Performance of the Information Technology Industry in the world economy

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ABSTRACT

The rapid growth of the Indian Information Technology Industry over the last decade was not simply a product of 'begin neglect' following the dismantling of centralized planning in India. Rather, it is rooted in government intervention during earlier years that favored domestic industries over foreign companies.[1] Indian Information Technology (IT) industry has tremendous potential to become an engine of growth and productivity improvement for all sectors of the economy and for the country. Information Technology (IT) is also a means of efficient governance. It enhances access to information, protects consumers, provides access to government services, makes skill formation and training more effective, improves delivery health services, and promotes transparency. This paper is an attempt to provide an overview of Indian IT today. To assume a familiarity with the various Category/Segments of IT Industry and its contribution to the Nation's GDP. However, it also provides an insight into general structure and performance of the IT Industry in India. The remainder of the paper outlines the Growth of Indian IT Industry and Expected Industry Size, and Scenario of Global Growth Rates and Expected Industry Size.

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1. Sumantra Sen, & Francine Frankel, Editors " India's Strategy of IT-Led Growth", Published, India in Transition, by Center for the Advanced Study of India and The Trustees of The University of Pennsylvania, 2005.

Intoduction

Indian Information Technology provides tremendous employment potential and linkages between government and the people both at the rural and urban level. Investment in knowledge-based industries will determine the level of the country's dominant position in the world economy in the next two decades. During last few decades, the firms, which provide IT products and services, have become a vitally important underpinning to our economy and to our society- both in terms of their own economic strength, and terms of their productivity impacts on other industry sectors.

The Indian information technology industry is conventionally classified in to three Segments/ sub-sectors. They are

- Software
- Hardware
- IT Enabled services (ITES) and Business process outsourcing (BPO)

of these three Segments, Software services and ITES/BPO accounts for the greatest portion of total revenue in the Indian IT industry. This paper outlines the growth and current status of various classified segments of IT industry with the help of empirical data, wherever required.

2.Hardware a sub-sector of Indian IT Industry

Hardware category of Indian IT Industry is which until just two decades ago accounted for the largest share of the industry, Today the hardware sub sector's growth appears slow in comparison to IT and ITES-BPO, thus it is sometimes characterized as moribund. But the growth of hardware over the past five years can be deemed slow only in comparison to the extremely brisk clip in the rest of the sector: 25.7% versus 56.4%.

2.1 Evolution of the Indian Hardware industry: phases of growth

The Hardware and the Software Industry are two sides of the same gold coin representing India emerging as a Global IT superpower. The Government of India had approved the 108 recommendations covering IT Software and associated services. The second integral part of this exercise is the matching policy framework for the IT Hardware and associated services. The success of one, whether it is the export of software of $ 50 billion by the year 2008 or IT penetration drive for realizing IT for all by 2008, depends on the concomitant success of the other which calls for the creation of policy ambiance for the IT Hardware sub-sector[2]

The early part of this decade saw that, the Hardware sector of Indian IT has not grown as it should have grown, despite the fact that this sector had its beginning in the country much before the software industry, which has grown in leaps and bounds over the years.

2. Report of the panel, IT Taskforce "Development, Manufacture and Export of Information Technology Hardware". India. 2002.

When speaking of the hardware sector it is often compared with the software because of it being the other part of the IT Industry. When speaking of the growth in the software and hardware industry they are a study in contrast. While the hardware sector has declined over the years in terms of manufacturing base (supply), the software sector was making rapid progress with a compound annual Growth rate of 56.5 % over the last five years from 2002.[3] The poor state of affairs of the hardware sector was attributed to the lack of good infrastructure facilities as well as an unfavorable duty regime. There was also a serious lack of incentives given to this sector, which was not the case with the software industry.

At the same time other face of the fact is that, the hardware has been one of the sectors that performed well in the backdrop of economic slowdown. It was one of the few markets globally that witnessed remarkable growth rates in 2000-2001. [4]

The development of a vibrant 'hardware' sub-sector in India has been lagging behind on account of various factors. A major bottleneck in the development of this sector has been the lack of a strong local component industry.

