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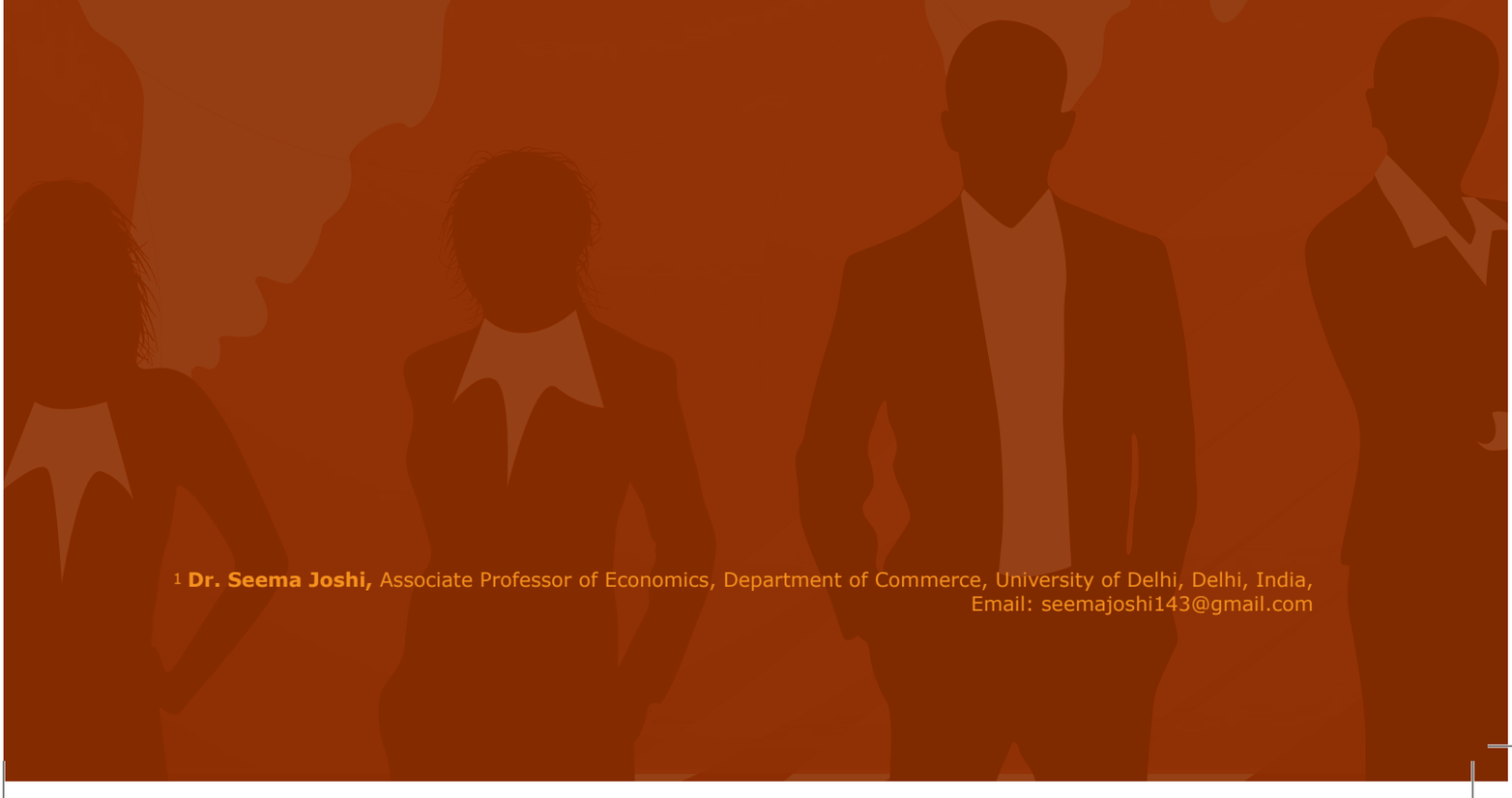
Performance of Knowledge-Intensive Business Services (KIBS) in India



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Abstract

Purpose The growing importance of knowledge and innovation in the present era motivated the author to study knowledge-intensive business services (KIBS) in general and the case of India in particular. The objective of this paper is to track in brief the strength of India's economy, which if harnessed properly can lead to its transition to a knowledge economy. More specifically, the paper tries to address two important questions: 1) What constitutes knowledge-intensive services (KIS) and KIBS? And 2) How has KIBS been performing in India?

