

FINANCING
TECHNOLOGY
ENTREPRENEURS &
SMES IN DEVELOPING
COUNTRIES:
CHALLENGES AND
OPPORTUNITIES

INDIA
Country Study

AN *infoDev* PUBLICATION PREPARED BY

Roberto Zavatta

Economisti Associati SRL in
collaboration with

Zernike Group BV

Meta Group SRL

June 2008

Information for
Development Program

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank	NASSCOM	National Association of Software and Services Company
BA	Business Angels	NEGAP	National E-Governance Action Plan
BoA	Band of Angels	PIPE	Private Investment in Public Equity
BPO	Business process outsourcing	R&D	Research and Development
CGF	Credit Guarantee Fund	RBI	Reserve Bank of India
EC	European Commission	SEBI	Security and Exchange Board of India
EDP	Electronic Data Processing	SEZ	Special Economic Zones
ERP	Enterprise Resource Planning	SIDBI	Small Industries Development Bank of India
EU	European Union	SME	Small and Medium Enterprise
IC	Integrated Circuit	STPI	Software Technology Parks of India
ICT	Information and Communication Technology	TDB	Technology Development Board
ICTE	ICT Enabled	TBI	Technology Business Incubators
IFC	International Finance Corporation	TOR	Terms of Reference
IFI	International Financial Institutions	VAS	Value-Added Services
IPO	Initial Public Offering	VC	Venture Capital
ISP	Internet Service Provider	VCF	Venture Capital Fund
IP	Intellectual Property	VoIP	Voice over Internet Protocol
IT	Information Technology		
ITES	IT-enabled services		
IVCA	Indian Venture Capital Association.		
MNC	Multinational Corporation		

Exchange Rates

US\$ 1 = INR 45.3134 (average 2006)

EUR 1 = INR 56.9098 (average 2006)



EXECUTIVE SUMMARY

The Indian IT industry is among the world's largest. It is the most important outsourcing destination for software, IT and IT-enabled services. The key driver of the Indian ICT industry has been to a large extent the technology transfer induced by big Multinational Corporations (MNCs), which started becoming established in India in the early 1990s. Initially, the largest operations were MNC captives. The types of services performed has little complexity. The ICT sector quickly scaled-up, and as important domestic firms emerged, such as *Infosys* and *Wipro*, the variety of activities increased and gained more depth. Today, the Indian ICT industry can compete with the world giants. Indian IT clusters are home to advanced R&D centers serving several global IT leaders. In 2006, this industry posted an aggregated revenue of US\$37.4 billion, growing by 31% over the previous year, with an overall contribution to the GDP of 4.8%. Software and IT services account for the most, with 61% of share; hardware follows with another 21%; the remaining 18% is represented by ICT-enabled activities. Direct employment is well above 1,300,000 units. The MNC's direct investments in this sector for the current year are expected to hit an unprecedented US\$10 billion. The total number of Indian ICT/ICTE firms is not known, but it may be around 4,000–5,000 (excluding micro-enterprises, small retail businesses and Internet points). SMEs account for 80–85% of the total. However, the Indian ICT/ICTE industry also includes a handful of giant players with revenues in excess of US\$1 billion, and about 200 medium to large foreign-owned facilities. The software and IT services industry is articulated in various segments, such as software development, customized applications, value-added services, and IT engineering. The software sector focuses on exports, which amount to US\$17 billion. Similarly, the ICT-enabled sector is skewed toward exports. India is by far the world leader in this segment, with an impressive growth rate, and a workforce of nearly half a million employees. Contact centers and financial services are

the main lines of business. By contrast with the highly advanced software and IT services industry, the Indian domestic hardware industry is still relatively underdeveloped. Most of the MNC investment in manufacturing and assembling tends to concentrate on other countries in the region. The bulk of the domestic production is destined for the growing internal market. In addition, the Indian ICT industry encompasses 150 Internet service providers and 100,000 public Internet points (cybercafés).

In advance of many other developing countries, India has had a liberal policy in the telecom and ICT sector since the early 1990s. The main changes occurred in the period of 1994–2001, when various initiatives were undertaken in order to: (i) define medium and long-term policies; (ii) attract private investment; (iii) create an adequate institutional landscape; and (iv) adopt concrete measures to support the growth of the ICT industry. In 2000, the parliament passed the “Information Technology Act”, which contained various provisions aimed at enhancing e-commerce and e-governance. In 2004, a specific policy to support the diffusion of broadband technology was issued. In addition to the interventions in the legal and institutional framework, several other measures have been undertaken by the Indian Government to support the development of private IT entrepreneurship. These measures fall principally into three categories: (i) fiscal policies; (ii) custom facilitations; and (iii) infrastructure. The first category includes income tax holidays and excise exemptions, particularly for software and IT services firms. The second group encompasses custom duty reductions or exemptions in imports and exports of ICT/ICTE services and components and other facilitations. What is arguably the most important measure in the area of infrastructures involves the establishment of technology parks and processing areas that enjoying special treatments.

The Indian financial sector encompasses a variety of players. As of Q1 2006, there were 88 commercial banks, 133 regional rural banks, 1,864 urban cooperative banks (UCBs), and several others non-banking financial companies. In addition more than

90 venture capital funds (VCFs) and private equity firms are reportedly active in the country. The commercial banking industry encompasses 28 public sector banks, 29 private banks and 31 foreign banks. Together, they operate a network of about 53,000 branches and 17,000 ATMs. State-owned institutions are thriving since the two waves of nationalizations occurred in 1969 and 1980. These operations were aimed at gaining a direct control over the financing system, in order to pursue specific industrial development plans. In 1993, an amendment to the “Banking Regulation Act” introduced additional liberal policies that permit new private competitors to enter more easily into the banking industry. Regarding SME financing, enhancing regulation has recently been issued by *Reserve Bank of India* (RBI)—the banking system regulator—in compliance with the 2006 “Micro, Small and Medium Enterprises Development Act”. In particular, state-owned banks have been requested to ensure a 20% year-on-year increase in the amount lent to SMEs.

The VC sector is dominated by onshore and offshore international operators. Large shares of these players are US IT-specialist firms—often backed by Silicon Valley investors—with a focus on cross-border operations. However, the VC industry also includes a variety of other private and public sector schemes of different sizes and natures. In 2006, the volume of private equity investments amounted to US\$7.5 billion, which represented a growth of 330% over 2005. The number of transactions effectuated in 2006 was 362, which represents a growth of more than 250% over 2005. India is also home to numerous business angels, some of which have recently gathered in the *Band of Angels* (BoA)—an association with more than 50 individual members and three institutions. Since its establishment, the BoA network has engaged in five deals in the ICT/ICTE and media & entertainment segments, with investments in the US\$100,000–1.0 million range.

In India, the existence of a significant financing gap for deals of around US\$1–2 million is widely lamented by ICT professionals. Following a wave of failures that occurred in the early 2000s, many VCs became extremely skeptical about early-stage deals. As a consequence, the market for small deals (below US\$3 million) went through a severe recession during the period of 2000–2003—the annual number of small investments shrank from 140 to

less than 20. In parallel, the average size of all VC deals increased from US\$4 million in 2000 to over US\$8 million in 2003. However, signs of a reversal of this negative trend have recently emerged. To begin with, the years 2005 and 2006 witnessed the launch of several funds, including Erasmus Venture Fund, SeedFund, and Upstream Ventures, that target deals in the US\$0.5–1.0 million range. Second, the trend toward large deals has somewhat slowed down due to the overvaluation of more established enterprises. Even mainstream VCs have started to turn toward smaller companies, where cheaper investment opportunities can be found. Finally, the closer cooperation between business incubators and high-tech funds—mainly government-led—has started to bear fruit, as demonstrated by the two incubation finance deals that were finalized in early 2007 by the Gujarat Venture Fund. The positive impact of these factors has yet to be felt in its entirety. Nevertheless, in 2006, the number of small deals has already soared to 50, up from the 20–30 deals per annum recorded in the previous two years. Certainly, this number is still small compared with the need, but at least things are moving in the right direction. The problem area is likely to move to the US\$0.5–1.0 million window, where the presence of risk capital sources still appears to be too scarce compared with the demand.

The results of this study indicate of a series of measures that could help to bridge the financing gap faced by Indian ICT/ICTE SMEs. Two categories of intervention could be envisaged: (i) measures aimed at facilitating access to equity financing; and (ii) measures aimed at facilitating access to bank financing. In absolute terms, risk capital in India is abundant. For well-established enterprises—and especially for those operating in the ITES-BPO and consumer EDP segments—the access to the numerous equity financing schemes does not pose significant problems. Therefore, in order to improve the access to equity financing in India, it is basically necessary to devise ways to direct a larger share of the existing risk capital toward smaller and less-established enterprises. This can be achieved through three main types of interventions: (i) deploying measures aimed at mitigating the risks associated with early-stage investments; (ii) supporting Business Angel Networks; (iii) supporting seed schemes managed by Business Incubators, by building upon recent significant experiences. Despite the large diffusion of private equity schemes

in India, debt financing continues to represent an important source of capital for those ICT/ICTE enterprises that do not have access to VCs, such as enterprises operating in segments with modest prospects for growth, and most domestic-oriented firms. Debt financing is also a crucial option for those enterprises that are unwilling to relinquish control of the business to external investors.

Therefore, it is important to devise mechanisms that can increase the overall access for small ICT/ICTE firms to banks' credit lines. The most promising initiatives that have been identified in the field of debt financing fall into two areas: (i) strengthening credit guarantee mechanisms for ICT/ICTE SMEs; and (ii) providing assistance to ICT/ICTE SMEs in their dealings with financial institutions.



I. INTRODUCTION

This report (the “Report”) has been prepared by *Economisti Associati* in collaboration with *Meta Group* (the “Consultant”) within the framework of the assignment on “Scaling up Innovation and Entrepreneurship in Developing Countries: The Role of Private Sector Finance” (the “Assignment” or the “Study”). The overall objective of the Assignment is to analyze issues in the financing of small and medium enterprises (SME) in developing and emerging countries, with special reference to small businesses active in the information and communication technology (ICT) sector as well as in ICT-enabled (ICTE) activities.

This Report is part of Phase 2 of the Assignment and reviews recent developments in the ICT/ICTE sector in India, with special emphasis on current conditions for the financing of ICT/ICTE small enterprises. The Report is based on the results of a field mission in India (April 11–22, 2006) as well as on the analysis of a variety of secondary sources.

The Report is structured as follows:

- Section II presents a country overview including the ICT/ICTE industry, the relevant policy and institutional framework, and the financial system;
- Section III analyzes the features related to the financing of small ICT/ICTE enterprises;
- Section IV offers conclusions and recommendations.

The Study also includes a series of Annexes, providing additional information and supporting evidence for the elements presented in the main text. In particular:

- Annex A provides additional information on the ICT/ICTE industry;
- Annex B illustrates the relevant policies and summarizes the institutional setting for the ICT/ICTE sector;
- Annex C reviews in greater detail the India’s financial system;
- Annex D provides the list of entities and persons met during field work;
- Annex E presents the profiles of SME financing organizations met during fieldwork;
- Annex F presents the profiles of small ICT/ICTE enterprises interviewed during fieldwork.



II. THE COUNTRY BACKGROUND

II.1 ICT/ICTE INDUSTRY¹

Overview. India hosts one of the largest ICT/ICTE industries in the world. The overall *turnover* generated by this industry approaches US\$50 billion. Software and IT services account for the most, with US\$24 billion; ICT-enabled services and Business Process Outsourcing (BPO) account for US\$7 billion; the IT manufacturing and assembling segment also account for another US\$7 billion: the rest is represented by telecom and Internet access services (Internet Service Providers and Internet cafés). *Employment* is estimated at nearly 2.5 million units: software and ICT/ICTE services account for about half; the Internet café Industry employs an estimated 600,000 staff. The number of active Indian ICT/ICTE operators is not known. A conservative estimate, which does not take into account micro-enterprises, small resellers and cybercafés, indicates that the industry currently includes 4,000–5,000 players. If the vast universe of small dealers is included, this figure might easily go up to 100,000–150,000. The Indian ICT/ICTE industry also includes a handful of giant players—with revenues in excess US\$1 billion—and about 200 medium to large foreign-owned facilities.

Telecom: The Indian telecom sector has been fully liberalized since 1990. The combination of sector liberalization with the size of the Indian market favored the early entrance of private operators, and the establishment of a dynamic and competitive market—especially for wireless telephony. The two state-owned incumbents still dominate the fixed-line market—only a few private operators are active, and those operate mainly at the local level. Wired telephony has been stagnant for several years. The number of subscribers is stable—around 40 million—but a vast portion of rural areas are

inadequately connected or not connected at all. By contrast, mobile telephony recorded a tenfold growth during the period of 2003–2006, eventually reaching 130 million subscribers. Six main players control 93% of the market, but none of them is really dominant.

Internet Services: India set up its first Internet connection in 1995. Initially, the Internet market was monopolized by a state-owned company, which was subsequently privatized. The diffusion of Internet service providers (ISPs) occurred after 2000, in parallel with the full liberalization of the market and the emergence of a number of competitors of various natures and sizes. In the period of 2000–2006, the number of subscribers rose from 1 million to 7 million, with a yearly growth rate exceeding 100%. Over the past two years, the share of broadband connections has significantly increased—today it accounts for nearly one-fifth of the total. Some factors played a determinant role in the evolution of this sector. These include: (i) the growing demand from IT-enabled services and the BPO industry for reliable and cost-effective Internet infrastructure; (ii) a conducive legal framework, with virtually no barriers for new entrants in the ISP market; (iii) considerable private and public investment in infrastructure, such as the establishment of an Indian Internet exchange point (IXP); and (iv) the laying down of a fiber optic network. Today, there is around 150 active ISPs, most of which operate only at the local level. The five largest ISPs account for 86% of the market, with the two state-owned telecoms accounting for 63%. The prevalence of telecom companies in the Internet segment has recently been reinforced by various promotional campaigns that offer packages that include phone and Internet service. Internet access is also provided by 100,000 cybercafés. It is estimated that nearly one Internet user out of three does not have access through personal connections, and relies fully on public Internet points.

¹ A more detailed overview of the Indian ICT/ICTE industry is provided in Annex A.

ICT-ICTE Activities: The Indian IT industry is among the world's largest—it is by far the most important outsourcing destination for software, IT, and IT-enabled services. India was among the first developing countries to grow a strong domestic ICT sector, and one of the few where this trend was not strictly correlated to the evolution of the telecom market. The key-driver of the Indian ICT industry was the technology transfer induced by big MNCs, which have become established in the country since the early 1990s. Initially, the largest operations were MNC captives, and the types of services performed had little complexity. The ICT sector quickly scaled-up. As important domestic firms emerged, such as Infosys and Wipro, the variety and depth of activities increased. Today, the Indian ICT industry can compete with the world giants. Indian IT clusters are now home to advanced R&D centers that serve several global IT leaders. In 2006, this industry posted an aggregate revenue of US\$37.4 billion, which represented a growth of 31% over the previous year—an overall contribution to the GDP of 4.8%. Software and IT services account for the most, with 61%; hardware follows with another 21%; the remaining 18% is represented by ICT-enabled activities. Direct employment is well above 1,300,000 units. The MNCs' direct investments in this sector for the current year are expected to hit an unprecedented US\$10 billion. The *software and IT services* industry is broken down into various segments, including: (i) software development; (ii) customized applications; (iii) value-added services; and (iv) IT engineering. It is estimated that 4,000 enterprises are active in this line of business, which represents an 80–85% share of SMEs. The software sector focuses on exports, which amounts to US\$ 17 billion. The *ICT-enabled sector* is also skewed toward exports. In this segment, India is by far the world leader, with an impressive growth rate and a workforce of nearly one-half million employees. Contact centers and financial services are the main lines of business. The Indian domestic *hardware* industry is still relatively underdeveloped. Most of the MNC investment in manufacturing and assembling tends to concentrate on other countries in the region. The bulk of the domestic production is destined to the growing internal market.

II.2 POLICY AND INSTITUTIONAL FRAMEWORK²

Overview: The Indian telecom sector was liberalized in the early 1990s. The first IT policy was enacted in 1998. Since the beginning of 2000, several pieces of legislation have been enacted in order to provide this sector with an adequate framework, and to remove distortions and possible obstacles to the growth of the ICT/ICTE market. In parallel, the institutional setting was deeply reformed. An independent Authority for Telecom was introduced, and numerous agencies and bodies were established, which were entrusted with different aspects of the development of the ICT/ICTE industry and market. The latter included the *Department of Information Technology* (DIT), the *Technology Development Board* (TDB) and the *National Science and Technology Entrepreneurship Development Board* (NSTEDB). The Indian Government has also supported private sector hi-tech firms, through a series of fiscal and export incentives. It has created the conditions for the development of various IT clusters nationwide, through a policy of software parks and special economic areas. In 2003, the National E-Governance Action Plan (NEGAP) was launched, which laid out a set of priorities to be addressed over a five-year period in the field of E-Governance.

