students to be updated with latest technologies such as use of tablets, mobile phones, computers, etc. in education. Information technology not only helps students to learn new things but also helps students of college dropouts.
3. **Finance**
   Information Technology opens the doors for traders and common people to do online purchases. Banks keep records of all the transactions and accounts through computers. Unlike before, now the transactions and other deals have become faster and easier.
4. **Healthcare**
   With Information Technology, the field of medicine and health has been seeing tremendous improvements. For doctors, sending and receiving

information, checking patients, and discussing with other experts have become very convenient. Also, it reduces the time taken in paperwork.

5. **Security**
   Online transactions and keeping records of all the online transactions are now more safe than earlier times. Only proper management and a person responsible for the system can access the data online. It prohibits any random person from checking the details. All these have been made possible by keeping the system passwords proof. Only permissible authority can access your information.
6. **Communication**
   With improvements in information technology, globalization has increased. The world is brought closer, and the world's economy is quickly becoming a single interdependent system. Information can be shared quickly and easily from all over the globe, and barriers of linguistic and geographic boundaries can be torn down as people share ideas and information with each other.
7. **Employment**
   With Information Technology, new jobs have been introduced. It creates new jobs for programmers, hardware and software developers, systems analyzers, web designers and many others. Information Technology has opened an entirely new fields and thousands of jobs for IT professionals.

Importance of IT Industry & ITES

- The IT-based services and products have become indispensable for flourishing any business enterprise and accomplishing success. The importance of Information Technology in business is vast. It helps each and every business sector in automating their processes and their systems to target objectives, generate revenue and reduce inefficiency of their work.
- This industry has a conspicuous impact in improving the productivity of almost every other sector of the economy, it also has huge potential for further accelerating the growth and economic development.
- Information Technology not only contributed to the economic development of the country but it has also made governance more efficient and responsive. It has made access to government services and information easier and inexpensive.
- Information technology has also made management and delivery of government service (such as health services, consumer rights, etc.) more effective with enhancing transparency.

The growth of the IT industry in India is unprecedented across the economies of the world. All the sub-sectors of this industry (hardware products have relatively

seen less progress) have made strides in revenue growth in the last two decades and fuelled the growth of the Indian economy.

In the present time, when the COVID-19 pandemic has grappled the whole world and economies have been hard hit. Indian IT industry is still showing positive signs and has the resilience to overcome this unprecedented tragedy. It has emerged as a global economic force and a major contributor to the Indian economy in particular and the world in general. This article tries to outline how the Indian IT industry has evolved over the years and its prominent role in boosting Indian's growth.

The 1991 reforms gave a fillip to India's IT sector; 25 years on, India is poised to ride the next technology revolution as the third biggest start-up hub globally.

Evolution of Indian IT industry- Before 1991:

Early public policy in an independent India focused on economic planning, adopting new technologies, and nurturing indigenous science and technology talent. About 50 years down the line, the early 1990s saw a move towards market-oriented economic policies to expand private investment in driving growth. This gave a fillip to the IT and ITeS industry.

The size of the Indian IT and ITeS industry grew from $100 million in 1990 to $1 billion by 1996, changing the course of development of this country forever. However, the journey began much earlier in the 1950s when the first modern computer was installed at the Indian Statistical Institute in Kolkata by Prof. P.C. Mahalanobis. After independence till 1970, India did not have any guiding policy or framework for computer/software technology. However, the government had taken several initiatives for starting the design and production of computers in educational institutes during this period.

- The 1960s saw the start of computer education programmes at Indian Institutes of Technology.
- In 1963, Bhabha Committee emphasised on the importance of electronics and computers for the development of India.
- On the recommendation of the Bhabha Committee, the Government of India established the Department of Electronics (DoE) in 1970 for promoting the growth of electronics and computers in India & to oversee all aspects of electronics, including computers.
- From a policy perspective, the 1970s was an interesting decade. While a DoE panel on minicomputers submitted a report on the indigenous manufacture of minicomputers in 1973, it was kept in the cold storage for five years. In 1972, the government formulated a new software scheme and

allowed hardware import and export of software. This scheme is considered the first breakpoint in the history of the Indian IT industry as in 1974 Tata Consultancy Services (TCS) got its first foreign client Burroughs Corporation from the United States.

