

**THE IMPACT OF IT SERVICES & ITeS-BPO ON INDIA'S  
GROWTH**

Tiago Alexandre Rodrigues Gomes

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Supervisor:

Mestre Rui Magalhães, Professor Assistente Convidado, Faculdade de Economia,  
Universidade do Algarve

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## **Dedication**

I dedicate this master thesis to all health care professionals from the Hospital Garcia de Orta, EPE (Almada), especially to my orthopedic surgeon, Dr. Vicente Rivera, and my physiotherapist, Julie Cação.

Thank you for saving and recovering me!

## Acknowledgments

Life is made of challenges and writing this Master Thesis while doing an Exchange Program in Indian Institute of Management Bangalore (IIMB) was one of the biggest I ever faced. Living abroad in a diverse country like India required an adaption to a totally different reality from the one I was used to. Although it was well worth the effort, I could never leave forgotten those who have supported me during this demanding period of my life.

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Thank you!

## Abstract

It has been noted that IT Services and ITeS-BPO segments have been responsible for significant impacts to the growth of Indian economy. This study examined the perceptions about the impact of these two segments on India's economic growth, carried out in a group of individuals that work in Bangalore's Electronic City. Based on existing literature it was hypothesized: (H<sub>1</sub>) IT Services and ITeS-BPO professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario; (H<sub>2</sub>) IT Services and ITeS-BPO professionals have no different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario; (H<sub>3</sub>) IT Services and ITeS-BPO professionals don't attribute different factors responsible for the key advantage of the Indian IT/ITeS industry; (H<sub>4</sub>) There is no consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run; (H<sub>5</sub>) IT Services and ITeS-BPO professionals have no different perceptions about whether or not the services sector could be an engine of growth; (H<sub>6</sub>) IT Services and ITeS-BPO professionals have no different perceptions about the "job-less growth" phenomenon. Data was analyzed from a group of 102 individuals who attended the online survey. Four hypotheses were confirmed: H<sub>2</sub>, H<sub>4</sub>, H<sub>5</sub> and H<sub>6</sub>. The perception of the respondents about the main direct impact of Indian IT/ITeS industry on the economic scenario and the perception about the factors responsible for the key advantage of the Indian IT/ITeS industry significantly vary according to the segment they work for.

**Keywords:** India, Economic Development, IT Services, ITeS, BPO.

**JEL Classification:** L86; O11.

## Resumo

Tem-se observado que os segmentos de *IT Services* e *ITeS-BPO* foram responsáveis por impactos significativos para o crescimento da economia indiana. Este estudo analisou as percepções sobre o impacto desses dois segmentos no crescimento económico da Índia, realizado num grupo de indivíduos que trabalham na *Electronic City* de Bangalore. Com base na literatura existente foram levantadas as hipóteses: (H<sub>1</sub>) Os profissionais de *IT Services* e *ITeS-BPO* não têm percepções diferentes sobre o principal impacto direto da indústria de *IT / ITeS* no cenário económico; (H<sub>2</sub>) Os profissionais de *IT Services* e *ITeS-BPO* não têm percepções diferentes sobre o principal impacto indireto da indústria de *IT / ITeS* no cenário económico; (H<sub>3</sub>) Os profissionais de *IT Services* e *ITeS-BPO* não atribuem diferentes fatores responsáveis pela vantagem da Índia na indústria de *IT/ITeS*; (H<sub>4</sub>) Não existe consenso entre os profissionais de *IT Services* e *ITeS-BPO* sobre a capacidade da Índia para manter a sua vantagem competitiva no longo prazo; (H<sub>5</sub>) Os profissionais de *IT Services* e *ITeS-BPO* não têm percepções diferentes sobre se o setor dos serviços pode ser um motor de crescimento; (H<sub>6</sub>) Os profissionais de *IT Services* e *ITeS-BPO* não têm percepções diferentes sobre o fenómeno da diminuição do emprego. Os dados foram analisados a partir de um grupo de 102 indivíduos que participaram no questionário *online*. Quatro hipóteses foram confirmadas: H<sub>2</sub>, H<sub>4</sub>, H<sub>5</sub> e H<sub>6</sub>. A percepção dos entrevistados sobre o principal impacto direto da indústria indiana de *IT / ITeS* no cenário económico e a percepção sobre os fatores responsáveis pela vantagem da Índia na indústria de *IT/ITeS* variam significativamente de acordo com o segmento em que trabalham.

**Palavras-chave:** Índia, Desenvolvimento Económico, Serviços de TI, ITeS, BPO.

**Classificação JEL:** L86; O11.

## **Executive Summary**

The Indian IT / ITeS industry has been one of the great success stories of modern India putting the country in the global map as the leader in the information technology (IT) and business process outsourcing (BPO).

The Indian Information Technology (IT) and Information Technology enabled Services (ITeS) sectors go hand-in-hand in every aspect. The industry has not only transformed India's image on the global scenario, but also fuelled economic growth and has contributed a lot to social transformation in the country. India has the opportunity to tap a market that is growing day by day with its cost advantage, huge resource pool and expertise.

Regarding the existing scientific literature, two main gaps were found. First, there are few studies to address with particular focus one or two segments of the IT/ITeS industry, especially IT Services and ITeS-BPO. Second, there is a literature shortcoming towards identifying the perception of the industry professionals about the impact these segments have on India's growth.

In the light of these ambiguities and gaps, the current study examine the perceptions about the impact of IT Services and ITeS-BPO on India's economic growth through the lens of the professionals. Therefore, this study represents a starting point for the knowledge development in this area.

The first part of this study provides context and theoretical support for this research, incorporating a comprehensive review of existing literature mainly in three sections: (a) India's economic growth at large; (b) dynamism of services as an important contributor to India's growth – and (c) the role of technological progress in driving India's growth, with special focus for the IT/ITeS industry.

In addition, chapter 3 gives a comprehensive overview of the Indian economy in order to understand the factors that catapulted its impressive growth while chapter 4 offers a careful contextualization of the Indian IT/ITeS industry.

The second part discusses the results of the questionnaire that collected a set of information on industry professionals' perceptions about the impact that the segments where they work for have on the growth of the Indian economy. The main conclusions of this study are:

#### Services sector expansion

- IT Services and ITeS-BPO surveyed professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario;
- According to 57,8% of the participants in this research, India should focus simultaneously on the expansion of the services and industry sectors.

#### India's collapsing infrastructure

- According to 83% of the surveyed, India's collapsing infrastructure has acted as a bottleneck to industrial growth.

#### "Job-less growth"

- IT Services and ITeS-BPO surveyed professionals have no different perceptions about the "job-less growth";
- According to the inquired professionals the expansion beyond the modern service sector alone cannot provide the requisite number of job opportunities to combat the "job-less growth" phenomenon (51,5% of total answers).

#### Engines of growth

- The surveyed professionals pointed that IT Services and ITeS-BPO could not be considered engines of growth (with 76% of the total responses).

#### India key advantage

- The inquired professionals considered that the main factor that best describes the key advantage of the Indian IT/ITeS industry is the cost effectiveness (36,3%);
- The availability of resource pool (31,4%) and the quality performance (13,7%) are respectively the second and third most referred advantages by the surveyed;
- Time zone and cross value chain are also factors considered (5,9% each);
- The perceptions about the key advantage of the Indian IT/ITeS industry vary according to the segment the surveyed professionals work;
- Individuals working in ITeS-BPO considered with greater relevance the time zone factor than individuals working in IT Services (18,2% vs. 0,05%).



### City classification

- More than half of the surveyed professionals point out that classification is a critical issue as part of a global delivery strategy (54,9%).

### Most attractive IT/ITeS destination

- Bangalore is the most attractive IT/ITeS destination for services globalization (72,5% of the surveyed);
- Delhi-NCR (6,9%), Mumbai and Pune (each one with 5,9%) follow in the list.

### Contributions to the workforce development

- The overall talent development in the country (41,2%), skill enhancement within organization (22,5%) and employment diversity (16,7%) are the most cited contributions of IT/ITeS industry to the Indian workforce development.

### Indirect impacts

- The perceptions about the main indirect impacts of Indian IT/ITeS industry on the economic scenario don't vary significantly according to the segment the inquired professionals work for;
- Boosting India's image in global markets is the main indirect impact referred by the surveyed (34,3%);
- Driving growth of other sectors (24,5%) and the indirect employment generation (12,7%) are other important factors indirectly impacting the economic scenario.

### Direct impacts

- The perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario vary according to the segment the surveyed professionals work for;
- Employment generation is the most relevant impact by aggregating 47,1% of total answers;
- Employment generation is more considered by the surveyed IT Services professionals (50,8% vs. 39,4%) and national GDP share by ITeS-BPO professionals (42,4% vs. 15,3%).

### Impact of the global slowdown

- It is consensual among the surveyed that the impact of global slowdown on the Indian IT/ITeS industry is critical as part of a global delivery strategy (47,1%).

### Challenges

- Competition from emerging and cost competitive markets is the most mentioned challenge impacting the IT/ITeS industry (49% of the total answers);
- The participants in this study also considered inadequate infrastructure (10,8%) and high attrition rate (9,8%) as major challenges.

### Domestic market

- The great majority of participants (73,5%) considered that the domestic IT/ITeS market would emerge as an alternative market for the Indian companies.

### Competitive advantage sustainability

- 78,4% of the surveyed perceived that the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run, being this perception independent of the segment they work for.

### Trends

- According to the surveyed professionals the adoption of innovative service models (27,5%) is the major trend that the IT/ ITeS companies would adopt in the coming years to combat competition and other such threats;
- The emergence of Indian IT Multinationals is mentioned with the same importance degree as entering new markets (13,7%), being the second most perceived trend to adopt in the coming years;
- 12,7% of the inquired professionals consider that developing vertical/domain specialization should be the way forward;
- Diversification (9,8%), industry consolidation through M&A (7,8%) and increase global spending (2,9%) are the least mentioned trends by the industry professionals.

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**Keywords:** India, Economic Development, IT Services, ITeS, BPO.

**JEL Classification:** L86; O11.

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## List of Abbreviations and Acronyms

AIMA	All India Management Association
AO	Applications Outsourcing
BFSI	Banking, Financial Services and Insurance
BPO	Business Process Outsourcing
BRIC	Brazil, Russia, India and China
CAD	Custom Application Development
CAGR	Compound Annual Growth Rate
CII	Confederation of Indian Industry
CRM	Customer Relationship Management
EU	European Union
F&A	Finance and Accounting
FDI	Foreign Direct Investment
FY	Fiscal Year
GDP	Gross Domestic Product
HDI	Human Development Index
HR	Human Resources
HW	Hardware
IA	Infrastructure Outsourcing
ICT	Information and Communication Technologies
IT	Information Technology
ITeS	Information Technology enabled Services
NASSCOM	National Association of Software and Services Companies
OECD	Organization for Economic Co-operation and Development
RBI	Reserve Bank of India
R&D	Research and Development
Rs	Rupee
SI	System Integration
SW	Software
USD	United State Dollar
WBI	World Bank Institute
WEF	World Economic Forum
WGI	Worldwide Governance Indicators

## Epigraph

*“Life is an opportunity, benefit from it.  
Life is beauty, admire it.  
Life is a dream, realize it.  
Life is a challenge, meet it.  
Life is a duty, complete it.  
Life is a game, play it.  
Life is a promise, fulfill it.  
Life is sorrow, overcome it.  
Life is a song, sing it.  
Life is a struggle, accept it.  
Life is a tragedy, confront it.  
Life is an adventure, dare it.  
Life is luck, make it.  
Life is too precious, do not destroy it.  
Life is life, fight for it.”*

**Mother Teresa of Calcutta**  
**(1950-1997)**

# Chapter 1

## Study Background

*“We end today a period of ill fortune and India discovers herself again. The achievement we celebrate today is but a step, an opening of opportunity, to the greater triumphs and achievements that await us. Are we brave enough and wise enough to grasp this opportunity and accept the challenge of the future?”*

Jawaharlal Nehru<sup>1</sup> (1947)

### 1.1. Introduction

Sixty-five years passed since Nehru’s statement, the world completely changed and India is no exception but an example to follow. Being currently the second most populous country, with a population of approximate 1.2 billion, and the eleventh largest economy in the world, the Indian growth story has captured the world’s attention due to its notorious economic and social development.

In the last decade the country grew at an average growth rate of more than 8%, putting India on the global map amongst the fastest growing economies in the world.

India can tap into a number of strengths as it transforms itself into a knowledge-based economy: skilled human capital, a democratic government, widespread use of English, macroeconomic stability, a dynamic private sector, institutions that support a free market economy, one of the largest local markets in the world, a well-developed financial sector, a rich cultural base that generates a wealth of ideas, and a broad and diversified science and technology infrastructure, as well as global niches in information technology.

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<sup>1</sup> India’s prime minister, speaking to India’s constituent assembly on the eve of the country’s independence from British rule.

## 1.2. Statement and purpose of the problem

The academic literature, as well as most of the existing studies on the impact of the IT/ITeS industry on India's economic growth, is based on a general approach for characterizing the contributions of the industry as a whole to the economy.

Therefore two gaps were found in the existing literature.

First, there are few studies to address with particular focus one or two segments of the IT/ITeS industry. Most of them study the industry as a whole, without highlighting any segment. In the present study it was not intended to address a discussion of the software and hardware segments whereby this research aims to study the important contributing factors of IT Services & ITeS-BPO impacting India economic growth.

Second, there is a failure in the literature towards identifying the perception of the industry professionals about the impact these segments have on India's growth.

In this research, a sample of 102 professionals was generated, with the purpose of conducting an exploratory study of their perceptions.

This study attempted to include the views of professionals working either in IT Services either in ITeS-BPO contrasting and comparing their insights with the existing academic literature.

## 1.3. Objectives of the study

The aim of this study is to provide a research and focus on an area where there is insufficient knowledge: the impact of IT Services and ITeS-BPO on India's growth through the lens of the professionals working in these two segments in particular.

### General Objectives:

- 1) To study the overall economic growth of India;
- 2) To demonstrate that the dynamism of the services sector was responsible for India's accelerated growth;
- 3) To ascertain the impact of IT Services and ITeS-BPO on India's growth.

Specific Objectives:

Attest if IT Services and ITeS-BPO professionals have different perceptions about:

- 1) The main direct impact of Indian IT/ITeS industry on the economic scenario;
- 2) The main indirect impact of Indian IT/ITeS industry on the economic scenario;
- 3) The key advantage of the Indian IT/ITeS industry;
- 4) India's ability to sustain its competitive advantage in the long run;
- 5) Whether or not the services sector could be an engine of growth;
- 6) The “job-less growth” phenomenon.

## **Chapter 2**

### **Literature Review**

Identifying the drivers of economic growth is one of the most important issues that economists have focused on. Since the mid 1990s researchers have been incorporate India within those studies due to its accelerated growth.

This section reviews the latest empirical research and is divided into three main sections: (a) an introduction where is covered the existing literature about India's economic growth at large; (b) a second section mixing a careful literature review for a comprehensive discussion of the dynamism of services as an important contributor to India's growth – and (c) a final section that provide a more in-depth research review about the role of technological progress in driving India's growth, with special focus for the IT/ITeS industry.

#### **2.1. Indian Economic Growth**

By 2039, the world would be very different from today and the economic center of gravity would shift to Asia (Kharas, 2009). The four large emerging markets (Brazil, Russia, India and China) all combined could overtake the advanced countries in terms of GDP by 2050 (Goldman Sachs, 2001). According to (Dholakia, 2001) in a developing country like India where rapid economic growth has become a national goal, analysis of the sources of growth assumes special significance not only because it helps to find out what has and what has not been important in the growth which has already occurred, but also because of the obvious implications it has for the macroeconomic strategy and policies that affect the future growth. The author discusses in detail the sources of India's accelerated growth and the vision of Indian economy in 2020. He points out that the growth acceleration achieved during the last 15 years has created the conditions for India's

take-off into the orbit of high growth. The India New Opportunity – 2020 report (All India Management Association, 2003) suggests that India will become a developed country by the year 2020, along with having the capacity to also become a knowledge-based nation.

In fact, by around 2025, China's impact (in terms of GDP at prevailing exchange rates) on world growth is likely to be larger than that of the US and India's impact larger than that of Japan. In addition, India is likely to be a larger growth driver than the six largest countries in the EU, though its impact will be a little over half that of the US (Virmani, 2005). Recent research reinforces the idea that if India continues to grow at the current rate, the country is expected to become the third largest economy by 2035 (Datamonitor, 2011). In part, this is fueled by the example of strong sustained growth in China, raising the obvious question of why India cannot do as well (Bosworth, Collins & Virmani, 2006). “Perhaps, we have for too long looked to others for models of growth. We have marveled at the tigers and dragons and wondered what we could do to copy their success. But that is denying our unique place in the world” (All India Management Association, 2003).

India's economic performance has differed from that of China and other parts of Asia in at least two dimensions. First, India's success has not been based on strong growth in the manufacturing sector and in exports. Instead, it has reflected very rapid expansion of service-producing industries. Second, it has been associated with relatively modest levels of investment (Bosworth, Collins & Virmani, 2006)

In addition, (Tripathi, 2007) discusses that China is far ahead of India in having built much superior infrastructure and by attracting millions of dollars in foreign investment. On the other hand, the author praises India's self-sufficiency and reliance on entrepreneurship to promote economy. And in fact, despite any internal or external influences, India's economy has continued to grow, as if on auto-pilot, ignoring distractions. According to Goel & Mashelkar (2010) recent research, India is the second most entrepreneurial country in the world. Das (2006) had already alerted to the importance of entrepreneurship, arguing that it is people of India (specifically entrepreneurs) that have been responsible for the rise of the country and have contributed to overall prosperity.

In his article, Tripathi (2007) provides an analysis of how India grew in the past few years and whether or not it is able to transform itself into a developed country. In addition, the author questions India's ability to be successful if it cannot look beyond the science and technology lens. However, regarding (Chidambaram, 2007), the key for India sustaining its economic development over a long period is to become scientifically advanced, and ultimately to become a global innovation leader. Wallace (2008) argues that India needs to broaden its outlook to be able to provide technology, innovative products, and value-add to business around the world.

The Economist (2008) article focused its analysis on India's infrastructure and described that without any change or improvement, infrastructure (roads, electricity, water, etc.) will become the primary obstacles to India's future growth and development of the economy. Kalam & Rajan (1998) in their book: "India 2020 a Vision for the New Millennium"<sup>2</sup>, argue that the main challenges of infrastructure, education, poverty and healthcare are important issues that the government and its people must solve. The authors add that India's reliance on the use of science and technology as a means of growth, development, and part of the solution to India's challenges.

Newsom (2009) also argue that if India is unable to address the problems of a failed education system, collapsing infrastructure, and growing poor population, the current and future plans of economic prosperity might be in jeopardy. Basically, India needs to leverage its strengths in order to solve those problems as Subramanian (2003) concludes in his article where he quotes Prime Minister Shri Atal Bihari Vajpayee, "A knowledge based society will enable us to leap-frog in finding new and innovative ways to meet the challenges of building a just and equitable social order...".

## **2.2. Services Sector Dynamism**

Recently, economists have started raising the following question "Can the service sector be an engine of growth?" (Neil M. Swan, 1985; Dasgupta & Singh, 2005; Joshi, 2007; Goldar & Mitra, 2008)

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<sup>2</sup> The book is often referenced in research discussing India's economic growth and provides detailed resource with respect to how India visions itself for the future.



India emerged as one of the fastest growing economies of the world during the 1990s mainly because of the remarkable performance of the services sector. India's services sector has shown highly impressive growth being driven primarily by the Information Technology (IT) and IT enabled Services (ITeS) (Bosworth, Collins & Virmani, 2006; Prasad, 2007; Goldar & Mitra, 2008; Joshi, 2009).

Several authors argue that India followed a unique path of growth. According to Das (2006), the most notable thing about India's rise is not that it is new, but that its path has been unique and can be considered a miracle because of the completely unconventional pattern that it has followed (Kalita, 2010). India has not followed the traditional development path that other countries have been using to catch up Western countries. That path involves a cycle that starts with agriculture, and progressively evolves into industrial revolution (mainly manufacturing) with a greater focus on production of goods. As these sectors become more developed, the evolution moves to its next step: knowledge based services that start to become the main drivers of the economy.

Indian economy has been sustained on domestic consumption and its growth was fuelled by services unlike manufacturing (Kalita, 2010) in the case of its Asian counterparts. In fact, the Eastern model centers in manufacturing and provides low-priced manufacturing goods to the West (Das, 2006). For instance, China is the best example of the Asian strategy, providing the low-cost manufacturing of a variety of products and then exporting to the U.S. and Europe. While (Das, 2006) praise India's unconventional approach, at the same time he criticized the lack of a labor intensive industrial revolution that could transform the lives of tens of millions of Indians still trapped in rural poverty. Without a plan for transitioning rural and poor populations into the current economy, the gap between rich and poor, rural and urban will continue to widen.

(Bosworth, Collins & Virmani, 2006) stated that India needs to broaden the base of its economic growth greater efforts to promote the expansion of the industrial sector – especially manufacturing. The authors argue that the manufacturing sector would provide a strong match for the skills of the Indian workforce, enabling India to boost its attractiveness. The argument is based on the idea that India needs a more balanced model of growth that could expand the supply of well-educated workers at the same time that it

increases the demand for workers with more modest skills (Bosworth, Collins & Virmani, 2006).

(Banga & Goldar, 2004) defend that services are increasingly important as an input to Indian manufacturing. On the other hand, (Browne, 1987) add that services are thought of as incapable of generating any growth of their own and are regarded as dependent on the growth of other sectors, particularly manufacturing.

(Bosworth, Collins & Virmani, 2006) also refer that the expansion beyond the modern service sector alone cannot provide the requisite number of job opportunities.

According to (Das, 2006) what has been peculiar about India's development so far is that high growth has not been accompanied by a labor-intensive industrial revolution. The same argument is point out by (Banga, 2005) in his study where a recent overview of the issues associated with India's rapid growth in services is provided. The author highlights explanations and implications of the so-called "job-less growth" in India's service sector and (Joshi, 2009) pointed out that there has been disproportionate growth of the tertiary sector, as its share in employment has been far less when compared to its contribution to GDP.

Despite the fast rates of growth of output, generation of employment has been extremely slow in the country during the reform years (Thomas, 2008). India's relatively jobless service sector growth is unlike the experience of other countries, where the service sector has also tended to gain a larger share of employment over time (Gordon & Gupta, 2003).

(Bosworth, Collins & Virmani, 2006) argue that this "job-less growth" phenomenon implies a much more rapid expansion of the manufacturing sector, which will require strengthening India's infrastructure, raising private sector investment and adopting a more aggressive approach to expanding India's export markets. Although several authors discuss that is important to look for the industrial sector (mainly manufacturing), why India did not figure it out earlier? (Gordon & Gupta, 2003) found in their research that industrial growth is more dependent on infrastructure development (such as roads and ports), which have acted as a bottleneck to growth. (Kalita, 2010) add that one of the reasons why India chose

a services led growth path was that there was a lack of adequate infrastructure to focus on manufacturing. On the other hand, labor restrictions and small-scale reservations may also have disadvantaged industry more than services (Gordon & Gupta, 2003).

However, it can be argued that India followed its culture and self-interest, in order to establish their own model free of substantial foreign influence (Newsom, 2009).

India was really unique while addressing its path to economic development since the country did not follow a Western or an Eastern approach; instead it jumped from an agricultural-based economy directly to a service/technological based one, making a successful transition to the knowledge economy.

(Kongsamut, *et al.*, 2001) analyzed a sample of 123 countries for 1970-1989 and show that rising per-capita GDP is associated with an increase in services and a decline in agriculture both in terms of share in GDP and employment.

Gordon & Gupta (2003) point out that the acceleration in services growth in the 1980s and 1990s was not uniform across activities and important policy reforms were made in the 1990s which were conducive to the growth of services sector, such as deregulation, privatization and opening up to FDI. The authors explain that the share of industry has stabilized since 1990, and the entire subsequent decline in the share of agriculture has been picked up by the services sector. Thus, while over the four decades, 1950-1990, the services sector gained a 13 percent share, the gain in the 1990s alone was 8 percentage points.

This statement clearly highlights the “boom” of the service sector in India in the 1990s, which according to the authors was due to fast growth in the communication, financial services, business services (IT) and community services (education and health). However, the most visible and well-known dimension of the takeoff in services has been in software and IT-enabled Services (including call centers, design, and business process outsourcing).

### **2.3. Indian IT/ITeS Industry**

The correlation between India's economic growth and the rise of the IT sector has been subject of extensive research over the years (Solow, 1956; Grossman & Helpman, 1994; Kalam & Rajan, 1998; Pohjola, 2001; Stiroh, 2002; Gordon & Gupta, 2003; Rodrik & Subramanian, 2003; Davies, 2004; Zhen-Wei Qiang, 2004; Virmani, 2005; Das, 2006; Tripathi, 2006/2007; Wallace, 2008; Newsom, 2009).

With more than 50% of India's GDP attributed to technology services, it is clear that science and technology has helped fuel India's economic rise (OECD, 2007). That idea is shared by Mashelkar (2008) who stated that since post-independence, India's identity and existence centered on science and technology.

From Newsom (2009) point of view, India maintains a steady focus of leveraging science and technology to solve its problems. This author studied whether or not India's rise represents a new model for growth and highlights the unique path India chose to take and the continual emphasis placed on the use of science and technology – not only as a mechanism of growth, but as a way to solve all of the country's challenges. According to the author's view if India will continue to rely in technology as a means of development for the entire country, it has to ensure the implementation of technologies are strategic and focused on addressing the challenges faced within rural India.

Kalam & Rajan (1998) refer that without a pervasive use of technologies, we cannot achieve overall development of our people in the years to come. They add that any nation aspiring to become a developed one needs to have strengths in various strategic technologies and also the ability to continually upgrade them.

On the other hand, Aggarwal (2008) discuss that India's IT industry is truly a product of "serendipity", where success occurred mostly by accident and assisted by design of the governments initiatives. The author suggests that as India's economy becomes more integrated with the global economy, there will be increased opportunities for foreign companies to import their goods and services to India, along with similar benefit for Indian companies to export the same to Western and Eastern countries.

Narasimha (2008) shared the same idea that the creation of India's IT service industry was unplanned and a natural occurrence of the investment of the government, coupled with the desire of its people. The author discusses India's development (key focus on technology) in three main phases: (a) early post independence where a strong science and technology infrastructure was built; (b) 1980 to 2000, when India opened its country to foreign investment and turned its interest to technology services (outsourcing); and (c) "the new century", whereby the government's focus has shifted to technology and rapid growth, and the consumer need for technology has also increased.

Unlike some researchers who claim that the IT industry grew by accident, Davies (2004) argues that India had all of the right pieces come together at the right time. According to the researcher, some 30 years ago, India worked out that if it was ever to become a developed country it first had to be an information technology country.

Avgerou (1998) described the correlation between technology and economic growth, highlighting that knowledge and information are the most important resources for the transformation of the economy. While defending technology as a focal point of development, the author also acknowledges the fact that a more balanced approach is needed arguing that technology must be widespread and offer value to have broad economic benefit.

Tripathi (2006) discuss that the development of ICTs within India can play a "pivotal role" to transforming the economy. However, the author highlights three of the several challenges that the country must overcome. First, the majority of the population and local economies are in rural agricultural areas. Second, there needs to be a greater emphasis on education, access to power, and inclusion of indigenous content within the applications and Internet. Finally, India needs to have a better system of universities and education centers for research, and must lessen the overall bureaucracy associated with these systems on local, state, and national government levels.

Taking the last two challenges in consideration, Goel & Mashelkar (2010) make their point arguing that an educated workforce is a prerequisite for a vibrant technology and innovation system that serves as a major source of growth.

In 2007, Tripathi raised the following question: “How could a country with more than 300 million illiterate people also have the kind of scientific human resources that bring some of the world’s largest corporations to base their R&D labs in India?” This statement reflects one of the biggest weaknesses of the country, the high levels of illiteracy, highlighting the existence of two different realities within such diverse country.

In the same line, Sanjay (2008) questions the focus on technology development when the country has many social issues contend with, such as high levels of illiteracy. The author believes that on a macro level India should be careful with conducting development solely through technology and lessen its infatuation with technology.

Nevertheless, Stiroh (2002) points out towards the strong relationship between IT and improvement in economic performance. It is perhaps not a coincidence that some of the IT powerhouses that would begin to fuel India’s growth a decade or so later got established in the early 1980s, just as the economic environment was turning more business friendly (Rodrik & Subramanian, 2004).

According to Zhen-Wei Qiang (2004) there is sufficient empirical evidence to suggest that there is a linkage between ICT and output growth.

Natrajan (2004) believes that the country’s IT industry reflects in every way possible the vibrancy of India shinning, idea that was one year later corroborated by Srinivasan (2005) while focusing his study specifically on the development of India’s IT sector and its implications for growth.

According to Wallace (2008), India is positioned to emerge not just as the region’s business and technology leader, but as a more powerful player in the global IT sector. The author reinforces that idea stating that India will evolve from a services-only model to an innovative and knowledge-based model.

Mitra (2009) concludes that the Indian economy, and the IT and ITeS-BPO industry in particular, is facing transformational opportunities. If handled well this offers the possibility of India to become one of the world’s leading powers in IT and other areas of knowledge-based industries.

As referred in the previous section, India's economic growth story is mainly driven by its services sector, which accounts for more than half of India's output, being the Information Technology (IT) and IT enabled Services (ITeS) the most dynamic segments.

The ITeS industry in India is large, rapidly growing, and comprises a wide variety of players, foreign and domestic (Dossani & Kenney, 2007). Business Process Outsourcing (BPO), which is the most familiar form of outsourcing (Grossman & Helpman, 2005), is one of the fast growing segments of the ITeS industry (Agrawal, *et al.*, 2011) with high potential (Joshi, 2009). These services played a vital role in India's emergence as one of the fastest growing economies in the world (Chanda, 2008). Subsequently, more developing countries are aiming to become the destination for BPO (Greene, 2006).

BPO can be described as the management of one or more specific business processes or functions (i.e. procurement, accounting) by a third party, together with the information technology (IT) that supports the process or function (Halvey & Melby, 2000; Rouse & Corbitt, 2006).

Gartner (2004) Yang *et al.* (2007) see BPO as the delegation of one or more IT-intensive business process to an external provider, which in turn owns, administers, and manages it, according to a defined set of metrics.

Click & Duening (2005) define business process outsourcing simply as the movement of business processes from inside the organization to external service providers.

Mehta *et al.* (2006) suggest that, in business process outsourcing, the operational ownership of one or more of the firm's business processes is transferred to an external provider that, in turn, manages the processes according to some predefined metrics.

Meenakshi & Vani (2008) refer to business process outsourcing as the operation of letting out the task of performing certain functions of an enterprise to another enterprise, often a third party, and in some cases, a subsidiary of its own.

Regarding Chanda (2008) business process outsourcing can be defined as the delegation of service activities to a third party, either to be performed on-shore, near-shore,

or off-shore. On-shore can be seen as an enterprise outsourcing its activities to another company located in the same country, near-shore as outsourcing activities to a nearby country, and off-shore as outsourcing to a remote or far-off country (Meenakshi & Vani, 2008).