Legal and Regulative Framework: India has adopted a liberal approach in the field of telecommunication since the early 1990s. Between 1991 and 1999, the National Telecom Policy was updated several times to reflect the evolution of the society and the market. In the last version, the distinction between providers of fixed-line and wireless telephony was dropped, and the concept of unified licenses was introduced. In addition, the Indian Government has recently acknowledged the need for an adequate regulatory support to the growing high-speed connections market, and it has elaborated the "Broadband Policy". The main piece of legislation regarding ICT/ICTE services—the Information Technology (IT) Act—was passed in 2000. The IT Act was primarily based on the Action Plan, which was enacted in 1998, with the advisory support of private sector organizations. The IT Act provides a comprehensive set of measures for the support of e-

² The topics presented in this section as further discussed in Annex B.

business practices. Other significant regulative acts include: (i) an act granting permission to ISPs and other non-telecom operators to provide VoIP services; and (ii) measures to strengthen the fighting of software piracy.

Support to Private Sector Development: The Indian Government has supported the ICT/ICTE industry through a series of measures. These include: (i) fiscal facilitations, such as tax holidays for newly established units; (ii) custom facilitations, such as duty reductions and exemptions for the importing of parts; and (iii) infrastructure interventions, such as the creation of special economic areas and enabling facilities. The major schemes of this kind include: (i) Special Economic Zones, where firms can enjoy a significant reduction of ExIm duty and other fiscal facilitations (the scheme is addressed to exporters); and (ii) Software and Technology Parks, which are private/public facilities through which ICT/ICTE firms can benefit from a vast array of fiscal and promotional measures. Export-oriented ICT/ICTEs also receive support from the *Electronic and Computer Software Export Promotion Council* (ESC), which is a publicly sponsored body that encompasses 2,300 units, and is mainly active in organizing events to promote the Indian IT hallmark globally. In general, Indian business associations in the ICT/ICTE sector have a long history of cooperation with the public administration. Their advisory support has often proved crucial for the definition and implementation of public policies in this sector. Among the largest associations are: (i) the *National Association of Software and Services Company* (NASSCOM); (ii) the *Manufacturers' Association for Information Technology* (MAIT); and (iii) the *ISP Association of India* (ISPAI).

Cooperation with Donors: There is an active donor community in India, which supports numerous projects with a considerable amount of resources. However, the ICT/ICTE sector is only marginally addressed—most international organizations tend to focus on other sectors. Recently, donor interventions have addressed IT only in terms of being a means to improve education, participation, and e-government, and to increase the efficiency of traditional businesses. Projects targeting the development of the ICT/ICTE industry have been marginal. An example is provided by the EC's program "Asia IT&C Program", which financed EUR40 million worth of initiatives in technology upgrade in

various sectors between 1999 and 2005. Regarding the field of e-Government, the World Bank has a US\$300 million loan under process, which is aimed at supporting the NEGAP program. The Incubators Initiative—which was implemented by the *infoDev* program in 2002—is an intervention more specifically directed toward ICT entrepreneurship. Within the framework of this program, *infoDev* has extended an overall US\$1.1 million grant to five technology incubators of various natures based in different part of India. The IFC has also been significantly involved in the field of ICT/ICTE. It is estimated that over the past six years IFC has carried out eight operations in this sector for a total investment of US\$40–60 million.

II.3 THE FINANCIAL SECTOR³

The Banking Sector: The Indian banking industry is dominated by public sector banks. This is largely the consequence of two waves of nationalization—the first took place in 1969, and the second in 1980. During the first wave, 14 major banks were transformed into public entities—including important institutes like the *Bank of India* and *Canara Bank*. During the second wave, six more institutes were nationalized—that wave was aimed at smaller local entities, such as *Vijaya Bank* and *Punjab & Sind Bank*. The purpose of these operations was to allow the government to access the financial resources necessary for the implementation of a series of industrial projects, with the overall objective of a substantial modernization of the country. In 1993, the government embarked on a liberalization process that involved the issuance of licenses to several new competitors from the private sector, such as *UTI Bank* and *ICICI Bank*. At the same time, restrictions on foreign-owned banks were partially lifted, thus favoring the growth of the international banks' affiliates. Today, there are 88 active commercial banks in India: 28 are state-owned; 29 are private; and 31 are foreign. The biggest is the *State Bank of India Group*, whose assets amount to more than US\$100 billion. In the private sector, the major player is *ICICI Bank*, which has assets in excess of US\$50 billion. Foreign banks are comparatively much smaller. The main institutes in this segment are

³ A more comprehensive analysis of Indian financial system is provided in Annex C.

Citibank and *Standard Chartered*. Few banks are significantly involved in SME financing. In the private sector, *ICICI Bank* is one of the most dynamic in this sector. Regarding state-owned banks, *Canara Bank* and *Punjab National Bank* are the most involved in SME lending. However, some changes are taking place. With the modernization of the credit system, commercial banks are increasingly interested in setting-up special credit lines for SMEs. Moreover, with the passing in 2006 of the “Micro, Small and Medium Enterprises Development (MSMED) Act”, the situation will likely further improve. Within the framework of the MSMED Act’s objectives, NRI has already issued guidelines for increasing and smoothing the credit flow for small businesses—other concrete facilitations are in the pipeline.

Venture Capital: India has had a sizable and dynamic venture capital industry since the mid-1990s. The period from 1996 to 2000 saw an exceptional growth of VC operations. This was mainly fueled by the establishing of India as a favorite outsourcing destination for the then booming US ICT/ICTE industry. The apex was reached in 2000, when in one year around 300 deals were closed by foreign and domestic VC funds, for a total value in excess of US\$1.2 billion. India was substantially affected by the bursting of the dot-com bubble and the downturn of the market in 2000–2001. Several venture operations failed—especially among those focusing on the early-stage segment. Many VCs then withdrew from the Indian market for several years, and others turned to more established and less risky businesses. In 2003, the volume of VC operations in terms of capital, was only half of what it had been in 2000, and the number of transactions effectuated dropped to around 50. Only 13 startups were financed, and the average size of deals scaled-up to US\$8 million compared to US\$4 million in 2000. The year 2004 represents another turning point in the evolution of the Indian private equity sector. The recession period came to an end, and investors displayed a renewed confidence in the opportunities offered by the Indian market. The volume of activities rose rapidly, exceeding US\$2.0 billion in 2005, and nearly hitting US\$7.5 million in 2006. However, the average size of operations kept growing, and the early-stage segment remained largely neglected and well below the 2000 level.

The Indian VC industry can be divided into two main groups: (i) government-funded schemes and

(ii) private sector VCFs. Government-funded schemes exist at both the national and the state levels. They tend to be relatively small—they typically do not exceed US\$5.0 million. They are typically orientated toward deals below the US\$500,000 threshold. Many of these schemes were established in the late 1990s to focus on the fledging ICT/ICTE industry, but they were affected by the dot-com crisis. Today, most of them have maintained a preference for technology operations, but there is a certain degree of diversification. The *Small Industries Development Bank of India* (SIDBI) is the main financial institution involved in the funding of public-sector VC operations. SIDBI operates through own facilities, such as SVCL—it co-finances state-level funds, and sometimes it co-invests with private sector VCs on a case-by-case basis. The universe of private-sector VCFs includes more than 80 facilities, most of which were established by foreign VC firms. Nearly all of the major global VC firms have a presence in India, including: (i) large-scale hi-tech funds such as *IDG Ventures* and *Draper/Fisher/Juwerston*; and (ii) SME-oriented development schemes like *Aureos* and *SEAF*. There are also a number of large Indian VCFs, which are usually backed by a major bank, as in the case of *ICICI Venture*. Large funds typically target late-stage and PIPE operations, and rarely consider deals below US\$10 million. Smaller-scale operations are the domain of a series of domestic and international hi-tech funds, such as *Infinity*, *SICOM Capital*, and *JumpStartUp*. These funds often start investing in a company at the growth stage, and help raise more funds from larger VCs for subsequent expansion phases. India also has funds that were established by big MNCs, such as *Intel* and *Acer*. Typically, these schemes are focused on young, innovative companies, and investments are made on the basis of strategic considerations rather than for mere speculative purposes. The Indian VC landscape displays the following characteristics:

- **Origin of Funds:** Between 80 and 90% of the overall capital of Indian VCFs comes from abroad. Among foreign players, the US-based operators—and in particular the Silicon Valley-based operators—hold a prominent role. Domestic VCFs are mainly sponsored by government funds, or established by large banks.
- **Investment Policy:** Most VC operations concentrate on large-scale and mature deals. Since 2004, only 10% of transactions have

involved early-stage enterprises. Deals below US\$1.0 million account for 3–5% of the total. Some improvements have been recorded since the second half of 2006, with the establishment of new VCs operating at the SME level, such as *Helion Venture Partners*, *Erasmic Venture Fund*, *SeedFund*, and *Upstream Ventures*. While technology remains one of the favorite fields, the interest has moved from Internet companies to other types of operations—especially ICT-enabled services and bio-technologies.

- **Operating Modalities:** Most VCs use a combination of financing instruments, including straight equity, quasi-equity, and debt schemes. Investment tenure may range from three to seven years. Strategic sales are the preferred exit strategy. Due to the relatively scarce development of the Indian stock market, IPO is not always a viable option.
- **Performance:** It is estimated that VC firms have thus far invested US\$15 billion, with the majority of funds going toward the ICT/ICTE sector. In 2006, nearly 40 divestments were successfully performed, half of which were done through IPOs. Regarding early-stage operations, there have been a dozen divestments, but only in three cases through IPOs.

Risk capital is also provided by the numerous *business angels* active in the country. Their presence dates back to the early 1990s, but recently, they have emerged as a concrete financing option for SMEs. Angel investing is a phenomenon significantly connected to the large migration of Indian professionals worldwide. In the case of the ICT/ICTE industry, a major role has been played by the various individuals who became successful entrepreneurs and investors in the Silicon Valley ecosystem. In 1992, a group of Indian professionals emigrated to the US and other countries, and established a network that aimed at fostering Indian entrepreneurship both in India and worldwide. This network, denominated “The Indus Entrepreneurs” (TiE), has over 10,000 members located in nine countries. Every year it organizes an important forum in Silicon Valley focused on the ICT and technology sector. In India, business angels have

recently gathered into the *Band of Angels* (BoA)—an association with more than 50 individual members and three institutions. The BoA is not a financing institution—it essentially acts as a forum for investors organizing periodic project presentations—a forum that offers various services to its members. The investment decisions are made by each angel individually. Since its establishment, the BoA network has engaged in five deals. The BoA’s preferred sectors are ICT/ICTE and media & entertainment—the size of transactions is usually in the US\$100,000–1.0 million range.

Government Schemes: As discussed above, the Indian financial system is comprised of state-owned banks and government-sponsored equity financing facilities. In the field of SME financing, the main public-sector institution is undoubtedly SIDBI. It operates direct lending schemes, and VC funds. It contributes significantly to another important SME financing instrument—the Credit Guarantee Fund (CGF). The CGF was established in 2000, through an initiative of the Ministry of Small Scale Industries. Its aim was to enlarge access to credit for SMEs. Its management was entrusted to the *Credit Guarantee Fund Trust for Small Industries* (CGTSI). CGF provides guarantees on bank loans up to 75% of the value of the principal, and for a maximum amount of US\$50,000. The corpus of CGF currently amounts to US\$250 million, but the government has recently announced the intention of doubling its capacity. Aside from SIDBI, there are other government agencies involved in the financial support of SMEs—in particular, ICT/ICTE small firms. The most important is probably the *Technology Development Board* (TDB). The TDB provides financial assistance to enterprises, research institutes, and other entities in the ICT/ICTE sector, through equity, soft loans, or grants. Thus far, the TDB has directly supported 15 ICT/ICTE projects, and has co-funded a couple of hi-tech VCFs for US\$23 million. TDB is also the main sponsor of the “Incubation Funds”, a pilot program started in 2005 that was aimed at establishing seed-funding schemes within five selected Business Incubators and Science and Technology Parks.



III. ISSUES IN THE FINANCING OF ICT/ICTE SMALL BUSINESSES

III.1 SME FINANCING NEEDS – THE DEMAND SIDE

The demand for financing of Indian ICT/ICTE enterprises reflects the unique characteristics of this industry, which encompasses a multitude of very different players in terms of size and business models. As discussed in Section II.1, India's ICT/ICTE industry debuted in early 1990s, ahead of most other developing countries. Over time, it has maintained a substantial growth pace. As a consequence, today's landscape compounds: (i) first generation enterprises that have now reached sizable dimensions with a strong global outreach; (ii) second generation operators that survived the burst of the dot-com bubble; and (iii) newly established firms that leverage on the convergence of media, telecom and the Internet, or venture in the development of highly specialized applications. The financing needs voiced by Indian ICT/ICTE entrepreneurs tend to be higher than those observed in other contexts. This is due to the export orientation of most of these businesses, which requires substantial investments throughout all stages of development. As a result, financing needs voiced by ICT/ICTE firms may range from as little as US\$50,000 to several million dollars, depending mainly on the stage of maturity reached, as illustrated in Table 1⁴.

III.2 ISSUES IN ACCESSING FINANCING – THE SUPPLY SIDE

Issues in Accessing Bank Financing: Commercial banks hold an undeniably crucial role in mobilizing capital for SME development, but, until recently, their financial contribution to this segment remained relatively limited. This was mainly due to two factors: (i) long and complex procedures that discourage potential borrowers; and (ii) a generally conservative attitude regarding small-scale lending that is motivated by the lack of mechanisms to assess the creditworthiness of would-be borrowers, and the consequent high costs of project appraisal. In the ICT/ICTE sector, this attitude has been reinforced by the numerous cases of default registered in the early 2000s—in particular, among dot-com startups. Although the repercussions hit the private equity industry particularly hard, many commercial banks that have invested in VCFs were also affected.

Recently, commercial banks have become more interested in SME financing, due to favorable policies and strong performances in the small industries segment. In India, there are currently more than 12 million SMEs, which employ about 30 million people, and which are growing at a rate of 4–5% per year. The SME lending market is currently estimated at US\$15 billion, and is expected to double by FY 2009–10. At the regulatory level, important reforms were introduced by the MSMED Act of October 2006. These include: (i) a commitment to ensure a 20% annual increase in SME loans from public sector banks'; (ii) the scaling-up of SIDBI activities, with the aim of serving five million new credit beneficiaries over a five year period; and (iii) the growth of Credit Guarantee Scheme activities. To simplify and make more transparent the mechanisms associated with the financing of SME, SIDBI—in partnership with other banks and private sector operators—has estab-

⁴ For more details on the enterprises cited in this section, please refer to the company profiles presented in Annex C.

TABLE 1. *Summary Presentation of ICT/ICTE Financing Needs*

Life cycle ⁵	Amount Sought	Comments	Examples from the Fieldwork
Early-Stage	US\$50,000 to 500,000	This phase is articulated in two steps: seed and startup. It includes elaboration of the business idea, R&D, basic organization of the business, and first commercialization. The financing needs at this stage are very limited for businesses based on immaterial assets, such as IT service providers, e-commerce firms, web designers, and most software developers. An exception is firms spun off from MNCs and national affiliates to overseas existing entities, which often require significant investment from the very beginning (US\$1.0 million or more). Other lines of business that require more intense funding from inception, include: enterprises active in the hardware sector, R&D BPO, Call Centers, and services that require expensive tools and patents, such as 3D animation.	<ul style="list-style-type: none"> ■ K.e.e.n. Inc. – E-contents development and digital video ■ Gridlogics – data mining and grid computing
Development	US\$500,000 to 2.0 million	At the development or growth stage, enterprises that have already commenced to commercialize their products or services typically seek financing to expand their market. The financing needs often involve the marketing and commercial aspects of the business—but the increase of staff and the necessity of having enough working capital might also be rationales for investments at this stage. For local software developers and IT service providers, the resources needed are still relatively modest, rarely exceeding US\$1.0 million. An exception is represented by firms set up with foreign capital and aimed at operating in international markets, where growth investments may be much larger. In the case of most of BPO and ICTE service providers, the financing needed at this stage is usually in the US\$1.0–1.5 million range, but again MNC-led operations are typically more capital intensive.	<ul style="list-style-type: none"> ■ VIT Infotech – IT services, BPO ■ Verity Technology – Software and VAS developer
First Expansion	US\$2.0 to 10.0 million	The first expansion phase normally entails a diversification of the business—an introduction of new lines of activities, or an upgrade of the original product or service. For Indian software players, this often means a shift to IP-based operations, and a deepening of their commercial relations with large strategic clients. For Internet providers, this is the phase where new value-added services are developed and synergies with content providers are strengthened. In the case of BPO services providers, the nature of operations often modifies at this stage, moving toward more knowledge-based activities. At this stage, the amounts sought become substantial—usually in the US\$2.0–10.0 million range. This is a distinct feature of the Indian ICT/ICTE industry: enterprises aim to go international from the early stages, and those that survive rapidly reach a phase where maintaining global competitiveness requires substantial investments.	<ul style="list-style-type: none"> ■ Visesh Infotecnics – ERP and IT services
Second Expansion	More than US\$10.0 million	Like the first expansion stage, the second expansion phase represents a major change in the scale of operations. At this stage, Indian companies have often already established stable foreign commercial relations, and sometimes have opened subsidiaries in key overseas markets, such as Silicon Valley and Japan. Many firms at this stage are too large to still be categorized as SMEs—this is particular true of Call Centers and BPOs. In India, financing needs from the second round of expansion onward are typically above the US\$10 million mark.	<ul style="list-style-type: none"> ■ none

lished the *SME Rating Agency* (SMERA)⁶. SMERA provides banks with evaluations of the overall strength of potential borrowers, and allows a significant reduction of bank costs associated with the assessment of clients' creditworthiness. SMERA's scheme ensures that the lending conditions applied to candidates with a determined risk profile—scored from 1 to 8—are fixed for all of the enterprises that fall in that particular category. Thus

⁵ The categories presented in this section follow the definitions adopted for this study, which are briefly resumed under 'Comments'. However, it should be noted that various Indian sources use a different terminology. In particular, in Indian VCs' vocabulary, the concept of 'early stage' is often extended to what is herein defined as 'development stage' operations, and sometimes extended to all operations before mezzanine. Similarly, other sources do not identify the development stage, and the first expansion comes immediately after the early stage. The classification presented here has the advantage of being more detailed on SME financing needs, and of allowing comparisons with other cases analysed under the study.