2.2 Present outlook

Hardware sector continues to account for a major share of the domestic IT-ITES spend - 53 per cent of the total in FY 2004-05. Inspite of continued pricing pressure in key categories, domestic hardware revenues grew by 22-23 per cent in FY 2004-05 and are expected to maintain similar growth rates in the current fiscal (FY 2005-06). Key vertical markets include Telecom, BPO, BFSI, manufacturing and education. Demand for hardware systems remained strong in FY 2004-05 with servers as well as single-user systems averaging a 30 per cent volume growth.[5]

2.3 Figure 1 illustrates recent growth rates of Hardware Category of IT Industry.
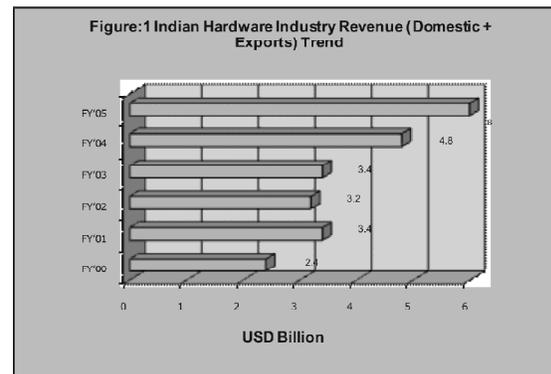
Source: Based on NASSCOM, Strategic Review 2005.

3.Scope eKnowledge Center Ltd. " **The Indian Hardware Industry**" Published in April 2002.

4.Sri. K. R. Naik, CMD, D-link India Ltd. And President, MAIT, "**The future of the Indian IT industry: The role of Hardware and R&D**".

3. The growth of India's Software and Service Industry

India's software and services industry has continued to remain in the driver's seat of the country's IT sector. India's success in the software arena is largely attributed to the software industry's knowledge and expertise in cutting edge technologies and skilled manpower base. Both these strengths are likely to contribute towards the industry's future growth as well. In fact, India's prowess in emerging technologies is also helping the software and services industry gain new customers, even in the face of a weakening U.S. economy slowdown. There is only one way that the Indian software industry is headed and that is up. The coming years will only reiterate this trend. The export segment, which had logged in revenues of Rs. 461 billion in 2002-03, accounted for 60 percent of the total revenue of the IT industry during the same period.

The market in India for software and services has been growing rapidly in the past few years. As business processes are getting more and more integrated with information technology, the need for business applications and services to support diverse business functions has also increased. The Indian IT industry has emerged as one of the fastest growing sectors in the Indian economy, with a growth rate exceeding 50 per cent in exports and 40 per cent in the total IT industry over the last five years. **Table 1** shows the trend of domestic and exports of this industry.

3.1 Table1: Indian Software and Service Industry Trend (USD Billion)

Year	Domestic	Exports	Total
1994-1995	0.35	0.485	0.835
1995-1996	0.49	0.734	1.224
1996-1997	0.67	1.085	1.755
1997-1998	0.95	1.750	2.70
1998-1999	1.25	2.650	3.90
1999-2000	1.70	4.00	5.70
2000-2001	1.96	6.30	8.26
2001-2002	2.10	7.20	9.30
2002-2003	2.75	8.85	11.6
2003-2004	3.40	10.4	13.8
2004-2005	4.10	14.6	18.7
2005-2006E	5.20	19.5	24.7

Source: Based on Hanna (1994), Heels (1995), Masco (2001) And NASSCOM-McKinsey Report 2004, 2005.
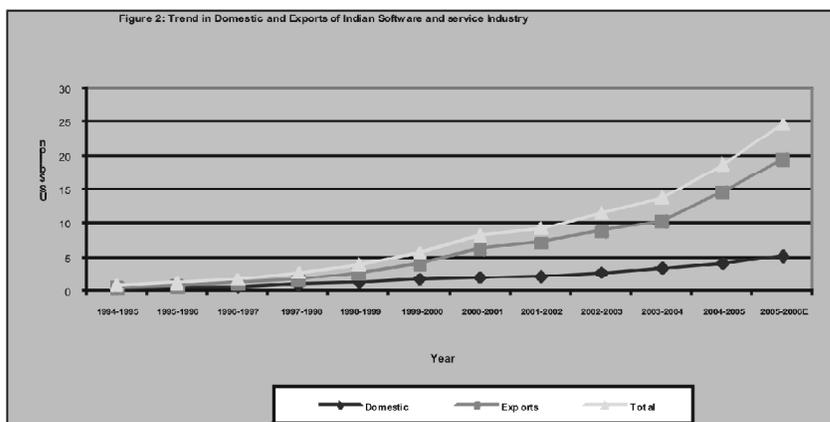
Not much increase in Exports during 2001-02, primarily due to the slow-down in the US economy after the 11 September 2001 terrorist attack. However, the NASSCOM Strategic Review 2006 the strong, consistent performance so far and the positive outlook bode well for the Indian IT-ITES Sector, putting it well on track to exceed the targeted USD 60 Billion in Exports by Financial Year 2009-10.[6]

Figure 2: Trend in Domestic and Exports of Indian Software and service Industry

Source: Compiled based on Hanna (1994), Heels (1995), Masco (2001) And NASSCOM-McKinsey Report, 2005.