- The first indigenously built TDC-312 computer was launched by the Electronics Corporation of India Ltd in 1974. The Santacruz Electronic Export Processing Zone—the first dedicated IT park—was established in Mumbai to promote the export of electronics products and software in 1973. The first software export zone, SEEPZ – the precursor to the modern-day IT park – was established in Mumbai in 1973. More than 80 percent of the country's software exports were from SEEPZ in the 1980s.
- The Foreign Exchange Regulation Act, which posed restrictions on the use of foreign exchange by Indian citizens and organizations, also came into play in 1973. The Act made it very difficult for Indian organizations to import computers. The minicomputer policy was finally announced in 1978, and companies such as DCM, ORG and HCL (founded by Shiv Nadar and team) started to make minicomputers in 1979.
- The mid-1970s also saw multinational corporations dilute their stake or leave India due to the Foreign Exchange Regulation Act, leading to the establishment of the Computer Maintenance Corp. by the government to maintain existing IBM installations in India. In 1978, IBM was forced to close its operations in India as the government had asked it to reduce its equity. However, the most important policy in this era saw the DoE allowing the import of computers exclusively meant for software export, a step that in many ways set the tone for the future.
- The 1980s witnessed India’s first wave of IT entrepreneurship. Wipro Information Technology Ltd (by Azim Premji and team), Infosys (by Narayana Murthy and team), NIIT (by Rajendra Pawar and team), Mastek (by Ashank Desai and team) and many more “start-ups" were established during this time. For the next decade, though Indian companies viz. TCS, WIPRO,
- Infosys (1981) were exporting the software products but trade was not very encouraging. While the Manufacturers’ Association for Information Technology formed in 1982 represented the growing IT hardware industry, the establishment of Nasscom in 1988 gave the nascent software players a voice.
- However, in 1986 the government brought a liberalisation policy for the IT industry which de-licensed hardware import and encouraged duty-free export.

- Further, due to liberalisation in 1991 and opening of the Indian economy for foreign investment, intensified competition in the IT industry which resulted in standardisation and productivity improvement. The IT industry has grown rapidly and earned large amounts of force exchange.
- It was during this time that the software services export market opened up lucrative opportunities. The government made some watershed decisions, including bringing in the new computer policy, which initiated liberalization of the computer industry. The Rangarajan Committee recommendations led to banking computerization. This, in turn, saw companies such as Tata Consultancy Services and Infosys develop banking products—a segment where Indian products would go on to be world leaders. The Rajaraman Committee report brought in concessions for the import of computers against software exports. The iconic Railways Passenger Reservation project was initiated in this same period.
- The 1980s also saw the newly established Centre for Development of Advanced Computing set up a National Supercomputer Centre at the Indian Institute of Science, Bangalore, and we sent our first email. Multinationals such as Citibank and Texas Instruments, for the first time, set up software development centres in India during the 1980s. This period saw several joint ventures in place to manufacture computers in India—Hinditron-DEC, HCL-HP, PSI-Bull and others, making PCs more affordable.

After struggling for more than two hundred years, India looked towards its newfound independence with a sense of optimism. However, its situation wouldn't be much better even for the next forty-four years. Even in 1991 India's forex reserve was next to negligible and its economy was dwindling. Little did people know that its IT sector would provide a sense of hope for the nation?

After 1991:

Even though the IT sector in India saw its genesis in the late 1960s, its notable upward spurt began in 1991, soon after India's economy opened internationally. Attempts were made to feed and grow the IT sector even before 1991 (primarily through the new software policy that aimed to increase software exports from India), but due to infrastructural hindrances and trade restrictions, the results were less than fruitful. The efforts made by the government included the introduction of the Manufacturer's Association for Information Technology in 1982 as well as software export policies that would let domestic companies export locally made software. Despite such conducive policies being implemented, international IT

giants such as IBM still diluted their presence in India and left because of the pre-existing Foreign Exchange Regulation act of 1973. This act prohibited firms operating in India from importing much-needed computers from abroad and was enough to nullify any of the government's policies that attempted to proliferate the IT sector and give a new life to the Indian Economy. The 1980s saw the emergence of several domestic IT companies such as Wipro Information Technology Ltd, Infosys, etc. and these played the role of key catalysts in the years to come.

