

# Contribution of Information Technology Industry in GDP of India

## Abstract

The spread of information and communication technologies (ICTs) is continuously facilitating technological changes in the globalised economies. Structural transformations and technological advancements are essential for the countries to build domestic capabilities and for allowing individuals, firms and other organisations to engage in learning process. The paper examines the export and domestic performance of information technology industry in India. To assess the performance of the IT industry in GDP secondary data is used. The paper explores that the information technology industry not only contributes a paramount share in gross domestic product of India, also emerges as a major source of foreign exchange earnings. The major distinction in IT is among computer hardware and computer software/services. The growth in computer hardware industry is less than that of software/services so there is a need to expand the domestic hardware sector in the economy.

**Keywords:** BPO, ITES, Computer Hardware, Computer Software.

## Introduction

One of the most vital achievements of the Indian economy in 1990's is the rise of the IT software and services industry, the software industry has grown at a rate of 50 percent per annum and this industry is export-oriented which has recognized India as an exporter of knowledge-intensive services in the world. With compound annual growth rate of 50 percent during the 1990s, its revenue has increased from US\$ 195 million in 1989-90 to US\$ 8.3 billion in 2000-01. Apart from this, the industry has earned 75 percent of its revenue from exports (Kumar, 2001). Software industry which is one of the rapidly growing sector of the Indian economy has contributed a major share in GDP growth.

The share of software production in GDP has increased from 1.85 percent to 5.37 percent in 2008-09 and after that it declined to 4.7 percent in 2010-11, the software production includes software services, software products and BPO (Joseph, 2012).

## Objectives

The main objectives of the study are:

1. To examine the IT sector and India's GDP.
2. To analyse the export and domestic IT sector of India

## Research 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 (Meity) and National Association of Software and Services Company (NASSCOM) Reports. Statistical tools like averages, percentages, growth rates are calculated to analyse the data.

The total IT production includes the computer software and services, BPO's and IT enabled services and computer hardware production. The growth and production of IT industry has been shown in table 1.1. The table reveals that the total production of IT industry is increasing from the year 2004-05 to 2015-16, i.e., from Rs. 107840 crore to Rs. 863176 crore. The average annual growth rate of information technology production was 18.91 percent. The percentage growth in production was highest in the year 2006-07, i.e., 35.21 percent, after that decreased to 20.99 percent in 2007-08. During the year 2008-09, the growth rate of IT production increased to 25.90 percent. In 2009-10, although, in value terms the production of IT has increased to Rs. 323120 crore from Rs. 299494 crore yet, the growth rate of production over the previous year has decreased to the lowest level 7.89 percent due to the global economic recession, after that in 2011-11, increase in growth rate

## Manjinder Kaur

Research Scholar,  
Dept. of Economics,  
Department of Distance Education,  
Punjabi University,  
Patiala, Punjab, India

has been seen and this trend of increase in growth rate continues till 2013-14. In 2015-16, the growth rate of IT production decreased to 16.11 percent from 23.24 percent in 2013-14. The increase in IT production is eight folds during 2004-05 to 2015-16.

**Table 1.1 Production and Growth of Information Technology (IT) in India (Rs. Crore)**

Year	IT Production in India	Growth Rate
2004-05	107840	-
2005-06	145400	34.83
2006-07	196600	35.21
2007-08	237880	20.99
2008-09	299494	25.90
2009-10	323120	7.89
2010-11	356170	10.23
2011-12	434765	22.07
2012-13	519076	19.39
2013-14	639707	23.24
2014-15	743400	16.21
2015-16	863176	16.11
<b>Average Annual Growth (Percent)</b>		<b>18.91</b>

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

The share of information technology production in gross domestic product (GDP) of India has been depicted in table 1.2. The table reveals that gross domestic product (GDP) of India at constant prices has been increased from the year 2004-05 to 2015-16 i.e., from Rs. 297164 crore to Rs. 11386145crore. The share of information technology in GDP of India was increased from 3.63 percent to 7.24 percent from 2004-05 to 2010-11, after that in 2011-12, decreased to 4.98 percent. During 2012-13, the percentage share of IT in GDP has increased to 5.63 percent and further increased to 7.58 percent in 2015-16, due to the government technology focused economic growth agenda, mainly focused on Digital India and Make in India.