4. The Indian ITES-
BPO Sector Performance

Companies in this category offer services not directly related to the provision or maintenance of IT products, but which do rely on IT products to deliver their value. This Sub-sector includes services off-shored or outsourced from other parts of the world. Such services include customer support, technical assistance, Human resource information provision, accounting as a part of administrative services.

Other outsourced services include financial services such as market analysis, equity research, and fund management, as well as technical services such as medical diagnostics and legal transcription.

As per the Nasscom's Report on Industry trends, The Indian ITES-BPO segment continues to chart strong year-on-year growth, estimated at 37% for FY 2005-06. Growth is being driven by a steady increase in scale and depth of existing service lines, and by the addition of newer vertical specific and emerging, niche business services.[7]

In the last decade, the IT and BPO industries have seen substantial off shoring. India has been the leading offshore destination during this period, and now accounts for 65% of the global industry in off-shore IT and 46 % of the global Business Process Off-shoring (BPO) industry. The global off-shoring market continues to grow rapidly, as the proven

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6. NASSCOM Strategic Review 2006
7. NASSCOM Report on Industry Trends, 30 March, 2006.

benefits of off-shoring (also termed global sourcing or global delivery) induce more and more companies to adopt these practices and providers develop the capabilities to serve even more sophisticated customers

4.1 Indian ITES-BPO exports are estimated to have grown from USD 3.1 billion in FY 2003-04 to USD 4.6 billion in FY 2004-05, recording a growth of nearly 48 per cent, and are estimated to reach USD 6.3 billion by the end of the current fiscal year (FY 2005-06).[8] (**See figure: 3**). There is tremendous growth in service lines.

Figure 3 : Growth of Indian ITES/BPO exports
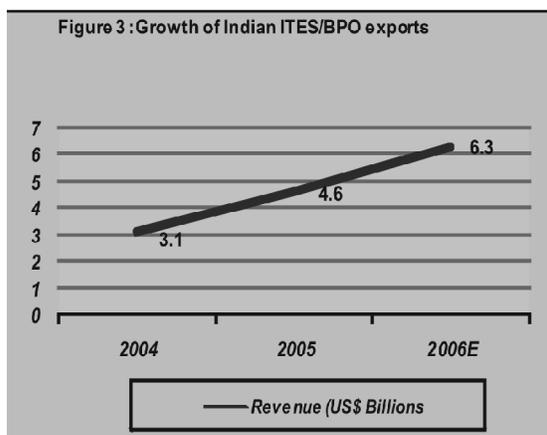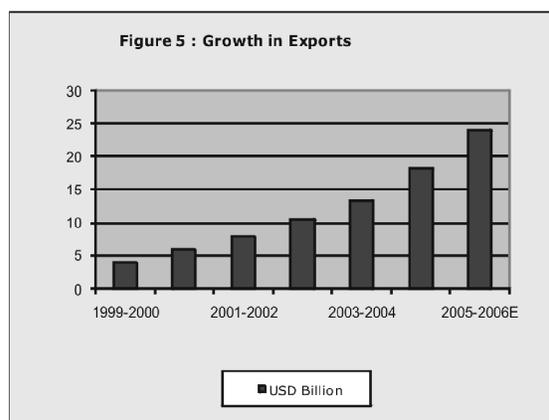
Source: based on NASSCOM-McKinsey Report 2005

FY 2004-05 witnessed steady growth across the key service categories of finance and accounting, customer interaction and human resource administration. These three segments accounted for an estimated 89 per cent of the industry revenues in FY 2004-05. (**See Figure: 4**)

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Figure: 4 Indian ITES/BPO services in FY 2005
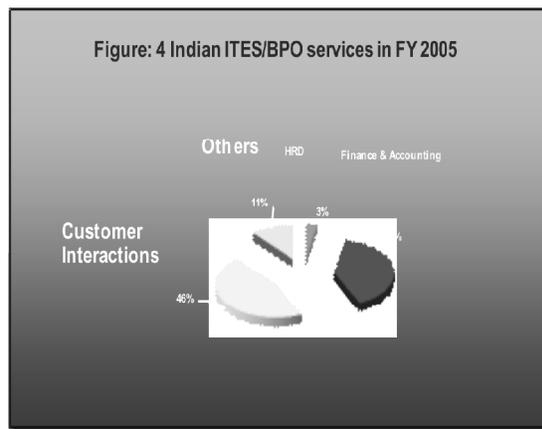
With steady demand observed across these key segments, According to the Nasscom Report on sectoral performance, it is estimated that the segment composition will not change significantly in the current fiscal (FY 2005-06).

