

The Role of Information Technology Industry in India's GDP

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Abstract The Indian Information Technology (IT) sector share in India's GDP has been widely studied. The present study based on secondary sources. IT is the attainment, processing, storage and distribution of vocal, pictorial, textual and numerical information by a micro-electronics-based combination of computing and telecommunications. It also examined the trends in Indian IT Production and Exports, composition of IT Exports and share in India's GDP. The revenue contribution of production in country's GDP accounted for 14.21 per cent in 2020-21 and contribution of exports 8.61 per cent in 2020-21. The export market, dominates the IT industry accounting for 65% of the revenue. Software products are among the most highly exported products from India. The share of Electronic Hardware exports percent in GDP increased from 0.49 per cent in 2011-12 to 0.58 per cent in 2020-21. It has been observed that the IT sector is not only contributes considerably to export earnings and GDP but also emerges as a major source of employment generation in the country.

Key Words: Information Technology (IT), Electronic Hardware, Computer Software and Services, Exports, Production, GDP.

INTRODUCTION

Gross Domestic Product (GDP) is good evaluate for an economy and with development in research and quality of data, statisticians and governments are trying to find out measures to strengthen GDP and construct it a comprehensive indicator of National Income. GDP is significant because it gives information about the size of the economy and how a nation is performing. In broad terms, an increase in real GDP is interpreted as a sign that the economy is doing healthy. It presents a sum of a country's production which consists of all purchases of goods and services produced by a country and services used by individuals, firms, foreigners and the governing bodies.

The Information Technology (IT) industry has not only impacted the economic growth of India, but it

also has made the government more accessible and proficient. IT-based services are essential for any organization to enlarge productivity, make business process flow easily, and grow efficiently and economically in this competitive world. Information Technology has made contact to government-related services and information easier and economical. IT has made the administration and delivery of government services like health care services, education information, consumer rights, and services, etc. faultless with enhanced transparency. In 1998, the IT sector contributed purely 1.8% to India's GDP. The significance of the IT sector is also that it employs millions of people. Major tech companies like Wipro, Infosys, TATA, Reliance, etc., hire young professionals in huge numbers. The IT sector has a reasonable share in the Indian export market also. The USA is the single leading country where our IT products and services are exported. The IT sector will play one of the major roles in realising India's goal of becoming a \$5 trillion economy.

OBJECTIVE

1. To evaluate the trends in IT production, Exports of India and share in India's GDP.
2. To examine the Computer Software and Services Production, Exports and Share in GDP of India.
3. To analyse the Electronic Hardware Production, Exports and Share in GDP of India.

DATA SOURCES AND METHODOLOGY

The secondary data is used to analyse contribution of information technology industry in GDP of India. The main sources of secondary information are Statistical Year Books of Electronic and Computer Software Export Promotion Council of India, Ministry of Electronics and Information Technology and National Association of Software and Services Company (NASSCOM) Reports. Statistical tools

like averages, percentages, growth rates are calculated to analyse the data.

INFORMATION TECHNOLOGY (IT) AND SHARE IN GDP OF INDIA

The production of IT growth is impressive due to two reasons. The first one is that this growth has

been accompanied by significant increase in exports of the sector. India’s share in the world software and IT services production and export has been increasing overtime. The second reason is that, production in this sector has been effected entirely by the private firms with institutional and policy support from the government.

Table -1 Production, Growth Rate of Information Technology (IT) and Share in GDP of India (Rs. Crore)

Year	IT Production	Growth Rate	GDP of India	Share of IT Production in GDP (%)
2011-12	561565	--	8736329	6.43
2012-13	687200	22.37	9213017	7.46
2013-14	818326	19.08	9801370	8.35
2014-15	924003	12.91	10527674	8.78
2015-16	1073276	16.15	11386145	9.43
2016-17	1207109	12.47	12196006	9.89
2017-18	1349864	11.83	13010843	10.37
2018-19	1607702	19.10	14003316	11.48
2019-20	1823500	13.42	14569268	12.52
2020-21	1919592	5.27	13512740	14.21

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues

The growth, production of IT industry, Share in GDP of India has been shown in table1. The table reveals that the total production of IT industry is increasing from the year 2011-12 to 2020-21, i.e., from Rs. 561565 crore to Rs1919592crore. The percentage growth in production was highest in the year 2012-13, i.e., 22.37 percent, after that decreased to 11.83 percent in 2017-18. During the year 2019-20, the growth rate of IT production increased to 19.10 percent. In 2020-21, although, in value terms the production of IT has increased to Rs1919592 crore from Rs. 1823500 crore yet, the growth rate of production over the previous year has decreased to the lowest level 5.27 percent due to the global impact of the corona virus pandemic situations.