Methodology The paper makes use of secondary sources of data including various reports, books and journals, and statistical tools. An attempt has been made in this paper to review those studies which try to define KIS and KIBS. The data analysis of KIBS in the case of India has been done for the periods 02–2001 and 12–2011 for which information was available from various reports by the Central Statistical Organization, National Accounts Statistics.

Findings and implications The paper concludes that no unanimously accepted definition of KIBS has been given so far. In India's context, "business services include services like computer-related services, R&D, accounting services and legal services and renting of machinery in order of importance (shares) as per India's National Accounts". An analysis of performance of KIBS in India shows that among KIBS there are two T-KIBs (with a technology base), namely IT and ITeS, and that R&D services occupy the first and second position in India's GDP, originating from business services (KIBS). R&D services registered the highest average annual growth rate followed by computer-related services, renting of machinery, legal services and accounting and auditing services during the seven-year period from 05–2004 to 12–2011. However, the compound annual growth rate (CAGR) was highest in the case of R&D services followed by renting of machinery, computer-related services, legal and accountancy and auditing services. KIBS registered a CAGR of %13.04, which was higher compared to overall GDP growth rate (at %7.36), and also compared to the CAGR of the real estate and ownership of dwellings and business services segment as a whole (%7.62). Therefore, there is a need to tap the potential of all these KIBS i.e. KI high-tech services (KIHTS) and KI marketing services (KIMS) taken in the study through policy initiatives. There is also a need to deal with emerging issues and challenges in KIBS, especially in KITHS

Originality/value Although there is empirical research on the KIS and KIBS of European Economies, KIBS in India has not received much research attention. This paper will therefore mainly focus on the performance of KIBS in India.

Keywords KIS, KIBs, KIHTS, KIMS

Article classification Research paper

Introduction and background

It has been recognized by the Organization for Economic Co-operation and Development (OECD, 1996) that "the role of knowledge (as compared with) natural resources, physical capital and low-skilled labour has taken on greater importance." A knowledge economy is "… one in which the generation and exploitation of knowledge has come to play the predominant part in the creation of wealth. It is not simply about pushing back the frontiers of knowledge; it is also about the most effective use and exploitation of all types of knowledge in all manner of economic activity" (DTI Competitiveness White Paper 1998, as quoted in Brinkley, 2006).

Empirical studies recognize the fact that one of the major factors driving the growth of productivity and the economy these days is knowledge. Thus, there is a new focus on the role of information, technology and learning in economic performance. The term "knowledge-based economy" stems from this fuller recognition of the place of knowledge and technology in modern OECD economies (see OECD, 1996). Therefore, it is appropriate to examine the role played by knowledge-intensive business services (KIBS) in India's growth.

The present study is also important because the interdependence between manufacturing and services is growing. As Hertog et al. (1997) pointed out, more than four-fifths of the value added in manufacturing occurs due to service activities. Some studies (Ebersberger, 2004) try to show how the interdependence between manufacturing and services are growing because of the increasing role of KIS in firms' innovation activities. Other studies (Miller and Zenker, 2001; Czarnitzki and Spielkamp, 2000; Strambach, 2001) have highlighted the importance of interaction with KIS. Haukes (1998) points out that:

The generation and diffusion of innovations rely more and more upon new technological knowledge which is generated not only by learning processes implemented by internal research and development laboratories, but also and to a growing extent, by the daily interaction, communication and trading of information of learning firms among themselves and with other scientific institutions. KIBS firms play a major role in this context qualified interfaces. KIBS firms in fact act more and more as bridges and converters between, technological and business expertise and localized knowledge and capabilities, becoming problem solving actors specialized in the provision of the complementary knowledge inputs allowing the generation of innovations. (Haukes (1998, p. 5)

Miles (2008) also recognizes that the growth of "knowledge-intensive services" (KIS), which is reflected in the growth of both knowledge-intensive business services (KIBS) and knowledge-intensive service activities (KISA), is a central feature of the

of both the "knowledge-based economy" and the "services economy" of the twenty-first century. Kox and Rubalcaba (2007, as quoted in Miles, 2008) have demonstrated a fairly strong relationship across the European Union (EU), so that business services are used more extensively in the more affluent countries. It has been observed that the higher the level of development, the greater will be the use of KIBS, though the causality is not clear.