**Table 1.2 Share of IT Production in Indian GDP (Rs. Crore)**

Year	GDP of India	Share of IT in GDP (Percent)
2004-05	2971464	3.63
2005-06	3253073	4.47
2006-07	3564364	5.52
2007-08	3896636	6.10
2008-09	4158676	7.20
2009-10	4516071	7.15
2010-11	4918533	7.24
2011-12	8736329	4.98
2012-13	9213017	5.63
2013-14	9801370	6.53
2014-15	10527674	7.06
2015-16	11386145	7.58

Source: Computed from table 1.1

GDP data has been taken from Punjab Economic and Statistical Organisation, GDP data from 2004-05 to 2010-11 is according to 2004-05 constant prices while 2011-12 to 2015-16 is according to 2011-12 prices

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. The table 1.3 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 2004-05 to 2015-16, the IT production for exports has increased in absolute terms from Rs. 78500 crore to Rs. 537689 crore.

It's clear from the table that although the contribution of information technology exports in GDP of India is increasing from the years 2004-05 to 2015-16 i.e., 2.64 percent to 4.72 percent, even then there are lot of variations in the share of IT exports in GDP. Firstly, the contribution of exports in GDP is increased from the 2.64 percent in 2004-05 to 4.52 percent in 2007-08, after that decreased to 4 percent in 2008-09 further decreased till 2011-12 when it is 2.78 percent. An increase in GDP has been noticed in the year 2012-13 to 2015-16, i.e., 3.36 percent to 4.72 percent.

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 2006-07, i.e., 39.12 percent while after that it started decreasing and became negative i.e., 5.40 percent in the year 2008-09. After, the global economic recession growth rate of exports became higher (28.94 percent) in the year 2011-12. Subsequently, in 2015-16, it again decreased to 9.55 percent. The table reveals that more than six folds increase in IT production for exports and more than two folds increase in share of IT exports in GDP has been noticed.

**Table 1.3 Production of Information Technology (IT) for Exports, Growth Rate and Its Share in GDP of India (Rs. Crore)**

Year	IT Production for Exports	Share in GDP	Growth Rate
2004-05	78500	2.64	-
2005-06	106025	3.26	35.06
2006-07	147500	4.14	39.12
2007-08	175990	4.52	19.31
2008-09	166478	4.00	-5.40
2009-10	175450	3.86	5.38
2010-11	188300	3.83	7.32
2011-12	242800	2.78	28.94
2012-13	309400	3.36	27.42
2013-14	386843	3.95	25.03
2014-15	490788	4.66	26.87
2015-16	537689	4.72	9.55

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

The domestic market of the economy is now become an emerging market of the economy due to the recent government initiatives like "Make in India", "100 Smart Cities Mission", digital India for improving the e-governance for spreading the benefits to smaller towns and also to access the untapped markets (Das, 2017). The table 1.4 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 29340 crore in 2004-05 and increased to 325487 crore in 2015-16, mainly gained momentum in the year 2008-09 when it increased to Rs. 133016 crore from Rs. 29340 crore. The variations have also seen in growth rate of domestic IT production. In 2005-06, the growth rate of domestic IT production was 34.20 percent and decreased to 26.04 percent in 2007-08.

The table further shows that the growth rate of domestic IT production is higher (114.92 percent) in the year 2008-09. After the year 2008-09, growth rate was again decreased to 11.01 percent in 2009-10. A slight increase has been seen in growth rate from 2010-11 to 2012-13 while after that further decreased to 9.22 percent in 2012-13, in 2013-14 again increased to 20.59 percent. The growth rate of domestic IT production has also become negative in the year 2014-15, due to the increase in exports production in that time period. During the year 2015-16, growth rate of domestic IT production increased to 28.84 percent due to the domestic policy changes of the government in favour of the domestic economy to increase the role of IT in domestic market. The contribution of domestic IT production in GDP was only 0.98 percent in 2004-05 and increased to 3.41 percent in 2010-11, after that decreased to 2.86 percent in 2015-16.

**Table 1.4 Production of Information Technology (IT) for Domestic Use, Growth Rate and it's Share in GDP of India (Rs. Crore)**

Year	IT Production for Domestic Use	Share in GDP	Growth Rate
2004-05	29340	0.98	-
2005-06	39375	1.21	34.20
2006-07	49100	1.38	24.69
2007-08	61890	1.59	26.04
2008-09	133016	3.19	114.92
2009-10	147670	3.27	11.01
2010-11	167870	3.41	13.67
2011-12	191965	2.19	14.35
2012-13	209676	2.27	9.22
2013-14	252864	2.58	20.59
2014-15	252612	2.39	-0.09
2015-16	325487	2.86	28.84