Recently, India's outsourcing industry has shifted in revenue composition to a more sophisticated and higher end services, called knowledge process outsourcing (KPO) activities (Chanda, 2008).

The most significant business benefits are obtained by utilizing highly skilled resources in processes which might be considered core or critical competencies (Robinson & Kalakota, 2004).

According to NASSCOM (2005), the IT and BPO industries can become major growth engines for India, as oil is for Saudi Arabia and electronics and engineering are for Taiwan. In contrast, Saxenian (2001) argues that Bangalore is not Silicon Valley and IT is not going to solve all of India's problems.

A number of factors seem to have propelled India towards the position of a dynamic IT player in the world. These would include, a large and educated labor force, widespread fluency in the English language, comparatively low labor costs, high quality of the workforce (Balatchandirane, 2007). Besides the large English-speaking educated workforce Saxenian (2000) add the time difference between India, the software service provider and the US and Europe as a factor that endowed India's success story.

Thomas (2008) found that India began with the advantage of having a vast pool of English-speaking engineers, whose wages are much lower than wages of similarly qualified professionals in developed countries, and their skill levels quite high.

India's principal advantage enabling rapid IT/ITeS industry development relates to its pool of human resources, its English language skills, its high domestic and international mobility and its low cost compared to high income countries (Mitra, 2009).



India has a lot of potential, mostly due to the low wage costs, long working hours, the availability of educated resources and English speaking capabilities (Stal, 2010).

The literature as regards the main advantages of the Indian IT/ITeS industry is vast regardless resource pool, cost effectiveness, quality performance and time zone differences being the factors invoked by most authors.

The cost advantages of outsourcing appear to be the most commonly cited rationale behind outsourcing development and maintenance functions of information technologies (Powell, 1990). Low-cost, highly skilled software professionals are widely believed to be the key to India's success story (Mohapatra, 2003).

However, modern BPO seems to go beyond the simple cost reduction aiming to achieving strategic business goals (Zika, 2004) by focusing on core competencies, quality improvements and – only as a third priority – cost savings (Wüllenweber *et al.*, 2006). It seems that the Indian BPO industry, which previously relied on its cost effectiveness to attract customers, is now under an entirely different dictatorship (Thoms, 2004). The same author advocates that as outsourcing begins to offer continuous improvements on critical business processes, vendors and clients look to incorporate quality methodologies and management techniques into day-to-day operations.

The India Vision 2020 Report identifies employment and education as the key thrust areas for India's future economic growth and specified knowledge, rather than capital, as “the most important determinant of development” (Gupta, 2002). For India to fully capitalize on the opportunity and sustain its present lead in the global IT/ITeS space there is a need to focus on skill development to enhance the talent pool advantage (Government of India, 2007).

According to Thomas (2008), India's successes in the new economy owe, in great measure, to the large supply of highly skilled professionals. While Saxenian (2001) argues that India's large skill base is an important competitive asset in the knowledge-based economy, Rose (2007) adds that education in America has never emphasized math at a primary level, while in India it has always emphasized that.

Furthermore, India's time difference with America is a great advantage in providing 24/7 business continuity solutions to US clients (Banerjee, 2005). The operational time difference between the clients and the service providers added a round-the-clock proposition to the business and reduced total cycle time (Mohapatra, 2003) and has been a favorable factor between India and the US (Thomas, 2008).

As regards the geographical locations, Singh (2002) argues that location and ownership are not of direct importance, but are only proxies for whether the IT software and services provider has the right combination of people, knowledge, experience and reputation to compete successfully.

Dibbern *et al.* (2008) add that geographic distance makes it more time consuming to transfer the needed knowledge, coordinate, and monitor the project. Unlike these studies, Morosini (2004) points that in the 21<sup>st</sup> century industry clusters are still relevant economic phenomena of vast importance to business practitioners and policymakers all over the world.

For instance, the Indian IT services industry has experienced substantial growth since liberalization with particular interest being directed towards the Bangalore IT cluster in Karnataka state in southern India (NASSCOM, 2008). Within clusters, Bangalore seems to be better off than other clusters (Basant, 2006) once it has enjoyed a strong global position as a center for IT services since the 1990s and it can facilitate a diversification into high-value IT activities (Leleur, 2009).

Since its inception, India's business process outsourcing industry has been concentrated in the cities of New Delhi (including Gurgaon and Noida), Mumbai, and Bangalore (Greene, 2006).

The IT cluster in Bangalore has demonstrated significant economic performance in past decades as a hub for primarily customized IT services for the US market (Arora *et al.*, 2001).

The IT / ITeS industry has contributed to the growth and development of the country in terms of various economical and social aspects, contributing to the workforce

development as well as contributing directly and indirectly to the Indian economy (NASSCOM, 2008).

Joshi (2009) indicates that the growth of IT and ITeS is having social, economic, health, ethical and environmental implications. IT can change how the society communicates, collaborates, lives, works, and plays (Konana & Balasubramanian, 2001), overcoming traditional barriers to widespread delivery of education at all levels (Singh, 2002).

Moreover, the development of IT/ITeS sector can have significant and direct impact on the economy through employment generation (Rajeev & Vani, 2007). IT-enabled Services promise to directly generate employment much more significantly than activities such as software development (Singh, 2002).

Joshi (2009) cited the national GDP share, revenue generation, foreign exchange earnings and employment generation as the main contributions of Indian IT/ITeS industry. NASSCOM, Strategic Review (2006) highlights that Indian IT and ITeS have played an instrumental role in the building up of foreign exchange reserves for India and the trend in the build-up clearly reflects the growth of IT and ITeS exports from India.

On the other hand, the growth of IT and ITeS can impact the overall growth of the economy through inter sectorial linkages by generating demand impulses in the economy (Joshi, 2009), which have significant effects on the efficiency of operations in other industries (Singh, 2002).

Indirect jobs are created as IT-ITeS industries demand a range of services including telecom, power, construction, facility management, IT, transportation, and catering. Jobs are also generated through the consumption expenditures of IT sector employees on food, clothing, utilities, recreation, health and other services (Thomas, 2008).

According to Evalueserve (2007) the effect of global slowdown is massive. The global economic slowdown has resulted in major uncertainties in the business environment for the IT-BPO industry, which had an adverse impact on revenue growth, stock market evaluations, profit margins and the credit access (Mitra 2009). Nevertheless, the IT

services and BPO industry have been less affected by the global economic slowdown than the manufacturing industry (Mitra, 2009).

Agrawal *et al.* (2011) argue that because of global recession and increased competition, ITeS firms in India are facing difficulties in dealing with their offshore clients, being the effects visible in many areas but especially in banking, financial services and insurance (BFSI). The global economic turbulence refocuses the objectives of many companies and emphasizes the importance to reduce cost and increase efficiency

Mehta *et al.* (2006), refer some challenges, which could prevent India from maintaining a leading role in business process outsourcing in years to come. These challenges include cultural differences, rising operational costs, competition of other countries, and personnel issues.

Agrawal *et al.* (2011) report that sustaining this impressive growth is not possible always as these companies are facing continuous challenges in terms of competition, global economic slowdown, scarcity of talent, high attrition rates, and many other HR and technology related issues.

Thomas (2008) adds that India's leading position in IT and ITeS industries is threatened to a great degree by large salary increases, high labor turn over, and also by shortages of workers with the required skill levels and experience.

For Joshi (2009) the main challenges in the field of IT and ITeS are raising labor costs, rapid growth in demand for talented manpower/quality staff, high attrition rate and outsourcing backlash while Greene (2006) cited high attrition rates, absenteeism, rising salaries, inadequate physical infrastructure, and the lack of data privacy laws and intellectual protection as the main challenges.

Major threats to India are increasing employee attrition rates in companies, marketing problems due to cultural differences, rising wages and competition from other countries (Banerjee, 2005), since the search for alternative locations for BPO has accelerated (Dowouna, 2011).

Emergence of China, Philippines, Russia, Brazil, and South Africa among others as developing market alternative to India's IT workforce has endangered India's preeminence in this area (Mohapatra, 2003).

As regards the domestic market, since Indian firms can compete abroad, they should also be able to succeed in their own backyard where they have advantages such as knowing their customers better, and being closer to them (Singh, 2002). The author refers that the boundary lines between domestic and foreign can be blurred when multinationals have Indian subsidiaries, particularly for IT or IT-enabled Services.

The slowdown in global demand after September 2008 has given IT-BPO firms based in India greater incentive to focus on the domestic market. Companies that are heavily oriented towards exports are giving greater attention to the domestic market. The fact that India still is in an early phase of developing the domestic market for IT-BPO points to a major growth potential (Mitra, 2009).

Regarding the growing competition arising from other emerging destinations, Konana & Balasubramanian (2001) raised the question: "is this model economically sustainable in the long run?" In their study they suggest that it is very likely that other developing nations with even cheaper labor and growing English-speaking populations will compete with India.

The sustainability of impressive growth of Indian economy has been questioned in the wake of some challenges in the form of lack of social infrastructure (Joshi, 2009). In contrast, Thomas (2008) argues that India is still ahead of other competing countries in IT and ITeS industries.

Mahendra K. Sanghi, president of the Association of Software and Services Companies indicated that "it is important for India to provide services which are not given by others and where there will be no significant challenge. To preserve the market share, diversification is essential. India should actively venture into new horizons and vertical services."

Agrawal *et al.* (2011) point that a large number of Indian companies are looking for expanding their operations by setting up delivery centers across the globe. Indian players are targeting regions such as China, Latin America, and Eastern Europe to set up new offshore locations.

The IT Action Plan recommends the promotion of venture capital, and most industry representatives and analysts agree that a dynamic venture capital industry will be critical to the long-term development of Indian IT. A healthy VC industry will stimulate new entrepreneurial entry, broaden the range of activities in the field, and accelerate the country's move into higher value added activities (Saxenian, 2001).

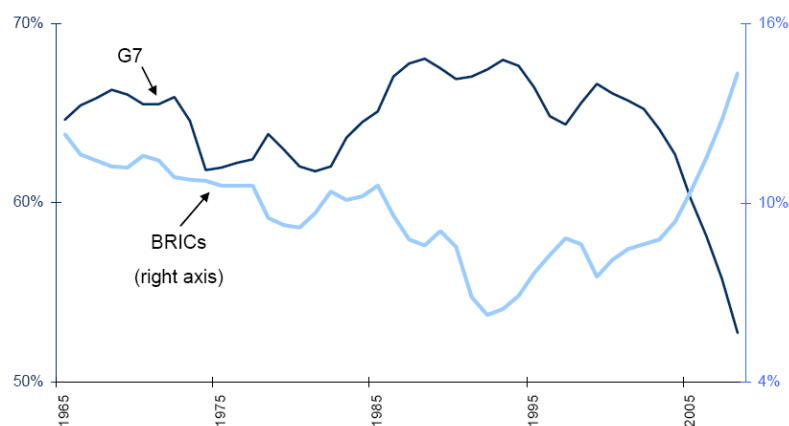
## Chapter 3

### India Economic Overview

#### 3.1. India and the Global Economy

In fact, the Indian economy and its arrival on the global scene have captured many authors attention. Some of them go further and argue that the global economy is set for a fast long-term growth, where Asia will dominate. However, the rise of Asia would be the fall in the share of global output of the western countries, especially those that comprise the G7 economies<sup>3</sup>. The data from the last decade suggests that the dominance by the G7 economies appears to have come to an end, being surpassed by the BRICs (Figure 1).

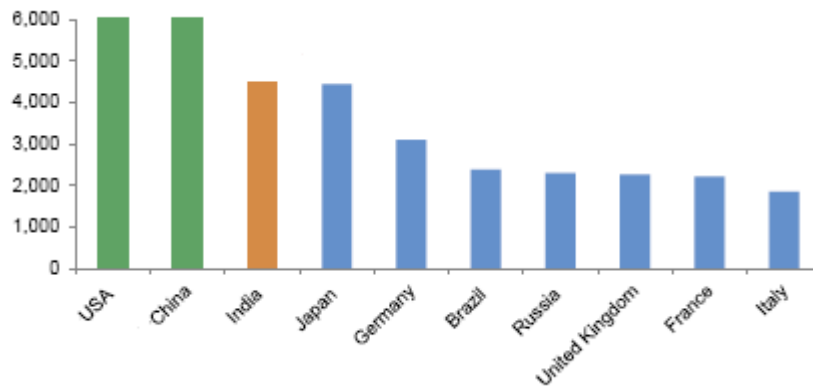
**Figure 1: G7 and BRICs Share of Global Output**



Source: Homi Kharas (2009), "India and the BRICs: Long-run Growth Potential".

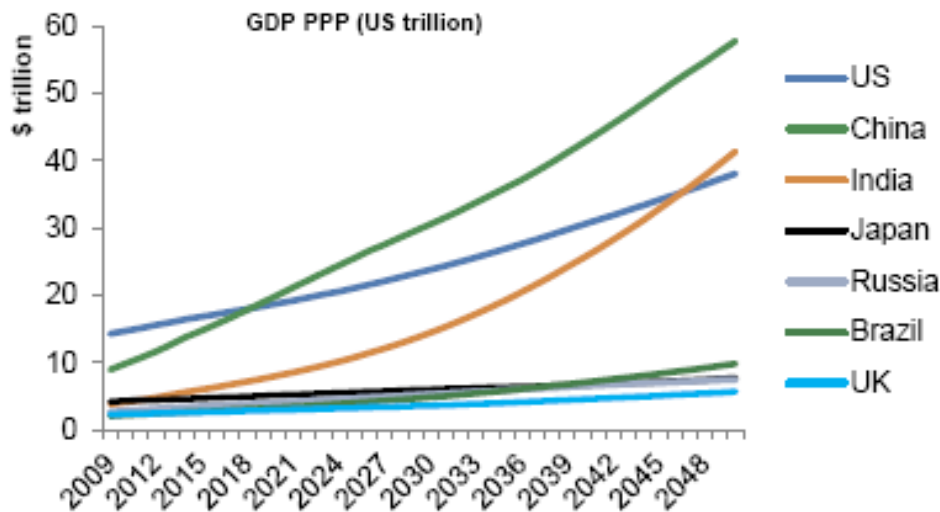
In the last years, India has been increasing steadily its share in world's GDP and according to IMF World Economic Outlook the country is currently the third largest economy in the world (Figure 2).

<sup>3</sup> France, Germany, Italy, Japan, United Kingdom, United States and Canada.

**Figure 2: Share in World GDP (PPP), 2011**

Source: IMF World Economic Outlook (April 2012).

A major structural shift in the world economy seems under way and the largest economies of today will not be equally disposed on the Top in the next decades. Actually, a recent study carried by PriceWaterhouseCoopers points out that India is expected to become the second largest economy in the long run (Figure 3).

**Figure 3: The largest economies in the world in 2050**

Source: PriceWaterhouseCoopers (2011), “2050 Report”.



### 3.2. Assessing India's Competitiveness

Since 2005, the World Economic Forum (WEF)<sup>4</sup> has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness.<sup>5</sup> The Global Competitiveness Report 2011-2012 covered 142 economies and it has been used in this study to assess the comparative competitive strengths and weaknesses of India and contrast them with its emerging counterparts. The report includes two major competitiveness indexes – the Growth Competitiveness Index (GCI) and the Business Competitiveness Index (BCI).

The WEF defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity sets the level of prosperity that can be earned by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.

There are many determinants driving productivity and competitiveness. The GCI includes a weighted average of many different components properly grouped into three main sections: basic requirements, efficiency enhancers and finally innovation and sophistication factors. These components form 12 pillars of competitiveness.<sup>6</sup>

According to GCI for the year 2011-2012, Switzerland continues to top the overall ranking mainly because it has an excellent capacity for innovation and a very sophisticated business culture. Singapore has moved to the 2<sup>nd</sup> position followed by Sweden, Finland and the United States. The remaining five countries to figure in the top 10 are, respectively, Germany, Netherlands, Denmark, Japan, and United Kingdom. India ranks 56<sup>th</sup> in GCI 2011-2012 assessment and dropped five ranks from the previous edition. The country demonstrates only minor changes in its

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<sup>4</sup> The World Economic Forum (WEF) is an independent international organization committed to improving the state of the world by engaging business, political, academic and other leaders of society to shape global, regional and industry agendas.

<sup>5</sup> The first version of the Global Competitiveness Index was published in 2004.

<sup>6</sup> See Appendix A: "The twelve pillars of competitiveness".

competitiveness performance, which is based on its large market size and good results in more complex areas such as financial markets, business sophistication and innovation.

Among the ranking of BRIC countries<sup>7</sup>, India continues to rank on a par with Brazil (53<sup>rd</sup>) and ahead of Russia (66<sup>th</sup>), but its gap with China is widening. Up by one position to 26<sup>th</sup> place, China reinforced its position within the top 30.

India continues to be penalized for its mediocre accomplishments in the areas considered to be the basic factors underpinning competitiveness.

### **Institutions**

The quality of institutions has a strong bearing on competitiveness and growth. It influences investment decisions and the organization of production and plays a key role in the ways in which societies distribute the benefits and bear the costs of development strategies and policies. In the past five years, discontent in the business community about the lack of reforms and the apparent inability of the government to provide a more conducive environment for business has been growing.

Regarding the institutions pillar India have been dropping its rank over the past years, currently registering 69<sup>th</sup> performing better than Brazil (77<sup>th</sup>) and Russia (128<sup>th</sup>) but even so worst than China (48<sup>th</sup>).

### **Infrastructure**

The country's infrastructure namely the supply of transport, ICT, and energy infrastructure remains largely insufficient and ill-adapted to the needs business (89<sup>th</sup>). Extensive and efficient infrastructure is critical for ensuring the effective functioning of the economy, as it is an important factor determining the location of economic activity and the kinds of activities or sectors that can develop in a particular instance. Well-developed infrastructure reduces the effect of distance between regions, integrating the national market and connecting it at low cost to markets in other countries and regions.

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<sup>7</sup> See Appendix B: "Global Competitiveness Index Rankings of BRIC countries".

In addition, the quality and extensiveness of infrastructure networks significantly impact economic growth and reduce income inequalities and poverty in a variety of ways. A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services.

According to Jagdish N. Bhagwati India's GDP growth would have been 2% higher if the country's infrastructure was of a higher standard. On the other hand, the current infrastructure deficit presents an attractive investment opportunity for global and private investors since India's ports, roads, and rail networks need massive capital investments.

As per the country's Eleventh Five Year Plan, investments in infrastructure are projected to total USD 500 bn. during 2009–13, through a mix of public and private sectors to reduce deficits in identified infrastructure sectors. An independent study undertaken by the Centennial Group (Araujo *et al.*, 2007) estimated that between 2007-2015 India should invest on average between 9-11% of GDP in infrastructure development (including for maintenance, rehabilitation and replacement of existing capacity) to meet the needs of a fast growing economy. This is expected to provide significant impetus to industrial and capital expenditure growth, along with overall growth in the services sector.

Although the business community continues to cite infrastructure as the single biggest hindrance to doing business in the country, it must be noted that the situation has been slowly improving since 2006 supported by increased private sector participation (Secretariat for Infrastructure, 2011). However, other countries have been improving faster and India is still far behind the BRIC group where Brazil ranked 64<sup>th</sup>, Russia 48<sup>th</sup> and China 44<sup>th</sup>, suggesting that the country can do much more to strengthen its infrastructure.

### **Macroeconomic environment**

The stability of the macroeconomic environment is important for business and, therefore, is important for the overall competitiveness of a country. Although it is certainly true that macroeconomic stability alone cannot increase the productivity

of a nation, it is also recognized that macroeconomic instability harms the economy, as we have seen recently when some European countries (like Portugal) needed the support of the IMF and other euro zone countries to prevent sovereign default, as their public debt reached unsustainable levels. In short, the economy cannot grow in a sustainable manner unless the macro environment is stable.

More recently, this stability is being undermined by high inflation, near or above 10 percent. Moreover, the large and repeated public deficits and the highest debt to GDP ratio among the BRICs have contributed to this scenario where India placed 105<sup>th</sup>. Regardless of a prolonged episode of high inflation (like India), China in opposition has a very favorable macroeconomic situation (10<sup>th</sup>) being one of the world's least indebted countries.

### **Gross Domestic Production**

Since the independence days, that the Indian government exercised strict control over private sector participation, foreign trade, and foreign direct investment (FDI). However, since 1991 India has gradually opened up its markets through economic reforms and reduced government controls on foreign trade and investment.

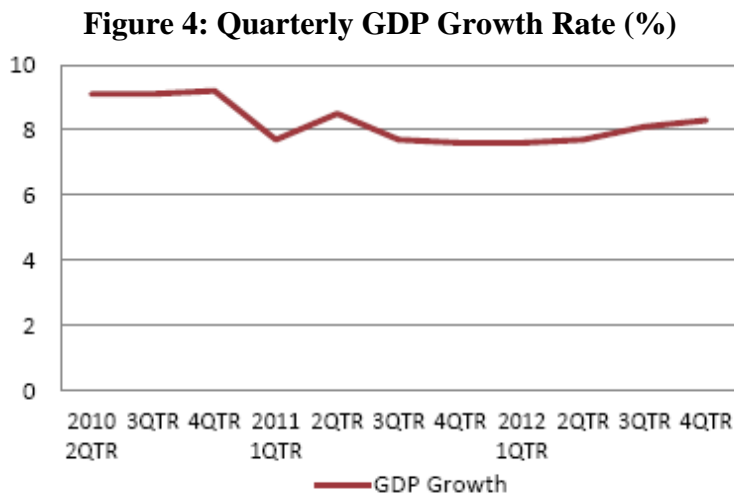
As a result, India began to appear as a player of some significance in the global economy and today is one of the world's fastest growing economies, with average growth of more than 8% over the last decade.

Despite being slightly affected in 2009 by the global slowdown and considering that the macroeconomic indicators in the Indian economy are being affected by global events such as the Euro zone crisis, India continues to demonstrate faster and stable growth than most other emerging economies.

Nevertheless, a slowdown in advanced economies is still a point of concern since it impacts the rest of the world through trade, investment and exchange rate channels. A potential euro zone crisis could adversely affect key sectors of the Indian economy given that euro zone accounts for nearly 15% of merchandise trade and is the biggest market for the Indian IT/ITeS segment after the US. Therefore, in a

context of globalization as we live today, the future of India’s growth will depend on how it manages to overcome macroeconomic challenges.

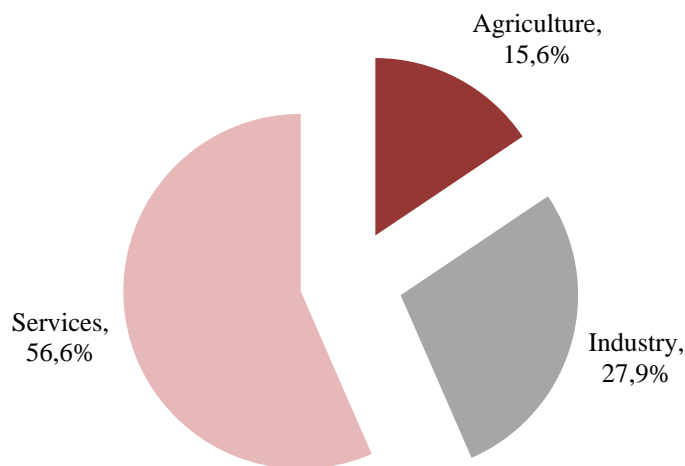
Regarding the 2011-12 period, the GDP grew 8.2% (Figure 4) and its growth momentum is expected to continue in the next upcoming years since an average growth of 8.4% is expected from 2013-14 to 2015-16.



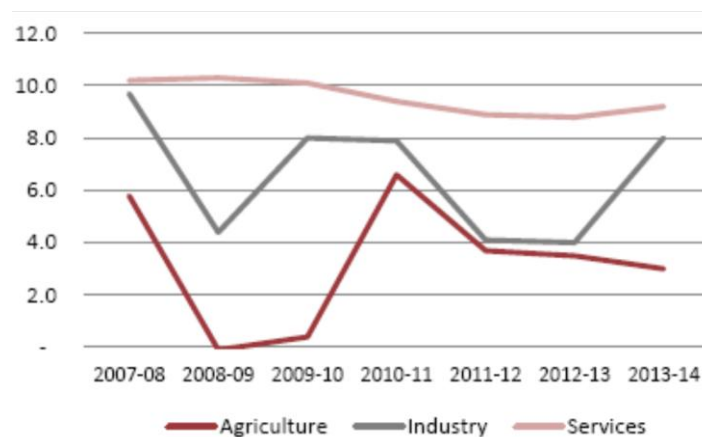
Source: Economic Survey 2011-12.

The following illustrations represent respectively the GDP composition by sector in India (2011) and the sector growth during the period 2007-2014.

**Figure 5: GDP composition by sector in India, 2011**



Source: Datamonitor (2011), “India Country Analysis Report”.

**Figure 6: Sector Growth (%)**

Source: Economist Intelligence Unit.

### Agriculture

The Indian agriculture sector share in real GDP was 15.6% in 2011 (Figure 5). In FY11 the sector recorded a 5.4% growth (Figure 6), reaching USD 1,443 billion in terms of GDP (Ministry of Agriculture, Aranca Research).

If on one hand side more than 58% of the country's population is still dependent on agriculture for employment, on another hand, dependency on monsoons has reduced and irrigation facilities have improved (being rice and wheat the most irrigated crops in India). However, the country still needs incremental productivity gains and technology diffusion across regions, which is a pre-requisite for inclusive growth, reduction of poverty levels and development of the rural economy. If nothing is done in this sense the macroeconomic stability will be negatively affected given the rising demand of the 1.2 billion people for food.

Nevertheless, being India the second largest populated country in the world constitutes an inherent demand driver of agricultural growth in the country. Another factor driving demand is income growth, since India's per capita income has increased at a CAGR of 15.3% in FY11.

### Industry

Industrial growth in the country has, in terms of long run trend, remained aligned with the growth rate of gross domestic product (GDP). The long-term average annual growth of industries comprising mining, manufacturing, electricity,

and construction, during the post-reform period between 1991-2 and 2011-12, averaged 7%.

In 2011 the sector contributed to 27.9% of the country's GDP (Figure 5). This growth was majorly driven by manufacturing, which constitutes 75.5% of industrial value added (Union Budget Economic Survey 2011-12, "Micro-foundations of Macroeconomic Policy"). Actually, manufacturing fueled consistent growth of exports and it is adding impetus to the economy along with the services sector. Goods exports are expected to cross USD 400 bn. by 2013-14 increasing the share of Indian goods in the global market (Figure 7).



Source: Economic Survey 2011-12.

However, the relative stability of the share of industry in GDP and, recently, a small decline over the last two years suggests that the potential of this sector has not yet been fully exploited. The characteristic thrusts of this industry - the open international trade environment and rapid technological change - require the sector to be innovative and competitive. Moreover, the multiple linkages of the sector regarding, for instance, raw materials and natural resources often end-up with conflicting interests.

The index of industrial production (IIP) is the key indicator of industrial performance (Table 1).

**Table 1: Contribution to IIP Growth- April-December (%)**

	Weight	2008	2009	2010	2011
Overall IIP	100.0	5.7	2.4	8.3	3.6
<b>In terms of structured national industrial classification</b>					
Mining	14.16	6.4	2.1	9.4	- 8.3
Manufacturing	75.53	89.4	46.8	85.6	85.6
Electricity	10.32	4.2	21.2	5.0	22.6
<b>In terms of Use-based classification</b>					
Basic goods	45.68	16.2	64.8	27.8	65.7
Capital goods	8.83	52.2	-52.9	30.2	-12.0
Intermediates	15.69	3.7	24.1	13.6	-3.3
Consumer goods	29.81	28.0	64.0	28.4	49.4
Durables	8.46	32.7	7.3	23.0	21.3
Non Durables	21.35	-4.8	-3.3	5.5	28.1

Source: Economic Division (2011), Department of Economic Affairs.

Overall growth during April-December 2011 was 3.6% compared to 8.3% in the corresponding period of the previous year. In terms of the structured industry components, there was a contraction in production in the mining sector leading to a negative contribution to growth (-8.3%). Within the electricity sector, there was an improvement in growth from 5% in April - December 2010 to 22.6% in April - December 2011. The manufacturing sector alone contributed with an impressive 85.6% (the same value as the previous year).

In terms of use-based classification of the IIP, the highest contribution to growth was from the basic goods segment (65.7%) followed by consumer goods (49.4%). Nevertheless, negative growth was observed in the capital goods (-12%) and intermediates (-3.3%) segments.

## Services

India has suffered deep transformations in its economic roots. From being an agriculture-based economy the country leverage its growth story embracing the knowledge-based economy.

For more than a decade, the services sector has been the key growth engine of the Indian economy playing an important role both in the domestic market and in the country's external economic interactions.



Over the last decade, it has been the largest attractor of FDI with over 20% of all FDI flowing into the sector. The sector contributed with a large share of 56.6% to India's GDP (Figure 5) and provides employment for 31% of the country's labor force being the principal source of employment in urban areas.

The services sector range from the most sophisticated information technology (IT) to trade, hotels, restaurants, transport, communication, financing, insurance, business services, etc., mapping growth in every segment of the sector.

Two of the largest and most challenging sectors driving the country's progress are education and healthcare services, but the key pillars of the services sector rely on IT, IT enabled Services (ITeS), financial services and retail.

There are estimates that spends over IT services, across the industry segments, will witness mass expansion in the years to come. For instance, IT spends by the Indian financial services sector is expected to reach USD 3.5 billion by 2014 (Zinnov, 2011).

According to NASSCOM, ITeS industry will earn around USD 225 billion by 2020, wherein 80% of the growth would come from the presently untapped sectors and regions. These projections clearly show that services sector growth would continue to be the major enabler of economic growth.

## Trade

Both exports and imports have been registering growth (Figure 8).

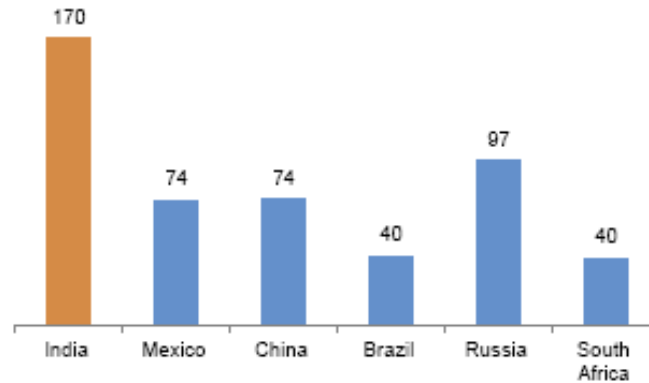


Source: Economic Survey 2011-12.

Despite a slightly slowdown in 2010, external trade has been growing all over the years and real exports have proven relatively resilient. In 2011-12, while global trade decreased by 2%, Indian exports grew by 23.5% and surpassed USD 300 bn.

According to World Bank data between the 1991 and 2010, India largely outperforms other fast growing economies in terms of change in trade openness (Figure 9).