⁶ The largest shareholder of SMERA is SIDBI with 22%, followed by SBI, ICICI Bank and Dun & Bradstreet which holds 10–13% per cent. Other public sector banks have minority participation, such as : Punjab National Bank, Bank of Baroda, Bank of India, Canara Bank and Union Bank of India.

far, there are 20 banks that have established working relations with SMERA. At the same time, various commercial banks are currently developing financing instruments tailored on SME needs. These include:

- **Canara Bank:** Canara is one of the first banks to conform to the MSMED Act. It is a public-sector bank that offers a wide range of financial instruments for SMEs, both for capital investment and working capital needs. For loans of less than US\$50,000, collateral is not required if the borrower has a good track record with the bank or if it is covered by the CGF;
- **Standard Chartered India:** Standard Chartered operates a line of products for SMEs that includes: (i) unsecured lending up to US\$50,000 for SMEs, with a turnover between US\$90,000 and 6.0 million; (ii) loans against properties for businesses with a turnover between US\$200,000 and 24 million; (iii) instruments designed for the trade business; and (iv) schemes that cover the needs for working capital;
- **Yes Bank:** Yes Bank is a private commercial bank of the new generation. 30% of its portfolio is made of SMEs, as a result of various flexible financing instruments. Yes Bank plans to further concentrate on this segment over the next three years.

The access to financing for generic SMEs will certainly improve in the near future due to this renewed confidence of banking institutions. However, it is not clear if the ICT/ICTE sector will enjoy the same benefits. The schemes proposed by banks usually focus on sectors other than ICT/ICTE. Bankers generally are not attracted by ICT/ICTE firms until those firms reach a later stage of maturity. There are exceptions such as Cyber Plus, which is a type of loan that is extended by the *State Bank of India* to entrepreneurs who wish to set up an Internet access point, especially in rural or semi-rural areas. But in general, the prerequisites for access to financing for small IT entrepreneurs remain quite strict—especially for business models that display high cash volatility and few physical assets. An example is *ICICI Bank*, which is the largest private-sector bank in India. ICICI Bank is deeply involved in SME financing, but its lending conditions are prohibitive for many small ICT/ICTE entrepreneurs, as illustrated in Box 1.

BOX 1. Assessing SME Creditworthiness—The Case of ICICI Bank⁷

ICICI Bank is one of India's leading financial institutions. In recent years, the bank has made a genuine effort to address the needs of the growing SME segment, with special attention toward high tech firms. This has involved a change in the creditworthiness assessment approach—the adoption of a “holistic view of the customer”, and less emphasis on conventional “credit appraisal based on financial statements”. However, this new philosophy has only been partially reflected in the operational criteria retained for the granting of loans. Indeed, ICICI Banks' Go – No Go Criteria include:

- The borrower must have been in business for at least two years;
- Turnover must be in excess of US\$400,000, and tangible assets in excess of US\$200,000;
- EBITDA must be above 5%, and the borrower must have been trading profitably in the two previous years, with positive projections for the current year;
- Receivables beyond six months must account for less than 5% of annual turnover.

This makes it obvious that, even in the case of a very dynamic financial institution such as ICICI Bank, the decision criteria for assessing credit worthiness still shows a significant mismatch with the distinctive features of small ICT operators.

Issues in Accessing Equity Financing: India's VC industry has recently reached new heights, and many observers are confident about the solidness of this renovated boom. However, access to this source of financing is not equally available to all type of enterprises. Depending on various endogenous and exogenous factors, obtaining risk capital from an institutional or individual VC may be relatively easy or extremely hard. The contributing endogenous factors emerge from the interaction of the demand and the supply. They are determined by: (i) the characteristics of the demand, such as the quality of projects, the potential level of return offered, and the entrepreneurs' degree of ‘control-aversion’; and (ii) the policies and attitudes of the VC industry. In addition, the market direction and performances can be affected by exogenous factors, such as the legal, economic and social environment. The endogenous factors can be described as follows:

- **Investment policy:** Today, most VCs are skewed toward expansion and late-stage investments. This is the consequence of consistent failures that

⁷ Based on the presentation made by Mr. Kumar Ashish, Head of the Business Banking Group of ICICI Bank, at the 2nd Global Forum on Business Incubation, November 8, 2006. The presentation is accessible through the [infoDev website](#).

occurred in early 2000 that mainly affected seed and early-stage deals. From early 2000 on, VCs' interest increasingly shifted toward well-established firms, which often had cross-border relations already in place. In addition to considerations on the volatility of startups, there are several factors that tend to favor operations in the higher tiers, such as some aspects of the regulative framework and the investors' backgrounds. Various VC managers are recruited from the banking sector. Therefore, they are much more familiar with late-stage and PIPE operations, than with seed/startups. Dealing with early-stage enterprises requires hands-on experience and a consistent involvement in company management at various levels⁸. Only a few VCs still operate at the early-stage, including: (i) *Erasmic Venture Fund*; (ii) *SeedFund*; (iii) *Infinity*; (iv) IFI-sponsored facilities such as *Swiss Tech VCF*; and (v) government schemes such as *SIDBI VC and Gujarat VF*. Although public sector VCFs may appear quite numerous, their efficiency is severely limited by two factors: (i) an excessively bureaucratic approach—it is estimated that no less than six months are necessary to close a deal from inception to disbursement; (ii) an inadequate experience and ability in project appraisal that sometimes translates into an excess of risk wariness. Recently, with the overcrowding of VCs' operations at later stages, players have started diversifying their scope of activity, reintroducing early-stage deals into their portfolios. A key role in this process is increasingly played by reputable small seed investors, which act as mentors to promising enterprises and help create the conditions for further investments from large VCFs⁹.

- **Size of operations:** Since 2000, the average size of private equity deals has increased tremendously. Most funds target operations above the US\$5.0 million mark—in particular, international operators tend to invest amounts of US\$10 million and above. Early stage VCs seek smaller deals, typically in the US\$1.0–3.0 million range. However, they rarely go below the half million dollar mark, where there is a strong appetite for financing, but very few opportunities. Possible sources of smaller investments are represented by local public-sector facilities, business angels, business incubators funds, and isolated cases of seed VCFs, such as the micro-venture AIMVCF schemes. However, there are

not enough opportunities to match with the existing demand.

- **Understanding of ICT:** Understanding the business is not a problem for the majority of players. This includes MNC funds and technology funds, whether they are run by public or private sector entities. However, the Indian IT industry is rapidly evolving, and new opportunities come from the high-end segment of IP-based firms. Some VCs candidly admit that they lack the specific knowledge necessary to properly evaluate the feasibility of highly specialized projects. In such cases, VCs may decide to back initiatives validated by other strategic investors, thus acting as co-investors. This is the case with IIML, which has entered various deals in the hi-tech sector as a co-investor with MNC funds such as *Intel*, or in partnership with strategic Vcs such as *Infinity*. Nonetheless, small but highly specialized IT firms still have difficulties making their business models understandable to potential investors.
- **Constraints on the demand side:** Regarding promoters, the causes of mismatch with investors' expectations fall into three categories. First, a certain opacity is widespread among early-stage entrepreneurs for what concerns financial management. This can be largely ascribed to a lack of managerial experience. It translates into an additional burden for VCF officers who have to conduct the project appraisal. Second, entrepreneurs are often well-prepared regarding technical aspects, but have poor managerial skills. They often require constant and expensive assistance throughout the whole duration of the investment, which may discourage VCs. Unlike 'serial' entrepreneurs, who are abundant in the Silicon Valley and similar ecosystems, 'debutant' entrepreneurs are typically less able to prepare convincing projects. Third, early-stage promoters that have limited entrepreneurial experience are hesitant to relinquish control to VCs that display a marked hands-on attitude.

In addition to the issues described above, VC operations are also hindered by exogenous factors related to the overall business environment:

⁸ This issue is also illustrated by Mr Saurabh Srivastava, Chairman of the Indian Venture Capital Association and of Infinity Technology Investments, in an interview appeared on the "Venture Capital Insight Report, 2006" published by Ernst & Young.

⁹ The mechanism is illustrated by Pierre Hennes of Upstream Ventures in an interview posted by VC Circle in October 2006, www.vccircle.org.

- The Indian domestic ICT/ICTE market is still very narrow—the bulk of VC financing, 90% according to IVCA, comes from overseas investors. Therefore, it is unsurprising that most VC funds prefer to deal with cross-boundary operations, and that a large share of domestic ICT enterprises operating in the Indian market are excluded from financing;
- While the overall regulative environment for the VC industry is considered to be quite conducive, there are still policy-related issues that negatively affect the early-stage segment. First, the general costs met by an overseas institutional VC to set up its presence in India are considerable. The minimum capitalization for the fund management entity is about US\$0.5 million—which may discourage the establishment of small facilities and BA funds. A second constraint is that minority shareholders are not sufficiently protected—again, this problem is more acute at the small business level. More generally, observers consider the Indian regulatory and policy framework to be somewhat skewed in favor of late-stage private equity operations and institutional investors, as opposed to risk capital proper and individual investors;
- A weakness in the Indian ecosystem involves the relative scarcity of high quality business services, such as training, recruitment of professionals, and advisory services for startups. To the extent that these services exist at all, they are often fragmented or insufficient compared with the demand. For a foreign strategic investor, this requires larger efforts to provide the direct assistance required by its investees. This implies the need to set up a stronger presence in the country, through a network of talent managers and business advisors. This may have a negative impact, particularly on smaller operations.

Issues Related to Government and Donor

Schemes: As seen in previous sections, government financial support to the ICT/ICTE sector is mainly centered on fiscal and custom policies that are aimed primarily at sustaining exports. Regarding generic SME financing, the already-mentioned MSMED Act is expected to significantly improve SME access to credit. However, it is too early to decide whether the MSMED Act is going to produce substantial and durable effects. In addition, the government financially supports

SMEs in the ICT/ICTE sector, through schemes managed by directly-controlled institutions. This is true of the *Technology Development Board* (TBD), which provides soft loans, grants and equity financing to small technology industries for commercialization purposes. These schemes are certainly useful, but they cannot represent a real alternative because the volume of projects funded remains very limited. Since its establishment, TBD has financed no more than 13 projects in the ICT/ICTE sector, for a total amount of US\$5.5 million. In addition, TBD's schemes may only cover R&D activities and pre-commercialization investments, while most SME financing needs relate to the setting up and the expansion of the commercial network. The government-supported SIDBI is heavily involved in SME financing, but apart from a small scheme developed with *Intel*, most of its resources normally go to enterprises in sectors other than ICT/ICTE.

The bulk of donor and IFI-supported schemes in the field of SME financing are of a generalist nature. These are often facilities that assist domestic SME financing institutions to expand and improve their schemes—often combining lending with technical assistance. One of the largest programs in this field is the Small and Medium Enterprise (SME) Financing and Development Project (SME-FDP). It was launched by the World Bank in 2004, and is co-sponsored with other international organizations, including the Swiss SECO and the British DfID. The SME-FDP is active along three main lines: (i) a US\$100 million credit facility, to refinance commercial banks' SME lending portfolios; (ii) a US\$25 million risk sharing facility, to provide partial credit risk coverage to banks; and (iii) a US\$37 million technical assistance program to design long-term policy and regulatory frameworks, and to implement capacity-building initiatives in support of SIDBI and other commercial banks. Another important initiative in the pipeline—which also sees SIDBI as the local beneficiary—is the ADB's Small and Medium Enterprises Financing Facility. This is a US\$300 million refinancing scheme that is aimed at broadening the access to credit for Indian SMEs, particularly for early-stage firms and for less-developed entities. The idea of this facility comes from a previous technical assistance project financed by ADB in 2004. It will become fully operational in 2007.

III.3 THE FINANCING GAP – NATURE AND SEVERITY

A summary presentation of the financing gap faced by ICT/ICTE SMEs in their various stages of development is provided in Figure 1¹⁰.

The constraints faced by ICT/ICTE companies vary depending upon their stages of development. The evidence collected during the fieldwork and through secondary sources reveals that the situation is more severe for not yet established enterprises, and those with financing needs below the US\$2.0 million mark. The growth stage appears to be most problematic. By contrast, there is a proliferation of financing options for later-stage companies. More specifically, the situation can be described as follows:

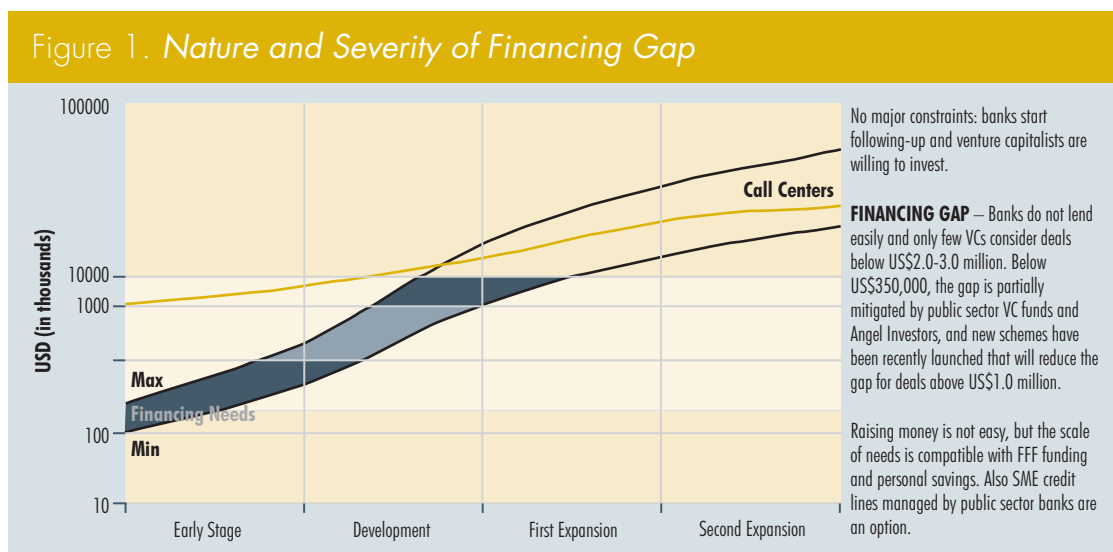
- At the *early-stage*, most Indian entrepreneurs leverage personal and FFF resources to establish their businesses. This appears to be a quite viable strategy when the resources needed are small—below US\$50,000. In the Indian cultural system, it is normal to receive help from the parental and surrounding social network. In addition, at this level, entrepreneurs can access the SMEs lending schemes made available by commercial banks, such as *Canara Bank* and *Standard Chartered*, for which securitization is

not necessary. They can obtain credit guarantees from the CGTSI, for up to 75% of the borrowed amount. Tenants of incubating facilities can also tap into the Incubator Funds, such as TREC-STEP. Incubatees can receive up to US\$30,000 in the form of equity for business development. Above the US\$50,000 mark, the situation changes. Loans of a larger size are more difficult to obtain. The only alternatives are the *Aavishkaar India Micro Venture Capital Fund*, which operates in the US\$20,000–100,000 range, and by the fledging business angel community. In both cases, the overall available resources are scarce. At this stage, financing needs may easily rise to half a million dollars, depending on the business model adopted—but only a few financing institutions follow-up. The major source for companies in this segment is probably represented by the various VC funds that were established with public funding at the state level, such as KITVEN, *Kerala VCF*, and *Gujarat VFL*¹¹. The latter typically finance operations in the US\$100,000–350,000 range. However, the bulk of VCs target larger deals,

¹⁰ The definition of the various stages of development adopted in this section incorporates the considerations made in Section III.1.

¹¹ Sometimes interesting synergies emerge between these facilities and the business incubators, as in the case of Gujarat VFL, which recently closed two transactions with firms graduated from an incubator. One deal involved Rapid Radio Solution, a company specializing in Radio-frequency Identification technology (RFID) that secured an investment of US\$180,000.

Figure 1. *Nature and Severity of Financing Gap*



and a considerable share of the demand remains unmet¹².