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Year

The production of computer hardware industry has been increasing due to the rising sales of personal computers (PCs). The personal computers

have been demanded more in industry verticals such as banking and financial services (BFSI), telecom, manufacturing, education, retail and BPO as well as major e-governance projects of the governments. The major items of computer hardware are memory card, switching mode supply, personal computer, data entry terminal, computer parts, dot matrix, inkjet, motherboards and laser (ESC, 2006-07). Computer hardware production and growth in India has been shown in table 1.5. The table reveals that the production of computer hardware has increased from 2004-05 to 2015-16 i.e., Rs. 8800 crore to Rs. 19000 crore except the year 2012-13 when it was Rs. 9376 crore. The computer hardware production has increased nearly more than two folds. 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 computer hardware in GDP of India was negligible i.e., less than one percent. The share of computer hardware in gross domestic product (GDP) of India was 0.29 percent in 2004-05 and increased to 0.41 percent in 2007-08, while after that its share has decreased to 0.17 percent in 2015-16. On an average the growth rate of Indian computer hardware industry was 6.99 percent. The growth rate of hardware production was the highest in the year 2013-14 i.e., 86.48 percent and after that decreased to 1.65 percent in 2015-16.

**Table 1.5 Computer Hardware Production and Growth in India (Rs. Crore)**

Year	Production of Computer Hardware	Share in GDP	Growth Rate
2004-05	8800	0.29	-
2005-06	10800	0.33	22.73
2006-07	12800	0.35	18.52
2007-08	15870	0.41	23.98
2008-09	14430	0.35	14.99
2009-10	14970	0.33	10.97
2010-11	14970	0.30	0
2011-12	16500	0.19	10.22
2012-13	9376	0.10	-43.17
2013-14	17484	0.17	86.48
2014-15	18691	0.18	6.90
2015-16	19000	0.17	1.65
<b>Average Annual Growth Rate (Percent)</b>			<b>6.99</b>

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

The table 1.6 shows the computer hardware production for exports, growth rate and share in GDP of India. The table shows that though, the production has increased from 2004-05 to 2015-16 except the year 2007-08 and 2010-11, even then the production of computer hardware for exports was low in India. The production of computer hardware for exports was Rs. 1200 crore in 2004-05 and increased to Rs. 1500 crore in 2006-07. It decreased in the year 2007-08 to Rs. 990 crore and in 2010-11 again increased to Rs. 1300 crore, while in the next years, it further

increased to Rs. 2100 crore to Rs. 2389 crore in 2015-16.

According to a study conducted by Electronics and Computer Software Export Promotion Council of India, the Indian electronic and hardware industry was not much developed as compared to the some of the neighbouring Asian countries like China, Taiwan and South Korea. Apart from this, low level technology, inadequacy of domestic investment and inability to attract foreign direct investment are some of the other reasons for the low development of hardware industry in India (ESC, 2003). The growth rate of computer hardware production for exports was not satisfactory, variations have been seen in growth rate of hardware production for exports. The contribution of computer hardware exports in GDP was less than 0.05 percent.

**Table 1.6 Computer Hardware Production for Exports, Growth Rate and Share in GDP of India (Rs. Crore)**

Year	Computer Hardware Production for Exports	Share in GDP	Growth Rate
2004-05	1200	0.04	-
2005-06	1025	0.03	-14.58
2006-07	1500	0.04	46.34
2007-08	990	0.02	-34.00
2008-09	1650	0.03	66.66
2009-10	1900	0.04	15.15
2010-11	1300	0.02	-31.57
2011-12	2100	0.02	61.53
2012-13	2400	0.02	14.28
2013-14	2343	0.02	-2.37
2014-15	2228	0.02	-4.90
2015-16	2389	0.02	7.22

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

The production of computer hardware for domestic use has been shown in table 1.7. The table reveals that from 2004-05 to 2015-16, the production has increased from Rs. 7600 crore to Rs. 16611 crore except the year 2008-09 and 2012-13 when it decreased to Rs. 12780 crore and Rs. 6976 crore. The table further reveals that the growth rate of production of computer hardware was 28.61 percent in 2005-06 and increased to 31.68 percent in 2007-08, it increased from 2.26 percent to 5.34 percent from 2009-10 to 2011-12. During the year 2012-13, it is declined to 51.55 percent and after that tremendous increase can be seen in 2013-14 of 117.04 percent. It is necessary to mention here that despite the policy initiatives of the government, the growth rate of computer hardware production for domestic use is less than one percent in 2015-16. The table clearly shows that the contribution of domestic computer hardware production in GDP is less than half percent. It was 0.25 percent in 2004-05 and increased to 0.38 percent in 2007-08 while after that it is gradually decreasing and remained only 0.15 percent in 2015-16.