5. Growth of IT Industry and Share in GDP

India's IT industry depends heavily on exports: in 2003-04, almost 62% of sales were for export. Moreover, the dependence appears to be increasing: exports grew by over 35% in 2003-04 compared to the year before, and increased 33% in 2004-2005. Industry analysts at NASSCOM predict a similar growth for the current Year. Even in 2001-2004, when growth rates in the Indian economy averaged less than 5% at constant prices, IT exports were growing by over 20%, as illustrated in **Figure 5**.

Figure 5 : Growth in Exports

30
25
20
15
10
5
0

1999-2000   2001-2002   2003-2004   2005-2006E

■ USD Billion

Source: Compiled based on Nasscom report 2005.

As per the NASSCOM, Worldwide spending on IT-ITES witnessed steady growth in 2005, on the back of healthier spending across key markets of the US and Western Europe, and strong growth in emerging markets. Outsourcing continued to be the primary growth engine with global delivery forming an integral part of the strategies adopted by customers as well as service providers.

The year 2005 also witnessed the coming of age of the Indian IT multinationals, with the traditionally India-centric, indigenous players beginning to build noticeable presence in other locations – through cross border acquisitions, onshore contract wins and organic growth in other low-cost locations. This was complemented by global majors continuing to significantly ramp-up their offshore delivery capabilities –predominantly in India, vindicating the success of the global delivery model and highlighting India's increasingly important role in the new world IT order.

In addition to the growth in scale, the portfolio of services sourced globally continued to expand into higher-value, more complex activities– further reinforcing the growing maturity of the global delivery model.

5.1. Table:2 Performance of IT-ITES Industry Trend

IT Industry-Sector-wise break-up USD billion	FY 2004	FY 2005	FY 2006E
IT Services	10.4	13.5	17.5
Exports	7.3	10.0	13.2
Domestic	3.1	3.5	4.3
ITES-BPO	3.4	5.2	7.2
Exports	3.1	4.6	6.3
Domestic	0.3	0.6	0.9
Engineering Services and R&D Software Products	2.9	3.9	4.8
Exports	2.5	3.1	3.9
Domestic	0.4	0.7	0.9
Total Software and Services Revenues Of which, exports are	16.7	22.6	29.5
	12.9	17.7	23.4
Hardware	5.0	5.9	6.9
Total IT Industry (including Hardware)	*21.6*	*28.4*	*36.3*

Source: NASSCOM McKinsey Report 2005.

5.2.Growth of IT-ITES in Revenues

After observing NASSCOM analysis reports, Indian IT-ITES industry continues to chart remarkable double-digit growth for the successive year and is expected to exceed USD 36 billion in annual revenue in FY 2005-06, a growth of nearly 28%t. It has grown at a CAGR of over 28% since FY 1999-2000. Over the same period, the industry's

contribution to the national GDP has risen from 1.9% in FY 1999-2000 to a projected 4.8% in the current fiscal. As in the previous years, IT services continue to account for a lion's share of the Indian IT-ITES industry, contributing over 47% of the total industry revenue in FY 2004-05. The hardware, ITES-BPO and engineering and R&D Services segments accounted for 21%, 18% and 14% respectively. The segment composition of industry revenues is likely to remain unchanged – weighed towards the services (IT + ITES-BPO) and software segments in FY 2005-06.[9]

5.3 IT-ITES- Increasing Exports

Export earnings accounted for 64% of the total IT-ITES aggregate in FY 2004-05. Strong fundamentals including a large base of skilled talent, demonstrated quality and service delivery expertise at a significant cost advantage and an enabling environment have ensured that India attracts a disproportionately larger share of the global IT-ITES demand for off-shore services – and continues to drive India's export-led growth.

IT-ITES exports from India grew from USD 13.3 billion in FY 2003-04 to USD 18.2 billion in FY 2004-05. It is estimated that total IT-ITES exports from India will exceed USD 23.9 billion in the current fiscal (FY 2005-06).