- The **development stage** is another critical phase for ICT/ICTE SME financing. The same problems faced by startups when they reach a certain degree of development, persist when financing needs go above the US\$0.5 million and approach US\$1.0 million. In the life cycle of an ICT/ICTE enterprise, this is a crucial stage. The financing needs are acute and the lack of adequate funding may ultimately jeopardize the enterprise's survival. This stage is typically the domain of business angels and SME-oriented institutional VCFs, such as *Infinity I*, the *Swiss Tech VCF*, *SIDBI Venture Capital Ltd* and *IndiaCo*¹³. Companies at this stage can also try to obtain financing in the form of equity or debt from the *Technology Development Board*. However, the demand for financing at this stage exceeds the capacity of these institutions, leading to a financing gap. This gap used to be particularly severe in the US\$1.0–2.0 million range, but in the near future it is likely to be mitigated by newly established SME-oriented schemes, such as *Erasmic VF*, *SeedFund*, *BTS India*, and *Upstream Ventures*. There is virtually no gap above the US\$3.0 million mark, due to the presence of other early-stage VCFs such as *Global Technology Venture*, *SICOM Capital*, *JumpStartUp*, and by the renewed interest of late-stage VCs in relatively small deals.
- At the **first expansion** stage the situation radically improves. Most Indian VCs are willing to deal with well-established companies, and are ready to invest US\$2–3 million up to US\$10 million. Several equity operations in the portfolios of large institutional VCs such as *ICICI*, *Aureos*, *IL&FS Investment Managers*, are in this range. In addition, commercial banks represent an option, because the level of risk at this stage is much more acceptable, because the company has sufficient assets to securitize a loan.

This is even more evident at the **second expansion** stage, which is where the majority of recent private equity firm operations in the ICT/ICTE sector have been concentrated. Between January 2005 and September 2006, there were 100 transactions totalling between US\$12–40 million, which represents 40% of the total deals closed during that period¹⁴. According to some observers, there is an excess of financing supply at this stage that has led to an overvaluation of companies. Therefore, a downturn in transaction size is expected over the next few years.

These considerations broadly apply to most of the ICT/ICTE business models, with the exception of subsidiaries of international chains and MNC offshore operations. In particular, it does not apply to most of the **call centers** or to the captive **BPO** service providers. As illustrated in Figure 1, call centers are normally more capital-intensive at the early-stage, than are other types of ICT/ICTE businesses. The investment in equipment is high, because a capacity of minimum of 50–100 seats is necessary. The initial training of personnel absorbs significant amount of resources. However, call centers rarely face financial constraints, because they are normally established as offshore operations with capital from the parent company. Even when domestic, they typically spin off from large telecom or IT firms that make accommodations for all of their initial financing needs. Moreover, at a later stage, these types of businesses seldom have difficulties of a financial nature because they can usually count on long-term contracts.

12 In the words of Upstream Ventures' Partner Pierre Hennes: "Startups in India talk of the \$250K gap, while VCs will be trying to shove millions down the entrepreneurs' throats". This interview appeared on VC Circle on 31 October 2006, <http://www.vccircle.com>.

13 IndiaCo Ventures Limited is a financial services company promoted by IndiaCo Group, which invests in early-stage companies with growth potential. IndiaCo also manages an incubation facility that has been supported by, among others, the infoDev program. An example of IndiaCo operations at this stage is represented by the US\$600,000 deal made with Gridlogics, which is a software house specializing in grid computing-based applications.

14 Source: Venture Intelligence, www.ventureintelligence.in



IV. CONCLUSIONS AND RECOMMENDATIONS

IV.1 INTRODUCTION

India is home to a dynamic and diversified ICT/ICTE industry encompassing enterprises of different natures and sizes. Some Indian IT clusters, such as Bangalore and Mumbai, have achieved world-class reputations, and rank among the world's best IT ecosystems. To a large extent, the development of the ICT/ICTE sector has been financed through equity investments made by numerous international and domestic private equity firms. Those firms have injected about US\$15 billion into the system, the relative majority of which has been absorbed by the ICT/ICTE industry. In absolute terms, it is questionable whether there is a scarcity of risk capital available in this sector. However, the evidence from fieldwork and from secondary sources indicates the presence of a financing gap in specific segments, and for specific amounts. The financing gap is mainly perceived by enterprises at the early and growth stages of development, rather than by more established entities. It is more severe for companies seeking financing below US\$2.0 million. In the past few years, the US\$1.0–2.0 million window appeared to be the most problematic. Today, with the recent establishment of new VCFs operating in this segment, the most problematic range is US\$ 0.5–1.0 million. The financing gap is also related to the particular sub-sector: call centers and global outsourcing providers face comparatively less funding difficulties than small software and IT services providers—especially among those that are domestic-oriented. In addition, the financing gap may also have a geographical dimension, with the bulk of investments concentrated in Mumbai and Bangalore, and fewer operations in other medium-level IT clusters, such as Chennai, Hyderabad, and Gurgaon. The extent of the financing gap in India

may vary significantly, depending on a series of factors. The recommendations proposed in this section should be appropriately applied to the specific contexts within which these gaps have been demonstrated.

The results of this study indicate a series of measures that could help to bridge the financing gap faced by Indian ICT/ICTE SMEs. Two categories of interventions could be envisaged: (i) measures aimed at facilitating access to *equity financing*; and (ii) measures aimed at facilitating access to *bank financing*.

IV.2 MEASURES AIMED AT FACILITATING ACCESS TO EQUITY FINANCING

In absolute terms, risk capital in India is abundant. For well-established enterprises and especially for those operating in the ITES-BPO and consumer EDP, access to the numerous equity financing schemes does not pose significant problems. On the contrary, observers ventilate the idea of a possible overcrowding of VC offers at this level, causing an overvaluation of the top tier ICT/ICTE companies¹⁵. Radically different is the situation at the seed and startup stages. During the late 1990s boom, the VC industry displayed a substantial appetite for deals at these stages, but since the recession, this segment has remained widely neglected by the bulk of risk capital investors. Therefore, in order to improve access to equity financing in India, it is necessary to devise ways to direct a larger share of the existing risk capital toward smaller and less-established enterprises. This can be achieved through interventions in three main areas: (i) deployment of measures aimed at mitigating the risks associated with early-stage investments; (ii) support to business angel networks; (iii) support to seed-schemes managed by Business Incubators.

¹⁵ See for instance: Alok Aggarwal, "Is the Venture Capital market in India Getting Overheated?", Evalueserve Inc., August 2006.

Mitigating the Risks Associated with Early-Stage Investments:

From direct contacts with stakeholders, it emerged that in order to scale-up financing for early-stage enterprises, the most viable instrument would be the establishment of public-private schemes, modeled after those implemented by the US *Small Business Investment Companies* (SBIC) program¹⁶. These types of schemes are normally co-funded with public money, through a fixed commitment or on a *pari passu* basis. They are normally fully managed by private sector professionals, in order to grant a certain degree of efficiency and a market orientation. Depending on their nature, co-investment schemes display certain advantages: (i) they make early-stage investments more attractive for private institutional VCs, through risk-sharing mechanisms; (ii) they introduce downside protection mechanisms for private-sector investors, such as providing guarantees on the initial investment, or establishing that the public sector will bear more than a proportional share of the possible losses; (iii) they provide leveraged returns to private sector investors or reduce the tax burden on gains, thereby making investment in these types of schemes more profitable. The feasibility of a large-scale application of these models could be the subject of a thorough study aimed at providing insights into: (i) the institutional and legal framework for these types of operations, both at the national and state levels; (ii) the market conditions present in different areas of the country; (iii) the operating modalities and practical arrangements needed to effectively implement specific pilot schemes.

Supporting Business Angel Networks: Business angels are crucial for the provision of smart capital to early-stage ICT/ICTE firms in the US and other advanced economies. Angel investing normally evolves from an initial phase of scarcely correlated individual operations to more coordinated forms of association. The establishment of an organized network of angels has many benefits: (i) information on investment opportunities can be disseminated among investors in a more systematic way, and interactions with promoters can be facilitated; (ii) the matching process can be streamlined through the periodic presentation of project events and pre-screening activities; (iii) acting as a group, business angels can exert more pressure on policymakers and thereby obtain necessary improvements in the legal and institutional framework. As

mentioned previously, an initial BA network—the *Band of Angels* (BoA)—started operations in 2006 in Delhi. However, the volume of activities is still limited, and there is room for similar groupings in other parts of the country. Providing assistance to the establishment and operation of these types of networks could represent a useful complement to other measures tailored toward institutional equity financing operators. Assistance to business angels' networks could take the form of small grants to support the organization of matchmaking events, advocacy and awareness initiatives and other operational activities, and the establishment of a basic secretarial support service.

Supporting Seed Schemes Managed by Business Incubators:

In connection with the two areas of intervention described so far, a third array of possible initiatives could be centered around the vast network of business incubators existing in India. The measures described above may work with small firms that have already entered the commercialization stage, or are at least ready to do so. However, at the seed stage, the situation is different. Enterprises not only need an initial injection of capital, but they usually require assistance: (i) to set up the organization; (ii) to develop their products/services; (iii) to prepare a proper business plan; and (iv) to establish strategic relations. In other words, they need a combination of financing and technical assistance. Business incubators are well-positioned to act as the key referents for an intervention in this segment for various reasons. First, there is already a pilot program to build upon. This is a US\$1.0 million scheme financed by the *Department of Science and Technology* that was launched in 2005. This program involved the establishment of small Incubation Funds within five selected Technology Business Incubators (TBI), and Science and Technology Parks (STEP). Second, various business incubators have already gained substantial experience operating in a multi-stakeholder environment that includes public institutions, private sector entities, universities and research institutions, and

16 The possibility of an adaptation of the SBIC model to the Indian context has been discussed, among others, with Mr Paul Asel (IFC), Mr Rahul Patwardhan (IndiaCo) and Ms Bala Deshpande (ICICI Venture). This point is also touched by Mr Saurabh Srivastava (IVCA, Infinity) in a recent interview appeared on the "Venture Capital Insight Report, 2006" published by Ernst & Young. In his words: "In India there is no special scheme that helps to bridge the gap between new companies and the VC industry comparable to the SBIC program in the United States. An Indian program akin to the U.S. SBIC program would definitely help to answer the needs of companies in a start-up situation."

international organization. This is true of the *infoDev*-supported facilities. Some incubators have also reached a considerable size, and appear able to manage complex programs. Third, there are already examples of fruitful synergies between the VC community and business incubators, as in the case of the *Gujarat Venture Fund's* operations in Ahmedabad. In summary, it would be worth exploring the possibility of reinforcing the role of business incubators as providers of smart-money and of high-end business services. Incubators may also effectively take part in joint initiatives with the business angel community. Investors would be offered the chance of getting in touch with deserving promoters and effectuating good investments, and incubatees could learn from first-hand sources how to deal with financing issues and generally improve their market readiness.

IV.3 MEASURES AIMED AT FACILITATING ACCESS TO BANK FINANCING

Despite the large diffusion of private equity schemes in India, debt financing continues to represent an important source of capital for those ICT/ICTE enterprises that cannot gain access to VCs. This includes: (i) enterprises operating in segments with modest prospectives of growth; (ii) most domestic-oriented firms; and (iii) enterprises that are unwilling to relinquish control of their businesses to external investors. Therefore, it is important to devise mechanisms that can increase the overall access of small ICT/ICTE firms to banks' credit lines. As illustrated above, India has recently passed a law that introduces important improvements in the SME financing system. However, these measures concern SMEs in general, and it is unlikely that they can produce significant modification in bankers' cautious attitudes toward high-tech activities. The most promising initiatives that have been identified in the field of debt financing fall into two areas (i) the strengthening of credit guarantee mechanisms for ICT/ICTE SMEs; and (ii) the provision of assistance to ICT/ICTE SMEs in their dealings with financial institutions.

Support to Credit Guarantee Schemes: Credit guarantee schemes (CGSs) play a major role in

facilitating SME access to finance. CGSs operate through mechanisms that reduce the need for loan securitization. In India, a CG fund has been in operation since 2000. It is managed by the *Credit Guarantee Fund Trust for Small Industries* (CGFTSI), which is an institution under the auspices of the *Ministry of Small Scale Industries*. The Indian CGF has a corpus of US\$250 million, which will soon be raised to US\$500 million—it could significantly foster SME access to financing. Nonetheless, its potential impact appears to be limited by its operational model. CGFTSI does not provide first demand guarantees, which are immediately payable in the event that borrowers default. The liquidation is subordinated to various other aspects, including the judicial proceeding. The Indian model appears less attractive for banks when compared to other types of CGSs. It could be valuable to make a study on the possibility of an intervention in this field. That study should start from an accurate analysis of the conditions conducive to a larger deployment of credit guarantees through facilities of a different nature, such as the mutual guarantee schemes that actively involve the business community. This study should also cover the feasibility of establishing credit guarantee lines that specifically address the ICT/ICTE sector. An unsuccessful initiative of this kind was previously announced by CGFTSI in partnership with ASMEII, which is a sector business association. The study should include the lessons learned from that initiative.

Provision of Direct Assistance to Promoters: The constraints hindering access to bank financing depend also on the unfamiliarity of promoters with banking rules and procedures. The wariness of banks vis-à-vis SME financing could be reduced, by improving the ability of entrepreneurs: (i) to prepare reliable financial statements; (ii) to elaborate sound business plans; and (iii) to effectively present their projects to financiers. This is even more crucial for ICT/ICTE enterprises, because they have: (i) a notorious lack of material assets with which to collateralize loans, and (ii) business models that are not easily understood by credit officers. A possible intervention could take the form of training and advisory programs aimed at enhancing the investor readiness of ICT/ICTE firms. This could be done through a series of workshops and seminars on specific aspects of investor readiness, and with the direct provision of technical assistance to promoters in their endeavors with commercial banks. In the

short run, initiatives of this kind may have a lesser impact on the financing gap. Nonetheless, they are

fundamental for a stable improvement of the overall business environment.



ANNEXES



ANNEX A – THE ICT/ICTE SECTOR

A.1 TELECOMMUNICATIONS¹⁷

Over the past five years, the telephony penetration has increased incessantly at a remarkable pace. In the mobile segment, subscribers have scaled-up by 1000% since March 2003, peaking at 130 million in September 2006. By contrast, the diffusion of fixed-line has evolved much more gradually. In 2006, it stabilized at around 40 million subscribers, recording even a slight decline over the precedent year. The combined tele-density of mobile and landline phones can be estimated today to be about 18 connections per 100 inhabitants.

The process of liberalization of the Indian telecommunications market occurred in a series of steps in the 1990s. The telephony market legal framework was first regulated in 1991 by the National Telecom Policy (NTP)—it was further amended in 1994 and 1999. Today, Indian legislation sets practically no restrictions on competition in any of the telecom-related fields. It is considered among the world's most relaxed market. Nevertheless, the major players of Indian telephony are state-owned operators, which literally dominate the fixed-line market, and also hold a prominent position in the mobile segment. Aside from the two incumbents, there are five active licensees in the fixed-line segment, and 13 in the wireless segment. The two large incumbents have a complementary outreach. *Bharat Sanchar Nigam Limited* (BSNL) operates throughout all of India, except in the metropolitan areas of Mumbai and New Delhi, which are covered by the other public operator, *Mahanagar Telephone Nigam Limited* (MTNL). BSNL is 100% state-owned, while MTNL is controlled through a 56% majority stake, with the remainder shared among various institutional and individual private shareholders.

The main competitors from the private sector include: *Bharti*, *Reliance*, *Hutch*, *Tata Teleservices* and *IDEA*. An overview of the principal telecom market players is given in Table 2.

In the **fixed-line** sector the state-owned operators prevail. BSNL controls 84% of the market, and MTNL holds another 9%—private operators jointly account for a mere 7%. In early 2000, the private sector operators began to expand. It seemed as though they would strongly challenge the position of the incumbent operators. However, over the past two years, the trend reversed, and BSNL regained its absolute leadership. However, the penetration rate of wired lines in India remains very low, and telecom operators do not appear to be making significant efforts to bridge the communication gap between metropolitan and rural areas. There are 600,000 village public telephones, However, there are more than 50,000 village that are still completely isolated. BSNL is gradually establishing new connections at a rate of 5,000–7,000 new villages covered per year, but private operators are discontinuing their facilities in those areas for lack of profitability.

The **mobile** market is much less concentrated than the fixed-line market. There are 38 licensees, but only 13 active players. Only a couple of players have a nationwide coverage, while some operators are active in just one or two circles. The incumbent BSNL holds 18% of the market. The main players from the private sector are *Bharti*, *Reliance*, *Hutch*, *Tata Teleservices*, and *IDEA*—together, they account for 75% of the market. With 130 million customers, the market is wide and competition is very tough, but none of the competitors truly dominates, as illustrated in Figure 2. The majority of mobile services are GSM-based, and are provided by *Barthi*, *BSNL* and *Hutch*. CDMA technology has a significant diffusion, with 30% of the market—the relevant providers are *Reliance* and *Tata Teleservices*.

¹⁷ Figures are mainly drawn from the Telecom Regulatory Authority of India (TRAI).