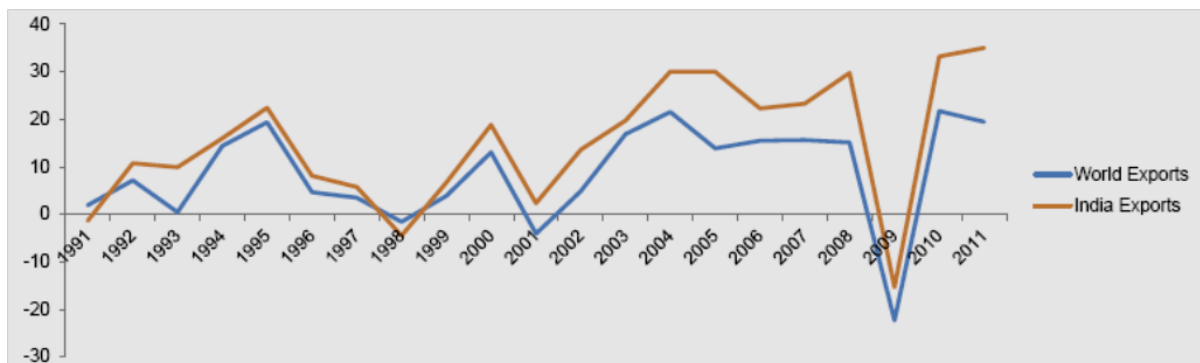
**Figure 9: Percentage change in trade openness between 1991 and 2010**



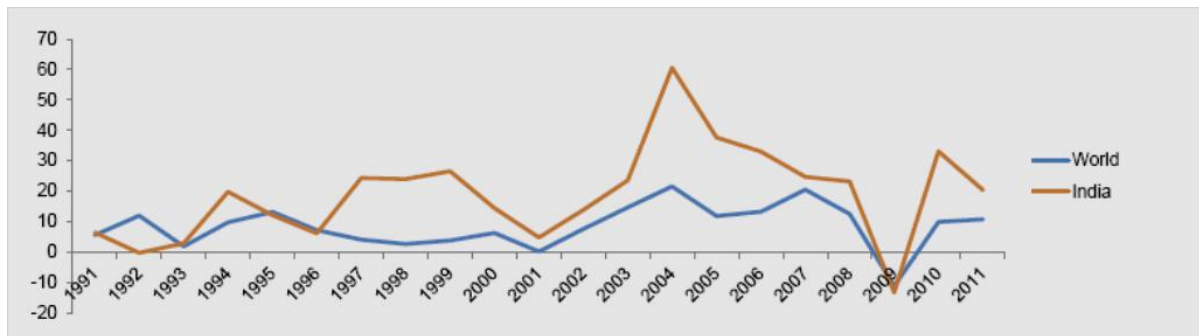
Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

As a result India’s export growth in both merchandise (Figure 10) and services has consistently outperformed world growth as well (Figure 11).

**Figure 10: % Change in merchandise exports**



Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

**Figure 11: % Change in commercial services exports**

Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

### **Inflation**

According to the Economic Survey 2011-12 (Figure 12), inflation is showing signs of slowing down to an average of 8.4% and is expected to dip further to an average of 7.5% in 2012-13.

**Figure 12: Inflation % Change in Whole-sale Price Index (WPI)**

Source: Economic Survey 2011-12.

### **Health and primary education**

The health and basic education pillar recorded 101<sup>st</sup> in contrast with Brazil (87<sup>th</sup>), Russia (68<sup>th</sup>) and China (32<sup>nd</sup>).

Despite improvements across the board over the past few years, public health and education quality remain a prime cause of concern. The nation is dealing with challenges in its primary education system, and is striving to achieve a 100% literacy

rate. However, there has been an increase in primary and secondary enrolments and in literacy rates as well.

Regarding Census of India Report (2011), the literacy rate for males stands at 82.14% and for females at 65.46%, but the gap between genders must be shortened if India wants to catch up China, where the literacy rate is more than 90%. Actually, if India wants to improve not only its economy but also the social system, the country should be focus on reducing the existing disparities, shortening the gap between rich and poor.

In this field, basic education should provide the foundation for learning, and secondary and tertiary education should develop core skills that encourage creative and critical thinking. In addition, it is necessary to develop an effective lifelong learning system to provide continuing education and skill upgrading to persons after they have left formal education in order to provide the changing skills necessary to be competitive in the new global economy.

In large countries such as India and Brazil, where the vast majority of people are unskilled and uneducated, the capabilities of the majority of the population must be enhanced for the economy to show substantial improvements. The success of countries such as China in achieving higher growth reveals the importance of a workforce with a basic education that can be trained.

### **Higher education and training**

Ranked 87<sup>th</sup>, India is still behind China (58<sup>th</sup>), Brazil (57<sup>th</sup>) and Russia (52<sup>nd</sup>). However, in terms of the quality of the education system India has a better performance when compared with the other BRIC countries placing 38<sup>th</sup>. The picture is similar in the quality of math and science education ranking (32<sup>nd</sup>), just surpassed by China with one rank of difference.

Better educated workers are generally more productive and help to boost the productivity of co-workers. Therefore, India must dramatically increase its supply of trained and highly educated workers to sustain its high growth trajectory over the next 30 years, create more and better quality jobs, and enable all of its people to

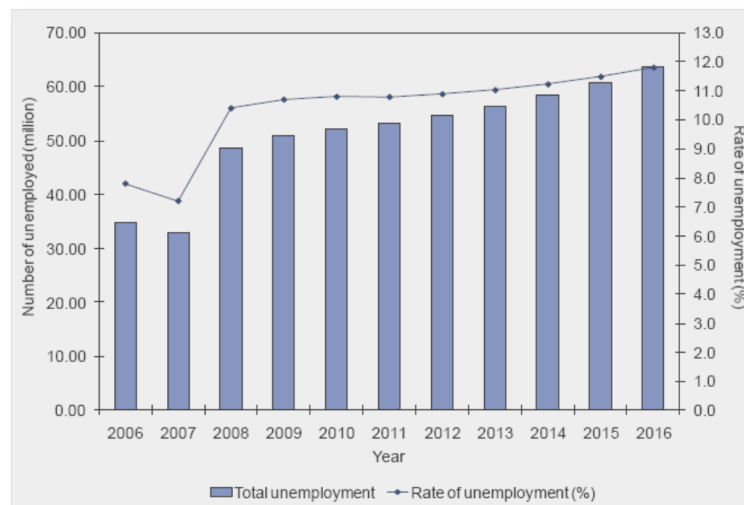
realize the aspirations created by the country's recent success. According to Dahlman & Utz (2005) well-educated and skilled people are essential for creating, sharing, disseminating, and using knowledge effectively. In order to achieve that, India needs to transform its education system to a more flexible one.

India has been a major seat of learning for thousands of years with some of the country's educational institutes – such as the Indian Institutes of Technology and the Indian Institutes of Management, to name a few – among the world's most renowned centers of learning. The country possesses a large pool of highly educated and qualified people who are making their mark, domestically and globally, in science, engineering, IT, and research and development (R&D).

Unfortunately, they make up only a small fraction of the population. India must leverage its technology strength and establish a R&D and innovation ecosystem that conducts cutting-edge and globally competitive research and innovation, meets the demands of a modernizing economy, boosts productivity in the informal sector (which employs around 94% of India's workforce), and contributes to the global good.

Nevertheless, India has not been obtaining the full economic benefit from this skill base, because of the mismatch between education and the labor market. Thus, the professional workforce that is emerging from India's higher education system often cannot find suitable employment due to a growing gap between their knowledge and real practice and to limited job opportunities in their fields, coupled with low salaries.

In fact, the number of unemployed people remains relatively high and has been increasing in the last years (Figure 13). The robust increase in GDP has not been helpful in improving employment prospects in the country and the robust part of India's growth is restricted to services and industrial growth, which have not contributed to increased employment. In addition, many qualified and talented young Indians are forced to attend substandard institutions or go abroad.

**Figure 13: Total unemployment and unemployment rate in India, 2006-16**

Source: Datamonitor (2011), “India Country Analysis Report”.

### Goods market efficiency

In fact, India ranked 70<sup>th</sup> in the goods market efficiency pillar being just surpassed by China (45<sup>th</sup>) among the BRIC group.

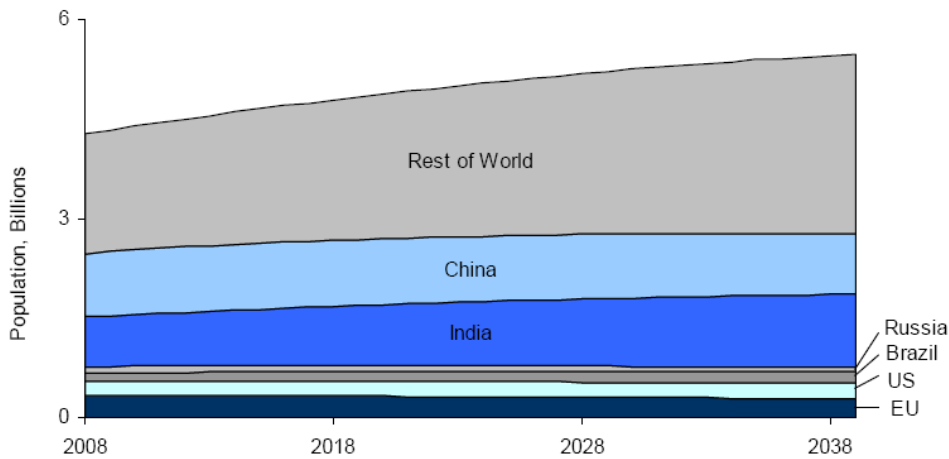
Countries with efficient goods markets are well positioned to produce the right mix of products and services given their particular supply-and-demand conditions, as well as to ensure that these goods can be most effectively traded in the economy. Market efficiency depends on demand conditions such as customer orientation and buyer sophistication. For cultural or historical reasons, customers may be more demanding in some countries than in others. This can create an important competitive advantage, as it forces companies to be more innovative and customer oriented.

### Labor market efficiency

The efficiency and flexibility of the labor market are also critical for ensuring that workers are allocated to their most efficient use in the economy and provided with incentives to give their best effort in their jobs.

Even though India ranked 81<sup>st</sup> on labor market efficiency, the country’s working age population pool is the largest in the world (India has a median age of 25 years), and is expected to increase significantly over the next four decades (Figure 14).

**Figure 14: The global labor force, 2008-2039**

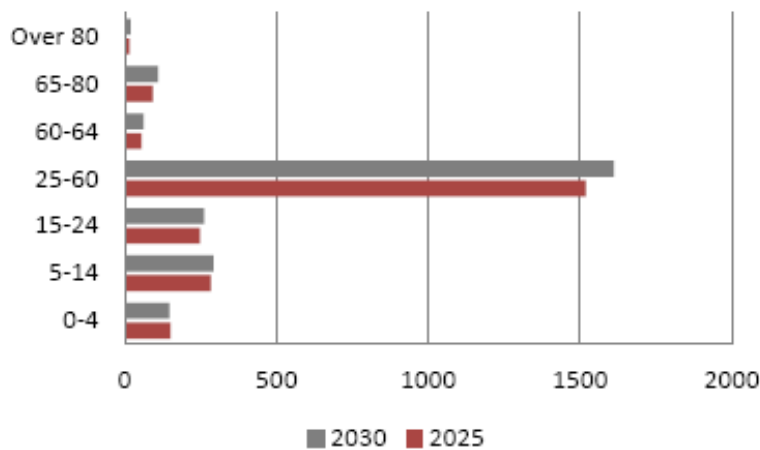


Source: Homi Kharas (2009), “India and the BRICs: Long-run Growth Potential”.

This provides India with a significant edge over competitors such as China. In addition, India’s working population is mostly English-speaking, making it a preferred investment destination for the services sector. The strong growth of the working age population is expected to provide significant and sustained impetus to economic growth.

Compared to the aging populations of developed countries in Western Europe and the US, in India those above the age of 65 account for just 5.3% of the population. In 2025, more than 55% of the population would be of working age which will continue to provide the country with a competitive advantage in the future (Figure 15).

**Figure 15: National population (million)**



Source: World Population Prospects, 2010, UN.

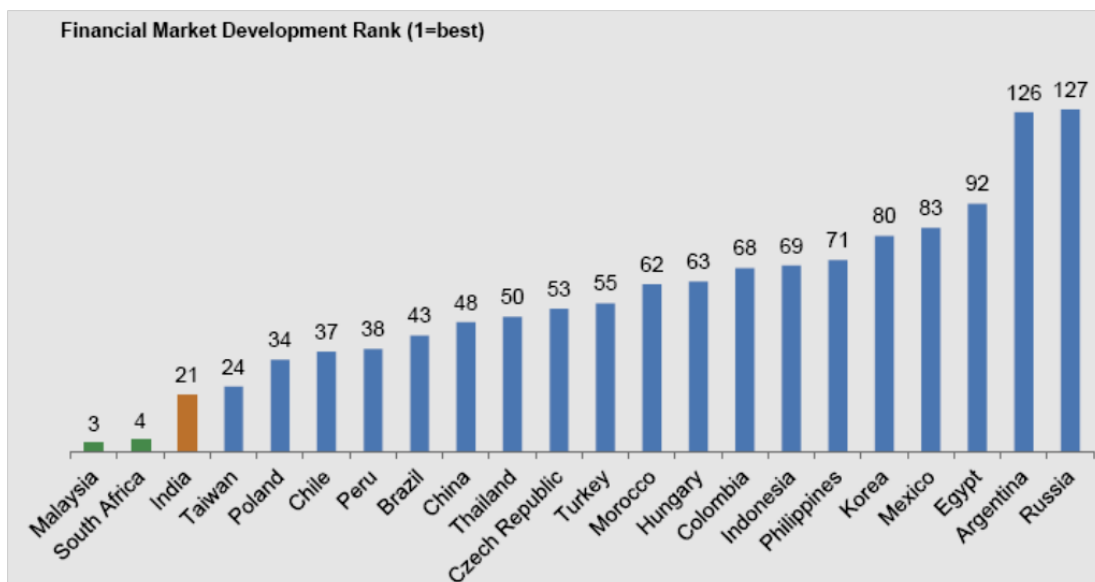
Furthermore, with bold reforms, India's enormous population of young people can be prepared to create knowledge and innovative goods, concepts, processes, and methods on a large scale. With appropriate reforms, India can convert its young population into knowledge workers, build an environment conducive to innovation, and tap into this source of long-term growth.

### Financial market development

The recent economic crisis has highlighted the central role of a sound and well-functioning financial sector for economic activities. An efficient financial sector allocates the resources saved by a nation's citizens, as well as those entering the economy from abroad, to their most productive uses.

Business investment is also critical to productivity. Therefore economies require sophisticated financial markets that can make capital available for private-sector investment. In this context India relies in a well-developed and sophisticated financial market (21<sup>st</sup>) that can channel financial resources to good use. India stands out from the other emerging economies, where Brazil was placed on 43<sup>rd</sup> position of ranking, China 48<sup>th</sup> and Russia 127<sup>th</sup> (Figure 16).

**Figure 16: Financial market development highlights**



Source: World Economic Forum, "The Global Competitiveness Report 2011-2012".



Furthermore, the Financial Development Index has been used as a tool for benchmark countries. The Index provides a score and rank for sixty of the world's leading financial systems and capital markets. It analyzes the drivers of financial system development that support economic growth in advanced and emerging economies.

In 2011 assessment there are no significant changes to report in respect with the top-ranked countries. Hong Kong SAR is the number one nation in the ranking followed by the United States with just 0.01 of score difference. Minor score differentials splits United States from the next five countries that score below it — United Kingdom, Singapore, Australia, Canada and the Netherlands.

In contrast, all BRIC nations have registered slight improvements on their rankings.<sup>8</sup> China moved up three spots to 19<sup>th</sup> place being the country with the highest rank among the BRIC group. Brazil moved up two spots (32<sup>nd</sup>) and Russia one spot (39<sup>th</sup>). India places an overall index at a 36<sup>th</sup> place improving, like Russia, one position.

Particular strengths lie in India's non-banking financial services (5<sup>th</sup>), with initial public offering (IPO) activity (5<sup>th</sup>), insurance (7<sup>th</sup>), and securitization (4<sup>th</sup>) being the primary drivers of the pillar's high score. Regarding the initial public offering activity in 2011-12, India performed well among BRIC nations, accounting for 85 IPO's that represent an amount of USD 10.65 bn. (Bloomberg, 2011).

India's strong financial intermediation is further bolstered by robust results in its foreign exchange (15<sup>th</sup>) and derivatives markets (20<sup>th</sup>). In fact, Asian markets have been witnessing faster growth in derivatives with a CAGR of 30% in contrast with 15% for America and 23% for Europe (WEF, 2011). In the Indian context, derivatives market is growing at a CAGR of 45% (Futures and Options Intelligence, 2011).

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<sup>8</sup> See Appendix C: "Financial Development Index Rankings of BRIC countries".

However, a low level of financial sector liberalization (56<sup>th</sup>), an inability to enforce contracts (57<sup>th</sup>), an underdeveloped infrastructure (56<sup>th</sup>), and a high cost of doing business (55<sup>th</sup>) all contribute to a weak institutional and business environment (both ranked 54<sup>th</sup>). Weakness in financial access (47<sup>th</sup>) is a reflection of India’s lack of retail access to capital (41<sup>st</sup>).

### Technological readiness

In today’s globalized world, technology is increasingly essential for firms to compete and prosper. In this pillar, India ranked 93<sup>rd</sup>, behind China (77<sup>th</sup>), Russia (68<sup>th</sup>) and Brazil (54<sup>th</sup>). However, India’s technological landscape has changed significantly, evolved through various phases since independence and receiving nowadays global recognition in some key areas. The highlight goes to the strengths side, especially for the combination between the strong knowledge base - which is the key driver of technology growth in India - and India’s cost advantage (Table 2).

<b>Current strengths</b>	<b>Current challenges</b>
<ul style="list-style-type: none"> <li>• Strong knowledge base</li> <li>• Cost advantage</li> <li>• Language</li> </ul>	<ul style="list-style-type: none"> <li>• Gross expenditure on R&amp;D remains below 1% of GDP</li> <li>• The talent pool requires further vocational training</li> </ul>
<b>Future prospects</b>	<b>Future risks</b>
<ul style="list-style-type: none"> <li>• Government policies promoting R&amp;D</li> <li>• Significant competitive advantage in biotechnology research</li> </ul>	<ul style="list-style-type: none"> <li>• Patents are on the rise, but the country lags behind its peers</li> </ul>

Source: Datamonitor (2011), “India Country Analysis Report”.

Despite all the achievements in the strengths telecom, broadband and biotechnology, the main focus in the technological landscape is the IT sector - one of the fastest growing sectors in the country.

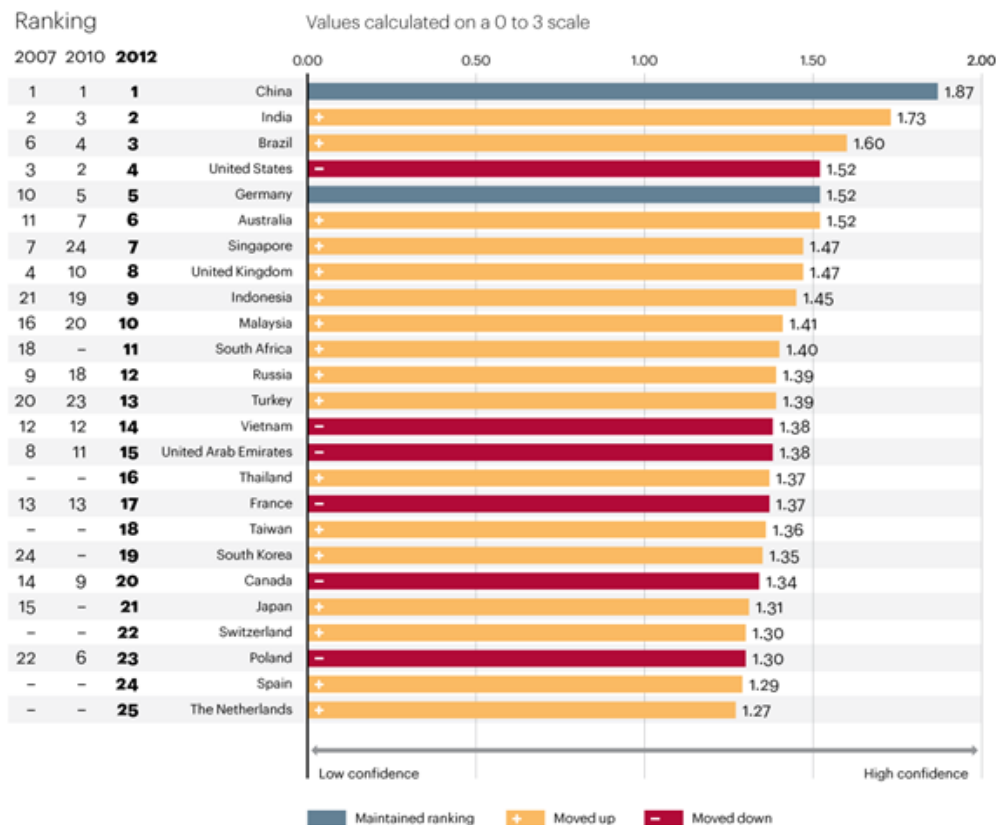
The early 1990s were responsible for the emergence of many IT and IT-enabled Services players from India into the global arena, and the country is now recognized as a force to be reckoned with in the international markets. India has also emerged as a talent hub, with a vast scientific and managerial talent pool that is available at significantly lower costs than onshore locations in the US and Western

Europe. For instance, the average salary of a researcher in India is USD 11,526, which is around 15% of a researcher's salary in the US (USD 75,556). The IT and IT-enabled Services segments have made a significant contribution to the country's GDP in recent times and factors such as government policies and the strong talent pool are expected to drive the sector forward in the future. Nevertheless, key areas of concern such as the appreciating rupee and the country's weak intellectual property rights regime remain.

### **Market size**

As regards the market size, traditionally, the markets available to firms have been constrained by national borders. In the era of globalization, international markets have become a substitute for domestic markets, especially for small countries. Moreover, it is well documented in existing literature that trade openness is positively associated with growth. Therefore, the size of the market (where India ranked 3<sup>rd</sup>) affects productivity since large markets allow firms to exploit economies of scale and attract investors.

In line with the above mentioned and considering the economic turbulence in the developed world, with Europe and the United States trying to overcome the global recession and therefore a period of economic uncertainty, it is interesting to point out the high rankings of emerging markets in terms of preferred FDI destination. According to the 2012 A.T. Kearney Foreign Direct Investment Confidence Index, India regained 2<sup>nd</sup> place in terms of global FDI in 2012, once FDI flows have picked up slightly in the past two years as investors cautiously reenter the markets (Figure 17).

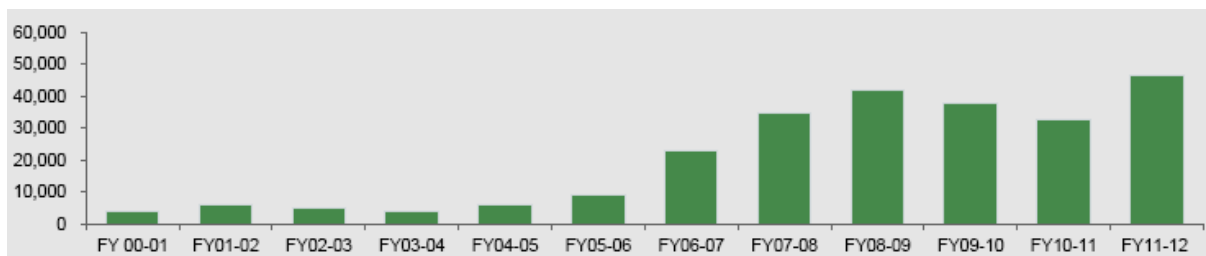
**Figure 17: 2012 FDI Confidence Index**

Source: 2012 A.T. Kearney Foreign Direct Investment Confidence Index.

According to A.T. Kearney study, emerging markets have eclipsed developed countries in terms of FDI inflows, absorbing more than half of global FDI inflows for the first time in history, and now comprise more than half of the Index's top 25 countries. This trend will likely accelerate over the next three years and perhaps beyond reflecting the investor confidence in India.

Although the overall optimism as far as the country's investment climate is concerned, overall FDI inflows dropped by 29% in 2010, which is attributed to the tightening of the FDI regulatory framework in recent years, as well as the global economic slowdown (Figure 18).

In 2011-12 total foreign investment was around USD 74 bn. and the gross fixed investment crossed USD 616 bn., representing 34% of GDP, continuing the services sector to be the highest attractor of foreign investment followed by the telecommunications sector.

**Figure 18: Inward FDI (USD bn.)**

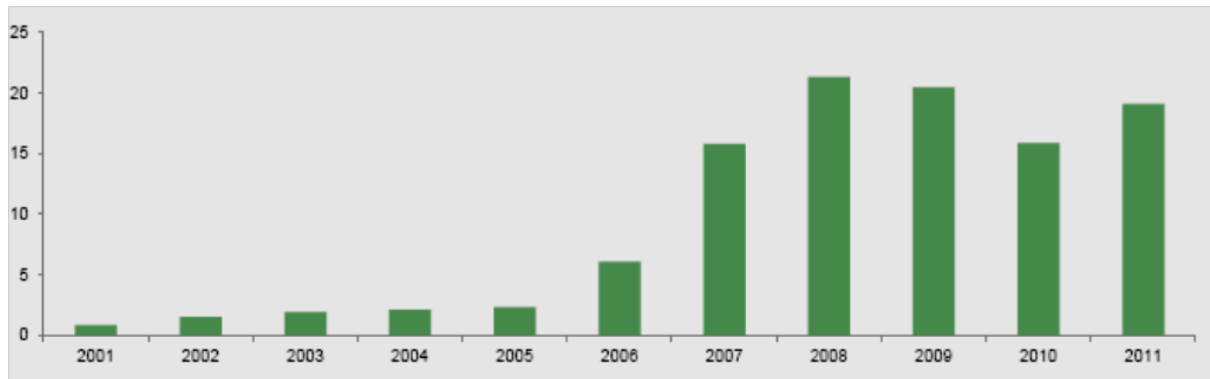
Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

Considering a wider period of analysis and the Economic Survey 2011-12 projections, India’s industrial sector is expected to witness capital expenditure worth INR 22 trillion (USD 483.5 billion) during 2010–13. In the same period, electricity sector is expected to witness the highest capacity addition worth INR 4.4 trillion (USD 96.6 billion), steel (INR 2,370 billion/USD 52.1 billion), roadways (INR 1,606 billion/USD 35.3 billion), telecommunications (INR 1,546 billion/USD 34 billion) and petroleum products (INR 1,411 billion/USD 31 billion).

Despite regulatory hurdles, India continues to be among the preferred destinations for FDI due to the country's high growth and improved economic performance, continued liberalization, its market potential, and the growing competitiveness of Indian IT industries.

Moreover, transparency level for conducting business in India is superior to many other emerging economies and as regards investor protection India is side by side with the advanced economies. Among emerging markets India has one of the most favorable tax regimes, a very crucial factor for business growth and compares favorably with three of four of the BRIC countries in the ease of starting a business.

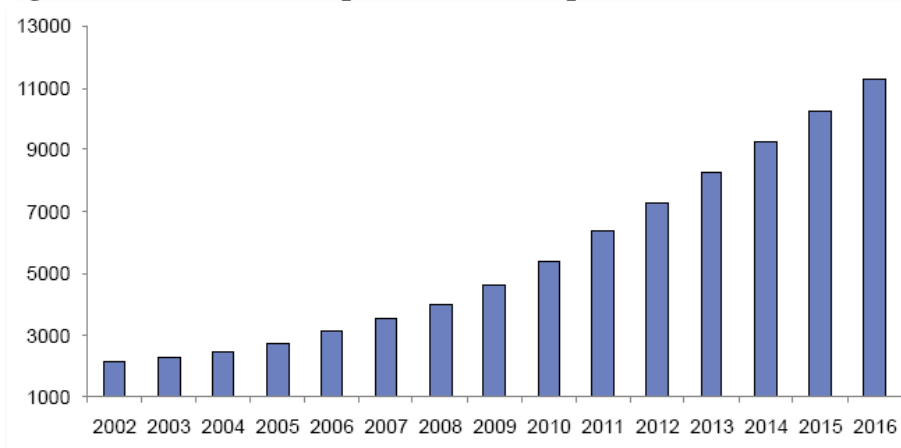
On the other hand, outward FDI from India has also been increasing, reflecting the global ambitions of Indian companies (Figure 19).

**Figure 19: Outward FDI (USD bn.)**

Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

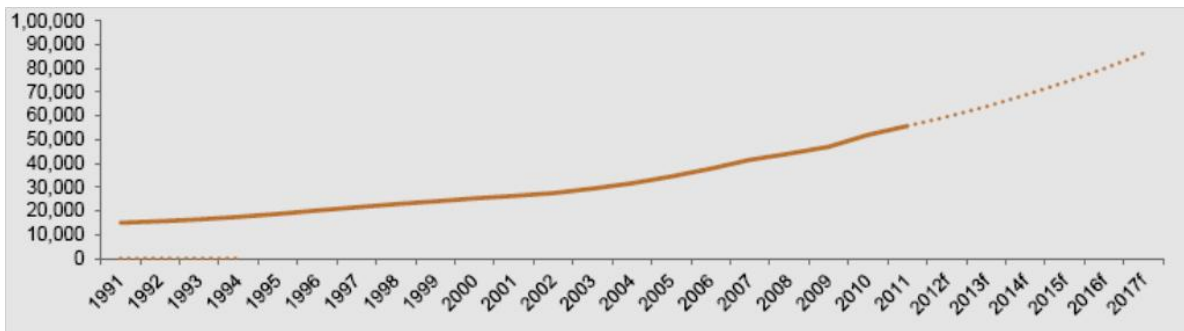
In addition, the domestic market is expected to expand significantly over the next 20 years. That expansion will be majorly driven by rising disposable income and improving penetration. Disposable income per household stood at USD 5,386 in 2010, which is still less than many of the developed economies.

However, it is a considerable improvement over the 2000 figure of USD 2,011, having grown during 2000-2010 at an average rate of 13% (Figure 20).

