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# **IT Industry in Transformation: Opportunities and Challenges for India**

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# Asia Research Centre Working Paper 29

## IT Industry in Transformation: Opportunities and Challenges for India

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Views expressed in this paper are solely of the author.

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## **Abstract**

The objective of this study is to provide an analysis of growth and transformation in the IT and BPO services industry in India. The study examines short, medium and long term developments in the 2000-2009 period and the prospects for the 2010s. It contains analysis of the global economic slowdown in 2008 and 2009 as well as long term IT-BPO industry transformation issues as manifested in the growth and composition of revenue earnings and industry linkages, human resource, finance, and industrial organization and innovation developments.

The primary focus is on the export-oriented software and BPO services industry but domestic market developments are also analyzed. The work examines the IT-BPO industry growth trends in different geographies and verticals (sectors) covering both the lower and the higher end of the value added chain. It highlights opportunities as well as factors constraining growth and provides growth scenarios for exports and the domestic market for the 2010-2020 period. Furthermore, it points to key corporate strategy and public policy imperatives and lessons in enabling continued growth and transformation of the IT-BPO industry and the offshoring business in India and internationally.

The paper addresses these issues in the following sequence.

1. Introduction covering background, methodology, sources of information and study limitations (chapter 1).
2. The international and comparative context of overall economic developments, IT spending and offshore service delivery growth trends (chapter 2).
3. The overall IT-BPO industry developments in India covering the importance of the IT-related industry in economic transformations and analysis of factors driving and constraining IT industry growth. This is followed by an examination of the overall industry growth performance, industrial organization and firm level growth developments, the transformation of the IT and BPO industry across different segments of the value added chain, employment and finance developments plus governance, shocks, opportunities and risks (chapter 3).
4. Export market growth trajectories encompassing an examination of phases of development, the growth record and changes in the horizontal and vertical composition of revenue earning and export development across different geographies (chapter 4).
5. Domestic market growth trajectories including an examination of phases of development, the growth record and change in the horizontal and vertical composition of revenue earnings (chapter 5).
6. Outlook for the next ten years comprising presentation of an India 2020: IT-BPO industry growth vision including analysis of strength, weaknesses and the need for industrial transformation followed by a presentation of three alternative growth scenarios and analysis of thereby related assumptions and critical crosscutting issues such as industry linkages, human resources, technology and infrastructure, industrial organization, clustering and network developments which are poised to determine the future of the IT-BPO industry in India (chapter 6).
7. The corporate strategy and public policy responses to the short and long term challenges in maximizing the potential for further development of the IT-BPO industry (chapter 7).

The final chapter 8 provides concluding remarks on the international perspectives in IT-BPO industry related developments comprising of an India-China comparison, questions relating to how India differs from other emerging market economies, and lessons from the Indian experiences. This is followed by a

section comparing industry growth trajectories in India in the 2000s and the 2010s and a final section on how the challenges of the 2010s can be turned into transformational opportunity to expand and innovate.

The method of enquiry for this study is that of historical and comparative review. The work uses descriptive (and some aspects of exploratory) research design. The examination is based on a critical review of published information as well as insightful examples, such as company-level information, including findings originating from semi-structured interviews conducted in India, Europe and the United States.

The study highlights how the generation, diffusion, absorption and application of technologies, knowledge and ideas are crucial drivers of economic and social development. This applies to both existing and new technologies, knowledge and ideas with the existing forms being the most prevalent in all countries, developing countries in particular, while new innovative developments typically have occurred in the most advanced industrial countries.

Historical evidence shows that only those countries and companies that are effective in investing in education and training as well as technical and business processes innovations progressively emerge as winners in the global economy — those who do not invest in human resource development and innovation risk falling behind.

India constitutes an example of a country which has begun to emerge as a significant power, both in terms of technical and business process innovation with the IT-BPO offshoring industry being a prime illustration. 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 both in terms of production and innovation.

While not a panacea for economic development, the IT-BPO industry and the use of ICT across different sectors — and more broadly related investment in higher education, science & technology and thereby related institutional capabilities — is poised to play an increasingly central role as a catalyst to social and economic transformation in India and the country's interfacing with the rest of the world.

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## Abbreviations and acronyms

ADB	Asian Development Bank
BPO	Business process outsourcing
BFSI	Banking, Financial Services and Insurance
CAGR	Compounded annual growth rate
CII	Confederation of Indian Industry
CMIE	Centre for Monitoring Indian Economy
CLSA	Credit Lyonnais Securities Asia
CSIR	Council of Scientific and Industrial Research
DOT	Department of Information Technology
DSIT	Department of Scientific & Industrial Research
DST	Department of Science and Technology
EIU	Economist Intelligence Unit
EPZ	Export processing zone
FDI	Foreign direct investment
FICCI	Federation of Indian Chambers of Commerce and Industry
FII	Foreign Institutional Investment
GE	General Electric
GDP	Gross Domestic Product
IBM	International Business Machines
ICRIER	Indian Council for Research on International Economic Relations
ICT	Information and communication technologies
IDC	International Data Corporation
IFC	International Finance Corporation
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
IIIT	International Institute of Information Technology
IMF	International Monetary Fund
IMS	Infrastructure management services
IPR	Intellectual property right
IT	Information technology
ITeS	IT-enabled Services
ITO	Information technology outsourcing
KPO	Knowledge process outsourcing
MNC	Multinational corporations
MAIT	Manufacturers' Association for Information Technology
MOU	Memorandum of understanding
NASSCOM	National Association of Software and Services Companies
NCAER	National Council of Applied Economic Research
NKC	National Knowledge Commission
NRI	Non-resident Indian
OECD	Organization for Economic Cooperation and Development
Offshoring	A company moves an activity abroad regardless of organizational form
Outsourcing	A company moves an activity to an external supplier
PhD	Doctorate in philosophy
PPP	Public-private partnership
PPP	Purchasing power parity
PwC	PriceWaterHouseCoopers
RBI	Reserve Bank of India
R&D	Research and development

RDI	Research, development and innovation
RBI	Reserve Bank of India
RIM	Remote infrastructure management
S&T	Science and technology
SME	Small and medium enterprises
SENSEX	The Bombay Stock Exchange Sensitive Index
SEZ	Special economic zones
STPI	Software Technology Parks of India
TCS	Tata Consultancy Services
TIFAC	Technology Information, Forecasting and Assessment Council
TPI	Technology Partners International
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UGC	University Grants Commission
UNCTAD	United Nations Conference on Trade and Development
UNDP	United National Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
VLSI	Very large scale integration
WDI	World Development Indicators (Published by the World Bank)
WEO	World Economic Outlook (Published by the IMF)
WEF	World Economic Forum
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Exchange rates used for conversion to U.S. dollars

FY2008-09 average: 1 U.S. dollar (US\$) = 45.92 Indian Rupees (Rs)

Financial/fiscal year (FY) from April 1 to March 31 of the next year.

(FY09 notation refers to FY2008-09 and so on)

# **1. Introduction**

## **1.1 Challenging times**

Rapid expansion of the information and communication technology (ICT) related industry has been a key feature in economic development worldwide. It has become a main source for export earnings and also a key driver in the transformation of the domestic economy and its international interface in several Asian economies. In the past decades, East Asian countries have been successful in capturing a large share of the global sourcing of information technology (IT) hardware and India has emerged as a major center for offshoring of IT industry related services.

These sectors, however, continue to face multiple challenges such as the need to respond quickly to changes in technology and demand. This is illustrated by the fact that the IT industry in India went through a radical transformation in the decades of the 1990s and the 2000s and is poised to be reshaped again in the 2010s. The deceleration in global demand for IT following the global financial crisis in September 2008 and the subsequent economic recovery phase underscored the opportunities and challenges which the IT-related industry will have to deal with in the 2010s.

East Asian countries, such as Japan, South Korea, China, Taiwan, the Philippines, Thailand and Malaysia have become major production centers for electronics and ICT hardware. Most of these industries are export-oriented and have been severely hit by the global economic slowdown. In contrast, the software services and business process outsourcing (BPO) industry in India has continued to grow, albeit at a slower pace. Other Asian countries that have experienced major expansion in the IT services and BPO export business include China and the Philippines. Israel — a leader in the software product development — is facing major challenges both in the software and hardware sectors, in part, due to its strong industrial, technological as well as financial dependency on the United States.

In short, there are significant differences in the impact of the global economic slowdown among Asian countries, one example being that the electronics and IT hardware industry has been more affected than the software and BPO services sector. As in previous recessions, the demand for hardware has proved to be significantly more elastic than most of the software and business process services. The services side of the industry is, nevertheless, facing major immediate challenges, and there arises a need to re-examine medium and long term business strategies for both goods and services industries.

The expansion of the IT and BPO services business in emerging market economies, since the late 1980s, has perpetuated a structural shift in the role that developing countries such as India are

playing in trade in services and high-technology industry development.<sup>1</sup> Offshoring of an increasingly wide range of services is perceived as promising areas of growth.<sup>2</sup>

While access to low-cost and skilled manpower and a generally more favorable business environment have been key factors underlying this development, it owes its origin to changes in technology, industrial organization, education and innovation systems, knowledge worker migration and other related corporate strategy and public policy developments. Such developments include the emergence of the Internet and other connectivity technologies along with increased modularization of production of goods as well as services. Globalization trends related to liberalization of trade and foreign investment regimes, have spurred internationalization of education, training, and research, emphasizing the central role of international networks in delivering and developing an increasingly wide range of services. The dynamic interplay of these factors has resulted in a structural shift in the global economy that points towards inevitable increase in the scale and scope of global sourcing of services — both non-captive offshoring (i.e. offshore outsourcing to another firm in a foreign country) and captive offshoring (i.e. in-house offshoring to a subsidiary in a foreign country). This historical trend is likely to prevail barring risks from being interrupted by major political conflicts and increasingly grave worldwide recession, or as long as there are no major disruptions precipitated by the public policy environment, major security troubles or technical breakdowns.

The scale and scope of IT-BPO industry development has undergone far-reaching transformation in the 1990s and 2000s. The prospects for, and the modalities of, export-oriented growth in software and IT-enabled services (ITeS), such as BPO back office and front office functions, are however, now being re-examined in the light of the global economic downturn, the effects of which have been felt the world over since September 2008. There are also concerns regarding the effect of the downturn on the domestic market for ICT hardware, software product and IT services. Most firms faced a deceleration of growth in both external and domestic demand for IT

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<sup>1</sup> ICT (information and communication technology) is defined here as computing and communication equipment, software and services and communication services, including telecommunications, Internet connectivity, broadcasting and media. The definition of IT (information technology) is limited to computing equipment and software services and their related applications in various sectors. IT software includes software products and services but does not include hardware. IT-enabled service (ITeS) includes business process outsourcing (BPO) as well as other IT-enabled services. This paper uses a broad interpretation of the meaning of the terms IT, ICT, ITeS and BPO while recognizing the difference in their meaning (Mitra 2009a). While the meaning of these terms differs, these words are often used inter-changeably as is the case with much of the literature. The paper tries to use the terms in a consistent fashion as far as possible, but it is, however, unavoidable that terms sometimes used inter-changeably reflect the way they are used in the various information and data sources referred to in this paper.

<sup>2</sup> The terminology relating to sourcing, outsourcing, offshoring and in-sourcing has not been standardized. Generally the term “outsourcing” refers to procurement of material inputs or services by a firm outside the original firm. Outsourcing can be domestic (onshore) or international (cross-border or offshore). This report focuses on international sourcing (offshoring). Offshoring, or offshore (out) sourcing, is defined as procurement of service or material input from a source in a foreign country. It includes both intra-firm offshoring (i.e. captive sourcing in which the foreign provider of the input is still owned by the foreign firm) and arms-length offshoring (i.e. non-captive offshore outsourcing or offshoring to a third party, in which the foreign provider of the input is independent from the firm using the input/). International sourcing (offshoring) is part of a country’s import of goods and services. Finally, it should be noted that an increasing number of business people and scholars avoid using terminology such as offshoring or outsourcing as they have a preference for what they perceive as less contentious or more correct terms such as trade in services, globally distributed work, global service delivery and global sourcing (Amiti M. & Wei Shang-Jin 2004 and Mitra 2007).

hardware and software services after September 2008, but optimism has prevailed regarding the medium and long term growth prospects for the IT-BPO industry in India and other economies.

The overall economic and political consequences of the current global economic crisis for the global economy, or for a specific country such as India, are hard to foresee. This is also true in terms of how this broader context will affect on short and long term growth prospects for the IT-BPO sector. They are prone to differ by country, firms and business segments in the IT-BPO sector. Moreover, views differ on the causes of the current crisis as well as on its longer term impact and possible remedies. Some observers point to deeper structural causes underlying the crisis and portend a prolonged recession with long lasting severe implications for all countries and sectors of the economy (Stiglitz 2009). Others envisage that a recovery can come soon, while others endorse the view that the glass is half full rather than half empty. The disparity of views also applies to the IT-BPO sector in India and other economies.

The global economic slowdown has resulted in major uncertainties in the business environment for the IT-BPO industry. This is reflected in the following perspicuous statement by Narayana Murthy, Co-Chairman Infosys Technologies, India's second largest IT services company: 'Let's hope for the best but be prepared for the worst'.<sup>3</sup>

The global economic slowdown did, indeed, have an adverse impact on revenue growth, stock market evaluations, profit margins and the credit access in much of the IT-BPO industry across the world. Nevertheless, much of this sector remained a so-called sunrise industry and it is widely acknowledged that fostering the development of this sector is central to overall social and economic development. It should, however, also be remembered that historical records are rich with examples of how the use of technology can have desirable as well as unwanted effects. This also applies to the use of IT in financial markets, education, the environment and other areas which currently are receiving much attention.<sup>4</sup>

The significant role of the ICTs and the IT and IT-enabled services (ITeS) industry emanates from the fact that effective use of IT and ITeS is essential for the operation and further development of other sectors in the economy and also to promote better governance. Clean/green-tech, bio-informatics, e-education and use of IT-BPO in regulating financial and

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<sup>3</sup> Murthy 2009. Talk at Nasscom Leadership Conference, February 13, 2009.

<sup>4</sup> Technology: a double edged sword. Historical records are rich with examples of how the use of technology can have desirable and as well as unwanted affects, one well known example being the way in which automobile technology has facilitated transportation and at the same time is also the major source of air pollution. In terms of ICTs the double edged impact of a technology is demonstrated in the role it has had in improving commercial and investment banking services and in fostering innovation in the financial sector. Without IT, the current levels of international financial market integration would not have been possible. Hence, ICTs has contributed towards improving the efficiency and effectiveness of financial markets within and across countries. At the same time ICTs have also enabled rapid expansion of new financial instruments and practices resulting in unwarranted effects such as extreme unproductive speculation and high volatility in commodity, currency and stock markets. The financial crisis from September 2008 onwards pointed to the need to reform the way that the financial and banking system operates worldwide. It can be argued that some of weakness can be traced to the way that the financial and banking industry was able to used ICT. On the other hand, it can be argued there is considerable scope for improvement in regulatory frameworks and the use of IT based services. Furthermore, there are currently major expectations that the IT services can provide major benefits in tackling critical issues in fields such energy-environment-climate change.

other institutions are examples of areas in which IT can have a central role IT in tackling contemporary development challenges. It can, indeed, be argued that more concerted efforts are needed to show why and how the effective use of existing IT, environmental, energy and other technologies, as well as efforts to invest in education, training and R&D, and to foster innovation<sup>5</sup> in technology and business processes can be strategically important to respond to the challenges of the current global slowdown and beyond.

A number of reports have been issued in the wake of the global economic slowdown in September 2008 onwards to stress the importance of investing in innovation. Among this is the report *Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth* released by OECD in June 2009. This report stressed the importance of medium and long term initiatives to strengthen R&D and innovation namely: “fostering innovation through promoting entrepreneurship, investing in smart infrastructure, encouraging R&D, green investment, upgrading the skills of workers, steering market actors towards innovation related investments, and accelerating activities for which barriers may have been too high otherwise” (OECD 2009c).

## 1.2 Objective

The objective of this study is to provide an analysis of growth and transformation in the IT and BPO services industry in India. The study examines short, medium and long term developments in the 2000-2009 period and the prospects for the 2010s. It contains analysis of the global economic slowdown in 2008 and 2009 as well as long term IT-BPO industry transformation issues as manifested in the growth and composition of revenue earnings and industry linkages, human resource, finance, and industrial organization and innovation developments.

The primary focus is on the export-oriented software and BPO services industry but domestic market developments are also analyzed. The work examines the IT-BPO industry growth trends in different geographies and verticals (sectors) covering both the lower and the higher end of the value added chain. It highlights opportunities as well as factors constraining growth and provides growth scenarios for exports and the domestic market for the 2010-2020 period. Furthermore, it points to key corporate strategy and public policy imperatives and lessons in enabling continued growth and transformation of the IT-BPO industry and the offshoring business in India and internationally.

The paper addresses these issues in the following sequence.

1. Introduction covering background, methodology, sources of information and study limitations (chapter 1).
2. The international and comparative context of overall economic developments, IT spending and offshore service delivery growth trends (chapter 2).

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<sup>5</sup> This work uses a broad interpretation of the meaning of the terms R&D and innovation. The word innovation is often used inter-changeably with R&D as the case with much of the literature reviewed. Innovation is defined as implementation of a product, process or method that is new to a given firm rather than necessarily new to the world. This broad definition includes adaptation and absorption of existing technologies from abroad (Brahmbhatt et al 2007). From another perspective R&D has been defined as a systematic, original activity designated to add new scientific or technological knowledge, or to develop a new application on the basis of existing scientific or technological knowledge (Mitra 2009).

3. The overall IT-BPO industry developments in India covering the importance of the IT-related industry in economic transformations and analysis of factors driving and constraining IT industry growth. This is followed by an examination of the overall industry growth performance, industrial organization and firm level growth developments, the transformation of the IT and BPO industry across different segments of the value added chain, employment and finance developments plus governance, shocks, opportunities and risks (chapter 3).
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7. The corporate strategy and public policy responses to the short and long term challenges in maximizing the potential for further development of the IT-BPO industry (chapter 7).

The final chapter 8 provides concluding remarks on the international perspectives in IT-BPO industry related developments comprising of an India-China comparison, questions relating to how India differs from other emerging market economies, and lessons from the Indian experiences. This is followed by a section comparing industry growth trajectories in India in the 2000s and the 2010s and a final section on how the challenges of the 2010s can be turned into transformational opportunity to expand and innovate.

### **1.3 Methodology, sources and limitations**

The method of enquiry for this study is that of historical and comparative review.<sup>6</sup> The work uses descriptive (and some aspects of exploratory) research design. The examination is based on a critical review of published information as well as insightful examples, such as company-level information, including findings originating from semi-structured interviews conducted in India, Europe and the United States.

The study draws on a wide range of published information sources and interviews with private companies, government officials and industry associations and financial institutions. The analyses of company-specific developments based on journalistic reporting and interviews are

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<sup>6</sup> This work draws on other publications by the author. It is part of research projects which the author is involved. These undertakings will result in a series of publications on this and related topics.



necessary in order to provide a more comprehensive picture and to ensure that the examination is relevant and up to date. Moreover, the report is based a review of the academic literature. This later includes general as well as India specific works by A. Arora and A. Gambardella (2005), E. Carmel (2003 and 2005), S. Commander (2005), A. D'Costa and E. Sridharan (2003), R. Heeks (1996 and 2004), R. Heeks and B. Nicholson (2004), B. Parthasarathy (2000 and 2004) and others.

In spite of the proliferation of published material, much of the non-academic as well as the academic literature, are weak in coverage, empirical and theoretical foundations. A review of the literature shows that significant knowledge gaps exists in understanding factors driving and constraining global and India related IT industry developments. Example of gaps include understanding of firm level organization and strategies, clustering and other networks and thereby related systemic level globalization processes and technology developments. Moreover, the common feature in most analysis of IT-related developments in India and elsewhere is that typically is focusing examining past and present-day developments. Leaving aside a limited number of studies and taskforce documents compiled by the Indian government and private entities such as Nasscom and Mckinsey & Company few have attempted to undertake systematic analysis of future IT and ITeS industry developments in India. Hence there is considerable scope for scholars, consulting firms and others to undertake further rigorous analysis of various aspects of long term IT-related developments in India and elsewhere.

The examination in his study uses both quantitative and qualitative source material. It draws on authoritative sources such as industry and manpower surveys and reports compiled by industry associations and major international consulting firms.

The report provides a synthesis of existing published material as well findings emanating from interviews. It makes a number of references to material published by the National Association of Software and Service Companies (NASSCOM), the industry association for the IT based industry in India, including the *Strategic Review 2009* and the NASSCOM-McKinsey & Company, report *Perspective 2020: Transform Business, Transform India*. Moreover, it draws on reports and public presentation made by Everest Research, Forrester Research, Gartner, Global Insight, International Data Corporation (IDC), KMPG, McKinsey & Company and trade journals such at Dataquest. Furthermore, the paper is substantiated by material published by the Asian Venture Capital Journal, AT Kearney, Bloomberg, the Boston Consulting Group, Credit Lyonnais Securities Asia (CLSA), Computer Economics, Crisil Research, Duke Research, Goldman Sachs Research, Grant Thorton, Everest Research, Frost & Sullivan, India-stat, the Indian Council for Research on International Economic Relations (ICRIER), Kotak Institutional Equities Research, Noble group, Manufacturers' Association for Information Technology (MAIT), the Organization for Economic Corporation and Development (OECD), Pyramid Research, PriceWaterHouseCoopers (PwC), Reuters-Thomson, SBI Capital Securities, Springboard Research, Technology Partners International (TPI), ValueNotes, World Information Technology and Services Alliance (WITSA) and as well as journalistic material and reports published by the Indian government.

The scope of the enquiry is limited by the complexity of the task. Examining the transformation of IT-BPO sector in India and how it relates to global developments can be tricky due to the

complexity of issues involved. Such an analysis is complicated by the fact that the IT-BPO industry is extremely heterogeneous in terms of the scale and scope of the operations of companies involved. It is, indeed, reasonable to claim that the IT hardware, IT services and BPO services preferably should be analyzed as separate industries. Also, there are major differences in the scale and scope of operation within IT industry as well as within the BPO sectors. Moreover, the analysis of the various segments of the IT-BPO industry is hampered by at best meager, and at worst near absent data, both in terms of India specific and worldwide developments (box 1.1). Furthermore, the industry situations change even as observations are documented.

The difficulties in attempting to predict the future is illustrated by the fact that few anticipated the wide-ranging impact of the application of the Internet and that the BPO would emerge as a major industry in the 2000s. Assessing future industry growth prospects ultimately implies a need for the examination of alternative global and country-specific economic, political scenarios and industry specific scenarios. The task forecasting is further complicated by the uncertainty regarding the depth and duration of the current global economic slowdown and also regarding the developments that may follow after the global economy has recovered.

In view of the high degree of uncertainty and the need for long term perspectives, the paper contends that it is essential to examine alternative growth scenarios. Moreover, it highlights the need to distinguish between the short, medium and long term dimensions in industry growth trends, impact and the responses by key stakeholders. The paper stresses that serious attention to be given to strategizing and planting seeds that can bear fruit in the long term. The paper argues for swift and flexible corporate strategies and public policies, as well the fact that there is no single set of responses for the stakeholders concerned.

**Box 1.1 Weakness in data on India and worldwide developments**

Rigorous analysis of the IT-BPO industry developments in India and other countries is difficult due to the weakness in available data.

The analysis of the impact of the current global economic slowdown is hampered by weakness in data for FY2008-09, that is, the Indian fiscal year starting in April 1, 2008 ending on March 31, 2009, and the January-July 2009 period and thereafter. Much of the impact of the global economic slowdown in the IT-BPO sector is manifest only in 2009, that is, a time for which data is weak.

The quality of data on the Indian IT-BPO industry as published by Nasscom, the Electronics and Computer Software Export Promotion Council (ESC), Software Technology Parks of India (STPI), the Reserve Bank of India (RBI) and others has improved but nevertheless suffers from a number of weaknesses. Nasscom data is a commonly quoted and valuable source which also includes estimates for current FY, that is, the financial or fiscal year running from April 1 to March 31. It does however, have limitations in terms of firm level data as well as aggregates such as employment, wages, billing rates, profits margins and financing. Also, statistics does not include monthly and quarterly data as its objective is limited to showing FY year data.

Some of this data is, however, available from financial institutions and equity research firms. Moreover, it should be noted that there is lack of consistent data that provide detailed statistics on revenue and employment by vertical (sector specific) or horizontal (across sectors) composition of BPO, IT services, product and R&D. Also, there is little consistent and detailed data on Indian as well as foreign companies outsourcing operations within India and the offshoring business. The later includes lack of consistent data that provides a breakdown by the offshoring business by vertical, that distinguishes between front-office (customer care/marketing/sales) and back-office (accounting, human resources, etc) services) and between onsite and offshoring global service delivery. Much of the data on foreign firms offshoring operations is incomplete, one reason being the large component of intra-firm trade. Also, the data on the IT services and BPO domestic market is incomplete as it does not fully account for the non-IT firms' in-house IT operations.

Analysis of the global context is hampered by weakness in available data on trade in services and offshoring in particular. The discrepancies in data compiled by analyst firms such as Gartner, Global Insight, IDC and Forrester as well as national industry associations can in part be explained by the fact that they differ in terms of what is covered under different definitions of spending, revenue and other indicators. Also, they use different terminology and it is common that definitions keep on changing, which makes it hard to make time series analysis.

Finally, it should be noted that much of the data on offshoring of IT services and BPO refer to sourcing to emerging market economies with India, China, Egypt, Malaysia, Mexico, the Philippines and South Africa being among the more prominent locations. Sourcing among advanced industrial economies is typically not included. It is reasonable to assume that the latter type of sourcing (or trade in services) is considerably larger than offshoring to developing countries as it would include a wide range of sourcing arrangements between the United States and Canada and among European Union member countries.

*Source:* The author.

## **2. The International and Comparative Perspective**

### **2.1 Global economic growth and transformation**

#### ***The world economy prior to September 2008***

The world economy displayed robust growth several decades after World War II, leaving aside short term business cycle fluctuations. In the 1950s and 1960s the growth in world economic output and trade was greatly dominated by dynamism in advanced industrial market economies. Subsequently, many parts of the developing world, that is, East Asian countries in particular, experienced rapid export-oriented economic growth.

While opinions partly differ, most economists point out that long term prospects for growth in economic output and trade will remain favorable in the 2010s, barring risks for major financial crisis or political disruptions. Further investments in human capital, IT and other innovative technologies and business processes appear poised to continue to drive growth in GDP and trade, and especially so in emerging market economies such as India and China. Biotechnology, environmental technologies, IT and other innovation intensive sectors appear destined to drive further socio-economic transformation of all countries and their international relations.

In short, in the years preceding the global slowdown from September 2008 onwards, most countries experienced significant growth in GDP, foreign trade and investment. These conditions were also reflected in growth in IT spending and global sourcing of goods and services.

#### ***The global slowdown and its impact by country and sectors***

##### ***Worldwide impact in economic growth, trade, finance and migration***

The global economic slowdown from September 2008 onwards implied a major disruption in economic developments on a global scale. The financial crisis and the subsequent contraction in the real economy were first perceived in the United States after which it moved to Europe and other parts of the world. OECD countries and the more export-oriented emerging market economies were most affected. The slowdown in economic activity resulted in a prolonged recession in North and South America, Europe, Japan and the high income newly industrialized economies in East Asia, namely Singapore, South Korea and Taiwan (China) and Hong Kong.<sup>7</sup>

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<sup>7</sup> The Global Development and Finance report released by the World Bank in June 2009, states the following: “The East Asia and Pacific region (EAP) has felt the full brunt of the crisis because of its close trade links with high-income countries and because of declining investment as well as a drop in exports and industrial production.

India and China are the only large diversified economies which have been able to achieve comparatively high GDP growth rates from September 2008 onwards. Moreover, while IT spending has fallen in 2009, the IT service sectors in India and China have continued to grow although at a slower pace than in preceding years.

The dramatic global economic downturn that became clearly manifest from September 2008 differed from previous slowdowns. It became the deepest and most prolonged global economic downturn since the depression of the 1930s. It resulted in the contraction of GDP and international trade at a scale not seen since World War II. It differed from previous post-World War II crisis as it had greater economic and social implications, and that too, on a global scale. The crisis originated in systemic failure in the financial system in the advanced industrial countries. It became more deep-seated and global than the East Asian financial crisis in the 1990s and the dot-com investment burst in 2001.

As one would expect the dramatic global slowdown resulted in major uncertainty regarding the depth and duration of the slowdown and the post-crisis scenario. This is reflected in frequent revisions of projections for growth of GDP, foreign trade and domestic demand all of which is also evident in developments in the IT sector.

The *World Economic Outlook (WEO)* update report, released by IMF in July 2009, stated that “the recession is not over and the recovery is likely to be sluggish”. The outlook was, however, significantly more positive than reports presented in April 2009 and earlier.<sup>8</sup> The July 2009 WEO summarizing the world economic situation is as follows:

“The global economy is beginning to pull out of a recession unprecedented in the post-World War II era, but stabilization is uneven and the recovery is expected to be sluggish. Economic growth during 2009–10 is now projected to be about ½ percentage points higher than projected in the April 2009 World Economic Outlook, reaching 2.5 percent in 2010. Financial conditions have improved more than expected, owing mainly to public intervention, and recent data suggest that the rate of decline in economic activity is moderating, although to varying degrees among regions.” Despite these positive signs, the global recession is not over, and the recovery is still expected to be slow, as financial systems remain impaired, support from public policies will gradually diminish, and households in countries that suffered asset price busts will rebuild savings. The main policy priority remains restoring financial sector health. Macroeconomic policies need to stay supportive, while preparing the ground for an orderly unwinding of extraordinary levels of public intervention. At the same time, given weak internal demand

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Growth for the region is projected to be 5 percent this year [2009], although several EAP countries are projected to see GDP decline. Recovery across the region is expected to begin in the second half of 2009 and into 2010, reflecting substantial fiscal stimulus in China and a modest recovery of export demand in rich countries. However, the turnaround is expected to be gradual, with regional GDP forecast to increase by 6.6 percent in 2010 and 7.8 percent by 2011” (World Bank 2009b).

<sup>8</sup> As per October 2008, IMF projected that the world output would grow at 3.8 percent in 2009; in January 2009 this was revised to 0.5 percent, in April 2009 it was revised to minus 1.8 percent, in July 2009 it was revised to minus 1.4 percent and in October 2009 it was revised to minus 1.1 percent. Similarly the volume of world trade in 2009 was projected to decline by 2.8 as per January 2009 estimates and this figure was changed to minus 11 percent in April 2009 and the to minus 12.2 percent in July 2009 and to minus 11.9 percent (IMF *World Economic Outlook* various issues and updates 2008 and 2009).

prospects in a number of current account deficit countries, including the United States, policies need to sustain stronger demand in key surplus countries (IMF 2009d).

World economic output grew by 5.1 percent in 2007 and 3.1 percent in 2008, the latter reflected the dramatic decline from September 2008 onwards. IMF's forecast that global GDP will contract by 1.1 percent in 2009 and then expand by 3.1 percent in 2010. GDP in the advanced industrial economies is projected to decline by 3.4 percent in 2009 before growing by 1.3 percent in 2010 according to the World Economic Outlook released by IMF in October 2009. Emerging and developing economies are projected to regain growth momentum during the second half of 2009, albeit with notable regional differences. Most countries in Asia are expected to do better than what would be typical in other regions. Also, the growth projections for emerging Asia have been revised to 5.4 percent for 2009 and 7.3 percent for 2010 as per IMF's October 2009 projections. This upgrade is principally on account of improved prospects in China and India (IMF 2009e). "However, the recent acceleration in growth is likely to peter out unless there is a recovery in advanced industrial economies" (IMF 2009d).

The *Global Development Finance 2009: Charting a Global Recovery* report, released by the World Bank in June 2009, projects lower world real GDP growth rates than the IMF's WEO. It estimates a 2.9 percent decline of global GDP in 2009 and then projects a rebound to a positive 2 percent in 2010 and 3.2 percent by 2011. GDP of high income countries is estimated to decline by 4.2 percent in 2009 while GDP of developing countries is expected to grow by 1.2 percent. In developing countries growth is expected to continue to be higher than that of high income countries. Developing countries' are forecasted to rebound reaching 4.4 percent in 2010 and 5.7 percent in 2011.<sup>9</sup> When China and India are excluded, GDP in the remaining developing countries is projected to fall by 1.6 percent in 2009 (World Bank 2009b).

*Finance.* The global economic crisis affected developed countries through financial, trade and other channels (Asian Development Bank 2009a). Demand and prices for exports dropped. Foreign investment, that is, both portfolio and foreign direct investment (FDI) declined. The credit crunch and volatility in exchange rates, commodity prices and stock market affected all countries to some degree. There was a major slowdown in the venture capital industry affecting the high technology industry, especially in the United States and Israel.

*Trade.* Annual world trade volume growth was as high as 9.4 percent in 2006 and 7.3 percent in 2007. This growth rate dropped to 3.0 percent in 2008 and is projected to be minus 11.9 percent in 2009 and then revert to plus 2.5 percent in 2010 (IMF 2009e).<sup>10</sup> The dramatic slowdown in trade has been worldwide, but especially pronounced in the advanced economies and in East Asian economies with large volumes of manufacturing goods exports to advanced industrial countries.

While global trade in manufacturing – automobiles and consumer electronic goods, just to name a few — plummeted, trade in IT and BPO services remained more resilient. Data from 2009 shows trade in services for the most part has been less affected by the current economic

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<sup>9</sup> Corresponding growth was 8.1 percent in 2007 and 5.9 percent in 2008 (World Bank 2009b).

<sup>10</sup> World Bank June 2009 projections for show a 10 percent drop in world trade volumes for 2010 (World Bank 2009b).

slowdown compared to manufactured goods. While some areas of service trade have declined significantly — air and sea freight volumes, crisis related financial services, tourism abroad and sales of software for new computer — for example, the impact appears to have been less pronounced in software services and BPOs, for example. The resilience of trade in services is illustrated by the fact that imports of services to the United States declined only 7 percent while import of goods fell 33 percent on a year-on-year basis as of February 2009. Also, in the same period exports of services from the United States fell only 6.5 percent while export of goods fell by 21 percent. A range of business and professional exports grew. The data from the United States shows that imports of professional and business services were up by 7 percent and exports were up by 10 percent on a year-on-year basis as of February 2009. A similar pattern shows up for countries across the world (Borchert et al 2009).

As suggested by Borchert et al, the fact that trade in services was relatively buoyant compared to that of goods in the global slowdown period can be attributed to two major reasons: demand for a range of traded services is less cyclical, and services trade, and production are less dependent on external finance. This could possibly be generalized at a global level but caution is needed when applying the reasoning to a specific sector or a country such as India. In term of IT the global economic slowdown resulted in global IT spending decline, although less so than in the manufacturing industry. The deceleration in IT spending was, however, significantly lower than slowdown in global IT spending. In addition to what is highlighted by Borchert et al it, should be noted that there are major variations within different segments of the IT-BPO service industry (as well as other services and manufacturing industries) in terms of impact of the crisis. Also, it should be noted that most of the IT software and services industry in India experienced a considerable deceleration in their US dollar growth rates from September 2008 onwards. Nevertheless growth remained in positive territory aided by the fact the offshoring to India offered costing advantages and that the domestic market business volumes continued to growth. In contrast most IT companies in advanced industrial countries experienced flat or shrinking business volumes after September 2008. Moreover, it is important to distinguish between near and medium term implications as well as long term growth trajectories for this and other industries. A sunrise industry, such as IT-BPO as well as offshoring of services, typically has higher growth rates than other industries when the economy is growing fast and when it is not.

*Migration and remittances.* Moreover, the global slowdown had significant implications for migration of skilled and unskilled workers and their remittances. The migration impact is illustrated by the fact that foreign nationals were being compelled to return to their native countries. The latter included an increase in the number of professionals and students from Asian, European and other countries leaving the United States.

With the economic downturn well over 100,000 Indians and as many Chinese are likely to leave the United States and return to their native countries over the next 3-5 years, that is, from 2009 onwards, according to Wadhwa et al (2009a). While this would entail a loss of human capital for the United States it would be a significant gain for India and China. “This flood of western educated and skilled talent will greatly boost the economies of India and China and strengthen their competitiveness. India is already becoming a global hub for R&D. This will allow it to branch into many new areas and will accelerate the trend” (Wadhwa et al 2009a). The Chinese government is keen to benefit from migration. Unlike India and many other countries, the

Chinese government has set into motion especially attractive packages to attract highly educated and skilled Chinese persons to return to China.

#### *Sector specific impact in Asia*

The IT services and BPO industry have been less affected by the global economic slowdown than the manufacturing industry, that is, if compared to the very sharp decline in exports of electronics and IT hardware from Japan, China, Taiwan (China) South Korea, the Philippines, Malaysia and other Asian economies after 2008. Hence, the IT export industry in East Asia was more affected by the slowdown than the IT industry in India — a principal reason being that East Asia's exports has been dominated by hardware while India's IT based exports is dominated by software services and BPO.

The global trade trends noted above are illustrated by the fact that the global recession has had a comparatively limited impact on IT-BPO offshoring industries in India and the Philippines. The growth in the IT-BPO industry in India decelerated in 2009 but the industry did not face an overall decline in revenues or business volume. The near time future of IT-BPO offshoring business entails much uncertainty, but there continues to be significant credence to optimism in terms of medium and long term growth prospects.<sup>11</sup> In the Philippines, the BPO exports continued to grow rapidly after September 2009. The Business Processing Association of the Philippines predicts continued expansion of the growth throughout 2009 and beyond (BPAP 2007 and 2009).

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<sup>11</sup> Nasscom preliminary estimates indicates that the IT-BPO services industry in India had substantial growth in revenue earnings in the first half of FY2008-09 and then faced a marginal fall in its revenue earnings in dollars only in the last quarter of FY2008-09, that is, January-March 2009. Also, of February 2009 Nasscom envisaged that IT-BPO service exports dollar revenues will grow at 11 percent in FY2009-10 and 19 percent in FY-2010-11 (Nasscom 2009a).



**Table 2.1 IMF's world economic outlook growth projections (October 2009, GDP growth %)**

	Projections				Difference from July 2009 Projections	
	2007	2008	2009	2010	2009	2010
<b>World output</b>	<b>5.1</b>	<b>3.0</b>	<b>-1.1</b>	<b>3.1</b>	<b>0.3</b>	<b>0.6</b>
Advanced economies	2.7	0.6	-3.4	1.3	0.4	0.7
United States	2.1	0.4	-2.7	1.5	-0.1	0.7
Euro area	2.7	0.7	-4.2	0.3	0.6	0.6
Germany	2.5	1.2	-5.3	0.3	0.9	0.9
France	2.3	0.3	-2.4	0.9	0.6	0.5
Italy	1.6	-1.0	-5.1	0.2	0.0	0.3
Spain	3.6	0.9	-3.8	-0.7	0.2	0.1
Japan	2.3	-0.7	-5.4	1.7	0.6	0.0
United Kingdom	2.6	0.7	-4.4	0.9	-0.2	0.7
Canada	2.5	0.4	-2.5	2.1	-0.2	0.5
Other advanced economies	4.7	1.6	-2.1	2.6	1.8	1.6
Newly industrialized Asian economies	5.7	1.5	-2.4	3.6	2.8	2.2
Emerging and developing economies	8.3	6.0	1.7	5.1	0.2	0.4
Africa	6.3	5.2	1.7	4.0	-0.1	-0.1
Central and eastern Europe	5.5	3.0	-5.0	1.8	0.0	0.8
Commonwealth of Independent States	8.6	5.5	-6.7	2.1	-0.9	0.1
Russia	8.1	5.6	-7.5	1.5	-1.0	0.0
Excluding Russia	9.9	5.4	-4.7	3.6	-0.8	0.4
Developing Asia	10.6	7.6	6.2	7.3	0.7	0.3
China	13.0	9.0	8.5	9.0	1.0	0.5
India	9.4	7.3	5.4	6.4	0.0	-0.1
ASEAN-5	6.3	4.8	0.7	4.0	1.0	0.3
Middle East	6.2	5.4	2.0	4.2	0.0	0.5
Western Hemisphere	5.7	4.2	-2.5	2.9	0.1	0.6
Brazil	5.7	5.1	-0.7	3.5	0.6	1.0
Mexico	3.3	1.3	-7.3	3.3	0.0	0.3

Source: IMF 2009. *World Economic Outlook*, October 2009.

**Table 2.2 IMF's world trade volume trends and projections (October 2009, Annual growth %)**

	2006	2007	2008	2009	2010	Difference from July 2009 projection	Difference from July 2009 projection
						2009	2010
<b>Total world trade volume</b> (goods & services)	9.4	7.3	3.0	-11.9	2.5	0.3	1.5
<b>Imports</b>							
Advanced economies	7.5	4.7	0.5	-13.7	1.2	-0.1	0.6
Emerging & developing e economies	14.9	13.8	9.4	-9.5	4.6	0.1	3.8
<b>Exports</b>							
Advanced economies	8.4	6.3	1.9	-13.6	2.0	-1.4	0.7
Emerging and developing economies	11.2	9.8	4.6	-7.2	3.6	-0.7	2.2

Source: IMF 2009. *World Economic Outlook update*, January 2009, April 2009, July 2009 and October 2009.

## 2.2 Impact on the Indian economy

While not insulated from external developments, much of the Indian economy continued to fare comparatively well after September 2008. This fact can be traced to India's relatively low degree of external dependency in terms of exports of manufacturing goods plus the resilience of the country's banking and financial sectors coupled with the size of its developable domestic market and its overall economic and social transformation momentum.

India's annual real GDP growth accelerated to an average of 8.8 percent in the five year period from FY2003-04 to FY2007-08 period. These rates implied a significant acceleration compared to earlier years. Prior to September 2008, it was expected that India's GDP would continue to grow at around 8-10 percent per year. The global economic slowdown from September 2008 onwards did, however, imply that the Indian government's and other growth projections had to be lowered. The long term prospects for the economy do, however, remain favorable with CAGR projected to average 8 percent or more (Government of India 2008a and 2009a).

The government's data show that GDP grew at 6.9 percent FY2008-09 compared to 9.0 percent in FY2007-08, 9.7 percent in FY2006-07 and 9.5 percent in FY2005-06. Moreover, as of October 2009 the Planning Commission projected that the economy would grow at an annual rate of 6.3 percent in FY2009-10 and then rise to 8 percent in FY2010-11 and 8.5 percent in FY2011-12. This projections are expected alter only marginally barring any major unexpected developments in how well the world economy fares and in terms of the annual monsoons (The Financial Express October 23 2009).<sup>12</sup>

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The global slowdown affected the Indian economy principally through trade and financial market channels. Exports of manufactured goods slowed down rapidly. Stock market evaluations fell as did foreign portfolio investment. The effect on the Indian banking industry was, however, moderate compared to that of major industrial countries.