The share of information technology production in gross domestic product (GDP) of India has been depicted in table 1. The table reveals that gross domestic product (GDP) of India at constant prices

has been increased from the year 2011 to 2020-21 i.e., from Rs. 8736329 crore to Rs. 13512740 crore. The share of information technology in GDP of India was increased from 6.43 percent to 14.21 percent from 2011-12 to 2020-21, due to the government technology focused economic growth agenda, mainly focused on Digital India and Make in India.

PRODUCTION OF IT FOR DOMESTIC USE, GROWTH RATE AND IT’S SHARE IN GDP OF INDIA

Indian information technology sector is the shining sector of the economy because of its increasing contribution in production. In actual sense, there are wide differences between the domestic production and production for exports. In India, a major part of the IT production is exported to other countries while the production for domestic use is very low.

Table -2Production of IT for Domestic Use, Growth Rate and it’s Share in GDP of India (Rs. Crore)

Year	IT Production for Domestic Use	Growth Rate	GDP of India	Share of IT Domestic use in GDP (%)
2011-12	192438	---	8736329	2.20
2012-13	238200	23.78	9213017	2.59
2013-14	264526	11.05	9801370	2.69
2014-15	293578	10.98	10527674	2.79
2015-16	335413	14.25	11386145	2.95
2016-17	424617	26.59	12196006	3.48

2017-18	537204	26.51	13010843	4.13
2018-19	604826	12.59	14003316	4.32
2019-20	736415	21.76	14569268	5.05
2020-21	755965	2.65	13512740	5.59

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues

The table 2 shows the production of information technology (IT) for domestic use, growth rate and its share in GDP of India. It is shown in table that the production of IT for domestic use has due to the deployment of demand from the USA for exports. The production of IT for domestic use was 192438 crore in 2011-12 and increased to 755965 crore in 2020-21, mainly gained momentum in the year 2016-17 when it increased to Rs.424617crore from Rs. 192438 crore. The variations have also seen in growth rate of domestic IT production. In 2012-13, the growth rate of domestic IT production was 23.78 percent and decreased to 14.25 percent in 2015-16. The table further shows that the growth rate of domestic IT production is higher (26.59 percent) in the year 2016-17. After the year 2018-19, growth rate was again decreased to 12.59 percent in 2018-19. A significant increase has been seen in growth rate 21.76 per cent in 2019-20 while after that further decreased to 2.65 percent in 2020-21. The contribution of domestic IT production in GDP was

only 02.20 percent in 2011-12 and increased 5.59 percent in 2020-21. This table represents the percentage share of IT domestic use in GDP was continuously increased. It is given the positive impact to the Indian Economy.

Exports and Growth Rate of Information Technology (IT) and Share in GDP of India (Rs. Crore)

Export sector is considered to be a key and propulsive sector as it can diffuse economic development into other supporting industries. It also enables a country to increase domestic production for overseas market which in turn generates employment and overall economic development. The IT sector is playing vital role in almost all sectors of the nation and also providing a good amount of foreign exchange. It also observed from the Table that though there is tremendous increase in IT Exports.