Given the importance of knowledge and innovation in the modern-day economies and growing interdependence between manufacturing and services sectors, there is growing interest among researchers and scholars in studying KIBS. Although there is considerable empirical research on the KIS and KIBS of European Economies, KIBS in India is a poorly researched area. Given the aspiration of the Indian economy to become a knowledge powerhouse, and also due to the spectacular role played by the service sector in India's growth story in the post-1991 period, it will be highly relevant if an attempt is made to study the performance of KIBS in India. The present study will therefore focus on the performance of KIBS in India between the 2004–05 and 2011–12 periods for which data is available from the Central Statistical Organization, National Accounts Statistics, 2013.
To achieve this goal, the present study will first briefly examine the performance of India's economy during the post-1991 era, which led some authors, including Dahlman and Utz (undated) to believe that India must make a transition to a knowledge economy as its potential for becoming a knowledge powerhouse is huge. The study will then try to answer the question: what constitutes KIS and KIBS? An examination of the performance of KIBS in India between 2004–05 and 2011–12 will follow, after which the study will draw its conclusions.

India: An emerging knowledge economy

One of the world's largest economies (in terms of area), India made tremendous strides in its socio-economic growth in the past two decades (the 1990s and 2000s) and was expected to realize even faster growth in the years to come. After growing at the "Hindu rate of Growth" of about 3.5% from the 1950s to the 1980s (1951–1979), India's economy expanded during the 1980s (1980-1991) to reach an annual growth rate of about 5% per annum. The New Economic Policy of 1991–92 heralded a new era for India and transformed the Indian economy, pushing it towards the higher growth rate of 6.1% per annum between 1992 and 2000 (Parikh, 2002) and made it unstoppable (Joshi, 2010). India therefore experienced a "new Hindu rate of growth" [2] of 5 to 6% in a decade. India's economy kept surging ahead. There was further improvement in the gross domestic product (GDP) growth rate from 7.5% in 2004–2005 to 9% in 2005–2006, and to 9.2% in 2006–2007; the average growth rate in the three years from 2004–2007 stood at 8.6% (Government of India [GOI], 2006–2007). India started aspiring for 9% growth rate in the Eleventh-Five Year Plan, however, the growth rate of the economy averaged 8% during the plan's implementation period. As the GOI commented, "[…] that this growth occurred in a period which saw two global crises, one in 2008 and another in 2011, is indicative of the resilience which the economy has developed" (GOI, 2013, p. 1). The growth rate of the economy has plummeted to 5% in 2012–13 as per the National Council of Applied Economic Research (NCAER) forecast; the growth projections for 2013–14 (July, 2013) stand at 5.9% (for October, 2013) [3]. In the light of these facts, there are twofold policy challenges recognized by the Twelfth Five Year Plan document. The

[2] The new higher growth rate of 5 to 6 per cent has been referred to as 'new Hindu rate of growth' by Virmani (2004, p.1).

[3] see http://www.ncaer.org/MYR_Summary.html).

immediate challenge was to reverse the deceleration in growth by reviving investment and secondly, to put in place policies that can leverage the strength of economies to bring it back to its real growth potential (pp. 1-2). The plan target for growth is 9%.

There is a need for sustained acceleration in India's growth to provide opportunities for the country's growing population and its even faster-growing workforce.