While India's economy continued to grow, the global slowdown had significant impact on several parts of the economy. It affected most sectors of the economy but the degree of impact differed significantly between different social groups, urban and rural areas and by state or regions. The states or regions most affected were those with a high number of persons employed in manufacturing goods export industry. The deceleration of economic activity affected migrant workers, contractual labor, urban youth and those working in the informal sector especially (Government of India 2009a).

The hardest hit sector was the manufacturing industry exports such as gems & jewelry, handicrafts, leather and leather products, textiles and some exports of pharmaceuticals. Services

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<sup>12</sup> As in the case of other countries growth estimates and projections for India continued to be revised and differ significantly in 2009. The Indian government, ADBs, IMFs and the World Banks projections do, however, all envisage that economic growth will accelerate from 2010 onwards. The global economic downturn has forcing repeated revisions of growth projections. This is reflected in the fact the Indian Government 11th five-year plan target of 9 percent average annual GDP growth rate for the 2007-2012 period have become unrealistic. This is to be reflected in the Mid-Term review of the 11<sup>th</sup> five-year which the government plans to release I January 2010 (Times of India July 9, 2009).

most affected included the banking and financial industries, the retail sector, tourism, air and surface freight and parts of the media industry. Moreover, while lesser than most other economies, the slowdown in overall economic activity coupled with a credit crunch has affected investment in infrastructure, including construction, and some parts of the SMEs sector (Government of India 2009a).

The impact of the global slowdown was mild for the IT-BPO service industry compared to export-oriented manufacturing. Comparatively, the effect on most part of the IT-BPO industry was mild, the hardware sector and discretionary spending on software product and services in the domestic and export markets being the prime exceptions.

*India's trade in services.* The service sector, in which IT, telecom and other ICT-related industries plays a central role, represents a considerable part of the dynamism of the Indian economy. The services sector share of GDP reached 55 percent in FY2008-09 compared to 43 percent in FY1990-91 and only 15 percent in 1950. The service sector, and service exports in particular, had been growing faster than the goods producing sector, and has also typically characterized by higher value added than what is the case for the goods producing sector.

Service export has increased from US\$ 20.8 billion in FY2002-03 to US\$ 101.2 billion in FY2008-09, that is, a five-fold increase in six years and is projected to increase to about US\$ 200 billion by 2012 (RBI 2009 and Government of India 2008a). Much of this increase is likely to result from exports of IT-BPO services, but there are also considerable opportunities for expansion in travel, transportation and business services. Examples especially dynamic growth niches include health tourism, film and other entertainment, publishing, education and R&D services.

The fact that the importance of exports of services has grown considerably is illustrated by the fact that its share of GDP has risen from 1.4 percent in 1990 - 91 to 7.7 percent in FY2007 - 08. Expansion of IT-BPO exports has been the principal driver in the growth of software services exports. Software exports, constituted about 45 percent of total services exports, on an average in the FY2000 - 01 to FY2008 - 09 period (RBI 2009).

The IT-BPO industry's performance continued to be impressive after September 2008 but there was indeed a slowdown in revenue growth in the later part of 2008 and in 2009. Although the record for the full fiscal year of 2008-09 was impressive it should be noted that the rate of growth in export decelerated substantially in the second half of the year. Export of "software" (here referring to IT product and software plus ITeS) and this is both software products increased by only 3.6 percent in the second half of FY2008-09 compared to 37.7 percent in the first half of the year, that is, on a year-on-year basis in US dollars, according to Reserve Bank of India (RBI) data.

According to RBI software sectors exports increased by 19 percent in FY2008-09 to US\$ 44 billion compared to US\$ 37 billion in FY2007-08. IT-BPO export is projected to grow by only 4-7 percent in FY2009-10 according to Nasscom's forecast released in July 2009 (RBI 2009 and Nasscom 2009d). While still in the positive territory, this implies that the period from October 2008 to March 2010 is likely to register a 15-20 percent drop in annual growth compared to the

average for the FY2003-04 to FY2007-08 period. It would result in the slowest export growth rate which the industry has experienced the over past two decades.

## **2.3 Worldwide spending on IT and offshoring**

### ***Global IT and IT-enabled services industry development***

The global market for the IT industry has been expanding rapidly with advanced industrial economy markets and MNCs continuing to dominate. While lagging behind the advanced economies the market for IT has also developed rapidly in developing countries. Moreover, East Asia has emerged as a major global center for hardware manufacturing. Furthermore, emerging market economies have begun to develop a significant IT services industry since the 1990s and subsequently also a software and BPO industry. India has emerged as the largest exporter of IT-BPO service services among developing countries. The development of a sizeable IT-BPO industry is manifested in a rapid expansion in Indian firms and foreign MNCs global service delivery operations in India.

A number of developing countries have established significant IT services and ITeS-BPO industries. Among developing countries China has the largest industry in serving a domestic market for IT software & services and hardware, while India is the leader in export of IT-BPO services. While countries other than India, namely, China, the Philippines, Mexico and many others, have been developing a significant IT-BPO service export industry India continues to be the most competitive among 25 to 30 low-cost locations, according to the 2008 edition of the McKinsey Location Readiness Index (LRI). According to this report India's share of the global IT services offshoring business is around 51 percent (Nasscom 2009a).

The key strengths driving IT-BPO industry growth in India continue to be entrepreneurial dynamism and the access to a large pool of skilled manpower at comparatively low cost. This is reflected in the fact that most surveys rank India as number one offering the most favorable setting for offshoring of IT-BPO services among developing countries. While a large number of other countries are expanding their IT-BPO services industry India continues to rank well ahead of major competitors such as China, Malaysia, the Philippines, Mexico, Egypt as well as East European countries in being a provider of offshored IT-BPO services (A.T. Kearney 2009).

Estimates of India's share of the global IT-BPO services offshoring business compiled by market search firms such as Gartner, Everest Research, McKinsey & Company and others vary, principally due to differences in industry and country coverage. According to market research firm industry data from Everest Research, McKinsey and Tholons compiled by the World Bank, India's share in offshoring market was around 54 percent for IT services and 37 percent for BPO in the 2006-2008 period (World Bank 2009c).

All market research firm data on India and other countries, on the offshoring business market are, however, deficient — one aspect being inadequate country coverage. Broadly speaking four sets of data need to be examined. The first would be truly global, that is, “total worldwide offshoring/cross-border sourcing” – this data is typically weak but is to an extent accessible

through IMFs balance of payment statistics data base. The second would limit itself to offshoring/cross-border sourcing among developed countries – this type of data is typically weak and limited in its country coverage. The third would focus on offshoring from advanced industrial economies to developing countries – this is often the focus on market research firm data on offshoring markets. The fourth would focus on offshoring/cross-border sourcing among developing countries – this type of data is especially weak.

After adjusting data so that it is truly global, that is, including offshoring that covers not only all developing but also all developed countries—including the sizeable cross-border sourcing among all European countries—one can conclude that the “total worldwide offshoring/or cross-border sourcing” is substantially larger than what typically is stated in market research firm data. Data from market research firms typically focus on the third dimension, that is, offshoring from developed to developing countries. Their data is, however, typically limited in country coverage and sometimes includes offshoring to a few developed countries such as Canada, Ireland and Eastern Europe as well.

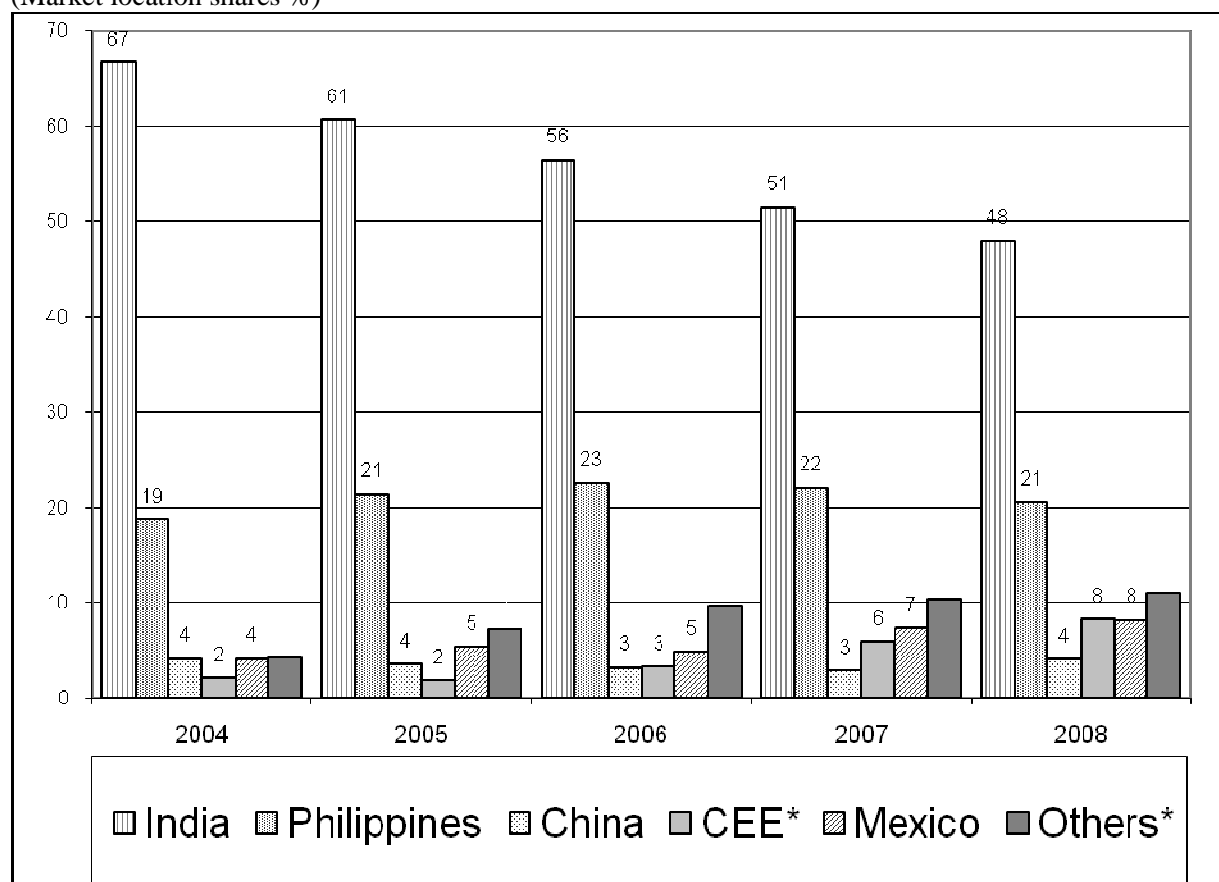
India’s share of the “total worldwide offshoring” market for IT services stands at less than 25 percent rather than at the 50 percent level which typically is cited by market research firms data which focused in the business to offshore to developing countries. Similarly India’s share of total global sourcing of BPO would be significantly less than what is typically is quoted by market research firms as they fail to cover much of cross-border BPO which takes place among developed countries. On the other hand, if estimates of cross-borders service delivery are limited to the business of offshoring from developed to developing countries only – then India’s share of the IT offshoring market could well amount to between 50-60 percent (Mitra 2009a).<sup>13</sup>

The fact that India is the leader in the developing world in terms of the offshoring of IT software & services and BPO from developing countries can be traced to the fact that it had an early start in developing this business. As time progressed other countries have followed suit. Hence it was no longer possible for India to remain as dominant as it was 5-10 year ago. This development is illustrated by the dataset showing India’s share of the business to offshoring of business processes developing countries & Eastern Europe has declined from around 67 percent in 2004 to around 48 percent in 2008. Much of this decline is explained by a rapid development of the BPO industry in the Philippines (21 percent share in 2008), Mexico (8 percent share in 2008) and Eastern Europe (8 percent share in 2008) (figure 2.1).

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<sup>13</sup> According to the Everest Research Institute, India’s share of the global BPO offshoring market was around 35 percent in 2008 while IT share of the IT services offshoring market was as high as 55 percent— this data covers not only offshoring to developing countries but also to Canada and Mexico. Others estimate that India’s share is about 50 percent.

**Figure 2.1 Business process offshoring to developing countries and East Europe**  
(Market location shares %)



Source: The authors' calculations based on data provided by Everest Research Institute.

Note: \*CEE includes Central and Eastern European countries. Others include Malaysia, Argentina, Brazil, and Singapore, Central America and the Caribbean region.

### ***IT-BPO spending long term trends***

The past decades have seen a major transformation of the world economy towards a greater importance of the services sector and the use of ICT hardware and services on a worldwide scale. The services sector now accounts for about 70 percent of employment and 73 percent of GDP in advanced industrial economies and for 35 percent of employment and 51 percent of GDP in developing countries (UNCTAD 2008a). This development has been associated with a transformation towards an increasingly networked knowledge-based economy and a rise in worldwide spending on technology products and related services with IT and telecom representing the largest segments.

Worldwide spending on ICT has grown rapidly since the 1970s and earlier. This is reflected in IT and telecom spending share of GDP first rose in the advanced industrial economy and subsequently also in developing countries. The latter is illustrated by the fact that ICT-spending-to-GDP ratio (IT hardware, software and services plus telecom) in India rose from 1.7 percent in 1993 to 2.8 percent in 2000 (WITSA 2002).

The rate of growth in ICT spending declined in most advanced industrial economies in the 2000s but continued to be high in developing countries. ICT spending as a share of GDP, and even more so on a per capita basis, in the developing world continues to be low if compared to the advanced countries. While the increase in ICT spending share of GDP has decelerated in the 2000s, it appears poised to continue to increase in the developing world.

The global economic slowdown from September 2008 implied that the market research firms had to make major downward revisions in their IT spending estimates. Projecting spending became increasingly hard as a result of the global slowdown. Moreover, analysis of IT spending and offshoring is complicated due to differences in data coverage and classification of spending categories. Data on global sourcing (offshoring) typically only includes sourcing to emerging market economies and in some instances also to some advanced economies such as Canada and Ireland. This is inadequate as it leaves out most of the cross-border sourcing that takes place among advanced industrial economies.<sup>14</sup> Worldwide IT-related spending (and telecom) has grown but estimates differ depending on coverage. IT-related spending includes hardware, software and services; and according to some classifications also telecom. Service can cover only IT services or can also include ITes-BPO. Moreover, market research firms such as Everest, Gartner and IDC often provide special estimates for offshoring of IT software & services and BPO.

According to Global Insight's data, global IT (hardware, software and services) spending CAGR was 7.1 percent in 2004-08 period and is forecasted to reach 5.5 percent in the 2008-2013 period as per estimates in October 2008. Growth in software is projected to continue to increase faster than hardware. Also, Global Insight projections show rapid growth in IT spending across a wide range of sectors (verticals). Moreover, growth of total IT spending in the Asia Pacific is projected to be significantly higher than in Western Europe and North America (table 2.3 and 2.4). The global economic slowdown from September 2008 did, however, imply that Global Insight and others have had to revise their forward projections.

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<sup>14</sup> There is no worldwide data on covering domestic sourcing or cross-border sourcing. Hence it is not possible to provide accurate estimates on global sourcing development and its share of total IT spending in a country or internationally. Much of the data on global offshoring of IT-BPO services as published by market research firms such as IDC, Forester, Gartner, Everest and others, typically focus on offshoring to emerging market economies and is incomplete in terms of its coverage of cross-border sourcing among advanced industrial economies. The United States, the United Kingdom (and several other industrial countries) are larger export of software and IT services than India, China or other emerging market economies (IMF 2009a). This fact is, however, typically not reported in market research firm data as they typically focus on offshoring to developing countries and in some cases, also to few industrial countries such as Canada and Ireland. Thus market research firm data typically underestimates total cross border sourcing (offshoring).

**Table 2.3 Trends in global IT spending, 2004-2013 (US\$ billion)**

IT Spending by Product Class (US\$)							CAGR %	
	2004	2005	2006	2007	2008	2013	2004-08	2008-2013
<b>Hardware</b>								
Desktop PCs	121.7	124.3	124.7	123.3	117.0	96.6	-1.0%	-3.8%
Notebook PCs	66.3	81.5	97.1	113.2	129.8	214.5	18.3%	10.6%
High-end Servers	7.3	7.3	7.1	6.9	6.6	5.2	-2.6%	-4.5%
Mid-range Servers	10.5	11.1	11.4	11.3	11.0	8.8	1.2%	-4.4%
Volume Servers	24.7	27.9	31.1	35.3	39.3	60.9	12.3%	9.1%
Storage	26.3	29.3	32.5	35.7	38.8	50.6	10.2%	5.4%
Peripherals	59.7	64.4	68.2	70.5	72.4	102.2	5.0%	7.1%
Networking Equipment	50.9	57.8	62.8	67.2	72.3	101.7	9.2%	7.1%
Subtotal, Hardware	367.4	403.6	434.8	463.3	487.3	640.5	7.3%	5.6%
<b>Software</b>								
Infrastructure	65.3	72.3	80.0	87.5	92.9	135.1	9.2%	7.8%
Application Development	50.1	55.0	59.6	63.6	67.0	89.5	7.5%	5.9%
Application	112.6	125.0	134.9	143.9	150.3	195.3	7.5%	5.4%
Subtotal, Software	228.0	252.3	274.5	295.1	310.3	419.9	8.0%	6.2%
<b>Services</b>								
IT Planning	51.2	56.5	61.6	66.2	69.8	92.0	8.1%	5.7%
Implementation	139.1	151.1	162.4	172.8	181.5	233.6	6.9%	5.2%
Support Services	130.8	139.9	148.3	155.2	159.4	198.6	5.1%	4.5%
Outsourced Operations	96.6	104.3	112.0	118.6	123.2	155.0	6.3%	4.7%
Training and Education	19.8	21.5	23.1	24.5	25.7	33.2	6.7%	5.2%
Subtotal, Services	437.5	473.2	507.4	537.2	559.6	712.3	6.3%	4.9%
<b>Grand Total</b>	<b>1,033.0</b>	<b>1,129.0</b>	<b>1,216.8</b>	<b>1,295.6</b>	<b>1,357.2</b>	<b>1,772.7</b>	<b>7.1%</b>	<b>5.5%</b>
IT spending by Industry Sector (US\$B)							CAGR	
	2004	2005	2006	2007	2008	2013	2004-08	2008-2013
Financial Services	199.5	217.9	234.4	249.1	260.6	339.4	6.9%	5.4%
Government	153.2	166.9	179.2	189.6	198.0	255.8	6.6%	5.3%
Manufacturing	123.1	134.6	144.3	154.7	162.4	211.9	7.2%	5.5%
Consumer Spending	87.4	96.1	103.8	111.3	117.0	151.9	7.5%	5.4%
Communications	85.8	94.1	102.1	108.8	114.0	150.7	7.4%	5.7%
Professional Services	86.6	96.0	103.2	108.7	113.6	147.6	7.0%	5.4%
Healthcare	73.1	79.4	86.0	91.5	95.6	125.7	6.9%	5.6%
Retail	51.2	55.1	58.8	62.4	65.1	83.3	6.2%	5.1%
Energy & Utilities	46.0	50.9	55.1	59.2	62.5	83.1	8.0%	5.8%
Hospitality, Hotels and Leisure	45.7	49.8	54.7	58.4	61.1	81.4	7.5%	5.9%
Educational Services	22.2	24.2	26.1	27.8	29.2	38.6	7.1%	5.7%
Wholesale and Distribution	19.0	20.6	22.2	23.7	24.9	32.9	7.0%	5.7%
Natural Resources	17.8	19.5	21.2	23.0	24.4	32.6	8.1%	6.0%
Transportation	14.8	16.0	17.2	18.5	19.5	25.8	7.2%	5.7%
Construction	7.4	7.8	8.3	9.0	9.2	12.1	5.6%	5.6%
<b>Grand Total</b>	<b>1,033.0</b>	<b>1,129.0</b>	<b>1,216.8</b>	<b>1,295.6</b>	<b>1,357.2</b>	<b>1,772.7</b>	<b>7.1%</b>	<b>5.5%</b>

Source: Global Insight (October 2008)

Note. 2008 data estimate and projections as per October 2008. Subsequently projections have been revised downwards due to the global economic slowdown from September 2008 onwards.



**Table 2.4 Trends in global IT spending by region, 2004-2013 (US\$ billion)**

							CAGR	
	2004	2005	2006	2007	2008	2013	2004-08	2008-2013
North America	447.6	486.6	513.9	534.6	546.9	664.9	5.1%	4.0%
Western Europe	344.3	367.3	394.3	421.6	441.2	580.6	6.4%	5.6%
Asia Pacific	179.4	200.1	221.0	240.9	260.2	365.1	9.7%	7.0%
Emerging Markets	61.7	75.0	87.6	98.5	108.9	162.1	15.3%	8.3%
<b>Grand Total</b>	<b>1,033.0</b>	<b>1,129.0</b>	<b>1,216.8</b>	<b>1,295.6</b>	<b>1,357.2</b>	<b>1,772.7</b>	<b>7.1%</b>	<b>5.5%</b>

Source: Global Insight (October 2008)

Note. 2008 data estimate and projections as per October 2008. Subsequently projections have been revised downwards due to the global economic slowdown from September 2008 onwards.

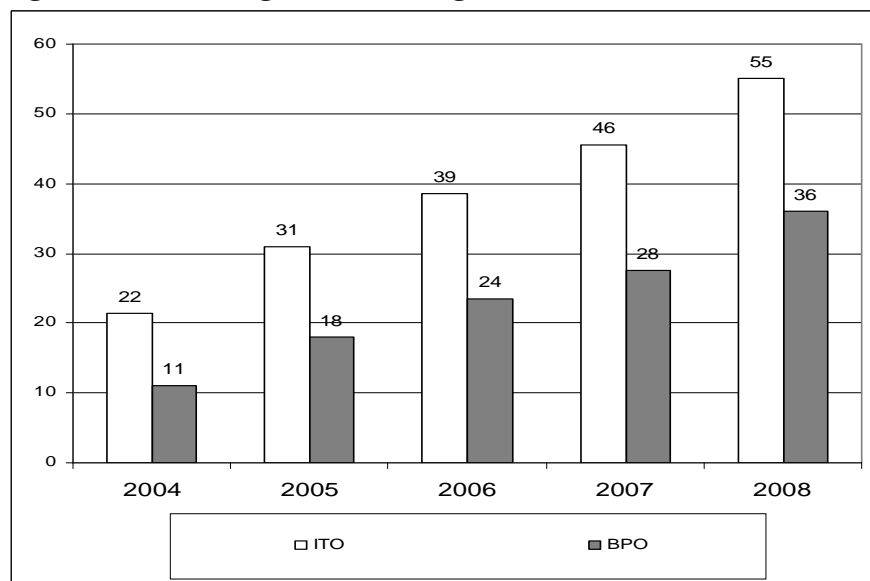
IDC estimates global spending on IT services at US\$ 557 billion in 2008 compared to US\$ 115 billion for BPO. Though a small portion of the total IT services spending, sourcing, most of which is cross-border, of IT and BPO has grown three-fold in the 2004-2008 period according to IDC estimates (IDC November 2008).<sup>15</sup> This fact points to a strong growth in momentum in the offshore service delivery.

According to Everest Research, the global market for the offshoring of IT and BPO services has been growing rapidly. ITO (Information Technology Outsourcing)<sup>16</sup> and of business process offshoring has grown from around US\$ 30-35 billion in 2004 to US\$ 89-93 billion in 2008. (figure 2.2). Growth has been strong both for ITO and business process offshoring but the expansion of the latter has been more rapid than in the ITO. If this trend continues, the global offshoring of the value of BPO will overtake that of offshoring of IT services in the 2010s.

<sup>15</sup> According to IDC worldwide spending on BPO services reached US\$ 115 billion in 2008 reflecting an increase of around 12 percent compared to 2007 (IDC November 2008). IDC's data on worldwide spending on BPO includes both domestic and offshore sourcing, i.e. sourcing to another country, with the latter constituting the large part. IDC does not provide a breakdown in spending on terms of how much is international and how much is domestic.

<sup>16</sup> ITO is here defined as IT applications in development & maintenance, and infrastructure outsourcing and remote infrastructure management (RIM) outsourcing in an offshore context.

**Figure 2.2 Trends in global offshoring 2004-2008 (US\$ billions)**



Source: Everest Research Institute and authors' calculations.

Note: Data covers offshoring to developing countries, Eastern and Central Europe plus Ireland and Canada.

### ***Post September 2008***

Industry analyst firms such as Gartner, Global Insight, Forrester and IDC projections show that global IT-BPO spending and offshoring will decelerate significantly as a result of the global economic slowdown.<sup>17</sup> In the long term they all do, however, envisage significant growth in IT-BPO spending and offshoring worldwide, that is, both in advanced industrial and developing countries. While the total business volume and billing rates may contract in the short term, the medium and longer term prospects for worldwide expansion of the IT-BPO services industry do, however, remain favorable.

According to Gartner, Forrester, IDC<sup>18</sup> and other market research firms' worldwide IT spending will decline in 2009 and then recover significantly in 2010 as per projections presented by these firms in June and July 2009. There is, however, considerable uncertainty regarding projections for 2009 and thereafter.

<sup>17</sup> Projections for growth in global spending on IT services and IT-BPO offshoring repeatedly have been revised downwards in the October 2008 to April 2009 period as per global forecasts released by Gartner, Forrester, and IDC.

<sup>18</sup> In November 2008, IDC estimated growth to be 2.6 percent in 2009; a figure that was reduced to 0.5 percent in February 2009 (IDC February 2009). According to IDC's February 2009 estimates, the hardware markets will be most affected by the global economic slowdown and the decline in IT spending will especially affect the hardware sector. It would register a year-on-year dollar decline of 3.6 percent during 2009 due to a decline in spending on servers, PCs, and printers. However, the software segment is expected to grow by 3.4 percent in 2009. The IT spending growth in the United States is anticipated to be about 0.1 percent in 2009. Region-wise, the IT spending is envisaged to decline by approximately 1.8 percent across Japan, while Western Europe is expected to grow by 0.1 percent. The IT spending in Asia Pacific, excluding Japan, is expected to grow by 1.4 percent in 2009. The emerging economies of the Middle East, Africa, and Latin America are envisaged to show a robust growth of 8 percent and 4 percent in 2009 respectively, while IT spending in Central and Eastern Europe is projected to fall by 7.5 percent in 2009 (IDC 2009a).

According to Gartner US dollar valued global IT spending (that is, IT software, IT service, computing hardware and telecom combined as per Gartner classification) is expected to fall nearly 6 percent in the calendar year 2009 and to grow by 2.3 percent in 2010. Global IT spending would average 1.9 percent annual growth from 2008 through 2013, that is, as per projections in June 2009 (Gartner 2009 June). In an update presented in October 2009, Gartner projections were revised marginally: global IT spending was for 2009 was expected to decline by 5.2 percent and then grow at 3.3 percent in 2010. While Gartner's projections show a return to significant growth in global IT spending in 2010 the firm states that it will take time for the market to return to robust levels seen a few years ago (The Economic Times. October 20. 2009).

Gartner's June 2009 forecasts project that global IT spending would reach US\$ 3.2 trillion in 2009, compared to US\$ 3.4 trillion in 2008, which would be the biggest slowdown since the dot-com burst in 2001 when IT spending fell by 2.1 percent. According to Gartner, IT organizations worldwide were asked to trim budgets, and consumers are cutting back on discretionary spending in 2009 (Gartner June 2009). As per projections for 2009, all four key market sectors — hardware, software, IT services and telecommunications — are projected to contract with the decline being especially so in IT hardware and the least in software spending. The computing hardware segment will experience the steepest decline in 2009, with spending projected to decline by 16.3 percent. While, the software segment will show the smallest decrease the spending in this category is, nevertheless, expected to drop by 1.6 percent (table 2.5).

**Table 2.5 Worldwide IT spending forecast** (US\$ billions and annual growth %)

	<b>2008</b>	<b>2009</b>	<b>2010</b>
Computing hardware (US\$ b)	379.5	317.8	317.7
Annual growth (%)	2.5	-16.3	0.0
Software (US\$ b)	221.9	218.3	225.3
Annual growth (%)	10.3	-1.6	3.2
IT Services (US\$ b)	805.9	761.0	784.0
Annual growth (%)	8.2	-5.6	3.0
Telecom (US\$ b)	1,945.2	1,855.9	1,898.7
Annual growth (%)	5.7	-4.6	2.3
<b>Grand total IT incl. telecom (US\$ b)</b>	<b>3,352.5</b>	<b>3,152.9</b>	<b>3,225.7</b>
<b>Grand total annual growth (%)</b>	<b>6.2</b>	<b>-6.0</b>	<b>2.3</b>

Source: Gartner, June 2009.

Forrester's global IT spending projections for 2009 are in line with Gartner's in terms of the magnitude of the decline in 2009. Both firms repeatedly revised their IT spending projections downward for 2009 and 2010 downwards in the quarters that followed the September 2008 global financial crisis. In addition, Forrester envisaged that growth in IT outsourcing [offshoring] will remain moderate in 2009 and 2010. It predicted that economic uncertainty, increased

competition, price cuts in smaller projects and recession would continue through the first half of 2009, with revenues starting to improve in the second half of 2009 and in 2010.<sup>19</sup>

IDC expected worldwide IT spending to turn positive in 2010 as per their June 2009 forecast. Global IT spending is projected to decline by 1.8 percent in 2009 and then grow by 2.9 percent in 2010 and 5.7 percent in 2012 (IDC June 1, 2009).

In conclusion, while global IT spending is estimated to decline in 2009 this decline is commonly perceived temporary. Global spending on IT software & services and ITeS-BPO is poised to continue to grow substantially in the medium and long term that is, leaving aside major economic downturns such as the global financial crisis in 2008. Growth in IT-related spending is likely to be especially manifest in emerging market countries such as India which lag behind in diffusion of IT in the domestic economy. Moreover, spending on offshoring of IT-BPO services is poised to continue to grow significantly faster than world's total spending on IT-BPO.

India is in a strong position in terms of growth of prospects in IT spending, especially if compared to more developed economies. The domestic market is still in a nascent stage of development. India's domestic IT market is expected to grow at around 14 percent in 2009, that is, only a minor decline in the growth rate compared to 2008 when IT spending grew at 16-18 percent according to Gartner (The Financial Express July 8 2009).

Moreover, the prospects for export-oriented IT based services industry growth in India and other developing countries are good as offshoring of IT-BPO services to developing countries is likely to grow even faster than total worldwide IT spending. India (and other developing countries) has major potential to expand exports of IT software & services, including engineering services, both at the lower and higher end of the value added chain and across a wide range of verticals. The BPO industry is still young and there is general agreement that it has major potential to expand the scale and scope of its operations in all countries and across borders.

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<sup>19</sup> At the end of June Forrester, had lowered its forecasts, predicting global IT spending to drop 10.6 percent in 2009 rather than the 3 percent decrease it projected at the beginning of 2009.

### 3. Overall IT and BPO Industry Transformation

#### 3.1 Growth and importance in economic transformation

##### *The rise of IT-related industry*

The rapid development of the IT and ITeS-BPO industry is widely acknowledged as a major success story of the Indian economy. The revenue earnings of this industry have grown from less than US\$ 1 billion in 1990 to close to US\$ 60 billion in 2009 or US\$ 70 billion if hardware is included. In the past decade, IT-based services, or more broadly ICT (IT, telecom, broadcasting and related services) have emerged into major catalysts in transforming the Indian nation and its international interface.

The increasing importance of the IT-BPO industry is illustrated by its rising shares of GDP and export earnings. As a share of GDP, the IT-BPO sectors (including hardware) revenues have been growing from 1.2 percent in FY1997-98, to 4 percent in FY2004-05 and almost 6 percent in FY2008-09. The IT-BPO sector's share of total Indian exports (merchandise plus services) has increased from less than 4 percent in 1998 to 16 percent in 2008 and is likely to reach the 18-20 percent level in 2009-10 (table 3.1).<sup>20</sup>

The IT-BPO industry's incremental contribution to GDP growth, exports and employment have been substantial in the 2000s. The Central Statistical Organization (CSO) has put forward data highlighting the industry's contribution. Even though the IT-BPO sector constitutes a minor part of GDP and an even smaller part of employment, its contribution to the GDP growth rate is almost the same as the agricultural sector according to CSO 2008 data.<sup>21</sup>

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<sup>20</sup> The expected sharp rise the IT-BPO share of exports in 2009 is derived from projections showing continued significant growth in IT-BPO sector export while several other sector, i.e. especially good manufacturing, are projected to decline in 2009.

<sup>21</sup> Deceleration IT service industry growth in FY2008-09 is according to CSO, one significant reason for the drop in GDP growth rate of the Indian economy in FY2008-09. Even though the IT sector constitutes a minor part of GDP and an even smaller part of employment, its contribution to GDP growth rate is almost the same as the agricultural sector according to CSO 2008 data. The agriculture farm sector, which has nearly 18 percent weight in GDP, grew at an average rate of 4 percent in the last four years. At this rate, its contribution to GDP growth rate was 0.72 percentage point. However, the IT sector, which has only 4 percent weight in GDP, contributed 1 percentage point to GDP growth rate at 25 percent growth rate. Thus a sharp fall in IT-BPO industry growth rate would have pulled down overall GDP by at least half percentage point in FY2008-09 according to CSO estimates from April 2009.

The IT-BPO industry has emerged from a small industry to a significant generator of jobs for urban youths with higher education. The industrial expansion is evident from the fact that the number of persons directly employed in the industry has increased from about half a million in FY2002, to 1 million in FY2005 and to an estimated 2.2 million by the end of FY2008-09. In addition, indirect jobs created are estimated to reach 8 million in FY2008-09. Every IT-BPO service industry job has led to the creation of 3.6 additional jobs in related sectors (Nasscom 2009a). It can, however, be argued that these type of numbers underestimate the impact. Without the IT-BPO industry and a widespread use of IT across all major sectors in the domestic economy much of the Indian economy would quickly become obsolete and fail to generate and secure employment. The use of IT based services is indispensable for ensuring competitiveness across sectors locally and globally. Moreover, it is important to note that the IT-BPO sector has generated new private wealth. It has, indeed, offered many opportunities for entrepreneurship, including a new set of SMEs.

There are a number of reasons for the strong interest in ICT developments in India, and especially the rapid growth in software service industry, the Internet and associated applications. They are briefly: high growth, export and import potential, ability to attract both foreign and domestic capital and to speedily generate profits and personal wealth, and the potential to offer entrepreneurial and employment opportunities both in India and abroad as discussed above. Moreover, a wide range of ICT applications opens up new horizons for economic development affecting the private sector, government and civic society. This has a major impact on both urban and rural areas and affects not only higher income groups and areas but also the poor and backward parts of the country. There is today a virtual explosion of new software and connectivity service application projects in different parts of the country — ranging from e-banking, e-commerce, e-governance, e-education, e-health and so on. Wide-scale application of ICT would affect all sectors of the domestic economy and ICT development is essential for competitiveness and integration in the global economy (Mitra 2000a).

### ***Uneven social and economic development and the impact of IT***

While India is progressing it is still in a nascent stage in terms of the development of the domestic IT industry market and linkages between the local and external oriented IT and other knowledge economy based industries.<sup>22</sup> India continues to lag behind in ICT diffusion and GDP per capita income levels, universal basic education and degree of urbanization and industrialization if compared to advanced industrial countries as well as fast growing emerging

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The IT sector (excluding hardware) which currently accounts for 3.5-4 percent of India's GDP grew at an average rate of around 25 percent in three years period FY2005-06 to FY2007-08 but the rate of growth dropped to 9 percent in FY2008-09 according to CSO's estimates released in April 2009. The growth rate for the IT-BPO sector calculated by the CSO would be different from what the Nasscom. This mainly because GDP data used by CSO is estimated based on constant prices, that is, at price levels of 1999-2000, whereas Nasscom estimates are in nominal terms. Nasscom estimates (as per February 2009) the software services segments — which constitute over 80 percent of IT-BPO industry — to post 15 percent growth rate in FY2008-09, compared with 32 percent in the previous fiscal, due to the adverse international economic environment. However, the entire IT industry is projected to grow at a much slower rate of 12 percent in FY2008-09 (Business Standard 2009a).

<sup>22</sup> In this paper the term *linkage* is used to as economists typically use it; i.e. meaning linking and influencing other forms and industries in the economy.

market economies in East Asia and elsewhere. The rural economy and agriculture is still the backbone of the Indian economy in terms of employment. Much of the country's physical infrastructure, education and research institutions, legal and regulatory system suffers from major weaknesses. The record in corporate governance and even more so public sector management is mixed to say the least. If compared to China much of the Indian society appears to be chaotic or undisciplined as illustrated by lack of trust and frequent delays in project implementation. While it will take considerable time to overcome these weaknesses it can be argued that e-government and other IT applications can serve as important catalysts in doing so.

Despite weaknesses, India has achieved rapid development of IT and other high technology sectors and has produced a large number of highly educated and hardworking professionals with eminent roles in the global knowledge economy. Also, given infrastructure and the flaws in the society a large number of Indian people possess a great deal of ingenuity and a native intelligence in coping with problems and fixing technical and other glitches. The size and diversity of the manpower pool implies special advantages in the development of knowledge economy based services sectors. Part of the economy has a long track record in being effective, competent and well-governed, namely many MNCs and export-oriented Indian firms and the public sector aero-space industry and elite educational institutions constituting prime examples. The human resources advantage has given India an edge over smaller countries in terms of development of IT industry related offshoring industry. This is illustrated by hyper-growth in export-oriented IT-related services industry in urban hubs in India and by the role of Indian IT professionals outside of India.

These facts may appear as a paradox or seem contradictory. They can, however, be explained in the context of diversity coupled with the dynamics of local economic and social development conditions and thereby associated technological and globalization processes. India does not only have a diverse set of comparative advantages but these are also changing. Moreover, the process of transformation from an agrarian to an industrial society and then to a modern knowledge-based economy is bound to be uneven resulting in disparities or in a so-called dual economy.

Poverty and illiteracy is widespread and rural economy still provides livelihood for most of the population in India. But most parts of the country have experienced rapid transformation in the past decades. The ratio of the population which is below the poverty line has declined and literacy and health indicators have improved. Agriculture productivity has improved and manufacturing and service sectors in urban areas have increased their share of total employment. Radio and TV, and more recently mobile telephone technology, have empowered both literate and illiterates with new communication and information tools – a development which has a more widespread impact than that of the export-oriented IT-related services industry. All of this has implied a major transformation in both the urban and rural economy.

Large countries like India and China are particularly prone to duality in development whereby some parts of the economy are significantly more advanced or modern than the rest. This is reflected in the fact that India has developed a competitive IT industry around major cities. At the time the country is lagging behind in computer and Internet usage penetration levels. Since the 1990s there has, however, been a marked acceleration in the process of catching up with middle- and high-income countries. Per capita expenditure on IT is, however, likely to remain

only a fraction of what is typical in higher income countries reflecting lower GDP per capita income levels. Moreover, India is lagging behind in basic education as well as the share of the population that has higher education. The country has a large number of poor as well as a significant middle-class coupled with sharp disparities in development and productivity in different geographical areas and economic sectors. On the one hand the country is lagging behind in PC penetration as well as basic and higher education enrollment on a per capita basis. But in absolute terms it has a large pool of educated manpower, including those with graduate and post-graduate qualifications, although with major variation in the quality of the education system.

In short, the greater role of the IT-BPO industry cannot be measured only in terms of its share of GDP, export and employment. Like other multi-purpose technologies IT plays a transformational role affecting most aspects of cultural, social and economic development. While not a panacea for economic and social development, the IT-BPO industry and the use of ICT has served as a major catalyst to social and economic transformation in the domestic economy and India's interfacing with the rest of the world (box 3.1).



### **Box 3.1 Reasons for strong interest in IT industry related developments in India**

#### **Demonstrated growth capacity**

- Its high growth.
- Its export and import impact.
- Its ability to attract capital from foreign and domestic sources and to develop strategic alliances with MNCs and other forms of international collaboration and networks.
- Its ability to generate profits and personal wealth rapidly.
- Its ability to generate entrepreneurial and employment opportunities both in India and abroad.
- Its ability to use and diffuse ICT technology and other knowledge both in India and abroad.
- Its ability to respond to change in technology and demand by expanding into new export business niches and geographic markets, both at the lower and higher ends of the value-added chain.
- Its rapid structural change exemplified by introduction of new affordable and powerful software applications, computers, smart devices, Internet and wireless connectivity technology and the convergence of computing, telecom and media technologies – all of which opens up new avenues for local and export-oriented ICT-related investment and applications.

#### **Crosscutting impact but not a panacea**

- Its demonstration of that India finally has found a promising industrial niche with the potential to serve as an engine of growth and catalyst for social and economic transformation.
- Its promise to improve total factor productivity in the economy.
- Its impact in creation, sharing and application of data, information and knowledge in the society.
- Its impact on the individual's way of life at work, in education and at leisure – the total effect amounted to nothing less than a cultural revolution.
- Its wide-ranging impact in inducing change in organization structures and processes in the private and public sector and to transform intra- and inter-sector linkages in goods producing and service sectors by means of applications such as e-governance, finance, banking, postal services, insurance, media/entertainment, education, health, public transport, energy and other utilities management including investments clean/green tech.
- Its potential to serve as a catalyst to reduce disparities in social and economic development — including poverty reduction and development of low income groups and backward areas.
- Its potential to serve as a catalyst forging new and closer economic, cultural and other linkages within India and between India and the rest of the world.
- Its potential to offer opportunities to help India to compete and “catch up” with the rest of the world in economic development — conversely, if this opportunity is lost, India risks falling further behind.
- Its potential to serve as a catalyst to scientific advancement and development of knowledge-based industries and R&D in areas such as defense, space and aviation, engineering, pharmaceuticals and biotechnology.

#### **Vision for knowledge economy transformation and international catch up led by exports of services**

- Its demonstration of the implications of the emergence of a knowledge-based networked economy with a new pattern of global division of roles in capital, human resources and technology development in which India and the Indian Diaspora has a chance to become significant players.
- Its pointing to opportunities to accelerate catch up at the national, regional, firm, household and individual levels by applying ICT locally and exporting ICT and other knowledge industry related services.
- Its pointing to knowledge economy transformation and “new” export-orientation service delivery model.
- Its potential to offer lessons and non-lessons for other countries and the scope for future collaboration with other economies.

*Source:* The author.

### **3.2 Explaining growth – the interplay of global and local developments**

In the past decades IT-related business has expanded rapidly both in developed and developing countries. IT has indeed been a so-called sunrise industry across all continents. In this broader context India has continued to lag behind developed countries as well as East Asia and Latin America in diffusion of IT in the domestic economy. Also, unlike several East Asian countries India has not been successful in developing a sizeable internationally competitive IT hardware manufacturing industry. In contrast India has, however, been comparatively successful in developing a sizeable export-oriented IT-related services industry. It has, indeed, emerged as a leading exporter of software services and ITeS among developing countries in the 1990s and 2000s.