The 1990s was seminal not only for the IT and ITeS industries, but for the country as a whole. From policies that looked at regulated growth, we moved ahead, buoyed by the winds of liberalization.

- India's super-computing programme was launched in 1991.
- The industry pioneered the global delivery model that redefined the way work was delivered. This could not have happened without the Software Technology Park scheme designed by IAS officer N. Vittal.
- Thousands of talented people joined the industry drawn by its promise. The industry embraced the quality movement—first with ISO 9001 and then with SEI-CMM.
- By 1999, 50% of the SEI-CMM Level 5 organizations in the world were from India. Indian IT majors listed on Indian and global bourses at the same time.
- Encouraged by the government's liberal policies, MNCs like IBM came back to India and expanded opportunities for the industry further. GE and Nortel set up the first large-scale offshore development centres. The Y2K opportunity opened up unprecedented opportunities for India—led by its vast technical talent pool and industry friendly policies. And thereafter, there was no looking back.
- By 2000, the Indian IT industry had grown to over $5 billion of revenue—that was 50x from 1990.
- Today, the industry revenue stands at an estimated $160 billion, employing 3.5 million people. India is also poised to ride the next technology revolution as the third biggest start-up hub globally.

The Government's relevance in developing the Indian IT sector didn't diminish after 1991. It imparted the participants of this sector with a few special provisions, such as

1. Allowing them to have <u>100% Foreign Direct Investment without any prior government approval.</u>

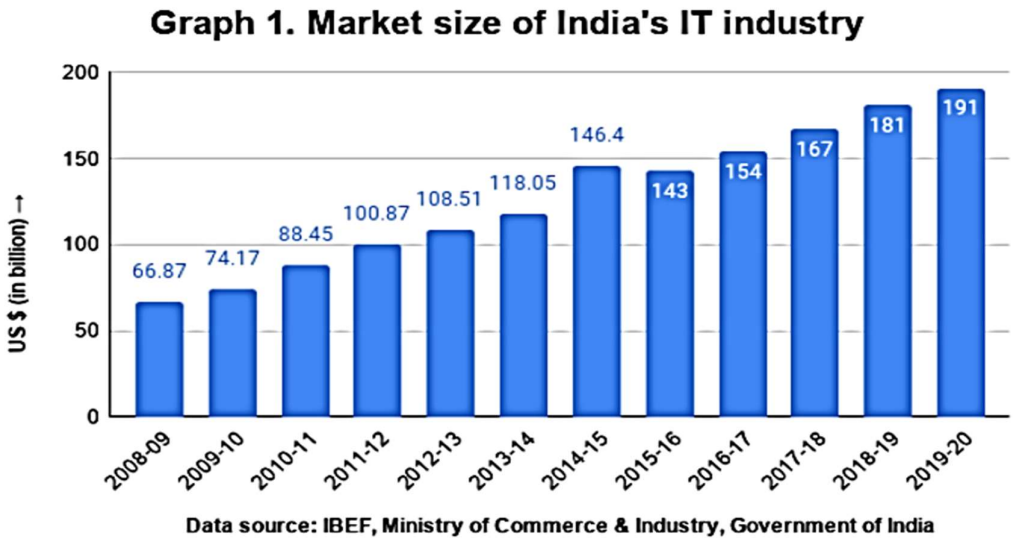
2. The government also took initiatives to develop infrastructure, which was done through the Indian BPO (Business Process outsourcing) Promotion Scheme, which was approved under the digital India program to incentivize BPO operations across the country. The Indian BPO Promotion Scheme helped generate employment opportunities in the IT industry by setting up BPO operations to expand its presence in the Indian economy.
3. The Government also introduced the concept of Software Technology Parks of India (STPI), which acted as an autonomous society under the electronics and information technology ministry. In 1991 the Department of Electronics broke this impasse, creating a corporation called Software Technology Parks of India (STPI) that, being owned by the government, could provide VSAT communications without breaching its monopoly. STPI set up software technology parks in different cities, each of which provided satellite links to be used by firms; the local link was a wireless radio link. In 1993 the government began to allow individual companies their own dedicated links, which allowed work done in India to be transmitted abroad directly. Indian firms soon convinced their American customers that a satellite link was as reliable as a team of programmers working in the clients' office.
4. The Government also introduced the National Policy on Information Technology in 2012, which aimed to make at least one individual in every household e-literate.
5. The Information Technology Act of 2000, National Broadband Policy of 2004 and Special Economic Zone (SEZ) Act of 2005 gave a boost to the IT industry and resulted in an increase in the number of domestic and foreign software/IT companies in the country.