It was pointed out in a study by Dahlman and Utz (undated) that the time is opportune for India to make its transition to the knowledge economy, as it has many of the necessary ingredients for making this transition. He reports that a critical mass of skilled, English-speaking knowledge workers, especially in the sciences, a well-functioning democracy, one of the world's largest market, a large and impressive Diaspora, the creation of valuable knowledge linkages and networks, macroeconomic stability (at the time of writing this work), a dynamic private sector, the institutions of a free market economy, a well-developed financial sector, a broad and diversified science and technology (S&T) infrastructure and the development of the ICT sector in recent years all reflect the advantageous position enjoyed by India. He further emphasizes that building on these strengths, India can harness the benefits of the knowledge revolution to improve its economic performance and boost the welfare of its people.

In brief, it can be noticed from the above-referred views that if the Indian economy has to embark on a new growth path, then KIS, be they high-tech examples (such as computer-related services and/or R&D services) or knowledge-intensive financial services will play an important role. Therefore, in the next section it is appropriate to focus on the question: what constitutes KIS and KIBS?

KIS and KIBS: An overview

Before we define KIBs in India and examine trends in its growth, it will be highly relevant if we attempt to answer the question: what constitutes KIS and KIBS?

It is important to point out here that knowledge-intensive firms have been discussed by Starbuck (1992), and Miles et al. (1995) devoted their work to knowledge-intensive business services (KIBS). International organizations such as the European Commission (EC) and OECD (EC, 2003; OECD, 2000) [4] have focused on knowledge-intensive services in recent years.

The classification of knowledge-intensive sectors has been given by OECD. OECD has broadly classified knowledge-intensive sectors into knowledge-intensive manufacturing and services sectors. Since this paper focuses on KIBS, which is a part of KIS, Table 1 shows only the classification of KIS given by OECD. KISs have been classified by OECD into six categories, viz.: Knowledge-intensive (KI) high-tech services (KIHTS), KI Marketing services (KIMS), KI Financial Services (KIFS), other knowledge-intensive services, less knowledge-intensive market services and other knowledge-intensive services.

[4] Also see Miles (2008), p.3

Table 1. *The OECD/EC classification of knowledge-intensive services sectors*

SERVICES	Bahri
Knowledge-intensive high-tech services	Post and Telecommunications (64); Computer and related activities (72); Research and development (73); Post and Telecommunications (64); Computer and related activities (72); Research and development (73)
Knowledge-intensive market services (excl. financial intermediation and high-tech services)	Water transport (61); Air transport (62); Real estate activities (70); Renting of machinery and equipment without operator, and of personal and household goods (71); Other business activities (74)
Knowledge-intensive financial services	Financial intermediation, except insurance and pension funding (65); Insurance and pension funding, except compulsory social security (66); Activities auxiliary to financial intermediation (67)
Other knowledge-intensive services	Education (80); Health and social work (85); Recreational, cultural and sporting activities (92)
Less knowledge-intensive market services	50 Sale; maintenance and repair of motor vehicles and motor cycles/retail sale of automotive fuel (50); Wholesale trade and commission trade, except of motor vehicles and motorcycles (51); Retail trade, except of motor vehicles and motorcycles/repair of personal and household goods (52); Hotels and restaurants (55); Land transport/transport via pipelines (60); Supporting and auxiliary transport activities/activities of travel agencies (63)
Other less-knowledge-intensive services	Public administration and defence/compulsory social security (75); Sewage and refuse disposal; sanitation and similar activities (90); Activities of membership organizations n.e.c. (91); Other service activities (93); Private households with employed persons (95); Extra-territorial organizations and bodies (99)

Note: *i) NACE Code 74.1 includes legal and accounting services.*
ii) The numbers in parentheses are the NACE codes of the sectors.
(NACE = "Nomenclature statistiquedes Activites economiques dans la Communaute Europeenne".)

Sources: *Miles, I. (2008), "Knowledge-Intensive Services", September. Available on http://www.academia.edu/235223/Knowledge_Intensive_Services_in_Europe (last accessed February 2014 ,16)*

Coming now to KIBS which are a component of KIS, Miles has significantly contributed to the literature on KIBS. He points out that there might be different ways to assess knowledge-intensity. He also emphasizes that not all service sectors are knowledge-intensive and not all service work is knowledge work. In addition, he recognizes the heterogeneity of the KIS. He says that heterogeneity may be: (i) because of the content of the service; (ii) because of the type of service provider. Some classifications (Miles et al., 1995) distinguish between the P-KIS (purely professional) and the T-KIS (with a technological base).