**Table 1.7 Computer Hardware Production for Domestic Use (Rs. Crore)**

Year	Computer Hardware Production for Domestic Use	Share in GDP	Growth Rate
2004-05	7600	0.25	-
2005-06	9775	0.30	28.61
2006-07	11300	0.31	15.60
2007-08	14880	0.38	31.68
2008-09	12780	0.30	-14.11
2009-10	13070	0.28	2.26
2010-11	13670	0.27	4.59
2011-12	14400	0.16	5.34
2012-13	6976	0.07	-51.55
2013-14	15141	0.15	117.04
2014-15	16463	0.16	8.73
2015-16	16611	0.15	0.89

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

Total production of computer software and services has been depicted in table 1.8. The table reveals that the production of computer software and services has shown a remarkable increase. The production has increased from Rs. 99040 crore in 2004-05 to Rs. 844176 crore in 2015-16, showing a more than eight folds increase. On an average the computer software industry was growing at 19.48 percent from 2004-05 to 2015-16. The growth rate of computer software and services production was 10.73 percent in 2010-11 and increased to 22.57 percent in 2011-12, in the next years its growth rate has decreased except the year 2013-14. 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 3.33 percent in 2004-05 and increased to 6.94 percent in 2010-11, while after that decreased to 4.79 percent in 2011-12. After the year 2011-12, its share in GDP of India is continuously increasing and become 7.41 percent in 2015-16.

**Table 1.8 Computer Software and Services Production, Growth Rate and Share in GDP of India (Rs. Crore)**

Year	Computer Software and Services Production	Share in GDP of India	Growth Rate
2004-05	99040	3.33	-
2005-06	134600	4.14	35.90
2006-07	183800	5.16	36.55
2007-08	222010	5.69	20.78
2008-09	285064	6.85	28.40
2009-10	308150	6.82	8.09
2010-11	341200	6.94	10.73
2011-12	418265	4.79	22.57
2012-13	509700	5.53	21.86
2013-14	622223	6.35	22.08
2014-15	724709	6.88	16.47
2015-16	844176	7.41	16.48
<b>Average Annual Growth Rate (Percent)</b>			<b>19.48</b>

Source: Electronic and Computer Software Export Promotion Council of India, Statistical Year Book, Various Years

#### **Conclusion**

In India, the total IT production (computer hardware and computer software/services) has increased and this increase in IT production is eight folds. The share of IT production in GDP of India has also increased from 3.63 percent to 7.58 percent during this period. The rising share of IT production in Indian GDP is mainly because of computer software and services whose share in GDP has increased from 3.33 percent to 7.42 percent, while the contribution of hardware production in GDP has remained very low (less than 0.50 percent). The major distinction in IT is among computer hardware and computer software/services. The growth in computer hardware industry is less than that of software/services.

#### **Suggestions**

In India, the software export growth has been offset by the rising share of hardware imports. The production of hardware is very low as compared to the computer software/service sector production. This stagnation in domestic hardware production has occurred at the time when the use of computer is rising in the country and the government is digitizing all the public works departments as well as the banking sector on an increasing rate. There is a need to expand the domestic hardware sector in the economy. Growth of IT industry in India is because of its growth of exports which contribute a major share in revenue but for the inclusive growth of the economy more attention should be given to the domestic software market whose contribution in GDP is very low.

#### **References**

- Das, K. & Hastimal, S. (2017). *State and the IT Industry in India, An Overview*, *Economic and Political Weekly*, Vol. LII. No. 41, pp. 56-64.
- Electronic and Computer Software Export Promotion Council of India (ESC). (2003-04, 2005-06, 2011-12, 2013-14, 2016-17)., *Statistical Year Book*, New Delhi.
- Economic and Statistical Organisations (ESO). (2015). *ESOPB News Letter*, Retrieved from <http://www.esopb.gov.in/static/PDF/Publications/ESO-NewsLetter/Jan-March-April-June-2015.pdf>
- Heeks, R. (1996). *India's Software Industry: State Policy, Liberalisation and Industrial Development*, Sage Publications, New Delhi.
- Joseph, K. J. (2012). *India's Software Industry in Transition: Lessons for Other Developing Countries and Implications for South-South Cooperation*. Retrieved from <http://www.redesist.ie.ufrj.br/ga2012/textos/Joseph/KJ%20IER%20Paper%20%202%20June%20Final.pdf>
- Kumar, N. (2001). *Indian Software Industry Development: International and National Perspectives*, *Economic and Political Weekly*, Vol. 36, No. 45, pp. 4278-90.
- National Association of Software and Services Companies (NASSCOM) (2008). *The IT Software and Services Industry in India*, National Association of Software and Service Company, New Delhi.