TABLE 2. *Main Telecom Operators*¹⁸

Operator	Line of Business (subscribers)	Comments
Bharat Sanchar Nigam Limited – BSNL	<ul style="list-style-type: none"> ■ Fixed telephony (30.5 million) ■ Mobile telephony (23.7 million) 	BSNL is the historic national operator, and it is 100% state-owned—a public sector communications company. BSNL is India's oldest and largest Communication Service Provider (CSP). It operates in 21 telecommunication circles—which encompasses all areas of India with the exception of Mumbai and New Delhi. The estimated turnover of BSNL for FY 2005–2006 is US\$ 9.0 billion, with a net profit of US\$2 billion. BSNL is the largest Indian telecom—it employs 300,000 staff.
Mahanagar Telephone Nigam Limited – MTNL	<ul style="list-style-type: none"> ■ Fixed telephony (3.8 million) ■ Mobile telephony (2.4 million) 	MTNL is a state-controlled operator active in areas complementary with BSNL coverage. It is active in both the wired and wireless segments, and has more than 6 million subscribers. MTNL is listed at the National Stock Exchanges, and at regional SEs of Mumbai, Delhi, Chennai, and Calcutta. Since 2001, it is also listed at the New York Stock Exchange. The state-controlled share is about 56%.
Bharti Airtel	<ul style="list-style-type: none"> ■ Fixed telephony (1.3 million) ■ Mobile telephony (27 million) 	Bharti Airtel is the leading telecom in the mobile segment, and a provider of wireline services in 14 circles. The company is a strategic partner of Singapore's SingTel, and Vodafone participates at 10%. It operates a submarine cable station that connects Chennai to Singapore, and has built a vast fiber optic backbone throughout India. Bharti is also active in broadband Internet and VSAT service.
Reliance Infocomm	<ul style="list-style-type: none"> ■ Fixed telephony (2.7 million) ■ Mobile telephony (26 million) 	Reliance Infocomm is the telecom concern of Reliance ADAG Group, which also operates in the energy sector and the financial service industry. Reliance is the second-largest mobile operator and one of the main fixed-line competitors, covering almost the entire territory of India. It operates a 60,000 kilometers-wide fiber optic network. Recently Reliance tried without success to acquire the control stake of Hutch.
TATA Indicom	<ul style="list-style-type: none"> ■ Fixed telephony (4.0 million) ■ Mobile telephony (12.4 million) 	Tata Indicom is part of the large Tata Group. It is comprised of three companies, the largest being Tata Teleservices, which is active in wired and mobile telephony. Tata Indicom has introduced 3 rd generation CDMA technologies, and is leader in the fixed wireless telephony with nearly 4.0 million subscribers.
Hutch	<ul style="list-style-type: none"> ■ Mobile telephony (20.3 million) 	Hutch was established in 1994, as a partnership between Hutchinson Telecom and Essar. It operates in the mobile market with a share exceeding 15%—its network covers 16 telecommunication circles. In early 2007, the control of Hutch passed to Vodafone.
IDEA Cellular	<ul style="list-style-type: none"> ■ Mobile telephony (10.3 million) 	Established in 2002, IDEA Cellular takes over from former Birla TATA AT&T Ltd. Controlled by the Aditya Birla Group, IDEA operates in the mobile segment, and its footprint currently covers nearly half of India's population.

A.2 INTERNET SERVICES¹⁹

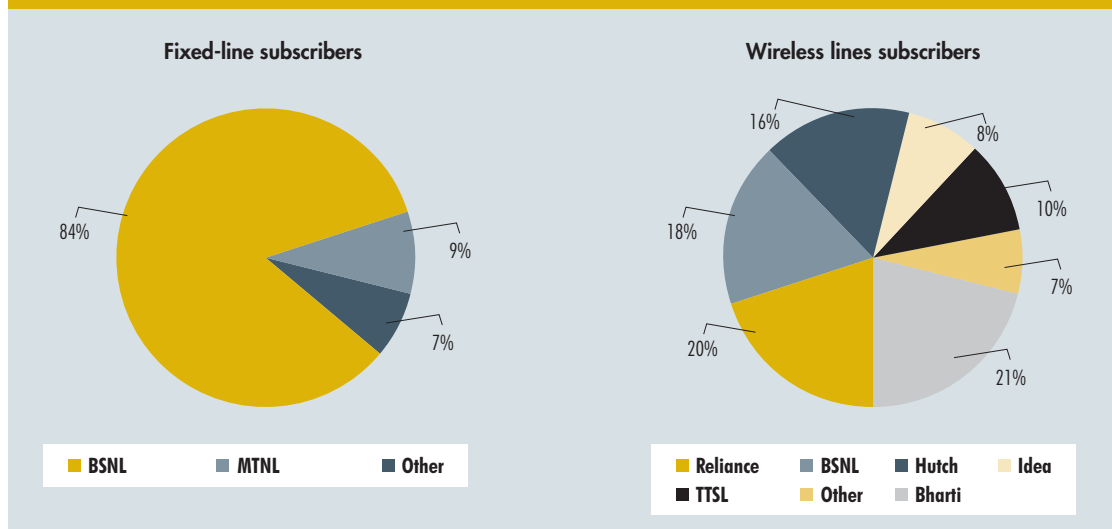
Videsh Sanchar Nigam Limited (VSNL), in 1995, set up the first Internet service. At that time, VSNL was a State-owned company, and until 1999, it held a monopolistic position in the ISP market. Then, a major legal reform introduced a very liberal regime in this sector and virtually no economic or bureaucratic barriers were set for new entrants. Some aspects are worth to mention: (i) the annual license fee was fixed at an extremely affordable rate; (ii) no restriction was imposed to the number of licensable ISPs; (iii) ISPs were allowed to set up their own international gateways. The overall framework for the Internet industry, further improved in recent times with the introduction of the “Information

Technology Act”, which regulates e-transactions, and with the permission for ISP to set up and operate VoIP services. On the infrastructure side, in 2003, the State has engaged in building the National Internet Backbone, a landline network consisting of more than 400 point of presence (POP) disseminated throughout the countries. It ambitiously aims at covering soon the whole territory. In parallel, some private operators, such as *Bharti* and *Reliance*, are currently laying down their fiber optic cables network across the country. In addition, in 2003 the

¹⁸ Figures for fixed telephony refer to 1st quarter of 2006 and include also wireless local loop (WLL) connections, while mobile telephony is for 3rd quarter.

¹⁹ Figures provided in this section are mainly drawn from the ISP Association of India (ISPAI), www.ispai.in, and from the “Study Paper on Analysis of Internet & Broadband Tariffs in India”, the Telecom Regulatory Authority Of India, November 2006, www.trai.gov.in

Figure 2. Market structure of Fixed-Line and Mobile Telephony²⁰ (sep. 2006)



National Internet Exchange of India (NIXI) was established. This initiative, strongly supported by the industry business association—the *Internet Service Providers Association of India* (ISPAI), represents an important milestone in the development of national Internet sector as the presence of a local IXP reduces dramatically the overall cost of Internet access and allows a more efficient organization of the available bandwidth. NIXI is a not-for-profit company, operating nodes in New Delhi, Mumbai, Chennai and Kolkata, which are physically located within the premises of the *Software Technology Parks of India*²¹.

The recent improvements of the Internet business environment described above, have rapidly brought VSNL's leadership to an end, and many other players both from public and private sector to emerge. VSNL was privatized, with *Tata Indicom* acquiring the controlling share, while the State has maintained a 26% ownership. Over the past seven years more than 500 licenses for provision of Internet services have been issued by the Department of Telecom, 100 of which are category 'A', for nationwide operators, and the rest for state-level and local providers. But only one-third of licensees have materially started operations.

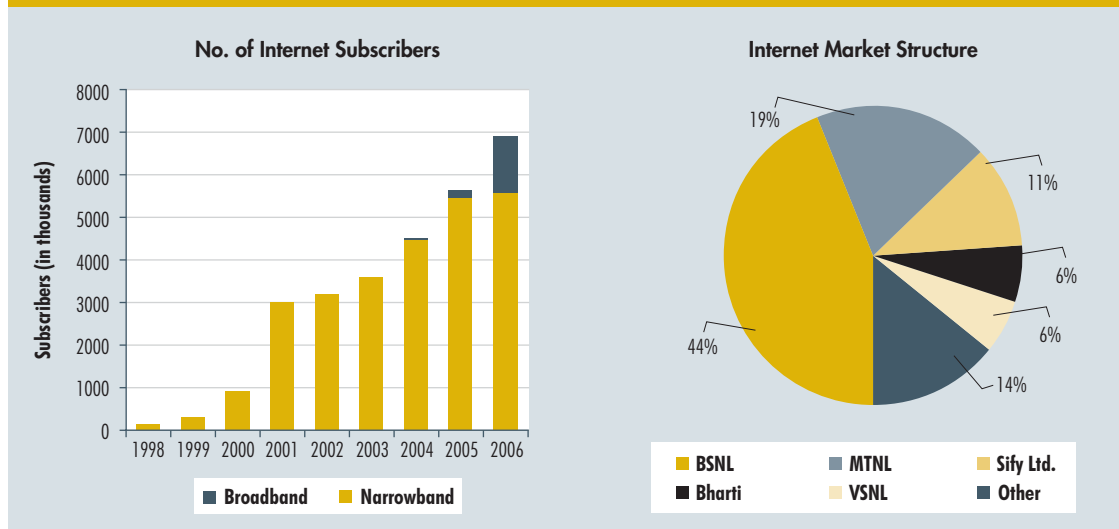
Today, the market is dominated by the two large State-owned telecom operators, BSNL and MTNL, which altogether account for nearly two-thirds of the total. Other major players are *Sify Ltd*, the private telecom *Bharti*, and the VSNL, which still controls 6% of the market. The prevailing role played by telecom operators is easily explained by the various all-inclusive packages—phone + Internet—offered to customers by almost all large players. Smaller ISPs occupy some niches, mainly at a local level or in highly-specialized services segment. As of March 2006, the overall number of subscribers was nearly 7 million, one-fifth of which having broadband access. The salient features of Indian Internet market are provided in Figure 3 below.

India is also home to a multitude of cybercafés. The precise number is not known but estimates speak of about 100,000 entities, including various 'unofficial' players. Cybercafés are mainly stand alone business but various chains are also emerging. The largest is *Sify iWay*, which operates 3,600 cafés in 150 distinct

²⁰ Figures for fixed-line telephony do not include wireless local loop (WLL) connection which are estimated at about 8 million subscribers. WLL are especially operated by private sector players, therefore taking them into account would reduce BSNL prominence and increase private sector share by 10%.

²¹ For more information see the National Internet Exchange of India's website: www.nixi.in

Figure 3. Salient Features of Indian Internet Market



cities. Cybercafés offer Internet access, but often combine it with other office services or entertainment, such as gaming. It is estimated that one third of Indian Internet users are entirely dependent on cybercafés²².

A.3 ICT/ICTE ACTIVITIES

Software and IT services²³. Since its inception in the late 1980s, the Indian software industry has constantly grown in terms of quality, and of quantity of outputs, and today India is indisputably one of the world's leaders in this sector. Initially, only few basic processes were performed, mainly by locally incorporated subsidiaries of global IT leading firms. Then, the volume of operations scaled up, mainly fueled by outsourced activities. This process was accompanied by a sustained technology transfer induced by MNC present in the country and by the experience accumulated by Indians returning from the US. This was determinant for the establishing of a strong domestic software industry leveraging not only on cost-advantages but also capable to offer more complex software engineering activities. Today, the Indian software industry has reached an outstanding dimension and sees the co-presence of typically low-skilled labor

intensive operations and highly specialized knowledge-based enterprises with world-class capacity. The sector encompasses players active in various segment such as: software development, customized applications, value-added services, IT engineering, and other type of IT services. The precise number of enterprises active in this line of business is unknown but can be tentatively estimated around 4,000, with SMEs likely accounting for 80–85%. In 2006, the software and IT service segment generated a turnover exceeding US\$ 23 billion, with a 30% average growth rate which has stabilized the past few years. The total hired workforce is of 700,000 units, half of which are employed in export-oriented firms, and another large portion in MNC captive units, as illustrated in Figure 4. Big companies can be found in the segments of standard software development, large-scale IT services, infrastructure software, and alike, while SME are typically active in the provision of basic IT services, software customization, web design etc. The vast array of Internet value-added services (VAS) also represent an increasing business opportunity for SMEs, as described in Box 2 below.

²² Source: Internet and Mobile Association of India (IAMAI), www.iamai.in
²³ Most of the data provided in this section are drawn from various Reports of the National Association of Software and Services Companies (NASSCOM), www.nasscom.in

BOX 2. *The Value-added Services Market.*

While the telecommunication and Internet markets are dominated by large telecom operators, new opportunities are offered by the expansion of the Value-Added Services (VAS). Margins from basic voice services or simple Internet access are slowly being eroded by harsh competition. Operators are increasingly turning to VAS as a way to fatten their revenues. Typically, the value chain of VAS is a multi-stage process that involves distinct actors. Roughly, it includes the content owners/developers who make the information/service available, the technology-enablers who provide the physical platform for the exchange of the information, and the operators themselves which deliver the service to the final users. In this market SMEs have found their niches, especially at the contents-enabling level. The value of VAS market in the mobile segment is estimated at US\$630 million²⁴. Leaving aside SMS messaging, which is a service entirely run by operators, it has been calculated that the share of revenues that can be attributed to contents developers is about 63 million. Internet-based VAS activities are more difficult to assess, as there are nearly 200 operators involved, but due to the larger diffusion of mobile revenues from Internet, VAS are likely much lower. However, with a substantial growth of the Internet VAS can be expected to increase due to the Internet telephony service, which is rapidly gaining momentum. As of today, there are 130 ISPs licensed to provide this type of service.

The Indian software industry is particularly skewed toward export. With a US\$17 billion turnover, export accounts for about three-quarter of the total industry's revenue. A handful of large domestic IT firms, which have a combined turnover in excess of US\$1.0 billion, account for the lion's share of exports—45%. Twenty to thirty MNC offshore facilities control another 10–15%, and a similar share is controlled by relatively smaller players—a turnover below US\$100 million. Indian exports comprise a mix of traditional IT services, such as packaged-software and customization of existing application, with new and more complex services in the field of IT engineering, software testing, IC design²⁵. As the global demand is shifting toward more value-added services, the Indian software firms find new market opportunities in the Intellectual Property-based segment. By contrast, the domestic market of software and IT service is comparatively thinner and mainly centered around few 'basic' services, such as the sale and installation of packaged software, maintenance services, IT consulting and alike. However, its potential appears to be huge. Its value grew from US\$3.5 billion in 2004, to US\$ 5.8 billion in 2006. It is likely to accelerate in the near future, mainly driven by the demand of customized business packages, such as ERP and CRM solution, coming from the financial sector, the manufacturing industries and the government. Sales

of more common software applications are expected to remain stable because of the widespread piracy. According to the *Business Software Association*, 72% of the software installed today in India is in fact illegal, and no significant improvement has been recorded despite the recent increased efforts in fighting piracy.

In summary, some salient features of the Indian software and IT services market are depicted in Figure 4.

Hardware. When compared to the software and IT services segments, the Indian hardware industry appears much less developed and diversified. India is a reputed destination for offshore operations in the field of IT and BPO. However, the foreign investments in hardware manufacturing and assembling continue to head for other Asian locations, such as Taiwan, Singapore and the Philippines. These countries display a better infrastructure and a traditionally more conducive legal and fiscal framework for this type of operations. However, the Indian Government has recently made efforts to support this segment, making India more attractive to foreign MNC. In particular, important investments in infrastructure and logistics have been made. The fiscal treatment for foreign investors in hardware facilities has improved, and import duties on several items have been reduced. But, in absolute terms, hardware manufacturing remains a limited industry, with only few established players in the field of printed circuits/motherboards, electronic components and assembling. In 2006, the estimated industry turnover was of about US\$7.0 billion growing by 18% compared to 2005. Most of the production is destined to the internal market while the export account for only US\$0.5 billion for EDP devices and peripherals and US\$240 million account for integrated circuits and electronic components²⁶. By contrast, India is a large importer of PCs and electronic products. The internal market for final products is worth US\$15 billion²⁷. Nearly half of the sales relate to desktop PC, but over the

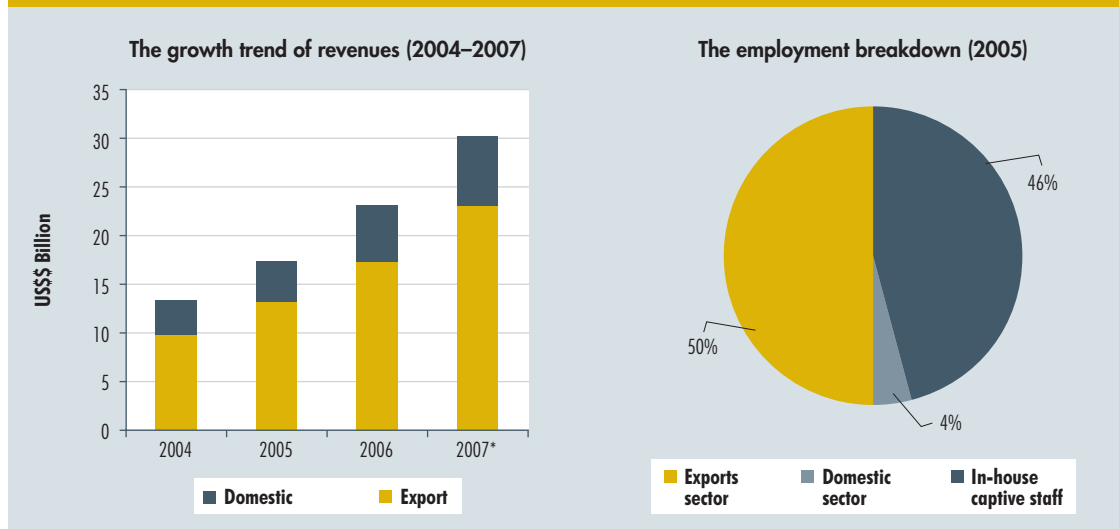
24 Source: the "Mobile Value Added Services in India" published by Internet and Mobile Association of India (IAMAI) and IMRB's eTechnology Group, December 2006, www.iamai.in

25 An example is provided by the recently-inaugurated chip design center set up by Intel in Bangalore.

26 Source: the World Trade Organization, www.wto.org. The figure refers to 2005 and includes PC and peripherals.

27 Source: "IT Industry performance Annual Review 2005–06" published by the Manufacturers' Association for Information Technology (MAIT), www.mait.com

Figure 4. Salient features of Indian Software and IT Services Market



past year, a 100% increase in the sale of notebook was recorded. Competition is strong and prices of equipment have fallen over the past three years determining an important erosion of the margin shares. This has made branded computers much more affordable to customers and has changed their preferences. Assembled PCs, which in 2003 accounted for 57% of the market, today represent only 34%, while both the Indian and MNC branded PC market share has expanded.