**Figure 20: Household disposable income, per household (2002-2016)**

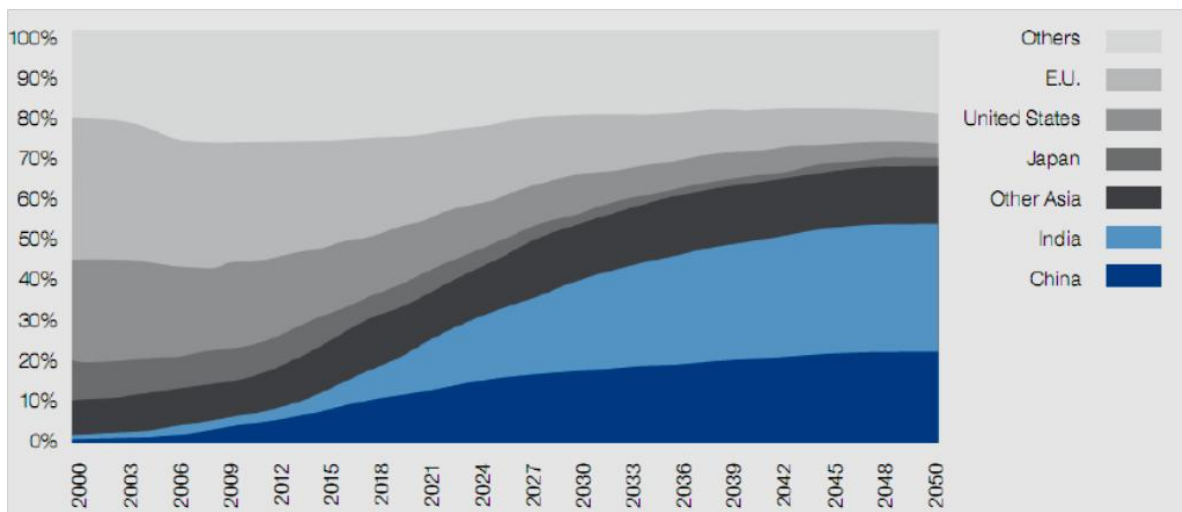
Source: Datamonitor (2011), “India Country Analysis Report”.

In fact, after 1991 the country experienced a rapid increase in per capita income and is expected to maintain its pace of growth (Figure 21).

**Figure 21: Per capita income (in Rs.)**

Source: IMF World Economic Outlook, April 2012.

In turn, this increasing per capita income will lead to an increasing share of India in world consumption (Figure 22).

**Figure 22: Percentage Share of global middle class consumption 2000-2050**

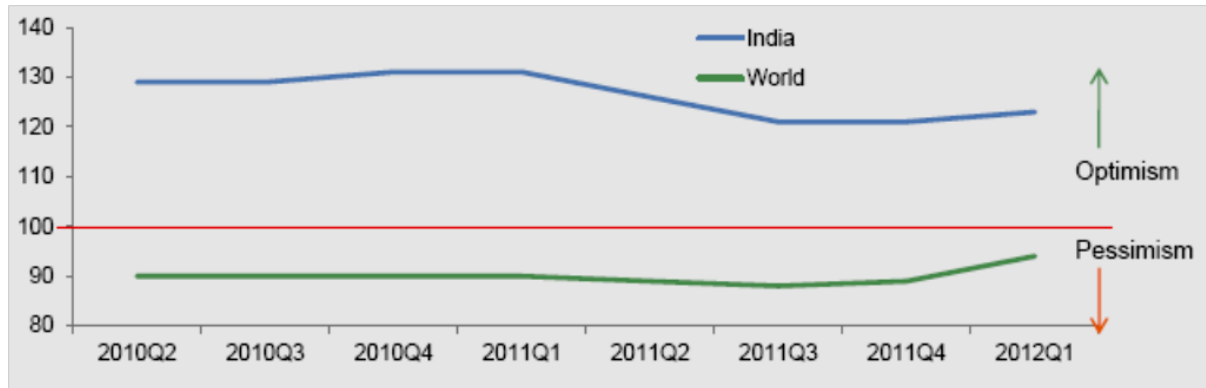
Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

Nowadays India comprises about 5% of global middle class consumption while Japan, the United States, and the European Union cover fully 60%. Middle-class demand is expected to grow from USD 21 trillion in 2009 to USD 56 trillion by 2030, with 80% of that growth coming from Asia. In the end, by 2050 India will comprise about 40% of global middle class consumption.

One of the reasons for robust revival after global recession was high domestic consumption and demand. According to the latest Nielsen Global Consumer Confidence Report (Q1 2012), Indian consumers continue to be the most confident

across the globe (123 index score), being consistently above the world average by revealing optimism over job prospects and state of personal finances (Figure 23).

**Figure 23: Consumer Confidence Index Evolution**



Source: Nielsen Global Consumer Confidence Index (2012).

Therefore beyond investment, as stated before, private consumption will also drive economy in the next years since it is expected to cross approximately USD 2,020 bn. by 2016-17 (Economic Survey 2011-2012).

With consistent increases in disposable income, India has witnessed a gradual shift towards discretionary spending in total consumption expenditure. Consumption expenditure per household grew at a rate of 16% in 2010. India has one of the youngest consumer segments in the world, which presents strong opportunities for consumer goods companies.

On the other hand, global economic slowdown has stressed Government expenditure and house-hold savings. While government expenditure is driving growth, it is expected to maintain level as a percentage of GDP. In 2011-12 fiscal deficit was around 5.9% and it is targeted to be 5.1% of GDP in 2012-13 (Economic Survey 2011-2012).

India has the second highest saving rate as a per cent of GDP in the world (IMF World Economic Outlook, April 2012). By having a high saving rate, the economy is more resilient to renewed bouts of uncertainty in the global economy and would continue to remain robust in medium to long term.



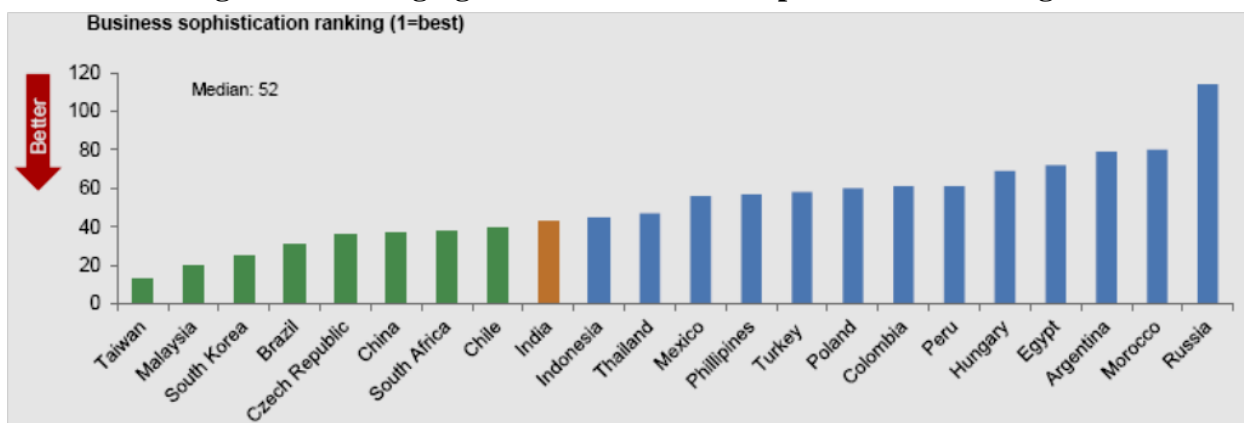
The country has been focusing attentions on inclusive growth and reduction of regional, social and economic disparities. The rural consumer market is rapidly growing as 69% of the Indian population is concentrated in rural areas. In 2009-10, the Monthly Per Capita Expenditure (MPCE) in rural India was USD 20.69 bn. with the households spending more on consumer goods like durables, beverages and services such as healthcare, education, entertainment, banking and finance (India Retail market, August 2010, Deloitte, Household consumer expenditure survey for 2009-10, released by the National Sample Survey Office (NSSO), 66<sup>th</sup> round of the National Sample Survey).

This increase will lead to inclusive growth, tapping the bottom of the pyramid (BOP).<sup>9</sup> Nevertheless, according to the Twelfth Five Year Plan (2012-17)<sup>10</sup> in order to aid the inclusive growth an increase in infrastructure investment is needed.

### Business Sophistication

The financial market development and the market size itself together boast reasonably sophisticated businesses. In this context India ranks at 43<sup>rd</sup> position, higher than other emerging economies (Figure 24).

**Figure 24: Emerging economies business sophistication ranking**



Source: Department of Economic Affairs, Government of India (June 2012): “India the incredible investment destination”.

<sup>9</sup> The concept of BOP was first introduced by Stuart L. Hart and C. K. Prahalad in 2002 in their widely acclaimed article, “The Fortune at the Bottom of the Pyramid”.

<sup>10</sup> The main goal of the Twelfth Five Year Plan (2012-17) would be “faster, sustainable and more inclusive growth”.

There is no doubt that sophisticated business practices are conducive to higher efficiency in the production of goods and services. Indeed, the quality of a country's overall business networks and the quality of individual firms' operations and strategies are two elements that are intricately linked concerning business sophistication.

When companies and suppliers from a particular sector are interconnected in geographically proximate group's efficiency is heightened, greater opportunities for innovation in processes and products are created, and barriers to entry for new firms are reduced.

Thus, individual firms' advanced operations and strategies (branding, marketing, distribution, advanced production processes, and the production of unique and sophisticated products) spill over into the economy and lead to sophisticated and modern business processes across the country's business sectors.

### **Innovation**

Although less-advanced countries can still improve their productivity by adopting existing technologies or making incremental improvements in other areas, for those that have reached the innovation stage of development this is no longer sufficient for increasing productivity. Firms in these countries must design and develop cutting-edge products and processes to maintain a competitive edge. This requires an environment that is conducive to innovative activity, supported by both the public and the private sectors, reason why public private partnerships (PPP) have emerged as a tool for effecting innovation and it is expected that this trend will continue in future.

In particular, it means sufficient investment in research and development (R&D), especially by the private sector; the presence of high-quality scientific research institutions; extensive collaboration in research between universities and industry; and the protection of intellectual property. These are the critical factors that enable innovation.

According to Ben Verwaayen, Alcatel-Lucent Chief Executive Officer, “Innovation has always been an important element in the relative success of societies - economically, intellectually, and socially” and it can be defined as “the conversion of information into valuable knowledge and ideas and subsequently into a significant benefit that may take the form of new or improved products, processes, or services.” (OECD & Eurostat, 2005).

Accordingly, product, process and organizational innovation are driving profitability and competitiveness of India in the global scenario and the country was ranked 38<sup>th</sup> in the last pillar of the GCI – Innovation. Francis Gurry, World Intellectual Property Organization (WIPO) General Director, considers that “Innovation is a central driver of economic growth, development, and better jobs. It is the key that enables firms to successfully compete in the global marketplace, and the process by which solutions are found to social and economic challenges, from climate change to the fight against deadly diseases. It is the source of improvements to the quality of our everyday life”.

Thus, over 80% of Indian large firms and SMEs have achieved greater competitiveness, profitability, market share and reduction of costs due to innovation. Regarding the type of innovation implemented, 37.3% of firms have introduced breakthrough innovation, while 76.4% have introduced incremental innovation (National Knowledge Commission).

The Global Innovation Index (GII) 2011 has been used as a tool for benchmark countries specially the ones comprising the BRIC group. The GII relies on two sub-indices, the Innovation Input Sub-Index and the Innovation Output Sub-Index, each built around pillars. Five input pillars capture elements of the national economy that enable innovative activities: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication. Two output pillars capture actual evidence of innovation outputs: (6) Scientific outputs and (7) Creative outputs. Each pillar is divided into sub-pillars and each sub-pillar is composed of individual indicators.<sup>11</sup>

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<sup>11</sup> See Appendix D: “Framework of the Global Innovation Index 2011”.

The Top 10 countries in the GII 2011 assessment accounted for the presence of six European countries. Switzerland occupied the first position due to its strong position in both the Input and Output Sub-Indices (3<sup>rd</sup> and 2<sup>nd</sup>). Sweden (2<sup>nd</sup>) followed the top by being the only country in the top 10 to be among the 10 most efficient innovators (ranked 6<sup>th</sup> on the Innovation Efficiency Index). Singapore (3<sup>rd</sup>) had shown its strongest performance in the Input Sub-Index which allowed moving up four positions according to the last year edition.

As regards India ranking in the GII, the country ranked 62<sup>nd</sup>. India's position is dragged down by its poor performance on the Input Sub-Index side (87<sup>th</sup>), with the best pillar being market sophistication which ranked 45<sup>th</sup>.

On the other hand, the Innovation Output Sub-Index constitutes India's strength side (44<sup>th</sup>) with the creative outputs denoting a good performance (38<sup>th</sup>). In addition, India ranked 9<sup>th</sup> in the Innovation Efficiency Index.<sup>12</sup> Among the top 10 countries figuring in the Innovation Efficiency Index, three of them are BRIC countries (Brazil, India, and China), with the fourth one, Russia, coming only at 52<sup>nd</sup> place.

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<sup>12</sup> The Innovation Efficiency Index is calculated as the ratio of the Output over the Input Sub-Indices.

## **Chapter 4**

### **The Indian Information Technology (IT)/ IT enabled Services (ITeS) Industry**

#### **4.1. Advantage India**

As per a NASSCOM study named “The IT-BPO Sector in India – Strategic Review 2011”, India has attained a global leadership position thanks to its cost effectiveness (over source countries), cross value chain (IT, call center, processing, R&D, analysis, etc.), multiple location options<sup>13</sup>, quality performance, resource pool and time zone (global and 24/7 delivery capability).

Improved cost of operations was the key factor driving the growth of India’s overall outsourcing story. Increasing pressure on bottom-line has led companies to focus on cost effectiveness. It has been concluded, based on data shared by NASSCOM, that for multinational corporations sourcing from India, cost savings delivered are in the range of 25 to 60% of the company’s original costs. For instance, the cost of employing an engineer in India is around 20 to 40% of the cost in the EU for the similar skill sets. Alike, the sales, general and administrative costs are about 80% of the similar costs in EU. And finally, the offshore billing rates are thereby about 50 to 70% lower than that of the EU.

Regarding the quality performance, India has the largest number of quality certifications among in the world, with demonstrated process quality, adherence to standards and expertise being the key to India’s overall value proposition. The great majority of Indian companies have aligned their operations to meet international standards, in order to establish credibility in the global market.

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<sup>13</sup> See further on the section: “Geographical Locations”.

One of the other major advantages is the availability of skilled talent which has been a major reason behind India's emergence as global outsourcing hub. There is a 3.7 million addition to talent pool every year combining a mix of young and experienced professionals (IBEF, November, 2011, "IT & ITeS"). This growing talent pool of India has the ability to drive the R&D and innovation business in the IT-ITeS arena.

Finally, in order to overcome the margin pressures, global multinational corporations need to take a closer look at offshore development options to reduce costs. The offshore development model enables companies to ensure increased productivity with a 24/7 operation model. India offers a clear advantage over other 'onshore' or 'near shore' destinations, since it has a time zone advantage of approximate 10 hours regarding US and 5 hours regarding Europe.

## **4.2. Market Overview**

### **4.2.1. Contributions of the IT/ITeS industry to India's economic growth.**

The Indian IT/ITeS industry has contributed to the growth and development of the country in terms of various economical and social aspects. The current and evolving role of IT/ITeS industry in India's economy is well established. The sector is proving to be the major growth pole within the services sector, which in turn drives several positive direct impacts on the economic scenario like the growing share of the national GDP, the boosting of foreign exchange earnings and employment generation.

On the other hand, the contribution of IT/ITeS industry to the country's economic growth and development has also resulted in certain wider impacts. Those indirect impacts range from driving growth of other sectors to boosting India's image in global markets.

In fact, apart from contributing to the growing income of its direct stakeholders the IT/ITeS industry has had a multiplier effect on other sectors of the economy.

The industry has also encouraging balanced regional growth by gradually spreading their business operations to smaller Tier II/III cities. Besides generating revenue and employment, the industry is also responsible for improvements in the supply of talent pool and development of physical and social infrastructure.

The indirect employment generation is other issue that positively impacts the economic landscape. According to NASSCOM, for every job created in the sector, four additional jobs are created in the economy.

While IT/ITeS continues to be the favorite sector for Private Equity (PE)/Venture Capital (VC) activity, other sectors, such as healthcare, manufacturing and financial services have also benefitted since now they are able to access this source of funding.

The shift of focus from physical capital to a knowledge-based one and the aforementioned fuelling of the growth of PE/VC funding enabled a large number of Indian first generation entrepreneurs to try their own business.

Since India competes at a global scale, IT/ITeS companies have started to adopt the highest quality standards improving their products and services. Thus, the brand “India” has received national and international recognition. Forsooth, it was with the advent of IT/ITeS industry that the world began to recognize that Indian products and services could also compete with global players on quality parameters. Therefore, the remarkable industry performance boosted the image of India in the global market.

Regarding the main contributions to the workforce development, the industry had a positive impact on the employee friendly work environment and skill enhancement within organizations. On the other hand, and besides being the largest employer in the organized private sector, the IT/ITeS industry also encourages employment diversity at different levels. The impact of employment practices adopted by IT/ITeS companies extends from creating employment opportunities in smaller towns, encouraging employment of people with different abilities, opening opportunities for non-technical personnel, promoting women empowerment, providing high growth opportunities for the youth and employment for “out of the mainstream” candidates.

The fast growing IT/ITeS industry has been struggling with several issues concerning availability and quality of talent. The industry has responded to this issue by launching initiatives for human resource development such as workforce training (through collaboration with educational institutes), promoting higher education (through scholarships and tie-ups with educational institutes) and improving work environment (by providing recreational facilities and work-life balance). Most importantly, these

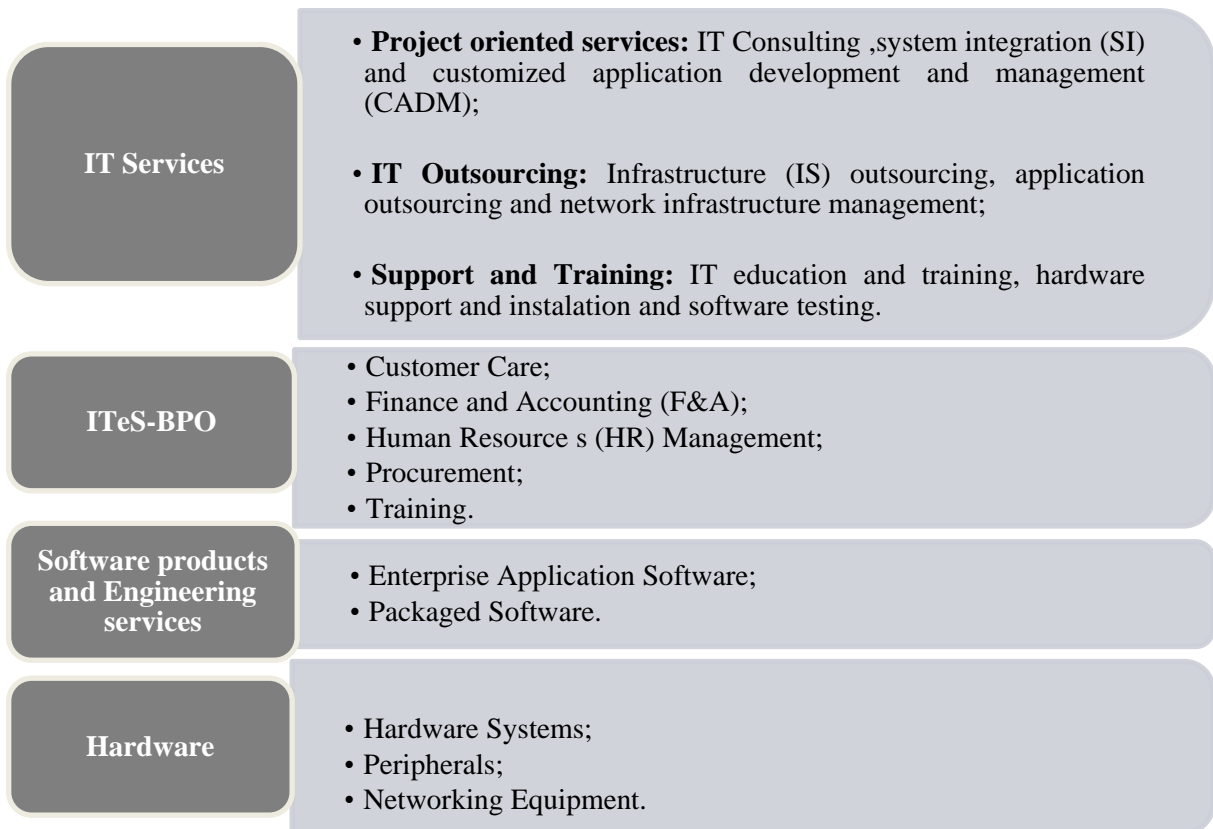
contributions to the workforce development are reflected in overall talent development in the country.

#### 4.2.2. Composition

In fact, it is not easy to categorize the Indian IT/ITeS Industry mainly due to the wide variety of ways the terms IT, IT Services, ITeS and BPO had been mixed in the literature. These words are often used inter-changeably and therefore there is an absence of a consensus in the literature.

In this study, the definition of IT (Information Technology) is the common term for the entire spectrum of technologies for information processing, including software, hardware, communications technologies and related services. In general, IT does not include embedded technologies that do not generate data for enterprise use. The Indian information technology (IT) / IT enabled Services (ITeS) industry is categorized into four broad segments (Figure 25).

**Figure 25: Indian IT/ITeS Industry Composition**



Source: NASSCOM and the CII - PwC report (2011): “Indian IT/ITES Industry – Changing landscape and emerging trends”.



As previously mentioned, among these four segments, only the first two - IT Services and IT enabled services (ITeS - BPO) – constitute the aim of this study. Thus, both the Software products and Engineering services and the Hardware segments are excluded from any analysis. Hereupon, a brief definition of IT Services and ITeS-BPO is given in order to avoid misunderstandings.

IT Services refers to the application of business and technical expertise to enable organizations in the creation, management and optimization or access to information and business processes. It can be segmented by the type of skills that are employed to deliver the service (design, build, run). There are also different categories of service: business process services, application services and infrastructure services. If these services are outsourced, they are referred to as business process outsourcing (BPO), applications outsourcing (AO) and infrastructure outsourcing (IA) (Gartner, 2012).

Therefore, the IT services segment it is comprised of project oriented services - IT consulting, system integration (SI), customized application development and management (CADM); IT Outsourcing - infrastructure (IS) outsourcing, application outsourcing and network infrastructure management; and support and training - IT education and training, hardware support and installation and software testing.

Business Process Outsourcing (BPO) as a phenomenon was first introduced in the mid 1990s and is an even more comprehensive way of outsourcing. It can be defined as “the delegation of one or more business processes to an external provider that, in turn, owns, administrates and manages the selected processes based on defined and measurable performance metrics” (Gartner, 2012).

The classic example of BPO is the outsourcing of call center facilities, but many more processes are being delivered in the same way. Those outsourced business processes include, for instance, customer care, finance and accounting (F&A), human resources (HR) management, procurement, training and other administrative or customer-facing business functions.

However, in India, very often the business processes are information technology-based, and are referred to as ITeS-BPO, where ITeS stands for Information Technology

Enabled Services. Indeed the range of services offered by the Indian IT services and ITeS industry range from simple tasks to increasingly complex activities and span across the entire value chain of a typical organization.<sup>14</sup>

#### **4.2.3. Size**

Over the past two decades, the Indian information technology (IT) / IT enabled Services (ITeS) industry has been one of the great success stories of modern India putting the country on the global map.

With a compounded annual growth rate (CAGR) of over 24% in the last decade, the Indian IT/ITeS industry has emerged as one of the fastest growing industries in India being considered the country's premier growth engine, contributing around 5.6% to the country's GDP in FY 2010 and also providing direct employment to about 2.3 million people and over 8 million indirectly.

It remains one of the biggest sectors for wealth generation in the country. As per the industry body, NASSCOM, the sector is estimated to provide direct employment to 10 million and indirect employment to 20 million by 2020.

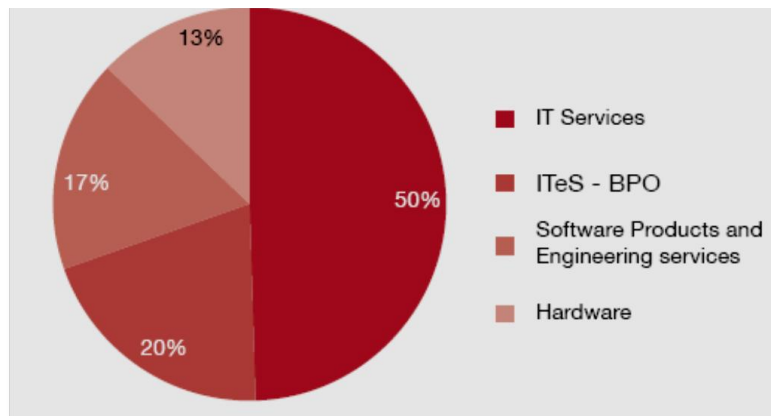
The four segments combined revenues represented a total of USD 73.1 billion in 2009-10, which represents a growth of 5.3% in contrast with the USD 69.4 billion in 2008-09. In 2011, the market size totalized USD 76 billion and is estimated that in 2020 represent a total of USD 225 billion, which reflects the industry potential and indicates that India will be in position to sustain its competitive advantage overtime (IBEF, November, 2011, "IT & ITeS").

The IT Services and IT enabled Services (ITeS-BPO) segments combined, constitute a share of 70% of the total industry revenues (Figure 26).

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<sup>14</sup> See Appendix E: "What gets sourced".

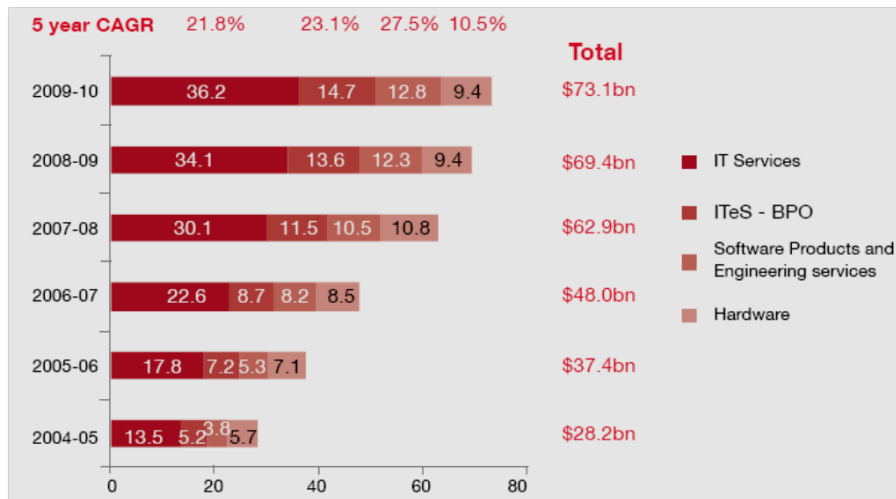
**Figure 26: Revenue share by main components**



Source: NASSCOM, 2011.

On the one hand, it is clear that IT Services continue to be the largest contributor to the industry, with a compounded annual growth rate (CAGR) of 21.8% from 2004-05 to 2009-10 and an impressive revenue share of 50% in 2009-10. On the other hand, despite a more modest revenue share of 20% in the same year, the ITeS segment has grown faster with a CAGR of 23% (Figure 27).

**Figure 27: Revenue contribution by main components (in USD billions)**



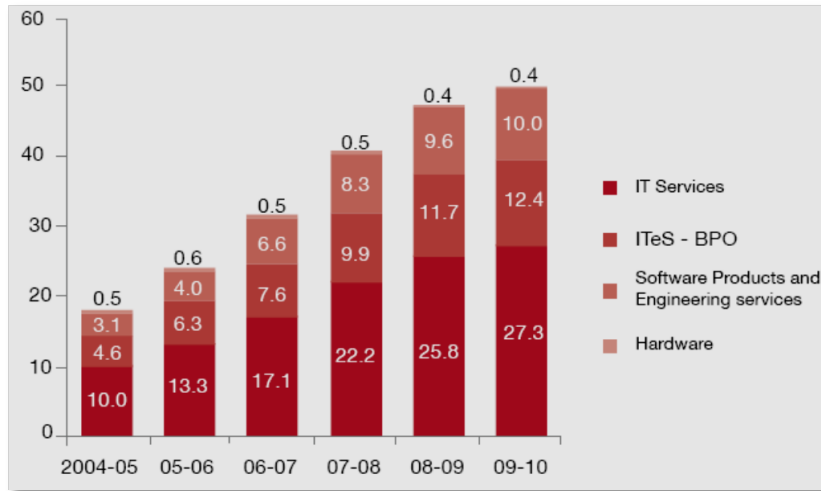
Source: NASSCOM, 2011.

#### 4.2.4. Export and Domestic Market

India has become one of the fastest IT markets in the world, especially due to its increased IT spending in the last few years. However, in terms of revenue contribution there is a great difference amongst export and domestic market.

The export revenues were at USD 50.1 billion for 2009-10, accounting for over 68% of the total Indian IT/ITeS Industry revenues. In the last years the export revenues have grown at a CAGR of 22.4% (Figure 28).

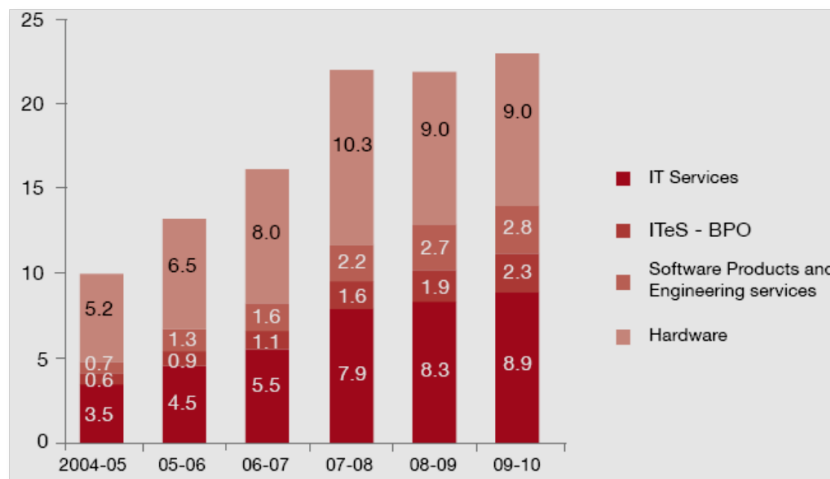
**Figure 28: Component-wise contribution - Export revenues (in USD billions)**



Source: NASSCOM, 2011.

On the other hand, the domestic market has grown from USD 10 billion in 2004-05 to USD 23 billion in 2009-10 at a CAGR of 18.1% (Figure 29).

**Figure 29: Component-wise contribution – Domestic revenues (in USD billions)**



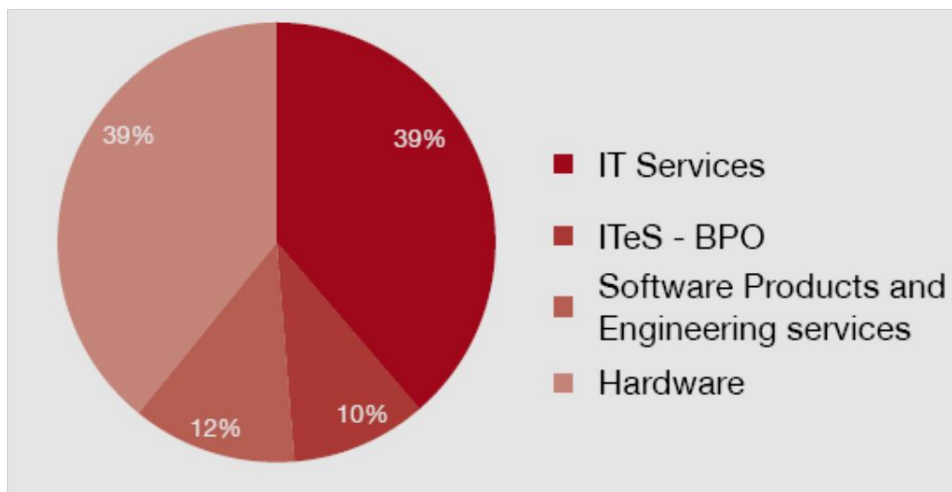
Source: NASSCOM, 2011.