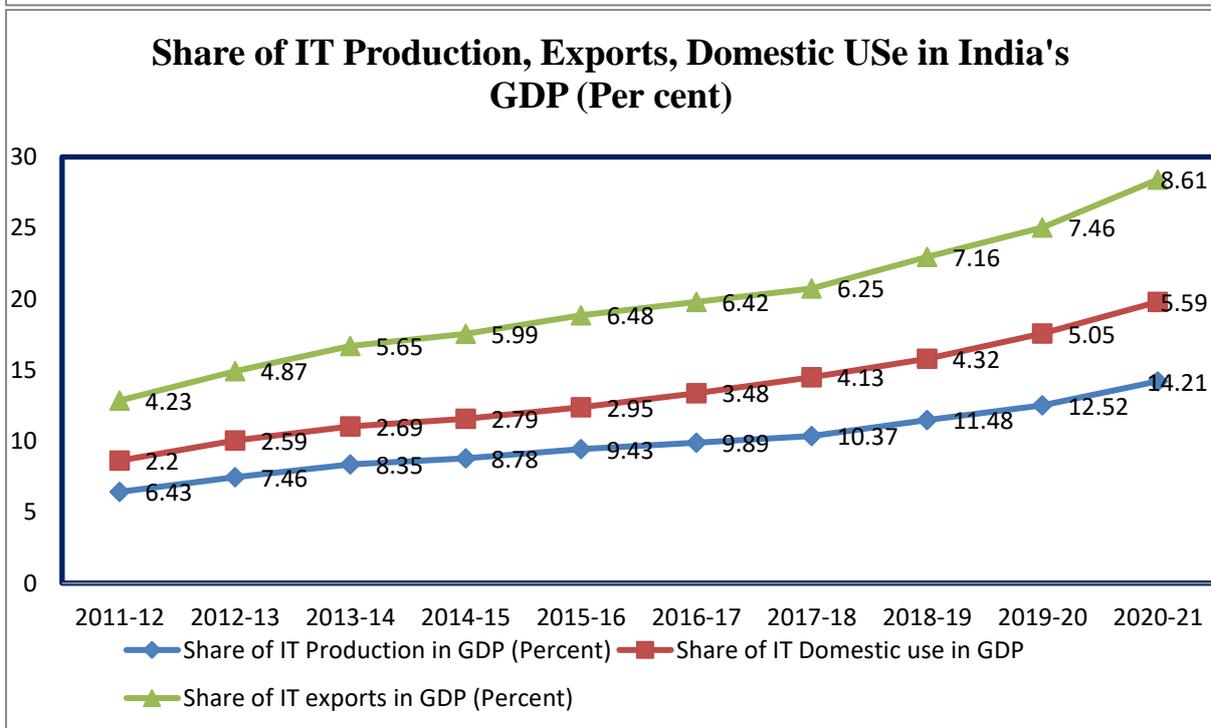
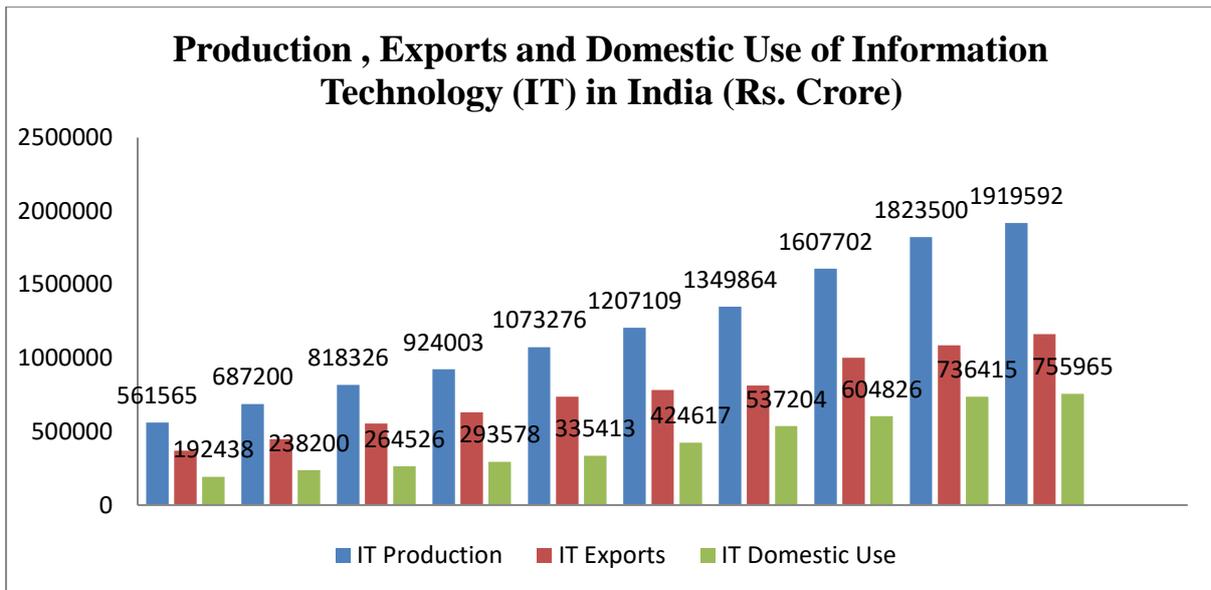
Table -3 Exports and Growth Rate of Information Technology (IT) and Share in GDP of India (Rs. Crore)