5.4 Geographical Breakdown of Exports

An interesting industry trend that has been noticed in recent years is the expansion of the Indian IT industry's presence from beyond traditional destinations, to newer geographies. The industry's focus is no longer on English-speaking countries alone, and a key strategy for Indian IT majors has been to harness local talent to tap domestic markets and de-risk the revenue model by reducing their dependence on one geographical region. It is observed from management decisions of TC, INFOSYS & NASSCOM Committee outputs, Americas and Europe remain the key markets, accounting for over 90 per cent of IT-ITES exports.[10]

However, export earnings from markets other than the US and the UK are also witnessing significant double-digit year-on-year growth. While Indian service providers have built delivery centers in key source markets (e.g. US), they are expanding their footprints in specialist locations like China for engineering and design; South Africa for insurance, and near-shore locations like Eastern Europe and Mexico. Apart from companies in the US, organizations from Europe, South East Asia,

9. Ibid.
10. CMIE (2006): Centre for Monitoring Indian Economy. Prowess database (digital). Hyderabad. India

Australia, Japan, Hong Kong, New Zealand, etc. are also reaching out for Indian software expertise, supported by the conducive policy environment and incentives for software exports offered by India.

Table 3: Geographical Breakdown of Exports

Location	FY 2004	FY 2005
Americas	69.4%	68.4%
Australasia	22.6%	23.1%
Europe	7.4%	8.0%
Others	0.6%	0.5%

Source: NASSCOM McKinsey Report 2005.

6. Growth of Indian IT Industry and Expected Industry Size

With estimated revenues of US$ 36.3 billion in FY 2005-06, the Indian Information Technology - Information Technology Enabled Services Industry (IT-ITES) continues to grow 5 times as fast as the global IT services industry, clocking a Compounded Annual Growth Rate (CAGR) of 28% since FY 1999-2000.NASSCOM has forecast that the growth rate of over 25% is expected to continue and will help Indian IT-ITES exports exceed US$ 60 billion by FY 2010.[11]

6.1 Table 4 : Growth in worldwide IT spends Amount in

US$ Billion

	Yr 2004	Yr 2005	Growth
IT Services	418	441	5.5%
BPO	3611	395	9.4%
Product Engg	22	27	22.7%
Software Products	193	206	6.7%
Hardware	390	410	5.1%
Total	1384	1479	6.9%

Source: CMIE Database 2006.

The Geographic market breakup of the Global IT-ITES markets for 2005 is as shown in *Table: 3*

The trends in global IT spending over the years 2004 and 2005 by type of spend (*see Table: 4*) and share of such spend in 2005 by geographic region *(see Table:3)* shows the components of growth over these two years and the industry revenue growth drivers.

The total Indian IT-ITES Services Exports were US$ 17.7 billion in 2004-05. Of the share of exports of 68.5% to Americas, 66.5% was to the USA. Out of the share of 23% of exports to Europe, 14% was to

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11. The NASSCOM-McKinsey Study 2004,2005.

UK. NASSCOM estimates that in FY 2005-06 Indian IT exports (including hardware and software in addition to services) grew to US$ 23.9 billion from US$ 18.2 billion in 2004-05. According to the NASSCOM Strategic Review 2006, in FY 2004-05, the domestic IT-ITES market was valued at US$ 10.2 billion and was estimated to grow at 22% to exceed US$ 12.4 billion in FY 2005-06. The IT services segment in the domestic market is expected to reach US$ 4.5 billion in FY 2005-06, exhibiting an 11.5% CAGR over 2001-2005. As per the NASSCOM, The domestic ITES or BPO segment is showing a CAGR of 60% over FY 2002- 2006 and is expected to be US$ 0.9 billion in the FY 2005- 2006.

Forecasting India's sustained leadership position in the global outsourcing industry, the NASSCOM - McKinsey Report 2005 estimates that the Indian IT industry has only addressed 10% of a potential market size in excess of US$ 300 billion so far. The report estimates that by 2010, of this US$ 300 billion opportunity, almost 35% or US$ 110 billion is expected to be relocated from source countries to low-cost offshore locations including India. It expects that the Indian IT & BPO industries could grow at an annual rate greater than 25% and generate exports of about US$ 60 billion by 2010. The report predicts that innovation by industry players in India can accelerate this growth and add an additional US$ 15-20 billion in export revenue over the next 5 to 10 years.