This lag in CAGR is explained because before the slowdown the large companies had not focused on the domestic market. Since after slowdown there has been an increased focus on the domestic market growth was therefore more prominent.

While Hardware remains the segment with highest expression in the domestic market (39% of the total revenues in 2009-10), in terms of export revenue contribution represents only 1%. This high expression was due the rising penetration of personal computers in India. However, despite leading the domestic market, its share has dropped considerably over the last few years (from around 49% in 2005-06 to 39% in 2009-10).

IT Services segment benefit from Hardware share decline, increasing its share from 34% in 2005-06 to 39% now (Figure 30). The segment registered a growth rate in 2009-10 of about 7.2%, which was driven mainly by an increased demand in the project oriented services, namely system integration (SI) and custom application development and management (CADM) services line space.

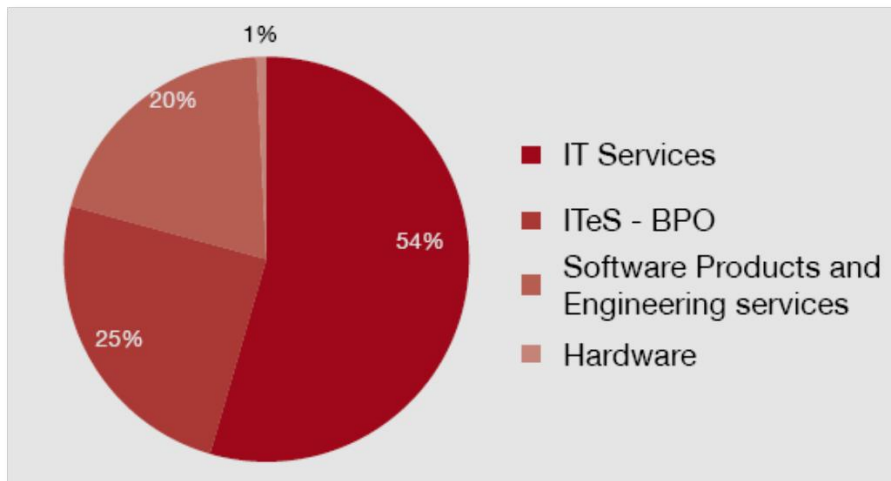
**Figure 30: Domestic revenue contribution – 2009-10**



Source: NASSCOM, 2011.

Moreover, IT Services is the major contributor (54%) to the export revenues with USD 27.3 billion in 2009-10, with a CAGR of 22.2%. Over the years, the ITeS/BPO segment has been the second largest segment in the Indian IT/ ITeS sector (with export revenues of USD 12.4 billion) and in terms of growth, the second fastest (Figure 31).

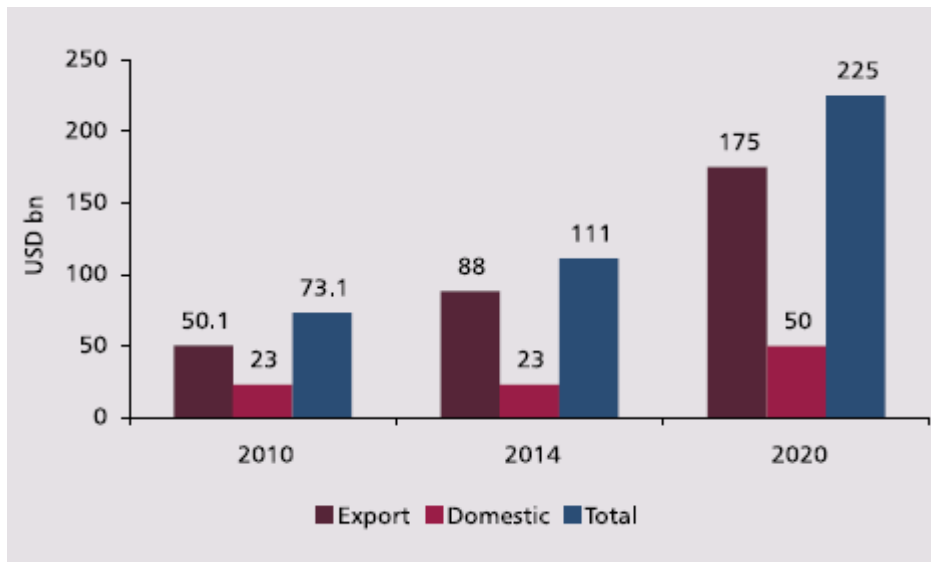
**Figure 31: Export revenue contribution – 2009-10**



Source: NASSCOM, 2011.

Therefore, in 2010, the overall Indian IT/ITeS industry has shown revenue potential either in domestic market (USD 23 billion) either the export market (USD 50.1 billion). According to NASSCOM this trend will continue in the next upcoming years reflecting the potential and prosperity of the industry (Figure 32).

**Figure 32: Indian IT/ITeS Revenue Potential**



Source: NASSCOM Strategic Review 2010, Perspective 2020.

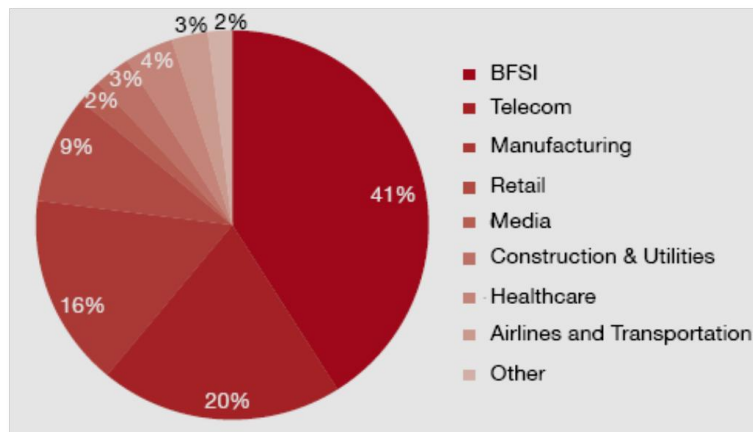
As per the AT Kearney Global Services Location Index (GSLI) 2011<sup>15</sup>, India has emerged as a top destination for off shoring, occupying the lead with a total score of 7.01. The measures are based on three main criteria such as Financial Attractiveness (3.11), People Skills & Availability (2.76) and Business Environment (1.14). Following India on the top are China (2<sup>nd</sup>) and Malaysia (3<sup>rd</sup>). Regarding the top 10, seven of the countries ranked are from Asia.<sup>16</sup>

However, each country has specific niches in which they compete. India, with its first-mover advantage and deep skill base, remains the unquestionable leader in the Index. India alone has proven able to compete in all dimensions. In the last years and presently it is the number one destination for BPO and IT services where maintains the lion’s market share.

#### 4.2.5. Key Verticals

The Banking, Financial Services and Insurance (BFSI) is the dominant vertical contributing 41% to India’s total IT/ITeS exports. The second largest contributor is Telecom with a share of 20%, followed by Manufacturing with 16%. Thus, about 77% of the total exports are concentrated across three sectors: BFSI, Telecom and Manufacturing (Figure 33). Nevertheless, smaller sectors are expected to balance these disparities.

**Figure 33: Export contribution by key verticals – 2009-10**



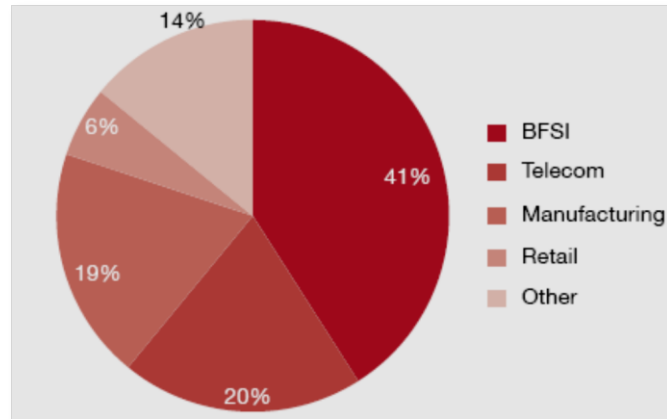
Source: NASSCOM, 2011.

<sup>15</sup> A.T. Kearney is a global management consulting firm. Every year they publish Global Services Location Index (GSLI) to rank top 50 countries in the most attractive off shoring destinations.

<sup>16</sup> See Appendix F: “A.T. Kearney Global Services Location Index, 2011”.

In terms of contribution by key verticals the domestic market is a mirror of what happens regarding the export scenario. BFSI assumes the lead with a 41% share as well, followed by Telecom and Manufacturing verticals with a share of 20% and 19% respectively. Again, the top three sectors account for 80% of the total IT spent in the Indian market (Figure 34).

**Figure 34: Domestic contribution by key verticals – 2009-10**

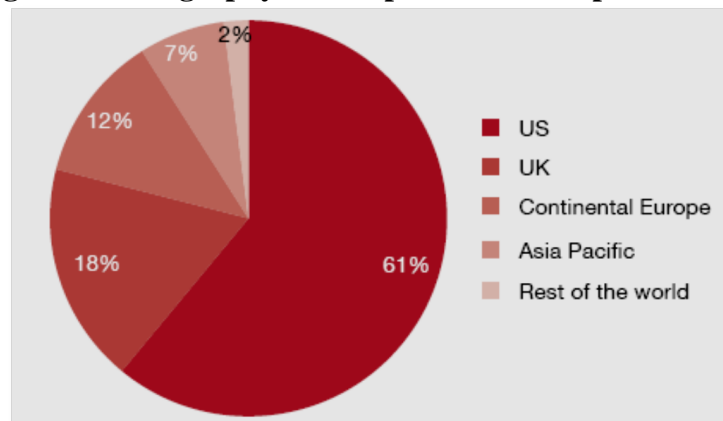


Source: NASSCOM, 2011.

#### 4.2.6. Key Markets

In terms of markets, US still assume great importance since the country represents 61% of India’s export revenues. UK is the second largest market with around 18%. Non US-UK countries only share 21% of the total India’s IT/ITeS export revenues (Figure 35). In addition, demand from emerging countries, especially in the Asia Pacific region, is expected to show robust growth on the long run.

**Figure 35: Geography-wise export revenues split – 2009-10**



Source: NASSCOM, 2011.



#### 4.2.7. Key Players

As per a NASSCOM, Aranca Research, IT-BPO sector is dominated by large players with large scale operations and infrastructure that offer a full wide range of integrated services. The seven large sized players represent around 43-45% of total export revenues (Figure 36).

**Figure 36: Players categorization**

Category	Number of players	% of total export revenue	% of total employees	Work focus
Large sized	7	43-45%	~30%	<ul style="list-style-type: none"> <li>Fully integrated players offering full range of services</li> <li>Large scale operations and infrastructure</li> </ul>
Mid sized	75-80	35-37%	~30-35%	<ul style="list-style-type: none"> <li>Mid tier Indian and MNC firms offering services in multiple verticals</li> <li>Dedicated captive centres</li> </ul>
Emerging	300-350	9-12%	~15-20%	<ul style="list-style-type: none"> <li>Players offering niche IT-BPO services</li> <li>Dedicated captives offering niche services</li> </ul>
Small	>3500	10-12%	~15-17%	<ul style="list-style-type: none"> <li>Small players focussing on specific niches in either services or verticals</li> <li>Includes Indian providers and small niche captives</li> </ul>

Source: IBEF, November, 2011, “IT & ITeS”.

According to CyberMedia’s Dataquest research, the combined revenue of the Top 20 IT companies was USD 54 billion (Rs 247,808 crore) in FY ‘11, also representing a growth of 25%. This is significantly higher than the 8% growth recorded in FY ‘10 with revenues of Rs 198,017 crore. The “Top 20 IT Companies in India” all together was responsible for a contribution of 64% to the Top 200 companies’ revenue<sup>17</sup>

Tata Consultancy Services (TCS) continues to lead with revenues of Rs. 33,112 crore (minus BPO) in FY ’11, representing a 25% growth over the last year. TCS is one of the major IT service providers. The company provides a wide range of services including business consulting, information technology, business process outsourcing, infrastructure, and engineering. The company has a wide geographical presence across the globe with 140 offices in 42 countries.

<sup>17</sup> See Appendix G: “Dataquest Top 20 IT Companies in India: FY 2010-2011”.

The remaining Indian IT companies of the top 5 were Infosys Technologies, Wipro, HP India and Cognizant Technology Solutions with revenues of Rs 25,997 crore (22%), Rs 24,899 crore (13%), Rs 23,227 crore (30%) and Rs 21,393 crore (37%) respectively.

Infosys (formerly “Infosys Technologies Limited”) is an India-based IT enabled business solutions provider. The company offers end-to-end business solutions, including business and IT consulting, design, development, product engineering, maintenance, systems integration, packaged enabled consulting and implementation and infrastructure management services. The company has strong brand recognition, which acts as a pitch for new contract wins and attracts new talent.

Regarding the third place, Wipro Limited (Wipro), is a global information technology (IT) services company. The company provides a range of IT services, software solutions, IT consulting, business process outsourcing (BPO) services, and research and development services in the areas of hardware and software design to companies worldwide. The company has diversified operations and is one of the largest offshore providers in terms of revenue. The diversified operations reduce the business risk of the company and strengthen its operating performance, reason why the company figures in the Top 5 of both IT and BPO companies in India. However, Wipro recorded the slowest growth in the Top 5, being surpassed by Infosys on IT Services and by Aegis on BPO.

The faster growth of India focused in IT and BPO companies, shows that the high growth potential of Indian market is being tapped. According to Pradeep Gupta, publisher of CyberMedia, it is expected that India become a “bigger player in the global IT scenario as a market, a technology creator and a hotbed of innovation—all rolled into one”. Nevertheless, intense competition threatens to erode the company’s market share and profitability in long term, and a wide range of companies moved from being followers to challengers.

Regarding a similar research carried out by CyberMedia’s Dataquest, the combined revenue in FY ’11 of the Top 20 BPO exporters in India was USD 7 billion (Rs 32,246 crore), with Genpact on the lead with Rs 5,680 crore. The company grew 24%, followed by TCS BPO which grew 25% with revenues of Rs 3,928 crore.

The research reveals little change in ranking in the top 10 BPO firms, with the exception of Aegis that grew 28% to occupy the third position among the top 20 Indian BPO companies, with revenue of Rs 2,352 crore, surpassing Wipro BPO that was in third place in the last six years.<sup>18</sup>

### 4.3. Geographical Locations

Based on the nature of services and location specific advantages, industry players have chosen different cities as headquarters for their operations. Although India's position as a preferred location for outsourcing is well established, the growth of the industry has been primarily concentrated around seven few key cities/clusters. In the northern part of India outsourcing is mainly focused on two major areas, Delhi-NCR and Mumbai whereas the south is dominated by the so-called “*technology triangle*” comprised of Bangalore, Hyderabad and Chennai. The remaining two established IT/ITeS hubs are Pune and Kolkata.

These cities are preferred locations for companies looking to set up their IT-ITeS operations. These are the most established locations and have created an identity for themselves in the IT-ITeS industry both nationally and globally, being categorized as Tier I cities (Figure 37, map on the left).

As per a PwC-CII study named “Indian IT/ITeS Industry – Changing landscape and emerging trends”, about 50% of the IT/ITeS service providers are looking to move or expand to Tier II (Emerging Locations – medium-term potential) and Tier III (Having future long-term potential) locations for perceived benefits like availability of low-cost skilled resources, lower real estate cost and lower attrition rates (Figure 37, map on the right).

On the other hand, the same study underscores that the lack of connectivity to major cities, the lack of business infrastructure and the difficult sourcing of talent are the challenges that most IT users faced while consolidating IT operations in Tier II cities.

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<sup>18</sup> See Appendix H: “Dataquest Top 20 BPO Companies by Export Revenues: FY 2010-2011”.

**Figure 37: Established (Tier I Cities) and emerging (Tier II and Tier III Cities) IT/ITeS hubs in India**



Source: IBEF, November, 2008, “IT & ITeS”.

### **Bangalore**

Located in the Karnataka state in southern India, the city of Bangalore has a population 6.5 million and is known as India’s *Silicon Valley* because it has the highest number of multinational information technology, research and development, electronics and software companies. Bangalore has already created a global image as an attractive IT-ITeS destination. The presence of leading IT companies in Bangalore, such as TCS, Infosys and Wipro have been attracting a lot of business. Several foreign players such as HP, Intel, Microsoft, Oracle, SAP, Cisco, Google and Yahoo have set up branches in Bangalore to tap in to the talent available in the city.

Actually, Bangalore leads in terms of India’s higher education institutes and it has the largest resource pool in the form of graduating students suitable for IT-ITeS. As a result, the city accommodates the highest number of employees in the IT-ITeS sector with varied experience, necessary skills for voice processes, fluency in spoken English, good voice, neutral accent and service orientation.

When compared to other outsourcing locations in India, Bangalore has shown the highest growth record in the past 20 years. Actually, the Indian outsourcing revolution began in this city and according to recent surveys it was ranked as India's top city for investing, living and earning.

However, the city's inadequate infrastructure, rising population, poor urban planning and high real estate prices are some factors why other Indian cities are slowly overtaking Bangalore and the city is not the default destination anymore. Nevertheless, Bangalore has retained its position among the top eight global outsourcing destinations for the fourth consecutive year, being its mark in the IT-ITeS industry of undeniable importance.

### **Delhi-NCR**

Located in the northern part of India and including the capital city of New Delhi, the entire Delhi region account for a population of 16.3 million, being the second most populous metropolis of India (after Mumbai) and the eighth in the world.

Delhi along with the National Capital Region (NCR) ranks at number two among the world's top eight global outsourcing destinations. The NCR consists of Delhi, Noida and Gurgaon, which are fast emerging and the best Indian outsourcing locations for product development, accounting and finance, engineering, business analytics, customer support services and software development.

The key strengths of this region rely on its robust infrastructure, its international airport that provide good linkages and its ample availability of skilled resources since Delhi-NCR ranks second among Indian cities for number of higher education institutes and it has the second-largest resource pool in the form of graduating students suitable for IT-ITeS. As a result, the city accommodates the second-highest number of employees in the IT-ITeS sector.

### **Mumbai**

Located on India's west coast, Mumbai, formerly known as Bombay (commonly used in Portuguese), is the capital city of the state of Maharashtra. It is the most populous

city in India, and the fourth most populous city in the world, with a total metropolitan area population of approximately 20.5 million.

Mumbai is often referred to as the entertainment, commercial and financial capital of India, generating 5% of India's GDP. The city houses important financial institutions such as the Reserve Bank of India, the National Stock Exchange of India and the Bombay Stock Exchange, which is the oldest stock exchange in Asia. In the past, Mumbai earned its prosperity through its seaport and textile mills until the 1980s. The establishment of TCS in 1967 marked the birth of the IT services industry in Mumbai. In 1973, the first software export zone, SEEPZ, was set up in Mumbai, where more than 80% of India's software exports were carried out.

Mumbai does hold key strengths as an IT-ITeS destination since it ranks at number three among the world's top eight global outsourcing destinations. Its favorable government policies, urban infrastructure and excellent human resources availability with varied skills and experience have all made Mumbai a preferred outsourcing destination among foreign investors. In fact, Mumbai ranks third among Indian cities for number of higher education institutes and it has the fifth-largest resource pool in the form of graduating students suitable for IT-ITeS. As a result, the city accommodates the third-highest number of employees in the IT-ITeS sector in any city of India and is home to leading IT-ITeS providers such as TCS, Infosys, Wipro, Cognizant, Accenture, Convergys, Mahindra Satyam, IBM, Genpact, Firstsource and WNS Global Services to name a few.

## **Chennai**

Chennai, formerly Madras, the capital of the state of Tamil Nadu and India's fourth largest city is a major trade centre and is fast overcoming Bangalore as India's number one outsourcing destination. Nowadays, Chennai is India's second largest exporter of IT, ITeS and software services, contributing over 39% of Tamil Nadu's GDP.

Chennai ranks at number six among the world's top eight global outsourcing destinations. The city has emerged as India's leading outsourcing hub with advantages such as, low operating cost, low labor cost, low cost of living, better infrastructure (this city has the best infrastructure facilities in India), high connectivity, highest upcoming supply of real estate space in the country, experienced professionals (ranking fourth in the highest number of employees in India's IT-ITeS sector) and low attrition rates.

The city stands at fourth place in the highest number of higher education institutes and has the fourth largest resource pool in the form of graduating students suitable for IT-ITeS.

### **Hyderabad**

Hyderabad, the capital of the state of Andhra Pradesh and India's sixth largest city (it hosts a population of 6.8 million, while the metropolitan area contains 7.75 million residents) is one of India's preferred outsourcing destinations. The city is often referred to as *Cyberabad* as it holds the seventh position among the world's top ten outsourcing destinations.

Hyderabad has gained the status of being a leading outsourcing destination for IT, ITeS, ITO, BPO, pharmaceutical customer support and other back-end outsourcing processes, as it has the third largest resource pool in form of graduating students suitable for IT-ITeS. In fact, Hyderabad is India's second largest provider of IT enabled services after the NCR region with the presence of almost all major (MNC and Indian) IT-ITeS companies. Since the mid-90's, the city ensured that the infrastructure was in place owing the rapid development of IT-ITeS and other knowledge-based industries.

Robust infrastructure development with good road, rail and air connectivity with the rest of the country and government initiatives have attracted many IT-ITeS companies to Hyderabad. Moreover, the city has low labor costs, low cost of living and abundant supply of real estate office space at attractive prices. According to some analysts, the city is expected to grow above the country's average in the coming years (Kobayashi-Hillary, 2005).

### **Pune**

Located only about 160 km's from Mumbai, Pune (population: 7.2 million) is often referred to as "*The Oxford of the East*", since it has a highly developed educational system with nine universities and over a hundred educational institutions, which provides a large pool of skilled workforce for all domains of IT-ITeS. The growing number of migrants to Pune from other India states has turned it a highly cosmopolitan city with good quality of life and one of India's fastest growing urban cities.

When compared to Mumbai, Pune is considered safer and it has better local travel and housing facilities, with lower real estate costs and a low cost of living. It also has good road, rail and air connectivity with the rest of the country. These social and physical infrastructure strengths have transformed the traditional industrial profile (known for the presence of large manufacturing corporate) of the city making this location an emergent favorite destination for IT-ITeS developments.

### **Kolkata**

The city of Kolkata (population: 4.5 million residents plus suburbs make this the third-most populous metropolitan area in India), formerly Calcutta, is the capital of the West Bengal state in Eastern India. Over the past few years, Kolkata has grown to become a major IT outsourcing destination in eastern India. It is a leading corporate centre in the Eastern and North-Eastern regions of the country with a preferential treatment for IT-ITeS sector by the State Government.

Among other Indian outsourcing destinations, such as Bangalore, Delhi and Mumbai, Kolkata has the lowest attrition rate. It has also a low cost of living that is translated into lower salaries and lower operating costs for IT-ITeS companies. Kolkata's urban infrastructure (good road, rail and air connectivity with the rest of the country) and low real estate costs have also made the city an ideal outsourcing location for global IT companies. Moreover, West Bengal is one of the few states in India with a power surplus which constitutes a powerful asset (Glismand, 2005). However, and despite its remarkable growth in the last years, Kolkata still ranks as a Tier II city for IT-ITeS.

### **4.4. Trends**

The economic slowdown had changed the business scenario across the globe. Players need to adopt an innovative approach to tackle this situation by adopting innovative service models, developing vertical/domain specialization, diversifying service lines, emerging IT multinationals, entering in new markets, increasing global spending and consolidating the industry through merger and acquisition (M&A) activity.

### **Adopting Innovative Service models**

Indian IT/ITeS companies are now operating on a global delivery model to match global standards. Despite India still continues to be the primary delivery centre due to its



sustained cost advantage and capability of offering multiple services, many companies have been ramping up service offerings and establishing delivery centers in locations outside India to attain multi-location delivery capabilities.

Service providers are looking to improve competitiveness by adopting global best practices and offering enhanced services. With greater IT adoption and outsourcing, the BRIC market is expected to offer opportunities for IT-BPO companies in the near future. Companies can leverage customized service offerings and new delivery models such as SaaS (Software as a service) – a type of public cloud computing, which ensures greater cost savings.

### **Developing vertical/domain specialization**

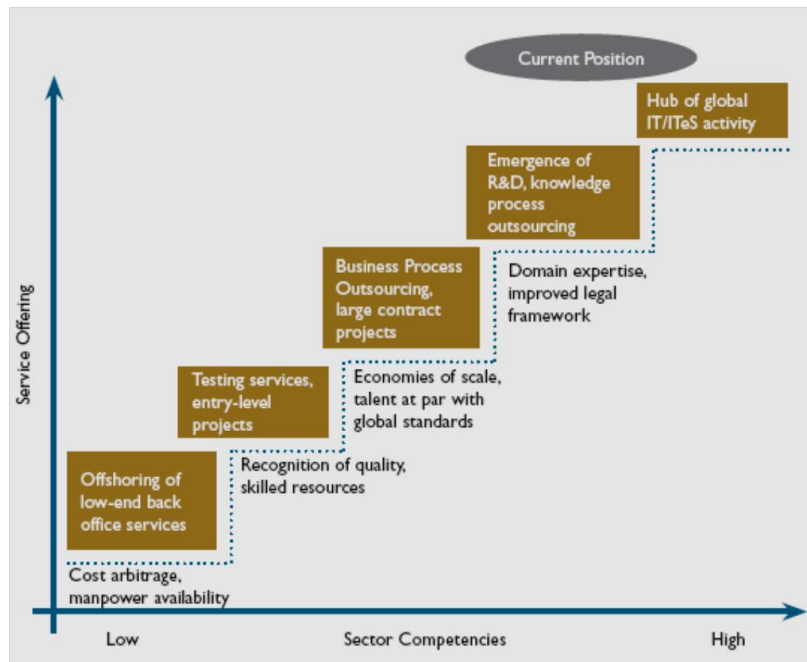
Services provided by the Indian ITeS BPO companies are classified according to industry verticals. Increased competition from emerging low-cost destinations forced the Indian ITeS-BPO companies to shift their focus towards improving value proposition, largely in established verticals such as BFSI, responsible for almost half of the business for the ITeS-BPO companies. However, the slowdown in the banking sector is forcing companies to look towards other prospective verticals like Healthcare, Retail, Media and Utilities.

### **Diversification**

Over the past decade, the Indian ITeS-BPO industry has seen a revolutionary change in the breadth and depth of service offerings. Companies are gradually moving up the value chain from the back-end services location to the global innovation hub by enhancing capabilities, acquiring domain knowledge and expertise across verticals and service lines (Figure 38).

India, earlier the primary global off shoring destination for low-end back-office services, is now emerging as an innovation and research hub and the ITeS segment is expected to leverage the penetration of the IT segment complementing end-to-end customer requirements with the help of offshore and onshore service offerings.

**Figure 38: IT/ITeS sector: Moving up the value chain**



Source: IBEF, November, 2008, “IT & ITeS”.

In terms of service lines, traditional BPO services still form a large portion in the Indian ITeS-BPO segment due to the low-cost advantage and the availability of a skilled resource pool. The trend became to offering multiple types of services in different combinations of business process outsourcing (BPO), knowledge process outsourcing (KPO), legal process outsourcing (LPO) and e-learning, with an enhanced focus on high-end services, the industry is increasingly diversifying its service offerings due to rising competition and constant pressure on margins. Despite customer care services remains the most important service line, F&A and knowledge services (especially LPO domain) have emerged as growth drivers for the Indian ITeS BPO companies.

### **Emergence of Indian IT Multinationals**

The Indian IT-ITeS companies have expanded their global footprint in order to effectively deliver services catering to the diverse requirements of clients across the globe. Global companies such as TCS, Infosys and Wipro now prefer to have the service delivery centers, particularly in the BPO segment, to be spread amongst multiple locations across key geographies.

As part of a global delivery model this trend is emerging and the employee workforce numbers for all the IT multinationals is growing. For instance, in India, companies like Capgemini, Accenture and IBM have increased their employee workforce number over 4,000, 16,000 and 39,000 respectively.

### Entering new markets

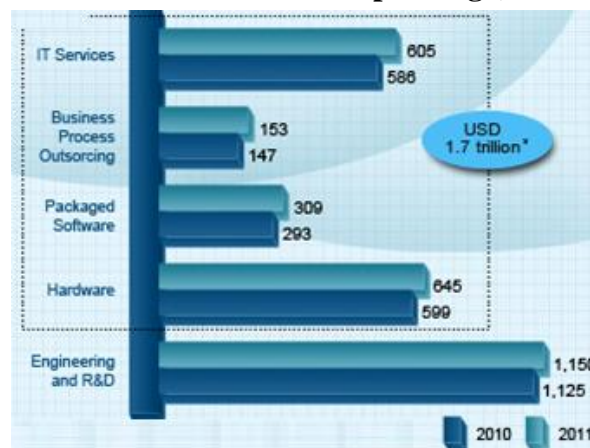
The Indian IT/ITeS industry is expected to increasingly explore new markets to move beyond the traditional core markets of the US and the UK. The impact of the recession has been felt the most in the US and Continental Europe, and cutting costs and increasing competitiveness through outsourcing are once again a focus area.

Additionally, the Indian ITeS-BPO segment is also looking at Asia Pacific, Japan and the Middle East, which offer significant untapped potential, to broaden its client base and diversify from core markets. The Indian ITeS BPO industry is expected to continue to develop focused solutions that are customized to the needs of clients from Asia and Pacific regions and expand its service delivery base to cater to these regions.

### Increase global spending

According to IDC and NASSCOM, in 2011, the global IT/ITeS spending recorded steady growth due to volatility in economic environment and currency. Nonetheless, worldwide spending exceeded USD 1.7 trillion, representing a growth of 5.4% in comparison to 2010. In 2011, IT services spend was USD 605 bn. whereas BPO was USD 153 bn., an increase of 3.3% and 4.3% respectively (Figure 39).