The fact that India has lagged behind in domestic diffusion of IT can to a large extent be explained by low per capita income levels and deficiencies in basic education and IT literacy. The weakness in terms of developing a sizeable IT hardware manufacturing export industry can in part be explained by deficiencies in physical infrastructure and logistics management system. This is in line with the fact that much of the Indian manufacturing industry lags behind East Asian and other countries in competitiveness, that is, barring certain engineering and textile industry segments and the surge in exports of automobile components in recent years.

The conditions for exports of IT services and ITeS industry in India have differed considerably if compared to most of the manufacturing industry. First, when India began to develop a significant IT-related services sector from the 1980s onwards it benefitted from an extraordinarily strong external demand pull. Also, unlike the hardware manufacturing industry it had little competition from East Asia or other developing countries, that is, at least initially. Secondly, the IT-related services industry's main asset has been educated manpower which has been readily available at a large scale and at low cost in India. Also, the industry is comparatively less demanding in terms of physical infrastructure and capital requirements and it can offer quicker returns and higher profits margins if compared to the manufacturing industry. Thirdly, the IT services industry was earlier on less subject to government regulations if compared to the manufacturing industry. Also, the IT services industries development was greatly facilitated by the dynamic interface of individual, private and public institutional networks.

The fact that India has emerged as a major international power in terms of number of graduates and scientists in the country, as well as overseas, is one of the factors explaining why it has been able to establish itself as an eminent exporter of software and other services. Moreover, it is quite natural that the IT services related industry has focused heavily on exports. Low average income levels and other impediments have limited the scope for growth and high profit margins in the local market. In contrast India's comparative advantages appear to offer an almost infinite scope for export-oriented IT services related growth. Capturing even a small percentage of the large and increasing global market for IT and other knowledge economy services has offered a large export opportunity window. Looking ahead there is considerable scope for momentous expansion in both external and domestic markets.

It is commonly agreed that access to a large pool of educated human resources which could be hired at comparatively low cost has been a key factor enabling India to achieve rapid export-

oriented IT-related services industry growth in the 1990s and 2000s. This fact does not, however, suffice as a number of other aspects also contributed towards this development.

In short, India had several principal strengths enabling it to respond swiftly to external demand for IT-related services industry, namely:<sup>23</sup>

- *Human resources.* India's principal advantage enabling rapid software and ITES industry development relates to its pool of human resources; namely its size, its varied technical competency, its English language skills coupled with multi-cultural adaptability, its high domestic and international mobility and its low cost compared to high income countries. All of these features have been favorable in meeting industry requirements for skilled technical manpower as well as for managers and entrepreneurs. Also, the Indian Diaspora has had multiple dimensional roles in knowledge-based industry development internationally and in India.
- *Capital.* Access to local and foreign capital and existence of well-established financial institutions gradually became more important to private sector led industry development. The availability of risk-willing capital has gradually increased especially in periods of rapid appreciation of shares as Indian firms have listed themselves at Indian and foreign stock market exchanges. A large number of foreign firms have invested in India and established strategic alliances with Indian firms.
- *Infrastructure and industrial parks.* The country's infrastructure has gradually improved but continues to lag behind most East Asian countries in telecommunication, transportation, energy and other physical infrastructure. It can be argued that poor infrastructure is a major factor constraining economic development in India. The IT industry would have developed significantly faster both in terms of export and domestic market if development of infrastructure had been better. New and more efficient and effective telecommunication technology and more rapid growth in computer, telecom and Internet infrastructure, have however, made rapid growth in the software and ITeS industry feasible. Export-oriented industrial parks have played an especially pivotal role. They have provided land, physical infrastructure and special incubator facilities. Industrial parks in major cities have served as magnet not only for foreign and local corporate investments but also in terms of attracting manpower from different parts of the country.
- *Legal and regulatory frameworks.* Software and ITeS industry development has been favored by special fiscal incentives and liberal labor laws governing the software services sector compared to the manufacturing industry. The considerable mobility of labor within the country resulted in the industry having access to a large human resource pool.
- *Institutional capacities and networks for public and private sector development.* Strengths in the key factor market (human resource) was coupled with rich set of institutional capacities and development of networks in terms of government administration, public enterprises,

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<sup>23</sup> This sections draws on more detailed analysis provided in forthcoming publications (Mitra 2009a and Mitra 2009c).

education, mass media, legal and accounting, financial and technical, management consultancy institutions, industrial associations, indigenous and foreign private corporations. Moreover, the role of the government has gradually evolved towards facilitating private sector development and developing public-private partnerships.

All of the above was coupled with concentration of skilled manpower to major industrial cities and the development of varied forms of local, national and international networks in which multiple set of external linkages (production, technology know how and other) were typically (i.e. major firm all of which primarily focused on exports) more central than linkages with the local IT industry and end users. Moreover, it can be argued that the growth of the industry got special inertia from psychosocial factors such as banding and “success breeding further success.”

In conclusion, the high growth in the IT-related services industry in India resulted from the interplay of global and the local developments. It was primarily driven by an international level of systemic developments such as globalization and technology change as manifested in structural shift relating to the transformation towards a networked economy in which global mobility of manpower, capital, technology, information and knowledge content were central.

Openness to and alertness in responding to changes in the global business environment and fostering of technology and other forms of international cooperation was central to the development of IT-related industry in India. Rapid growth in the industry has largely been dependant on the ability to learn from and adjust to global change in technology, government policy, legal and regulatory framework, finance, industrial organization in different international markets. The government and the private industry have been involved in wide range of international collaborations activities. This was coupled with human resource development scale, scope and costing advantages, extraordinarily strong external demand — including shortage of IT professionals — and dynamism of private market forces — including the pivotal role of MNCs, the Diaspora and Indian firms. Government intervention such as investment, tax initiatives, liberalization of the trade and foreign investment regime and the establishment of software technology parks were significant, that is, especially in adding impetus to earlier stages of industry development.

Private industry representatives and some economists claim that high growth in Indian software industry — and the hardware industry in some East Asian economies — happened quickly in “natural way” in the sense that to a large extent it was driven by global technology, costing and human resource development and private market forces governed by supply and demand coupled with absences of government intervention. A historical review of the Indian experience shows that these sets of explanations are insufficient. High growth did not happen all of a sudden resulting from market forces alone. The growth performance can be traced to more than 40 years history in India in which the role of government, private entrepreneurs and leaders and developments in the research community roles has shifted over time. Moreover, it was enabled by favorable timing as the surge in advance countries demand for skilled persons employable in IT-related industry coincided with the fact that India had a major surplus of engineers and other skilled human resources which could be hired by IT firms in India and internationally.

The rapid growth in the software and ITeS industry in India was not the result of full-bodied implementation of government or corporate planned efforts but of “natural evolution” coupled with some “accidental” aspects. It reflected the logics of supply and demand, factor market and

physical infrastructure developments, public policy and change in industrial organization and corporate strategy and the role of industrial clustering and networks. It did, however, have certain “accidental” or “default” aspects such as timing in terms of demand, time zone differences and the emergence of individual champions. More crucial, however, was the “unplanned”/by default advantages resulting from having access to a large skilled low cost manpower pool (many of which unemployed and graduates or professionals with little or no IT-related expertise) plus with the scarcity of attractive employment opportunities for educated manpower in other sectors in the Indian economy than software. This was coupled with the fact that no other country was able to respond to extraordinarily strong external demand pull in the 1990s as quickly as India, i.e. primarily due to its human resources endowment. India did not have especially unique or extraordinarily favorable government policy in IT and other fields, that is, especially if compared to fast growing East Asian countries (Mitra 2009c).

Historically, rapid growth in software industry occurred despite a number of weaknesses in the Indian business environment including deficiencies in corporate governance and public sector management. While there are examples of areas in which the government played an important enabling role it can indeed be argued that there were serious deficiencies in terms of the role of government in fostering improvement in physical infrastructure, the education system, management of public enterprises and the legal and regulatory frameworks. Compared to East Asian countries it can be argued that overall governmental investment climate, the IT industry included was never consistently favorable. Rapid software services and ITeS industry growth occurred despite a comparatively weak record in terms of the government intervention barring certain exceptions such as industrial parks and the role of certain political champions.

An analysis of factors driving and constraining industrial development in India points to major potential for further expansion in IT and other services as well as manufacturing industry by building on strength and tackling weaknesses. It can indeed be argued that India has so far underperformed in many sectors due to weakness in governance and infrastructure for example. Much of the IT-related development in India (and most other countries) is still in a nascent stage of development compared to its growth potential. This applies to both domestic and export markets.

The above discussion points to the fact that the interplay of a number of factors has determined success in developing IT and other industries in India. Moreover, it is important to note that many aspects of the industry development context undergo radical changes over time. This is illustrated by the fact that a large number of developing countries have begun to develop a significant IT-related services industry in the 2000s and the India has gradually developed significant international competitiveness in other industries than IT services and BPO, prime examples including pharmaceuticals, aero-space, and the automobile manufacturing sector.

### **3.3 Overall IT and BPO industry growth performance**

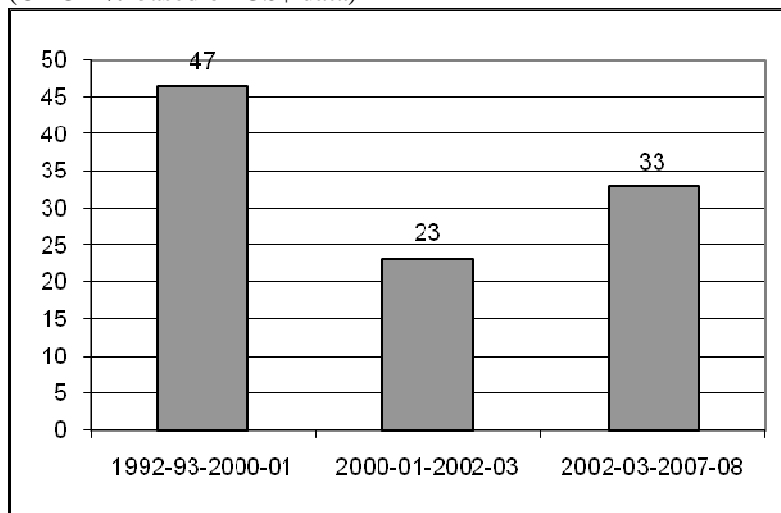
#### ***Prior to September 2008***

The IT-related industry in India has experienced more than 20 years of rapid expansion in the scale and scope of its operations. Initially most of the growth occurred in IT services at the lower

end of the value chain but subsequently it entailed also higher end IT services plus software products and engineering services. Moreover, from the late 1990s and onwards, India has also developed an increasingly diverse ITeS-BPO industry.<sup>24</sup> In addition, it is important to recall that India has emerged as a major market for telecommunication industry but has continued to lag behind in developing a competitive IT hardware and electronics industry.

The IT and BPO industry grew at 28 percent in the 2000s compared to close to 40 percent in the 1990s, i.e. excluding hardware in CAGR in US dollars. The CAGR peaked at 47 percent in the FY1992-03 to FY2000-01 period after which it declined to around 23 percent in the early 2000s as result of the dot-com bubble burst. In the FY2002-03 to FY2007-08 period the growth reached 33 percent after which it declined to 13 percent in FY2008-09 (figure 3.1).

**Figure 3.1 IT-BPO industry growth cycles: Total industry growth averages, India**  
(CAGR % based on US\$ data)



Source: Nasscom *Strategic Review 2009* and earlier issues and the authors' calculations.

Note: Hardware is excluded.

The IT-BPO industry continues to be dominated by exports which accounted for 79 percent of total revenues as per FY2008-09 estimates, hardware excluded. Moreover, IT services continued to dominate in both the exports and the domestic markets. BPO revenue was significantly larger in terms of exports while hardware was larger in the domestic market (table 3.1 and figure 3.2).

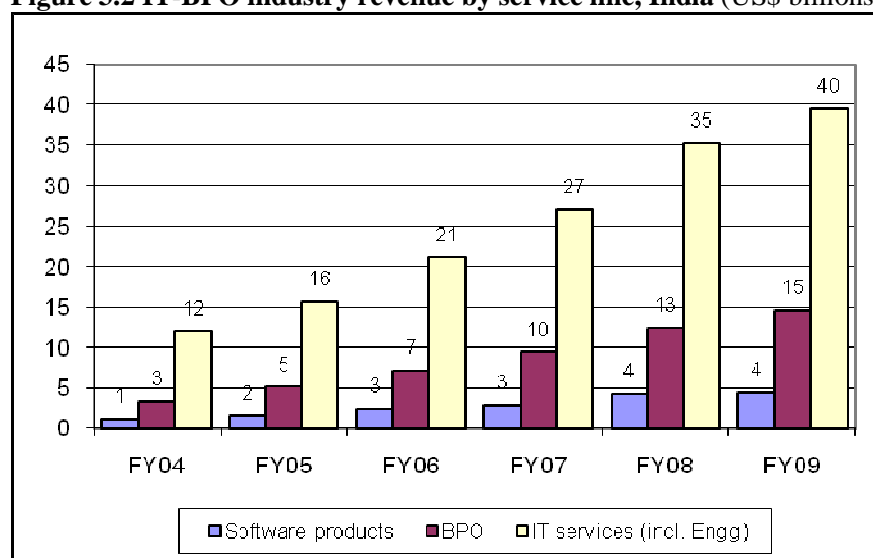
<sup>24</sup> The terms IT services should be reserved to IT services excluding software but is often more loosely, that is, covering software, IT and other services. ITeS and BPO are here used interchangeable. ITeS revenue only became significant from the late 1990s. Nasscom currently uses the term BPO rather than ITeS or ITeS-BPO as it used to do in the past. It should be noted that most of the data and research on the IT-BPO sector uses the term IT rather than ICT, that is, when telecom is excluded.

**Table 3.1 Key IT-BPO industry exports and domestic revenue trends, India (US\$ billions)**

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Export Market</b>						
IT service	7.3	10.0	13.9	18.0	23.1	26.5
Software products	0.8	0.9	1.2	1.4	2.1	2.3
Engineering services	1.7	2.2	2.8	3.6	4.3	4.8
BPO	3.1	4.6	6.3	8.4	10.9	12.7
Hardware	0.4	0.5	0.6	0.5	0.5	0.3
Total export IT-BPO excl. hardware	12.8	17.7	24.2	31.4	40.4	46.3
Total export IT-BPO incl. hardware	13.2	18.2	24.8	31.9	40.9	46.6
<b>Domestic Market</b>						
IT service (incl. engg)	3.1	3.5	4.5	5.5	7.9	8.3
Software products	0.5	0.7	1.3	1.6	2.2	2.2
Engineering services						
BPO	0.3	0.6	0.9	1.1	1.6	1.9
Hardware	3.8	5.1	6.5	8.0	11.5	11.8
Total domestic IT-BPO excl. hardware	3.9	4.8	6.7	8.2	11.7	12.4
Total domestic IT-BPO incl. hardware	7.7	9.9	13.2	16.2	23.2	24.2
<b>Total: Exports &amp; Domestic Markets</b>						
IT services (incl. engg)	12.1	15.7	21.2	27.1	35.3	39.6
Software products	1.2	1.6	2.5	3.0	4.3	4.5
BPO	3.4	5.2	7.2	9.5	12.5	14.6
Hardware	4.2	5.6	7.1	8.5	12.0	12.1
<b>Total IT services, prod, engg &amp; BPO excl. hardware</b>	<b>16.7</b>	<b>22.5</b>	<b>30.9</b>	<b>39.6</b>	<b>52.1</b>	<b>58.7</b>
<b>Grand Total incl. hardware</b>	<b>20.9</b>	<b>28.1</b>	<b>38.0</b>	<b>48.1</b>	<b>64.1</b>	<b>70.8</b>

Source: Nasscom Strategic Review 2009 and earlier issues plus Nasscom 2009d and the authors' calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional. Figures may not add up due to rounding off.

**Figure 3.2 IT-BPO industry revenue by service line, India (US\$ billions)**

Source: Nasscom Strategic Review 2009 and earlier issues plus Nasscom 2009d and the authors' calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional. Figures may not add up due to rounding off.

Historically, the IT-BPO growth in India can be broadly divided into five major phases, namely:<sup>25</sup>

1. *The initiating domestic requirements oriented phase: the mid 1960s to the mid 1980s.* This phase included the early years of establishing the IT industry in India during which the primary focus was on import-substitution and the domestic market. Progress was made in establishing higher education in IT and related areas, but the private IT industry remained small and the foreign investment regime was highly restrictive, leading aside the government setting up of an IT industry export committee which resulted in some liberalization hardware import requirement for export-oriented software sector firms.
2. *The export led growth phase: the late 1980s to around 2002.* This phase entailed strong private sector led export growth and a gradual emergence of a more sizeable domestic market. This phase has characterized by the first waves of proliferation of PCs some of which networked. Also, the central government set up the Information Technology Task Force which came up with 108 recommendations to foster the development of the software industry sector. This phase was characterized by an extraordinarily strong export demand of IT services and software product development, and the initiation of a notable BPO export industry taking place around 1998. Furthermore, this phase entailed economic liberalization reforms which helped to spur foreign trade and investment and the formation of strategic alliance between Indian and foreign firms. Several software technology parks and a wide range of public and private IT education and training programs took off. The 2001 dot-com investment bubble burst had only relatively mild and temporary effect on growth rates but spurred efforts to seek out business opportunities.
3. *The comparatively more matured phase: around 2003 to 2008.* This phase entailed continued strong growth both in exports and the domestic market although with growth rates not as high as in the peak years of the 1990s. The phase was characterized by significant expansion not only at the lower and middle end of the value added chain of IT services and BPO but also at the higher end, that is, software product development, engineering services and R&D.
4. *The global economic slowdown and recovery phase: September 2008 onwards.* This phase entailed continued comparatively moderate growth of exports and the domestic markets but pressure augmented to improve productivity and diversify in terms of verticals (sector applications) and geographies.
5. *The 2010s.* This phase is anticipated to imply a return to higher levels of growth in worldwide IT-BPO spending, IT-related trade and industry growth. It offers a wide range of opportunities to expand the scale and scope of the IT-BPO industry in India both in terms of exports and the domestic market (see chapter 6).

The expansion of the IT-related industry has been fostered by an extraordinarily strong external demand pull coupled with a swift supply response from vendors with operations in India. This occurred first in IT services and then also in software products and the ITes-BPO sector. The

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<sup>25</sup> See chapter on export and the domestic market expansion for alternative and more details descriptions of phases.



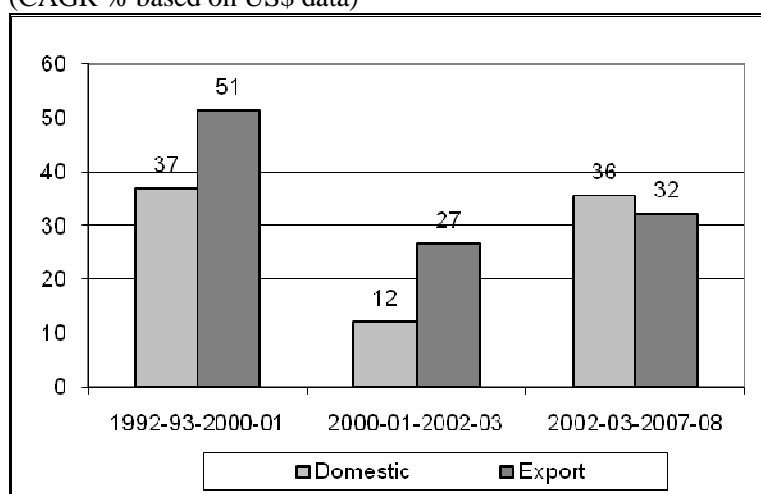
resulting rapid export expansion has continued throughout the 2000s, although typically at lower rates than in the 1990s.

The IT-BPO industry has to a high degree been dominated by exports. External markets accounted for 79 percent of the total IT-BPO revenues compared to 21 percent for the domestic market in FY2008-09, hardware excluded. The IT-BPO export industry employed about 1.76 million persons in FY2008-09. Unlike East Asian countries, IT exports from India continue to be dominated by software products and services as India's hardware exports are small, that is, US\$ 0.3 billion in FY2008-09 (see tables and figures below).

The growth in exports continued to be more rapid than in the domestic market but domestic market growth has become comparable to that of exports from the mid 2000s. This is reflected in that the export share of total revenue no longer is increasing substantively as it did earlier (figures 3.4 and 3.5).

Furthermore, the growth trajectory of the total revenue growth of the IT based services industry in India in the past decades suggests a concave growth curve, that is, leaving aside short term fluctuations in business cycles such as the slowdowns around 2001 and 2009 (see chapter 6). Export growth rates peaked at the 51 percent level in the FY1992-03 to FY2001-02 period after which they declined. The rate of growth did, however, remain considerable at a CAGR of 33 percent in the FY2003-04 to FY2007-08 period (figure 3.2). Also, it should be noted that total amount of revenue (and number of employees) added per year was several times larger by the end of the 2000s if compared to what it was earlier. This fact applied to both the export and the domestic market oriented industry. However, the CAGR development path of the domestic market has differed if compared to exports. In the 1990s the domestic market grew significantly slower than exports but this was no longer the case in the 2000s. Unlike exports, the rate of growth in the domestic market has not declined. Hence, the CAGR was around 32-33 percent for both exports and the domestic market percent in the FY2003-04 to FY2007-08 period (figures 3.4 and 3.5).

**Figure 3.3 IT-BPO industry growth cycles: Export and domestic market annual growth averages (CAGR % based on US\$ data)**

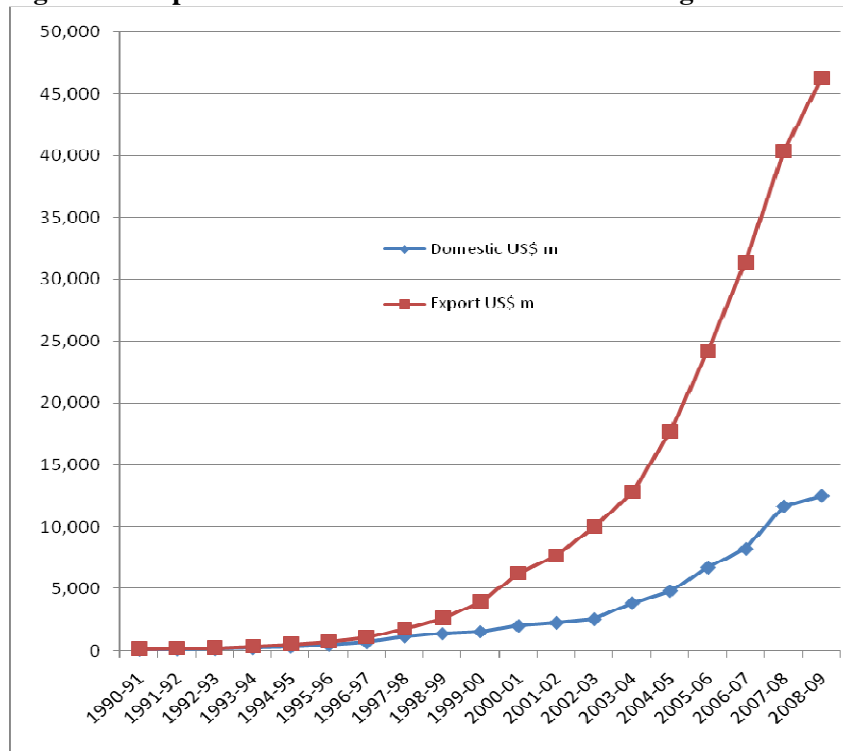


Source: Nasscom *Strategic Review 2009* and earlier issues and the authors' calculations.  
Note: Excludes hardware.

In conclusion, both the export sector and the domestic market have undergone a major transformation in the past 20 years both in terms of the scale and scope of its operations. The fact that exports has been growing more rapidly than the domestic market can be traced to the fact that the external market potential has been very large while the domestic market has been comparatively less. However, the domestic market is gradually becoming sizeable. It is well acknowledged that the domestic market offers major growth for several decades to come. The scope for doing business in the domestic market has, however, for a long time been rather limited as compared to the almost infinite scope for expansion of exports and the high profit margins that the external market offered.

The expansion of the IT-BPO industry in India has been characterized by numerous challenges in building capacity and responding to changes in demand. IT-BPO industry has faced a need for continuous adjustment to changes in technology and serviced demanded. The industry has so far done well in dealing with volatility and responding to rapid transformation in demand. The industry has a proven track record in being agile and flexible in adopting “new business models” and in venturing into new business segments. The industry has a long history of expanding the scale and scope of its operations both at the lower and higher end of the value added chain and across a wide range of sector applications. And it has expanded its geographic reach in terms of industrial locations and markets.

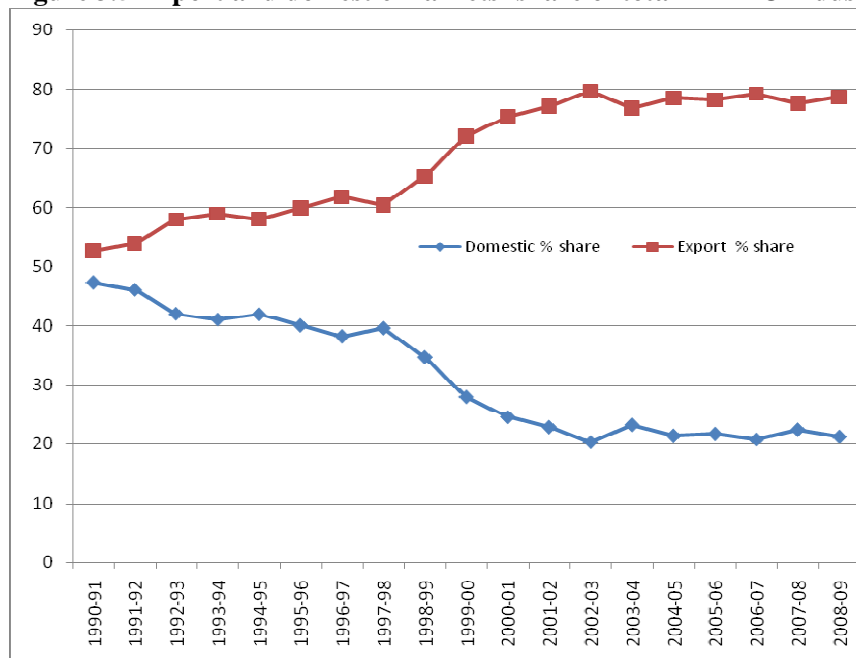
**Figure 3.4 Export and domestic market revenue earnings of IT-BPO industry, India (US\$ millions)**



Source: Nasscom Strategic Review, various issues and Nasscom 2009d.

Note: Excludes hardware. FY2007-08 and FY2008-09 data are provisional.

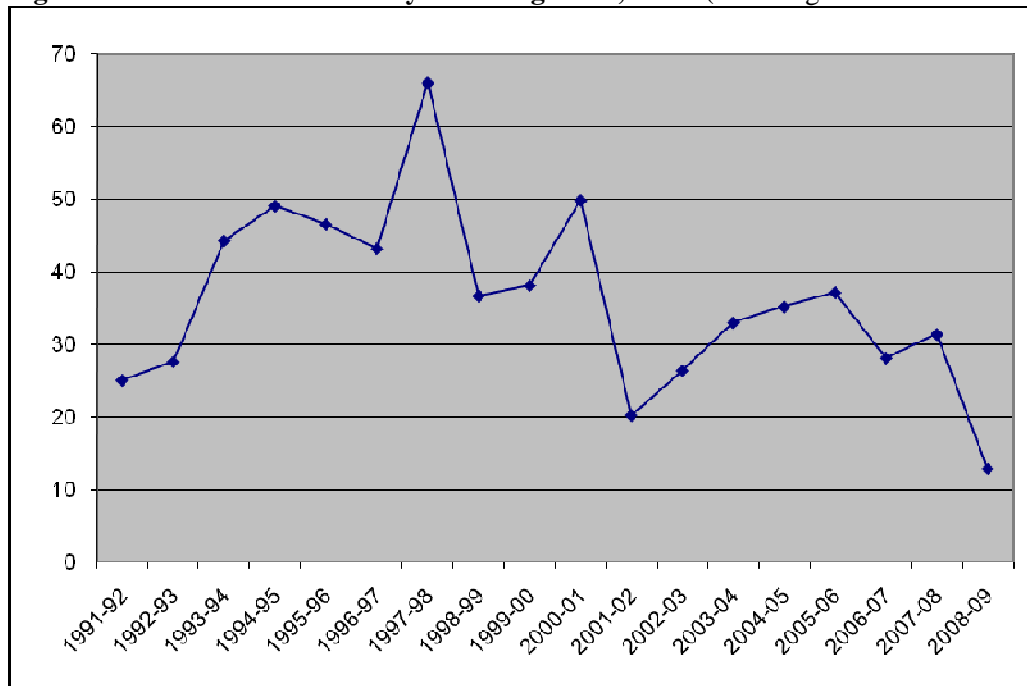
**Figure 3.5 Export and domestic markets' share of total IT-BPO industry earnings, India (%)**



Source: The authors' calculations based on Nasscom's Strategic Review, various issues and Nasscom 2009d.

Note: Excludes hardware. FY2007-08 and FY2008-09 data are provisional.

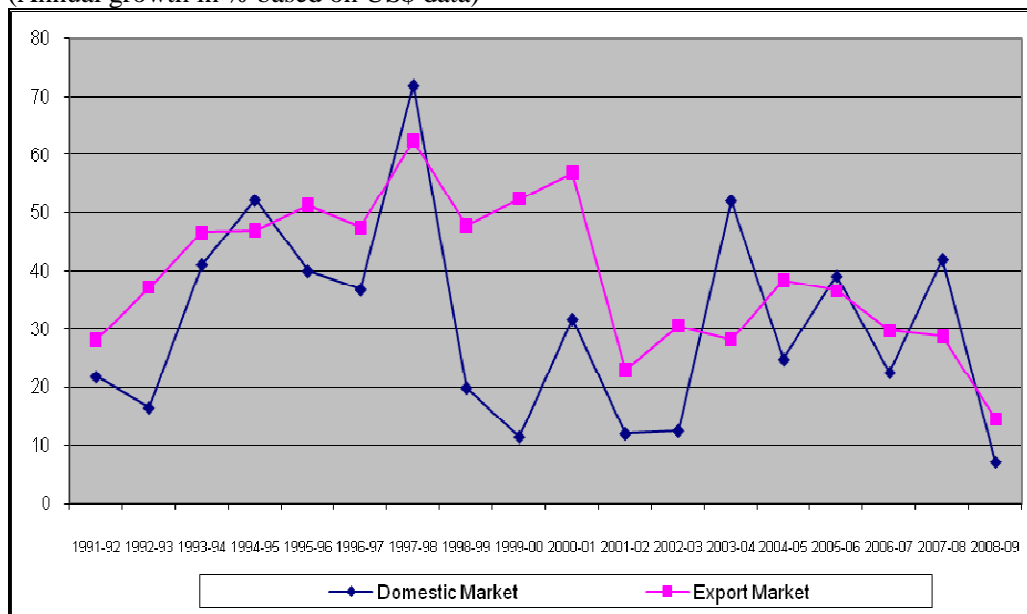
**Figure 3.6 Total IT-BPO industry revenue growth, India** (Annual growth in % based on US\$ data)



Source: The authors' calculations based on Nasscom's *Strategic Review*, various issues.

Note: Excludes hardware. FY2007-08 and FY2008-09 data are provisional.

**Figure 3.7 Export and domestic market revenue earnings of IT-BPO industry in India** (Annual growth in % based on US\$ data)



Source: The authors' calculations based on Nasscom's *Strategic Review*, various issues.

Note: Excludes hardware. FY2007-08 and FY2008-09 data are provisional.

### ***Post September 2008***

The global economic slowdown period from September 2008 onwards resulted in uncertainty regarding how the IT-BPO industry in India would perform. Initially alarmist observers pointed to risks for collapse in export revenues and profit margins. As the slowdown progressed it caused instability in market conditions. As of November 2009 some of the alarmists concerns had, however, been tempered significantly. However, examining the impact, causes and consequences of the global economic slowdown and the long term growth prospects for the IT-BPO sector is tricky due to the complexity of issues involved. Dissimilar propositions may emerge depending on whether trends are measured in dollars, rupees or volumes, and in terms of the time horizon considered (box 3.2).

Although the performance for FY2008-09 was impressive by international standards, there was, indeed a substantial deceleration in the growth of export volumes in the second half of the fiscal year (RBI 2009 see chapter 2). Total IT-BPO industry, excluding hardware, revenue earnings reached US\$ 58.8 billion in FY2008-09 compared to US\$ 52 billion in the previous year. Revenue grew by 13 percent in the fiscal year 2008-09 compared to a CAGR of 33 percent in the FY2002-03 to FY2007-08 period. Export growth slowed down to 15 percent in FY2008-09 while the domestic market growth rate was 7 percent in US dollar terms and 31 percent and 21 percent respectively in Indian rupees. If measured in constant currency terms, the IT-BPO industry (export and domestic market excluding hardware) growth would correspond to about 2 percent volume growth rate in FY2008-09 (tables and figures above and below).

IT-BPO export is projected to grow by only 4-7 percent in FY2009-10 in US dollars according to Nasscom's forecast released in July 2009 (Nasscom 2009d). While still in the positive territory, this implies that IT-BPO exports in the period from October 2008 to March 2010 is likely to register a 15-20 percent drop in annual growth rates, that is, if compared to the average for the FY2003-04 to FY2007-08 period. It would result in the slowest export growth rate which the industry has experienced the over past two decades.

It should be noted that growth rate of the IT-BPO industry in India typically is higher if measured in Indian Rupee terms rather than dollars. This was the case for FY2008-09, a year in which the rupee depreciated significantly but the opposite occurred in FY2007-08.<sup>26</sup>

While growth rates dropped sharply after September 2008 if measured in US dollars, the impact was considerable less if measured in Indian rupees as the rupee depreciated significantly against the dollar in FY2008-09. If measured in rupees IT-BPO export grew by 31 percent in FY2008-09 compared to 15 percent in FY2007-08 and 32 percent in FY2006-08. The corresponding figure for the domestic market growth rate was 21 percent in FY2008-09, 26 percent in FY2007-08 and 25 percent in FY2006-07. The latter illustrates the fact that the domestic market continued to grow. IT-BPO, excluding hardware, revenues in the domestic market rose from Rs 470 billion in FY2007-08 to Rs 570 billion in FY2008-09 and is projected to reach Rs 650-670 billion in FY2009-10, the latter representing 15-18 percent growth (Nasscom 2009d and figures and tables above and below).

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<sup>26</sup> In FY2008-09 the average Rs/US\$ exchange rate was 45.92 compared to 40.24 in FY2007-08 and 45.28 in FY2006-07 (RBI 2009).

**Table 3.2 IT-BPO industry growth in US\$ versus Rs**

	US\$ annual growth (%)			Rs annual growth (%)		
	FY06-07	FY07-08	FY08-09	FY06-07	FY07-08	FY08-09
<b>Export Market</b>						
IT service	29	28	15	32	14	31
Software products	16	51	10	19	34	25
Engineering	27	20	12	30	7	28
BPO	33	30	16	37	15	33
Hardware	-17	0	-40	-15	-11	-32
Total export IT-BPO excl. hardware	29	29	15	32	15	31
Total export IT-BPO incl. hardware	28	28	14	31	14	30
<b>Domestic Market</b>						
IT service (incl. engineering)	24	43	5	26	27	20
Software products	20	40	-2	23	24	12
Engineering						
BPO	20	44	23	23	28	40
Hardware	23	44	3	26	28	17
Total domestic IT-BPO excl. hardware	22	42	6	25	26	21
Total domestic IT-BPO incl. hardware	23	43	4	26	27	19
IT services (incl. engineering)	28	30	12	31	16	28
Software products	18	45	4	21	29	18
BPO	32	32	17	35	17	34
Hardware	20	41	1	22	25	15
<b>Total IT services, products, engineering &amp; BPO excl. hardware</b>	28	32	13	31	17	29
<b>Grand Total incl. hardware</b>	26	33	10	29	18	26
Exchange Rate US\$/Rs	2	-11	14			

Source: Nasscom 2009a and 2009d and the authors' calculations.

Note: FY2007-08 and FY2008-09 data are provisional.

### **Box 3.2 Industry heterogeneity, growth cycle lags and data issues**

Examining the impact, causes and consequences of the global economic slowdown and the long term growth prospects for the IT-BPO sector is, however, tricky due to the complexity of issues involved. The analysis is complicated by the fact that the IT-BPO industry is extremely heterogeneous. It is, therefore reasonable to claim that the IT hardware, IT services and BPO services preferably should be analyzed as separate industries. Also, there are major differences in the scale and scope of operations of companies within IT industry as well as within the BPO sectors. Moreover, the analysis of current events is hampered by at best meager, and at worst near absent data. Much of the impact of the global economic slowdown in the IT-BPO sector in India has shown manifestation only in 2009, that is, at a time for which available data is weak. Dissimilar propositions may emerge depending on whether trends are measured in dollars, rupees or volumes, and in terms of the time horizon considered.

As a consequence of global economic slowdown all projections for IT-BPO industry growth in India continued to be revised at the firm and industry wide level. Prior to September 2008, exports of IT-BPO services were projected to grow by 21-24 percent in FY2008-09 in US dollars as per Nasscom survey results. As of February 2009 this estimate had been revised to a 16-17 percent growth rate reflecting substantially lower growth in export earnings in the second half of FY2008-09, that is, from October 2008 to March 2009 (Nasscom 2009a).

As noted in the introduction weak data is a major issue complicating the task of analyzing the impact of the global economic development on the IT-BPO industry. Hence, data analysis has to be done with rigor and it has to be supplemented with interviews and other information to ensure higher “quality” of analysis.

Nasscom is a key source providing information about trends in the IT-BPO industry. Its data sets are, however, limited to financial year statistics for the industry – it does not publish quarterly or monthly data for the industry and data on revenue earnings by company. Much of the impact of the crisis that broke out in September 2008, that is, in the middle of FY2008-09, has only become manifest in the last quarter of FY2008-09 and thereafter. Hence analysis based on FY2008-09 data has limited value for an analysis of the impact of the global economic slowdown. Quarterly and monthly data is, however, available from industry equity analyst data (Bloomberg, Edelweiss, Kotak, Reuters-Thomson and others) and trade journals such as Dataquest. An analysis of data from these sources suggests significant lags and phases (or what can be interpreted as a series of inflection points) in terms of the affect of the global slowdown on the IT-BPO sector in India.

The reader needs to be cautioned that some of the changes in export revenue levels are affected by changes in foreign exchange and billing rates in buyer-venture contracts rather than the volume of work undertaken. The period 2006-2009 was characterized by major volatility in exchange rates for major currencies such as the US\$, the Euro and the Pound sterling — all of which impacted on export revenue figures as measured in US\$ or Indian Rupees as well as the overall competitiveness and profit margins in the offshoring business. Export volume data is not available. Data constructs on revenue per employee are incomplete and hence of limited value in terms of concluding on revenue growth trends. Also, it should be noted that analysis of trends needs to take into account that one single deal can have a major affect on the revenues of not only individual firms but also on the total revenue, in terms of geography, business line and the revenue earning of the IT services and BPO industry as a whole.

Finally, revenue developments can reflect both organic and inorganic growth/reduction. Example of the latter is the revenue growth of TCS, Wipro, Infosys and HCL Technologies resulting in the rise in their acquisition of other firms, notably so in 2008 and 2009.

In conclusion, some of the performance data represents temporary trends such as volatility in exchange and billing rate, lags in decision making and other effects. These types of effects should not be taken as indicators or long term growth prospects. A rigorous examination needs to include both quantitative and qualitative assessment of the global slowdown and how it translates to the Indian context. Among other things such an analysis must examine short as well as long-term developments in ICT demand, revenue growth, profits and other financial matters, volatility in foreign exchange and billing rates, the impact of M&A and political and other factors – all of which influence the scale and scope of business operations and decision making processes.

*Source:* The author.

While the IT-BPO service industry in India faced significant slowdown in US dollar export revenue growth in 2009 there was considerable variation in firm level impact. Several firms in the IT services and BPO exports business experienced flat or negative growth in the January-June 2009 period. Moreover, there was a sharp decline in domestic demand for hardware after September 2008. The slowdown in the global sourcing business occurred in several segments of IT-BPO sector. This was reflected in the contraction of revenue earnings and to a lesser extent also in the volume of work; the difference between revenue and volume of works resulting from a sharp decline in billing rates.

The year 2009 was characterized by decelerated revenue growth and pressure on profit margins among most Indian and foreign IT-BPO companies in India — and often even more so for IT-BPO companies in North America and Europe. Most firms reduced hiring and some reduced staff. Also, most firms applied cost cutting measures by putting a freeze on, or by being very restrictive, or by even cutting salaries and other forms of remuneration. While some IT firms were cash rich, the general credit crunch had significant effects on their clients as well as non-cash rich service providers in the SMEs and start-up segment.

Although the immediate response to the global economic slowdown resulted in many clients cancelled or delayed upgrading of new software product development as well as consulting and other IT services work, as time progressed many firms began to commit to more work. Moreover, given the focus on cutting costs in the advanced industrial countries many firms decided to expand their offshore operations. It should be noted that most Fortune 500 firms already have significant experience in offshoring IT services, business processes and software product development work to India and hence should act quickly if they decide to expand their offshoring operations (box 3.3).

*Hardware and telecom.* There was a sharp dampening in domestic demand for PC and other IT hardware in the last quarter of 2008 to first half of 2009 (MAIT 2009 and Dataquest August 15 2009). As of October 2009 most analysts did not expect a return to significant growth in hardware sales and exports of services until later part of 2009 or early 2010. The boom in mobile telephone services business, however, continued unabated as per data covering the September 2008 to May 2009 period. This is reflected in the number of new mobile telephone subscribers reaching monthly levels between 11.6 million to a record level of 15.6 million in the January-May 2009 period as compared to less than 10 million per month for the July-September 2008 period (TRAI 2009).



### **Box 3.3 Phases of global slowdown impact: September 2008 to 2010 and beyond**

An analysis of the impact of the economic slowdown on the IT-BPO industry shows that it is important to distinguish between near and medium term impact or inflection points and long term growth trajectories. Some of the salient features of the period of the global economic slowdown can be summarized as follows.

I. The September to December 2008 period was characterized by deceleration in the rate of IT-BPO industry revenue growth both exports and domestic markets, and especially in terms of software products and hardware demand. Overall revenue growth was moderate in terms of rupees and rather flat or even negative for some firms in terms of US\$, that is, if compared to the previous two quarters and earlier (Kotak 2009). Most firms applied measures to halt any major recruitment. Issuing of new major offshoring contracts was by and large frozen; some contracts were cancelled, and buyers of IT-BPO services held back on discretionary spending in particular. The effect on maintenance spending was moderate (Gartner 2009b).