No universally accepted definition of KIBS has been given so far (Wood, 2002). KIBS [5] provide KI business inputs to the business processes of other organizations, including private and public sector clients. Miles et al. (1995) identified three principal characteristics of KIBS:

1. Heavy reliance upon professional knowledge;

2. They either are themselves primary sources of information and knowledge or they use knowledge to produce intermediate services for their clients' production processes;

3. They are of competitive importance and supplied primarily to business.

Miles et al. (1995: 18) has given a definition of KIBS as "services that involved economic activities which are intended to result in the creation, accumulation or dissemination of knowledge". In addition, Miles et al. (1995: 29-30) distinguish between "traditional professional services (P-KIBS)" and "new-technology-based services (T-KIBS)". P-KIBS are "traditional professional services, liable to be intensive, users of new technology (business and management services, legal accounting and activities, market research, etc.)". T-KIBS are mainly related to information and communication technologies as well as technical activities (IT related services, engineering, R&D consulting, etc.).

Tovoinen (2006: 2) looks upon KIBS as "expert companies that provide services to other companies and organizations". In addition, den Hertog (2000: 505) defined KIBS as those: "private companies or organizations who rely heavily on professional knowledge, i.e. knowledge or expertise related to a specific (technical) discipline or (technical) functional-domain to supply intermediate products and services that are knowledge based". Finally, according to Bettencourt et al. (2002: 100-101) KIBS are "enterprises whose primary value-added activities consist of the accumulation, creation, or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client's needs".

After having reviewed various definitions of KIBS, Muller and Doloreux (2007) arrive at three core elements. First, the term "business services" is related to those specialized services demanded by firms and public organizations and not produced for private consumption (Strambach, 2001). Second, the expression "knowledge intensive" can be interpreted either in terms of labour qualification (Miles, 2005) or in terms of the conditions for the transactions between the service provider and the service user or procurer (Haukes, 1998). Third, the term "knowledge intensive firms" refers to firms that are undertaking complex operations of an intellectual nature where human capital is the dominant factor

[5] This and the following paragraphs have been reproduced from Muller and Doloreux (2007)

(Alvesson, 1995).

So, there are different definitions of KIBS given so far. So far as India is concerned, "business services include services like computer-related services, R&D, accounting services and legal services and renting of machinery in order of importance (shares) as per India's National accounts" (GOI, 2013, p. 223). We have focused in this paper mainly on the first four KIBS mentioned above, having recognized the fact that all services are not equally knowledge-intensive.

Performance of KIBS in India

In the present study we have focused on the state of KIBs in India, which comprise two knowledge-intensive high-tech services (KIHTS), viz. com puter-related services and R&D services and three knowledge-intensive market services (KIMS) namely rental of machinery, legal and accounting and audit services in India (in terms of KIS classification given by OECD) over the period 2004–05 to 2011–12. In the opinion of Miles, the former KIBs (i.e KIHTS) are termed as T-KIBs and the last two KIMS (legal and accounting and audit services) are termed as P-KIBS. We tried to find out the percentage shares of five sub-sectors (i.e KIHTS and KIMS) in GDP originating from KIBS and also calculated the average annual growth rates of these five sub-sectors during the seven-year period from 2004–05 to 2011–12 and compound annual growth rates (CAGR) during the above-referred period.

It is quite evident from Table 2 and Figure 1 that among knowledge-intensive business services, computer-related services accounted for the highest share in business services (67.4%) during the period under consideration (2004–05 to 2011–12) followed by R&D, legal, accounting and audit services. The renting of machinery had the lowest share. However, compound annual growth rate during the period under consideration was highest in the case of R&D services (16.96%) followed by the renting of machinery (15.07%), computer-related services (12.96%). Legal services occupied the penultimate position (7.11%) and the last position was occupied by accounting and audit services. KIBS registered a CAGR of 13.04%, which was higher compared to overall GDP growth rate (at 7.36%) and also the CAGR of real estate and the ownership of dwellings and business services segment as a whole (7.62%). The CAGR of R&D services, renting of machinery and computer-related services were higher compared to CAGR from KIBS, REOWBS and that of overall GDP.
Next, the study will briefly focus on five sub-sectors of KIBs in India separately.