Figure 39: Worldwide IT/ITeS spending (USD billion)



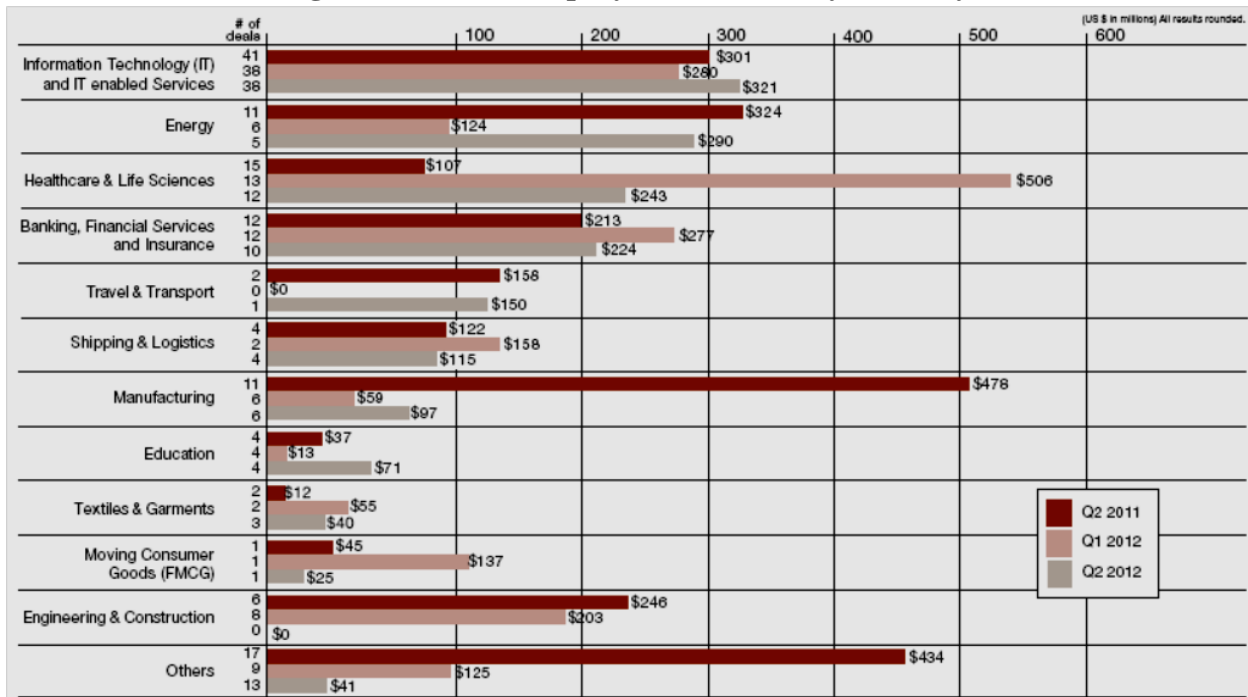
Source: NASSCOM, 2012.

**Industry consolidation through M&A**

The Indian IT/ITeS sector has consistently attracted the highest levels of Private Equity (PE) and Venture Capital (VC) investments in the country. As per a D&B India’s study, around 21% of the companies are looking for inorganic growth through M&A to combat competition and other threats in the industry. M&A activity is expected to increase in the coming years as service providers seek to add expertise in specific verticals or domain areas to their portfolio of services to take advantage of the evolving trends and newer technologies.

In the second quarter of 2012 (Q2 ’12), the total number of Private Equity (PE) deals in the country was 97 with investments touching USD 1,616 million. In Q2 ’12, the IT and ITeS sector has seen the highest level of PE funding and the maximum number of deals with investments worth USD 321 million from 38 deals. During this quarter, PE investments in the sector increased by 15% in terms of value as compared to the USD 280 million investments in the previous quarter. In terms of volume, it remained constant. Nevertheless, the IT and ITeS sector constitutes nearly 40% of the total number of deals, emerging as the leader in both value and volume in Q2 ’12 (Figure 40).

**Figure 40: Private Equity Investments by Industry**



Source: PricewaterhouseCoopers India Pvt Ltd (2012), “Money Tree India Report”.

## **4.5. Challenges**

### **Competition from emerging and cost competitive markets**

The emergence of countries such as China, Malaysia, Indonesia, Mexico and Philippines to name a few as possible outsourcing destinations is one of the most important challenges that the industry has been facing over the last couple of years. Thus, those nations are positioning themselves and emerging as the next outsourcing superpower, playing on their strengths to offer niche services. Moreover, Governments in these countries are also attracting businesses by offering incentives that not only reduce operations costs but also enhance the employment rate.

With continuous change in business dynamics, the Indian companies are putting their focus on improving service capability across established verticals while continuously seeking for innovative business models to deliver their client requirements by establishing new delivery centers in the aforesaid destinations. In order to overcome this challenge, Indian companies are establishing their presence in those countries by acquiring the existing players but, despite emerging destinations rise, India is still expected to maintain its leadership position in the coming years due to its competitive edge.

### **High attrition rate**

Due to the presence of many players in the industry and the rapid growth in other sectors, the competition between companies to retain the most talented employees has intensified. As a result, switching of jobs within the sector became more prevalent. Thus, there has been an increasing awareness of career options in the sector by way of better career opportunities but the biggest reason for attrition in the industry is indeed the need for higher remuneration. The attrition rates are higher at the bottom and the middle of the pyramid, which represents the larger portion of the working population (Dun & Bradstreet's: "India's Top ITeS and BPO Companies 2011").

### **Inadequate infrastructure**

Regarding a WEF study, inadequate supply of infrastructure is the most problematic factor for doing business in India. There has been a mismatch between the existing infrastructure of Tier I/II cities and the exponential growth witnessed in the sector. This represents a critical challenge that the country has rapidly to overcome.

### **Increasing operating costs**

The above mentioned inadequate infrastructure combined with inflation and wages appreciations are revoking India's cost advantage, since while the average wage appreciation in developing countries is around 5%, the corresponding increase in India is much higher, making it less attractive over other emerging destinations.

### **Rupee Fluctuation**

As the sector mostly relies on export markets, fluctuations in the value of Indian Rupee over other currencies (mainly USD) is leaving the exporters in a continuous struggle, negatively affecting the sector.

### **Shortage of skilled manpower**

In fact, being a service sector, the IT/ITeS success highly depends on the quality of its workforce. As one of India's main advantages over its competitors is the availability of a qualified resource pool, there are growing concerns about the mismatch of this talent mainly at the middle and top of the pyramid. The country has faced largest shortages in the middle of the pyramid and a shortfall in the number of graduates will end up by affecting the availability of manpower.

## **Chapter 5**

### **Research Methodology**

#### **5.1. Introduction**

As previously stated, this research aims to contribute to the already existing organized body of scientific knowledge in an area where this is still regarded as insufficient: the impact of IT services and ITeS-BPO on India's economic growth based on the perceptions of the professionals<sup>19</sup>

As detailed in the following sections, the present study is an attempt to conduct an exploratory research and is based on a sample collected through an online questionnaire.

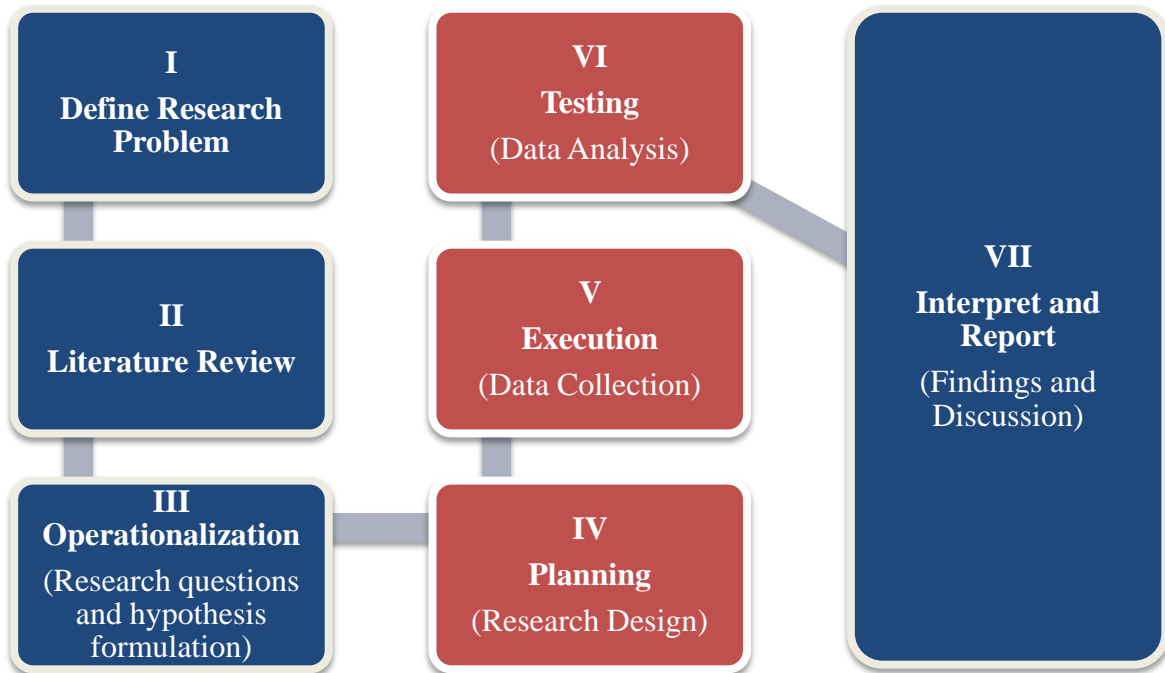
The given information was expressed in numeric terms and subsequently analyzed by statistical methods. The data was analyzed given the two phases of the study:

- (a) Descriptive statistics and characterization;
- (b) Multivariate statistical analysis and hypothesis testing.

The research process consists of series of steps necessary to effectively carry out research and its desired ordering. This chapter focuses on the planning, execution and testing phases by describing respectively the research design, data collection and data analysis (Figure 41).

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<sup>19</sup> As regards this study, perception refers to the way the IT Services and ITeS-BPO professionals regard, understand and interpret the impact of the segments they work for on India's economic growth .The use of this terminology translates their insights on the issue this study is object.

**Figure 41: Research Process Flow Chart**

Source: Kumar, R. (2005).

## 5.2. Research Design

Research design is the conceptual structure within which research would be conducted (Kumar, 2005). Preparing the research design involves taking into consideration the objectives of the research study while determining the sample design and choosing the appropriate research tool.

### 5.2.1. Sample Design

The sample design comprises three important steps: (a) determine what type of information is needed and who is most likely to have it, in order to know who will be surveyed (the sample); (b) define how many people will be surveyed (sample size) and (c) decide how the sample should be chosen (sampling).

Clearly, the most likely population to have the type of information needed for this study is IT services and ITeS-BPO professionals.



The sample have been chosen through a non-probability sampling method – convenience sample, which involves selecting the easiest population members from which to obtain information.

The sample was arranged following three main inclusion criteria namely, professional networking (PGSEM), type of organization (IT Services and ITeS-BPO) and location (Electronic City).

The professional networking derives from the Post-Graduate Programme in Software Enterprise Management (PGSEM) of the Indian Institute of Management Bangalore (IIMB), which is an executive general management education programme designed for the specific needs of professionals working in the software and information technology industry in India.

This program accepts only professionals with at least two but preferably 4-5 years or more of work experience in the IT industry or IT related, which guarantees a real level of knowledge of the industry. Moreover, those professionals are closely involved in the economic, culture, and technology background of India.

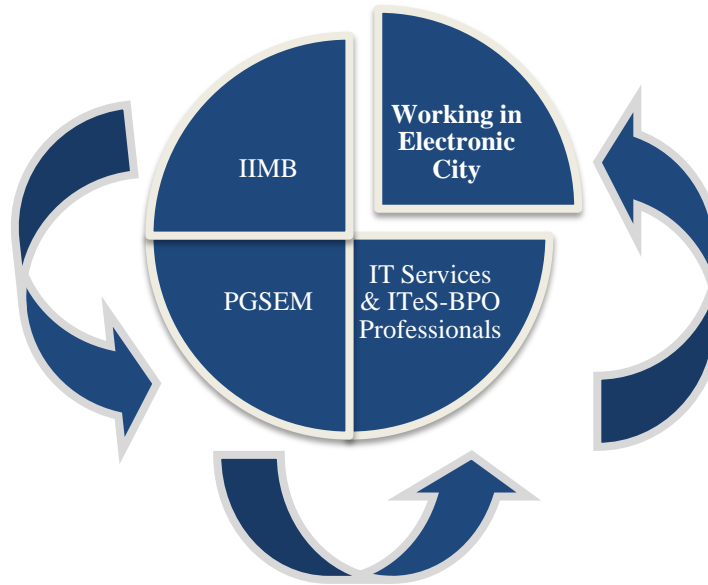
From those professionals attending the PGSEM, the ones working on IT Services and ITeS-BPO companies in the Electronic city<sup>20</sup> were selected for representing the sample size of this study, totalizing 150 individuals (Figure 42).

The survey was sent to 150 employees, of which 120 responded, performing a response rate of 80%. Amongst those 120 individuals, 18 have partially completed the questionnaire, leading to a dropout rate<sup>21</sup> of 12%. A total of 102 fully completed questionnaires were gathered and therefore considered for the study, which provide a diverse background to obtain firsthand insights.

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<sup>20</sup> Electronic city is the largest industrial technological hub of Bangalore housing around 300 companies, being 187 IT/ITeS companies.

<sup>21</sup> A dropout rate is the percentage of those who prematurely abandoned the questionnaire. It can occur immediately after the start, in the middle, or near the end of the questionnaire.

**Figure 42: Sample Design**

Source: Author.

### 5.2.2. Research Tool

The attributes of online surveys have been widely described in the literature (Fricker & Schonlau, 2002; Furrerand Sudharshan, 2001; Ilieva *et al.*, 2002; Malhotra, 2004; McDaniel & Gates, 2005; Tingling *et al.*, 2003; Wilson & Laskey, 2003).

According to the literature, there is evidence to suggest that if conducted properly, online surveys have significant advantages over other formats (Evans & Mathur, 2005).

The survey<sup>22</sup> was created with the help of *Survey Guizmo* (an online survey software and questionnaire tool) and designed based on existing questionnaires of reference companies in the sector and accordingly to the suggested six-category classification for web surveys developed by Vicente & Reis (2010): general structure, length, disclosure of survey progress, visual presentation, interactivity and question/response format.

Questionnaire length is the most accounted problem for dropout rates (Lozar Manfreda & Vehovar, 2002). The length is a very subjective feature, not only because each respondent have its own length perception but also because the length is not always

<sup>22</sup> See Appendix I: Survey”.

measured in the same way. It can be measured by using either number of pages, number of questions or even the completion time.

In short, this survey was designed with 3 pages with a total of 19 questions. The first page was composed by only 4 demographic questions. The second and third ones were respectively composed by 7 and 8 questions directly aimed to capture the perceptions of the impact of IT services and ITeS-BPO on India's growth.

Regarding the question type, there is evidence that it has a significant effect on dropout rates (Lozar Manfreda & Vehovar, 2002). The survey carried out was composed by closed-ended questions, more likely to increase completion rate and reducing completion time of the questionnaire.

Only two questions were presented on drop-down boxes: age and number of years of working experience. All the remaining questions were presented on radio buttons response format where all the suitable options were shown.

Since the respondents had to choose only one option and assuming that sometimes – in more complex questions - their point of view was not in the range of options, an “other” entry box was added where respondents had the option of typing a different answer or simply select a “don’t know” or “no answer” if that was the case.

The questionnaire was sent in an attached format by providing the link in the e-mail and the respondent could interrupt the questionnaire at any time and return later to complete it.

### **5.3. Data Collection**

The survey was conducted between January 2012 and March 2012. The data collection was done with the knowledge of the participant, and their expressed willingness and informed consent. Before sending the survey, the respondent’s informed consent was obtained ensuring participants were aware of the type of information needed, why the information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them. The participants

of the study were properly warned that all the information entered will be kept confidential to ensure anonymity.

Due to the constant response statistics monitoring, it was found that in the first days after sending the individuals participate and replied. In the following days, the intensity of responses significantly decreased. Therefore, reminders were sent repeatedly in order to increase overall completion rate. The application of this measure has shown positive results, increasing the number of responses.

#### **5.4. Data Analysis**

Statistical analysis was performed with the help of SPSS<sup>23</sup> (Statistical Package for Social Sciences) version 18.0 for Windows.

To test the hypothesis in this study the Chi-Square ( $\chi^2$ ) test has been used once the aim of the analysis is to test the independence of qualitative variables. The chi-square test is a non-parametric test used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

**Research Question 1:** Do IT Services and ITeS-BPO professionals have different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario?

##### Hypothesis Formulation:

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario.

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<sup>23</sup> In order to test the research questions to either accept or reject the null hypothesis a significance level  $\leq 0,05$  was used as a reference. However, if significant differences for a significance level  $\leq 0.10$  are found they will be properly commented.

Variables:

Dependent Variable (Y): Perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario.

Independent Variable (X): IT Services; ITeS-BPO.

**Research Question 2:** Do IT Services and ITeS-BPO professionals have different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario?

Hypothesis Formulation:

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario.

Variables:

Dependent Variable (Y): Perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario.

Independent Variable (X): IT Services; ITeS-BPO.

**Research Question 3:** Do IT Services and ITeS-BPO professionals attribute different factors responsible for the key advantage of the Indian IT/ITeS industry?

Hypothesis Formulation:

H<sub>0</sub>: IT Services and ITeS-BPO professionals don't attribute different factors responsible for the key advantage of the Indian IT/ITeS industry.

H<sub>1</sub>: IT Services and ITeS-BPO professionals attribute different factors responsible for the key advantage of the Indian IT/ITeS industry.

Variables:

Dependent Variable (Y): Factors responsible for the key advantage of the Indian IT/ITeS industry.

Independent Variable (X): IT Services; ITeS-BPO.

**Research Question 4:** Is there a consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run?

Hypothesis Formulation:

H<sub>0</sub>: There is no consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run.

H<sub>1</sub>: There is a consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run.

Variables:

Dependent Variable (Y): India's ability to sustain its competitive advantage in the long run.

Independent Variable (X): IT Services; ITeS-BPO.

**Research Question 5:** Do IT Services and ITeS-BPO professionals have different perceptions about whether or not the services sector could be an engine of growth?

Hypothesis Formulation:

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about whether or not the services sector could be an engine of growth.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about whether or not the services sector could be an engine of growth.

Variables:

Dependent Variable (Y): Perceptions about whether or not the services sector could be an engine of growth

Independent Variable (X): IT Services; ITeS-BPO.

**Research Question 6:** Do IT Services and ITeS-BPO professionals have different perceptions about the "job-less growth" phenomenon?

Hypothesis Formulation:

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about the "job-less growth" phenomenon.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about the "job-less growth" phenomenon.

Variables:

Dependent Variable (Y): Perceptions about the "job-less growth" phenomenon.

Independent Variable (X): IT Services; ITeS-BPO.

## Chapter 6

### Findings, Analysis and Discussion of Results

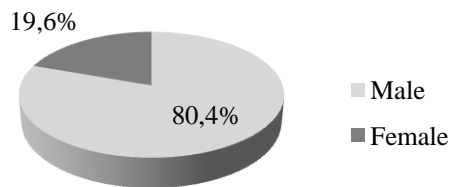
#### 6.1. Descriptive statistics and characterization

##### 6.1.1. Sample characterization

###### Gender

About 102 people have collaborated in this study, of which 80,4% (n = 82) assigned to males while females is shown for the remaining 19,6% (n = 20) (Figure 43).

*Figure 43 – Gender*

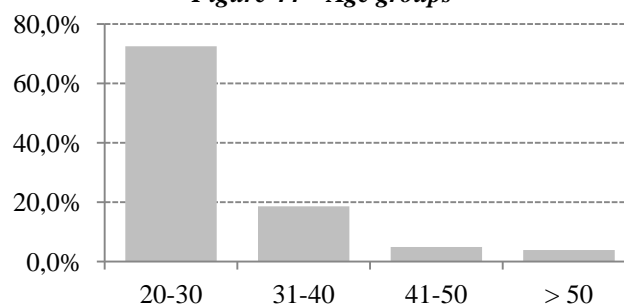


Source: Compiled from the field survey data.

###### Age

In terms of age, young respondents predominate as 72,5% belong to the age group 20-30 years. The older ones (> 50 years) represent 3,9% of the total responses (Figure 44).

*Figure 44 – Age groups*



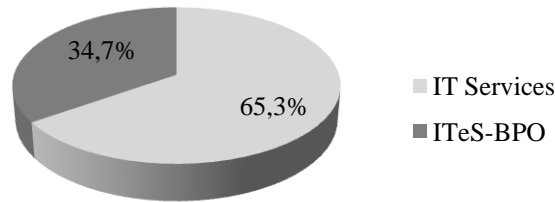
Source: Compiled from the field survey data.



## Segments

According to the segment the respondents are working for, 65,3% work in IT services and 34,7% in ITeS-BPO (Figure 45).

Figure 45 – Segments



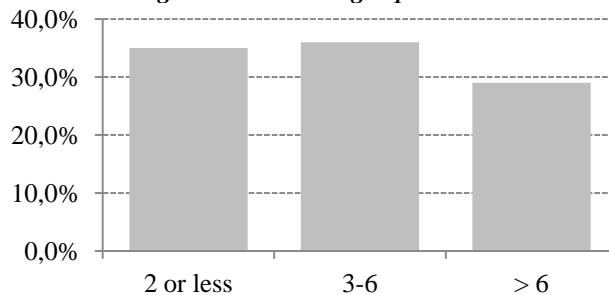
Source: Compiled from the field survey data.

## Working experience

As regards the working experience, the majority are between 3-6 years of experience (36%). The less experienced (2 or less years) represent 35% while the more experienced ones (more than 6 years) represent 29% (Figure 46).

It must be noted that in the more experience professional's category the ranges [7-10], [11,14] and 15 or more were grouped together.

Figure 46 – Working experience



Source: Compiled from the field survey data.

### 6.1.2. Services sector expansion

*“According to you, India should continue to expand the services sector or the country needs to broaden the base of its economy to the industry sector?”*

According to Table 3, more than half of respondents (57.8%) believes that India should focus on both expanding the services and the industry sector. It is emphasized,

however, that approximately one quarter of respondents (24.5%) consider that India should focus only on the enlargement of the economy by broaden its base to the industry sector.

**Table 3 - Expand the services sector, broad the base of the economy to the industry or do both?**

	Frequency	Percent
Broaden the base of its economy to the industry sector	25	24,5
Continue to expand the services sector	18	17,6
Both	59	57,8
Total	102	100,0

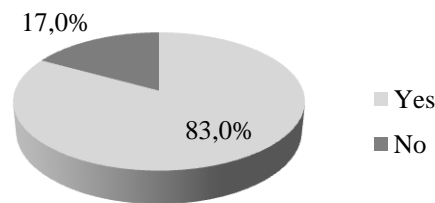
Source: Compiled from the field survey data.

### 6.1.3. India’s collapsing infrastructure

*“Do you think that India's collapsing infrastructure have acted as a bottleneck to industrial growth?”*

According to Figure 47, the majority of the respondents (83%) considered that India’s collapsing infrastructure has acted as a bottleneck to industrial growth.

**Figure 47 – India’s collapsing infrastructure has acted as a bottleneck to industrial growth?**



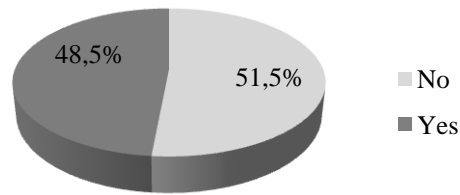
Source: Compiled from the field survey data.

### 6.1.4. “Job-less growth”

*“Do you think that the expansion beyond the services sector alone would provide the necessary number of job opportunities to combat the "job-less growth" phenomenon?”*

Regarding this question the perceptions of the respondents are split (Figure 48). While 51,5% think the expansion beyond the services sector alone would not provide the necessary number of job opportunities to combat the “job-less growth” phenomenon, the remaining 48,5% believes that India should continue to be focused on the service sector expansion.

Figure 48 – Services sector expansion vs. Job opportunities



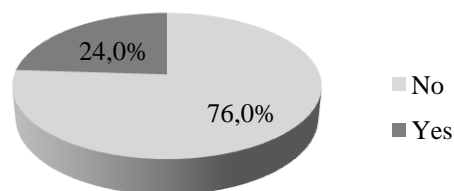
Source: Compiled from the field survey data.

### 6.1.5. Engines of growth

*“In your view, could IT Services and ITeS-BPO be considered engines of growth?”*

Regarding this issue 76% of respondents believe that IT Services and ITeS-BPO could not be considered engines of growth (Figure 49).

Figure 49 – Could IT Services and ITeS-BPO be considered engines of growth?



Source: Compiled from the field survey data.

### 6.1.6. India key advantage

*“According to you, what is the factor that best describes the key advantage of the Indian IT/ITeS industry?”*

As depicted in Table 4, the perception of the respondents about India’s key advantage on the IT/ITeS industry is that the cost effectiveness (36,3%) is the best asset the country has. Resource pool and quality performance appear, respectively, in the 2<sup>nd</sup> (31,4%) and 3<sup>rd</sup> place (13,7%). It is important to refer that almost 4% of the respondents considered that India offers a combination of multiple advantages and not a single one (3,9%).

**Table 4 – India’s key advantage**

	Frequency	Percent
Cost effectiveness	37	36,3
Cross value chain	6	5,9
Multiple location options	3	2,9
Other	4	3,9
Quality performance	14	13,7
Resource pool	32	31,4
Time Zone	6	5,9
Total	102	100,0

Source: Compiled from the field survey data.

### 6.1.7. City classification

*“How critical is city classification as part of a global delivery strategy?”*

More than a half of respondents (54,9%) considered that city classification is a critical point as part of a global delivery strategy. In addition, 18,6% considered a bit critical and 13,7% very critical (Table 5)

**Table 5 – City classification**

	Frequency	Percent
A bit critical	19	18,6
Critical	56	54,9
Irrelevant	8	7,8
Not Critical	5	4,9
Very Critical	14	13,7
Total	102	100,0

Source: Compiled from the field survey data.

### 6.1.8. Most attractive IT/ITeS destination

*“From the options below, please mention which Indian city is the most attractive IT/ITeS destination for services globalization”*

Regarding the surveyed (Table 6), the most attractive IT/ITeS destination for services globalization is by far Bangalore (72,5%), followed by Delhi-NCR (6,9%), Mumbai and Pune (both cities with 5,9%).

**Table 6 – Most attractive IT/ITeS destination**

	Frequency	Percent
Bangalore	74	72,5
Chennai	2	2,0
Delhi-NCR	7	6,9
Hyderabad	5	4,9
Kolkata	2	2,0
Mumbai	6	5,9
Pune	6	5,9
Total	102	100,0

Source: Compiled from the field survey data.

### 6.1.9. Contributions to the workforce development

*“In your view what is the main contribution of IT/ITeS industry to the Indian workforce development?”*

The main contributor of the industry to the Indian workforce development is the overall talent development in the country with 41,2% of the total responses. Skill enhancement within organizations appears next with 22,5% followed by employment diversity with 16,7% (Table 7)

**Table 7 – Contributions to the Indian workforce development**

	Frequency	Percent
Employee friendly work environment	14	13,7
Employment Diversity	17	16,7
Other	6	5,9
Overall talent development in the country	42	41,2
Skill enhancement within organization	23	22,5
Total	102	100,0

Source: Compiled from the field survey data.

### 6.1.10. Indirect impacts

*What is the main indirect impact of Indian IT/ITeS industry on the economic scenario?*

As shown in Table 8, boosting India's image in global markets was the main indirect impact of the industry on the economic scenario referred with 34,3% of the total responses. Then, driving growth of other sectors (24,5%) and the 3<sup>rd</sup> impact with more responses was indirect employment generation (12,7%). Other indirect impacts mentioned

were job creation for the youth and quality of life improvements. On the other hand, some respondents mentioned a combination of indirect impacts.

**Table 8 – Indirect impacts on the economic scenario**

	Frequency	Percent
Balanced Regional Growth	3	2,9
Boosting India's image in global markets	35	34,3
Driving growth of other sectors	25	24,5
Fuelling growth of Private Equity/Venture Capital funding activity	7	6,9
Improving product/ service quality	8	7,8
Indirect employment generation	13	12,7
Other	4	3,9
Spurring growth of first generation entrepreneurs	7	6,9
<b>Total</b>	<b>102</b>	<b>100,0</b>

Source: Compiled from the field survey data.

#### 6.1.11. Direct impacts

*What is the main direct economic impact of Indian IT/ITeS industry? Choose one.*

As the surveyed considered (Table 9), the main direct impact of Indian IT/ITeS industry on the economic scenario is employment generation (47,1%), followed by foreign exchange earnings (29,4%) and national GDP share (23,5%).

**Table 9 – Direct impacts on the economic scenario**

	Frequency	Percent
Employment generation	48	47,1
Foreign exchange earnings	30	29,4
National GDP share	24	23,5
<b>Total</b>	<b>102</b>	<b>100,0</b>

Source: Compiled from the field survey data.

#### 6.1.12. Impact of the global slowdown

*“What according to you is the impact of global slowdown on the Indian IT/ITeS industry?”*

Asked about the impact of the global slowdown on the Indian IT/ITeS industry (Table 10), 47,1% of the respondents considered it critical, 24,5% a bit critical and 14,7% very critical.

**Table 10 – Impact of the global slowdown on the Indian IT/ITeS industry**

	Frequency	Percent
A bit critical	25	24,5
Critical	48	47,1
Irrelevant	9	8,8
Not Critical	5	4,9
Very Critical	15	14,7
Total	102	100,0

Source: Compiled from the field survey data.

### 6.1.13. Challenges

*According to you, what is the major challenge impacting the IT/ITeS industry?*

Regarding the challenges impacting the Indian IT/ITeS industry (Table 11), almost half (49%) of the surveyed considered that the competition from emerging and cost competitive markets is the major concern. Inadequate infrastructure and high attrition rate appears next with respectively 10,8% and 9,8%. Some respondents add for a combination of different factors while others point out the cost benefit reduction due to salary increases.

**Table 11 - Challenges**

	Frequency	Percent
Competition from emerging & cost competitive markets	50	49,0
High attrition rate	10	9,8
Inadequate infrastructure	11	10,8
Increasing operating costs	7	6,9
Other	4	3,9
Regulatory Environment	4	3,9
Rupee Fluctuation	9	8,8
Shortage of skilled manpower	7	6,9
Total	102	100,0

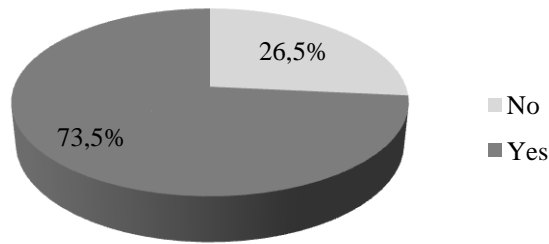
Source: Compiled from the field survey data.

### 6.1.14. Domestic market

*Do you think that the domestic IT/ITeS market would emerge as an alternative market for the Indian companies?*

According to Figure 50, a large share of the respondents (73,5%) believe that the domestic IT/ITeS market will emerge as an alternative market for the Indian companies.

Figure 50 – Would the domestic IT/ITeS market emerge as an alternative market?



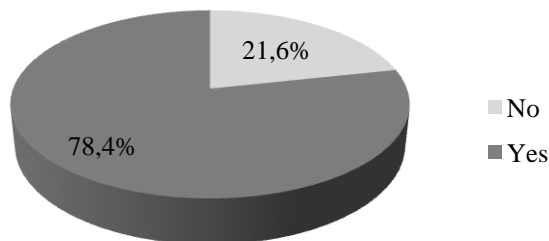
Source: Compiled from the field survey data.