II. The January to June 2009 period was characterized by instability and considerable uncertainty with some observers fearing a sharp decline in export revenues and profits – a fear that subsequently proved to be an exaggeration, leaving aside much of the hardware sector and software product firms and some smaller IT services and BPO firms. Nevertheless, as compared to the preceding quarters employment was no longer growing as fast as it used to. In some cases, buyers cancelled contracts or new offshoring agreements were postponed due to budget cuts. Much of the deceleration in revenue growth among vendors in India occurred due to buyers forcing them to cut billing rates. This implied that vendors were required to deliver the same volume of work but at lower compensation levels and hence lower profit margins. There were, however, also several examples of firms signing new offshoring deals (Gartner 2009b). Most large Indian IT-BPO firms showed significantly higher growth in revenue and profits than expected in the April-June 2009 period (Dataquest July 15 and July 31 2009).

III. The latter half of 2009 and 2010 is expected to entail more stable conditions with a moderate growth in IT-BPO industry business volumes followed by a return to higher growth rates as per equity analyst firm projections. Key assumptions are that worldwide IT spending will contract in 2009 and then gradually begin to grow again in 2010-2011. Moreover, it assumes that specifically the IT-BPO industry in India and Indian economy generally, will recover from the global slowdown earlier than most others. Also, it assumes that many buyers who have delayed contracts as an immediate reaction to the global economic crisis no longer can wait committing to new contracts. This applies to both discretionary and non-discretionary outlays including development work. Moreover, the pressure to cut cost as well as the maturing of existing as well new offshoring applications implies that many clients may consider expanding the scale and scope of their offshoring.

*Source:* The author.

### ***Explaining growth resilience***

In conclusion, much of the IT-BPO industry – notwithstanding significant variation by type of firm and business segment has shown strong performance as per revenue growth and profit margins if compared to the IT-BPO sector in advanced industrial economies, the latter being a case in which many both smaller and larger firms typically faced significant decline in revenue earnings (OECD 2009e). Nevertheless, the IT-BPO industry in India faced a deceleration in business volume growth in the October 2008 to June 2009 period. Growth rates in export US dollar revenue earnings declined to 15 percent in FY2008-09 compared to a CAGR of 33 percent in the FY2002-03 to FY2007-08 period. Much of the industry, however, proved to be resilient as illustrated by the fact that most large IT services and BPO firms in India recorded substantial growth in revenue earnings and profits in the later part of 2008 as well as the first half of 2009.

Also they appear to be well positioned to continue to perform soundly in the remainder of 2009 and in 2010 (Dataquest July 15, July 31 and August 15, 2009).

Favorable exchange rate development was one factor that helped Indian firms' export earning position in FY2008-09. The depreciation of the rupee against the dollar in 2008 helped to boost the competitiveness of the IT-BPO companies. It should, however, be noted that this advantage was temporary and partly offset by rises in wages and other costs in the Indian economy, although the global slowdown also resulted in IT-BPO firms in India implementing cost cutting programs.

The primary reasons for the comparatively robust performance of the IT-BPO industry are, however, to be sought in fundamental and structural aspects rather than shorter term cyclical swings in global IT spending or exchange rates. The export IT-BPO industry in India has also done well during the time when the rupee appreciated. Most large IT-BPO firms operating in India are relatively cash rich and have are less dependent on external finance if compared to what is typical in the manufacturing industry for example. Also some of their services, maintenance of existing systems for example are less cyclical in terms of demand. This and other dimensions point to more long term structural factors driving growth. The continued comparatively strong performance – seen even at a time when global IT spending growth is declining as it did in 2009 and 2001 – points to the strong appeal that offshoring of IT-BPO services has not only in times of high economic growth and but also when there is widespread international recession.

As in the past, the primary fundamental basis for the comparatively robust performance of the IT-related export industry in India after September 2008 continued to be the external demand pull (notwithstanding with lags and with demand declining in some niches) coupled with a swift supply response from vendors with operations in India. More generally, the resilience of trade in IT-BPO services can be explained by the fact that much of the IT-BPO sector is a sunrise industry in which offshoring is a key component. Also, the industry includes services such as maintenance of existing systems for which it is hard to reduce spending. The demand for many types of IT-BPO services is typically less elastic – i.e. less responsive to fluctuations in economic growth cycles – than what is the case for software products and hardware software services.

Another aspect — a development in part resulting from the global economic slowdown from September 2008 onwards — was that many firms were able to sustain, and in some cases even increase profit margins, as they applied special measures to cut cost and in some cases also managed to increase the overall business volume during 2009. Also, the global slowdown accelerated a trend from the mid 2000s whereby firms in India shifted more work offshore to India rather than conducting it onsite overseas.<sup>27</sup>

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<sup>27</sup> The share of Indian IT firms' onsite work (work carried out outside India) compared to that of offshore (work done in India) work peaked in the around 2006-07 after which it declined. Moreover, the trends toward a declining share for offshore work accelerated for almost all Indian IT firm in the period October to June 2009 (Kotak 2009). In part, this can be traced to the effect relating to the depreciation of the rupee against the dollar in FY2008-09. It should, however, be noted that this potential advantage was temporary and partly offset by sharp rises in wages and other costs in the Indian economy.

Furthermore, as of the late 2000s, the IT industry in India was considerably stronger in terms of the scale and scope of its operations than it had been in the past. It now included large and cash rich firms (Indian and foreign) that were capable of bidding for large contracts and investing in efforts to move up the value added chain, diversify into new verticals and countries. Also, the domestic market was now considerably more sizeable than it was in the past.

### **3.4 Industrial organization and firm level growth**

#### ***Industry structure and growth: Foreign and Indian firms***

India's increasingly central role in the global marketplace for IT-BPO services is manifest in several dimensions. First, the expanding role of Indian companies is demonstrated by the rapid growth of Indian services provider subsidiaries worldwide. Indian firms could potentially rival major US and European IT companies on a worldwide basis, but they have to undergo considerable transformation before they can match major US and European IT companies in their size of revenue and leadership in innovation. Secondly, foreign subsidiaries are increasingly using India extensively as one of the principal bases for several markets on a regional and worldwide basis. Finally, the pivotal role of India in the global economy is manifest in the prominent role that members of the Indian Diaspora has in the IT and other knowledge-based sectors in North America, the United Kingdom and elsewhere (Mitra 2007a and 2009c).

Indian IT services firms, and lately also the BPO sector, has proved to be innovative in design and implementation of their business models – the offshore service delivery model being a prime example. The Indian IT services and BPO companies are growing rapidly but they are still lagging behind major foreign MNCs in worldwide sales and even more so in terms of providing leadership in cutting edge technological innovation. The gap between foreign and Indian firms is, however, gradually narrowing down.

The proliferation of strategic alliance and multi-directional acquisitions by companies imply that the IT-BPO industry in India (as well as other countries) is becoming increasingly integrated within the global industrial organization context. This development implies a high degree of subcontracting and modularization of work within countries and across borders in which strategic alliances and other networks play a prominent role. The boundaries between nations and companies are becoming increasingly blurred. Hence, national industrial development and corporate strategies need to transcend beyond individual firms and national constructs (Mitra 2009x).

Nasscom has summarized industrial organization developments in the IT-BPO sector in India as follows:

“Large local players have steadily grown in size and scope and are now regularly competing with the global incumbents. They have client specific service models and form an integral part of the customer's delivery chain. These players have scaled up rapidly, growing organically and inorganically, taking on complex contracts to match the growing demand for global sourcing of IT-BPO services.

Foreign providers, both captive as well as third party, account for over 30 percent of the market. Large multinational players have rapidly built their India delivery centers and in some cases over 60 percent of their global resources are based in India, reiterating the quality of India's knowledge pool.

Foreign captives form a large component of the BPO and Engineering Services segment. Most parents of captive organizations expect them to deliver value beyond labor arbitrage, focus on business and strategic objectives, and drive end-to-end value creation. Foreign captives have grown both in terms of service offerings and headcount and contribute to the development of a global skill base in the country.

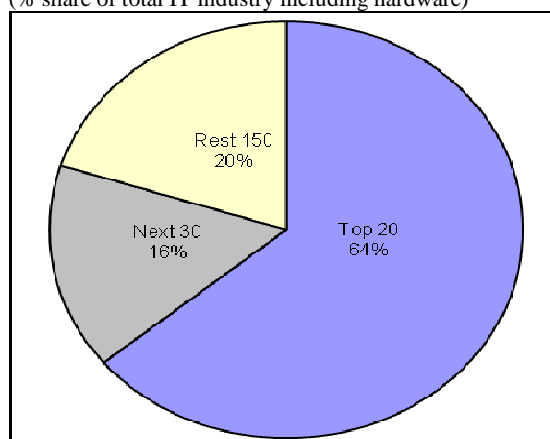
The large integrated players including Indian and MNC companies have built critical vertical capabilities, domain skills and scale. These players accounted for over 47-48 percent of industry export revenues in FY2008. They also employ around 35 percent of the workforce, with average employee strength of over 40,000 in FY2008, with some companies having a workforce of over 100,000. With their global service delivery capabilities and presence in over 60 countries, these companies are well placed to increase market share.

The mid-sized players, with revenues between USD 100 million - 1 billion, accounted for over a third of the export market in FY2008, and employed about 34 percent of the total workforce. MNC third parties and captives constitute around 30 percent of this market. Large players are facing competition from the mid-sized players in terms of delivery strategy, pricing, type of solution as the customers have more choices now, however both have significantly grown India's share in the offshoring pie).

Emerging players include a mix of Indian companies and niche foreign captives, with a dominance of third party players. They generated 7-8 percent of export revenues, and employed 14 percent of total workforce in FY2008. The industry has a pyramid structure with a large number of players (over 3,500) at the bottom. These include small companies offering products and services and start-ups who are into product development. Many of these companies are a hot bed of innovation and potential future growth for the sector" (Nasscom 2009a).

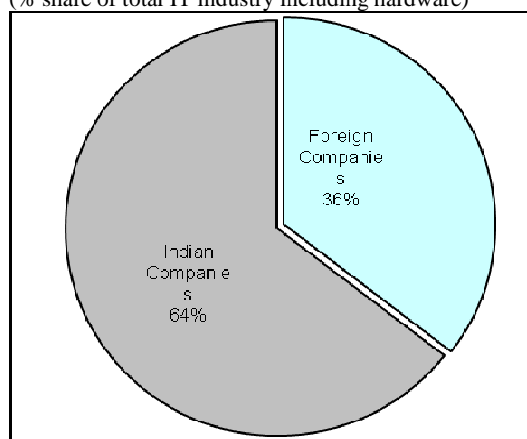
Indian firms continue to dominate the IT services industry in India. Their revenue earnings accounted for about 64.5 percent of the IT industry (200 largest software, services and hardware firms) in India in 2009 compared to 35.3 percent for foreign firms. Also, it should be noted that the top 20 companies (Indian and foreign) accounted for 64 percent of the IT industry revenue earnings in 2009 (figures 3.8 and 3.9) (Dataquest July 15 2009).

**Figure 3.8 IT industry revenue by size of firm**  
(% share of total IT industry including hardware)



Source: Dataquest July 13, 2009.

**Figure 3.9 IT industry revenue by ownership**  
(% share of total IT industry including hardware)



Source: Dataquest July 13, 2009.

*Companies of Indian origin.* Major Indian IT service provider companies such as Tata Consultancy Services (TCS), Wipro, Infosys Technologies, HCL Technologies and Tech Mahindra have incessantly built up their efforts to expand the scale and scope of their international business. They have continued to expand their operations in North America in the 2000s and even more so in relatively uncharted markets such as the continental Europe, East Asia and other regions. The growth of Indian IT firms has mostly been organic rather than through acquisitions of other firms, that is, inorganic growth, although the latter is gaining importance for the larger firms.

Indian firms have been active in forming strategic alliances with major American IT companies since the 1990s. Subsequently, they have also acquired SMEs in the United States and elsewhere. A major example of the latter is HCL Technologies' acquisition of Axon in the United Kingdom, a deal finalized in 2008 which is expected to deliver around 15 percent revenue growth for HCL Technologies. Throughout 2008 and 2009 Indian IT majors such as Infosys and Wipro have intensified their efforts to acquire IT-BPO firms internationally.

Tech Mahindra is recent a major example of an Indian IT firm in which much of the growth has been inorganic, that is, through two major acquisitions, first British Telecom's India operations and then Satyam. Another major example of inorganic growth was TCS acquiring Citibank services.

Compared to subsidiaries of foreign MNCs (Cisco Systems, IBM and others) most Indian IT majors (Infosys Technologies, for example) have primarily focused on expansion internationally rather than in the local market. The principal reason for the Indian firms' focus on external markets has been the greater scale and scope for expansion and the higher billing rates in the global market place as compared to the domestic market.

*Companies of foreign origin.* Foreign companies played a major direct and indirect role in the expansion of the IT-BPO industry in India. They have expanded the scale and scope of their operations in India substantively from the 1990s and onwards. The introduction of a more liberal foreign investment and trade regime from the late 1980s onwards has been followed by a major expansion of foreign investment and strategic alliances activity in the ICT-related sectors. Foreign companies have played a major role in technology transfer and in gaining access to international markets.

Larger foreign subsidiaries in India have typically focused both on the domestic market as well as on export of IT software & services and BPO from India. The focus on the Indian domestic market typically entails both the domestic market proper and in terms of subcontracting work from external markets to Indian companies in India. Moreover, foreign IT majors have progressively made India a main element of their global supply chain of services and subsequently also of product development. Foreign MNCs such as IBM and Accenture have quickly adopted the "Indian" offshoring model. Foreign MNCs have some advantages over Indian firms in terms of the scale and scope of their worldwide operations. They have especially strong global networks with local market access and a large stock of existing clients and also onsite service delivery capacity in all countries.

Companies like IBM have gone through several phases of engagement with India: from its initial focus on the domestic market, being taken over by the Indian government, and then reentering with a focus on both domestic and external markets. However, as of the 2000s several foreign IT services subsidiaries in India have generated most of their revenues and profits from export rather than from sales in the domestic market. In the 2000s Accenture and IBM, just to name the largest players, had “adopted the Indian global sourcing model” on a wide scale in order to use India as one of their principal platforms to deliver services on a worldwide basis. Also, India in the 2000s has emerged as a major global R&D center for foreign MNCs (Mitra 2007a and 2009c).

### ***Post September 2008***

*Overall development.* Major IT services and BPO companies continued to report strong balance sheets despite the global economic slowdown from September 2009 onwards. Amidst a depreciation of the rupee against the US dollar, several major IT-BPO companies have seen a significant rise in rupee revenues in FY2008-09 and a more modest rise if measured in US dollar.<sup>28</sup> While expectations of revenue earnings and profits are high compared to other industries, it is hard to make a credible forecast for FY2009-10 and FY2010-11 due to uncertain external demand and exchange rate. According to equity analyst projections, some firms could experience a significant contraction in their business volumes while others may expand considerable.<sup>29</sup>

As of mid 2009 it was too early to draw conclusions about the impact that the global slowdown would have in terms of changes in industrial organization. As in the case of other major economic downturns, it is likely to manifest in significant change in industrial consolidation including M&A. Moreover, it has already resulted in most companies intensifying efforts to cut cost and diversify their business into promising areas internationally. Also, as noted above many companies shifted more work from onsite to offshore sites. Moreover, the global slowdown resulted in both foreign and Indian companies gave importance to the domestic market.

*Impact on IT services, software products and hardware niches.* The global downturn from September 2008 onwards had different impacts depending on the type of firm. Indian subsidiaries of hardware firm such as Hewlett Packard and Cisco Systems and software product companies such as Oracle and Microsoft experienced only marginal growth in rupees and a decline in terms of US dollars. Most IT services firms, including the five largest IT services

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<sup>28</sup> The combined revenue growth of the top four Indian IT firms - TCS, Wipro, Infosys, and HCL Technologies - was 15 percent for the quarter the ended in March 2009. The cumulative profit for the four firms stood at Rs 38,400 million for the quarter ending March 2009, a gain of 13.6 percent over the same period last year. The primary contributors to the growth were Infosys and Wipro. Infosys outperformed other India IT majors both on the front of revenue and profit growth in the fourth quarter of FY2008-09. Revenue and profit grew by 25 and 33 percent, respectively. TCS too posted gains. HCL technologies, however, witnessed a 17 percent drop in revenue. Its foreign exchange loss stood at Rs 2,010 million. On an annual performance basis, while Wipro gained 44 percent in its revenues, Infosys emerged as the maximum gainer in profits with a 30 percent growth in profit during 2008-09 against that recorded in 2007-08 (Hindustan Times 2009a).

<sup>29</sup> As of mid 2009 forecasts by equity analyst firms showed that most Indian and foreign IT majors in India are likely to have only moderate changes revenue earnings (US dollar valued) for July to December 2009 period. Much of this is likely to result from decline in billing rates rather than fall in work volume (Bloomberg, Kotak Institutional Equities Research, Reuters, SBI Capital Securities and others).

firms (TCS, Wipro, Infosys, IBM India and Cognizant Technology Solutions) did, however continue to record high growth in FY2008-09 and mostly also in the first quarters of FY2009-10. The fact that the rate of growth in FY2008-09 was significantly lower if measured in dollars as compared to Rs reflects the impact of the depreciation of the Rs in that fiscal year (table 3.3).

A special significant feature was that almost all major Indian IT service export companies did well despite the fact there they were heavily dependent on the United States and United Kingdom and the banking and financial services sector in these countries. Companies like Wipro and Polaris had major business with clients like Lehman Brothers, AIG or Citibank – that is firms that defaulted after the September 2008 crisis. Yet Wipro for example recorded substantial revenue growth even after September 2008. The slowdown in business from some clients was more offset by increase in business from other clients (Dataquest July 15 2009).

The ITeS-BPO industry differs from that of IT software and services. Firstly, it is a very young industry in India. It began to get noticed around 1998 after which it has grown even faster than the IT software and services Industry. India quickly established itself as the industry leader in offshoring of business processes to developing countries. From the later part of the 2000s it also began to face more significant competition from the Philippines and other developing countries. Secondly, the BPO sector is even more diverse than the IT services industry and it is also perhaps even more dynamic in terms of the extent to which new business niches have opened up in the 2000s and are expected to open up in the 2010s.

The BPO industry has experienced hyper-growth since the late 1990s and it continued to grow in the global economic slowdown, although at a lower rate than in previous years. Revenue earnings of the 20 largest BPO companies in India grow by 30 percent in FY2008-09 if measured in rupees, that is, a significant acceleration from the growth rate of 17 percent FY2007-08. However, in dollar terms growth was only 13 percent in FY2008-09 (a year with rupee depreciation) as compared with a high of 31 in FY2007-08 (a year with rupee appreciation) (table 3.4).

*Small versus large firms.* It is hard to draw conclusions regarding the impact of the September 2008 global slowdown on large versus smaller IT-BPO firms in India, as they are so diverse in terms of type of business, clients, cash, profits margins, need for credit and other financial positioning.

As noted above larger IT services and BPO firms' have continued to show rapid growth throughout the 2000s, that is, even in years when worldwide IT spending declined as it did in 2001 and 2009. This applies to both Indian firms and foreign subsidiaries in India. They have become used to very rapid growth in revenues, staffing and high profit margins. It can be argued that this has been an extraordinarily good situation and that they eventually will have to accept low growth in revenue and profits.

The small and medium enterprises (SME) sector has also expanded rapidly since the 1990s but many firms in this sector appeared more vulnerable to swings in the business cycle. The main concern for many SMEs in a slowdown period has been the classic issue of how to survive, whereas the main issue for larger firms has been to reappraise.

Large sections of the SME sector have been hit harder by the global economic slowdown from September 2008 onwards if compared to the larger IT services and BPO firms. This fact can be traced to a number of characteristics. SMEs tend to have fewer clients and business niches while larger firms are more diverse and hence less vulnerable. Also, many SMEs dependent highly on application development niches with a degree of discretionary IT spending which had to cut back during the global slowdown. Moreover, the financial position of SME tends to be highly exposed to volatility when there are short term fluctuations in revenue earnings and exchange rates and in terms of the access to finance. Unless they are cash rich, they may need to survive long periods of losses and need to invest aggressively in training and new business lines.

**Table 3.3 Revenue earnings for top 20 IT companies, India** (Annual growth Rs and US\$)

Rank	Company	Revenues in Rs billion		Rs annual growth (%)		Revenues in US\$ million		US\$ annual growth (%)	
		2007-08	2008-09	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
1	TCS	212	259	21	22	5,272	5,639	36	7
2	Wipro	169	239	27	41	4,196	5,201	43	24
3	Infosys Technologies	155	204	17	31	3,860	4,441	32	15
4	Hewlett-Packard India	155	158	30	2	3,840	3,433	46	-11
5	IBM India	101	120	23	19	2,510	2,624	38	5
6	Cognizant Technology Solutions	63	94	38	49	1,568	2,049	55	31
7	Ingram Micro	86	94	25	9	2,142	2,046	41	-4
8	HCL Technologies	62	88	26	41	1,541	1,909	42	24
9	HCL Infosystems	51	81	44	60	1,257	1,762	62	40
10	Redington India	63	66	25	5	1,561	1,432	41	-8
11	Cisco Systems	58	61	32	4	1,451	1,325	49	-9
12	Oracle India	58	60	22	3	1,443	1,298	37	-10
13	Intel India	43	47	15	9	1,071	1,023	29	-4
14	Accenture	38	44	new	16	944	958	new	1
15	SAP India	33	43	84	33	810	941	107	16
16	Dell India	32	43	62	32	803	929	82	16
17	Tech Mahindra	36	42	25	15	904	914	41	1
18	Microsoft India	33	33	26	1	811	718	42	-11
19	Mphasis	19	32	40	69	467	691	58	48
20	Patni Computer Systems	26	30	-3	17	638	656	9	3
	<b>Total</b>	1,493	1,836	29	23	37,090	39,987	46	8

Source: Dataquest July 15 2009.

Note: Includes IT software & services and hardware companies. "New" refers to data previously not listed in Dataquest's annual ranking.



**Table 3.4 Revenue earnings for top 20 BPO companies, India (Annual growth Rs and US\$)**

Rank	Company	Revenues in Rs billion		Rs annual growth (%)		Revenues in US\$ million		US\$ annual growth (%)	
		2007-08	2008-09	2007-08	2008-09	2007-08	2008-09	2007-08	2008-09
1	Genpact	26.59	40.86	20	54	661	890	35	35
2	TCS BPO	13.86	18.17	39	31	344	396	56	15
3	WNS Global Services	11.71	17.81	18	52	291	388	33	33
4	Wipro BPO	11.47	16.41	23	43	285	357	38	25
5	Firstsource Solutions	11.64	15.6	46	34	289	340	64	17
6	Aegis BPO	8.51	15.58	16	83	211	339	31	60
7	IBM Daksh	12.92	14.85	9	15	321	323	23	1
8	Infosys BPO	9.77	14.71	46	51	243	320	64	32
9	Aditya Birla Minacs	15.63	14.3	3	-9	388	311	16	-20
10	HCL BPO	8.8	10.77	18	22	219	235	33	7
11	Accenture India	8.47	10.58	27	25	210	230	43	9
12	EXL Service	7.7	8.67	22	13	191	189	37	-1
13	Cambridge Solution	8.97	8.19	-10	-9	223	178	1	-20
14	Convergys Solutions	8.78	8.16	2	-7	218	178	15	-19
15	Intelnet Global	6.57	7.47	128	14	163	163	157	0
16	Hinduja Global Solutions	5.68	6.61	65	16	141	144	86	2
17	24/7 Customers	4.06	6.24	17	54	101	136	32	35
18	Mphasis BPO	4.28	5.71	23	33	106	124	38	17
19	vCustomer	4.02	4.23	3	5	100	92	16	-8
20	Syntel KPO	2.2	3.3	95	50	55	72	119	31
	<b>Total</b>	191.63	248.22	17	30	4762	5405	32	14

Source: Dataquest July 31 2009.

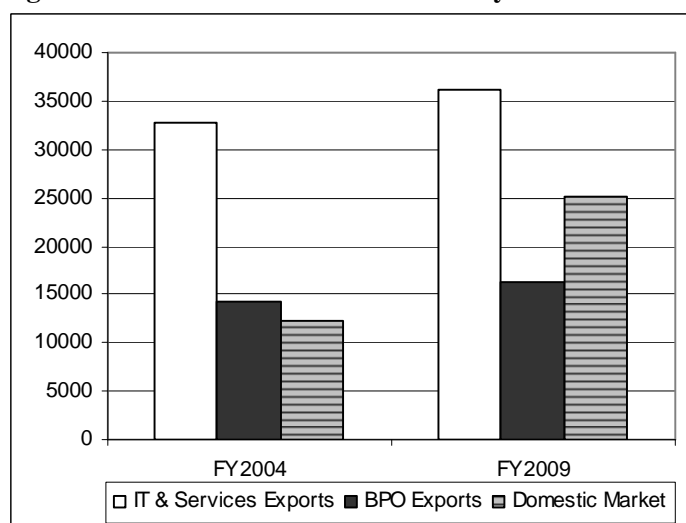
### 3.5 Transformation across the value added chain

As noted above the IT-BPO industry in India diversified into new services areas many of which are at the lower end of the value added chain. Also, it is expanding more gradually in higher end services, software products, engineering services and knowledge process outsourcing (KPO).

Revenue earning per employee could provide a broad picture of to what extent the industry has moved up the value added chain. An analysis based on this crude measure shows that revenue per employee has increased only slowly in the 1990s and the 2000s, that is, if measures in constant prices in dollar or rupee terms. This fact does not, however, imply that the industry is slow in moving up the value chain – there are indeed many examples of this such as MNCs offshoring of R&D to India etc (Mitra 2007a).

The fact that the industry average for remuneration salary/output level is rising only moderately does not imply little expansion at the higher end. Instead it reflects the fact that both the IT and BPO industry, and the latter in particular, have expanded both at the lower and higher end (figure 3.10).

**Figure 3.10 TI services and BPO industry in India: Revenue per employee (US\$ current prices)**



Sources: Authors' calculations based on Nasscom *Strategic Review 2009* and earlier issues.

Note: Data excluding hardware. Domestic market refers to IT and BPO services. FY2008-09 is estimate. Sharp rise employee-revenue ratio for IT services versus BPO revenue during the 2004 to 2009 period can be traced to a number of factors such as: rising government salaries and the fact that the average age for employ is higher in IT services compared to BPO.

### 3.6 Employment and remuneration

#### *Prior to September 2008*

Over the past decades, the IT based services sector emerged from a minor to a major source of employment opportunities for urban young Indians with higher education. In the period FY2001-02 to FY2007-08, direct employment in the IT-BPO industry increased from about 552,000 to two millions, that is, a CAGR of over 25 percent. The growth has been rapid in all segments of the IT-BPO service industry and both in the exports as well as the domestic market business. However, employment growth is predominant in the export sector with growth in BPO industry employment being particularly high in the 2000s. The annual rate of growth of employment in the domestic sector has persistently been significantly lower than in exports as far back as the 1980s (table 3.5 and 3.6).

The strong demand for manpower for the IT-BPO industry resulted in shortages in skilled and experienced technical and managerial human resources. Also, the industry has suffered from high rates of attrition. This situation has fueled a rapid rise in wages, especially in the period 2002-2008. On an average, wage levels in the export segment has been more than double than that of the domestic market segment, one primary reason being the higher billing rates in the export business.

#### *Post September 2008*

The global downturn from September 2008 onwards quickly altered the job market situation in the IT based industry in most countries. Internationally, the crisis brought about changes in the demand for, access to, and competition for skilled human resources within and across countries.

The global slowdown resulted in a freeze on hiring and in some cases also reduction of staff among IT firms and in terms of in-house IT functions among end users. This has been so especially in advanced industrial economies and, to a lesser extent, in countries like India.

In India the net employment in the IT-BPO sector continued to grow in 2008 and 2009 although at a lower phase than in preceding years.<sup>30</sup> The global slowdown resulted in a marked reduction in the demand for human resources. Many companies curtailed new hiring but honored job offers that had been given prior to September 2008. Most IT majors introduced rationalization schemes, including performance assessments, resulting in people losing their jobs – something which was very unusual in the past. Especially, entry level staff lost jobs or were enticed to stay but only under the conditions that they accepted pay cuts. Others sat “on the bench” or underwent training. Also, companies sought to reduce wage remuneration and increase productivity of their staff.

Many IT and BPO firms did, however, continue to hire, although at a low pace compared to previous years. Data for the period from September 2008 to March 2009 covering 11 large IT services firms in India show a net increase in employment, that is, new hiring minus reductions, although are at significantly lower levels than in 2006 and 2007 (Kotak 2009).

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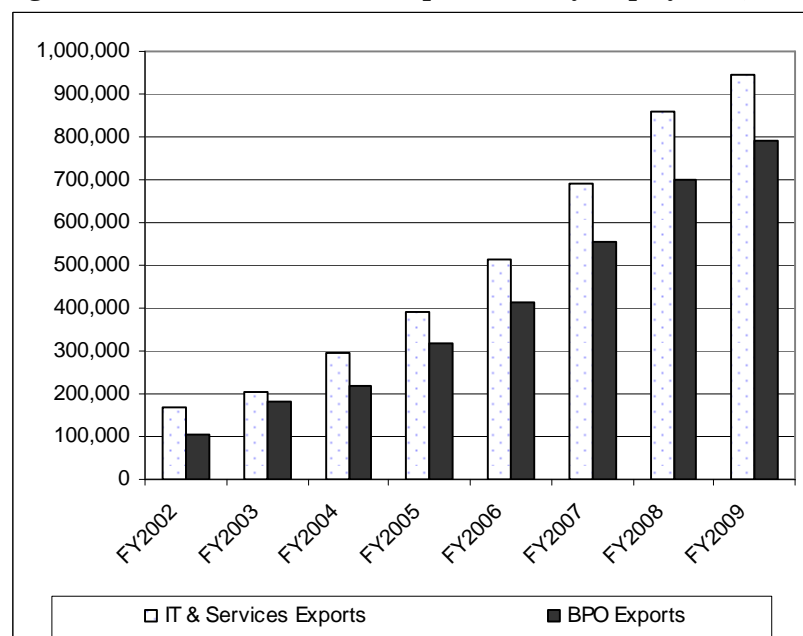
<sup>30</sup>There was a slowdown in demand for human resources starting in 2008 and the first half of 2009. Primary impact of this trend was in major cities as they are the main centers offering IT-BPO industry related employment opportunities. The direct impact of the slowdown in the IT-BPO industry on the rural areas and the poor segments of the society have not been significant.

**Table 3.5 IT-BPO industry employment, India**

	FY2001-02	FY2002-03	FY2003-04	FY2004-05	FY2005-06	FY2006-07	FY2007-08	FY2008-09
<b>Number of employees</b>								
IT & Services Exports	170,000	205,000	296,000	390,000	513,000	690,000	860,000	922,000
BPO Exports	106,000	180,000	216,000	316,000	415,000	553,000	700,000	786,000
Subtotal IT-BPO exports	276,000	385,000	512,000	706,000	928,000	1,243,000	1,560,000	1,708,000
Domestic Market IT-BPO	246,250	285,000	318,000	352,000	365,000	378,000	450,000	500,000
<b>Grand Total</b>	<b>522,250</b>	<b>670,000</b>	<b>830,000</b>	<b>1,058,000</b>	<b>1,293,000</b>	<b>1,621,000</b>	<b>2,010,000</b>	<b>2,208,000</b>
<b>Employment (% share)</b>								
IT & Services Exports	32.6	30.6	35.7	36.9	39.7	42.6	42.8	41.8
BPO Exports	20.3	26.9	26.0	29.9	32.1	34.1	34.8	35.6
Subtotal: IT-BPO exports	52.8	57.5	61.7	66.7	71.8	76.7	77.6	77.4
Domestic Market IT-BPO	47.2	42.5	38.3	33.3	28.2	23.3	22.4	22.6
<b>CAGR (%)</b>								
IT & Services Exports		20.6	44.4	31.8	31.5	34.5	24.6	7.2
BPO Exports		69.8	20.0	46.3	31.3	33.3	26.6	12.3
Subtotal: IT-BPO exports		39.5	33.0	37.9	31.4	33.9	25.5	9.5
Domestic Market IT-BPO		15.7	11.6	10.7	3.7	3.6	19.0	11.1
<b>Grand Total</b>		<b>28.3</b>	<b>23.9</b>	<b>27.5</b>	<b>22.2</b>	<b>25.4</b>	<b>24.0</b>	<b>9.9</b>

Sources: Nasscom Strategic Review 2009 and earlier issues and Nasscom 2009d and the author's calculations of shares and growth rates

Note: Data excluding hardware and refer to end of fiscal years. Domestic market refers to IT and BPO services.

**Figure 3.11 IT and BPO service export industry employment, India (Number of employees)**

Sources: Nasscom Strategic Review 2009 and earlier issues and Nasscom 2009d.

### **3.7 Profit margins, market capitalization and financing**

Indian IT majors have long operated with large profit margins and have benefitted from rapid rise in equity market valuations. Stock valuations of Indian IT-BPO firms have become increasingly volatile after the global financial crisis in September 2008. As in other countries and sector the market fell sharply after September and the recovery was characterized by uncertainty.<sup>31</sup> Some firms were cash rich prior to September 2008 and were, therefore, well-positioned to confront the new situation in which there was compression of revenue growth and a tougher credit market.

As noted above the most IT-BPO service firms in India continued to grow in the last half of 2008 and in 2009, that is, leaving aside the hardware sector. The market did, however, perceive that the global economic downturn would result in compression in sales volumes, cancellation of contracts and lowering of billing rates. All of this was expected to lead to pressures on profit margins for many export-oriented firms, although with lags. Some of this did, indeed, occur but most major IT-BPO firm were able to sustain significant revenue growth and profit margins (Dataquest July 15, 2009).

The global financial crisis and economic slowdown had short as well as long term implications for access to venture capital, equity and other sources of finance, thereby influencing investment decisions to expand access to and use of IT-BPO in the local economy as well as the scale and scope for global and domestic sourcing operations. The credit crunch, the volatility in stock markets and the sharp downturn in the venture capital industry have all impacted the IT-BPO industry.

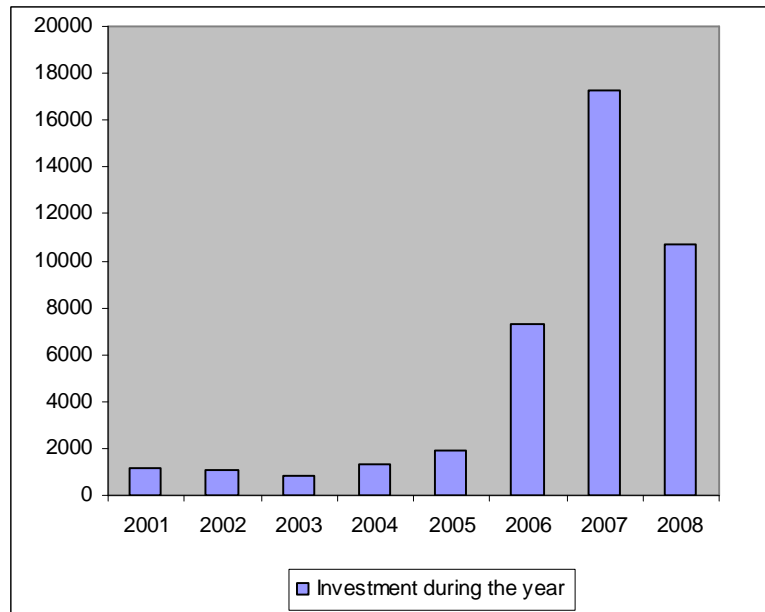
The second half of 2009 was characterized by an easing of credit market conditions. The Indian stock market experienced a major bull market in most part of the March to September 2009 period. During this time the Indian stock market, including Indian IT-BPO firms stocks, outperformed the market if compared to all other major economies. The surge in the stock market was, however, so sharp that most analysts expected a correction in during the last quarter of 2009.<sup>32</sup>

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<sup>31</sup> There was also a general drop in share prices across all sectors even before September 2008, especially because foreign investors reverted to cash-in on the profits that were made in the bull market under the presumption that India's stocks had risen to unsustainably high levels.

<sup>32</sup> India's Bombay Stock Exchange Sensitive Index (Sensex) benchmark index fell by 6.3 percent in the month of October 2009 but the index was still up by 66 percent for the year of 2009.

**Table 3.6 India Venture capital/equity industry yearly investment, India (US\$ million)**



Sources: AVCJ and Nasscom 2009a.

Note: 2008 data is estimate.

### 3.8 Governance, shocks and risks

The wide ranging economic implications of the global economic slowdown coupled with the corporate fraud scandals and terrorist events in India and elsewhere have highlighted the need to be able to handle shocks and risks in the business and policy environment.

#### *Corporate governance and the Satyam fraud case*

In addition to the global financial crisis shocks, India was exposed to two other major crises in FY2009; one was the Satyam corporate scandal and the second, the Mumbai and other terrorist attacks.

Satyam Computer Services – a major IT back office service provider to Fortune 500 companies in the United States — was the first example of a large Indian IT firm in which its Chairman and top managers were guilty of fraud as they had tampered with accounts on a big scale. This scandal was revealed on January 7, 2009 when the company's chairman Mr. Ramalinga Raju, confessed that he had been engaged in fraudulent activities. This incident received considerable attention in India and other countries, especially since it was the first time that it was revealed that a large Indian IT firm had been involved in a major fraud. While corporate governance traditionally has been a mixed bag in India, the IT sector had prided itself on having extraordinarily high accountability and transparency standards.

The Indian Government and corporate sectors acted swiftly to make sure that the Satyam crisis was handled well. Within 48 hours the government had intervened in partnership with the corporate sector. There was a very rapid and effective response resulting in the change in board

and executive management to ensure that the company did not collapse. This was followed by extensive investigation, prosecution of persons involved and actions to sell to the firm. In April 2009 Tech Mahindra, a joint venture between the Mahindra & Mahindra industrial conglomerate and British Telecom, won the bid to take over Satyam. Subsequently the new entity was renamed Mahindra Satyam.

In short, the Satyam fraud case was successfully resolved. The government and the corporate sectors, including industry associations, handled the case swiftly and effectively. With the takeover by Mahindra most staff could retain their jobs and most clients were able to retain service arrangements.

Nevertheless, the Satyam crisis served as a warning signal. It resulted in the government, including industry associations & federations and other entities intensifying their measures aimed at better and generally more ethical corporate governance. While stirring up considerable publicity it currently appears as if the Satyam fraud case alone is unlikely to have a major effect on the growth prospects of the IT-BPO industry in India. It does, however, imply the corporate and auditing firms in India are likely to apply more rigors in corporate financial management. Also, it pointed to longstanding issues of weaknesses of corporate governance across all sectors in the Indian economy, issues relating to financing and volatility in stock market and excessive and short sighted speculation in real estate and other sectors.

### ***Political stability and security issues***

India has a long history of dealing with political and other security issues. The threat of terrorist attacks appears to be growing but is unlikely to cause any major damage to the country's overall political stability. Hence, it is also likely to have a major effect on the growth prospects for the IT-BPO or other industries in the country in the foreseeable future. Also, there is no major threat in terms of destabilizing trade union activity. There are, however, other concerns which could have a major and direct effect on the IT-BPO industry, namely, cyber security issues and risks for major technological disruptions in ICT systems in India or internationally.

### ***Uncertainty regarding global markets, macroeconomic conditions and corporate responses***

The global financial crisis in September 2008 caused a major shock not only to the financial markets but it also brought about immediate as well as long term uncertainty regarding global economic growth and trade. In addition to the immediate effects of demand compression in major industrial countries, the global economic slowdown resulted in renewed volatility and uncertainty regarding exchange rates, credit, stock market evaluations and other financial macroeconomic conditions. Risks for a sharp fall in value of the US dollar, or other major disruptions in the global economy point to the possibility that the world economy could encounter several rounds of crisis in the next years as was the case during the great depression in the 1930s.

The rise of protectionist pressures was another consequence of the global economic downturn. Fears began to mount that the United States and European Union (EU) members would apply protectionist measures that would seriously hamper the offshoring business. The United States has severely limited the scope of H1B visas program in terms of number of visa issued and

requirements to qualify (the work permit visa frequently used by technical and other professionals from India and other countries). Moreover, the Congress is currently considering changes in its taxation legislation which would reduce the incentives for US companies to offshore services. However, it is too early to conclude that these or other measures would have major consequences on the global offshoring business. One of the means that Indian firms could apply in terms of countering major protectionist sentiment would be to continue to expand their hiring and acquisition of other firms in the United States. American IT firms which now have strong vested interests in the global distribution of IT-BPO operations and therefore are able to recruit foreign technical expertise to work in the United States, have to also continually oppose protectionist measures. Nevertheless, protectionist tendencies — as well as volatility in demand, exchange and billing rates, financial market and other conditions — are all poised to be issues that the IT-BPO industry will have to live within the foreseeable future.

In terms of the domestic economic situation in India, one central issue emanating from the global economic slowdown was the uncertainty regarding domestic demand cycles for IT-BPO and other sectors. On the positive side it should be noted that inflation and interest rates fell after the global economic slowdown manifested itself. Problems such as major shortage of skilled manpower, high wage inflation, grave physical infrastructure bottlenecks, fast growing companies finding it difficult to maintain quality standards and other contractual obligations, etc remain serious concerns. The acute nature of these problems has, however, been dampened by the moderation in IT-BPO and other industrial growth that resulted from the global economic slowdown.

Uncertainty regarding the strength and duration the global economic slowdown recovery had reduced significantly but continued to linger as of November 2009. The months prior to October 2009 there was a major worldwide surge in stock markets, India being a prime example. Also, IMF and other financial institutions and market intelligence firms revised their projections world GDP, foreign trade and IT spending growth. This was reflected in more stable demand conditions for IT-BPO firms in India.

The global slowdown recovery phase was, however, associated with rising concern that the IT-BPO industry would once again face high rates of wage inflation and other rising costs. Industry analyst pointed to risks for sharp rise in the cost base as the recovery from the global economic slowdown ensues. The experiences from previous economic slowdowns show considerable risks for wage inflation in the IT-BPO industry when demand picks up. Also, many cost-cutting measures typically are reversed when demand picks up. In addition, appreciation of the Indian rupee could erode costing advantages especially in the US market. An appreciation of the rupee is likely to result in lower profit margins for the IT-BPO industry in India.

Furthermore, industry analysts have raised the question as to what extent the Indian IT industry's major firms adjustment to the global economic slowdown was a pyrrhic victory. They are concerned about vendors' excessive attention and short-sighted focus on profit margins. As demand recovery become unknown, the focus of Indian firms shifted more obsessively towards defending their profit margin position, with reduction in salary costs being the principal instrument. While often justifiable this was, however, coupled with insufficient efforts on making investments required for long term growth.



The dot-com investment bubble slowdown in the early 2000s saw Indian vendors accepting lower profit margin but it also entailed vendors investing in newer services like ERP, BPO and testing in European markets which enabled them to grow rapidly in the recovery period and beyond. Achieving growth rates between 10-20 percent for Indian IT firms will require rapid expansion not only in newer geographies but also new service lines to tide over the declining growth and market-shares in older services. At the same time, Indian vendors need to invest more in consulting, higher end BPO infrastructure management services (IMS) capabilities and to make larger deals – US\$ 100 million and more — a common occurrence (CSLA, 1 April 2009).