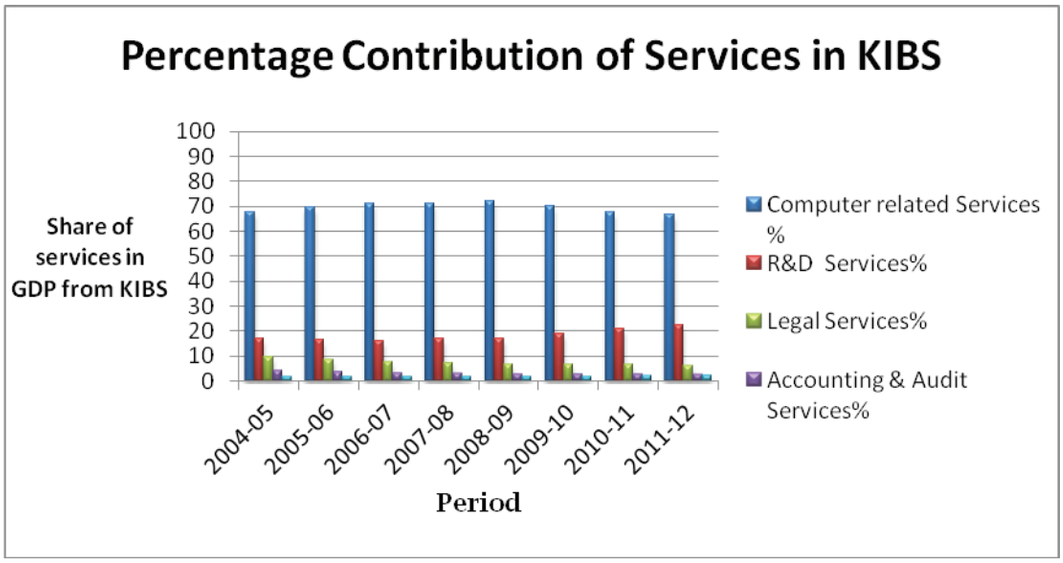
Table 2. *Performance of KIBS in India (in crores)*

KIBS	Share of KIHTS in KIBS			Share of KIMS in KIBS (5+4+3)		Share of KIBS in REOWBS (1 to 5)
Period	Computer-related services (1)	R&D services (2)	Legal services (3)	Accounting & audit services (4)	Renting of machinery (5)	Share of KIBS in GVA from REOWBS
2004–05	65175 (67.4)	16376 (16.9)	9291 (9.6)	4047 (4.2)	1875 (1.9)	96764 (36.37)
2005–06	82515 (69.6)	19435 (16.4)	10049 (8.5)	4301 (3.6)	2184 (1.8)	118484 (40.28)
2006–07	101467 (71.1)	23128 (16.2)	10869 (7.6)	4577 (3.2)	2550 (1.8)	142591 (44.26)
2007–08	114868 (70.9)	27594 (17.0)	11757 (7.3)	4878 (3.0)	2986 (1.8)	162083 (46.40)
2008–09	139251 (71.9)	33007 (17.0)	12718 (6.6)	5206 (2.7)	3506 (1.8)	193688 (50.20)
2009–10	147093 (70)	39581 (18.8)	13757 (6.5)	5562 (2.6)	4126 (1.9)	210119 (50.51)
Period	Computer-related services (1)	R&D services (2)	Legal services (3)	Accounting & audit services (4)	Renting of machinery (5)	Share of KIBS in GVA from REOWBS
2010–11	153964 (67.8)	47580 (20.9)	14882 (6.5)	5950 (2.6)	4870 (2.1)	227246 (51.08)
2011–12	172332 (66.8)	57329 (22.2)	16099 (6.2)	6372 (2.5)	5763 (2.2)	--
CAGR (2004–05 to 2011–12)	12.92	16.96	7.11	5.84	15.07	13.04