### 6.1.15. Competitive advantage sustainability

*Regarding the growing competition arising from other emerging destinations, do you think the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run?*

As can be seen in Figure 51, the bulk of respondents (78,4%) think that the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run.

Figure 51 – Is India IT/ITeS industry in a position to sustain its competitive advantage in the long run?



Source: Compiled from the field survey data.

### 6.1.16. Trends

*According to you, what is the major trend that the IT/ ITeS companies would adopt in the coming years to combat competition and other such threats?*



Regarding this topic, most respondents believe that the trend will be to adopt innovative service models (27,5%). On the other hand, with both 13,7%, the emergence of Indian IT multinationals and entering in new markets, followed by developing vertical/domain specialization (12,7%) are trends that surveyed believe companies will adopt in the coming years to combat competition (Table 12).

Table 12 – Trends

	Frequency	Percent
Adopting Innovative Service models	28	27,5
Developing vertical/domain specialization	13	12,7
Diversification	10	9,8
Emergence of Indian IT Multinationals	14	13,7
Entering new markets	14	13,7
Increase global spending	3	2,9
Industry consolidation trough M&A	8	7,8
Offering Value-added products	11	10,8
Other	1	1,0
<b>Total</b>	<b>102</b>	<b>100,0</b>

Source: Compiled from the field survey data.

## 6.2. Multivariate statistical analysis and hypothesis testing

### 6.2.1. Addressing research question 1

*Do IT Services and ITeS-BPO professionals have different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario?*

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario.

The first hypothesis in this study refers to the analysis of the relation of dependence between the perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario and the segments the professionals work for (IT Services and ITeS-BPO). To investigate this relationship the Pearson Chi-Square ( $\chi^2$ ) test has been used, since the aim of the analysis is to test the independence of qualitative variables. The result was as follows:  $\chi^2 (2) = 8,693, p - value = 0,013$ .

Being  $p\text{-value} = 0,013 < \alpha = 0,05$  the null hypothesis ( $H_0$ ) that IT Services and ITeS-BPO professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario is rejected.

That means that the perception of the respondents about the main direct impact of Indian IT/ITeS industry on the economic scenario significantly vary according to the segment they work for (Table 13).

The proportion of respondents who consider that the main direct impact of Indian IT/ITeS industry on the economic scenario is the National GDP share, is higher in individuals of ITeS-BPO segment than IT Services (42,4% vs. 15,3%).

*Table 13 – Direct impact vs. Segments*

		Segment		
		IT	ITeS / BPO	Total
Employment generation	Count	30	13	43
	% within direct impact	69,8%	30,2%	100,0%
	% within Segment	50,8%	39,4%	46,7%
	% of Total	32,6%	14,1%	46,7%
Foreign Exchange earnings	Count	20	6	26
	% within direct impact	76,9%	23,1%	100,0%
	% within Segment	33,9%	18,2%	28,3%
	% of Total	21,7%	6,5%	28,3%
National GDP share	Count	9	14	23
	% within direct impact	39,1%	60,9%	100,0%
	% within Segment	15,3%	42,4%	25,0%
	% of Total	9,8%	15,2%	25,0%
Total	Count	59	33	92
	% within direct impact	64,1%	35,9%	100,0%
	% within Segment	100,0%	100,0%	100,0%
	% of Total	64,1%	35,9%	100,0%

Source: Compiled from the field survey data.

### 6.2.2. Addressing research question 2

*Do IT Services and ITeS-BPO professionals have different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario?*

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario.

The formulation of the second hypothesis refers to the analysis of the relation of dependence between the perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario and the segments the professionals work for (IT Services and ITeS-BPO). To investigate this relationship the Pearson Chi-Square ( $\chi^2$ ) test has been used, since the aim of the analysis is to test the independence of qualitative variables. The result was as follows:  $\chi^2 (7) = 9,338, p - value = 0,229$ .

Being  $p - value = 0,229 > \alpha = 0,05$  the null hypothesis (H<sub>0</sub>) that IT Services and ITeS-BPO professionals have no different perceptions about the main indirect impact of Indian IT/ITeS industry on the economic scenario is not rejected.

That means that the perception of the respondents about the main indirect impact of Indian IT/ITeS industry on the economic scenario does not vary significantly according to the segment they work for (Table 14).

Table 14 – Indirect impact vs. Segments

		Segment		
		IT	ITeS / BPO	Total
Balanced Regional Growth	Count	2	1	3
	% within indirect impact	66,7%	33,3%	100,0%
	% within Segment	3,4%	3,0%	3,3%
	% of Total	2,2%	1,1%	3,3%
Boosting India's image in global markets	Count	18	13	31
	% within in direct impact	58,1%	41,9%	100,0%
	% within Segment	30,5%	39,4%	33,7%
	% of Total	19,6%	14,1%	33,7%
Driving growth of other sectors	Count	12	12	24
	% within indirect impact	50,0%	50,0%	100,0%
	% within Segment	20,3%	36,4%	26,1%
	% of Total	13,0%	13,0%	26,1%
Fuelling growth of Private Equity/Venture Capital funding activity	Count	4	1	5
	% within indirect impact	80,0%	20,0%	100,0%
	% within Segment	6,8%	3,0%	5,4%
	% of Total	4,3%	1,1%	5,4%
Improving product/ service Quality	Count	4	2	6
	% within indirect impact	66,7%	33,3%	100,0%
	% within Segment	6,8%	6,1%	6,5%
	% of Total	4,3%	2,2%	6,5%
Indirect employment generation	Count	8	4	12
	% within indirect impact	66,7%	33,3%	100,0%
	% within Segment	13,6%	12,1%	13,0%
	% of Total	8,7%	4,3%	13,0%
Other	Count	4	0	4
	% within indirect impact	100,0%	,0%	100,0%
	% within Segment	6,8%	,0%	4,3%
	% of Total	4,3%	,0%	4,3%
Spurring growth of first generation entrepreneurs	Count	7	0	7
	% within indirect impact	100,0%	,0%	100,0%
	% within Segment	11,9%	,0%	7,6%
	% of Total	7,6%	,0%	7,6%
Total	Count	59	33	92
	% within indirect impact	64,1%	35,9%	100,0%
	% within Segment	100,0%	100,0%	100,0%
	% of Total	64,1%	35,9%	100,0%

Source: Compiled from the field survey data.

### 6.2.3. Addressing research question 3

*Do IT Services and ITeS-BPO professionals attribute different factors responsible for the key advantage of the Indian IT/ITeS industry?*

H<sub>0</sub>: IT Services and ITeS-BPO professionals don't attribute different factors responsible for the key advantage of the Indian IT/ITeS industry.

H<sub>1</sub>: IT Services and ITeS-BPO professionals attribute different factors responsible for the key advantage of the Indian IT/ITeS industry.

The third hypothesis refers to the analysis of the relation of dependence between the different factors responsible for the key advantage of the Indian IT/ITeS industry and the segments the professionals work for. To investigate this relationship the Pearson Chi-Square ( $\chi^2$ ) test has been used, since the aim of the analysis is to test the independence of qualitative variables.

The different factors responsible for the key advantage of the Indian IT/ITeS industry vary according to the segment they work for. When the relationship between the segments the individuals work for and their perception about the factor that best describes the key advantage of the Indian IT/ITeS industry is analyzed, it is noted that the surveyed individuals working in ITeS-BPO considered with greater relevance the time zone factor than the surveyed individuals working in IT Services (18,2% vs. 0,05%), being the difference in proportions statistically significant,  $\chi^2(6) = 16,253$ ,  $p - value = 0,012$  (Table 15).

Being  $p - value = 0,012 < \alpha = 0,05$  the null hypothesis (H<sub>0</sub>) that IT Services and ITeS-BPO professionals don't attribute different factors responsible for the key advantage of the Indian IT/ITeS industry is rejected.

Table 15 – India key advantage vs. Segments

		Segment		
		IT	ITeS / BPO	Total
Cost effectiveness	Count	27	9	36
	% within factors	75,0%	25,0%	100,0%
	% within Segment	43,5%	27,3%	37,9%
	% of Total	28,4%	9,5%	37,9%
Cross value chain	Count	4	1	5
	% within factors	80,0%	20,0%	100,0%
	% within Segment	6,5%	3,0%	5,3%
	% of Total	4,2%	1,1%	5,3%
Multiple location options	Count	1	2	3
	% within factors	33,3%	66,7%	100,0%
	% within Segment	1,6%	6,1%	3,2%
	% of Total	1,1%	2,1%	3,2%
Other	Count	2	0	2
	% within factors	100,0%	,0%	100,0%
	% within Segment	3,2%	,0%	2,1%
	% of Total	2,1%	,0%	2,1%
Quality performance	Count	8	6	14
	% within factors	57,1%	42,9%	100,0%
	% within Segment	12,9%	18,2%	14,7%
	% of Total	8,4%	6,3%	14,7%
Resource pool	Count	20	9	29
	% within factors	69,0%	31,0%	100,0%
	% within Segment	32,3%	27,3%	30,5%
	% of Total	21,1%	9,5%	30,5%
Time Zone	Count	0	6	6
	% within factors	,0%	100,0%	100,0%
	% within Segment	,0%	18,2%	6,3%
	% of Total	,0%	6,3%	6,3%
	Count	62	33	95
	% within factors	65,3%	34,7%	100,0%
	% within Segment	100,0%	100,0%	100,0%
	% of Total	65,3%	34,7%	100,0%

Source: Compiled from the field survey data.

#### 6.2.4. Addressing research question 4

*Is there a consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run?*

H<sub>0</sub>: There is no consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run.

H<sub>1</sub>: There is a consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run.

The formulation of the fourth hypothesis refers to the analysis of the relation of dependence between India's ability to sustain its competitive advantage in the long run and the segments the professionals work for (IT Services and ITeS-BPO). To investigate this relationship the Pearson Chi-Square ( $\chi^2$ ) test has been used, since the aim of the analysis is to test the independence of qualitative variables.

The proportion of individuals who believes that the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run is independent of the segment they work for,  $\chi^2(2) = 1,928$ , p – value = 0,381 (Table 16).

Being p-value = 0,381 >  $\alpha = 0,05$  the null hypothesis (H<sub>0</sub>) that there is no consensus among IT Services and ITeS-BPO professionals about India's ability to sustain its competitive advantage in the long run is not rejected.

**Table 16 – Sustainable competitive advantage vs. Segments**

		Segment		
		IT	ITeS / BPO	Total
No	Count	15	4	19
	% within growing	78,9%	21,1%	100,0%
	% within Segment	24,2%	12,1%	20,0%
	% of Total	15,8%	4,2%	20,0%
Yes	Count	47	29	76
	% within growing	61,8%	38,2%	100,0%
	% within Segment	75,8%	87,9%	80,0%
	% of Total	49,5%	30,5%	80,0%
Total	Count	62	33	95
	% within growing	65,3%	34,7%	100,0%
	% within Segment	100,0%	100,0%	100,0%
	% of Total	65,3%	34,7%	100,0%

Source: Compiled from the field survey data.

### 6.2.5. Addressing research question 5

*Do IT Services and ITeS-BPO professionals have different perceptions about whether or not the services sector could be an engine of growth?*

H<sub>0</sub>: IT Services and ITeS-BPO professionals have no different perceptions about whether or not the services sector could be an engine of growth.

H<sub>1</sub>: IT Services and ITeS-BPO professionals have different perceptions about whether or not the services sector could be an engine of growth.

Regarding the fifth hypothesis it refers to the analysis of the relation of dependence between the perceptions about whether or not the services sector could be an engine of growth and the segments the professionals work for (IT Services and ITeS-BPO).

The proportion of respondents in the IT Services sector that considers whether to expand the base of the economy to the industry sector is higher than the proportion of respondents in the field of ITeS / BPO who share the same view (33,9% vs. 12,1%), although the difference was not statistically significant,  $\chi^2(2) = 5,351$ ,  $p$  – value = 0,069 (Table 15).



Being  $p\text{-value} = 0,069 > \alpha = 0,05$  the null hypothesis ( $H_0$ ) that IT Services and ITeS-BPO professionals have no different perceptions about whether or not the services sector could be an engine of growth is not rejected.

*Table 17 – Expand services vs. Segments*

		Segment		
		IT	ITeS/BPO	Total
Broaden the base of its economy to the industry sector	Count	21	4	25
	% within expand servicess	84,0%	16,0%	100,0%
	% within working exp.	33,9%	12,1%	26,3%
	% of Total	22,1%	4,2%	26,3%
Continue to expand the services sector	Count	10	8	18
	% within expand servicess	55,6%	44,4%	100,0%
	% within working exp.	16,1%	24,2%	18,9%
	% of Total	10,5%	8,4%	18,9%
Both	Count	31	21	52
	% within expand servicess	59,6%	40,4%	100,0%
	% within working exp.	50,0%	63,6%	54,7%
	% of Total	32,6%	22,1%	54,7%
Total	Count	62	33	95
	% within expand servicess	65,3%	34,7%	100,0%
	% within working exp.	100,0%	100,0%	100,0%
	% of Total	65,3%	34,7%	100,0%

Source: Compiled from the field survey data.

### 6.2.6. Addressing research question 6

*Do IT Services and ITeS-BPO professionals have different perceptions about the "job-less growth" phenomenon?*

$H_0$ : IT Services and ITeS-BPO professionals have no different perceptions about the "job-less growth" phenomenon.

$H_1$ : IT Services and ITeS-BPO professionals have different perceptions about the "job-less growth" phenomenon.

Finally, the sixth hypothesis regards the analysis of the relation of dependence between the perceptions about the "job-less growth" phenomenon and the segments the professionals work for.

The proportion of respondents who consider that the expansion beyond the services sector alone would provide the necessary number of jobs opportunities to combat the “job-less growth” phenomenon is higher in individuals of IT Services segment than ITeS-BPO (52,5% vs. 42,4%), although the difference was not statistically significant,  $\chi^2 (1) = 0,867$ ,  $p - value = 0,352$  (Table 18).

Being  $p - value = 0,352 > \alpha = 0,05$  the null hypothesis ( $H_0$ ) that IT Services and ITeS-BPO professionals have no different perceptions about the "job-less growth" phenomenon is not rejected.

*Table 18 – Job-less growth vs. Segments*

		Segment		
		IT	ITeS / BPO	Total
Yes	Count	31	14	45
	% within expansion on services alone	68,9%	31,1%	100,0%
	% Segment	52,5%	42,4%	48,9%
	% of Total	33,7%	15,2%	48,9%
No	Count	28	19	47
	% within expansion on services alone	59,6%	40,4%	100,0%
	% Segment	47,5%	57,6%	51,1%
	% of Total	30,4%	20,7%	51,1%
Total	Count	59	33	92
	% within expansion on services alone	64,1%	35,9%	100,0%
	% Segment	100,0%	100,0%	100,0%
	% of Total	64,1%	35,9%	100,0%

Source: Compiled from the field survey data.

### 6.3. Analysis and Discussion of Results

#### Services sector expansion

Several authors have focused in the study of the expansion of the services sector and argue that the sector can be considered an engine of growth (Neil M. Swan, 1985; Das, Gupta & Singh, 2005; Joshi (2007); Goldar & Mitra (2008) and Kalita (2010). According to this study, only 17.6% of the respondents consider this hypothesis.

On the other hand, (Browne, 1987) add that services are thought of as incapable of generating any growth of their own and are regarded as dependent on the growth of other sectors, particularly manufacturing. This vision is shared by 24,5% of those surveyed.

The present study found that India should focus simultaneously on the expansion of the services and industry sectors, reflecting the perceptions of 57,8% of the participants in this research.

These perceptions are unanimous between the surveyed professionals working either in IT Services either in ITeS-BPO, which is in line with the study conducted by (Banga & Goldar, 2004) who claim that services are increasingly important as an input to Indian manufacturing.

This research verifies the argument espoused by Bosworth, Collins & Virmani (2006) that India needs a more balanced model of growth that could expand the supply of well-educated workers at the same time that it increases the demand for workers with more modest skills.

### **India's collapsing infrastructure**

The overwhelming majority of individuals who contributed to this study (83%) considered that India's collapsing infrastructure has acted as a bottleneck to industrial growth, reinforcing the studies developed by (Gordon & Gupta, 2003) and (Kalita, 2010) who argues that one of the reasons why India chose a services led growth path was that there was a lack of adequate infrastructure to focus on manufacturing.

### **“Job-less growth”**

Most of the existing literature on this topic indicates that the expansion beyond the modern service sector alone cannot provide the requisite number of job opportunities to combat the “job-less growth” phenomenon (Gordon & Gupta, 2003; Banga, 2005; Das, 2006; Bosworth, Collins & Virmani, 2006; Joshi, 2008; Thomas, 2008).

This study verifies that the surveyed IT Services and ITeS-BPO professionals have no different perceptions about the "job-less growth" phenomenon with 51,5% of the participants corroborating the results of the aforementioned literature.

### **Engines of growth**

According to NASSCOM (2005), the IT and BPO industries can become major growth engines for India, as oil for Saudi Arabia and electronics and engineering are for Taiwan.

A large number of investigators indicate a correlation between India's economic growth and the rise of the IT sector (Solow, 1956; Grossman & Helpman, 1994; Kalam & Rajan, 1998; Pohjola, 2001; Stiroh, 2002; Gordon & Gupta, 2003; Rodrik & Subramanian, 2003; Davies, 2004; Zhen-Wei Qiang, 2004; Virmani, 2005; Das, 2006; Tripathi, 2006/2007; Wallace, 2008; Newsom, 2009).

This study opposed these findings and revealed (with 76% of the total responses) that IT Services and ITeS-BPO could not be considered engines of growth in the same way that Saxenian (2001) argues that Bangalore is not Silicon Valley and IT is not going to solve all of India's problems and Sanjay (2008) who noted that on a macro level India should be careful with conducting development solely through technology and lessen its infatuation with technology.

### **India key advantage**

India has attained a global leadership position thanks to its cost effectiveness (over source countries), cross value chain (IT, call center, processing, R&D, analysis, etc.), multiple location options, quality performance, resource pool and time zone (global and 24/7 delivery capability) (NASSCOM, 2011).

The literature as regards the main advantages of the Indian IT/ITeS industry is vast regardless resource pool, cost effectiveness, quality performance and time zone differences being the factors invoked by most authors (Saxenian, 2000; Gupta, 2002; Mohapatra, 2003; Zika & Thoms, 2004; Banerjee, 2005; Wüllenweber *et al.*, 2006; Balatchandirane & Rose, 2007; Thomas, 2008).

The cost advantages of outsourcing appear to be the most commonly cited rationale behind outsourcing development and maintenance functions of information technologies (Powell, 1990). Likewise, this study reveals that the main factor that best describes the key advantage of the Indian IT/ITeS industry is the cost effectiveness (36,3%) followed by the

availability of resource pool (31,4%) and the quality performance (13,7%). Time zone and cross value chain are also factors considered each one with 5,9%.

The study also established that the perceptions about this topic vary according to the segment the surveyed professionals work. For instance, individuals working in ITeS-BPO considered with greater relevance the time zone factor than individuals working in IT Services (18,2% vs. 0,05%).

### **City classification**

As regards the geographical locations, Singh (2002) argues that location and ownership are not of direct importance, but are only proxies for whether the IT software and services provider has the right combination of people, knowledge, experience and reputation to compete successfully.

In contrast, this study demonstrates that city classification is a critical issue as part of a global delivery strategy (54,9%) strengthening the idea that in the 21<sup>st</sup> century industry clusters are still relevant economic phenomena of vast importance to business practitioners and policymakers all over the world (Morosini, 2004).

### **Most attractive IT/ITeS destination**

Since its inception, India's business process outsourcing industry has been concentrated in the cities of New Delhi (including Gurgaon and Noida), Mumbai, and Bangalore (Greene, 2006).

Within clusters, Bangalore seems to be better off than other clusters (Basant, 2006) once it has enjoyed a strong global position as a center for IT services since the 1990s and it can facilitate a diversification into high-value IT activities (Leleur, 2009). The IT cluster in Bangalore has demonstrated significant economic performance in past decades as a hub for primarily customized IT services for the US market (Arora *et al.*, 2001).

The overwhelming majority of participants in this study considers Bangalore as the most attractive IT/ITeS destination for services globalization (72,5%), followed by Delhi-NCR (6,9%) and Mumbai and Pune (5,9%).

### **Contributions to the workforce development**

Joshi (2008) indicates that the growth of IT and ITeS is having social, economic, health, ethical and environmental implications. IT can change how the society communicates, collaborates, lives, works, and plays (Konana & Balasubramanian, 2001), overcoming traditional barriers to widespread delivery of education at all levels (Singh, 2002).

This study adds to the existing literature the identification of the most significant contributions of IT/ITeS industry to the Indian workforce development. The overall talent development in the country (41,2%), skill enhancement within organization (22,5%) and employment diversity (16,7%) are the most cited contributions by the surveyed.

### **Indirect impacts**

Apart from contributing to the growing income of its direct stakeholders the IT/ITeS industry has had a multiplier effect on other sectors of the economy.

The growth of IT and ITeS can impact the overall growth of the economy through inter sectorial linkages by generating demand impulses in the economy (Joshi, 2008), which have significant effects on the efficiency of operations in other industries (Singh, 2002).

The indirect employment generation is other issue that positively impacts the economy landscape, being hand by hand with above mentioned growth of other sectors since for every job created in the sector, four additional jobs are created in the economy (NASSCOM).

Indirect jobs are created as IT-ITeS industries demand a range of services including telecom, power, construction, facility management, IT, transportation, and catering. Jobs are also generated through the consumption expenditures of IT sector employees on food, clothing, utilities, recreation, health and other services (Thomas, 2008).

The current study also points the driving growth of other sectors and the indirect employment generation as main indirect impacts of Indian IT/ITeS industry on the

economic scenario. About 12,7% of the respondents cited indirect employment generation as the main indirect impact while 24,5% considered the driving growth of other sectors.

This study adds to the existing body of literature by mentioning as the main indirect impact the boost of India's image in global markets (34,3%), perceptions that don't vary significantly according to the segment the inquired professionals work.

### **Direct impacts**

Joshi (2008) cited the national GDP share, revenue generation, foreign exchange earnings and employment generation as the main contributions of Indian IT/ITeS industry.

The development of IT/ITeS sector can have significant and direct impact on the economy through employment generation (Rajeev & Vani, 2007). IT-enabled Services promise to directly generate employment much more significantly than activities such as software development (Singh, 2002).

NASSCOM, Strategic Review (2006) highlights that Indian IT and ITeS have played an instrumental role in the building up of foreign exchange reserves for India and the trend in the build-up clearly reflects the growth of IT and ITeS exports from India.

This study while refers foreign exchange earnings (29,4%) and national GDP share (23,5%) as important direct impacts it also highlights the relevance of employment generation with 47,1% of the participants mentioning this factor as a main direct economic impact of Indian IT/ITeS industry.

The perceptions about this topic significantly vary according to the segment the surveyed professionals work.

The proportion of respondents who consider that the main direct impact of Indian IT/ITeS industry on the economic scenario is the employment generation, is higher in the surveyed individuals of IT Services than ITeS-BPO segment (50,8% vs. 39,4%).

On the other hand, the proportion of respondents who consider that the main direct impact of Indian IT/ITeS industry on the economic scenario is the National GDP share, is higher in individuals of ITeS-BPO segment than IT Services (42,4% vs. 15,3%).

### **Impact of the global slowdown**

According to Evalueserve (2007) the affect of global slowdown is massive.

The global economic slowdown has resulted in major uncertainties in the business environment for the IT-BPO industry, which had an adverse impact on revenue growth, stock market evaluations, profit margins and the credit access (Mitra, 2009).

According to this study the impact of global slowdown on the Indian IT/ITeS industry was critical (47,1%), which goes in line with what is reported in the existing literature.

### **Challenges**

According to a Dun & Brandstreet's study (2011), there are six main challenges impacting the IT/ ITeS industry: competition from emerging and cost competitive markets, high attrition rates, inadequate infrastructure, increasing operation costs, rupee fluctuation and shortage of skilled manpower.

Mehta *et al.* (2006), refer some challenges, which could prevent India from maintaining a leading role in business process outsourcing in years to come. These challenges include cultural differences, rising operational costs, competition of other countries, and personnel issues.

Agrawal *et al.* (2011) point out the competition, global economic slowdown, scarcity of talent, high attrition rates, and many other HR and technology related issues as the main challenges.

Thomas (2008) adds large salary increases, high labor turn over and also shortages of workers with the required skill levels and experience.



Joshi (2008) stresses that the main challenges in the field of IT and ITeS are raising labor costs, rapid growth in demand for talented manpower/quality staff, high attrition rate and outsourcing backlash.

Greene (2006) cited high attrition rates, absenteeism, rising salaries, inadequate physical infrastructure, and the lack of data privacy laws and intellectual protection as the main challenges.

Banerjee (2005) emphasizes the increasing employee attrition rates in companies, marketing problems due to cultural differences, rising wages and competition from other countries while Dowouna (2011) warns that the search for alternative locations for BPO has accelerated.

The analysis performed suggest that competition from emerging and cost competitive markets is the most mentioned challenge with 49% of the total answers. The emergence of countries such as China, Malaysia, Indonesia, Mexico and Philippines to name a few as possible outsourcing destinations is one of the most important challenges that the industry has been facing over the last couple of years.

Emergence of China, Philippines, Russia, Brazil, and South Africa among others as developing market alternative to India's IT workforce has endangered India's preeminence in this area (Mohapatra, 2003).

Inadequate infrastructure (10,8%) and high attrition rate (9,8%) follows as the most mentioned challenges by the surveyed, with just a percentage point of difference.

Regarding a WEF study, inadequate supply of infrastructure is the most problematic factor for doing business in India. There has been a mismatch between the existing infrastructure of Tier I/II cities and the exponential growth witnessed in the sector. This represents a critical challenge that the country has rapidly to overcome.

Moreover, due to the presence of many players in the industry and the rapid growth in other sectors, the competition between companies to retain the most talented employees has intensified (Dun & Brandstreet's, 2011).

### **Domestic market**

Singh (2002) mentioned that since Indian firms can compete abroad, they should also be able to succeed in their own backyard where they have advantages such as knowing their customers better, and being closer to them. Moreover, the boundary lines between domestic and foreign can be blurred when multinationals have Indian subsidiaries, particularly for IT or IT-enabled Services.

Mitra (2009) indicates that the slowdown in global demand has given IT – BPO firms based in India greater incentive to focus on the domestic market. Therefore, companies that are heavily oriented towards exports are giving greater attention to the domestic market. The author still highlights that given India still is in an early phase of developing the domestic market for IT-BPO there is a major growth potential.

The present study, in line with the existing literature, found that the domestic IT/ITeS market would emerge as an alternative market for the Indian companies.

This perception is shared by the great majority of the participants in this study (73,5%).

### **Competitive advantage sustainability**

The sustainability of impressive growth of Indian economy has been questioned in the wake of some challenges, especially in the form of lack of social infrastructure (Joshi, 2008).

Regarding the growing competition arising from other emerging destinations, Konana & Balasubramanian (2001) raised the question: “is this model economically sustainable in the long run?” In their study they suggest that it is very likely that other developing nations with even cheaper labor and growing English-speaking populations will compete with India.

However, according to the outputs of the present study, those evidences in literature are only supported by 21,6% of the participants.

This study found that 78,4% of the individuals who cooperated in the study believes that the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run, being these perceptions independent of the segment they work for.

These results reinforce the arguments adduced by Thomas (2008) who claims that India is still ahead of other competing countries in IT and ITeS industries.

### **Trends**

According to a Dun & Brandstreet's study (2011), players need to adopt an innovative approach to tackle this situation by adopting innovative service models, developing vertical/domain specialization, diversifying service lines, emerging IT multinationals, entering in new markets, increasing global spending and consolidating the industry through merger and acquisition (M&A) activity.

The IT Action Plan recommends the promotion of venture capital, and most industry representatives and analysts agree that a dynamic venture capital industry will be critical to the long -term development of Indian IT. A healthy VC industry will stimulate new entrepreneurial entry, broaden the range of activities in the field, and accelerate the country's move into higher value added activities (Saxenian, 2001).

In contrast, this study reveals that Industry consolidation through M&A is one of the least mentioned trends by the surveyed professionals (7,8%).

Mahendra K. Sanghi, president of the Association of Software and Services Companies indicated that “it is important for India to provide services which are not given by others and where there will be no significant challenge. To preserve the market share, diversification is essential.”

Again, and in contrast with literature, the evidences found in this study place diversification as one of the least mentioned trends that the IT/ ITeS companies would adopt in the coming years to combat competition. However, Mahendra K. Sanghi also pointed that India should actively venture into new horizons and vertical services, which according to this study findings represents the perceptions of 12,7% of the inquired professionals that consider that developing vertical/domain specialization should be the way forward to combat competition and other such threats.

Agrawal *et al.* (2011) point that a large number of Indian companies are looking for expanding their operations by setting up delivery centers across the globe. Indian players are targeting regions such as China, Latin America, and Eastern Europe to set up new offshore locations. This trend is also perceived by about 13,7% of the surveyed in this study.

The impact of the recession has been felt the most in the US and Continental Europe, and cutting costs and increasing competitiveness through outsourcing are once again a focus area. The Indian ITeS-BPO segment is also looking at Asia Pacific, Japan and the Middle East, which offer significant untapped potential, to broaden its client base and diversify from core markets (US and UK).

If on one side the emergence of Indian IT Multinationals is mentioned by the surveyed professionals with the same importance degree as entering new markets (13,7%), on the other this study adds to the existing academic literature by suggesting the adoption of innovative service models as the major trend that the IT/ ITeS companies would adopt in the coming years to combat competition and other such threats. This trend was perceived by 27,5% of the respondents.

## **Chapter 7**

### **Conclusions**

#### **7.1. Conclusions**

The development of the present study seeks to contribute to a better understanding of the impact of IT Services and ITeS-BPO on India's growth more concretely and specifically by identifying the impact of this perception by the professionals.

Despite the limitations of this study, it is assumed that this can contribute to overcome any knowledge gap in the existing literature.

An online survey has been used as a research tool for data collection.

The sample have been chosen through a non-probability sampling method – convenience sample and arranged following three main inclusion criteria namely, professional networking (PGSEM), type of organization (IT Services and ITeS-BPO) and location (Electronic City).

A total of 102 fully completed questionnaires were gathered and therefore considered for the study, of which 80,4% (n = 82) assigned to males while females is shown for the remaining 19,6% (n = 20). In this study, young respondents predominate as 72,5% belong to the age group 20-30 years.

Regarding the segments the inquiries belong, 65,3% work in IT services and 34,7% in ITeS-BPO, being the majority between 3-6 years of experience (36%).

This study is composed by two main parts: a) descriptive statistics; b) multivariate statistical analysis and hypothesis testing.

In order to access the six research questions of this study and test the respective hypothesis, Chi-Square ( $\chi^2$ ) tests have been used once the aim of the analysis is to test the independence of qualitative variables.

In this study, it was found that IT Services and ITeS-BPO surveyed professionals have no different perceptions about the main direct impact of Indian IT/ITeS industry on the economic scenario and they agree that India should focus simultaneously on the expansion of the services and industry sectors, which reflects the perceptions of 57,8% of the participants in this research.