### ***Dependency on few markets and business segments***

Furthermore, the global economic slowdown demonstrated risks associated with being heavily dependent on few markets and business segments, namely the United States and the United Kingdom and the banking and financial services industry in these two countries. Hence, it is not surprising that the effects of the global economic slowdown have resulted in intensified efforts by the IT-BPO industry in India to expand in external markets other than the United States and the United Kingdom and in sectors other than banking and financial services. Also, many firms began to shift more of their attention to domestic market business opportunities.

## 4. Export Market Growth Trajectories

### 4.1 Overall export developments

#### *Growth phases*

Export of the IT-related services from India has grown for over 20 years. The export growth record of the IT-BPO sector has been impressive throughout times of robust growth in global trade and worldwide IT spending as well as during slowdown in external demand. The fact the growth rate in export was especially high in the 1990s compared to the 2000s can in part be explained by the fact that it is easier to achieve high growth rates when it starts from a low base as compared to when the market and the industry becomes more matured.

The IT based services industry in India has experienced major fluctuations in revenue growth in the 1990s and the 2000s. This is illustrated by the shortfall recorded in export revenue growth in the FY2001-02 to FY2003-04 period which was followed by a strong rebound in FY2004-05 and FY2005-06. Revenues quickly bounced back after a period of slowdown in economic growth in OECD countries in the 1990s, the East Asian financial crisis, and the dot-com investment burst in 2001. Revenue continued to grow in the FY2004-05 to FY2008-09 period but the rate of growth was significantly lower than the average in the 1990s (figures 4.1 and 4.2).

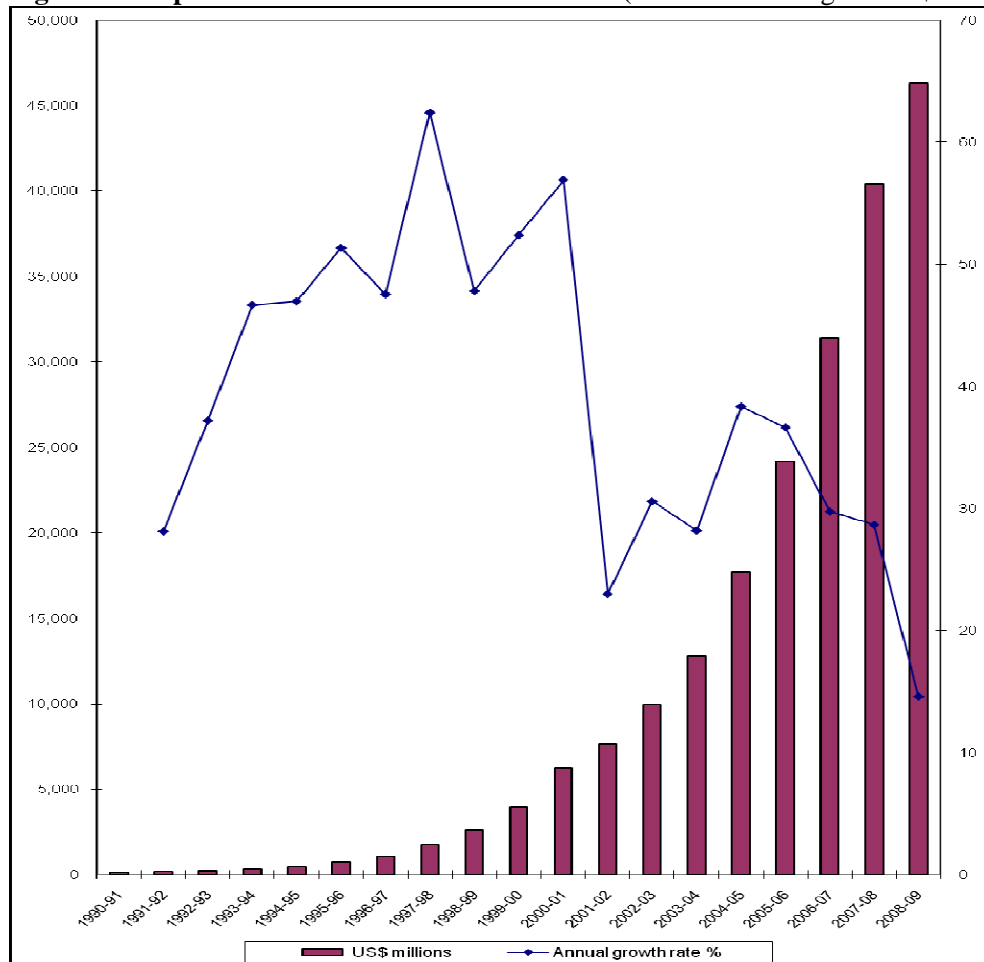
The rate of growth in export has declined in the 2000s if compared to the hyper-growth years in the 1990s but rate of expansion remained considerable. The CAGR in IT-BPO exports was 33 percent in the FY2003-04 to FY2007-08 period compared to 51 percent in the FY1992-03 to FY2000-01 period, that is, leaving aside the atypical global slowdown period around 2001-2003 (figure 4.2). It should, however, be noted that total amount of revenue (and number of employees) added per year was several times larger by the end of the 2000s compared to what it was in the 1990s. This illustrates the fact that the IT-BPO industry in India continued to be exceedingly important.

The IT-BPO export growth performance can be divided into the following phases:

1. *The initiating domestic requirements oriented phase: the mid 1960s to the mid 1980s.* The early years of establishing the IT industry in which the primary focus was on the domestic market requirement rather than exports.
2. *The initial high growth phase: late 1980s and early 1990s.* The early years of rapid establishment of low end IT service export industry in industrial parks.

3. *The hyper-growth phase: 1993 to 2000.* The IT software and services export sector typically exhibited growth at rates between 47-62 percent in the FY2003-04 to FY2000-01 period in US dollar terms.
4. *The dot-com investment bubble burst phase: around 2000-2003.* The rate of growth in the IT software and services export sector fell temporarily. Worldwide IT spending declined. The IT industry export in India rebounded quickly, the Y2K business closed down and the industry was successful in moving on to other business segments.
5. *The high growth phase with more broad based expansion: 2004 to September 2008.* The IT-BPO export sector in India show annual growth rates around 30-40 percent in US dollar terms. Growth was rapid in IT software & services including engineering services at both the lower and higher end of the value added chain, and even more so in BPO. Banking and financial services continued to dominate the IT-BPO offshoring business. There was significant growth in export to the United States and the United Kingdom but also to non Anglo-Saxon countries.
6. *The global economic slowdown and recovery phase: September 2008 to around 2010.* Worldwide IT spending declined significantly for the first time since 2001 and much of the IT services and BPO industry in India continues to grow while cutting cost and preparing to expand in other verticals than the banking & financial service sector and in geographies other the United States and the United Kingdom. Growth in worldwide IT and BPO spending is expected to gradually recover to pre-crisis levels thereby offering opportunities for acceleration of exports of IT software & services and BPO from India.
7. *The 2010s.* This phase is anticipated to imply a return to higher levels growth in worldwide IT-BPO spending. IT-related trade and industry growth (see chapter 6).

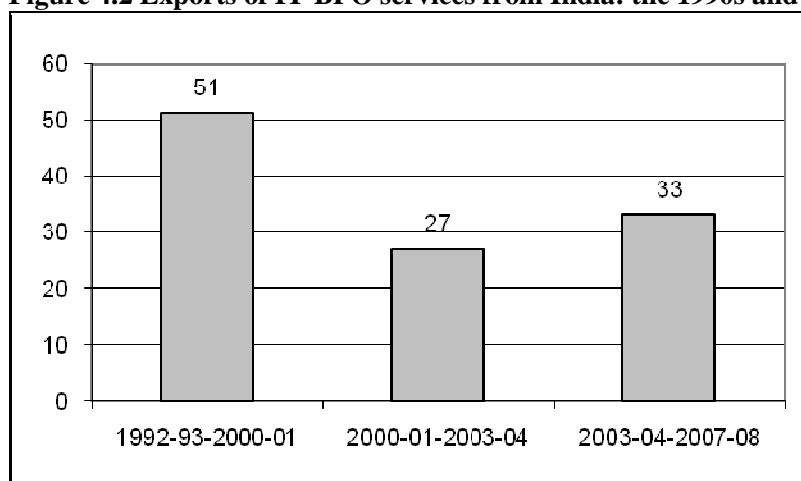
**Figure 4.1 Exports of IT-BPO services from India** (Revenues earnings in US\$ millions and CAGR %)



Source: Nasscom 1996-2008, Nasscom 2009a and 2009d and authors' estimates and calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional.

**Figure 4.2 Exports of IT-BPO services from India: the 1990s and 2000s compared (CAGR %)**



Source: Nasscom 1996-2008, Nasscom 2009a and authors' estimates and calculations.

Note: 2008-09 data is estimate.

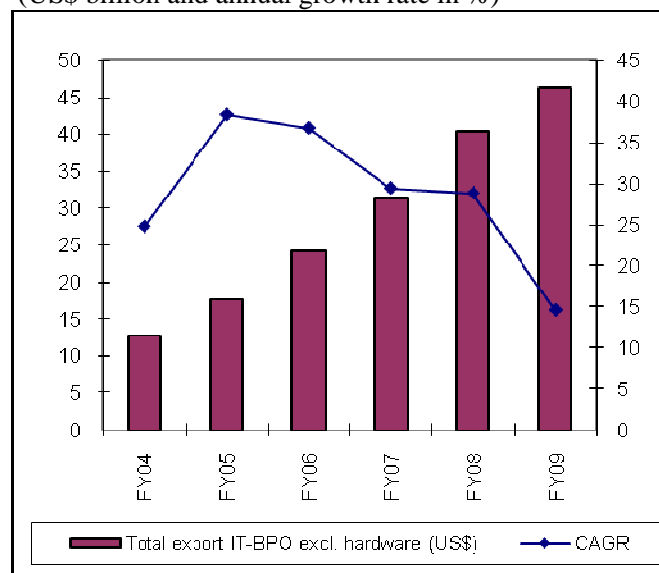
### *The 2004 to 2009 period*

Export revenues generated by the IT software products & services (including engineering services) and BPO industry in India have increased from US\$ 12.8 billion in FY2004 to US\$ 40.4 billion in FY2007-08, that is, a CAGR of 33 percent (hardware excluded). While export dollar earnings (and volumes) rose substantially in the FY2003-04 to FY2007-08 period the rate of growth fluctuated significantly. After a peak of 42 percent in FY2004-05 (compared to 31 percent in FY2002-03 and 25 percent FY2003-04) the annual rate of growth declined to 29 percent in FY2007-08 (figures 4.1 and 4.2).

In FY2008-09, the export revenue is projected to reach about US\$ 47 billion, that is, a 15 percent annual growth rate as per provisional data. In the first half of FY2008-09 export grew significantly but the rate of growth subsequently slowed down for some, but far from all, companies as a result of the global economic slowdown.

Exports have been growing rapidly in all segments of the IT based service industry but the rate of growth has been particularly high in the BPO sector. As of FY2008-09, IT services contributed to 57.2 percent of total IT-BPO industry export revenues, followed by 27.3 percent for BPO, 10.4 percent for engineering services and 5.1 percent for software product development (table 4.1).

**Figure 4.3 IT-BPO services industry export revenues FY2003-04 to FY2008-09**  
(US\$ billion and annual growth rate in %)



Sources: Nasscom 2009a and 2009d and the authors' calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional.

### **4.2 Exports by IT-BPO industry line**

India has experienced rapid expansion in all the segments of the IT-BPO industry, that is, IT services, BPO, software products and engineering services from 2001 onwards and earlier. In the

2000s export growth was especially high in the BPO and IT services segments but the rate of expansion was also considerable in software products, engineering and R&D services. The growth momentum for most IT services and BPO firms continued to be high in the first half of FY2008-09 and surprisingly also after the September 2008 global financial crisis. Some firms, that is, software product and hardware oriented companies, did however experience major slowdown in dollar earnings for several quarters after the September 2008 crisis.

*IT services*<sup>33</sup>, contributed 57 percent with total exports reaching US\$ 26.5 billion in FY2008-09. Indian IT service providers have evolved from application development and maintenance companies, to full service vendors providing testing services, infrastructure services, consulting and system integration. Within these segments, it was IT offshoring that exhibited strong growth, in line with global trends. Remote infrastructure management, expected to deliver almost 30 percent net savings to customers, continued its robust performance, with an above average growth of 25 percent expected in FY2008-09 (Nasscom 2009a and see table 4.1).

*Software product development, engineering and R&D services* export revenues reached US\$ about 7 billion in FY2008-09, a 15 percent increase over the previous year.

*BPO services* continued to be the fastest growing segment of the industry and are estimated to reach US\$ 12.7 billion in FY2008-09, a 16 percent increase during the year. The BPO service portfolio was strengthened by vertical specialization and global delivery capabilities.

*Hardware exports* which traditionally have remained comparatively small and declined in FY2008-09.

Assessment of the impact of the economic slowdown on export by industry type as well as in terms of vertical and horizontal business segments is a complex undertaking one major issues being the weak data. A preliminary assessment does, however, indicate that some segments were significantly more affected than others.<sup>34</sup>

*IT services.* Non-discretionary services, such as mandatory operations and maintenance, are less affected than discretionary services such as consulting.

*Software product development, engineering and R&D services.* This segment appears to have been affected significantly. As in the case of product development, companies are cancelling or delaying engineering and R&D work both at home and offshore.

*BPO.* The global slowdown effect on BPO industry points to a mixed picture as some vendors have experienced slowdown in growth while others maintained or increased their revenue growth and profitability significantly (Dataquest July 31 2009).<sup>35</sup>

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<sup>33</sup> That is, excluding software product development, engineering services and BPO and IT hardware and the telecom.

<sup>34</sup> This reports' assessment of the global economic slowdown's impact by industry type, and vertical and horizontal business segments are based on Nasscom's *Strategic Review 2009*, presentations given by industry leaders at the Nasscom 2009 Leadership Forum, Mumbai February 2009, as well as numerous articles published in the Economic Times of India, Business Standard, Dataquest and interviews with industry managers and equity market analysts.

<sup>35</sup> As in other areas discretionary spending has been most affected in the BPO sector. This implies that front-office (customer care/marketing/sales etc) spending were effected more than back-office (accounting, human resource

**Table 4.1 IT-BPO export industry revenues by service line, India**

	<b>FY03-04</b>	<b>FY04-05</b>	<b>FY05-06</b>	<b>FY06-07</b>	<b>FY07-08</b>	<b>FY08-09</b>
<b>US\$ billion</b>						
IT service	7.3	10.0	13.9	18.0	23.1	26.5
Software products	0.8	0.9	1.2	1.4	2.1	2.3
Engineering	1.7	2.2	2.8	3.6	4.3	4.8
BPO	3.1	4.6	6.3	8.4	10.9	12.7
Hardware	0.4	0.5	0.6	0.5	0.5	0.3
Total export IT-BPO excl. hardware	12.8	17.7	24.2	31.4	40.4	46.3
<b>Share of total (%)</b>						
IT service	56.6	56.3	57.5	57.4	57.2	57.2
Software products	5.9	5.1	5.0	4.4	5.2	5.0
Engineering	13.3	12.6	11.6	11.3	10.6	10.4
BPO	24.2	26.0	26.0	26.8	27.1	27.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Nasscom 2009a and the authors' calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional.

### 4.3 Export of IT-BPO services by verticals

The IT-BPO export industry covers a wide range of vertical markets (end user sectors). Banking, Financial Services and Insurance (BFSI) have remained the largest vertical market followed by the Hi-tech/Telecom sector. Together these two sectors accounted for 61 percent of IT-BPO services exports in FY2007-08 (Nasscom 2009a).

The BFSI was the first sector to adopt offshoring on a large scale. This first applied to the lower end of the value chain and subsequently also to the higher end, the latter including IT consulting, software product development and knowledge process outsourcing (KPO, i.e. the higher end of BPO) such as equity markets and other research. Hence, it is not surprising that the BFSI early on emerged as and has retained its position as the dominant vertical in terms of the IT-BPO services industry's total revenues over the years. In FY2008, the BFSI sector accounted for 41 percent of the IT-BPO services industry's total export revenues. It should, however, be noted that much of the incremental growth in recent years has come from the hi-tech/telecom, manufacturing and retail sectors. The manufacturing sector's share of the total IT-BPO export revenue has risen from 15 percent in FY2003-04 to 17 percent in FY2007-08 (Nasscom 2009a).

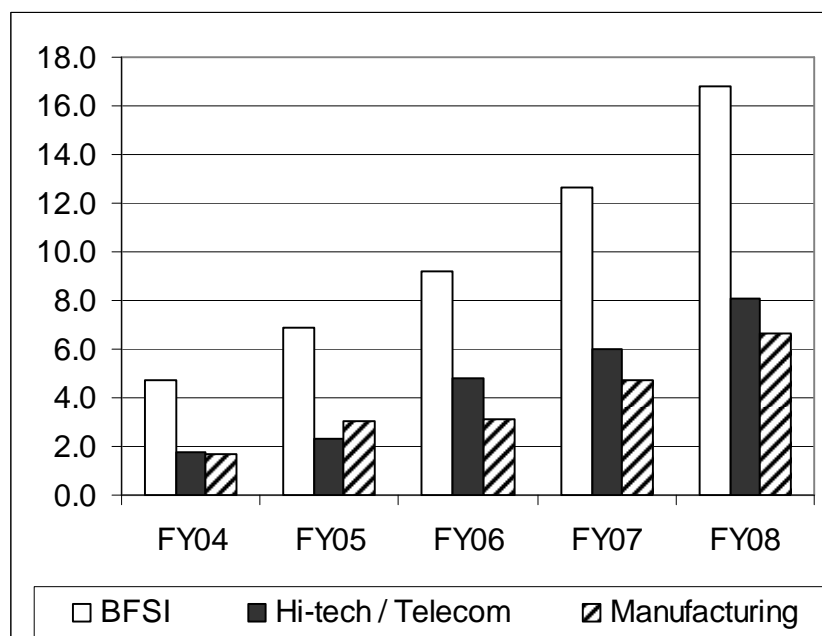
*Post September 2008.* The BFSI sector has been affected the most by the global economic slowdown as large banks, investment firms and insurance companies, especially in the United States and the United Kingdom have been severely hit by the crisis. This is reflected in the contraction in the BFSI segment of IT-BPO exports from India and other countries. Other verticals significantly affected by the slowdown include travel, retail, telecom, manufacturing & engineering services. Less affected verticals include IT-BPO services for the health sector and

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management etc) outlays, although no reliable data exists to confirm this. Some of the call center operations were affected by a decline in demand in the United States and the United Kingdom, in particular.

the public sector administration. All of these business segments, including BFSI, are, however, expected to resume growth soon as the global economy recovers.

**Figure 4.4 Verticals break up of IT services export revenues, India, FY2003-04 to FY2008-09**  
(US\$ billion)



Sources: Nasscom 2009a and the authors' calculations.

**Table 4.2 Vertical break up of IT-BPO service export revenues, India, FY2003-04 to FY2008-09**  
(US\$ and % shares)

	FY04	FY05	FY06	FY07	FY08
<b>US\$ billion</b>					
BFSI	4.7	6.9	9.2	12.7	16.8
Hi-tech / Telecom	1.8	2.3	4.8	6.0	8.1
Manufacturing	1.7	3.0	3.1	4.7	6.7
Retail	0.8	1.6	1.8	2.5	3.2
Healthcare	0.8	0.9	0.7	0.8	1.2
Airlines and Transportation	0.3	0.5	0.5	1.1	1.2
Construction and Utilities	0.5	0.7	1.0	1.1	1.2
Other	2.3	1.8	2.0	1.5	1.2
Media, Publishing, Entertainment			1.0	1.0	0.8
Total IT-BPO exports	12.8	17.7	24.2	31.4	40.4
<b>Share (%)</b>					
BFSI	37.0	39.0	38.1	40.4	41.5
Hi-tech / Telecom	14.0	13.0	19.8	19.1	20.0
Manufacturing	13.0	17.0	12.9	15.0	16.5
Retail	6.0	9.0	7.6	8.0	8.0
Healthcare	6.0	5.0	2.9	2.5	3.0
Airlines and Transportation	2.0	3.0	2.1	3.4	3.0
Construction and Utilities	4.0	4.0	4.0	3.5	3.0
Other	18.0	10.0	8.4	4.7	3.0
Media, Publishing, Entertainment	-	-	4.2	3.3	2.0
Total IT-BPO exports	100.0	100.0	100.0	100.0	100.0

Sources: Nasscom 2009a and the authors' calculations.

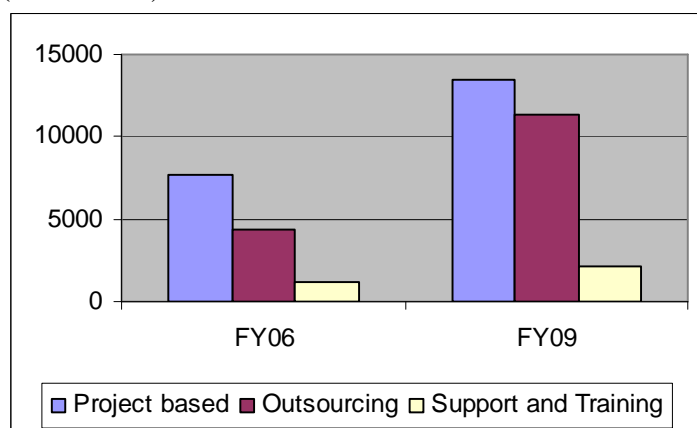


#### 4.4 Export of IT-services by horizontal segments

Application, development and management (ADM) has long been the forte of the Indian IT services offshoring vendors. Export of IT services are dominated by “project based” work with custom application development being the main component followed by “outsourcing”, i.e. application management and IS outsourcing and others (table 4.3).

*Post September 2008.* As a result of the global financial crisis, application development (as opposed to application management) was greatly affected. Clients were reluctant to upgrade or even attempt development of new applications. By contrast, application management, including maintenance and infrastructure offshoring was less impacted.

**Figure 4.5 Horizontal break up of IT services export revenues, India, FY2005-06 to FY2008-09**  
(US\$ million)



Sources: Nasscom 2009a and the authors' calculations.

Note: Data for FY2008-09 is provisional.

**Table 4.3 Horizontal break up of IT services export revenues, FY2005-06 to FY2008-09**  
(US\$ million and CAGR %)

	FY06	FY07	FY08	FY09		FY07	FY08	FY09
	US\$ million					Annual growth %		
<b>Project based</b>	<b>7,708</b>	<b>9,860</b>	<b>1,1980</b>	<b>13,515</b>		<b>27.9</b>	<b>21.5</b>	<b>12.8</b>
IT Consulting	348	600	650	715		72.4	8.3	10.0
System integration	374	580	680	782		55.1	17.2	15.0
Custom application development	5,923	7,170	8808	9865		21.1	22.8	12.0
Network consulting and integration	167	230	280	322		37.7	21.7	15.0
Software testing	896	1,280	1,562	1,830		42.9	22.0	17.2
<b>Outsourcing</b>	<b>4,364</b>	<b>6,330</b>	<b>9,250</b>	<b>11,313</b>		<b>45.1</b>	<b>46.1</b>	<b>22.3</b>
Application Management	1,589	2,400	3,550	4,260		51.0	47.9	20.0
IS outsourcing	840	1,700	3,300	4,125		102.4	94.1	25.0
Others (SOA & Web Services + E-Business/E-Commerce)	1,935	2,230	2,400	2,928		15.2	7.6	22.0
<b>Support and Training</b>	<b>1,233</b>	<b>1,660</b>	<b>1,870</b>	<b>2,081</b>		<b>34.6</b>	<b>12.7</b>	<b>11.3</b>
Software deploy and support	986	1330	1440	1584		34.9	8.3	10.0
Hardware deploy and support	80	100	120	139		25.0	20.0	15.8
IT education and training	167	230	310	358		37.7	34.8	15.5
<b>Grand Total</b>	<b>13,305</b>	<b>17,850</b>	<b>23,100</b>	<b>26,908</b>		<b>34.2</b>	<b>29.4</b>	<b>16.5</b>

Sources: Nasscom 2009a and the authors' calculations.

Note: Data for FY2008-09 are estimates.

## 4.5 Export of BPO services

The BPO industry in India is still in an early stage of development and is the fastest growing segment of the Indian IT-BPO services industry. It is expanding rapidly both in terms of exports and the domestic market but is dominated by exports.

BPO exports grew from US\$ 3.1 billion in FY2003-04 to over US\$ 10.9 billion in FY2007-08, that is, at a CAGR of 37 percent over the five period ending March 2008. Over the same period, the number of persons directly employed rose from 216,000 to 700,000 persons.

The development of the BPO sectors can be summed up as follows:

“The Indian BPO sector has not only added scale in the last five years [FY2004-FY2008], but has also matured significantly in terms of scope of service offerings, buyer segments served and service delivery models. Apart from achieving maturity in the horizontal segment, providers are increasingly developing vertical/domain specialization to capture greater value. Significant technology investment, adherence to best practices in data and information security, employee training and development are all initiatives taken to improve the quality of services being delivered. Providers are rethinking their delivery strategy to suit the needs of the customers in a competitive manner – they are extending their reach both within India and outside India to provide greater cost savings and the right talent. BPO has also become a logical extension for IT companies and all leading IT vendors are developing integrated offerings” (Nasscom 2009a).

*Post September 2008.* In FY2008-09 BPO exports growth decelerated to 16 percent as its revenues reached US\$ 12.7 billion as per Nasscom estimates.

**Table 4.4 BPO export revenues by type of services FY2003-04 to FY2008-09**  
(US\$ million and % share)

	FY06-07	FY07-08	FY08-09		FY06-07	FY07-08	FY08-09
	US\$ m				Share (%)		
Customer Interaction Services	3,700	4,750	5,625		44.0	43.5	43.8
Finance and Accounting	1,850	2,420	2,851		22.0	22.1	22.2
HR Admin	252	325	385		3.0	3.0	3.0
Procurement and Logistics	120	155	180		1.4	1.4	1.4
Knowledge Services	673	890	1,060		8.0	8.1	8.2
Other Horizontal Services	336	450	475		4.0	4.1	3.7
Vertical - specific BPO Services	1,478	1,940	2,273		17.6	17.7	17.7
<b>Total</b>	<b>8,409</b>	<b>10,930</b>	<b>12,849</b>		<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Sources: Nasscom 2009a and the authors' calculations.

## 4.6 Exports by country destination

### *Development of Anglo-Saxon and other markets*

The strength of the IT-BPO services industry in India has been manifest in the expansion of exports to the United States as well as to other countries in the past 20 years. The United States and the United Kingdom remain the largest markets for the industry accounting for about 60 percent and 19 percent respectively in FY2008. But from around 2001 onwards, the industry has made significant efforts to expand in other markets as well.

*Anglo-Saxon countries.* Together, the English-speaking United States and United Kingdom accounted for around 79 percent of the total IT-BPO services exports from India in FY2008. Adding Canada, Ireland, New Zealand and Australia – countries that have all experienced the rapid growth of the IT-BPO services export – it is apparent that the offshoring business in India is heavily dominated by dealings with the Anglo-Saxon world. Business relationships with Anglo-Saxon areas have been greatly facilitated by their early acceptance of global offshoring (as opposed to near-shoring or domestic sourcing) and the fact that they are English speaking.

The United States remains the largest market but incremental growth is being driven by European and Asia Pacific markets. The CAGR for IT-BPO exports to the United States was as high as 28.7 percent in the FY2003-04 to FY2007-08 period. The corresponding growth rate was, however, even higher in other geographies; 51.4 percent for Continental Europe, 41.4 percent for the United Kingdom and 42.1 percent for the Asia Pacific region (table 4.5). The fact that growth rates in European and Asia Pacific markets were higher than for the United States, resulted in a decline in the latter's share of total exports from 68 percent to 60 percent in the FY2003-04 to FY2007-08 period.

Indian companies have gradually intensified their efforts to expand in markets other than the United States and the United Kingdom. This has been justified by the existence of a sizeable addressable market outside the United States and the United Kingdom, the wish to reduce risks

associated with heavy reliance on just one or two markets, and the fact that Indian companies typically have had a low degree of market penetration in other major markets.<sup>36</sup>

*Europe.* European markets, that is, excluding the United Kingdom & Ireland, such as Germany, France, the Netherlands, Belgium and the Nordic countries, constitute prime examples of geographies that have been comparatively uncharted by Indian firms. These countries represent significant markets in terms of ICT spending which are facing long term skilled manpower shortages aggravated by the shrinking working age populations. However, these markets can be harder to penetrate than the Anglo-Saxon majors due to business organization conditions, language, cultural and other differences. Furthermore, there is also scope to develop business in Eastern Europe and Russia, both in terms of penetration of local markets and for using these countries as a base for penetrating the offshoring business in Western Europe and other countries.

*Asia and the Pacific.* Many emerging economies in the Asia and Pacific area appear poised to continue to grow faster than the older industrial economies. The market size of East Asia and India combined is projected to overtake that of North America or Europe (Goldman Sachs 2008). Hence, it is not surprising that Indian and other companies continue to intensify their efforts to build up their IT based businesses in Asia (box 4.1).

There is considerable scope to develop business in Asian countries both in terms of direct penetration of local markets and using some of these countries as a base for developing the offshoring business within Asia or other parts of the world. The fact that India has special assets in software services and product development competency while East Asia has major assets in hardware, points to considerable scope to expand collaboration. For example, it should be noted that China and Taiwan (China) are the principal exporters of IT hardware to India and that Indian companies are increasingly active in providing IT services and training in these economies. Also, TCS and other Indian firms are using China as a base to penetrate the Japanese market for IT-BPO services.<sup>37</sup>

Also, it should be noted that Indian firms and technical and managerial human resources play a significant role in the IT-BPO sector in Bangladesh, Sri Lanka and Nepal as well as in ASEAN member countries such as Singapore and Malaysia. Also, Indian firms have invested in the rapidly expanding BPO offshoring industry in the Philippines.

*Africa.* Africa may not be as large as Asia in terms of the market size but it does nevertheless offer promising markets for IT firms based in India (Indian and foreign). Also, it should be noted that the Indian Diaspora has a significant role in the economies of East Africa and South Africa. Furthermore, especially North African countries, Egypt being a prime example, are attempting to emulate the offshoring delivery model as applied by Indian firms (Nalikani 2008). Indian firms

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<sup>36</sup> Also, foreign MNCs (non-Indian companies) have made their operations in India a vital part of their worldwide supply chain of IT services. The potential to diversify exports beyond the United States and the United Kingdom is considerable both in terms of advanced industrial economies and the developing world.

<sup>37</sup> Progress has, however, been limited in exploiting the potential to partner with Taiwan (South Korea and other Asian countries) in product development and to jointly penetrate the mainland China market. Reasons for this include cultural and other barriers which imply that it is hard to achieve quick results in developing new business relationships.

have also made some investment in the IT sector in Egypt, one rational being that this move can facilitate their entry into the Arabic speaking world.<sup>38</sup>

*Latin America.* Latin America remains a relatively unexplored territory for Indian firms. Nevertheless, a number of initiatives have been taken to expand the IT-industry's collaboration with Brazil and other countries in the region. Several Indian firms have begun to penetrate the Spanish speaking markets. Examples of this include TCS and Infosys call center operations in Mexico.

**Table 4.5 IT-BPO exports from India by destination, FY2003-04 to FY2008-09**  
(US\$ billion and % share and CAGR)

	<b>FY2003-04</b>	<b>FY2007-08</b>	<b>FY2003-04</b>	<b>FY2007-08</b>	<b>FY2003-04 to FY2007-08</b>
	US\$ b	US\$ b	Share (%)	Share (%)	CAGR (%)
USA	8.7	23.8	68.0	60	28.7
UK	1.9	7.7	14.8	19	41.8
Continental Europe**	1.0	5.3	7.8	13	51.4
Asia Pacific (APAC)	0.8	3.3	6.2	8	42.1
Rest of the world*	0.4	0.3	3.1	2	
Total Worldwide	12.8	40.4	100	100	33.3

*Source:* Nasscom 2009a and 2009c.

*Note:* IT-BPO excluding hardware. \*Calculated as a residual. Percentage may not add up to 100 percent due to rounding error. \*\* Includes Nordic countries. Nasscom does not publish data on a country basis, i.e. even major destinations such as USA, Canada, UK, France, Germany, Nordic countries, Japan, China and other developed and developing countries.

<sup>38</sup> The software outsourcing market in Sub-Saharan Africa is expected to generate revenue of US\$ 4.3 billion by 2014, as compared to US\$ 2.1 billion in 2007 (Frost & Sullivan February 25 2009). Several Indian IT players are planning to expand or establish operations in Egypt. Egypt and the middle east region has attracted investments from Indian companies, including Infosys, IBM Daksh, and Firstsource for establishing global delivery centers in Egypt (Indian IT Players Planning to Expand Operations in Egypt (Evalueserve 2009).

### ***The crisis and beyond***

The global slowdown impact for IT-BPO exports from India and other countries is hard to scrutinize due to lack of credible data and the fact that only a short time has elapsed since the financial crisis erupted. Nevertheless, the crisis certainly pointed to the risks associated with being heavily dependent on the United States and the United Kingdom and the financial services industry in these two countries. Hence, it is not surprising that efforts have been intensified to expand in markets other than the United States and the United Kingdom.

As pointed out earlier, Gartner, Forrester and IDC project that global IT-BPO spending and offshoring will decelerate significantly in the short term as a result of the global economic slowdown. In the long term they do all, however, envisage significant growth in IT-BPO spending and offshoring worldwide, that is, both in advanced industrial and developing countries. In sum, the cake may be “shrinking” in the short term but is likely to grow again substantively in the medium and longer term.

The United States and other western advanced industrial economies are likely to continue to dominate IT spending and also as buyers of offshore IT-BPO services in the foreseeable future. In the short term, the crisis appears to result in a decline in the Indian (and other countries) reliance on the United States and United Kingdom as the major markets for IT-BPO services. However, in the medium and long term, it does appear that this market (or other markets) will grow rapidly again but it is hard to foresee if the growth will reach levels similar to what was typical prior to the global economic slump. However, in the long run, most of the incremental growth in IT spending and offshoring is likely to come from emerging market economies and the Asia Pacific region in particular.

Development of India’s IT-BPO sector’s relations with the developing world in the long run has the potential to emerge as a prime example of expanding south-south economic and technological relationships. Many developing countries have for some time been seeking to understand how they can best benefit from lessons that may be drawn from the Indian IT-BPO export-led development experience (Mitra 2006). Moreover, Indian firms have the potential to become the main players in Asia and other developing countries. In this context, Indian firms will continue to benefit from their strength in mastering the offshoring delivery model that is grounded in strengths in terms of technical manpower and an internationally networked entrepreneurship class. India’s special competitive advantages include costing and familiarity with conditions prevalent in the developing countries, a large pool of technical and managerial manpower willing to be deployed overseas, and in some cases, the existence of an India Diaspora. Also, Indian firms are increasingly involved in (as investors or partners and contractors) expanding the IT-BPO industries by targeting the developing countries.

#### **Box 4.1 Asia and the Pacific region: Wide range of opportunities**

The Asia and the Pacific regions offer a wide range of different markets conditions all of which have scope to develop complementarily.

First, there are the high income countries such as Japan, South Korea, Taiwan (China), Singapore, Australia and New Zealand. Also, Australia, New Zealand and Singapore based firms are by and large more inclined towards offshore IT-BPO services compared to Japanese, South Korean and Taiwanese firms. Japanese and South Korean companies are well behind major western industrial countries in terms of the degree to which they rely on the

offshoring of IT-BPO services. This implies that these countries have the potential to develop into major markets for China, India, Philippines and other country based IT-BPO offshoring service providers.

According to the NASSCOM-PwC report on “Opportunities for Indian IT industry in Japan”, Japan is the second highest IT service market pegged at US\$ 108 billion. Also, relatively few companies have utilized IT to improve competitiveness, thus indicating a large, untapped market. Indian majors have intensified their efforts to attract new customers in the region (Nasscom 2009a).

Second, China has been a major target for Indian IT-BPO firms since the 2000s. All major Indian firms are now well-established in China and have expansion plans in this rapidly developing market arena. China is now India’s largest trading partner but the IT-BPO business still constitutes only a minor portion of this trade.

Third, ASEAN-Indian relations are multifaceted including trade, direct and portfolio investment and the role of Indian technical and management expertise in the IT-BPO sector. Indian IT-BPO firms have invested in Singapore and Singaporean firms have invested in India. Indian manpower plays a significant role in the IT-sector in Singapore and Malaysia, and to a limited extent, in other ASEAN countries also.

Fourth, West Asia constitutes a diverse market with significant opportunities. This includes high income oil exporters which have a significant local industry. Indian IT and skilled human resources have a major role in the development of oil exporting countries. Israel constitutes a special case as a country with major strengths in software product development and thereby has the potential to develop R&D relationship with Indian firms (Mitra 2009a).

Finally, the Indian IT-BPO sector plays a key role as an exporter of IT products and services to Sri Lanka, Bangladesh and Nepal. Also, it has a significant direct and indirect role in fostering the development of the offshoring operations in Sri Lanka and other Asian countries (Mitra 2006).

## 5. Domestic Market Growth Trajectories

### 5.1 Overall domestic market developments

#### *Prior to September 2008*

The IT industry in India dates back to the 1960s. In the first decade of its development the focus was on the domestic market. The scope to expand in this market was, however, severely limited by a number of factors such as low income levels and affordability issues coupled with weaknesses in infrastructure, education and institutional capabilities. This context gradually changed and hence allowed expansion of the scale and scope of the domestic market.

As in the case of exports revenue the domestic sector has been characterized by major annual fluctuations revenue earnings. Domestic business volume growth has, however, for the most part had a lower degree of annual business volume fluctuations compared to the export business. The rate of growth in domestic revenue was especially high around the mid 1990s and then declined in the early 2000s, after which it accelerated in the FY2003-04 to FY2007-08 period and then declined again.

Domestic market developments can be divided into the following phases:

1. *The initiating phase: the mid 1960s to around the mid 1980s.* The early years of establishing the IT industry in which the primary focus was on importsubstitution and the domestic market requirements rather than exports. The phase was characterized by very low computer penetration rates due to affordability, limited competency and other issues. Nevertheless, progress was made in establishing higher education in IT and related areas which enabled government institutions and some private entities to develop IT-related competency.
2. *The first major growth phase: late 1980s to around 2000.* Annual growth domestic IT software & services industry reached between 42-63 percent in rupee terms in the 1990 to 1997 period. This phase was characterized by significant increase in local use of IT in government and private sector and the use of personal computer becoming increasingly common in major cities.
3. *The dot-com investment bubble burst phase: around 2000-01 to 2002-03.* The domestic IT industry growth fell temporarily. Internet began to be a major game changer.



4. *The high growth phase with more broad based expansion: 2004 to September 2008.* Growth in GDP and IT spending was high. The domestic IT industry experienced rapid growth in IT services at both the lower and middle end of the value added chain and BPO emerged as a significant new business line. This phase was characterized by significant expansion in the use of IT and BPO services, mobile telephone and Internet not only in major metros but also in other cities, townships and rural areas.
5. *The global economic slowdown and recovery phase: September 2008 onwards.* Growth rates in GDP, IT spending and IT-BPO industry revenue fell but remained significant. Much of the slowdown was temporary and limited to hardware and software product purchases. As in the preceding years this phase was characterized by significant expansion in the use of IT and BPO services, mobile telephone and Internet in major metros as well as in other cities, townships and rural areas.
6. *The 2010s phase.* This phase can be envisaged to entail a return to comparatively high IT spending levels and a major expansion of IT-BPO services across a wide range of sectors. Continued expansion in diffusion of computers, mobile phones and broadband Internet connectivity implies a dramatic expansion in the scale and scope of the Indian domestic market in IT hardware, software & services and ITeS-BPO industry. The IT industry in India, that is both Indian and foreign firms, continues to expand operations both at the lower and higher end of the value chain (see chapter 6).

The fact that India is still in an early phase of developing the domestic market for IT-BPO points to the long term growth potential. India and its neighboring countries, are still trailing behind East Asian countries in terms of PC penetration, Internet connectivity and other E-readiness indicators<sup>39</sup> (World Economic Forum 2009a). There is major scope for expanding the use of IT in public and corporate sector as well as civic society. This is reflected in the fact that both foreign and Indian firms significantly increased their efforts in the 2000s — and especially after the global economic slowdown from September 2008 onwards — to develop the domestic market business opportunities.

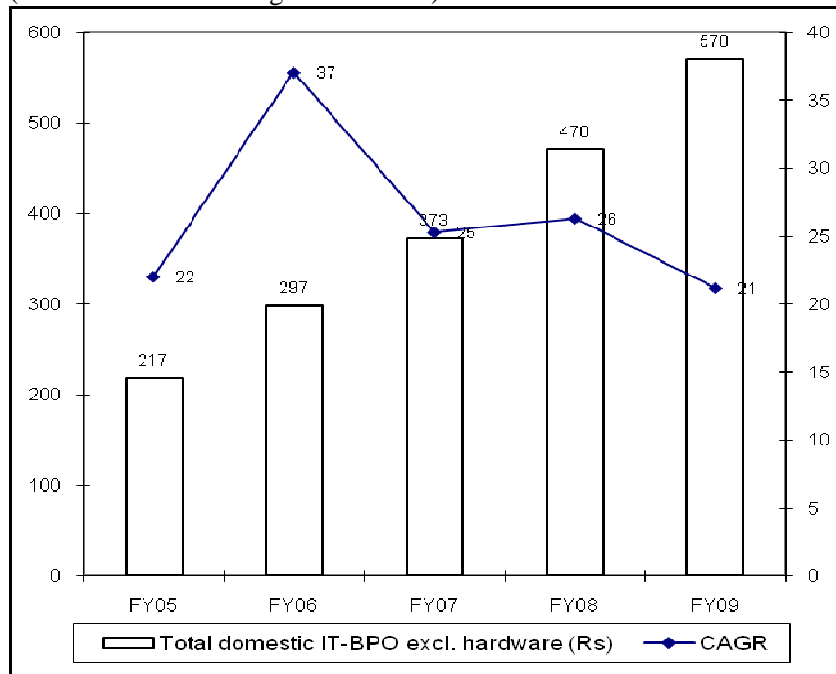
The domestic market is highly diverse and is subject to rapid transformation in technology and demand requirement. Its requirements range from basic ICT need among the rural and poor to that of high end clients in research. This market has undergone several phases of transformation in serving these needs such as the introduction of new computer and connectivity solutions. It should be noted the domestic market witnessed several major transformational deals after 2006. In FY2008-09, several companies signed large contract deals for periods ranging from 5 to 10 years in telecommunications, e-governance and other sectors. Customer focus had become the central theme in the telecommunications and banking sectors, which traditionally have been the major corporate ICT spenders. This led them to invest in sophisticated customer relationship management (CRM) packages and business intelligence (BI) tools. Foreign MNCs such as Accenture, Cisco, IBM, Microsoft and Oracle have continued to expand their domestic market operations. These types of companies were the preferred partners for many of the large transformational deals (IDC December 31, 2008). Foreign MNCs dominated much of the higher

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<sup>39</sup> Compared to East Asia, as well as most countries with GDP per capita income levels comparable to India's, the domestic market of software and hardware is still in an early phase of development.

end of IT software and services and telecommunications. The latter is illustrated by IBM signing multibillion dollar outsourcing contract with India telecommunication service providers.