Year	IT Exports	Growth Rate	GDP of India	Share of IT exports in GDP (%)
2011-12	369127	--	8736329	4.23
2012-13	449000	21.64	9213017	4.87
2013-14	553800	23.34	9801370	5.65
2014-15	630425	13.84	10527674	5.99
2015-16	737863	17.04	11386145	6.48
2016-17	782492	6.05	12196006	6.42
2017-18	812660	3.86	13010843	6.25
2018-19	1002876	23.41	14003316	7.16
2019-20	1087085	8.39	14569268	7.46
2020-21	1163627	7.04	13512740	8.61

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues

The table 3 shows the production of information technology (IT) for exports, growth rate and its share in GDP of India. It is shown in table that from 2011-12 to 2020-21, the IT production for exports has increased in absolute terms form Rs. 369127 crore to Rs. 1163627 crore. It's clear from the table that the contribution of information technology exports in GDP of India is increasing from the years 2011-12 to 2020-21i.e., 4.23 percent to 8.61 percent, even

then there are continuously increase in the share of IT exports in GDP. The table further shows that variations can also be seen in growth rate of exports of IT production. The highest growth rate has been seen in the year 2018-19, i.e., 23.41 percent while after that it started decreasing i.e., 7.04 percent in the year 2020-21. The lowest growth rate has been seen in the year 2017-18, i.e., 3.86percent.



BIFURCATION OF INDIAN IT PRODUCTION
 Hardware and Software are the most natural main IT components that have consideration. The software will play a more important role and in many aspects the software will be of a higher degree of importance than hardware. The production of Electronic Hardware includes consumer electronics, telecom equipment, instrument office, medical equipment, electronic components and computer hardware. The total IT production includes the computer software and services, BPO's and IT enabled services.

COMPUTER SOFTWARE AND SERVICES
 The software industry is predominantly an export-oriented industry, accounting for above 70 per cent

revenue of the industry. The share of export earnings in the total software revenue has been shooting up during the last decade. The software exports from India have been growing at phenomenal rates during the recent years. In fact the boom in the ICT sector had been driven mainly by the export oriented growth of software industry. The software development includes analysis and specification of requirements, design, coding, testing, installation, maintenance and support. The production and export of computer software/services includes computer software and IT enabled services.

Total production of computer software and services has been depicted in table 4. The table reveals that

the production of computer software and services has shown a remarkable increase. The production has increased from Rs. 418265 crore in 2011-12 to Rs. 1411832 crore in 2020-21. On an average the computer software industry was growing at 14.63 percent from 20011-12 to 2020-21. The highest growth rate of computer software and services production was 22.08 percent in 2013-14 and lowest

growth rate was 4.31 percent in 2017-18. India holds a competency in computer software and services production and this can be seen from its share in GDP. The share of computer software and services production in GDP of India was continues increase in during the study period that is from 4.79 per cent in 2011-12 to 10.56 per cent in 2020-21.

Table -4 Computer Software and Services Production, Growth Rate and Share in GDP of India (Rs. Crore)

Year	Computer Software and Services Production	Growth Rate	GDP of India	Share of Computer Software Production in GDP (Percent)
2011-12	418265	--	8736329	4.79
2012-13	509700	21.86	9213017	5.53
2013-14	622223	22.08	9801370	6.35
2014-15	724709	16.47	10527674	6.88
2015-16	844176	16.48	11386145	7.41
2016-17	905309	7.24	12196006	7.42
2017-18	944339	4.31	13010843	7.26
2018-19	1139696	20.69	14003316	8.14
2019-20	1277000	12.05	14569268	8.76
2020-21	1411832	10.56	13512740	10.45

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues

COMPUTER SOFTWARE AND SERVICES EXPORTS, GROWTH RATE AND SHARE IN GDP OF INDIA (RS. CRORE)

The IT sector has been an energetic one in many developed countries, and India has stood out as a budding country where IT, in the appearance of software exports, has grown considerably, despite the country’s relatively low level of income and development. India’s software industry is more robust than its hardware industry. The software development includes analysis and specification of requirements, design, coding, testing, installation, maintenance and support.