The rapid advancement within the IT industry and liberalisation policies such as reducing trade barriers and eliminating import duties on technology products by the Government of India are instrumental in the growth of this industry. Also, various other government initiatives like setting up Software Technology Parks (STP), Export Oriented Units (EOU), Special Economic Zones (SEZ) and foreign direct investment (FDI) have helped this industry in achieving a dominant position in the world IT industry.

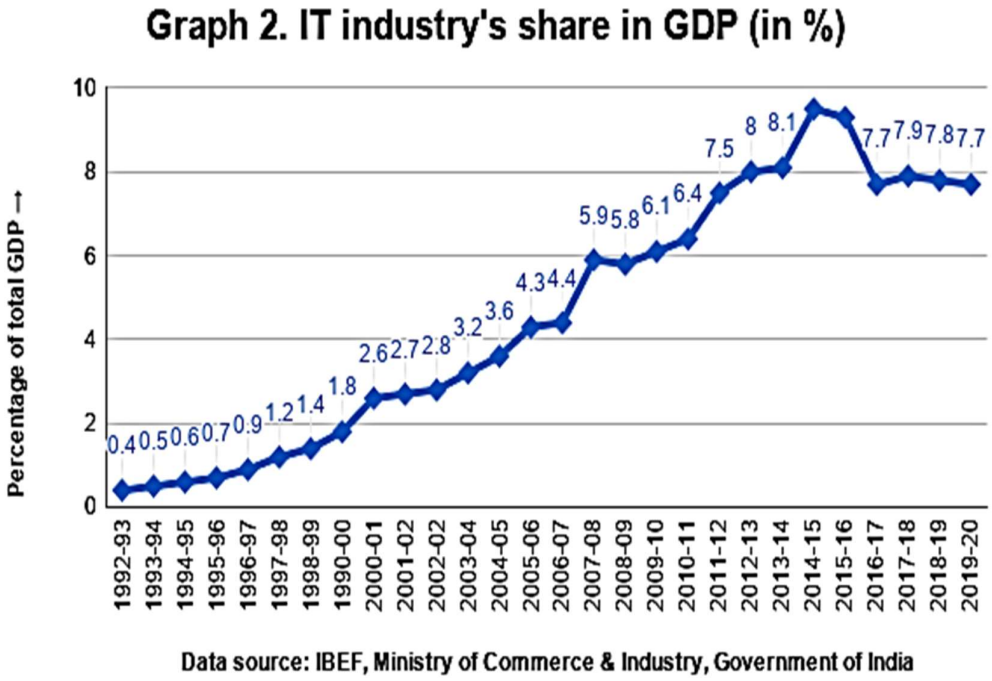
As seen above, the government made tireless efforts to improve the IT sector, both before and after 1991, but it was the liberalization of the Indian economy that was the key frame of difference that caused the post-1991 policies to succeed to a much greater extent.

The **effects of the IT boom post 1991** manifested themselves in many different ways.

1. The size of the IT sector grew from a paltry 100 million US dollars in 1990 to a whopping 1 billion US dollars in 1996.