**Figure 5.1 IT-BPO services industry domestic revenues, FY2003-04 to FY2008-09**  
(Rs billion and annual growth rate %)



Sources: Nasscom 2009a and the authors' exchange rate conversion and growth rate calculations.

Note: Data for FY2007-08 and FY2008-09 are provisional.

### *Post September 2008*

Given the fact that India lags behind in domestic ICT diffusion and that the Indian economy appears poised to grow rapidly, it can be assumed that domestic IT-BPO spending will continue to grow rapidly in the 2010s and beyond leaving aside temporary overall economic growth cycles.

The global economic slowdown from September 2008 onwards triggered a deceleration in growth of domestic IT spending. This is reflected in lower growth rates in the IT especially for hardware oriented firms especially. Several IT services firms did, however, continue to record high revenue growth in the quarters that followed after September 2008 (Dataquest July 15 2009). This development is manifest in trends that are similar to those observed in other countries and what has occurred in the IT-BPO services exports. This included a decline in discretionary spending of IT-BPO services in the corporate sector and a slowdown in demand for hardware and software products in particular, the latter, including the private sector and among households.

## **5.2 Domestic market by IT-BPO industry segment**

The domestic revenue aggregate comprising hardware, IT services and software products is grown at 19 percent in FY2008-09 in rupee terms. While the hardware spent was moderate in

FY2008-09, the IT-BPO services segment recorded some deceleration, yet significant growth. As per Nasscom estimates, the total domestic market for IT-BPO (including hardware) reach Rs 1,112 billion (US\$ 24.3 billion) in FY2008-09 out of which IT services market accounted for Rs 380 billion (US\$ 8.3 billion) (Nasscom 2009a and Nasscom 2009d).

Growth in IT services spending is driven by increased acceptance of IT as a growth enabler and a competitive tool for the corporate sector. Domestic IT services are showing strong signs of increasing sophistication at building enterprise; IT infrastructures and applications, networking and communication, which have become key priorities for the corporate sector. This is reflected in increased IT adoption, not only in the large/mid-sized companies, but also in the 35 million strong small and medium business (SMB) segment. Also, IT-service growth is expected to be boosted by increased spending on e-governance.

Software and BPO spending growth in the domestic market is being supported by increasing adoption of IT applications. While the software product segment registered a growth of 12 percent in rupee as it reached (Rs 101 billion US\$ 2.2 billion in FY2009), domestic BPO segment recorded the fastest growth of about 40 percent in rupee terms as it reached Rs 89 billion (US\$ 1.9 billion) in FY2008-09 (Nasscom 2009a and 2009).

Hardware revenues were estimated to reach Rs 542 billion (US\$ 11.8 billion) in FY2008-09, a growth of 17 percent over FY2007-08 (Nasscom 2009a). As in other countries, the hardware sector was badly hit by the global economic slowdown. It resulted in a major slump in domestic sales. The total PC sales between October and December 2008, with desktop computer and notebooks taken together, were 1.4 million units, registering a decline of 19 percent over the same period's last fiscal. The sales of desktops stood at 1 million units while notebooks recorded a consumption of 0.35 million units. Sales of desktops and notebooks did, however, rebound from around May 2009 and onwards. According to MAIT, the industry association for the hardware sector, overall PC sales for FY2008-09 is expected to remain at the same levels as in the previous fiscal year, that is, about 7 million units (MAIT 2009a).

IT advisory firm IDC estimates the IT and ITeS-BPO industry, hardware included, in India will grow at 10.8 percent in rupee terms in the 2009 calendar as per estimated in June 2009.<sup>40</sup> It is projected to reach Rs 3,096 billion (over US\$ 64 billion) in 2009. This would be the slowest annual growth since 2003. The domestic market for IT-ITeS, hardware included, is estimated to grow at 10.2 percent to reach Rs 1,094 billion (over US\$ 22 billion) while the exports are estimated to grow at 11.2 percent to reach the Rs 2,000 billion (over US\$ 41 billion) level by the end of 2009 (IDC June 20 2009).

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<sup>40</sup> IDC data is on a calendar year basis while Nasscom data is on fiscal year basis.

**Table 5.1 Domestic IT/ITeS industry revenue earnings and growth rate, 2008-2013**

(Million Rs)	2008	2009	2010	2013	CAGR 2008-13 (%)
Hardware & Others	576,900	589,670	670,410	988,160	11.4
IT Services/IT-enabled Services (ITeS)	314,160	389,840	471,910	865,170	22.5
Packaged Software	101,470	114,540	130,640	210,650	15.7
Total Domestic IT/ITeS	992,540	1,094,050	1,272,970	2,063,980	15.8
Memo: IT/ITeS Exports	1,800,640	2,001,680	2,211,220	3,280,810	12.7
Grand total IT/ITeS	2,793,190	3,095,730	3,484,190	5,344,790	13.9

Source: IDC India, June 20, 2009.

Note: Calendar years. While largely covering the same business segment IDC uses the term ITeS rather than BPO.

According to IDC the domestic IT and ITeS-BPO market, hardware included, is projected to have moderate increase to 15.8 percent in the 2008-2013 period compared to the average annual growth of 25 percent recorded in 2003-2008 period.<sup>41</sup> Moreover, the IT services & ITeS-BPO industry is projected to grow significantly faster than the hardware sector. According to IDC this signals the onset of a new phase<sup>42</sup> of growth in which IT vendors will be helping enterprises design and deliver ‘new age’ services to their customers by leveraging the existing IT infrastructure. Increasingly, the ICT vendor community is expected to offer innovative products and solutions, which will be fundamentally different from the past in the way they are delivered and/or consumed. These shifts and changes in the Technology-Product-Market landscape will be further shaped by the economic recovery through 2009-10 and is expected to build up in the 2010s (IDC June 20 2009).

<sup>41</sup> IDC projects that the IT and ITeS-BPO industry in India, including hardware and both the domestic and export market will grow at 13.9 percent in the 2008-2013 period thereby reaching about Rs. 5,344,790 million (over US\$ 110 Billion) in 2013; with the domestic market growing at a slightly higher rate of 15.8 percent compared to 12.7 percent for exports growth of 12.7% in the 2008-2013 period. The share of IT Services and ITeS-BPO in the India domestic market is expected to rise from 31.7 percent in 2008 to 41.9 percent in 2013. This implied that the relative importance of the hardware sector would decline (IDC June 20 2009).

<sup>42</sup> IDC and Nasscom distinguish between two phases of the recent domestic market developments. In the first phase (2003-08), the domestic market witnessed unprecedented expansion with the IT-BPO industry domestic revenues nearly tripling. The second phase of growth, envisaged to evolve from 2009 onwards, is expected to be built on the back of new and innovative services. The technology behind these services—infrastructure, applications and connectivity—will need integrated redesigning to support mass adoption across a wide range of verticals (IDC December 31 2009).

**Table 5.2 High growth Areas: 2009-10 and beyond according to IDC**

2009-10	2011-13
<b>Products/Services</b> <ul style="list-style-type: none"> <li>- Network Mgmt / Desktop Mgmt / Apps. Mgmt</li> <li>- IS Outsourcing / Managed Services / BPO</li> <li>- Security Software / Storage Software</li> <li>- System and Network Management Software</li> <li>- Integration &amp; Process Automation Software</li> <li>- Collaborative Applications</li> <li>- Consumer Notebooks / Smart Handhelds</li> <li>- Wireless LAN</li> </ul> <b>Solutions</b> <ul style="list-style-type: none"> <li>- Unified Communications</li> <li>- Virtualization</li> <li>- Data Centre Services</li> </ul> <b>Industry Verticals</b> <ul style="list-style-type: none"> <li>- Government &amp; Education</li> <li>- Utilities</li> <li>- Telecommunications</li> </ul>	<b>Products /Services</b> <ul style="list-style-type: none"> <li>- Network Mgmt / Desktop Mgmt / Apps. Mgmt</li> <li>- IS Outsourcing / Managed Services / BPO</li> <li>- Hosting / Infrastructure Services</li> <li>- Security Software / Storage Software</li> <li>- System and Network Management Software</li> <li>- Integration and Process Automation Software</li> <li>- Collaborative Applications</li> <li>- Consumer Notebooks / Smart Handhelds</li> <li>- Wireless LAN</li> </ul> <b>Solutions</b> <ul style="list-style-type: none"> <li>- Unified Communications</li> <li>- Virtualization, Green IT</li> <li>- Data Centre Services</li> <li>- SOA</li> <li>- Cloud Services</li> </ul> <b>Industry Verticals</b> <ul style="list-style-type: none"> <li>- Government &amp; Education</li> <li>- Utilities, Telecommunications, Healthcare</li> <li>- Retail, Pharmaceuticals</li> </ul>

Source: Adopted from IDC, June 2009. IDC India.

### 5.3 Domestic telecom market

India's telecom network continues to grow rapidly and reached about 453 million connections by the end of May 2009 (wired and wireless combined). This was the third largest wireless network in the world, and in terms of the wired network the second largest. At the current pace, the government's target of 500 million telephone connections by 2010 will be reached earlier than expected (Government of India 2009a and 2009b). The high demand for wireless mobile telephone subscription was a silver lining in many developing countries during the period of global economic slowdown. In India the rapid growth of wireless subscriptions continued after September 2008.

Growth in telephone line subscriptions has continued to be dominated by wireless.<sup>43</sup> The number of wireless mobile subscribers grew by 48.5 percent in the January to December 2008 period. The rate of growth did not significantly change in the September to December 2008 period but did in fact increase in the first half of 2009. This number of wireless subscribers added reached record levels in the first half of 2009. It peaked at 15.6 million for the month of March 2009 which can be compared to 10.8 million in December 2008 and 10.4 million in November 2008<sup>44</sup> (Government of India 2009b).

<sup>43</sup> Demand for wired telephone lines continues to contract.

<sup>44</sup> The number of added wireless subscribers added in 2009 was 15.4 million in the month of January, 13.8 million in February, 15.6 million in March, 11.9 million in April and 11.6 million in May 2009. The total number of wireless subscribers stood at 415 million at the end of May 2009 compared to 362 million at the end of January 2009, 234 million in January 2008 and 150 million in January 2007 (TRAI 2009 and earlier). It is commonly estimated that 10-

The total number of telephone connections (wireline and wireless) reached 452.9 million at the end of May 2009 as compared to 384.8 million in December 2008, 353.7 million in September 2008 and 325.8 million in June 2008 and as low as 76.3 million in March 2004. With this growth, the overall tele-density reached 38.9 percent at the end of May 2009 as compared to 28.3 percent in January 2008 or 12.7 percent in March 2006 (Government of India 2009b).

Tele-density continues to be significantly higher in urban areas compared to rural areas but the rate of growth in rural telephony has become higher than urban areas in recent years. While rural tele-density reached 13.8 percent in January 2009, the urban tele-density reached 83.7 percent. The government of India has reiterated its commitment for telecommunication services to reach out to the remote and uncovered areas and to augment the broadband facilities in rural areas. The number of rural telephones went up from 12.3 million in March 2004 to 112.7 million in January 2009 (Government of India 2009b).

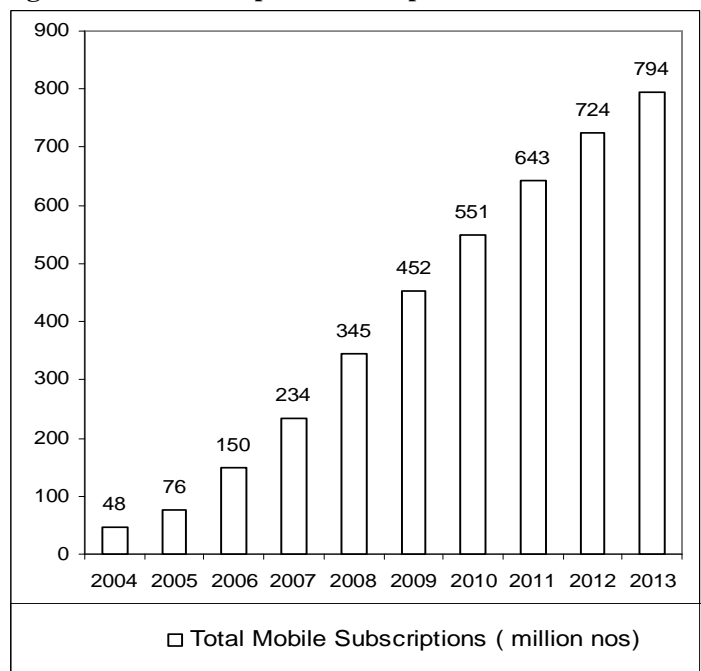
It should however, be noted that the vast majority of India's population, including those living in urban areas, do not have access to broadband. The number of broadband subscribers is, however, rising rapidly. As of the end of May 2009 it had reached 6.4 million compared to only 0.18 in March 2005 (TRAI 2009). The 2010s are expected to imply a rapid expansion in broadband. This development is facilitated by rapid expansion of mobile telephony and new technologies such as wireless broadband.

In conclusion, the rapid expansion of wireless telephone networks has had a revolutionary impact on the Indian economy both in terms of urban and rural areas. Looking ahead it offers a wide range of opportunities for ICT applications such as mobile banking, telemedicine and e-government.

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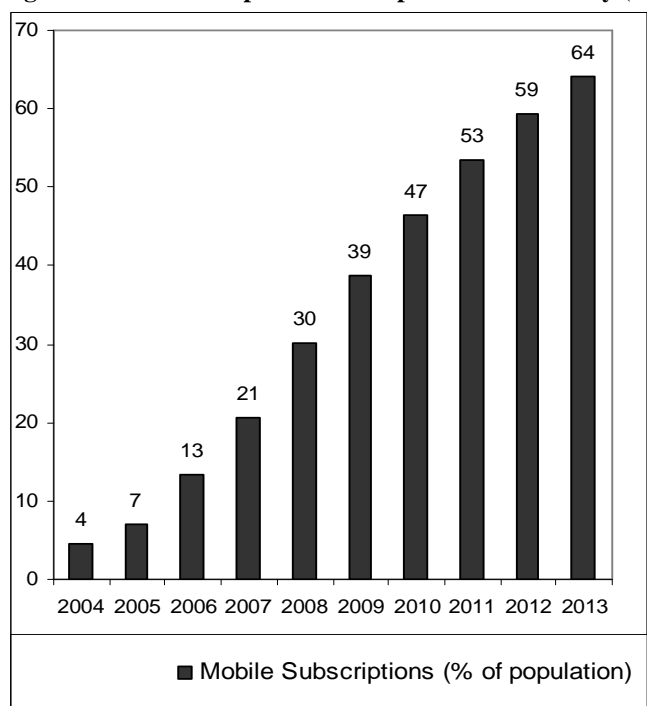
20 percent of the monthly additions of wireless subscribers are users which purchase as second SIM card. This and other data weakness implies that official tele-density growth data overestimates actual density.

**Figure 5.2 Mobile telephone subscriptions: Numbers in millions**



Sources: TRAI various press releases 2005-2008 and Pyramid Research for 2008 and 2009 estimates and projects for 2010-2013.  
 Note: Actual for 2008 and 2009 as published by the Government of India (TRAI) are higher than Pyramid Research estimates used here.

**Figure 5.3 Mobile telephone subscriptions: Tele-density (% of total population)**



Sources: TRAI various press releases 2005-2008 and Pyramid Research for 2008 and 2009 estimates and projects for 2010-2013.  
 Note: Actual for 2008 and 2009 as published by the Government of India (TRAI) are higher than Pyramid Research estimates used here.

## **6. Outlook: India 2020: IT-BPO industry growth vision**

### **6.1 Short versus medium and long term developments**

Distinguishing between short, medium and long term development in the IT-BPO services industry is essential for an insightful understanding of the past, present and future. The importance of this is especially apparent in situations where there is major volatility or uncertainty.

Observable up and downswings in business cycles should not distract stakeholders from considering long term developments. The 2000s was characterized by unpredictable sharp annual fluctuations in IT-BPO exports from India. The dot com investment bubble burst around 2001 was followed by a sharp decline in revenue growth rates after 2001 and then a rapid recovery. The most dramatic example of global volatility in the business cycles is the global economic slowdown from September 2008. Few predicted this major downturn which resulted in a contraction of global GDP and trade. This resulted in IT spending and the slowest growth recorded in Indian IT-BPO export for decades. It is, however, important to understand global slowdowns as passing episodes. Economist and industry analysts currently foresee a major rebound in economic growth and trade worldwide from around 2010-2011 and onwards.

These developments illustrate the high degree of uncertainty when it comes to predicting industrial growth. They highlight the need to distinguish between the short, medium and long term developments. Moreover, they point to the need to examine alternative growth scenarios for the IT-BPO industry in India and internationally.

### **6.2 Global IT spending and sourcing outlook**

#### ***Global IT spending, sourcing and industry growth forecasts***

As pointed out earlier, Gartner, Forrester, IDC and other market research firms, predict that global IT-BPO spending decelerated significantly in the short term as a result of the global economic slowdown. In the medium and long term, however, they all do envisage significant growth in IT-BPO spending both in advanced industrial and developing countries. Moreover, it should be noted that worldwide spending on IT-BPO offshoring is projected to continue to grow faster than total IT-BPO spending.

Nevertheless, there is currently major uncertainty regarding the depth of global economic downturn and how the recovery phase will unfold. This applies not only to the depth and length



of the slowdown globally but also in terms of what the direct and indirect consequences can be for India. Therefore, it is hard to make growth projections for IT-BPO or other industries.

Industry analysts and IT-BPO firms worldwide have been forced to make major revisions in revenue earning forecasts after September 2008. This is also reflected in Nasscom's growth projection revisions. Barring this fact, it should, however be noted that Nasscom and the Indian government<sup>45</sup> do envisage continued long term major expansion of the IT-BPO industry in India. Judging by the past record these projections have so far by and large proved correct.

The Nasscom report *Perspective 2020: Transform Business, Transform India*, written in collaboration with McKinsey & Company provides a long term analysis of IT-BPO industry developments globally and with specific reference to India. It argues that the IT-BPO industry in India is at an inflection point in its evolution. It stresses that industry leaders need to recognize that the 2010s will be fundamentally different from the 2000s, owing to radical restructuring of the global economy; rapidly evolving customer needs, services and business models; and rising stakeholder aspirations (Nasscom 2009b).<sup>46</sup>

The report identifies global megatrends which are likely to define the sourcing market. These trends would enlarge the addressable market (total revenue potential) for technology and business services<sup>47</sup> three times, that is, from the current US\$ 500 billion [2008] to approximately US\$ 1.5-1.6 trillion by 2020. Today's core markets would grow up to 1 ½ times, contributing to 20 percent of incremental growth. The remaining 80 percent would come from new verticals, customer segments and geographies, the latter including Asian markets in particular.

The addressable market for technology services exports in core geographies—the United States, Western Europe and Japan—will continue to grow and is likely to reach between US\$ 500-550 billion by 2020 according to the report. Traditional IT outsourcing such as remote infrastructure management will constitute the largest market opportunity in technology services, amounting for between US\$ 120-130 billion. Business services will overtake IT-related technology services and become the largest export-oriented opportunity with a total addressable market of US\$ 610-670 billion by 2020. The global industry size for globally sourced IT technology and business services is expected to expand from the current US\$ 80 billion in revenues to about US\$ 450 billion by 2020.

Correspondingly the Nasscom report predicts a major increase in the addressable market for domestic technology and business outsourcing services within India. This market is expected to increase five-fold by 2020 to between US\$ 90 billion to US\$ 100 billion. Priority segments in the domestic market will mirror the global sourcing market. In technology services, BFSI and public

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<sup>45</sup> Government of India, Planning Commission and others.

<sup>46</sup> The main growth scenario presented in the study is by and large in line with the Nasscom reports main scenario. There are, however, differences between this study and the Nasscom report. The method, some assumptions and overall emphasis of enquiry differs. The Nasscom report contains more detailed sections on global megatrends and how they are likely to effect the addressable revenue potential for the technology and business services industry; transformation of business models; and an agenda for action. It has four scenarios for exports and two for the domestic market. Also, the spread of scenarios is greater.

<sup>47</sup> Principally IT services, products, R&D and engineering plus BPO. The Nasscom *Perspective 2020* report data is on a calendar year basis while the Nasscom *Strategic Review* data on the IT industry in India is given on a fiscal year basis.

services will contribute 40 percent of the addressable market. In business services, call centers, BFSI non-voice services and finance & accounting will comprise 55 percent of the addressable market).

### ***Growth and transformation of global sourcing***

Two sets of spending forces linked to the global economic slowdown have impinged on offshoring of services to emerging market economies in the short and longer term.

On the one hand, growth in global spending on software and IT-BPO services decelerated and even declined in some markets after September 2008. This was also reflected in a slowdown in the offshoring business. These trends were particularly pronounced in financial industry related services—a major source of revenue for several large Indian and foreign companies operating in India. The major impact of the slowdown was felt in the financial sector in terms of discretionary spending in particular, while several other sectors and maintenance and other mandatory work suffered less. Given the way in which the global downturn unfurled after September 2008, passing on its impact from sector to sector, service providers begun to feel its presence in the declining demand and billing rates. Existing clients sought to re-negotiate current offshoring arrangements and postpone decisions to make new commitments.

Furthermore, it should be noted that there were many cases in which offshoring operations were scaled down or terminated due to unsatisfactory outcomes and security concerns. Also, there were cases in which new IT systems or automation resulted in scaling down or terminating of offshoring agreements.

On the other hand, the global economic slowdown did put pressure on companies across industries to reduce costs. In some cases this resulted in more offshoring. However, as in the past cost-management was not the only determinant of the decision to source globally—other factors included security and control issues, corporate decisions to focus on core activity and hence sell out or offshore non-core activity, and the assessment of competency and quality (Mitra 2007a).

Moreover, as the global slowdown recovery phase unfolded many offshoring business clients shifted their focus from technology that could lower cost and improve IT and business efficiency towards a greater emphasis on technology that can help their business to grow.

Furthermore, India and other emerging market economies are rapidly developing “new” domain competencies — global service delivery of education, health care, legal and accounting services, bio-informatics, engineering and green tech for example. Also, they are getting access to new offshoring enabling software and connectivity solutions — recent examples of the latter being the growth of broadband GSM and high resolution video conferencing. Moreover, it should be noted that India gradually is developing into a major global hub for R&D in IT and other areas. One of the salient features of the 2000s was rapid expansion in the scale and scope of MNCs offshoring of R&D work to India and China. This trend is poised to continue in the 2010s and beyond (Mitra 2007a).

Finally, the number of persons with higher education, including those with skills applicable to the IT-BPO sector, is expanding considerably in India, China and other emerging market

economies. This points to the fact that developing countries are catching up with advanced industrial economies in higher education, high technology industry and other aspects, that is, the so-called competency equalization trends (Mitra 2007a). In parallel with this fact, unfavorable demographic trends, namely high number of elderly persons, presage to the fact that advanced industrial countries will have substantial shortages in IT and other skilled categories for several decades to come. All of the above are factors indicating the scope for expansion of offshoring of IT-BPO services to developing countries.

### **6.3 Strengths, weaknesses and the need for transformation**

#### ***Strengths and weaknesses***

The IT-BPO services industry in India has proved itself resilient in dealing with uncertainty, volatility and the need to develop new business segments. This track record has been manifest for more than two decades now, including the time of the dot-com investment bubble burst around 2001, and the global economic slowdown from September 2008 onwards.

Several factors indicate that the IT-BPO industry in India will grow at double digit levels during the 2010s: the expanding scale and scope of human resources and institutions capacity, improvements in the country's overall investment climate as well as the development of new technologies, business segments and geographies, and so on. There are major opportunities to develop the offshoring business and to expand the use of ICT-related technology for the development of the domestic economy, especially since only a small fraction of these potentials have been tapped till now.

Furthermore, it can be argued that the IT-BPO industry in India continues to underperform compared to its existing potential. This fact can be attributed to a number of factors, such as the limited progress in expanding and ensuring quality standards in the education system, weaknesses in infrastructure, and implementation of legal, regulatory and other governance reforms at the central and state levels. This applies not only to tier 2 and tier 3 cities but also to tier 1 cities, that is, India's major IT-BPO industry centers such as Bangalore, the Delhi-NCR area, Chennai, Hyderabad and the Mumbai-Pune areas (Mitra 2009c). Also, a majority of Indian IT firms have no or only little experience in R&D and technological innovation.

The linkages between higher education and the high technology industry in India is by and large unsatisfactory or weak (Bashant and Mukhopadhyay 2009). The IT industry has been in the forefront for demanding changes to the educational curriculum in India, since their perception of the quality of the existing graduates is mixed or low. According to a Nasscom-McKinsey report published in 2005 only about 25 percent of technical graduates and 10-15 percent of general college graduates are suitable for employment in the offshore IT and BPO industries, respectively (Nasscom-McKinsey Report 2005). The IT and other industries have, however, in part been able to compensate for this type of weakness through investment in on the job training or other educational schemes. The large IT-BPO firms have substantive training programs and recruit not only from Indian education institutions but also internationally. Hence, while there are major weaknesses in many parts of the education system India's key comparative advantage in IT-BPO industry development is the availability of a large pool of human resources.

The key strengths driving IT-BPO industry growth in India thus continue to be entrepreneurial dynamism and the access to a large pool of skilled manpower at comparatively low costs. This is reflected in the fact that India ranks as number one among developing countries in terms of offering a favorable setting for offshoring of IT-BPO services.<sup>48</sup> Nevertheless, the expansion of the industry in India is constrained not only by weaknesses in infrastructure and the overall quality of the education system, but also by high costs and inadequacies in living conditions, namely the cost of quality real estate, environmental degradation and poor public services. Much of the Indian economies competitiveness is negatively affected by weakness in public sector as well as corporate governance as illustrated by uneven and sometimes poor performance in terms of reliability and other aspects of trust and business ethics. All of these weaknesses have continued to hamper the scope to expand the IT-BPO industry in India. A large number of East Asian and other countries are well ahead of India in terms of overall infrastructure developments and ease of doing business (World Bank and IFC 2009).

### ***Continuous need for transformation***

As shown earlier in this study the IT-related industry has undergone several phases of transformation in the 2000s and earlier. Principal factors driving this transformation have been changes in demand and supply and coupled with change in technology, business processes, human resource and institutional capabilities, public policies and more broadly the overall investment climate. The 2010s and beyond is poised to imply new phases of radical transformation in the scale and scope of the IT-ITES industry operations and the role of IT based technology in India and globally. As in the past, this will entail a paramount need to reorient the industry in terms of vertical and horizontal technology platforms, geographical markets and thereby related human services, industrial organization and corporate strategy requirements.

India's comparative advantage in the offshoring oriented IT-BPO services industry development can be described in terms of the so-called the labor-arbitrage "model" in which low cost for human resources was a central component. It is often argued that the old version of the labor-arbitrage "model" gradually will prove to be unable to deliver the same result as it did in the past. One of the prime reasons given for this is that a large number of other countries have entered the offshoring IT-BPO services business and also can offer access skilled manpower as at competitive costs. They are gradually developing a significant industry for IT-BPO services and they have proved worthy contenders to India in terms of costing, numerical skills and linguistic requirements as well as offering geographic proximity advantages. The latter is illustrated by the North American offshoring market being served from Central American countries, the Western European market being served from Eastern Europe and the Japanese market being served from China.

While India is in an advantageous position to build on its existing strengths — the size of its skilled pool of human resources and costing advantage — pressures are mounting to modify this of the labor arbitrage "model". This modification implies that India's competitiveness to a greater degree emanates from scale, quality and innovation aspects in addition to costing. Furthermore,

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<sup>48</sup> While a large number of other countries are expanding their IT-BPO services industry, India continues to rank well ahead of its major competitors – developing countries such as China, Malaysia, the Philippines, Mexico, Egypt as well as the East European countries – as a provider of offshored IT-BPO services (A.T. Kearney 2009).

unlike the 1990s India's comparative advantage in the 2000s and beyond is poised to be manifested not only export but also the scale and scope domestic market developments. Also, unlike the 1990s Indian firms have become increasingly global as they deliver services not only from India as well as other locations.

Moreover, it is important to note that India has a first mover advantage in many aspects of the business of offshoring of IT software and services and BPO to developing countries. The magnitude at which Indian based companies has developed the scale and scope of their operations in India and internationally is hard for smaller emerging market economies to match. India continues to have the largest pool of skilled human resources along with China. Indian's along with other Asians people play a central role as employees in IT and other knowledge-based industries worldwide. Also, the IT-BPO industry in India has swiftly moved into newer business niches. It has gradually developed new competencies although with much of the focus being on the lower and middle end of the value added chain. It can be argued that there are ample opportunities for the IT-BPO industry in India to develop new business niches both at the lower and higher end of the value chain and across a wide range of verticals. There is, however, little room for complacency in a rapidly changing and competitive environment.

#### **6.4 Growth scenarios: India 2020: IT-BPO industry growth vision**

##### ***Considerable overall expansion with domestic growth matching exports***

Drawing on the analysis in previous chapters this study identifies three major growth scenarios for the IT products and services industry and the BPO sector in India for the 2010-2020 period (figure 6.1 and table 6.1).<sup>49</sup>

- ❖ **A. The low growth scenario:** IT-BPO industry revenue reaches US\$ 185 billion level by 2020 out of which exports accounts for 140 billion while the domestic market accounts for 45 billion. This implies an especially substantive deceleration of IT-BPO industry growth compared to the 2000s.
- ❖ **B. The medium growth scenario:** IT-BPO industry revenue reaches the US\$ 255 billion level by 2020 out of which exports accounts for 200 billion while the domestic market accounts for 55 billion. This implies that IT-BPO industry growth reaches a CAGR 14 percent in the 2010-2020 period – a comparatively moderate deceleration compared to the 2000s.
- ❖ **C. The high growth scenario:** IT-BPO industry revenue reaches the US\$ 350 billion level by 2020 out of which exports accounts for 270 billion while the domestic market accounts for 80 billion. This implies that overall IT-BPO industry growth will grow at comparatively higher rates but the CAGR will still not reach the 2000s level.

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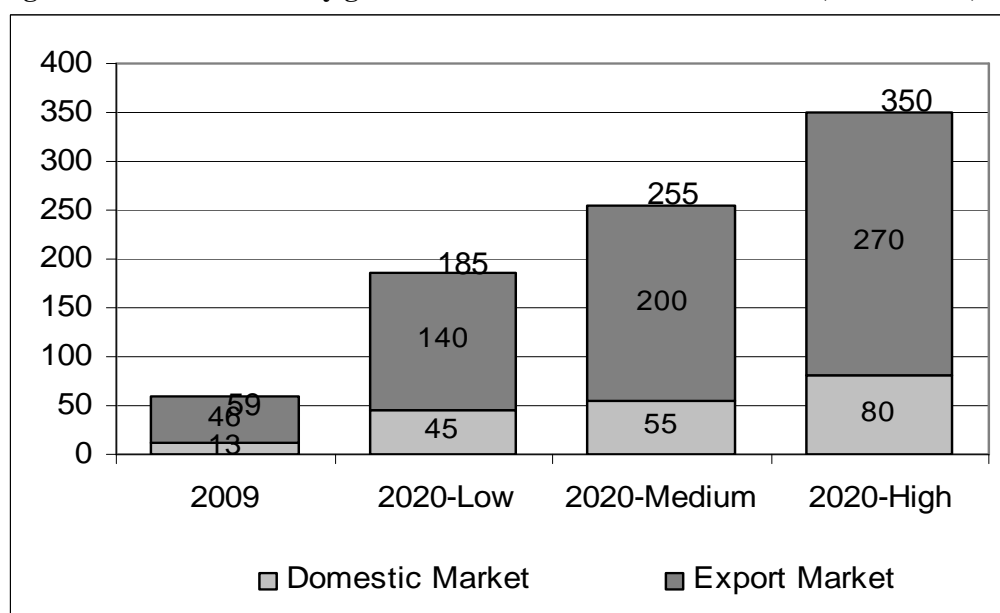
<sup>49</sup>This scenarios section in this paper also draws on other work by the author including analysis of alternative scenarios for IT-BPO industry growth and structural transformation undertaken in 2002 and 2006. The section is based on the authors' economic forecasting model plus a special qualitative assessment of factors driving and constraining industry growth including findings emanated from semi-structured interviews.

The medium growth scenario appears to be most likely and hence it is viewed as the base line. This scenario assumes a gradual but robust recovery in the global economy and IT spending levels in India. It is, however, hard to forecast global IT spending and sourcing markets. Also, it is hard to predict the implications of the emergence of new technologies, and changes in infrastructure and labor markets. Hence, the wide range in the projected outcomes presented in this study.

All three scenarios point to major transformational expansion in the IT-BPO industry. They project that much of the dynamism in IT-BPO industry development in India will continue to be driven by the offshoring-export business. However, unlike the 1990s the rate of growth in the domestic market may well be at par with or higher than in exports. The size of the domestic market will be substantially larger than in the 2000s. Nevertheless, the actual size of the export business would continue to be several times larger than that of the domestic market.

The number of persons directly employed in the IT-BPO industry would increase from 2 million in 2009 to 9-10 million in 2020 according to the medium growth scenario — a number which would be substantially larger if it also included IT hardware, telecommunication, broadcasting and other ICT sectors. Despite the expansion, the IT-BPO sector, narrowly defined, would, however, not even closely match that of the goods manufacturing industry or agricultural sector in terms of employment. Revenue earnings per employee would, however, continue to be substantively higher in the IT-BPO industry as compared to most other service or goods producing industries. Hence, the IT-BPO industry's share of GDP is likely to be well over 7 percent and its share of India's exports could reach 25-30 percent in 2020 as per to the medium growth scenario, that is, the IT-BPO industry excluding IT hardware, the telecom and broadcasting sector.

**Figure 6.1 IT-BPO industry growth scenarios for India vision 2020 (US\$ billions)**



Source: The author.

Note: IT-BPO industry defined as IT services, software products, engineering services and the BPO sector.

## *Scenario assumptions*

### *Four key assumption dimensions*

Any prediction of the future is inherently precarious. Trying to understand and provide long term visions has, however, proved useful to industry managers, government decision makers and others. This is illustrated by the significant importance that strategic thinking has played in the development of the IT-BPO industry in India and elsewhere.

The projections presented in this study have been derived based on assumptions covering a number of interrelated dimensions, namely:

- First, the international environmental context and IT-BPO industries export growth opportunities. Key aspects discussed here are that projections differ depending on the international economic environment and India's role in the offshoring business.
- Secondly, the domestic economic environment context and IT-BPO industries domestic market growth opportunities. Key aspects here include different assumptions for growth in GDP and IT-related spending.
- Thirdly, crosscutting dimensions such as external and domestic market industry linkages, human resource, technology and industrial organization developments and network developments. Here the principal focus is different assumptions regarding human resources. Also, infrastructure and technology development, industry finance and ownership, industrial clustering, strategic alliances and other network issues are noted briefly.
- Fourthly, the response by key stakeholders. Key aspects here include government policy and corporate strategy responses. These dimensions are covered in more detail in chapter 7.

### *A concave growth path – why and when?*

The targets of IT-BPO industry growth presented in this study may at first sight appear ambitious but are, in fact, rather modest if compared to the performance in the past. According to the medium growth scenario, total revenue would need to grow at a CAGR of around 14.3 percent to achieve the US\$ 255 billion target in 2020. In the high growth scenario the CAGR would be around 17.6 percent. These growth rates are significantly lower than what has been typical in the 1990s and 2000s (table 6.1).

The trajectory for total revenue growth of the IT based services industry in India in the past decades suggests a concave growth curve, that is, leaving aside short term fluctuations in business cycles such as the slowdowns around 2001 and 2009. There are, however, differences in terms of the domestic and external market performance as noted in chapter 3. Moreover, there are significant variations in the growth pattern for different business segments, one example

being the fact that the BPO offshoring industry is much younger than the IT software and services industry.

If the concave pattern of total revenue growth – a pattern that is typical for most industries – prevails in the 2010s, it would point to the likelihood of a deceleration of IT-BPO industry growth rates in the 2010s and later, that is, leaving aside the fact that some geographical markets and some business lines will perform significantly worse or better than others.

The fact that the rate of growth in export was especially high in the 1990s compared to the 2000s can in part be explained by the fact that it is easier to achieve high rates of growth in revenue (and employment) when starting from a low base as compared to when the market and the industry becomes more matured. It is, however, hard to conclude when the rate of growth of an industry, or part of it, starts declining significantly. In many so-called multipurpose technology industries such as electricity and petrochemicals, or automobiles, aerospace, telecommunications and broadcasting it has taken considerably more than 50 years before there was a major decline in growth rates. The latter may well be the case for much of the IT-BPO industry in India. The Indian domestic IT-BPO industry and export-oriented BPO, software product development, engineering and other R&D intensive services especially are still in a fairly early phase in developing these potentials.

Saturation in addressable demand may not be the principal factor leading to deceleration of growth in the IT-BPO sector in India in the foreseeable future – both offshoring and domestic markets are poised to continue to have considerable growth potential in the 2010s and 2020s. Rather, the prime reasons for a gradual slowdown in growth rates are likely to be the availability of skilled human resources and in keeping with the general economic competitiveness or the overall business environment in India.

Saturation in addressable demand is unlikely to be the principal factor leading to deceleration of growth in the IT-BPO sector in India in the 2010s and beyond. Rather, the prime reasons for a gradual slowdown in the industry's growth rates are poised to be insufficiencies in the supply and inadequate use of skilled human resources as well as the overall economic development and business climate developments.<sup>50</sup>

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<sup>50</sup> This argument is valid for most industries. Industries can continue to grow rapidly in one or several countries as long as they maintain a competitive edge over others even in situations when global demand is shrinking.



**Table 6.1 Growth record and scenarios for India: IT-BPO industry revenue growth**

	Export market (Growth %)	Domestic market (Growth %)	Total (Growth %)	Total revenue (US\$ billions)
<b>Historical record</b>				
1992-93 to 2000-01 (CAGR %)	51.4	37.4	46.5	
2001-02 to 2002-03 (CAGR %)	26.7	12.2	23.3	
2002-03 to 2007-08 (CAGR %)	32.3	35.6	33.0	
2003-04	28.2	52.1	30.0	17
2004-05	38.4	24.8	35.2	23
2005-06	36.6	39.1	37.2	31
2006-07	29.8	22.5	28.2	40
2007-08*	28.7	41.9	31.4	52
2008-09*	14.6	7.0	12.9	59
<b>Scenarios for 2020 (CAGR %)</b>				
Low growth	10.6	12.3	11.0	185
Medium growth	14.2	14.4	14.3	255
High growth	17.4	18.4	17.6	350

*Sources:* Historical data on growth are the author's calculations based on US\$ revenue earnings as reports in various issues of the *Strategic Review* published by Nasscom and subsequent updates. Scenario projections are based on the author's work.

*Note:* IT-BPO industry is defined as IT service including engineering, software products and the BPO sector; hardware and telecom are excluded. Sharp annual fluctuations in domestic market revenues are partly explained by changes by change in employment remuneration levels and foreign exchange rates. The sharp rise in the domestic market in FY2003-04 was added by US\$ currency movement and rise in the public sector wage bill. FY2009-10 and the later part of FY2008-09 were atypical due to contraction in worldwide IT spending. Also, there is considerable uncertainty regarding what global and India specific IT-BPO industry growth will be in FY2009-10 and FY2010-11. A major negative or positive deviation in the expected outcome for these years could result in that the growth targets for 2020 are achieved significantly later or earlier. \*Based on provisional data; as per July 2009 Nasscom's provisional annual growth estimates for FY2008-09 was 16.3 percent for exports (Nasscom 2009d).

### **Box 6.1 India 2020: IT-BPO Vision: Synopsis of growth projections and assumptions**

#### **Low Growth Scenario**

*Projections for 2020:* Total IT-BPO industry revenue \$ 185 billion; Exports \$ 140 billion; Domestic market \$ 45 billion.

*Key assumptions:*

- **Export opportunity:** This scenario assumes a protracted grave global economic slowdown with substantive protectionist trends and with the rate of growth in worldwide IT spending and offshoring not even closely recovering to pre 2008 levels. It predicts a sharp decline in the rate of growth for Indian exports of IT as well as BPO services and limited progress in developing other verticals than banking & finance.
- **Domestic opportunity:** IT-BPO market growth rates decline markedly as the overall business climate deteriorates and India's GDP growth rate falls below 6 percent. Limited progress in developing inter- and intra-industry linkages.
- **Crosscutting issues:** IT-BPO industry employment growth slows down to a CAGR of around 10 percent. Development of industrial clustering and hubs is much constrained. Indian firms' growth is mainly organic and foreign investment decelerates.
- **Policy response:** Sluggish progress in legal & regulatory regime, infrastructure and the education system.

#### **B. Medium Growth Scenario (base line and most likely)**

*Projections for 2020:* Total IT-BPO industry revenue \$ 255 billion; Exports \$ 200 billion; Domestic market \$ 55 billion.

*Key assumptions:*

- **Export opportunity:** This scenario assumes a gradual and robust worldwide recovery from the global slowdown in which worldwide IT-BPO spending and offshoring picks up significantly from around 2010 and onwards. It predicts that Indian export revenue in IT-BPO services will recover rapidly and will sustain considerable growth levels both at the lower and higher end of the value chain and in several verticals other than banking & finance.
- **Domestic opportunity:** IT-BPO market growth will be substantive and India's average annual GDP growth would be at the 7-8 percent level. In the domestic market, IT spending share of GDP would increase significantly. Significant progress in developing inter- and intra-industry linkages.
- **Crosscutting issues:** IT-BPO industry employment grows considerably but shortage prevails in terms of higher end technical and managerial expertise. Significant progress in development of several industrial cluster and hubs. Indian firms growth continue to be primarily organic but also increasingly through M&A; significant expansion of foreign investment activity including offshoring of R&D.
- **Policy response:** Average progress in legal & regulatory regime, infrastructure and the education system.

#### **C. High Growth Scenario**

*Projections for 2020:* IT-BPO industry revenue reaches \$ 350 billion; Exports \$ 270 billion; Domestic market \$ 80 billion.