Table 5 gives the Computer Software and Services Exports, Growth Rate and Share in GDP of India during the period 2011-12 to 2020-21. It is clear from the Table there is continues increase in exports of computer and software services during the study period, that is from Rs. 326500 crore in 2011-12 to Rs. 1085000 crore in 2020-21. The highest growth rate of computer software and services Exports was 25.31 percent in 2013-14 and lowest growth rate was 3.92 percent in 2017-18. The share of computer software and services Exports in GDP of India is continues increase in during the study period that is from 3.74 per cent in 2011-12 to 8.03 per cent in 2020-21.

Table -5 Computer Software and Services Exports, Growth Rate and Share in GDP of India (Rs. Crore)

Year	Computer Software and Services Exports	Growth Rate	GDP of India	Share of Computer software Exports in GDP (Percent)
2011-12	326500	--	8736329	3.74
2012-13	405000	24.04	9213017	4.39
2013-14	507500	25.31	9801370	5.18
2014-15	593669	16.98	10527674	5.64
2015-16	700535	18.0	11386145	6.15
2016-17	744365	6.26	12196006	6.10
2017-18	773520	3.92	13010843	5.94
2018-19	943920	22.03	14003316	6.74
2019-20	1007064	6.69	14569268	6.91
2020-21	1085000	7.74	13512740	8.03

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues

ELECTRONIC HARDWARE

Electronics is a flagship sector of strategic importance. With the demand for electronic

hardware expected to rise rapidly and India has the potential to become an electronics hardware manufacturing hub for contributing significantly to increase GDP, employment and exports. Electronics Hardware Manufacturing continues to be a thrust area for the Government. The vision is to establish

India as a leading global destination for electronics system design and manufacturing (ESDM). Ex: Mobile phones, Printed Circuits, Solar cells, Parts of Telephones, X-Ray equipments, Rectifiers, Television reception apparatus, parts of PC, Transformers etc.

Table -6 Electronic Hardware Production, Growth Rate and Share in GDP of India (Rs. Crore)

Year	Electronic Hardware Production	Growth Rate	GDP of India	Share of Electronic Hardware Production in GDP (Percent)
2011-12	143300	--	8736329	1.64
2012-13	177500	23.87	9213017	1.93
2013-14	196103	10.48	9801370	2.0
2014-15	199294	1.63	10527674	1.89
2015-16	229100	14.96	11386145	2.01
2016-17	301800	31.73	12196006	2.47
2017-18	405525	34.37	13010843	3.12
2018-19	468006	15.41	14003316	3.34
2019-20	546500	16.77	14569268	3.75
2020-21	507760	-7.09	13512740	3.76

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues.

Electronic hardware production and growth rate and share on GDP of India has been shown in table 6. The table reveals that the production of Electronic hardware has increased from 2011-12 to 2019-20 i.e., Rs. 143300 crore to Rs. 546500 crore except the year 2020-21 when it was Rs. 507760 crore. The production of hardware has been increased due to the increased demand from households and businesses and also due to the increased purchases by industry verticals. The share of Electronic

hardware in GDP of India was low i.e., less than four percent. The share of electronic hardware in gross domestic product (GDP) of India was 1.64 percent in 2011-12 and increased to 2 percent in 2013-14, while after that its share has decreased to 1.89 percent in 2014-15. The growth rate of hardware production was the highest in the year 2017-18 i.e., 34.37 percent and after that decreased to -7.09 percent in 2020-21.

Table -7 Electronic Hardware Exports, Growth Rate and Share in GDP of India (Rs. Crore)

Year	Electronic Hardware Exports	Growth Rate	GDP of India	Share of Electronic Hardware Exports in GDP (%)
2011-12	42627	--	8736329	0.49
2012-13	44000	3.22	9213017	0.48
2013-14	46300	5.23	9801370	0.47
2014-15	36756	-21	10527674	0.35
2015-16	37328	1.56	11386145	0.33
2016-17	38127	2.14	12196006	0.31
2017-18	39140	2.66	13010843	0.3
2018-19	58956	50.63	14003316	0.42
2019-20	80021	35.73	14569268	0.55
2020-21	78627	-1.74	13512740	0.58

Source: Electronics and Software Export Promotion Council, Statistical Year book, various issues.