IT-Enabled Services & Business Process

Outsourcing (ITES-BPO)²⁸. The world market for Business Process Outsourcing (BPO) is estimated at US\$ 67 billion. India is currently the world leader in this sector, accounting for 46% of the global market. The initial phase of Indian BPO industry goes back to the early 1990s when pioneer firms such as Infosys, TCS, and HCL became suppliers of several American companies in the framework of the booming new-economy. The principal factors that contributed to the rapid development of this line of business are as follows: (i) the presence of an abundant and educated workforce with good English command that represented a solution for the sudden shortage of workers in the US and in Europe, due to the fast growth in this sector; (ii) the numerous Indian community established in the Silicon Valley acted as a catalyst for US entrepreneurs and venture capitalists to invest in India; (iii) the presence of an

adequate infrastructure, centered on the numerous Software Technology Parks which represented an ideal environment for the development of IT and IT-enabled operations and which later became important IT clusters. In addition, the Indian Government has created a favorable fiscal environment for this type of operations, for instance exempting from taxes the repatriation of profits, and conceding a 5-year income tax holiday to each newly established operator. The success of the early operators provided India with a solid reputation which nurtured further development. With the scaling up of the demand, Indian BPO enterprises rapidly scaled-up and deepened their service to include more complex and value-added activities, the 'Knowledge Process Outsourcing' (KPO). But at the same time, the initial cost-advantage of India slightly eroded due to inflation and competition from new entrants such as the Philippines and South Africa.

According to the *National Association of Software and Services Companies* (NASSCOM) classification, there is no substantial difference between IT enabled services (ITES) and Business Process Outsourcing (BPO) and this segment includes²⁹:

²⁸ Sources used in this section include: the National Association of Software and Services Companies (NASSCOM), www.nasscom.in; the Asian Development Bank, "An Analysis of the Philippine Business Process Outsourcing Industry", ERD Working Paper no. 93, March 2007; and "EuroIndia2004 Market Background Overview", www.euroindia2004.org

- **Customer Care** – including database marketing, customer analytics, telesales/ telemarketing, inbound call center, web sales and marketing, sales and marketing administration;
- **Finance** – including billing services, accounting transactions, tax consulting and compliance, risk management, financial reporting, financial analysis;
- **Human Resources** – including benefits administration, education and training, recruiting and staffing, payroll services, hiring administration, records management;
- **Payment Services** – credit/debit card services, check processing, transaction processing;
- **Administration** – including tax processing, claims processing, asset management, document management, transcription and translation;
- **Content Development** – including engineering, design, animation, network consultancy and management, biotech research.

In 2006, the overall turnover of ITES-BPO industry was US\$ 7.2 billion. ITES-BPO is a very dynamic sector which reports impressive year-on-year growth rates. Its size has doubled over the past two years both in term of headcount and of revenues. An estimated 415,000 units are currently employed in this sector and they are expected to exceed 500,000 in 2007. Services destined to export account for the most, as they generate 88% of the total revenues. Customer care and finance and

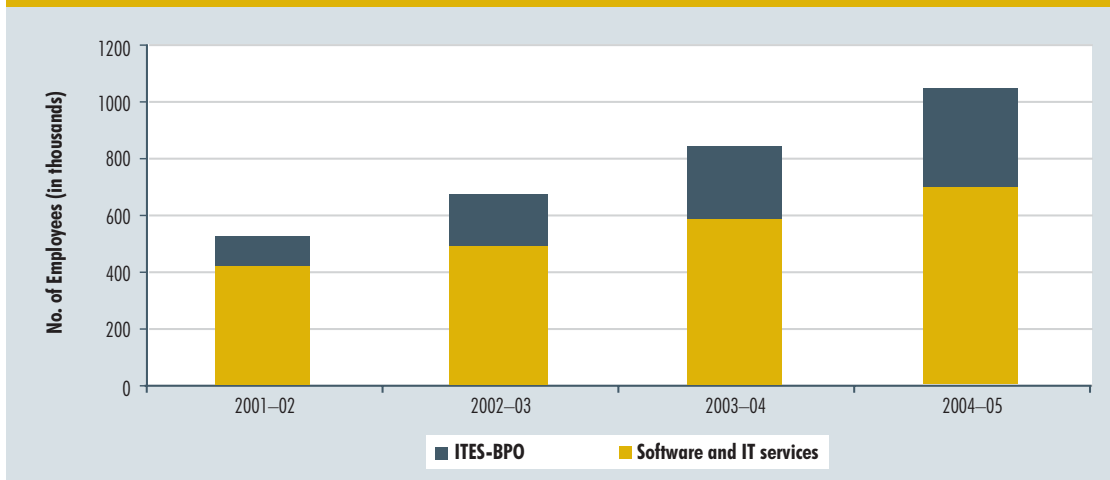
accounting services are the primary service lines, accounting respectively for 46% and 40% of the revenues. The 150 large MNC-owned captive units accounts for nearly half of the ITES-BPO industry, a similar share is controlled by few big domestic operators, while several hundreds of emerging SMEs, with revenues below US\$ 10 million, accounts for only 5% of the pie.

A.4 THE EMPLOYMENT IN THE ICT/ICTE INDUSTRY

A key factor of Indian ICT/ICTE industry global competitiveness is unquestionably the availability of a cost-effective skilled workforce. The number of IT professionals grew steadily over time from less than 100,000 units in the early nineties to over 1 million today. This translates into an average growth rate of about 16% year-on-year. Over the past five years, 150,000 to 200,000 new IT professional have graduated from the 350 Indian universities, and half of them joined immediately the IT workforce. In addition, every year 70,000 non-IT professionals, other type of engineers and graduated from other disciplines, enter the ICT/ICTE industry. Figures 5

²⁹ Although it could be conceptually questionable, it is better to maintain this definition to avoid confusion as it is widely adopted in most of the Indian literature on this subject.

Figure 5. Growth Trend of Employment in the ICT/ICTE Industry (2001–2005)



below illustrates the trends of employment for the period 2001–2005 in the software and IT services and ITES-BPO segments.³⁰

³⁰ Source: the *National Association of Software and Services Companies* (NASSCOM), www.nasscom.in

ANNEX B – POLICY AND INSTITUTIONAL FRAMEWORK

B.1 OVERVIEW

Since the early nineties, India, ahead of many other developing countries, has adopted a liberal policy in the telecom and ICT sectors. The main changes occurred during the 1994–2001 period when various initiatives were undertaken by the government in order to: (i) define medium and long term policies, (ii) attract private investments, (iii) create an adequate institutional landscape, (iv) adopt concrete measures to support the growth of ICT industry. In 1992, a first group of services were set to liberalization including mobile telephony, data transmission services and electronic mail. Then, the deregulation continued and, at the end of 1990, the fixed-line sector and the Internet access service were opened to private operators. Foreign investments were attracted by allowing the majority ownership to international investors in certain segments, and granting favorable condition for the repatriation of dividends. In recent time, the legislative activity concentrates more on IT services, and the convergence between telecom, IT and media.

In 2000 the Information Technology Act was passed. It contains provisions aimed at enhancing e-commerce and ensuring data protection, while, in 2004, a specific policy on broadband technology was issued. The institutional architecture was also reformed in order to cope with the changing landscape. In 1997, an independent telecom regulator was established—the *Telecom Regulatory Authority of India* (TRAI), followed in 2000 by a jurisdictional body—the *Telecom Dispute Settlement and Appellate Tribunal* (TDSAT). TRAI was

entrusted with tasks like price setting, defining technical standards, determining condition for licensing, and, in general, the issuance of relevant regulation. TDSAT was conceived as a tribunal for disputes arising between licensor, operators, and consumers.

At the Government level, the competences on this sector have been gathered under the *Ministry of Telecommunications and Information Technology*. Practically, the Ministry operates through two different departments: (i) the *Department of Telecommunications* (DOT) which oversees the two state-owned telecom incumbents plus other units, such as the R&D facility “Center for Development of Telematics” (C-DoT); and (ii) the *Department of Information Technology* (DIT).

A practical role in the ICT/ICTE industry is also played by the *Department of Science and Technology* (DST) which oversees the *Technology Development Board* (TDB) and the *National Science and Technology Entrepreneurship Development Board* (NSTEDB), both of which administers programs in support of private sector ICT/ICTE enterprises.

Finally, cooperation with the private sector associations is crucial to identify the major obstacles to ICT development and implement concrete measure to overcome them. Among the principal business association, it is worth to mention the *National Association of Software and Services Company* (NASSCOM), the *Manufacturers’ Association for Information Technology* (MAIT), and the *ISP Association of India* (ISPAI).

B.2 PUBLIC SECTOR POLICIES AND INITIATIVES

Regulative Framework. Among the various policy papers and pieces of legislation governing the telecom and ICT sector the following appear particularly relevant:

- **Telecom sector.** The “National Telecom Policy” (NTP) was elaborated in subsequent steps throughout the nineties. In the initial phase, the NTP mainly concentrated on issues like the expansion of connectivity and the improvement of network and equipment quality. In the 1994 version, NTP also included the perspective of transforming India into a major manufacturer/exporter of telecom equipments, which however remained substantially an unachieved objective. In the 1999 version, in addition to policies for universal access, NTP took stock of technology developments and increasing convergence with IT industry. It introduced a new concept of ‘unified’ licenses removing the distinction between fixed-line and mobile, thus permitting operators to provide all type of telecommunication services adopting any kind of technology within a defined area. Furthermore, the 1999 NTP addressed the issue of the diffusion of high speed data connections in all the major cities. This aspect was subsequently elaborated by the 2004 “Broadband Policy”.
- **ICT sector.** The first comprehensive policy on IT was the “Action Plan” issued in 1998. The Action Plan aimed at identifying and removing the residual bottlenecks and impediments to the development of the emerging IT industry. It suggested measures for boosting both the export of IT products/services and the internal diffusion of IT. The Action Policy was divided into three parts: (i) the first part included policy and legal recommendations specifically addressed to the software sector, aiming at attracting foreign investments and facilitating technology transfers; (ii) the second dealt with the measures to support hardware manufacturing and assembling industry; and (iii) the third identified long-term strategic policies for various aspects of the ICT sector, from e-commerce to fiber optic infrastructure. The Action Plan paved the way for the legislative reforms which later passed both at the central and decentralized levels. Most of Indian States have developed specific measures to attract investments in IT and nurture the growth of local IT clusters. In 2000, the Indian Parliament passed the “Information Technology Act”, followed in 2001 by various IT regulations focusing on aspects such as data protection and electronic signature, and supporting

the development of E-commerce. In addition, the Internet telephony has been recently recognized as a value-added service opening *de facto* this potential huge market to a number of non-telecom firms.

- **Intellectual Property Protection.** The Intellectual Property Rights on software products and application are protected by the “Copyright Law”. However, the law enforcement appears very difficult, and the Indian piracy rate is estimated at 72%, which translates into losses of US\$0.5 billion per year.

Support to Private Sector Development. Beside the interventions in the legal and institutional framework, other measures have been undertaken by the Indian Government to support the development of private IT entrepreneurship. These measures fall into three categories: (i) fiscal policies; (ii) custom facilitations; and (iii) infrastructure. The first category includes income tax holidays and excise exemptions in particular for software and IT services firms. The second group encompasses custom duty reductions or exemptions in import and export of ICT/ICTE services and components and other facilitations. The most important infrastructures measure is the establishment of the technology parks while the processing sector enjoys special treatments. These three types of measures are in practice strictly correlated: fiscal and custom advantages are normally extended to firms located within certain special areas, and/or to export-oriented units. In summary, the main existing schemes are as follows:

- **Special Economic Zones (SEZ).** SEZ are business zones which support import and export operations through duty free policies, zero duty on import of capital goods, and other fiscal incentives. To be eligible for SEZ, an enterprise must have a positive net balance in the foreign exchange. The State Governments play a decisive role in the establishment of SEZ. The involvement of the private sector is also solicited and promoted through fiscal incentives. As of today, there are 11 active SEZ, hosting nearly 1,000 enterprises for a total employment of over 100,000. In some SEZ, the prevalent industry is ICT/ICTE.
- **Export Promotion Capital Goods (EPCG).** Under this scheme, the import of capital goods enjoys a special custom duty of 5%. The

facilitation is conditional to specific export targets that vary depending on the business model.

- **Export Oriented Unit (EOU).** EOU scheme provides about the same incentives as SEZ, but it is not necessary for an enterprise to be physically located in a determined area.
- **Software Technology Park (STP).** STP are special schemes designed for the software industry. STP are export-oriented, and account for the bulk of Indian software and services export. STP enjoy more or less the same favorable conditions of the above schemes regarding export facilitations and income taxes³¹.

IT Education. The technical skills of Indian IT professional have steadily grown over the past years following the evolution of the demand. In particular, the teaching of maths and technology has significantly improved over time, determining a considerable increase in the quantity and the quality of the workforce available for the ICT/ICTE industry. Some estimates indicate that, by 2008, the skilled workers available in this sector will exceed 15 million units. Specific initiatives for training of IT professionals are sponsored by the State budget. For instance, a training scheme for software export professionals has received in 2007 a financing of US\$ 7.0 million.

E-Governance. In 2003, the Government of India elaborated the “National E-Governance Action Plan” (NEGAP), a strategic paper indicating the principal activities to be implemented over a five year period in the field of E-Governance. The NEGAP spells out a vast range of instruments to be deployed, including measures addressed to the interactions with citizens and businesses, and practices to be adopted in the inter-institutional relations. In the initial phases, efforts have been devoted to the exchange of best practices between the various States of the Union and to replicate the most successful initiatives in order to level the degree of technology readiness of the institutions involved. An average US\$ 0.5 billion is destined every year to projects in this field, but the government recently announced that resources will likely double in the next five-year period. The implementation of NEGAP is supervised by a Committee attached to the Ministry of Telecommunication and IT.

B.3 COOPERATION WITH DONORS

The Indian IT sector is generally well developed and, although there are vast areas of the country which are still lagging behind, the donor community’s programs mainly focus on fields other than IT. There are, however, cases of assistance provided by international organizations to projects in this field. Most of these initiatives regard the extension of connectivity in rural areas, e-Government practices, e-learning, and in general the introduction of ICT in traditional sectors of the economy as an instrument for poverty reduction. This is for instance the case of the “Asia IT&C Program” financed by the **European Commission**. Launched in October 1999, with a budget of EUR 30 million, it was renewed in 2003 with a second call and a EUR10 million budget. The Asia IT&C Program could co-finance up to 60% (90% in the least developed countries) of projects in ICT based on partnerships between European and Asian entities. The sectors eligible to technology upgrade under the program were: agriculture, education, health, transport, environment and e-governance. Recently the program was closed but this type of assistance continues under the “Asia-Invest Program”.

The **World Bank Group** is active in the Indian ICT/ICTE sector at various levels. Through the *infoDev* program it provides assistance to business incubation facilities. InfoDev currently supports five technology business incubators countrywide: (i) IndiaCo (Mumbai); (ii) TREC-STEP (Tiruchirappalli); (iii) SRISTI (Ahmedabad); (iv) TeNeT (Chennai); and (v) VIT-TBI (Tellore), for a total grant amount of US\$1.1 million. The group includes privately-established facilities such as IndiaCo, as well as publicly funded schemes, such as TREC-STEP, and facilities linked to university and research institutions. Incubators typically offers to their tenants office space, ICT facilities and other services shared with other incubatees. In addition, tenants receives assistance on financial matters, such as assessing their financing needs and to find potential investors. In few cases, they may also receive financial assistance directly from the incubator, as in the case of IndiaCo and TREC-

³¹ More information on the Software Technology Parks are provided in Section B.6 below.

STEP which manage small seed-funds. The private-sector arm of the Bank, the IFC, is also very active in ICT/ICTE sector having financed over the past six years eight transactions in this field for a total amount of US\$40–60 million. Some examples of deals funded by the IFC are illustrated in Box 3 below.