*Key assumptions:*

- **Export opportunity:** This scenario assumes a rapid and robust worldwide recovery from the global economic slowdown followed by a long period of substantive growth in the world GDP, trade and foreign investment and IT spending. It predicts that Indian exports of IT-BPO services will grow rapidly with a expansion at the low end as well as major expansion at the medium and higher end of the value chain and across a large number of verticals.
- **Domestic opportunity:** IT-BPO market growth rates accelerate to levels well above the 2000s as India's GDP growth rates average over 8 percent. IT spending share of GDP increases at rates comparable to the 2000s. Major progress in developing inter- and intra-industry linkages.
- **Crosscutting issues:** Rapid growth in number of employees in the industry aided by major expansion in the higher education system but shortage prevails in terms of high end technical and managerial expertise. Rapid progress in developing both production and innovation-oriented industrial clusters and hubs. Indian firms' growth continues to be primarily organic but also substantively through M&A; rapid rise in foreign investment and strategic alliance activity incl. offshoring of an increasingly wide range of research & innovation work.
- **Policy response:** Accelerated progress in legal & regulatory regime, infrastructure and the education systems.

*Source:* The author.

### ***Export growth opportunities and the overall international environment***

A detailed analysis of the assumptions underlying this study's IT-BPO industry growth projections is given below. They are also summarized in box 6.1.

#### ***The overall international business context***

*The global economic environment.* The medium growth scenario assumes a gradual and robust worldwide recovery from the global slowdown in which worldwide IT-BPO spending and offshoring picks up significantly from around 2010-11 and onwards. In contrast, the low growth scenario assumes a protracted and increasingly grave global economic slowdown. It would be too presumptuous to rule out risks of further instability in the global financial system, a considerable protectionist wave or other major disruptions in the global economy. This indicates the possibility that the world economy could encounter several rounds of crisis in the next few years as was the case during the great depression in the 1930s. While parts of the Indian economy may be less vulnerable to such crises than most other countries, much of the export-oriented sectors would be seriously affected by such a negative development. Conversely, it cannot be ruled out that the world economic output, foreign investment and trade will recover quickly and will show robust growth throughout the 2010s. This type of development points to the possibility of the high growth scenario for the IT-BPO industry in India.

*Overall global IT-BPO market size.* The external market assumption in all three scenarios is that worldwide IT and sourcing spending (the addressable market) will grow at a lower rate in the 2010s than what it did in the 1990s and the 2002-2008 period. The rate of growth would, however, be significantly higher in the high growth scenario compared to the other scenarios.

The global addressable market for the IT-BPO industry is poised to grow but it is hard to predict how fast it could grow at the aggregate level and even more so in terms of specific industrial segments and geographies. The rate of growth and composition of global IT spending and sourcing growth depend on a number of interrelated factors such as worldwide overall economic output, trade and investment trends and policy developments. Also, it hinges on the development of new business processes and technologies.

*IT spending by country.* As noted in chapter 2, global IT spending growth has been high for several decades and the growth of spending on offshoring has been especially pronounced since the 1990s. As per the advanced industrial countries the rate of growth in IT spending has slowed down in line with the fact that their GDP growth have decelerated and the IT-spending shares already reached high levels. There is, however, continued demand to introduce new technologies and improvement in business processes. Moreover, there are continued opportunities to expand the offshoring from developed countries in a wide range of business segments and geographies.

The situation in the developing world differs greatly compared to the advanced industrial economies. It is, indeed, reasonable to assume that the rate of growth in IT spending will continue to be considerably higher in emerging market economies than in the advanced industrial countries in the 2010s and beyond. Many developing countries are expected to continue to have comparatively high GDP growth and there is considerable scope to increase the IT spending-to-GDP-ratio.

*Competing for market share.* The low and medium growth scenarios assume that India's market share in terms of the business of offshoring IT-BPO services to developed countries would decline by about 8 percent as China and other emerging economies expand their exports of IT-BPO services. The high end scenario assumes that India's present market share in the offshoring to developing countries will decline by around 5 percent. Nevertheless, the total business volume of the India based IT-BPO industry would continue to increase due the overall expansion of the total global offshoring business market size. Also, it should be noted that Indian firms are poised to continue to expand their operations emanating from their subsidies and strategic alliances in developed and developing countries.

Moreover, in the medium and high scenarios it is assumed that India would make considerable inroads in the sourcing operations which take place between advanced industrial countries, that is, especially cross-border sourcing among European countries. It should be noted that cross border sourcing of IT service, product development and R&D continues to be dominated by sourcing from one advanced industrial country to another. If Indian based firms are successful in making a substantive inroad in this cross-border market it would more than compensate for a decline in India's share of offshoring to developing countries.

Furthermore, there is considerable potential for India to export to a large number of advanced industrial economies and developing countries, including non-Anglo-Saxon markets. The IT-BPO industry in India derived 79 percent of its revenues from the United States and the United Kingdom, and about 41 percent of its total revenues from the BFSI sector (most of the latter emanating from the two Anglo-Saxon majors) in FY2008. These markets can be expected to continue to grow both in scale and scope, that is, after the global economy recovers. It is, however, apparent that the IT-BPO industry in India also needs to continue its efforts to develop business with other countries and in other sectors as well. The Indian IT-BPO industry has low penetration levels in certain geographic regions which accounts for a significant share of the global market. It has therefore considerable scope to expand its exports to a wide range of industrial and developing countries. The IT-BPO industry in particular, has considerable potential to expand the scale and scope of operations in non-Anglo-Saxon markets, including continental Europe, Japan, China and other Asian countries which represent considerable long term business opportunities.

#### *Sector and niche specific export growth opportunities*

While overall worldwide IT-BPO spending is poised to grow the IT-BPO industry will continue to show considerable variation in growth rates depending on the business segments. It is hard to forecast the scale and scope for long term growth in different business segments. For the purpose of this report it suffices to say that the 2010s will entail significant growth opportunities for India in IT service, software products, engineering R&D and the BPO service sector and also for the IT hardware and telecom sector. The expansion in IT industry related products and services will cover an increasingly wide range of sectors and type of customers. The BPO industry is yet to establish itself more significantly in many business segments of the corporate and public sector. Also, much remains to be done in developing the IT-BPO industry's potential at the higher end of the value added chain, namely software products and engineering development related R&D and the knowledge processing market.

Verticals such as government, healthcare, construction and utilities are hitherto under-penetrated, with only 1 to 3 percent of the total Indian IT-BPO revenues coming from them (Nasscom 2009a). The requirements in these verticals have to be addressed with specifically developed solutions. Also, there is major long term scope to expand the offshoring business in biotechnology, energy-environment-climate change related applications, innovation in engineering and automation.

India has substantial scope for IT-BPO industry expansion both at the low and high end of the value chain. It is important to note that there continues to be major opportunities for growth at the low end across a wide range of verticals. It can, however, be argued that sustaining high level growth in the IT-BPO industry increasingly will be contingent on the expansion of R&D and innovation. India does, indeed, have a potential to emerge as a major global center of offshoring of ICT software and hardware product development work, biotechnology, pharmaceuticals, engineering other industries in which IT and R&D plays an especially central role.

*Conclusion.* Rapid worldwide expansion in IT-BPO spending and offshoring in particular has been a salient feature in the international economy for over 20 years. This general trend is poised to prevail leaving aside transitory downswings in the global economic growth and trade. This implies continued good prospects for exports of IT-BPO services from India and other countries.

The outcome of this study's three scenarios will primarily depend on the overall growth in IT spending and the worldwide offshoring business. In addition, and to a lesser degree, it would also depend on how India fares in competing with other countries. First of all India needs to offer an offshoring value proposition that is more attractive than the option to source IT-BPO services onshore (domestically) or within the groups of advanced industrial countries. Secondly, India needs to compete as well as collaborate with an increasing number of developing countries with ambitions to develop a sizeable IT-BPO industry.

India will have major opportunities to expand the scale and scope of offshoring of IT and a wide range of other services well beyond the 2010s. Costing, access to competency and other factors implies that the offshore IT-BPO services delivery "model" can be expected to result in continued substantive growth in exports of IT-BPO services from India. The scale and scope of the offshoring business will, however, continuously undergone major change.

There are ample opportunities to expand the global sourcing of services beyond the currently dominating geographies and verticals, namely the United States and the banking & financial services sector. However, resumption of revenue growth to levels akin to those prior to September 2008 is contingent on an overall robust recovery in global IT-BPO spending. Also, the pattern of growth in the IT-BPO industry in India will be increasingly affected by the expansion of this type of industry in other countries. This includes China, the Philippines and other countries from which India will be facing competition in the offshoring business.

IT-BPO companies in India will have multiple opportunities to expand their export of IT-BPO services to a wide range of advanced industrial countries and also to emerging market economies in Asia and elsewhere. While India is facing greater competition from developing countries in the global market place for offshoring, it is plausible that the opportunities for Indian based firms

to invest in and export to developing countries will generate more business than what possibly could be lost due to new competition for developing countries.

The fact that India and China have the largest pools of people with higher education point to the fact that they are likely to retain their leading positions in global IT-related sourcing to developing countries. Also, it should be noted that India and China are well ahead of other developing countries in terms of housing several large IT companies (indigenously controlled firms as well as foreign MNC subsidiaries) with the capacity to carry out complex multi-billion dollar projects and to operate globally.

Barring down side risks, such as a surge in protectionism, major technological disruption or a long lasting deep worldwide recession, it can be argued that the long term historical structural shift towards an expansion of global spending on IT-BPO, and offshoring in particular, will prevail. This will result in substantive opportunities for India in exports as well as domestic market related developments. ICT is poised to remain as a sunrise industry driven by new technology and the scope to expand across geographies and wide range of applications.

### ***Domestic market opportunities and the overall domestic environment***

#### *The overall domestic market growth context*

The domestic economy is assumed to be characterized by significant expansion in IT spending in the 2010s. The rate of growth does, however, vary significantly in the three scenarios. The medium growth scenario assumes that substantive growth in the domestic IT-BPO spending and that India's average annual GDP growth would be at the 7-8 percent level. Domestic IT spending share of GDP would increase significantly. The high growth scenario assumes that the domestic IT-BPO market growth rates accelerates to levels well above the 2000s as India's GDP growth rates average over 8 percent and IT spending share of GDP increases at rates comparable to the 2000s. In contrast the low growth scenario assumes that the domestic IT-BPO market growth rates declines markedly as the overall business climate deteriorates and India's GDP growth rate falls below 6 percent.

All three scenarios do, however, also have common features. They assume that rising income is to be a principal determinant of growth in IT-BPO spending. Also, the expansion of the domestic IT-BPO market will be much affected by change in technology, such as more powerful and affordable hardware and software solutions with major growth potential both in urban and rural areas. Also, part of the domestic market is likely to become increasingly sophisticated and the billing rate differential between the external and local market are poised to narrow down.

Furthermore, as the domestic market for telecom and other ICT services has become large, it appears increasingly feasible to also develop a sizeable hardware industry that is, barring logistic and other impediments. As India is catching up in telephone and computer density it is emerging as the largest market of telecom and computer related hardware equipment and software products in the world along with the United States and China. Much of these requirements are likely to

continue to be met by imports but there is, indeed, considerable scope to expand local production as well.<sup>51</sup>

Finally, it should be noted that the slowdown in global demand after September 2008 has given IT-BPO firms based in India greater incentive to focus on the domestic market. This is reflected in rapid expansion of IBM, Accenture and Wipro's domestic market business. Also, it should be noted that companies that are heavily oriented towards exports are giving greater attention to the domestic market, Infosys, TCS and Wipro being prime examples.

#### *Sector and niche specific domestic market growth opportunities*

The domestic market offers a wide range of opportunities for the IT-BPO industry in terms of the private sector, the government and at the household or individual level. This includes application such as e-governance, finance, banking, insurance, postal services, media/entertainment, education, health, public transport, energy and other utilities management including investments in clean/green tech.

Three "new" areas received special attention in 2009. First, the launch of the national ID card projected under the aegis of the Unique Identification Authority of India (UIDAI) is envisaged to have substantial "spillover" in e-government and e-business and also in improving rural broadband connectivity. Secondly, aero-space and a wide range of defense IT-related applications. And thirdly, the emerging interest in the greater use of IT-related products and services in the areas of green or clean tech such as in the use of IT in energy management (e.g., smart buildings), supporting behavior changes (intelligent public transport systems) and so on. It is commonly assumed that such investments will form a substantial portion of investment in the 2010s and beyond.

Furthermore, there is considerable scope for more innovation targeting the domestic market. It should be noted that India already has a significant track record in technology and business process innovation for the domestic market – some of which subsequently resulted in exports not only to the developed countries but also to the developing economies which find Indian solutions in line with their special requirements. The medium, and even more so the high end scenario assumes, that substantive progress will be made in this respect in the 2010s.

*Conclusion.* The fact that India still is in an early phase of developing the domestic market for IT-BPO points to a major growth potential. While India has emerged as a major exporter of IT-BPO services, the domestic use of such services is still limited if compared with East Asian countries, for example. This is reflected in low per capita penetration rates for PCs and Internet use.

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<sup>51</sup> The domestic ICT hardware and telecom services are not included in the scenarios presented here. It is, however, important to note that they also are poised to grow rapidly and that this development is related to the expansion of the domestic IT software & services and BPO market as noted above. Projections for the domestic IT industry would be significantly higher if IT hardware and telecom services were included.

A number of factors point to a major long term potential to develop the domestic market.

- Income levels are increasing resulting in an expansion of domestic ICT-related spending. Also, the number of persons with basic and higher level education and computer literacy is large and increasing.
- The overall economy is being transformed with a strong growth in urban service sectors with high usage of computers, Internet and other ICTs and from the 2000s onwards also rapid growth in use of wireless telephone and other ICTs in rural areas as well. Examples of applications with major growth potential include e-health, e-education, mobile and other e-banking solutions and a range of other e-government applications.
- The introduction of new and more affordable and cost-effective hardware and software and the wide spread use of increasingly sophisticated wireless telephone and computers solutions with broadband point to major opportunities for rapid growth in the domestic IT-BPO market. India appears poised to have more than 800 million people with mobile phones before the year 2015 many of which are having mobile devices with Internet and computing capabilities at par with what a basic personal computer has today.
- Entrepreneurial dynamism resulting in increasingly rapid adoption of foreign technologies as well as indigenous technological and business processes innovation to serve the domestic market needs which subsequently could result in exports.

All of the aspects discussed above will have major implications for the transformation of the Indian economy and its international interface.

### ***Linkages: export and domestic markets, intra and inter-industry***

#### ***Links between domestic and export developments***

As outlined earlier the evolution of the IT-related industry has gone through several phases in terms of the focus on domestic versus the export market and the interface or “linkages” between the two. First, prior to the mid 1980s was a time when the IT-related development focused on servicing the need of the domestic market — during this time potential benefits from export-oriented industrial development were minimum and foreign investment was much restricted. Secondly, the primarily export-oriented phase from late 1990s to the late 2000s — a time when some argued that the domestic market was neglected or that the linkages between the export-domestic markets were deplorably weak. Thirdly, the period from the late 2000s onwards in which there is considerable scope to develop increasingly multi-faceted linkages between the external and domestic market and thereby related institutional capabilities, knowledge and other networks, managerial and technical skills.

In the 2000s it become increasingly clear that the development of the domestic market been by aided by the rapid expansion of the IT-BPO export business — the latter implying that India now has a large pool of skilled manpower and entrepreneurs that can foster rapid development of the domestic market. The export-oriented industrial capacity building since the late 1980s has resulted in building technological and managerial competency much of which can be beneficial



to the development of the domestic market. Conversely, a large domestic market development, with significant degree of innovation in technology and business processes can open new avenues to expand exports.

#### *Intra-industry linkages among ICT industries*

The intra-industry linkages in the IT software & services sector and other major ICT industry sectors, namely telecommunications, Internet connectivity, broadcasting and media industry became more significant in India only in recent years. This characteristic can be traced to the fact that the ICT industry only gradually reached a scale and scope of operations that allowed forward and backward linkages to develop. As the industry developed in India it became feasible to develop intra-industry linkages within the country. This development was further facilitated by convergence of IT, telecommunication and other ICT-related technologies.

Intra-industry linkages among ICT industries began to become significant in the 2000s. One key example of this is the development of links between the telecommunication, media and other IT industries. The hardware industry did, however, remain comparatively small and imports of hardware and software became considerable. This illustrates the fact that the rapid expansion in exports of IT and ITeS services in the 2000s was accompanied by major increase in imports of IT and telecom hardware. Intra-industry linkages in ICT industries are poised to mature further in the 2010s with links between the mobile telecommunication, BPO-ITeS and other IT-related applications being prime examples.

#### *Inter-industry applications across various sectors*

The use of IT across various sectors of the Indian economy become considerable in the 2000s but much of the potential remained untapped. The 2010s entails major opportunities to strengthen inter-industry linkages in terms of use of IT across a wide range of sectors. An enhanced role for IT in the Indian economy will imply wide-ranging implications in inducing change in organization structures and processes in the private and public sector across different sectors in the Indian economy. It will entail a transformation of intra- and inter-sector linkages in goods producing and service sectors by means of applications such as e-governance, finance, banking, postal services, insurance, media/entertainment, education, health, public transport, energy and other utilities management including investments clean/green tech.

### **6.5 Crosscutting issues: human resources, technology and infrastructure, finance, regulations, industrial organization, clustering and networks**

#### *Multiple crosscutting issues*

The growth projections and assumptions discussed above point to the importance of a number of key crosscutting dimensions such as linkages (see above) human resource, technology and infrastructure, finance, the legal and regulatory frameworks, industrial organization, clustering and networks. Here the principal focus is on assumptions regarding the availability of human resources as this is seen as a prime aspect that will determine the industries long term growth

prospects. Also, infrastructure and technology development, industry finance and ownership, strategic alliances, industrial clustering and other network issues are noted briefly.

### ***Human resources***

The medium growth scenarios, and even more so the high growth scenario, assume that India's existing plans to substantively improve its education system will be implemented to a significant extent (Government of India 2008a). The number of people directly employed in the IT-BPO industry would reach 9-10 million in the medium growth scenario as compared to 6-7 million in the low growth scenario and 10-11 million in the high growth scenario. Revenue earnings per employee would increase only marginally in the low growth scenario, moderately in the medium growth scenario and substantially in the high growth scenario.

The rate of annual growth of the available skilled human resource pool is assumed to be lower than in the past and this will lead to an overall reduction in industry growth rates in the 2010s. If the IT-BPO industry continues to grow at the CAGR level of the 2000s, that is, around 25 percent, it would imply a need to employ close to five hundred thousand more persons annually in the near future and almost one million per year in the latter part of the 2010s.<sup>52</sup> This is clearly not feasible.

All three scenarios assume that the number of employees as well as revenue earnings per employee will increase, although at varying rates in each scenario. It is, however, unrealistic to assume that the rate of increase employment could be as high as it was earlier; or that revenue earnings per employee can grow drastically in the short and medium term. Also, it should be noted that periods when industrial growth outpaces supply of human resources imply risks for excessive wage inflation and attrition as was the case in the 2004-2007 period.

Building a capacity to add ½ to 1 million people per year to the industry means that the output of total employable engineers and other graduates will have to increase substantially. India currently produces about 400,000 engineers annually of which only about ¼ are employable (Nasscom-McKinsey 2005). Hence, availability of engineers and other categories of well educated people will be a significant bottleneck because it is not easy to build substantial educational capacity in a ten year period— if nothing else, because of the lack of qualified teachers. The government's ambitious plans to substantively expand and improve the quality of India's higher education system are not likely to suffice. This reality can, however, in part be compensated for by a scaling up of IT-BPO companies' own training schemes. Large IT-BPO firms are assumed to substantively scale up their training programs and increase recruitment not only from Indian education institutions but also recruit more Indian and non-Indian persons educated internationally. Moreover, as Indian firms become increasingly global they are likely to require more outside of India and expand by means of M&A.

Substantive expansion of IT services and BPO at the lower end of the end of the value added chain will require a large number of people engineering background as well as persons with a

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<sup>52</sup> The incremental growth in employment, that is on year-on-year basis, in the IT-BPO industry in India, hardware excluded, has grown from around 150,000 in FY2002-03 to close to 390,000 in FY2007-08 (Nasscom 2009a and earlier issues of Nasscom's *Strategic Review*).

wide range of other skills and vertical-sector specific domain knowledge. The number of persons with higher education may be large but the quality of their education is often poor.

Moreover, there is considerable scope for the industry to undertake more R&D and other work. The shortage of employable human resources is, however, poised to remain especially serious at the higher end of the value chain. This is illustrated by the fact that India currently produces 7,000-8,000 PhDs and already faces severe shortages of teachers in its higher systems. The number of qualified persons deciding to study and work in knowledge-based industries abroad continues to exceed the number of well educated Indians returning to India from other countries — the latter being a trend which accelerated after September 2008.

In conclusion, the supply of skilled manpower, rather than the growth in demand will be the principal factor constraining IT-BPO industry growth in India. The number of employable graduates is not likely to expand at a rate required to sustain the industry growth rates at the levels of the 2000s. Also, there is considerable risk for erosion of competitiveness due to rising wages and other costs coupled with insufficient efforts to educate technical and managerial human resources need to develop new businesses and improve productivity. There is, indeed, considerable scope to expand the industry but the human resource factor will constrain the rate at which the industry can increase its operations in India and internationally.

Nevertheless, the key strengths driving IT-BPO industry growth in India are poised to continue to be entrepreneurial dynamism and access to a large pool of skilled manpower at comparatively low costs. Average wage levels, that is, for low and midlevel staff, are likely to continue to be well below that of advanced industrial countries. While other countries also can offer skilled manpower at low cost India is poised to remain the leader in the offshoring of IT-BPO services to developing countries in the 2010s. Only China and the United States will be able to match India in terms of the size and diversity of skilled human resources it can offer.

Moreover, in developing countries such as India efforts to improve education at all levels, including basic literacy, is essential to enable more widespread and effective use of IT-related technology in the society. Increasing access to persons with higher education is crucial for the IT-BPO industry to be able to expand the scale and scope of this operations within India and internationally. Also, more investment IT-related competency is essential to enable business process and technological innovation in IT industry as well as in other sectors.

The advanced developed countries are likely to face continued shortage skilled manpower one key reason being unfavorable demographics as a large part of their population will consist of elderly persons. Hence, growth in offshoring IT-BPO is likely to continue to be fueled by shortage in local supply of skilled manpower and costs levels in advanced countries.

In short, continued rapid worldwide growth and transformation of the IT-BPO industry implies that the availability of human resources will remain a major factor constraining IT-BPO industry development in both advanced industrial economies and developing countries.

### ***Technology and infrastructure***

As noted above several economic and technological fundamentals point to continued growth in worldwide IT-related spending and IT-BPO offshoring in the 2010s and beyond. All growth scenarios assume that rapid technological change will continuously transform the IT-BPO industry throughout the 2010s. This will include more effective and affordable computers, software and connectivity solutions which will transform the Indian economy as well as India's interface with the rest of the world. In short, growth in global IT spending and the scope for expanding sourcing will hinge on the development of new business processes and technologies, some with major path breaking implications such as wireless broadband and cloud computing.

Nevertheless, there are also a number of risks, or counter forces, which can have an effect on the trends towards expansion in the scale and scope of sourcing. They include automation and process standardization which can reduce the scope for global and domestic sourcing as well as security and quality concerns. Moreover, weaknesses in infrastructure and real estate development and high cost living coupled with environmental degradation are poised to continue to constrain IT-BPO industry growth.

### ***Finance***

The 2000s was characterized by extraordinarily high profits and rise in stock market evaluation in much of the IT-BPO industry; venture capital industry took off but funding prospects for start ups remained limited; and several Indian IT firms got listed on foreign stock exchanges. The 2010s is likely to imply a number of changes such as moderation in profit margins in much of the IT-BPO industry; venture capital industry and process for funding start ups mature; and the number of Indian IT firms listed on foreign stock exchanges expands further.

### ***Laws and regulations***

Significant advancement in intellectual property right (IPR) and cyber laws were made in the 2000s but most of the judiciary system remains inefficient. Unless the overall efficiency of the judiciary system improves significantly – reducing delays and other weaknesses – it is poised to continue to impede high technology industry and services development.

### ***Industrial organization, clustering and networks***

The scenarios of growth in exports and the domestic market coupled with cross cutting human resource, technological and financial developments will imply a major transformation in industrial organization.

*Diversification in both export and domestic markets.* IT-BPO business companies in India have a proven track record in being successful in responding to change in demand and reinventing themselves. Firms that respond effectively to the global developments will continue to have major opportunities to increase exports to a wide range of countries, to expand existing business and to develop new business segments both in local and external markets.

The 2010s will entail a qualitative shift in terms of Indian IT-BPO firms strengthening their presence on a worldwide basis, including an expanded role of subsidiaries and M&A activity in the America, Europe as well as Asia and other markets. Also, foreign companies are poised to

increasingly use India as a platform to serve the global market. Moreover, foreign as well as larger Indian firms will become increasingly diversified in service offering and in terms of focusing of wide range of export and domestic market growth opportunities simultaneously. This illustrates the increasing importance of dynamic interface between the domestic and external markets.

*Organic and other growth.* The extent of foreign and domestic investment and constructive engagement with corporate and other networks — IT-BPO industry related firm level strategic alliances, international venture capital, management consultancy, engineering and other technology & knowledge intensive firms, education and research institutions and other networks — will be a key aspect which will determine the scale and scope of IT-BPO industry growth in India in the 2010s. The medium growth scenario, and even more so the high growth scenario, assume a considerable growth in this type of activity both among foreign and Indian firms. The high growth assumption, in particular, assumes substantive scaling up of Indian firms acquisitions of foreign owned firms. Hence, inorganic growth will become increasingly significant. A combination of robust organic and inorganic growth can pave the way for the previously unthinkable, namely that Indian IT-BPO companies eventually will be able to match today's largest IT-BPO MNCs in worldwide revenue earnings.

*Size and complexity of contracts.* The fact that the operations of IT-BPO companies in India have become sizeable even if compared to companies in industrial economies implies a major shift in terms of the ability to undertake large and more complex contracts. During the 2000s several Indian firms and foreign subsidiaries based in India had acquired the scale of operations, the maturity and competency needed to bid for large and complex contracts in India and internationally. TCS, Infosys, Wipro, IBM, Accenture and others vendors in India began to bid for projects as large as US\$ 1 to 2 billion. Winning a few large contracts will have major implications in terms of the total revenue earnings for the IT-BPO industry in India.

*R&D and innovation.* The trend to expand R&D related offshoring to developing countries such as India and China gained momentum in the 2000s and is likely to continue in the 2010s. It included rapid expansion of MNCs offshoring of R&D to India to their subsidiaries as well as by means of sourcing to Indian companies. With some notable exemptions such as software product development and pharmaceuticals firms most Indian companies do, however, have little incentives to invest in R&D which entails major investments and risks. Also, they have little motivation to make R&D a priority as long as there are ample opportunities to expand in other areas. In the long run, a larger number of Indian firms are, however, poised to be significant innovators in terms of business processes as well as technology. Also, developments of the domestic market offer opportunities for both larger as smaller Indian firms to focus on innovation which eventually can service not only local requirements but also provide export opportunities.

*Industrial clusters and hubs.* The industrial expansion and transformation outlined above will require substantive investment in energy, transportation system, real estate as well as telecom and Internet connectivity. Moreover, the medium high scenario, and even more so the high growth scenario, will require major expansion of existing IT-BPO industry in India's largest cities and the development of more significant centers in tier 2 and tier 3 cities.

The country needs to improve existing industrial centers and develop new ones. This entails a need to enhance the development of production-oriented industrial centers as well as innovation-oriented centers. Bangalore is India's leading IT industry center in terms of being both a production and innovation-oriented cluster. Nevertheless, the scale and scope of innovation-oriented cluster networks in Bangalore—not to speak of other major Indian IT industry hubs—lag behind the Silicon Valley and many other cluster in advanced industrial economies in terms of cutting edge IT hardware and software product development and higher end IT-related consulting services.

*Networks and the Diaspora.* Rapid rise in the importance of networks among Indian and foreign companies, education and research institutions and the Diaspora has a key feature in the IT based industry development in the 2000s and earlier. The medium, and even more so the high growth scenario, presuppose an increasingly multi-faceted and matured role of networks among Indian and foreign companies, education and research institutions and the Diaspora. Further enhancement in the role of individual and institutional networks is central in developing markets, technical and other competencies within India and internationally.

## **6.6 Building on strengths and tackling weaknesses**

In short, the 2010s imply major opportunities to build on strengths and to tackle weaknesses to achieve continued rapid growth in the IT-BPO industry in India. All scenarios presented here, and the medium and high growth projections, in particular, would apply multipronged growth paths namely:

- Expanding exports as well as the domestic market and that too at both the lower and higher end of the value chain and across a wide range of verticals and geographies.
- Expanding and strengthening quality of the skilled human resource pool at the low, medium as well as at the higher end of technological and management competency.
- Expanding and improving use of existing technology as well as making greater efforts in technological and business process innovation.
- Expanding and improving the scale and scope for production-oriented industrial cluster as well as innovation-oriented clusters or industry hubs.
- Expanding operations of Indian firms in India and internationally; and also foreign owned firms operations in India which target the Indian market or use India as a center to serve the global market.
- Considering effective company strategies for organic as well as inorganic growth and expansion through equity investment as well as firm level strategic alliances.
- Strengthening local, regional, national as well as global networks among Indian and foreign firm, educational institutions and other major stakeholders.

### *Stakeholder response*

In short, global and domestic developments will result in major growth opportunities for the IT-BPO industry in India. This implies major challenges to respond to changes in demand and in being able to compete with, and even more importantly to collaborate with others. High growth

cannot be achieved unless major investments are made in expanding the size and improving the quality of its pool of skilled human resources as noted above. Moreover, it entails major challenges to improve physical infrastructure, the legal and regulatory regime, overall governance and investment climate. Also, it will take concerted long term efforts by the corporate sector and others, including a greater ability to embark on innovative business and technology development ventures. All of this requires appropriate corporate strategy and public policy response (see chapter 7).

Realizing the medium or high growth scenario targets as outlined in the scenarios above implies a need for concerted efforts by a wide range of stakeholders to avail of growth opportunity to be proactive in developing new capacity, and to be effective in tackling factors that constrain growth and transformation in the industry.

## **7. Corporate Strategy and Public Policy Response**

### **7.1 Short and long term response by key stakeholder**

Effective response to the major changes in the global economic environment requires concerted efforts at the international, national, sub-national, firm and individual levels by key local and external stakeholders. Two sets of corporate and governmental responses are required throughout the current global economic slowdown. First, immediate actions aimed at mitigating the impact of crisis period. Secondly, serious attention needs to be given to strategizing and planting seeds that bear fruit in the medium and long term.

Dealing with the current slowdown and paying attention to longer term growth opportunities requires pro-active consistent responses from all principal stakeholders namely government, education and research institutions, industry federations & associations and most of all individual companies. This applies to India as well as abroad as the interface between the local and the international context is central to the development of the IT-BPO sector.

Furthermore, when the government, the corporate sector and others formulate ideas on what they would like to do, it is essential that the ideas are well-grounded in terms of what is doable. Also, there has to be a clear sense of and commitment to prioritization. It is relatively easy to make suggestions. It is, indeed, essential to understand weakness and strengths of the past as well as further opportunities and risks. Such understanding may result in action agenda's and specific project proposals. This is however, not enough. It is equally and other even more important to have a sense of what is implementable and what the priority order should be.

### **7.2 Corporate response and strategy**

The burden to respond effectively to the global slowdown in IT demand primarily falls on the IT-industry itself and the corporate end users. The immediate response typically comprises of cost cutting and renewed marketing measures. Such efforts are, however, typically not enough. In addition, it is essential to consider special measures to improve productivity and foster long term growth prospects, the latter including development of “new” business segments and markets; and also investing in new technology solutions as well as business processes.

Given the heterogeneity of the industry, there is, however, no one “model” for corporate strategy. First of all, there are major differences between smaller and large Indian firms as well as between Indian firms and the large foreign MNCs. Smaller firms often have few business lines and clients and limited access to capital – hence they can be particularly vulnerable to decline in



demand. A start up differs much from a well established player. Foreign MNCs are not comparable to Indian firms as they are typically well ahead in the scale and scope of their worldwide operations and technological innovation capabilities. Also, American firms, in particular, tend to be more disposed to decide on large scale retrenchment of staff during slow growth periods, which most India IT-BPO majors so far have been rather reluctant to do so. Also, there are significant differences amongst Indian firms such as the relative importance placed on low end versus high end work and the emphasis on the external versus the domestic market.

Nevertheless, many Indian IT-BPO companies face common challenges in responding to the global slowdown and the challenges regarding growth in the 2010s and beyond, one example being the scope to improve productivity, quality, innovation<sup>53</sup> and diversification into “new” business segments and geographic markets. It can be argued that the global slowdown presents a good opportunity to tackle quality issues and other weaknesses in their organization which were partly brushed side during the period of hyper growth. During time of rapid growth certain business opportunities were overlooked due to capacity constraints. Also, rapid growth coupled with high profit margins dampened incentives to minimize wasteful spending and other weaknesses. In overheated times it was hard to find and retain skilled and experienced professionals and this induced need for highlighting the importance of training, education and R&D. During the business downturn times, the focus shifted to concerns regarding maintaining revenue levels and to cost cutting rather than issues relating to human resources shortages. The slowdown period did, however, point to opportunities to develop new business and to invest in training, education, R&D and innovation to improve productivity and enhance corporate governance further growth prospects.<sup>54</sup>

In short, the current economic downturn has accentuated the need for forceful action by IT-BPO firms in a wide range of areas, such as:<sup>55</sup>

- Ensuring that overall management and strategies are adept in dealing with immediate as well as medium and long term issues. Adjusting organization strategy so that it is capable of coupling with a more volatile business environment. If required, execution capacity and governance is to be strengthened appropriately.
- Ensuring financial viability and credibility through high degree of accountability and transparency, access to credit and planning for alternative financial scenarios.
- Improving on effectiveness and efficiency. Adopting cost cutting measures, but not indiscriminately. Focus on measures aimed at long term productivity gains.
- Developing “new” geographic markets internationally and locally and implementing differentiated strategy to develop new vertical and horizontal

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<sup>53</sup> Innovation is defined as implementation of a product, process or method that is new to a given firm rather than necessarily new to the world. This broad definition includes adaptation and absorption of existing technologies from abroad (Brahmbhatt et al 2007).

<sup>54</sup> For many business overall long term business strategy has typically not been affected by the global economic slowdown from September 2008 onwards – they still need to deliver competitive products/services, innovate and do what the customer wants. The slowdown did, however, imply a need to reassess the overall business strategy and most importantly to change tactics and executions i.e. pricing, more support for training, some rationalization.

<sup>55</sup> This section is based on Nasscom’s *Strategic Review 2009*, presentations given by industry leaders at the Nasscom 2009 Leadership Forum, Mumbai February 2009, as well as numerous articles published in the trade journals such as Dataquest and interviews with industry managers and equity market analysts.

business segments at the lower and higher end of the value chain as per what is germane to a particular firm.

- Giving priority to human resource as the principal capital assets in the short and long term. Strong efforts are needed to ensure quality recruitment not only from Indian education institutions but also in terms of Indian and non-Indian persons educated internationally. Moreover, concerted efforts are needed to ensure quality in development in-house training or other means of continued education. Also, it is often advisable to avoid quick decisions to retrench; ensuring that high caliber technical and management talent is retained; and intensifying quality training effort in house and in partnerships with others.
- Giving priority to innovation and R&D related efforts, both in terms of new technological solutions and business models that are innovative and transformative in nature. Making more effective use of existing foreign and domestic technology and acquiring more foreign technology at favorable terms as foreign firms are bargaining for more favorable sourcing arrangement terms — Indian parties can also bargain for more favorable terms in acquiring technology.
- Merging with or acquiring foreign companies at favorable terms. Fostering strategic alliance and tapping into knowledge networks worldwide.

According to Nasscom, the IT-BPO industry has major opportunities to capture new business opportunities even during the time of global slowdown. Taking advantage of this would, however, require major challenges for the IT-BPO industry in India, namely:

“The Indian IT-BPO industry must work with clients to enhance the cost value proposition. This would involve additional investments in building capability across employees, domain knowledge, functional and technical skills, and an increase in their global delivery footprint. While Indian IT-BPO firms are adept in driving efficiencies through automation and process improvements, the companies need to understand the fact that in the medium to long term, they would need to deliver a more significant impact on client businesses, through solutions that are innovative and transformative in nature. These enhanced, innovative solutions will also enable companies to access new market segments, delivering new service lines, and leading to the creation of in-house IP in emerging technology areas. Leading players within the Indian IT-BPO industry have already started to make investments in increasing their innovation portfolio, and these efforts need to be replicated by the entire industry to reap further benefits. Additionally, firms need to focus on increasing their levels of customer intimacy, as well as developing the brand value of their organizations through product and service differentiation” (Nasscom 2009a).

### 7.3 Public policy response

As in the case of the corporate sector, the government also needs to distinguish between short and long term issues. Nurturing IT-BPO development in the public and corporate sector and the civic society can serve as a catalyst to stimulate economic development in the short as well as long term. This should be applied to both local economy as well as its interface with the international economy. The central and state level governments may consider improving existing schemes or supplementing them with new special measures covering issues such as:<sup>56</sup>

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<sup>56</sup> This section is based on Nasscom’s *Strategic Review 2009*, presentations given by industry leaders at the Nasscom 2009 Leadership Forum, Mumbai February 2009, as well as numerous articles published in the trade journals such as Dataquest, reports released by the Indian Ministry of Information Technology, and interviews with government officials and corporate sector managers.

- Fostering domestic demand for IT-BPO in government as well as the use of IT in the corporate sector and among households.
- Promoting exports through promotion and incentives; and responding appropriately to protectionism pressures. Fostering of new convergence between technology and trade policy.
- Improving the overall business environment for Indian and foreign firms including large companies and SMEs. Considering Nasscom's demand to ensure a long term extension of tax incentives under the Software Technology Park India (STPI) scheme as well and as further efforts to remove of procedural obstacles—service tax refunds, taxation of software products, and clarity around transfer pricing norms that are applicable to foreign companies (Nasscom 2009a).
- Improving public sector governance and productivity.
- Fostering government and private-public partnership (PPP) schemes to develop higher education and R&D by making more funds available and also to make concerted efforts to improve cost-effectiveness and quality.
- Accelerating plans to develop infrastructure, industrial parks and special economic zones including schemes that can foster IT-BPO industry development, not only in major metros but also in tier 2 and 3 cities.
- Improving access to finance such as export finance schemes, private equity and public sector bank including special measures to foster the development of venture capital industry, smaller companies and start-ups.
- Lessening disruptions caused by companies wanting to reduce staff by facilitating training and creation of new jobs; to ensure that students (in India as well as Indian students returning home from abroad) get meaningful employment or training opportunities by means of schemes especially dedicated for this purpose.
- Implementing special measures to foster not only large output but also higher quality in graduate and postgraduate education and training and to nurture R&D effort in the private sector in terms of public-private partnerships. Swift implementation of action to improve quality of education and research institutions by ensuring appropriate accreditation and recruitment of well qualified faculty, the latter including considering special measures to provide professional jobs for Indian students and Diaspora, some of whom may be forced to return to India due to lack of opportunities to stay abroad.

There appears to be considerable concurrence among large Indian IT corporate leaders in terms of what they expect from and what they would like the Indian government to do. However, it apparent that the domestic oriented companies are more focused measure that can boost local demand, such as e-government project, while export-oriented firms typically have a broader global agenda and are keen to benefit from export tax incentives such as those given in the

Software Technology Parks of India (STPI). Nevertheless, there is agreement among larger domestic and export oriented firms regarding the main areas in which they would like the government to help the industry, namely extension of export tax incentive and credit schemes, improvement in the education system, deployment of e-government, accelerated development of telecom infrastructure such as broadband and WiMax (box 7.1).

**Box 7.1 What Government will and should do: IT industry CEO Survey of large IT firms, India**

<b>Question 1: Do you think India's liberal economic policies will continue, even with much of the blame for the economic chaos in the west going to over-liberalized markets?</b>	<b>Yes answers</b>
Yes, it will continue as before	18
It will depend on the politicians who get the key economic portfolios	2
It will depend on which party/alliance comes to power	1

<b>Question 2: What do you think is the single-most important issue before the government?</b>	<b>Yes answers</b>
Creating better infrastructure	15
Handling the slowdown	5
National security	5
Handling the slowdown	5
Creating a stronger Indian industry	3

<b>Question 3: What are the specific policy thrusts that you expect from the government that will help the IT industry?</b>	<b>Yes answers</b>
Extension of STPI scheme and other sops to boost recession-hit exports industry	100
Intervention in education system to sustain India's competitive advantage in talent supply	87
Deployment of IT in all governance areas including citizen services, security and inter governmental functions	82
Acceleration of deployment of telecom infrastructure such as broadband and WiMax	72
Duty incentives for growing domestic IT market	64
Take necessary policy steps to boost local IT manufacturing	64
Creation of legislation to tackle cyber crime and cyber terrorism	30

*Source:* Adopted from Dataquest June 20, 2009.

## 7.4 Higher education and research institutions

The success of the IT-BPO industry is determined by the availability of skilled and experienced human resources. India's principle comparative advantage in developing the IT-BPO sector is its large pool of developable manpower. It is, however, also well acknowledged that the country has multiple challenges in meeting demand to expand training and education but also to address long standing management and quality issues. The higher education system and professional training for the IT-BPO sectors are characterized by having only few quality institutions while the vast majority only offers low quality programs (Bashant R. and P. Partha Mukhopadhyay 2009).

All major stakeholders, that is central and state level government, academic and other education, training and R&D institutions and the private sector industry need to enhance their effort to improve talent availability and quality of manpower needed in the IT-BPO sector. The role of academia is critical. Specific initiatives like faculty development programs, upgrading the curriculum, setting up research labs, launching internship programs and industry-academia collaboration can help to bridge the employable talent gap (Nasscom 2009a).

A number of government and public private partnership initiative aimed at strengthen India's higher education system. This includes initiatives spearhead by the National Knowledge Commission (NKC), and the Planning Commission, the Ministry of Human Resource Development, the Department of Information Technology, Nasscom, and in 2009 by the report of the Yashpal Committee and the creation of a National Commission for Higher Education and Research (NCHER) and others initiatives.<sup>57</sup>

## **7.5 Industry associations, the Diaspora and other networks**

IT industry specific Industry associations such as the National Association of Software and Services Companies (Nasscom) and Manufacturers' Association for Information Technology (MAIT) which a focus on the IT hardware industry continues to have a major role in promoting IT-related industry development. In addition it should be noted that economic wide organization such as Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI) also has a keen interest in IT-BPO industry related developments.

By and large major industry association and federations have been agreeing on principal IT-BPO industry related issues. It should, however, be noted that there are some variations in terms of emphasis, .e.g. the interests of the IT-BPO industry firms versus various end user and the wider societal agenda of IT-related use for long term social and economic development. This is reflected in the focus of industry association work in which Nasscom's principal role in to promote interested to the IT-BPO services industry firms and MAIT the IT hardware sector while industry federations such as CII and FICCI gives much attention to the broader issues relating to the use of IT-related technology in the economy as whole.