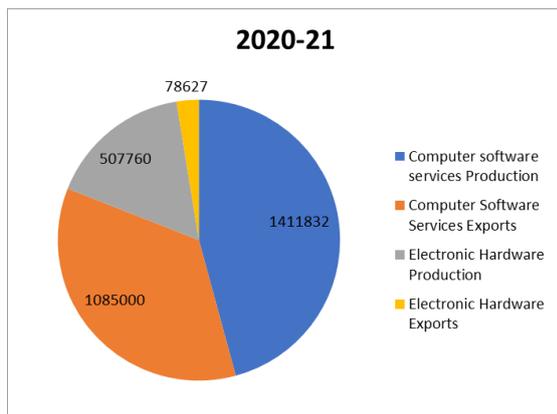
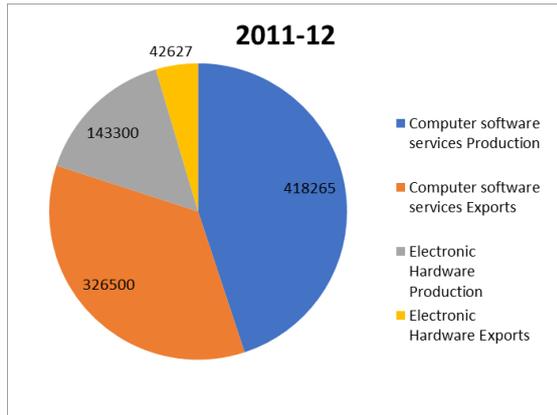
The table 7 shows the Electronic hardware production for exports, growth rate and share in GDP of India. The table shows the production of Electronic hardware for exports was Rs. 42627 crore in 2011-12 and increased to Rs.46300 crore in 2013-14. It decreased in the year 2014-15 to Rs. 36756 crore and in 2016-17 again increased to Rs. 38127

crore, while in the next years, it further increased to Rs.39140 crore to Rs. 78627 crore in 2015-16. It's clear from the table that the contribution of Electronic hardware exports in GDP of India is increasing from the years 2011-12 to 2020-21 i.e., 0.49 percent to 0.58 percent, even then there are lot of variations in the share of Electronic hardware

exports in GDP. Firstly, the contribution of exports in GDP is decreased from the 0.49 percent in 2011-12 to 0.42 percent in 2018-19. An increase in GDP has been noticed in the year 2019-20 to 2020-21, i.e., 0.55 percent to 0.58 percent. The growth rate of hardware exports was the highest in the year 2018-19 i.e., 50.63 percent and after that decreased to -1.74 percent in 2020-21.

BIFURCATION OF INDIAN IT INDUSTRY

(Rs. Crores)



MAJOR RECOMMENDATIONS

A few of the Recommendations emanating from the study are:

1. The state governments are required to gear up for provision of world-class infrastructure facilities to the IT industries, especially the big players, both domestic and international.
2. Expenditure on higher education in India is very meagre hence there is every need to increase it, so as to grab worldwide opportunities in IT.
3. The production of hardware is very low as compared to the computer software/service sector production. The manufactures of IT hardware and Electronics products are normally reliant on imported raw material. Government should ensure hassle free import of raw material and components

by streamlining the import policy and systems and through simplification of import procedures.

4. Government increase more investment on software sector in Budget allocation, and improve the adequate investment in Research and development.

CONCLUSION

From the preceding analysis, it is clear that Information technology is an area which will work as a catalyst to make India a Global IT Super Power. Over the years computer software and services production have been growing at high rate of over 10.56 per cent in 2020-21. The share of IT export in total export as well as its contribution to GDP has steadily increased over the years. That IT sector has emerged as a foreign exchange earner and generator of large scale employment opportunities. The share of GDP in Electronic Hardware production and Exports also continuously increasing, it will create very healthy situations to generate and improve the domestic investment in our country. Therefore Government should implement new IT policies and develop the new innovative skill programmes for young generation. So IT has not only income generated sector but also make India stand in front of the world by representing the country in all emerging sectors.

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