Note: *i) KIBS comprise KIHTS and KIMS.*
ii) The figures given in parentheses are percentages.
iii) Figures given in parentheses from column 1 to 5 show the share of KIHTS and KIMS in GVA from KIBS and column 6 indicates the share of KIBS in Gross Value Added (GVA) from real estate, ownership of dwellings and business services (REOWBS) segment of services sector.
iv) The percentage share of KIBS in GVA from REOWBS could not be calculated as data for the year 2011- 12 were not available for REOWBS.

Sources: *Central Statistical Organization, National Accounts Statistics, 2013.*

Figure 1. *Information Technology (IT) and Information Technology-enabled Services (ITeS)* [6]



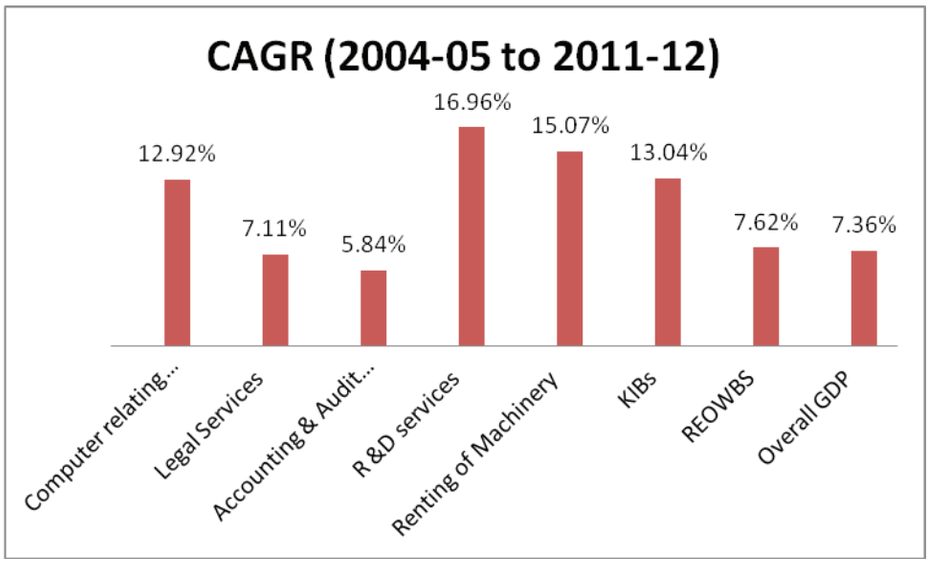
Amongst the business services, "India's IT and ITeS services with exponential growth are a unique export-led success story which has put India on the global map" (GOI, 2012–12, p. 223). This sector generated direct employment for 2.8 million persons and indirect employment of around 8.9 million in 2011–12. The share of this sector in GDP has gone up from 1.2% of GDP in Financial Year (FY) 2012 to 7.5%. The share of this industry in total Indian exports has gone up from 4% in FY 1998 to 25% in FY 2012, which is considered to be a landmark year for the IT-BPO industry, as aggregate revenue crossed the US $ 100 billion mark [7].

While the global economic slowdown, increasing competition from new countries, and rising protectionist measures in the wake of jobs in developed countries have slightly dimmed the prospects for exports of IT and ITeS services, a great opportunity is waiting in India's domestic market with increasing technology adoption within the government sector and the small and medium business (SMB) sector. (GOI, 2013, p. 224)

6 Sub-sections IV.a to IV.d are based on GOI (2013)

7 Also see www.NASSCOM.in

Figure 2. *India's Compound Annual Growth Rate (CAGR) between 05–2004 and 12–2011*



R&D services

R&D occupies the second position in India's GDP among business services. The growth stood at 20.5% in 2011–12, which was fastest amongst the KIBS. In addition, even CAGR was highest in the case of R&D services during the period 2004–05 to 2011–12 (Figure 2). Even computer-related services lagged behind in terms of CAGR (at 12.92%). The Global Innovation Index ranks India in 64th position. India is the one of the preferred destinations for R&D investment as factors such as low cost, access to markets, availability of vast talent pool, favourable regulatory environment and fiscal incentives are present here. However, the benefits of research are not percolating down for commercial usage due to poor university–industry collaborations.