In its *Strategic Review 2009*, Nasscom envisaged its role as follows:

The industry and Nasscom need to step up their engagement with all stakeholders—the government, customers, employees, academia and society to realize the full potential of the sector. Efforts towards enhancing information and data security; participation in public private initiatives in technology led development; proactively working with academia to address quality of education and building an integrated delivery model in leading cities alongside tier 2/3 locations are some of the critical imperatives for the industry and Nasscom. Expansion of new markets will require different strategies and focus from the industry players. Nasscom in partnership with the industry should look to build institutional relationships with appropriate stakeholders in these markets. In the developed regions, the industry will need to take a

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<sup>57</sup> To address the increasing skill challenges of the Indian IT industry and growth of the domestic IT market, the central government Ministry of Human Resource Development (MHRD), Government of India has intends to establish twenty Indian Institutes of Information Technology (IIIT) during the 11th Five Year Plan period, on a public private partnership basis. The partners in establishing the IIITs would be the MHRD and state level governments and industry firms. Nasscom was entrusted by MHRD to prepare the Model Detailed Project Report for the IIIT initiative.

The NKC recommendations on higher education were submitted to the Prime Minister on 29th November 2006. The report focused on the need for excellence in the system, expansion of the higher education sector in the country, and providing access to higher education for larger numbers of students Some of the issues that have been highlighted by the National Knowledge Commission in its report to the Prime Minister are: systemic issues like quantity and quality of higher education, regulatory framework, access to higher education, financing of higher education, institutional architecture of universities, governance and administration, content in terms of curriculum and examinations, faculty and research (NKC 2006)

broader leadership role and drive global sourcing to the next level of customers. Additionally, Nasscom and the industry need to build a communications campaign that will highlight India's changing value proposition—from cost and labor arbitrage, to a secure destination that excels in delivery quality and flexibility, and innovative solutions” (Nasscom 2009a).

Furthermore, it is essential to foster ties with international consulting, business management, market intelligence, venture capital firm, think tanks and other knowledge network. Also, it should be noted that the global economic slowdown has resulted in the fact that many Indian students and professionals abroad are being forced to leave USA and Europe due to lack of professional opportunities. If a significant number of these persons choose to return to India it could provide a special boost to higher education and the IT-BPO industry development in India (Wadhwa et al 2009).

## 8. Concluding Remarks

### 8.1 International and comparative perspectives: Potential and lessons

#### *The Asian perspective: India and China's rise as IT industry powers*

The world economic output and international trade displayed considerable growth in the decades which followed the end of World War II. This development was also reflected in the growth of ICT-related spending, global sourcing of IT hardware and subsequently also IT services. The global slowdown from September 2008 onwards can be viewed as a temporary phase which displayed significant differences in terms of how it affected different countries and economic sectors. Nevertheless it represented a serious disruption in economic development as a worldwide scale and across all major industry, the IT based industries, that is, especially hardware and software product companies, being no exception.

It is hard to predict how the current global slowdown will evolve and what its long term implications will be. It will have wide ranging implications not only in terms of economic growth but also in the social and political developments. Many argue that the slowdown has given impetus to change that can result in the emergence of a new world order. This may, among other things, imply a further acceleration of India's and China's rise as regional and global economic and technological powers.

It is commonly agreed that China and India are likely to continue to have a strong economic growth performance. Reports published by the Asian Development Bank, IMF, OECD, the World Bank and others on the state of the global economy in 2009 all pointed to the fact that China and India are the only large economies which have been able to sustain high GDP growth rates in 2008 and 2009, although not as high as prior to September 2008. IMF's October 2009 projections show India and China as continuing to top the world in GDP growth performance. IMF forecasted that India would grow at 5.4 percent in 2009 and 6.4 percent in 2010 while the corresponding figures for China are 8.5 percent and 9.0 percent. This implies that China would continue to outperform India (IMF 2009e).

According to the Global Development and Finance report released by the World Bank in June 2009, India is projected to grow at 5.9 percent in 2009, 8.1 percent in 2010 and 8.5 percent in 2011. This is to be compared to 6.5 percent, 7.5 percent and 8.5 percent for China in the corresponding calendar years (World Bank 2009b). This projection implies that the Indian and Chinese economy would grow at similar rates, that is, at least in terms of GDP growth rates. It should, however, be noted the China's economy is poised to continue to be considerably larger

than the India in terms of GDP and foreign trade in the foreseeable future. As of 2008 India's share of world exports was only 1.1 percent compared to 9.1 percent for China (IMF, IFS April 2009).

In short, the fact that China as well as India and several other Asian economies are poised to continue to achieve high economic growth rates points to the emergence of a world economic order in which Asia becomes increasingly important. One of the consequences of the global economic slowdown could be the acceleration of Asia's rise as an economic power center and the greater importance of intra-Asian trade.

The Asian economy's dependency on the US export market is likely to decline while intra-Asian trade gains in importance. India's trade and investment relationships with China and other Asian economies and vice versa are likely to continue to gain importance.<sup>58</sup> The slowdown in the United States may result in China's focusing more of its energy to tap business opportunities in India and other Asian economies. At the same time Indian firms are likely to intensify their efforts to penetrate China and other emerging markets.

One of the outcomes of the global slowdown from September 2008 onwards may well be that the IT-BPO industry in India and other Asian countries will be increasingly focusing on domestic markets and intra-Asian trade. Asian markets are already rivaling Europe or North America in terms of the market size and Asian markets are poised to experience rapid growth in IT-BPO spending in the next 10 years and beyond.

The rising importance of Asia, China and India in particular, is clearly manifested in IT-related spending, trade and industrial developments. The robust economic growth in India and China implies that much of the incremental growth in the world economy, including IT-related spending, will emerge from India and China. Asia, and India and China in particular, will be mega markets for ICT-related hardware and services and also world leaders in a wide range of ICT industry related exports.

The share of developing Asia in world exports of ICT products increased from 25 percent in 1992 to 50 percent in 2006, that is, East Asia excluding Japan. China alone accounted for 24 percent of total world ICT exports in 2006 — up from 3 percent in 1992 — followed by South Korea and Malaysia, each accounting for 6–7 percent. Electrical goods — another major component of manufactured exports — from China recorded an impressive increase to 36 percent of world trade in 2006 from 16 percent in 1992. The share of China in world exports of electrical goods also jumped sharply during the same period from 4 percent to 21 percent, while the shares of South Korea and Taiwan remained relatively stable at 4 percent (ADB 2009b).

Furthermore, the rising role of Asia is reflected in the fact that China and India are the world's largest markets in terms of wireless mobile phone subscribers. China and the United States are the largest markets for personal computers and in terms of the numbers Internet users, and India is expected to become number three during the 2010s.

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<sup>58</sup> China's share of India's total foreign trade rose from 4.9 percent to 9.2 percent in the FY2003-04 to FY2007-08 period (Government of India 2009a).



The number of Internet users worldwide is expected to reach 2.2 billion by 2013 compared to 1.5 billion users in 2009, that is, a 45 percent increase. China is projected to have the largest online population, well ahead of the United States, while India is expected to have the third largest online population in the world by 2013 according to Forrester Research. Also it is forecasted that Asia will represent 43 percent of the world's online population by 2013, up from 38 percent in 2008. Beyond China and India, other Asian countries with fast growing Internet audiences include Indonesia, the Philippines and Pakistan, while growth will be slower in mature economies such as Japan and South Korea. The United States and Canada, in contrast, will see slower growth, and their share of the worldwide populace will shrink to 13 percent compared to 17 percent in 2008. Europe, like North America, will see its percentage of the worldwide Internet population decrease to 22 percent from 26 percent in the 2008 to 2013 period (Forrester July 23 2009).

Moreover, both India and China has developed a sizeable IT software and service industry. India has emerged at the world leader in terms of a being a principal destination for offshoring of IT-BPO services. The size of China's IT software and services industry is comparable to that of India's but unlike the case of India the Chinese industry is primarily focusing on the domestic market. Moreover, as noted above China and its East Asian neighbors, is dominating the world in terms of production and exports of IT-related hardware. Finally, India, China and other East Asian countries have ambitions to be leaders in IT-related innovation.

In short, the facts noted above point to that India and East Asia together are poised to be increasingly central role in worldwide IT-related developments. Also, it should be noted that the Chinese and Indian IT industry have much scope to collaborate, a key example of this being the fact that more than 90 percent of Indian IT hardware imports originate for China and Taiwan (China) and that Indian IT software & services and BPO firms have established significant operations in China.

Currently the United States followed by China and India are the leaders in terms of having the largest number of persons employed in the IT-BPO sector. Both China and India are, however, poised to overtake the United States in terms of numbers employed in the sector in the 2010s. The value added per employee would, however, continue to be significantly lower in India as well as China in the foreseeable future, that is, if compared to advanced industrial economies. Nevertheless the absolute number of persons working at the higher end of the value chain would multiply several times indicating that India and China will play increasingly important roles not only in terms of IT industry related production but also innovation.

### ***How does India differ?***

How does India compare with other countries in terms of the past experiences as well as the near and long term prospects for IT industry development?

First of all, India (and China) differs from other countries in terms of the size of the population. The extraordinarily large population can be seen as a major difficulty as well as potential strength. Also, while India is a fast growing economy it is characterized by uneven development. Much of the growth in the Indian economic growth has been concentrated to a few states and urban areas. Leading states such as Maharashtra and Gujarat, in particular, accounted for close to

48 percent of India's total exports in FY2007-08 (Government of India 2009a). The concentration of export to a few areas is reflected in the fact that about 95 percent of India's total IT-BPO industry export comes from seven large cities: Bangalore, the Delhi-NCR area, Chennai, Hyderabad, Kolkata, Mumbai and Pune (Government of India 2009c). As of 2008, India's foreign trade-to-GDP ratio was 41 percent. India's overall degree of dependency on foreign investment and exports of manufacturing goods was, however, still low compared to most middle-income countries in East Asia and elsewhere. Most of India's population is poor and lives in rural areas where the impact of the slowdown in the global economy has been significantly less than in higher income urban areas.

Secondly, while India has the largest population in the world, next to China, it is much behind China in terms of the size of its foreign trade, and the overall size of the domestic market as well as per capita income levels, health indicators, literacy and infrastructure development. Also, the Chinese economy has a greater degree of state control both at national and sub-national levels, including state corporations. While China had a thriving private sector prior to the communist revolution in 1949 this sector development was thwarted by the communist revolution. In contrast, the private enterprise sector is more developed in India than in the overseas Chinese community.

Compared to the more export-oriented economies in East Asia and elsewhere, India has been less vulnerable to the global economic slowdown. The reasons for this include the low risk exposure and stability in most of the Indian banking system, a comparatively low dependency on exports of manufacturing industry goods coupled with the size of its developable domestic market and its overall economic and social transformation momentum.

Thirdly, there are several specific differences between India and other countries in terms of the IT-BPO industry development. In contrast to what was typical in advanced industrial economies much of the growth momentum in the IT-BPO industry in India early on came for the offshoring business — that is, to provide mostly low end services to the advanced industrial countries — rather than primarily focusing on the domestic market. Hence, the industrial organization and corporate strategic outlook has been rather different among Indian IT firm if compared to what has been typical of most North American and European companies.

India stands out as a major success story in developing a sizeable IT-BPO industry over the past decades. It was an early starter among developing countries in developing an export-oriented IT based services industry and is today a prime destination for offshoring of IT-BPO services. This development has been spearheaded by both foreign and Indian firms. While quickly catching up, even the largest Indian IT and BPO companies are, however, unable to match major foreign MNCs in the scale and scope of their operations. But, except for China, no country can rival India in terms of the size of its developable human resource pool.

India has a very large export-oriented software and ITeS industry – it is, indeed, the leader of this business space among developing countries. In contrast, the IT industry in South Korea and Taiwan (China), for example, has been more heavily focused on electronics and ICT hardware, which has proved to make them more vulnerable to short term up and down swings in external demand. India, however, lags behind East Asian and other emerging market economies in the development of its domestic ICT infrastructure as well as in the use of Internet, computers,

software products and IT services. Although expanding, India continues to trail behind in telephone, Internet connectivity and computer penetration on a per capita basis.

There are other fundamental differences between Asian countries in IT-BPO industry growth trajectories as well in the role of the government, foreign and indigenous firms and other stakeholders in this development. India differs from China in that its private sector, including a strong indigenous entrepreneurship class, has played a relatively more important role than public enterprises and concerted state led IT based development efforts in the IT industry development. The government has been favorable to industrial development in India (and other countries), but the Chinese government (and several other East Asian governments) has generally had a more pivotal role in the development of IT and other high technology industries as compared to the case of India. Generally, the Chinese have done better in terms of rapid implementation of government-led infrastructure, education and R&D and industrial development schemes. An example of this is rapid expansion of the university system and special economic zones and high technology industrial parks. Indian effort in these fields has typically been less substantive or slower. While China appears capable of quantum leaps India's progress has for most part been more gradual.

The Indian government played a critical role in terms of early investment in elite technical education institutions and later also invested in software technology parks' infrastructure and provided special tax incentives for the export of IT software and services, engineering services included. The Indian case is, however, to a large extent a story of private sector led industrial expansion comprising of both Indian and foreign firms. This development was "enabled" by the access to a large pool of English language speaking technical and entrepreneurial human resource pool coupled with a strong external demand. Furthermore, individual industry champions, the Indian research community, the Diaspora, and foreign consulting firms such as McKinsey & Company, and most importantly Nasscom, the industry association, all played central roles in providing visions, technological and business development intelligence, access to high technology industry related networks and in lobbying government policy makers (Mitra 2006 and 2009c).

Finally, it should be noted that countries which have been severely affected by the current slowdown in global ICT spending, namely China, South Korea and Taiwan (China) — all of which are major exporters of electronics and IT hardware — have introduced crisis measures in which special attention is being given to the IT and other high technology sectors. Many export-oriented hardware companies in East Asian countries are receiving special government assistance to survive the current sharp drop in demand. In contrast, most major software and BPO firms in India have not considered themselves needy of major government bailout programs. The Indian government did not consider it necessary to decide on major new measures directed at promoting the ICT-BPO industry growth during the dot-com investment boom burst 2000-01 and the global economic slowdown in 2008 and 2009. Hence, the burden to take appropriate action in response to fluctuations in demand continued to rest with individual companies.

### ***Early versus later starters***

India's success in IT-BPO industry development ensues from its early development of a large pool of technical, managerial and entrepreneurial human resources coupled with a strong external demand pull from the late 1980s and onwards. These circumstances gave it "first mover advantages" in developing an export-oriented IT based service industry (Mitra 2009c. This has been followed by the entry of a large number of other countries into the IT-BPO service offshoring business — they are the "later starters" (that is if compared to India) such as China, the Philippines, Malaysia, Sri Lanka, South Africa, Egypt, Mexico and many more.<sup>59</sup>

The rapid growth of the IT-BPO industry in the Philippines in the 2000's, including the current global economic slowdown period, points to the scope for rapid growth in the offshore service delivery from others than India. In the Philippines most of the growth has occurred at the lower end service provision arena, call centers in particular. The country does, however, have considerable scope to also develop a sizeable IT services industry and to move up the value added chain in IT services and BPO.

In sum, the long term growth prospects for the IT-BPO industry are considerable not only for early starters such as India but also for a wide range of other emerging market economies both in terms of severing domestic market requirement and tapping in to prospects to expand the scale and scope of the offshoring business. As the global offshoring business is poised to grow, there is room for a large number of countries to develop sizeable IT-BPO services industry not only to serve local demand but export services. In contrast, the hardware sector — an industry often characterized by need for large scale of production, major fixed capital requirements and the well functioning logistics and supply chains — is likely to continue to be rather concentrated to a more limited number of countries or production centers.

### ***Lessons from different sets of experiences***

India's IT-BPO industry development represents a wide set of experiences and offers lessons spanning different phases of development (box 8.1). Moreover, as the prime destination for offshoring of IT-BPO services, policymakers and corporate decision makers in both advanced industrial and developing countries are currently keen to understand how the IT-BPO industry in India will be evolving in the near and long term.

An analysis of the IT-BPO industry's historical record and its response to the current global economic slowdown illustrates a rich set of experiences from which both Indian and foreign stakeholders can learn wherein how to respond to opportunities and challenges. However, there is no one "model" or strategy in responding to the economic slowdown at the national, industry or firm level. There are different sets of experiences rather than one "model" for business organization, public policy and corporate strategy. Every country, institution and individual has

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<sup>59</sup> Countries such as India, China and the Philippines which already have a solid footing in the IT-BPO business may consolidate the strong position in the global offshoring business during the period of global economic slowdown 2008-2009. It may be harder for "late starters" to enter the offshoring business due to the contraction in global IT-BPO spending that is, compared to prior to September 2008. It should, however, be noted that Gartner, Forrester, McKinsey and others analyst and consulting firms continue to predicted that India's share of the total IT-BPO business eventually will decline as other emerging market develop their comparative advantage in this business.

their own set of experiences and circumstances. What may be applicable for one industry or institution typically differs considerably from what is relevant to other sectors or organizations. This is illustrated by the heterogeneous nature of the IT-BPO business context in India which has resulted in diversity in the corporate sector in terms of scale and scope of companies operations and their strategies for the near and long term.

In conclusion, the corporate and public policy implications for the IT-BPO sector outlined in earlier sections of this paper are, broadly speaking, relevant for other geographies as well. Nevertheless, there are important differences in terms of the type of business and the country specific conditions. Experiences from India and other parts of the world all can offer lessons for others, but while there is scope to learn from others' experiences, each situation has its own peculiarities. There is no single approach (or one-size-fits-all model) to IT and ITeS industry development, be it at the national, industry, or individual firm level. Each country, sector, and firm needs to develop approaches that are relevant to the local and global settings at any given time.

**Box 8.1 India's IT-BPO industry development experiences and its relevance to others**

Twelve areas of special importance for IT software & services and ITeS-BPO industry development as illustrated by the Indian experience are as follows:

1. Swift response to change in technology and market conditions is key. Timely and effective response to new demand and competitiveness conditions is key as illustrated by local IT-BPO industry growth opportunities in a wide range of vertical and horizontal market segments and geographies. There should be emphasis on developing both local and foreign markets, the latter including an especially swift response to take advantage of both onsite and offshore sourcing.
2. The investment climate needs to be perceived as sound and stable by indigenous firms and foreign firms. It is essential to foster foreign and local entrepreneurship simultaneously.
3. MNCs, international consulting firms, education and other foreign network interfacing with indigenous firms, higher education, R&D, or other institutions typically has a key role in the development of IT-BPO industries. Attracting foreign investment and developing strategic alliances or other forms of international collaboration are vital.
4. A country's Diaspora can have an especially pivotal role with members providing advice to local politicians and industry leaders and serving as mentors or role models.
5. Multiple effective avenues for financing are important, including angel investors as well as venture capital with capacity not only to provide finance but also advice and mentoring.
6. Local and international workforce mobility and flexibility in adjusting employment to changing circumstances are essential.
7. Early, continuous, and quality efforts in education and training must be a core and principal priority to all stakeholders concerned.
8. Quality assurance and international certification are essential factors to boost quality and marketing credibility.
9. Coherent efforts are needed to develop industrial parks or hubs through partnerships.
10. Strong, centrally unified industrial organizations can provide growth vision, lobby for the industry, brand the industry internationally, and provide its members and the broader public market with intelligence and a wide range of awareness-building activities – all of which get make a major difference.
11. Private-public partnership is needed for industrial park development, ICT infrastructure and human resource development, visions and branding, and legal and regulatory reform. These partnerships and international collaboration are central in formulating and implementing policy reforms and investment projects.
12. National and sub-national governments should take on multiple roles in education, telecom, e-government, and other public sector investment initiatives, but the major focus of policymakers can be to act as facilitators for private sector industry development by providing a generally sound investment including appropriate legal and regulatory frameworks, fiscal, and other incentives.

*Source:* The author.

## **8.2 Industry growth trajectory synopsis: the 2000s and the 2010s compared**

### ***Industry transformation in the 2000s and 2010s***

IT-related industry in India went through a radical transformation in the decades of the 1990s and the 2000s and is poised to be reshaped again in the 2010s. The deceleration in global demand for IT following the global financial crisis in September 2008 and the subsequent economic recovery phase underscored the opportunities and challenges which the IT-related industry will have to deal with in the 2010s. Key features of IT-BPO industry developments in 2000s and outlook for the 2010s are summarized in tables 8.1 and 8.2.

### ***Prior to September 2008***

The IT based services industry in India has experienced more than 20 years of rapid expansion, most of which emanated from exports of IT software and services, and since the 2000s also BPO. The growth record has been impressive throughout times of robust growth in global trade as well as during periods of slowdown in external demand. The industry has a proven track record of being agile and flexible in adopting “new business models” and in venturing into new business segments.

The industry has a long history of expanding its operations both at the lower and higher end of the value added chain and across sector applications. Also it has extended its worldwide reach over a larger number of markets. It does, however, remain vulnerable to rapid change in external demand with a special concern being the high degree of dependency on the offshoring contracts from banking & financial sector and clients in the United Kingdom and United States in particular.

The rapid growth in IT-BPO industry is reflected in its rising shares of GDP, exports and employment of young educated urban youth. Moreover, the IT-BPO industry’s incremental contribution to economic development has been substantial in the 2000s. Even though the IT-BPO sector constitutes a minor part of GDP and an even smaller part of employment, its contribution to GDP growth rate is almost the same as the agricultural sector according to CSO 2008 data (chapter 2).

**Table 8.1 Key IT-BPO industry developments: Growth pattern in the 2000s and the outlook for the 2010s**

	<b>The 2000s (actual)</b>	<b>Outlook for the 2010s (medium growth scenario)</b>
<b>International perspective</b>	<ul style="list-style-type: none"> <li>Global IT spending grows rapidly leaving aside the time of the Internet investment bubble around 2001 and the global economic slowdown in 2008-09. Spending on offshoring grows considerably faster than total worldwide IT spending.</li> <li>Global IT hardware and services market is dominated by North America and Europe but the importance of other regions rises. China and India rival USA are largest telecom markets.</li> <li>India dominates offshoring of IT-BPO services to developing countries but begins to face significant competition from the Philippines and others.</li> </ul>	<ul style="list-style-type: none"> <li>Global IT spending, and especially offshoring, continues to grow significantly thereby offering more business opportunities in India and other locations.</li> <li>The rise of India, China and other Asian economies implies that Asia emerges as the largest market for IT hardware and services.</li> <li>India's share of offshoring of IT-BPO services to developing countries declines further but much of this is offset by accruing inroads into the market of cross-border service provision among developed countries. Also, Indian firms expand exports from India to developing countries and increasingly serve global markets through overseas subsidiaries.</li> </ul>
<b>Overall IT-BPO industry growth</b>	<ul style="list-style-type: none"> <li>The IT-BPO industry in India achieves an average annual growth of 28 percent in the 2000s with export being the prime driver. By the end of 2000s the industry's revenue earnings reaches over US\$ 60 billion while the number of employees reaches over 2 million.</li> <li>IT services dominate the industry but software products and engineering services become significant and the BPO sector takes off.</li> </ul>	<ul style="list-style-type: none"> <li>The average annual growth for the industry is projected at 14 percent with growth rates with domestic market growth rates matching that of exports. By the end of the 2010s the industry revenue reaches US\$ 255 billion while the number employed reaches over 9 million.</li> <li>IT and lower end BPO services continue to dominate the industry but the scale and scope of software products, engineering services and higher end BPO industry segments increases significantly.</li> </ul>
<b>Export markets expansion</b>	<ul style="list-style-type: none"> <li>Considerable expansion in exports but the rates of growth is lower than in the 1990s.</li> <li>USA and UK dominate although considerable inroads are made into other markets as well. Larger Indian firms set targets to build up business networks across all continents.</li> <li>The banking &amp; finance sectors dominate the offshoring business.</li> <li>The offshoring delivery mode becomes well-established and it expands rapidly at the low and medium value added end and also in terms of developmental work.</li> </ul>	<ul style="list-style-type: none"> <li>Considerable expansion in exports but the rates of growth become lower than in the 2000s.</li> <li>Exports continue to be dominated by Anglo-Saxon markets but exports to continental Europe, Asia and other countries grows faster. Several larger Indian firms achieve a truly global reach.</li> <li>Sectors other than banking &amp; finance become increasingly important.</li> <li>The offshoring delivery mode becomes increasingly sophisticated in terms of labor arbitrage as well as competitive advantages based on quality and innovation.</li> </ul>
<b>Domestic market expansion</b>	<ul style="list-style-type: none"> <li>The scale and scope of the domestic market becomes considerably larger and more sophisticated than what it was in the 1990s but the domestic market is still small compared to that of major industrial economies.</li> <li>Banking and finance and e-government clients dominate.</li> <li>Domestic outsourcing becomes significant with telecom leading the way.</li> <li>While growing, PC penetration and Internet use per capita remain limited compared to East Asian countries. Wireless telephony takes off but PC penetration remains dismal except for some sectors in the major cities.</li> </ul>	<ul style="list-style-type: none"> <li>Paradigm shift in terms of the scale and scope of the domestic market. India emerges as one of the world's largest markets of IT-related products and services.</li> <li>Business to sectors other than banking &amp; finance and e-government take off.</li> <li>Domestic outsourcing becomes considerable across a wide range of sectors.</li> <li>Wide scale diffusion of affordable powerful PCs and web-enabled mobiles phone and new software solutions imply a paradigm shift in domestic market for IT and BPO services well beyond major metros.</li> </ul>
<b>Linkages</b>	<ul style="list-style-type: none"> <li>Linkages between export and domestic oriented industry begin to have significant benefits, one principal aspect being that organizational and technical competency gained in the export business is used domestically.</li> <li>Intra-industry linkages among the ICT sectors become significant, one key example being links between the telecom, media and other IT applications. Hardware industry remains comparatively small and imports of hardware and software become considerable.</li> <li>Inter-industry linkages/use of IT across sectors becomes considerable but remains relatively untapped.</li> </ul>	<ul style="list-style-type: none"> <li>Linkages between export and domestic markets mature as competency gained in the export markets is used to a great extent domestically as well as vice versa.</li> <li>Intra-industry linkages among the ICT sectors mature with links between the telecom and other IT applications being a prime example. Hardware industry begins to become more significant but remains comparatively small and hardware import continues to rise.</li> <li>Inter-industry linkages/use of IT the other across other sectors becomes pervasive and more matured.</li> </ul>

Source: The author.



**Table 8.2 Key IT-BPO industry developments: Selected cross cutting issues in the 2000s and the outlook for the 2010s**

	<b>The 2000s (actual)</b>	<b>Outlook for the 2010s (medium growth scenario)</b>
<b>Human resources</b>	<ul style="list-style-type: none"> <li>▪ Rapid growth in employment and shortages fuel wage inflation. Capacity for technical and management training and education expands with uneven quality continuing to be a major concern.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Absolute number of added employees more than triples compared to the 2000s. Availability of increasingly large number of people with technical and managerial skills constrains growth.</li> </ul>
<b>Technology and infrastructure</b>	<ul style="list-style-type: none"> <li>▪ Access to affordable and effective connectivity and computing solutions open a wide range of new business opportunities. Internet and broadband expands but is still limited to few users.</li> <li>▪ Weakness in infrastructure, real estate development and environmental degradation constrain industry growth.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Technology opens up new avenues to industrial expansion but there are also several potentially negative effects of technology developments namely: automation, process standardization and security concerns. Internet and broadband expands considerably but continues to lag behind that of developed countries.</li> <li>▪ Significant but still insufficient progress is made in infrastructure and real estate development but weakness in infrastructure and high cost living coupled with environmental degradation continues to constrain industry growth.</li> </ul>
<b>Finance</b>	<ul style="list-style-type: none"> <li>▪ Extraordinarily high profits and rise in stock market valuation in much of the IT-BPO industry. Venture capital industry takes off but funding prospects for start ups is limited. Several Indian IT firms get listed on foreign stock exchanges.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Moderation in profit margins and rise in stock market valuations Venture capital industry and process for funding start ups matures. The number of Indian IT firms listed on foreign stock exchanges expands further.</li> </ul>
<b>Laws and regulations</b>	<ul style="list-style-type: none"> <li>▪ Significant advancement in IPR and cyber laws but most of the judiciary system remain inefficient.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Further advancement in IPR and cyber laws and attempt are made to improve the overall efficiency of the judiciary system.</li> </ul>
<b>Industrial organization, clustering and networks</b>	<ul style="list-style-type: none"> <li>▪ Indian as well as larger foreign firms expand the scale and scope of operations in India. Indian firms establish a large number of new subsidiaries and partnerships outside India. Organic growth dominates but there is also significant M&amp;A activity.</li> <li>▪ Contract sizes exceeding US\$ 100 millions become common for both Indian and foreign firms operating in India.</li> <li>▪ By the end of the 2000s about ten Indian IT firms have revenues well over US\$ 1 billion. Foreign MNCs export to India and develop their Indian operations into global delivery hub. Offshoring of R&amp;D takes off but original research is still in its nascent stage.</li> <li>▪ Rapid development of industrial centers and that too mostly in major metros; Bangalore develops into as major export-oriented production as well as innovation-oriented cluster.</li> <li>▪ Rapid rise in the importance of networks among Indian and foreign companies, education and research institutions and the Diaspora.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Indian as well as larger and smaller foreign firms expand the scale and scope of operations in India. Indian firms continue to develop their subsidiaries and partnerships outside India. Organic growth dominates but there is also considerable transformational M&amp;A activity.</li> <li>▪ Contract sizes exceeding US\$ 500-1000 millions become common for both Indian and foreign firms operation in India.</li> <li>▪ By the end of the 2000s albeit the largest Indian IT and BPO are able to match the worlds largest MNCs in revenue earning and worldwide reach. The scale and scope of foreign MNC operations in India expands so that India becomes a major center not only in terms of production but also in R&amp;D.</li> <li>▪ Both production and innovation-oriented clusters or industry hubs expand rapidly across the country.</li> <li>▪ Comparatively matured phase of multifaceted role of networks among Indian and foreign companies, education and research institutions and the Diaspora networks.</li> </ul>

Source: The author.

### ***Post September 2008***

The global economic slowdown from September 2008 onwards resulted in a deceleration in the IT-BPO industry growth in India. There was, however, no “collapse” in the export revenues and the impact was moderate in terms of domestic demand for IT-BPO services. While the exports of electronics and ICT hardware from economies like Japan, China, Taiwan (China) and Republic of Korea took a very hard hit the effect on the IT-BPO services sector in India (and the Philippines for example) was comparatively mild. While some IT companies in India experienced a period of slowdown in demand, the magnitude of this slowdown was generally not comparable to that of other export-oriented manufacturing industries and services sector in the country.

In short, much of the IT-BPO industry – not withstanding significant variation by type of firm and business segment has shown strong performance as per revenue growth and profit margins if compared to the IT-BPO sector in advanced industrial economies, the latter being a case in which many both smaller and larger firms typically faced significant decline in revenue earnings. Much of the industry proved to be resilient as illustrated by the fact that most large IT services and BPO firms in India recorded substantial growth in revenue earnings and profits in the later part of 2008 as well as the first half of 2009. Also they appear to be well positioned to continue to perform soundly in the remainder of 2009 and in 2010.

The primary reasons for the comparatively robust performance of the IT-BPO industry are to be sought in fundamental and structural aspects rather than shorter term cyclical swings in global IT spending or exchange rates. The IT-BPO export industry in India has also done well during time when the rupee has appreciated. This and other dimensions point to more long term structural factors driving growth. The continued strong performance – even at a time when global IT spending growth is declining as it did in 2009 and 2001– points to the strong appeal that offshoring of IT-BPO services has not only in times of high economic growth and but also when there is widespread international recession.

As in the past the fundamental basis for robust performance of the IT-related export industry in India after September 2008 continued to be the external demand pull (notwithstanding with lags and with demand declining in some niches) coupled with a swift supply response from vendors with operations in India. More generally, the resilience of trade in IT-BPO services can be explained by the fact that it is a sunrise industry in which offshoring is a key component. Also, the industry includes services such as maintenance of existing systems for which it is hard to reduce spending. The demand for many types of IT-BPO services is typically less elastic than what is the case for software products and hardware software services.

### ***Silver linings and growth momentum***

In India, the export revenue growth pertaining to the IT-BPO industry became more uncertain business as a result of the global economic slowdown. However, on the whole, the IT-BPO services and telecommunication sectors remain as ascending sectors in the Indian economy.

First, while growth in exports of IT services and BPO decelerated the export business retained its resilience. The offshoring delivery “model” has remained an attractive value proposition as it

continues to offer opportunities for cost cutting, access to a wide range of competencies, scalability and other advantages. Revenue continued to grow for major Indian IT-BPO firms from September 2008 onwards.

Secondly, the domestic market continued to be dynamic. After September 2008 there was a slowdown in the domestic sales of IT hardware and standard software packages. This slowdown was, however, temporary and the boom in the mobile telephone services business continued unabated.

Furthermore, the period of moderate growth – rather than presiding years of hyper-growth – gave companies breathing space which many firms used to focus on improving cost-effectiveness and quality and also to invest in training and the development of new business opportunities. Moreover, several major IT-BPO export services companies were cash rich and were in a position to make acquisitions internationally. Also, the global slowdown resulted in many opportunities to acquire foreign technology and expertise at favorable terms.

### ***Growth scenarios for the 2010s***

This study identifies three major growth scenarios for the IT products and services industry and the BPO sector in India for the 2010-2020 period as discussed in detail in chapter 6.

The medium growth scenario appears to be most likely and hence it is viewed as the base line. This scenario assumes a gradual but robust recovery in the global economy and IT spending levels in India. It is, however, hard to forecast global IT spending and sourcing markets. Also, it is hard to predict the implications of the emergence of new technologies, and changes in infrastructure and labor markets. Hence, the wide range in the projected outcomes presented in this study.

All three scenarios point to major transformational expansion in the IT-BPO industry. They project that much of the dynamism in IT-BPO industry development in India will continue to be driven by the offshoring-export business. However, unlike the 1990s the rate of growth in the domestic market may well be at par with or higher than in exports. The size of the domestic market will be substantially larger than in the 2000s. Nevertheless, the actual size of the export business would continue to be several times larger than that of the domestic market.

### ***Building on strengths and tackling weaknesses***

In short, the 2010s imply major opportunities to build on strengths and to tackle weaknesses to achieve continued rapid growth in the IT-BPO industry in India. All scenarios presented here, and the medium and high growth projections, in particular, would apply multipronged growth paths namely:

- Expanding exports as well as the domestic market and that too at both the lower and higher end of the value chain and across a wide range of verticals and geographies.
- Expanding and strengthening quality of the skilled human resource pool at the low, medium as well as at the higher end of technological and management competency.

- Expanding and improving use of existing technology as well as making greater efforts in technological and business process innovation.
- Expanding and improving the scale and scope for production-oriented industrial cluster as well as innovation-oriented clusters or industry hubs.
- Expanding operations of Indian firms in India and internationally; and also foreign owned firms operations in India which target the Indian market or use India as a center to serve the global market.
- Considering effective company strategies for organic as well as inorganic growth and expansion through equity investment as well as firm level strategic alliances.
- Strengthening local, regional, national as well as global networks among Indian and foreign firm, educational institutions and other major stakeholders.

Realizing the medium or high growth scenario targets as outlined in the scenarios above implies a need for concerted efforts by a wide range of stakeholders to avail of growth opportunities to be proactive in developing new capacity, and to be effective in tackling factors that constrain growth and transformation in the industry.

### **8.3 Transformation: Responding to opportunity to expand and innovate**

#### ***Need for wide ranging responses***

Effective response to the major changes in global economic environment requires concerted efforts at the international, national, sub-national, firm and individual levels by key stakeholders. This applies to both local and international stakeholders as the interface between the two is crucial to the industry's development. Two sets of corporate and governmental responses are required throughout the current global economic slowdown. First, immediate actions aimed at mitigating the impact of the crisis. Secondly, serious attention needs to be given to strategizing and planting seeds that bear fruit in the medium and long term. Defensive response such as indiscriminatory cost-cutting will not suffice. It is also essential to focus on offensive measures such as education & training, R&D and development of new business opportunities.

Public policy responses to downswings in business cycles typically focus on monetary and fiscal policies. In the current global economic crisis this has included special measures for the banking and financial sector, boosting domestic demand including infrastructure, welfare spending, tax and interest rate cuts, and bail-outs for manufacturing and other sectors, which are most badly affected. It can, however, be argued that this is not enough. There are a whole range of other measures that need to be considered to stimulate economic activity and facilitate long term sustainable growth. These include legal and regulatory reforms including those that can stimulate SMEs, special efforts in higher education, R&D and innovation focusing on environment/green-tech, ICT and other technologies that are essential to ensure sustainable economic development.

The burden to respond effectively to the global slowdown in IT demand primarily falls on the IT-industry itself and the corporate end users. The immediate response typically comprises of cost cutting and renewed marketing measures. Such efforts are, however, typically not enough. In addition it is essential to consider special measures to improve productivity and foster long term

growth prospects, the latter including development of “new” business segments and markets; and also investing in new technology solutions as well as business processes.

Moreover, government policies and corporate strategies need to fully acknowledge the heterogeneous nature of the IT-BPO industry in India. The priorities and requirements within the industry differs depending on business lines, one example being the radically different context facing a low end service provider as compared to a high end software product developer. Also, it typically differs depending on the size of a firm and whether the company primarily focuses on exports or the domestic market.

Furthermore, it is essential that the government, the corporate sector or others are active in formulating ideas and specific plans and projects regarding what should be done. However, such ideas and projects must be well grounded in terms of what is doable. Also, there has to be a clear sense of and commitment to prioritization.

### ***Turning crisis into opportunity***

The global economic slowdowns such as the dot-com bubble burst in the early 2000s and even more so the downturn from September 2008 onwards implied a contraction or slowdown in trade, investment, incomes and employment growth in most countries and industries. These developments entailed many risks and uncertainties. They did, however, also bring about opportunities to tackle existing weaknesses and to prepare for the future. Countries and firms that do well in the time of crisis can emerge as winners after the crisis. It is essential to intensify efforts to recalibrate markets and develop new business opportunities in offshoring and domestic markets.

Economic downturns can indeed be turned into opportunities for the IT-BPO industry in India, that is, provided appropriate action is taken as noted earlier in this paper. In short they include:

- Improving effectiveness and efficiency — productivity. Tackling weaknesses in training, quality, infrastructure, governance and strategy.
- Merging with or acquiring foreign companies at favorable terms. Fostering strategic alliance and tapping into knowledge networks worldwide.
- Making more effective use of existing foreign and domestic technology and acquiring more foreign technology at favorable terms.
- Investing in developing “new” geographic markets and vertical and horizontal business segments.
- Investing in education and training and attracting skilled manpower. Strong efforts to attract, retain and train talented human resources in India and internationally.
- Investing in design and implementation of new or improved existing business process and as well as technical R&D and innovation.

### ***The transformation role of IT-related development***

The importance of IT industry cannot be measured only in terms of its share of GDP, exports, imports, investment and employment. IT-related serves as a transformational catalyst for change in the way knowledge is created, shared and applied. If developed effectively, IT can offer

opportunities for “leapfrogging” in infrastructure development and cost-effective outreach of government and private sector services. IT is one of the critical components of an investment climate that promotes economic growth and competitiveness. It has major impact on the structure and processes of organizations, human development, scientific research and innovation, and the pattern of socio-economic development.

The ICT industry and the use of ICT-related applications are still in an early stage of development in India and other economies. Its impact is poised to increase significantly in 2010s and beyond. This development is illustrated by the fact that TV, radio and telephony have already had major effects on most groups in the Indian society. The next stage of the ICT revolution will involve the more widespread diffusion of telephony, Internet, networked computers, smart devices, software applications and various forms of multi-media content. This will have major implications for the development of the software and ITeS industry and intra- and inter-sector linkages within the India and internationally.

As noted above it is not plausible for all parts of the Indian economy to develop along the same trajectory or at the same pace. The country needs to face up to a number of challenges in tackling structural weakness in its social and economic development. It is important to fully acknowledge that the scope to tap the potential of IT and other technologies in the Indian economy is hampered by deficiencies infrastructure, the education system, public sector management, attitudes and incentive structures, low income levels, R&D and innovation investment, and the inherent limitations of the technology in itself.

Nevertheless, giving priority to IT-related development goes beyond the debate on picking industry winners. Like energy, education and biotechnology, IT is a vital component of most aspects of economic, social and cultural development domestically and in developing linkages with the global economy. It offers new opportunities that can spur new trajectories for development strategies. While IT has emerged as one of the key factors driving worldwide economic transformation it is essential to emphasize that the IT revolution itself cannot be a panacea for development in India and elsewhere. It cannot be a substitute for the need for strong efforts in other sectors and dimensions of cultural, economic and social development. But at the same time most aspects of modern life depend on IT. Development of ICT infrastructure and software capabilities has become an important component for development of applications of IT across different sectors of the economy. Moreover, the development of IT-related industry and use is closely related to globalization processes and the transformation towards a new networked and innovation-oriented knowledge economy.

### ***The pivotal role of human resources, R&D and innovation***

The global history shows that fostering of skill development, R&D, innovation and investment in infrastructure and sunrise industries, coupled with innovation in business process and public policy, are central to enabling long term economic growth.

The importance of ICT, biotechnology, green-tech and other so-called high technology industries coupled with efforts to foster education, training, R&D and innovation have become increasingly central not only to advanced industrial countries but also to emerging economies in Asia and elsewhere. This is also reflected in the fact that not only developed economies such as the United States and EU countries, but Asian economies such as Japan, South Korea, China, India and Malaysia have also stressed the importance of high technology industry and R&D development

at the time of the current global economic slowdown. Many countries, that is, especially high income economies and China, have decided on special government efforts to foster promising industries, R&D and innovation in the current period of global economic slowdown. This is in line with lessons from the past (OECD 2009e).

The generation, diffusion, absorption and application of technologies, knowledge and ideas are crucial drivers of economic and social development. This applies to both existing and new technologies, knowledge and ideas with the existing forms being the most prevalent in all countries, developing countries in particular, while new innovative developments typically have occurred in the most advanced industrial countries.

Historical evidence shows that only those countries and companies that are effective in investing in education and training as well as technical and business processes innovations progressively emerge as winners in the global economy — those who do not invest in human resource development and innovation risk falling behind.

India constitutes an example of a country which has begun to emerge as a significant power, both in terms of technical and business process innovation with the IT-BPO offshoring industry being a prime illustration. 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 both in terms of production and innovation.

While not a panacea for economic development, the IT-BPO industry and the use of ICT across different sectors — and more broadly related investment in higher education, science & technology and thereby related institutional capabilities — is poised to play an increasingly central role as a catalyst to social and economic transformation in India and the country's interfacing with the rest of the world.

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