2. Information Technology in India is an industry consisting of two major components: IT services and business process outsourcing (BPO). The IT industry accounted for 8% of India's GDP in 2020. The boom also positively influenced the GDP growth of the nation; from around 1.057 per cent of growth in 1991, it shot up to around 5.482 per cent in 1992. This indicated a much-needed upturn in our economy.



3. The IT and BPM industry's revenue is estimated at US$194 billion in FY 2021, an increase of 2.3% YoY. The domestic revenue of the IT industry is estimated at US$45 billion and export revenue is estimated at US$150 billion in FY 2021.
4. Our forex reserves also grew considerably; from a very undesirable level of 5.8 billion US dollars in March of 1991 to a commendable level of 25.2 billion US dollars in March of 1995. Fortunately, this reflected the fact that the impact of the IT sector on India would be truly remarkable. The United States accounts for two-thirds of India's IT services exports.

Source: National Association of Software and Service Companies (NASSCOM)

5. In the present day and age, The Indian IT industry provides direct employment to 4.34 million workers and indirectly employs approximately 15 million workers. It is growing with a CAGR of 13%. It is also simplifying the daily workings of other industries such as the medical industry, education industry, etc. India's digitally skilled pool has grown over the period and accounted for around 75 percent of global digital talent. India's four large IT companies (TCS, Infosys, Wipro, HCL Tech) have employed more than one million employees. The IT–BPM sector overall employs 4.5 million people as of March 2021. The Indian IT–BPM industry has the highest employee attrition rate. As a global outsourcing hub the Indian IT industry is infamous of exploiting cheap labour. As IT–BPM sector evolves, many are concerned that artificial intelligence (AI) will drive significant automation and destroy jobs in the coming years.
6. New IT-based technologies such as telemedicine, remote monitoring, etc. are expanding and boosting the demand in the digital economy. The rollout of fifth-generation (5G) communication technology, growing adoption of artificial intelligence, Big Data analytics, cloud computing and the Internet of Things (IoT) will further expand the size of the IT industry in India. As the size of India's digital economy is increasing, IT companies are establishing their centres in tier II and tier III cities which will further enhance the growth and reduce the existing disparities.
7. To add to this, even the global COVID 19 pandemic has further propagated the penetration and usage of Information Technology in India, and all over

the world. As of now, the Tata Consultancy Service is the largest IT Company in the country in terms of revenue. It was the first company to cross the market capitalization of 100 billion dollars. Other prominent players in the industry include giants such as Infosys and HCL technologies. As time goes on, the significance of startups in the IT-sphere is increasing considerably. Some of the prominent names in this startup sphere include Swiggy, Zomato and Ola.

In the last decade, India has emerged as an IT hub for the software companies of the world and Indian software companies have taken prominent positions in the global IT sector. India has become the world's largest sourcing destination for the IT industry. Online retailing, cloud computing and e-commerce are all contributing to the speedy growth of the IT industry. The rate of growth in the IT sector for 2019-20 is approximately ten percent.

All in all, we can see that liberalisation was the key element that helped India's IT sector take off and truly gave a second life to the Indian economy. Even though our country is in a much more promising position as compared to how it was before 1991, there is still a lot that can be done to improve its state of affairs. Moving forward, the government should provide ample encouragement to the Indian entrepreneurs (especially in the startup sphere) to exploit the available opportunities in terms of growing domestic and global demand. The government will also have to make essential procedures transparent and eliminate delays wherever possible. At the same time, entrepreneurs will have to be flexible and adaptive enough to adjust to the fast-changing trends in technology and work culture. If all these conditions are fulfilled, India can most definitely become the primary international superpower in terms of Information Technology in the long run.

Conclusion

The IT Industry in India has grown with an exceptionally high growth rate in the post-reform years and contributed a large share to the national GDP. Despite the uncertain global economic scenario, the IT industry has steadily augmented and accelerated the growth of India. This Industry absorbs a large pool of Indian skilled human resources which makes the country a global IT hub. The IT Industry has been instrumental in transforming the whole Indian economic and governance landscape. India's IT industry is gaining footsteps in new disruptive technologies and will play a leading role in the ongoing fourth industrial revolution globally.