Legal services

The Indian legal profession comprises 1.2 million registered advocates, around 950 law schools and four to five lakh law students across the country. Every year, approximately 60,000–70000 law graduates join the legal profession in India. Legal services have registered a constant growth rate of 8.2% per annum from 2004–05 to 2011–12. It had penultimate rank in terms of CAGR. The Global Competitiveness Report 2012–13 ranks India in 45th position in terms of judicial independence (with a score of 4.5), 59th in terms of the efficiency of the legal framework in settling disputes, and 52nd in terms of the efficiency of the legal framework in challenging regulations. Although India's ranking is better than that of most of the South Asian and some South East Asian countries in all the three parameters, there is a need for speedy disposal of cases. There is huge potential for growth in this sector because of the low cost of legal professionals, geographical advantage, language proficiency and the legal system inspired by US and UK legal systems, and also because of its edge in IT and ITeS.

Accounting and auditing services

"Accounting services have been growing consistently from 6.3% in 2005–06 to 7.1% growth in 2011–12. The accounting profession in India is highly developed with the potential to play a greater role internationally" (GOI, p. 227). There are 53, 197 active CA firms as of 27 December, 2012. The accountancy service providers in India are self-regulated through a combination of statutory bodies like the Institute of Chartered Accountants of India (ICAI), the Institute of Cost and Work Accountants of India and the Institute of Company Secretaries of India (ICSI). These services have a high potential, both in domestic and international markets (through the outsourcing mode). There is a need to expand the talent pool, deepen the expertise and enhance the flow of high quality accountancy professionals. FDI in legal and accountancy services can play a very important role by helping the Indian market to improve its competitiveness and linking it to global markets.

Renting of machinery

The sector concerned with renting out machinery services registered a growth of 16.5% between 2004–05 and 2005–06, and in 2011–12, the growth rate stood at 18.3%, and has increased continuously. The CAGR for this sector was second highest at 15.07%, next only to R&D services (16.96%) during the period 2004–05 to 2011–12, which emphasizes the growth potential of this segment.

Conclusion

The paper concludes that no unanimously accepted definition of KIBS has been given so far. In India's context, "business services include services like computer-related services, R&D, accounting services and legal services and renting of machinery in order of importance (shares) as per India's National Accounts". An analysis of the performance of KIBS in India shows that there are two main types, namely T-KIBs (with technology base) IT and ITeS. R&D services occupy first and second position in India's GDP, originating from business services (KIBS). R&D services registered the highest average annual growth rate followed by computer-related services, machinery rental, legal services and accounting and auditing services during the 7-year period from 2004–05 to 2011–12. However, the CAGR was highest in the case of R&D services, followed by machinery rental, computer-related services, legal and accountancy and auditing services. KIBS registered a CAGR of 13.04%, which was higher compared to the overall GDP growth rate (at 7.36%) and also the CAGR of real estate and the ownership of dwellings and business services segment as a whole (7.62%). Therefore, there is a need to tap into the potential of all these KIBS i.e. KIHTS and KIMS taken in the study through policy initiatives. There is also a need to deal with emerging issues and challenges in KIBS, especially in KITHS; for example, in IT and ITeS, challenges exist, such as the growing competition from developing countries like the Philippines, Malaysia and China, which have lower costs. There is also the expectation of an outsourcing backlash from developed countries and transfer pricing issues. Similarly, R&D services also face challenges. As Krishnan (2008) pointed out, there is "… a lack of dynamism of the government R&D system, poor research output of higher education system, absence of a vibrant high-technology sector, limited scope and impact of government support programmes for R&D, a science–technology divide, and inadequate spillovers of foreign direct investment in R&D". All these issues and challenges point towards the need for policy interventions at the earliest opportunity.

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