7. Global Growth Rates and Expected Industry Size

Reputed external agencies and NASSCOM Committee have estimated the expected growth rates of IT spending (CAGR) over 2004-09 and market size by region, types of services, etc. Though the forecasts vary these agencies expect the IT industry to continue in its growth trajectory. The forecasts of Gartner & IDC-NASSCOM are summarized below:

Table 5: Forecast of Growth in world-wide IT spends Amounts in US$ Billion

	2004	2009	CAGR
Total worldwide IT spending (including Telecom)	2479.9	3203.2	5.3%
Total worldwide IT spending (excluding Telecom)	1328.6	682.6	4.8%
IT Services Spending	582.5	759.9	5.5%

Source:1. Gartner Dataquest Market Data book, December 2005 Update 2. CMIE Database 2006.

The CAGR of 5.5% forecasted by Gartner for global IT services spending for the period 2004-09 (see Table 5) is lower than the forecast of NASSCOM - IDC of 7.2%.[12,]

12. Gartner Dataquest Market Data book, December 2005 Update

7.1 Table 6: Forecast of Market Size in 2009 and CAGR by Geographic Region (Amounts in US$ Billion)

Region	Market Size in 2009	CAGR 04-09
Americas	1029.2	3.8%
Latin Americas	210.0	9.6%
Western Europe	852.3	3.2%
Central / Eastern Europe & Middle East/Africa	-	>12%
Asia	461.6	8.3

Source: 1. Gartner Dataquest Market Data book, December 2005 Update 2. Centre for Monitoring Indian Economy (CMIE) Database 2006.

The expected market size and CAGR by geographic regions (see Table 6) shows that Americas & Western Europe will be the largest markets but the CAGR in these markets will be less than 4%. The Latin American and Asian markets though smaller are expected to have a higher CAGR and are the strategic focus areas of the Company.

NASSCOM estimates Global IT-ITES spending (including Hardware, Software and Services) to have grown by 7% to USE 1,479 billion in 2005 and forecasts that it will reach US$ 1964 billion by 2009 - a CAGR of 7.2% over 2004- 2009.[10]

During 2004-09, services spend will grow at a CAGR of 8.4% which is expected to be driven primarily by IT Services, Product Engineering Services, and ITES-BPO Services.

The Americas are expected to remain the largest market for services accounting for a little less than 60% of global spends through 2005-09.[13]

8. Indian IT Future: Problems and Prospects

The figures and recent trends discussed through out this paper bear the fact that the IT Industry of India has achieved a tremendous growth. Especially the rapid globalization of Software industry in recent years has focused a great deal of attention on India whose software industry is now small but growing part of the international division of labour in software. A number of potential problems could slow down the growth of the IT Industry of India. The major potential problem is the slow pace of innovation. It is noticed that, the overall performance of the Industry is based on the utilization of the low-level skills rather than the innovation. To minimize the effect of such problem, IT firms of India requires lot of seriousness in devoting their major share of their revenues to R&D., and also consolidation of the core competencies, along with placing great emphasis on innovation.

13 - Ibid.

It is a very interesting fact that, the ITES-BPO sector of Indian IT Industry is the fastest growing segment with the increase from 7.4% in 2000, and 20.1% approx in 2004-2005.[14] It has been leading in creating jobs. But what kinds of jobs are being generated now? and what would be in future? To get answers for such questions raised, and to achieve sustainable growth, India needs to revamp on innovation, because ultimately, the most knowledge intensive and innovation aspects of the IT sector would become the strong pillars of success at the present time and in the future.

Conclusion and Suggestions

- The paper explained the evolution of India's Hardware and software industry during the last one decade to the present time. The paper examines that; the Indian IT industry has grown in leaps and bounds over the years.

- The hardware sub-sector of Indian IT has not grown as it should have grown, despite the fact that this sub-sector had it's beginning in the country much before the software industry, which has grown in much faster pace.

- ITES-BPO segment of IT sector is now with estimated revenues of US$ 36.3 billion in FY 2005-06, and it continues to grow 5 times as fast as the global IT services industry, clocking a Compounded Annual Growth Rate (CAGR) of 28% since FY 1999-2000.

- The ITES and BPO industries have seen substantial off shoring. India has been the leading offshore destination during this period, and now accounts for 65% of the global industry in off-shore IT and 46% of the global Business Process Off-shoring (BPO) industry.

- In order to overcome the above-discussed problems in near future, and to achieve globalization, Indian industry must give a face-lift to the innovation.

- Also there is a need to generate a pool of highly trained professionals and must decide to apply their knowledge of frontier technologies and the best corporate practices to enterprises in India.

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