Finally, the Bank is envisaging to assist the Indian e-Governance program “NEGAP” through a specific loan whose approval is currently in the pipeline. The proposed Bank lending for this initiative—denominated “e-Bharat”—would be US\$ 300 million. E-Bharat will finance concrete e-Gov projects to be implemented over a 4-year period. In addition, e-Bharat could finance infrastructure projects, training activities and the provision of specialized technical assistance.

B.4 INSTITUTIONAL SETTING – PUBLIC ENTITIES

Telecom Regulatory Authority of India (TRAI)³². The *Telecom Regulatory Authority of India* (TRAI) was established in 1997 as an independent body entrusted with all regulatory aspects of telecommunication services. TRAI’s competences include the definition of licensing criteria, the monitoring on licensees’ compliance with the terms and condition for telecom service provision, the protection of consumers through the periodical

check of the quality standard of the service. TRAI acts also as an advisory body on various legal issues concerning telecoms.

Department of Science and Technology (DST)³³. Established in 1971 under the Ministry of Science and Technology, the *Department of Science & Technology* (DST) is the body entrusted with the organization, coordination and promotion of S&T activities. DST is responsible for the implementation of various projects which involve at various degree scientific institutions, research centers, enterprises and other Government’s agencies. The DST is articulated in a series of bodies taking care of specific aspects, such as: (i) the *Technology Development Board* (TDB) which provides financial support to industries and other entities involved in the commercialization of domestic technology; and (ii) the *National Science & Technology Entrepreneurship Development Board* (NSTEDB), established in 1982 with the aim of assisting and promoting entrepreneurship among S&T professionals and innovators.

Department of Telecommunication (DOT)³⁴. The *Department of Telecommunication* is a functional division of the Ministry of Telecommunication and Information Technology. DOT was set up in 1989 and its scope of operation covers all the telecom services including the Internet and VSAT. DOT

32 For more information see www.trai.gov.in

33 For more information see www.dst.gov.in

34 For more information see www.dot.gov.in

BOX 3. Selected IFC Transactions

The following are some of the operations carried out by IFC in the Indian ICT/ICTE sector. When available, the value of the project and the proposed IFC investment are reported, while the actual amount invested is normally undisclosed.

Interlink—a web-enabled outsourcing services firm providing back office to US-based companies. Interlink sought the support of IFC to venture in the field of medical transcription and more generally in the health care area services. The project cost was estimated at US\$4.5 million, of which US\$2.0 million was the investment envisaged by IFC.

Webdunia—a leading ‘localization’ services provider operating with all Indian languages. Established in 1999, Webdunia is active in the area of e-content, media, Internet and software. It works for the Government, corporate clients and individuals. The project cost is US\$4.0 million, half of which being the investment proposed to IFC.

Dataquest—an outsourced service provider specialized on 2D/3D animation. Dataquest is active on North American and European markets working for various multimedia production houses. In order to update with the latest technologies and to expand the business it proposed a US\$2.0 million equity investment to the IFC for a project cost estimated at US\$4–5 million.

CMS—a large IT services company operating mainly on the domestic market. CSM operates in various business lines including e-Government, engineering, print solutions and cash management. It projected a large investment of US\$47 million over two years. The portion of the investment proposed to the IFC was US\$22.5 million through both debt and equity instruments.

Indecomm—a Bangalore-based outsourcing company. Indecomm specializes on document management and transaction processing services for the financial services industry. Founded in 2003, Indecomm proposed to the IFC 50% ownership of the company in the framework of a US\$6.5 million project.

formulates the policies, issues the licenses, tests the equipment and manages the telecom frequencies.

Department of Information Technology (DIT)³⁵. Established under the Ministry of Telecommunication and Information Technology, the *Department of Information Technology* is entrusted with the overall development of ICT in India. DIT is responsible for drafting the policies connected to IT, electronics and the Internet. It is involved in the enforcement of the provisions contained in various pieces of legislation, such as the “Information Technology Act”, the “Semiconductor IC Layout Design Act” and other cyber laws. DIT is entrusted with various promotion activities, such as the increase of PC and Internet penetration in the country, and for the improvement of IT and IT-based education. DIT also plays a role in the diffusion of E-Governance practices, as it assists the central and state governments in the adoption of the “National E-Governance Action Plan”.

Electronic and Computer Software Export Promotion Council (ESC)³⁶. Established in 1989, the Electronics and Computer Software Export Promotion Council (ESC) is India’s largest Government-sponsored trade facilitation organization operating in the field of electronics and IT. ESC encompass over 2300 member enterprises including software houses, ICT/ICTE services providers, hardware manufacturers, consumer electronic and equipments manufacturers and alike. ESC acts as the interface between exporters and policy makers, and as a promoter of Indian exports. Since 2000, ESC has organized the INDIASOFT event, a large forum which aims at promoting global networking opportunities for the Indian outsourcing industry.

B.5 INSTITUTIONAL SETTING – BUSINESS ASSOCIATIONS

National Association of Software and Services Companies (NASSCOM)³⁷. Founded in 1988, NASSCOM is one of India’s largest business associations for the IT sector. It comprises 1,100 member companies, one fifth of which are international players. NASSCOM covers virtually all segments of software and IT services industry including also BPO. Its members account for 95% of the sector in terms of revenue. NASSCOM

undertakes a vast range of activities, such as: (i) the promotion of India Brand in software; (ii) the organization of national and international IT events; (iii) the provision of assistance and other business services to its members, like information on fiscal and custom regulation, business intelligence, market researches, counseling; (iv) the promotion of industry’s interests at the Central and State levels; (v) the anti-piracy campaign; (vi) the implementation of studies and researches in various sector of the IT market; and (vii) the publication of reports and articles on Indian IT industry.

NASSCOM partners with various governmental bodies to whom it provides advisory services and acts as the private sector counterpart. NASSCOM has successfully campaigned for a strong liberalization of the IT sector, the removal of tariff and trade barriers, and for the proactive involvement of private sector in the ICT education system. NASSCOM also took part in the development of the Software and Technology Parks initiative. At the international level, NASSCOM is a member of the *Asian Oceanian Computing Industry Organization* (ASOCIO) and of the *World Information Technology and Services Alliances* (WITSA).

Manufacturers’ Association for Information Technology (MAIT)³⁸. The *Manufacturers’ Association for Information Technology* was established in 1982 as a scientific and educational facility for the IT industry promotion. Later, it emerged as the main business association for hardware manufacturers and designers. MAIT’s activities focus on the development of internal market and the attraction of foreign investment. To this end MAIT actively cooperates with the Department of IT and other Government’s Institutions, and is allied with various overseas organization. Today, MAIT has nearly one hundred member companies that, in terms of turnover, account for 92% of all Indian hardware industry. MAIT is organized through a series of committees operating at Central and States level.

ISP Association of India (ISPAI)³⁹. The origins of the ISP Association of India date back to 1994 when a group of value-added providers formed a group to deal with licensing institutions and lobby for the

35 For more information see www.mit.gov.in

36 For more information see www.escindia.in

37 For more information see www.nasscom.in

38 For more information see www.mait.com

39 For more information see www.ispai.in

necessary regulatory reform. After the full liberalization of the Internet market in 1997, the ISPAI became the main organization to represent the interests of the private sector ISPs. At the same time, ISPAI was fully recognized by the government as the voice of the Internet operators. The association took effectively part in the drafting of the 1999 telecom policy, and in the implementation of 2001 “IT Act”. ISPAI is also member of the “Bandwidth Committee”, the “Cyber Regulation Advisory Committee” and other Central and States advisory bodies. More recently, ISPAI’s commitment was important for the decision of deregulating the Internet telephony and allowing ISPs to enter in this segment. ISPAI organizes seminars, workshops and other events on Internet-related topics to promote the Indian IT industry.

B.6 INSTITUTIONAL SETTING – OTHER ENTITIES

Software Technology Parks of India (STPI)⁴⁰.

Established in 1991, *the Software Technology Parks of India*, is an autonomous entity under the Department of Information Technology, whose objectives is to support the development of Indian IT industry and to promote the export of technology goods and services through the establishment of several Software Technology Parks (STP) nationwide. The STP are facilities which provide physical infrastructure, services and incentives for domestic and foreign IT firms based in India. STPI has a regulatory role and acts as the interface between IT industry and the Government. Among the various services offered by STP it is worth to mention the 30,000 square meters of business incubation facilities. The equipped office space—endowed with high speed data connectivity—is leased to start-up enterprises at affordable prices. STPI also provides technical assistance and advisory services to business units, and acts as a facilitator of business relations with overseas partner being actively involved in promotional activities to attract investment and outsourcing contracts. The benefits available under the STP schemes may vary from site to site. Some of the most common advantages offered by these schemes are as follows:

- A simplified approval procedure, with a single window for all the necessary accomplishments;

- Imports of IT equipments and software are duty exempt within the STPs;
- Import-export procedures are faster and simpler;
- An income tax holiday is extended for a ten-years period;
- Re-export of capital goods is allowed;
- Entities located in the STPs are allowed to be 100% foreign-owned;
- Excise duty free for domestic procurement.

As of today, there are 41 STPI Centers all over India, with 6,000 registered businesses. The aggregated value of export for FY 2005–06 was of nearly US\$22 billion, with a growth rate of 36% over the previous year. SMEs are the most numerous users of STP schemes, and represent 80% of the member units. Software Technology Parks are particularly developed in the States of Karnataka, in the Bangalore IT cluster, but also in Maharashtra (Mumbai), Tamil Nadu (Chennai), Andhra Pradesh (Hyderabad), and to a less extent Harayana (Noida & Gurgaon), Uttar Pradesh, Delhi and West Bengal. STPI Centers may be of public, private and mixed nature. Currently, STPI is envisaging to venture into the setting up of a BIO-IT Park. This is conceived as a cluster compounding research institutions, Hi-tech academia and enterprises involved at different degree in the field of computational biology. The objective is to create a world-class facility for bio-technology, the pharmaceutical industry and life sciences. The BIO-IT Park is expected to operate as a public-private partnership with initial substantial investment from the central Government.

Electronics Hardware Technology Parks. Similar to the STPI, the *Electronics Hardware Technology Parks* (EHTP) focus on export-oriented manufacturers of electronic hardware and other IT components. The EHTP scheme was established by the Ministry of Communications & Information Technology, while the single facilities may be initiated by public authorities, private investors or a mix of both. The benefits in terms of fiscal and custom policies are more or less the same as for the STPI. The value of export of goods produced within the EHTP scheme is quite stable since 2002 at US\$4.5 billion.

⁴⁰ For more information see www.stpi.in

ANNEX C – THE FINANCIAL SECTOR

C.1 BANKING AND RELATED ACTIVITIES

Overview. The Indian financial sector encompasses a variety of players. As of the first quarter 2006, 88 commercial banks, 133 regional rural banks, 1,864 urban cooperative banks (UCBs), 8 development financial institutions, about 13,000 non-banking financial companies (NBFCs) and 17 primary dealers were recorded⁴¹. The system regulator is the *Reserve Bank of India* (RBI), to whom the governance of banking system was entrusted with the 1935 “Banking Regulation Act”. In the fifties, RBI took progressively control of the banking industry buying the then Imperial Bank of India, later it became the largest banking institution under the name of State Bank of India, and subsequently acquiring stakes of eight other private banks. A major changeover occurred in 1969 when the Government nationalized 14 major banks. This drive aimed at gaining a direct control on the financing system in order to pursue specific industrial development plans. More banks were acquired in 1980. In 1993, an amendment in the Banking Regulation Act liberalized the banking industry permitting new private competitors to join in. Related to SME financing, enhancing regulation has been recently issued by RBI in accordance with the 2006 “Micro, Small and Medium Enterprises Development Act”. In particular, state-owned banks have been requested to ensure a 20% year-on-year increase in the amount lent to SME.

Commercial Banks. Of the 88 commercial banks (SCBs), 28 are public sector banks, 29 are private banks and 31 are foreign banks. Altogether, they operate a network of 53,000 branches and 17,000 ATMs. Public sector banks account for the lion’s

share, with assets value representing 75–80% of the total. The largest entity is the *State Bank of India* that, with its seven associates, holds US\$100 billion in assets. Other important public banks are the *Canara Bank*, the *Bank of India*, the *Central Bank of India*, the *Punjab National Bank*. Private sector banks mainly emerged after the liberalization of 1994. Among the prominent entities it is worth mentioning *ICICI Bank*, which is the second largest bank of the country, *IDBI Bank*, *HDFC Bank*. Foreign banks are comparatively much smaller, due to limitations imposed by RBI. The main players today are *Citibank* and *Standard Chartered*. An overview of the salient features of selected Indian banks is provided in Table 3 below.

C.2 VENTURE CAPITAL

Background⁴². The development process of private equity industry in India can be subdivided into four major phases. Until 1996, risk capital operations in India were sporadic. An institutionalized VC industry was far from being created and few pioneers were venturing in this field on a purely individual basis. A pilot initiative was set up by development institutions and IFI in cooperation with the Indian Government, mainly addressing seed and early stage operations. Deals were usually small, rarely exceeding US\$1.0 million, and covered diverse sectors. The second phase began with the reform of the legal and institutional environment in 1995–1996. Between 1996 and 2000, venture capital operations recorded a rapid upturn. This escalation accompanied the nascent

41 Source: the Reserve Bank of India’s annual report 2005–2006, www.rbi.org.in

42 The information provided in this section are primarily drawn from the Indian Venture Capital Association (IVCA), www.indiavca.org, and the Indian-based information and networking portal “Venture Intelligence”, www.ventureintelligence.in. Other sources include: (i) the “Venture Capital Insight Report, 2006” published by Ernst & Young; (ii) the article “Is the Venture Capital Market in India Getting Overheated?” published by Evaluateserve, August 2006; (iii) data from the ICT sector’s association NASSCOM; (iv) the annual report of Reserve Bank of India (RBI); and Dossani & Desai’s Report for the South Asia Initiative titled “Accessing Early-Stage Risk Capital in India. The information are complemented with data collected during the fieldwork and profiles sourced from the various VC websites, and articles appeared on specialized online information sites (such as the VC Circle—www.vccircle.com; Almeida Capital’s AltAssets—www.altassets.net).

TABLE 3. Salient Features of Selected Banks⁴³

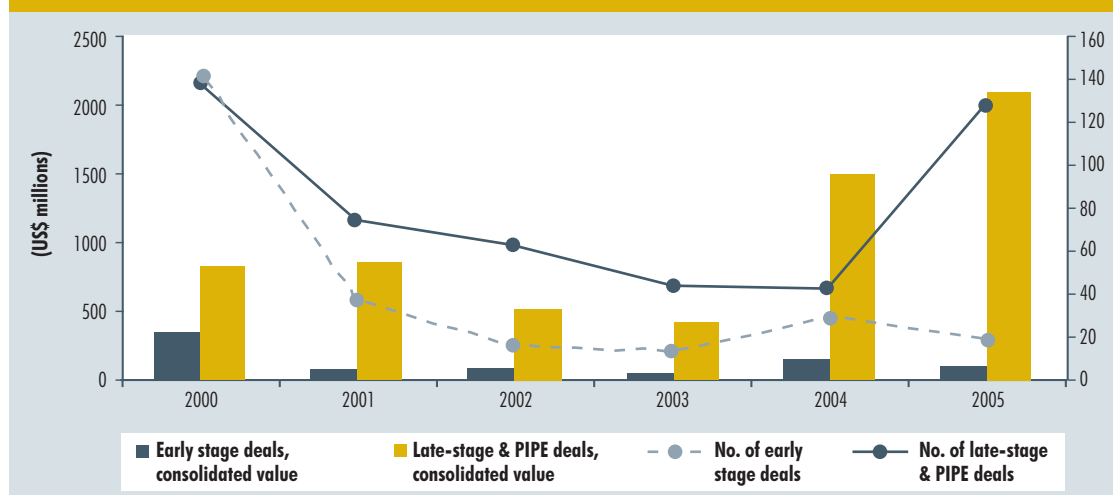
Bank	Total Assets (US\$ billion)
Nationalized Banks	
<p>State Bank of India</p> <p>The State Bank of India is the largest banking institution in the country both in terms of penetration and of financial results. SBI was established in 1955 taking over from the Imperial Bank of India. Today SBI is at the head of a group of 8 associates which altogether operate 9,000 branches in India and 50 overseas offices. SBI holds one-fifth of the overall amounts of deposits and loans. The Reserve Bank of India holds the largest share with nearly 60%. SBI's shares and securities are traded on the principal Indian stock exchanges. SBI manages various financing schemes for SMEs, among which it can be mentioned the 'Cyber Plus' which is a medium term loan for entrepreneurs who wish to set up an Internet point, especially in rural or suburban area.</p>	111
<p>Canara Bank</p> <p>Canara Bank was founded in 1906 in Mangalore as a private bank and then nationalized in 1969. The Bank's network is entirely computerized and vast array IT-based services are offered to customers, Canara has already carved a niche in providing IT-based services. Canara Bank is also particularly involved in rural development and SME financing. Canara channels various public sector financing vehicles for instance: (i) Credit Linked Capital Subsidy Scheme for Technology Upgradation of SME; (ii) Debt Restructuring Scheme for weak units; (iii) National Equity Fund (NEF) Scheme with soft loan for equity needs; (iv) Mahila Udyam Nidhi (MUN) Scheme with soft loan for equity needs.</p>	34
<p>Bank of India</p> <p>Bank of India was established one century ago in Mumbai. Nationalized in 1969 with other 13 banks, BoI rapidly emerged as a leading banking institution with a strong national presence and international ties. In 1997 BoI was partially sold to the public, and as of today, it has 200,000 shareholders. Today BoI has 2,600 branches throughout India and operates also 23 foreign presences in global key financial centers, such as London, New York, Tokyo, Hong Kong and Singapore.</p>	25
<p>Punjab National Bank</p> <p>Established in 1895, Punjab National Bank (PNB) was the first Indian bank to be entirely financed with domestic capital. PNB was then nationalized in 1969. Today, PNB is one of the largest banking institution of India with 35 million customers and nearly 5,000 offices nationwide. Beside traditional lines of business PNB has also established 31 facilities dedicated to SME financing.</p>	24
Private Banks	
<p>ICICI Bank</p> <p>The largest Indian private commercial bank, ICICI was established in 1994 as a subsidiary of the Industrial Credit and Investment Corporation of India, a financial institution created in the 60s by the Government of India with the support of the World Bank. After the immediate success of the operation the latter was in 2002 absorbed back by the ICICI Bank which then became a financial giant with diversified operations including banking services, insurances, venture capital and asset management. ICICI Bank is leader in the retail and consumer financing, it also provides financing schemes to SMEs but no particular instruments is foreseen for IT sector. ICICI Bank operates a consistent network of branches abroad with particular target on non-resident Indians. The major shareholders are foreign institutional investors and domestic insurance companies.</p>	56
<p>UTI Bank</p> <p>UTI Bank was established in 1994 from the initiative of the Unit Trust of India and other insurance companies. The headquarter is in Mumbai and the network includes more than 500 branches nationwide and the third-largest ATM system. UTI Bank specializes on retail and corporate banking. The controlling share is owned by the bank's promoters while 57% are held by public.</p>	11