It was also possible to conclude that India's collapsing infrastructure has acted as a bottleneck to industrial growth (83% of total answers) and that the participants have no different perceptions about the “job-less growth”, since both segments consider that the expansion beyond the modern service sector alone cannot provide the requisite number of job opportunities to combat the “job-less growth” phenomenon (51,5%).

The surveyed considered that IT Services and ITeS-BPO could not be considered engines of growth (with 76% of the total responses) which contrasts with the existing body of literature in this topic.

According to the surveyed professionals the main factor that best describes the key advantage of the Indian IT/ITeS industry is the cost effectiveness (36,3%) followed by the availability of resource pool (31,4%) and the quality performance (13,7%). Time zone and cross value chain are also factors considered, each one with 5,9%. The perceptions about this topic vary according to the segment the surveyed professionals work once individuals working in ITeS-BPO considered with greater relevance the time zone factor than individuals working in IT Services (18,2% vs. 0,05%).

More than half of the surveyed professionals point out that classification is a critical issue as part of a global delivery strategy (54,9%) and have chosen Bangalore as the most attractive IT/ITeS destination for services globalization (72,5%) ahead of Delhi-NCR (6,9%), Mumbai and Pune (each one with 5,9%).

The overall talent development in the country (41,2%), skill enhancement within organization (22,5%) and employment diversity (16,7%) are the most cited contributions of IT/ITeS industry to the Indian workforce development.

Regarding the indirect impacts of Indian IT/ITeS industry on the economic scenario, the surveyed professionals perceived the boost of India's image in global markets as the main one (34,3%), perceptions that don't vary significantly according to the segment the inquired professionals work for. It was found that the driving growth of other sectors (24,5%) and the indirect employment generation (12,7%) are other important factors indirectly impacting the economic scenario.

This study while refers foreign exchange earnings (29,4%) and national GDP share (23,5%) as important direct impacts it also highlights the relevance of employment generation with 47,1% of the participants mentioning this factor as a main direct economic impact of Indian IT/ITeS industry.

The perceptions about this topic significantly vary according to the segment that the surveyed professionals work, being the employment generation more considered by IT Services professionals (50,8% vs. 39,4%) and national GDP share more considered by ITeS-BPO professionals (42,4% vs. 15,3%).

It is consensual among the surveyed that the impact of global slowdown on the Indian IT/ITeS industry was critical (47,1%) and that competition from emerging and cost competitive markets is the major challenge with 49% of the total answers. Inadequate infrastructure (10,8%) and high attrition rate (9,8%) follows as the challenges most mentioned by the surveyed professionals.

The great majority of participants (73,5%) considered that the domestic IT/ITeS market would emerge as an alternative market for the Indian companies and 78,4% perceived that the Indian IT/ITeS industry is in a position to sustain its competitive advantage in the long run, being this perception independent of the segment they work for.

According to the inquired professionals, the adoption of innovative service models (27,5%) is the major trend that the IT/ ITeS companies would adopt in the coming years to combat competition and other such threats.

The emergence of Indian IT Multinationals is mentioned by the surveyed with the same importance degree as entering new markets (13,7%), being the second most perceived trend to adopt in the coming years, while 12,7% of the inquired professionals consider that developing vertical/domain specialization should be the way forward to combat competition and other such threats. On the other hand, diversification (9,8%), industry consolidation through M&A (7,8%) and increase global spending (2,9%) are the least mentioned trends by the industry professionals.

## **7.2. Limitations of this Research**

This exploratory study has several limitations since it presents a limited analysis of a broad and dynamic phenomenon. As in all analyzes of data collected based on questionnaires, the results should be interpreted with some caution. Even if all underlying assumptions are quite acceptable for an exploratory study of this nature, the measured variables are subject to change over time.

For instance, the perceptions of individuals are susceptible of change as time passes by. Subsequently, the results provide only a snapshot of the perceptions of IT Services and ITeS-BPO professionals of the chosen sample and should not be generalized for all country. Other limitations may be considered in this study, in particular related to the data collection, the data analysis and the research.

### Limitations related to data collection

As regards to data collection, the most important limitations of this study are:

- a) Time constraints and questionnaire availability for filling;
- b) Sample size. The sample is not representative of the reality given some factors like the size of the country, cultural and regional dispersion, age group, etc.



### Limitations related to data analysis

The statistical test used was the one considered more suitable for the validation of each hypothesis. However, it is acknowledged that there are other statistical approaches that can be applied in future research.

### Limitations related to research

The existing gap in scientific studies related to the perceptions of professionals of IT Services and ITeS-BPO made possible the realization of this exploratory study.

From the literature review undertaken it is understood that this study, in its substance, is the first attempt to identify the perceptions of IT Services and ITeS-BPO professionals about the impact of the segments they work for in India economic growth, providing only a starting point and a basis for further investigations.

### **7.3. Suggestions for Further Research**

To develop and strengthen the literature and knowledge on the impact of IT Services and ITeS-BPO on India's growth through the lens of the professionals will be necessary to develop more scientific research, particularly in more diverse contexts.

Naturally, as this study was conducted, there were several areas of interest for further investigation. In fact, the more one advances in research, more ideas for new studies are envisioned.

Concisely, the main suggestions for future research are:

- 1) Further debate on the perceptions of industry professionals about the impact the segments they work for have in the Indian economic scenario;
- 2) Extending the sample size to the overall country and analyze the differences in the perceptions among the Indian states;

- 3) Studying the perceptions of professionals between the tier I cities and contrasting it with the perception of professionals in tier II and III cities;
- 4) Studying the perceptions of industry professionals based on their age and working experience;
- 5) Extending the study to Software and Hardware segments;
- 6) Compare the perceptions amongst the CEOs of the TOP industry companies based on interviews.

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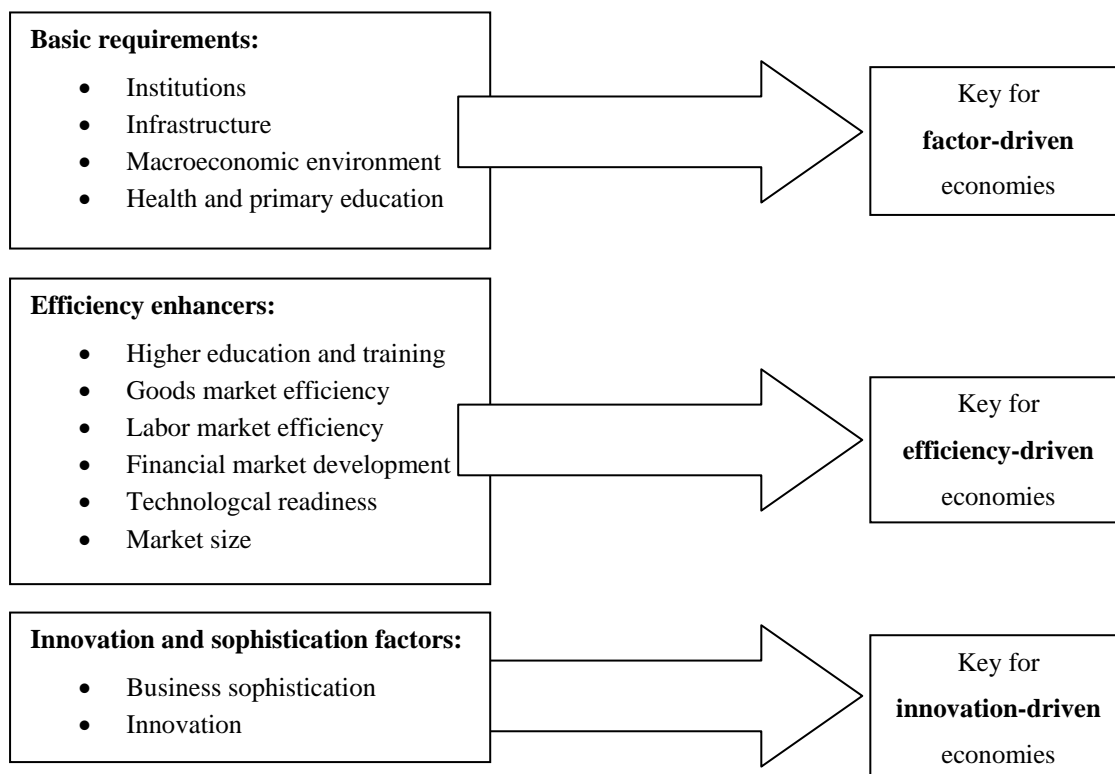
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## Appendix

**Appendix A – The twelve pillars of competitiveness**

Source: World Economic Forum, “*The Global Competitiveness Report 2011-2012*”.

## Appendix B – Global Competitiveness Index Rankings of BRIC Countries

Global Competitiveness Index			Global Competitiveness Index		
	Rank (out of 142)	Score (1–7)		Rank (out of 142)	Score (1–7)
					
<b>GCI 2011–2012</b> .....	<b>53</b>	<b>4.3</b>	<b>GCI 2011–2012</b> .....	<b>66</b>	<b>4.2</b>
GCI 2010–2011 (out of 139).....	58	4.3	GCI 2010–2011 (out of 139).....	63	4.2
GCI 2009–2010 (out of 133).....	56	4.2	GCI 2009–2010 (out of 133).....	63	4.2
<b>Basic requirements (35.5%)</b> .....	<b>83</b>	<b>4.3</b>	<b>Basic requirements (36.4%)</b> .....	<b>63</b>	<b>4.6</b>
Institutions.....	77	3.7	Institutions.....	128	3.1
Infrastructure.....	64	4.0	Infrastructure.....	48	4.5
Macroeconomic environment .....	115	4.2	Macroeconomic environment .....	44	5.2
Health and primary education .....	87	5.4	Health and primary education .....	68	5.7
<b>Efficiency enhancers (50.0%)</b> .....	<b>41</b>	<b>4.4</b>	<b>Efficiency enhancers (50.0%)</b> .....	<b>55</b>	<b>4.2</b>
Higher education and training.....	57	4.4	Higher education and training.....	52	4.5
Goods market efficiency.....	113	3.8	Goods market efficiency.....	128	3.6
Labor market efficiency.....	83	4.2	Labor market efficiency.....	65	4.4
Financial market development .....	43	4.5	Financial market development .....	127	3.2
Technological readiness.....	54	4.0	Technological readiness.....	68	3.7
Market size .....	10	5.6	Market size .....	8	5.7
<b>Innovation and sophistication factors (14.5%)</b> .....	<b>35</b>	<b>4.0</b>	<b>Innovation and sophistication factors (13.6%)</b> .....	<b>97</b>	<b>3.2</b>
Business sophistication .....	31	4.5	Business sophistication .....	114	3.3
Innovation.....	44	3.5	Innovation.....	71	3.1
<b>GCI 2011–2012</b> .....	<b>56</b>	<b>4.3</b>	<b>GCI 2011–2012</b> .....	<b>26</b>	<b>4.9</b>
GCI 2010–2011 (out of 139).....	51	4.3	GCI 2010–2011 (out of 139).....	27	4.8
GCI 2009–2010 (out of 133).....	49	4.3	GCI 2009–2010 (out of 133).....	29	4.7
<b>Basic requirements (60.0%)</b> .....	<b>91</b>	<b>4.2</b>	<b>Basic requirements (40.0%)</b> .....	<b>30</b>	<b>5.3</b>
Institutions.....	69	3.8	Institutions.....	48	4.3
Infrastructure.....	89	3.6	Infrastructure.....	44	4.6
Macroeconomic environment .....	105	4.3	Macroeconomic environment .....	10	6.2
Health and primary education .....	101	5.3	Health and primary education .....	32	6.2
<b>Efficiency enhancers (35.0%)</b> .....	<b>37</b>	<b>4.5</b>	<b>Efficiency enhancers (50.0%)</b> .....	<b>26</b>	<b>4.7</b>
Higher education and training.....	87	3.9	Higher education and training.....	58	4.3
Goods market efficiency.....	70	4.2	Goods market efficiency.....	45	4.4
Labor market efficiency.....	81	4.2	Labor market efficiency.....	36	4.7
Financial market development .....	21	4.9	Financial market development .....	48	4.4
Technological readiness.....	93	3.4	Technological readiness.....	77	3.6
Market size .....	3	6.2	Market size .....	2	6.8
<b>Innovation and sophistication factors (5.0%)</b> .....	<b>40</b>	<b>3.9</b>	<b>Innovation and sophistication factors (10.0%)</b> .....	<b>31</b>	<b>4.1</b>
Business sophistication .....	43	4.3	Business sophistication .....	37	4.4
Innovation.....	38	3.6	Innovation.....	29	3.9

Source: World Economic Forum, “The Global Competitiveness Report 2011–2012”.



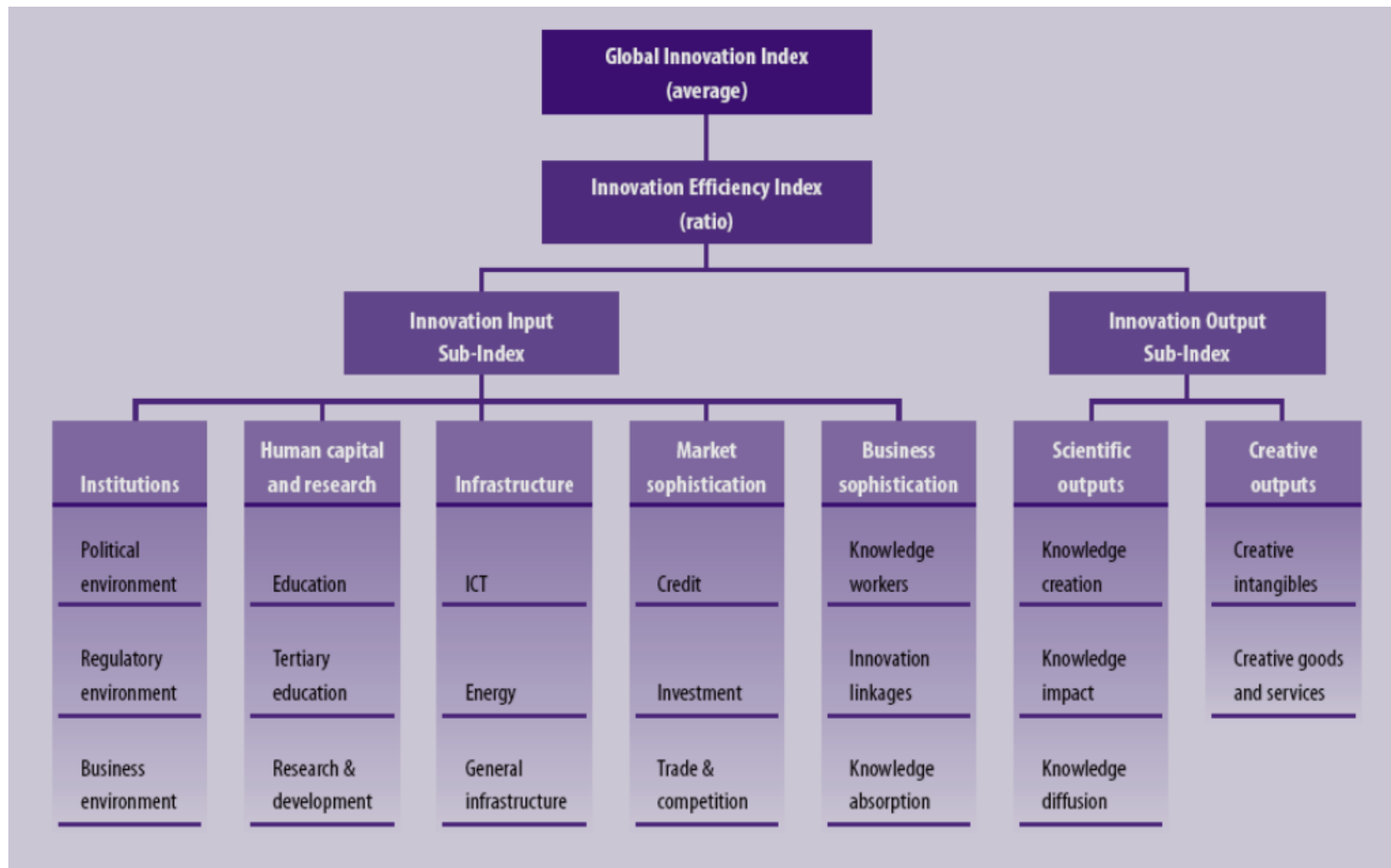
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**Appendix C – Financial Development Index Rankings of BRIC Countries**

Pillars	Institutional environment	Business environment	Financial stability	Banking financial services	Non-banking financial services	Financial markets	Financial access	Overall Index
India	54	54	47	43	5	29	47	36
Brazil	41	50	11	41	11	27	23	30
China	31	46	10	9	3	28	22	19
Russia	56	31	43	57	9	41	53	39

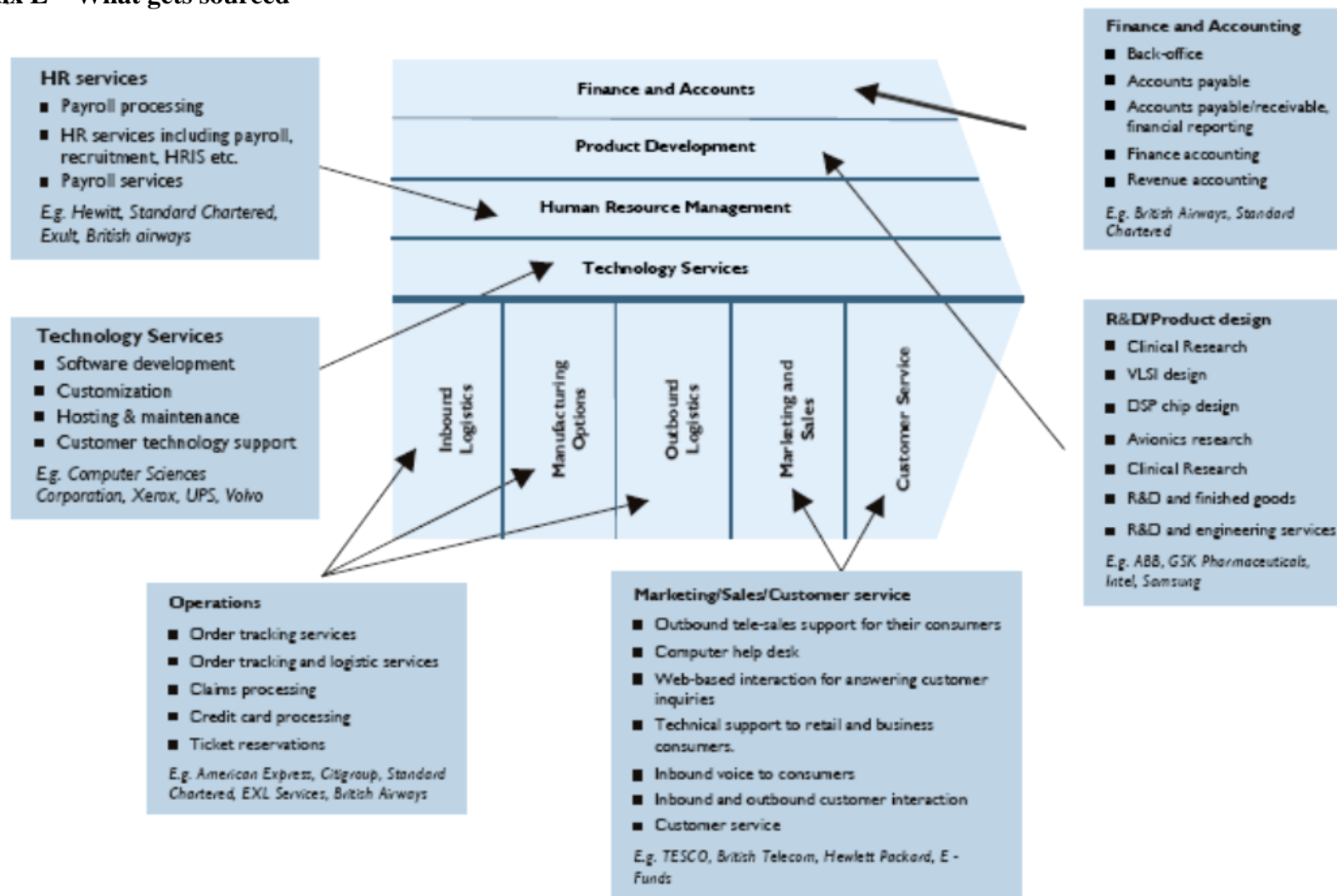
Source: Deloitte, “Getting to the Core: Economic indicators of the Indian capital markets relevant for Foreign Institutional Investors”, March 2012.

Appendix D – Framework of Global Innovation Index 2011



Source: Soumitra Dutta, “The Global Innovation Index 2011: Accelerating Growth and Development”.

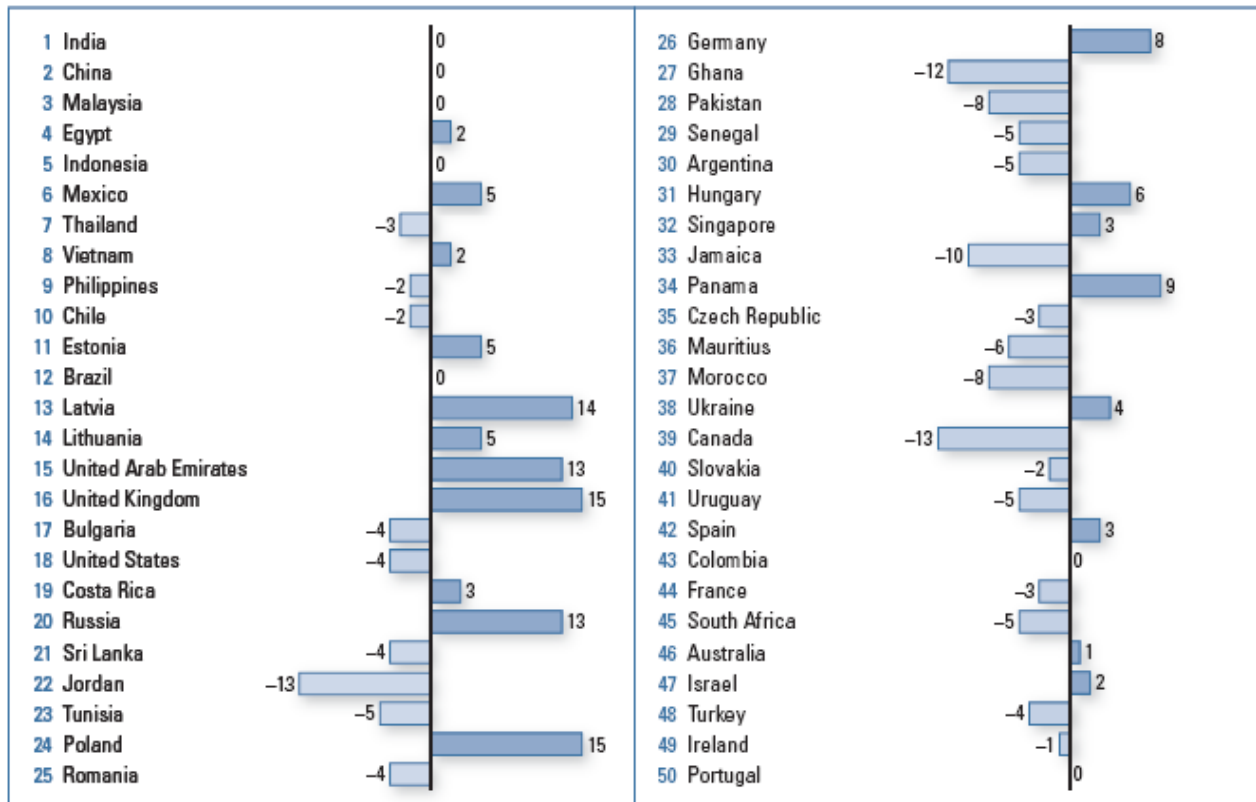
Appendix E – What gets sourced



Source: IBEF, January, 2006, “Information Technology”.

## Appendix F – A.T. Kearney Global Services Location Index, 2011

## Change in rankings (2009 to 2011)



Source: A.T. Kearney Global Services Location Index, 2011.

### Appendix G – Dataquest Top 20 IT Companies in India: FY 2010-2011

Rank FY 11	Company	Revenue FY 11	Revenue FY 10	% Growth FY 11
1	TCS	33112	26576	25
2	Infosys Technologies	25997	21355	22
3	Wipro	24899	21949	13
4	Hewlett – Packard India	23227	17831	30
5	Cognizant Technology Solutions	21393	15646	37
6	IBM India	14132	12388	14
7	HCL Technologies	14111	10983	28
8	HCL Infosystems	12137	11956	2
9	Ingram Micro India	9766	7234	35
10	Redington India	9274	7024	32
11	Cisco Systems India	8157	6057	35
12	Oracle India	7934	6321	26
13	Dell India	7666	5709	34
14	Intel India	6108	5160	18
15	Accenture India	5672	4800	18
16	SAP India	5146	3924	31
17	Mahindra Satyam	5049	5084	-1
18	Tech Mahindra	4819	4359	11
19	Microsoft India	4711	3910	20
20	Mphasis	4498	3920	15
<b>Total Revenues of DQ Top 20 IT Companies</b>				

Source: Cyber Media's Dataquest Top 20 IT Companies Research, July 2011.

## Appendix H – Dataquest Top 20 BPO Companies in India: FY 2010-2011

Rank FY 11	Company	Revenue 2010-11 (Rs Cr)	Revenue 2009-10 (Rs Cr)	Growth 2010-11	Growth 2009-10
1	Genpact	5680	4592	24	12
2	TCS BPO	3928	3142	25	73
3	Aegis BPO	2352	1837	28	18
4	Wipro BPO	2249	2106	7	15
5	Firstsource Solutions	1833	1723	6	10
6	WNS Global Services	1685	1858	-9	4
7	Infosys BPO	1545	1383	12	9
8	Aditya Birla Minacs	1518	1404	8	-2
9	Accenture India	1436	1135	27	7
10	IBM Global Process Services	1292	1212	7	-18
11	Exl Service	1224	966	27	11
12	Cognizant BPO	1217	858	42	28
13	Hinduja Global Solutions	942	759	24	15
14	Xchanging India	893	956	-7	14
15	Convergys India	891	801	11	-2
16	Intelenet Global	871	775	12	4
17	HCL BSERV	857	1044	-18	-3
18	24/7 Customer	716	660	8	18
19	3i Infotech	645	779	-17	49
20	Mphasis BPO	472	542	-13	-5
<b>Total Revenues of DQ Top 20 BPO</b>		<b>32246</b>	<b>28532</b>	<b>13</b>	<b>13</b>

Source: Dataquest Top 20 BPO Export Companies, August 2011.

## Appendix I – Survey

# “The Impact of IT Services & ITeS-BPO on India’s Growth”

## BASIC DETAILS

### DISCLAIMER

This study is not been conducted directly by Indian Institute of Management Bangalore but by a student studying within the University for a final year dissertation of the Master of Science in Business Administration of ISCTE-IUL (Lisbon, Portugal).

I am interested in understanding the perception of the professionals about the impact of IT Services and ITeS/BPO segments on India’s Growth .

I appreciate you taking the time to fill out this survey.

*All the information entered will be kept confidential to ensure anonymity. Thank you!*

### 1. Age \*

- 20 – 30
- 31 – 40
- 41 – 50
- 51 +

### 2. Gender \*

- Male
- Female

### 3. Segment in which one you worked or are currently working

- IT Services
- ITeS / BPO

### 4. Number of years of work experience

- 2 or less
- 3 - 6
- 7-10
- 11-14
- 15 or more

---

**INDUSTRY RELATED INFORMATION PART 1/2**

5. According to you, India should continue to expand the services sector or the country needs to broaden the base of its economy to the industry sector? \*

- Continue to expand the services sector
- Broaden the base of its economy to the industry sector
- Both
- N/A

---

6. Do you think that India's collapsing infrastructure have acted as a bottleneck to industrial growth? \*

- Yes
- No
- N/A

---

7. Do you think that the expansion beyond the services sector alone would provide the necessary number of job opportunities to combat the "job-less growth" phenomenon? \*

- Yes
- No
- N/A

---

8. In your view, could IT Services and ITES-BPO be considered engines of growth? \*

- Yes
- No
- N/A



9. According to you, what is the factor that best describes the key advantage of the Indian IT/ITeS industry? \*

- Cost effectiveness
- Resource pool
- Cross value chain
- Quality performance
- Time Zone
- Multiple location options
- World-class real estate
- Other

10. How critical is city classification as part of a global delivery strategy? \*

- |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Very Critical         | Critical              | Irrelevant            | A bit critical        | Not Critical          |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. From the options below, please mention which Indian city is the most attractive IT/ITeS destination for services globalization? \*

- |                       |                       |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Mumbai                | Delhi-NCR             | Chennai               | Kolkata               | Hyderabad             | Pune                  | Bangalore             |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

## INDUSTRY RELATED INFORMATION PART 2/2

12. In your view what is the main contribution of IT/ITES industry to the Indian workforce development? \*

- Employment Diversity
- Skill enhancement within organization
- Employee friendly work environment
- Overall talent development in the country
- Other

13. What is the main indirect impact of Indian IT/ITES industry on the economic scenario? \*

- Driving growth of other sectors       Balanced Regional Growth  
 Fuelling growth of Private Equity/Venture Capital funding activity       Spurring growth of first generation entrepreneurs  
 Boosting India's image in global markets       Improving product/ service quality  
 Front runner in good corporate governance       Other   
 Indirect employment generation

14. What is the main direct economic impact of Indian IT/ITES industry? Choose one. \*

- National GDP share  
 Employment generation  
 Foreign exchange earnings  
 Other

15. What according to you is the impact of global slowdown on the Indian IT/ITES industry? \*

- Very Critical      Critical      Irrelevant      A bit critical      Not Critical

16. According to you, what is the major challenge impacting the IT/ITeS industry? \*

- Competition from emerging & cost competitive markets  
 Increasing operating costs  
 Inadequate infrastructure  
 Regulatory Environment  
 Rupee Fluctuation  
 Shortage of skilled manpower  
 High attrition rate  
 Other

17. Do you think that the domestic IT/ITES market would emerge as an alternative market for the Indian companies? \*

- Yes     No

18. Regarding the growing competition arising from other emerging destinations, do you think the Indian IT/ITES industry is in a position to sustain its competitive advantage in the long run? \*

- Yes  
 No

19. According to you, what is the major trend that the IT/ ITeS companies would adopt in the coming years to combat competition and other such threats? \*

- |  |   |
|--|---|
| <input type="radio"/> Industry consolidation through M&A | <input type="radio"/> Developing vertical/domain specialization |
| <input type="radio"/> Offering Value-added products      | <input type="radio"/> Diversification                           |
| <input type="radio"/> Adopting Innovative Service models | <input type="radio"/> Emergence of Indian IT Multinationals     |
| <input type="radio"/> Increase global spending           | <input type="radio"/> Other <input type="text"/>                |
| <input type="radio"/> Entering new markets               |   |

**THANK YOU!**

*Thank you for taking this survey. Your response is very important for my study.*