ICT/ICTE industry which was rapidly expanding, fueled by outsourcing deals from the US. In 2000, the number of deals closed was nearly 300 for an aggregated value exceeding US\$1.0 billion. In this phase, more than half of the operations concentrate in early-stage and growth stage enterprises, and the average size of transactions remained quite limited. The investors had a genuine VC approach, willing to take risks in order to seek formidable profits. But with the burst of the 'dot-com bubble', and the subsequent downscaling of the global IT operations also the landscape changed radically. The volume of capital mobilized by VC funds after 2000 decreased

dramatically and so did the number of deals financed, which fell by 60% in 2001 over the previous year. Most of the operators who did not discontinue their investments changed their risk attitude re-directing their money towards more mature enterprises. The number of early stage deals which received an equity financing shrank from 142 in 2000 to 36 in 2001, and to only 13 in

⁴³ Information are drawn from Reserve Bank of India's annual report and from banks' official websites and other on line press sources. Financial figures relate to 2006 (note: in some case it is reported the result at the end of financial year 2005–2006, while, when available, data for 1st semester of FY 2006–2007—such as December 2006—are provided)

Figure 6. Features of Private Equity Deals Based on the Investment Size (2000–2005)⁴⁴



2003. At the same time, the average size of transactions nearly doubled from US\$4.14 million in 2000 to an average of US\$8.16 million in the period of 2001–2003. The bulk of losses recorded during the downturn related in fact to small deals, in the US\$1.0–2.0 million range⁴⁵. This ‘recession’, which more or less lasted three years, affected in particular the Internet-related sector where in one year, from 2000 to 2001, the volume of invested capital passed from US\$600 million to a mere US\$50 million. The fourth phase, which is currently on-going, began after 2004 with the progressive restoring of equity investors’ operations. Again, the main driver of contemporary VC’s flow to India is represented by the good performance of the IT industry, but the recent new wave of investments has expanded its scope of activities to other industries: such as manufacturing, pharmaceutical, media & entertainment, real estate⁴⁶. In percentage, the ICT/ICTE deals, which in 2000 represented two-thirds of the total, account in 2006 for only one-fourth, whereas the share of the manufacturing industry grew from 3% to 20%. On the one hand, this process reflects the evolution of the Indian economy, which is today more diversified and more able to offer interesting perspectives in many different sectors. On the other hand, the bulk of institutional private investors has maintained a distinct risk-averse approach toward

segments of the ICT/ICTE industry and in particular toward IT startups and early stage enterprises. This is further testified by the scaling-up of the average size of transactions which have increased during 2004–2006, to nearly US\$20 million on average, while at the same time the number of transactions below US\$1.0 million have reduced to 3–5% of the total. Figures 6 below, summarizes the above-described trend of private equity operations in India during the period of 2000–2005.

Overview of the Indian VC Industry. A particular upsurge in the volume of private equity investments occurred in 2006 with 362 new deals financed, a 250% increase over 2005, for an aggregated value of US\$7.5 billion, a 330% increase over 2005. These figures are partly explained by huge operations, such as the US\$1.0 billion of equity capital raised by the mobile operator Idea Cellular through an IPO

⁴⁴ The figure is an elaboration of the author based on data from Evaluate, IVCA and Venture Intelligence India.

⁴⁵ Several unwary transactions were carried out in that period. A senior VC met during the fieldwork reported that at least 100 projects worth US\$1–2 million were financed in that period on the basis of purely business ideas that later turned out to be empty boxes.

⁴⁶ Although there is a broad consensus on the fact that an increasingly amount of venture capital will be directed on new value-added industries such as biotechnology and semiconductor design, actual investments in these fields remain quite limited compared to other less innovative but less risky sectors like automotive, tourism and infrastructure. This is an additional indicator of the substantially cautious attitude of the majority of private equity firms.

BOX 4. Venture Capital Funds Registered in India⁴⁷

Aavishkar India Micro Capital Fund	Information Technology Fund C/o IL&FS Investment Managers Ltd	Rajasthan Venture Capital Fund
Adharshila Venture Capital Fund Limited	India Value Fund	Realty India Trust
APIDC Venture Capital Limited	Indian Enterprise Fund	Reliance India Power Fund
Auto Ancillary Fund C/o IL&FS Venture Corporation	IL&FS Trust Company Limited	Reliance Venture Capital Fund
Anand Rathi Realty Fund	IL&FS Private Equity Trust	RE Capital India Fund
Aureos India Fund	IL&FS Financial Center	SIDBI Venture Capital Limited
Axis Venture capital Trust	Infinity Venture India Fund	Spice Capital Fund
Avigo India Private Equity Trust	India Property Fund	Sicom Venture Capital Fund
BTS India Private Equity Fund	IDFC Infrastructure Fund 2	Small is Beautiful
Canbank Venture Capital Fund Ltd.	India Advantage Fund III C/o ICICI Venture Funds Management	SREI Venture Capital Limited
CIG Realty Fund	India Advantage Fund IV C/o ICICI Venture Funds Management	South Asian Regional Apex Fund
Dhunn-Carr Management and Research India Private Limited	Indian Real Opportunity Venture Capital Fund	IL&FS Venture Corporation Limited
DHFL Venture Capital Fund	Indiareit Fund	Sourabh Venture Capital Trust
Eureka Venture Fund	India Advantage Fund V	SIDBI SME Venture Fund
Edelweiss Investment Trust	ICICI Venture Funds Mgt. Co. Ltd	Solitaire Capital India
FIRE Capital Fund	India Realty Venture Capital Fund	SREI Venture Capital Trust
Gujarat Information Technology Fund	InfraIndia Trust	Industrial Venture Capital Limited
Gujarat Venture Capital Fund 1990	JM Financial India Fund	The India Seed Investment Trust
Gujarat Venture Capital Fund 1995	Kshitij Venture Capital Fund	The Hexagram Fund
Gujarat Venture Capital Fund 1997	KITVEN Fund.	The Technology Venture Fund
Gujarat Biotechnology Venture Fund	Kerala Venture Capital Fund	Tamilnadu Infotech Fund C/o IL&FS Venture Corporation Limited
Gujarat Infrastructure Development Fund	Kotak Mahindra Venture Capital Fund	Urjankur Nidhi Trust
HDFC Property Fund	Kotak SEAF India Fund	IL&FS Trust Company Ltd
HIVE Fund C/o Hyderabad Information Tech Venture	Kotak Mahindra Realty Fund	Unit Trust of India- India Technology Ven- ture Unit Scheme
iLabs Venture Capital Fund	Landmark Real Estate Fund - I	UVF Private Equity Trust
ICICI Econet Fund C/o ICICI Venture Funds Management	Marigold Mezzanine Investment Fund	Urban Infrastructure Venture Capital Fund
ICICI Emerging Sectors Trust C/o ICICI Venture Funds Management	Novastar Capital Trust	Ventureast TeNet India Fund
INDIA Advantage Fund-1 C/o ICICI Venture Funds Management	Nilanchal Capitals Pvt Ltd	Volrado Venture Partners
IDFC Infrastructure Fund	Opulent Venture Capital Trust	West Bengal Venture Capital Fund Trust for IT, Telecom & Electronics
India Project Development Fund C/o IL&FS Investment Managers Ltd	Punjab Infotech Venture fund	JM Financial Property Fund
	Peninsula Realty Fund	
	Quest India Fund	

roadshow. Fifty 'typical' VC investments in startup and early stage enterprises were finalized last year. There are 88 active funds registered within the country (see box 4), the majority of which are members of the strong industry association *Indian Venture Capital Association*. In addition, an indefinite number of players operate in the Indian VC sector from offshore, especially in Mauritius.

For analytical purposes the existing private equity industry can be segmented into two main categories: (i) the funds sponsored by the Government and/or other public sector institutions; and (ii) the private sector schemes, which includes Indian VCF, Cross-

⁴⁷ Indian-based VCF are registered at the Security Exchange Board of India (SEBI). For more information see www.sebi.gov.in

border and International VCF, and funds associated to multinational companies.

- **Government-funded schemes.** In India there are 10 VC funds entirely or largely set up with capital injected from public sector entities. Investors include various financing institutions operating both at a central level (such as the *Small Industries Development Bank of India*—SIDBI, and at States level, (such as *Karnataka State Financial Corp.*, *Rajasthan State Industrial Development & Investment Corp.*, *Kerala Finance Corp.*). Several local schemes have been established in 1999–2001, in connection with the establishment of SIDBI which have played a major role in the nationwide diffusion of this type of facilities for SME financing⁴⁸. Beside its directly-run VC funds, SIDBI is also partner of various private sector equity firms as in the case of the ICICI's *India Advantage Fund* and the SEAF and *Kotak Mahindra Bank's India Growth Fund*. Overall, the commitment of SIDBI in the VC industry today amounts to US\$100 million. Partnerships between private and public sector are quite common in the Indian equity financing sector. This includes large PIPE operations but also relatively smaller and restrained deals of local or sector relevance⁴⁹. The private-sector partner is normally entrusted with the day-to-day management of the fund while the public sector typically monitors the activities by means of a Board of Trustees. As a rule of thumb, the government-funded schemes with few exception fall in the low tier in terms of available resources as states' VC Funds typically do not exceed US\$5.0 million. The investment size is below the average and comprised between US\$50,000 and 500,000. Targeted enterprises are usually at the early stage. Cooperation between funds and Business Incubators have sometimes led to interesting examples of incubation financing, as in the case of *Gujarat Venture Fund Ltd* which have financed so far two incubatees from two distinct Ahmedabad incubators⁵⁰. Initially, local schemes strictly addressed the booming ICT/ICTE industry, but recently the scope of activities has slightly enlarged to encompass technology sector in a broader sense and other industries such as tourism.
- **Private Sector VC.** The vast universe of the private sector equity firms and VC funds include

an estimated 80 schemes. The majority is represented by both onshore and offshore international VC funds. A good share of these players are U.S. IT-specialist firms, often backed by Silicon Valley investors and with a focus on cross-border operations. This category encompasses major VC firms such as *Sequoia Capital*, *IDG Ventures*, and *Draper/Fisher/Juwerston*, which typically mobilize US\$200+ million, as well as smaller facilities, such as *JumpStartUp*, with a corpus of US\$30–100 million. Larger schemes tend to concentrate on investment in well-established firms and to address transactions above the US\$10 million mark, while the second type of schemes are generally more oriented to startups and early stage projects and to enter in smaller deals—although rarely go below US\$1.0 million. A similar distinction can be traced with Indian VCs. Large domestic national firms, such as *ICICI Ventures* and *IIML*, which can mobilize US\$1.0+ billion, appear skewed on sizable growth and late stage operations, while smaller funds concentrate on early stage and sometimes seed operations. Instances of the latter are provided by *SICOM Capital*, which successfully operated an US\$5.0 million VC fund in Pune, and *AIMVCF*, a micro-VC fund which—unique in its gender—provides venture financing in the US\$ 20,000 to 100,000 range. In addition, the Indian VC industry includes funds and investment schemes set up by big MNC firms active in the ICT/ICTE sector, such as *Acer Technology Ventures*, *BlueRun Ventures* (owned by Nokia), *Intel*, *Cisco*, and similar schemes established by Indian large corporations and big BFSI such as *Piramal* (pharmaceutics), *IDFC* (infrastructure), and *Kotak Mahindra* (BFSI). These type of facilities have three main points in common: (i) a single major (in many case exclusive) source of capital—that is the parent company; (ii) a strict focus on parent company's sector of

48 The Gujarat Venture Fund Ltd. (GVTL) pioneered the diffusion of States' VC funds, soon followed by Rajasthan Venture Capital Fund (RVCF), Kerala Venture Capital Fund, Tamil Nadu Infotech Fund, Punjab Infotech Venture Fund, APIDC Venture Capital and West Bengal Capital Fund Trust for IT, Telecom & Electronics among others.

49 Some examples are provided by the Urjankur Fund—a scheme almost evenly funded by Government of Maharashtra and IL&FS Investment Managers, which aims at financing alternative energy generation projects in a determined area of Maharashtra State, and by the Technology Development Board's commitments in private equity funds such as the biotech-oriented APIDC VCF, contributed with US\$6.5 million, and UTI Ascent India Fund, US\$ 16.5 million. Both of which focus on startups and early stage companies.

50 Both operations were carried out in early 2007. In one case, the invested enterprise spun out from the Center for Innovation, Incubation and Entrepreneurship and received US\$700,000, while the other case regards a Nirma Labs incubatee who received US\$180,000.

activity; (iii) operations are not merely speculative but have industrial purposes as well, and may lead to the full acquisition of investees. The boundaries among the three segments of the private-sector VC industry described above are very nuanced and, more than often, funds and deals are financed with the concurrent contribution of players of different nationalities and nature⁵¹. This is particularly the case with funds promoted by IFI and/or donors in partnership with domestic investors, such as SEAF with *Kotak*, or the *Swiss Tech VCF*.

Brief profiles of selected VCF are presented for illustrative purposes in Table 4 below, more details are provided in Annex E.

⁵¹ A recent example is provided by the joint operation concluded by the Indian Helion Venture, set up by Indian former entrepreneurs and individual investors, the Silicon Valley-based Sierra Ventures, which operates in India through a Fund off shored in Mauritius, and the Hong Kong equity firms SAIF Partners, a large-scale deal specialist operating in South Asia and Pacific Rim, which announced in 2006 an early-stage investment of US\$10–15 million in an Indian leading online travel company. Another interesting operation is the co-funding underwritten by Google with two Indian seed funds: Erasmic Venture Fund, a US\$ 5.0 million worth vehicle aimed at operation in the US\$100,000 to 500,000; and Seedfund, US\$10.0 million worth fund targeting US\$0.5 million deals in Internet, telecom and retail.

TABLE 4. Salient Features of Selected VC

Denomination	Funding (US\$ m)	Deals
Government-Financed Schemes		
SIDBI Venture Capital Ltd.	132	39
SVCL is the umbrella body for the VC operations of the Small Industries Development Bank of India (SIDBI)—which is an autonomous financial institution connected to the Ministry of Finance, entrusted with most of State’s financial initiatives for small scale businesses. SVCL was incorporated in 1998 and so far has been managing two schemes: (i) the US\$22 million National Venture Fund for Software and Information Technology (NFSIT)—an instruments specifically addressed to ICT/ICTE sector; and (ii) the SME Growth Fund (SGF) with its capital of US\$110 million, is among the largest VC funds for SME in India. SVCL’s operation are typically in the US\$0.5–5.0 million range, with sometimes additional funding provided by allied schemes, for a 3 to 5 year tenure.		
Karnataka Information Technology Venture Capital Fund	3.3	17
KITVEN is an ICT/ICTE sector VC fund operating throughout the State of Karnataka. Funded by SIDBI and other public sector institutions KITVEN specializes in startups and early stage financing, combining straight equity with other quasi-equity instruments. The amount invested by KITVEN are relatively small, from US\$100,000 to 300,000, largely compatible with the needs of micro and small businesses. A second KITVEN Fund is currently in the pipeline, with a corpus of US\$11 million.		
Kerala Venture Capital Fund	4.5	6
KVCP is a publicly financed venture capital fund which operates throughout the State of Kerala. KVCP is a closed-end fund with a small capital endowment operational since 2001 and with a prospective term of 10 years. Its investees are mainly startups and early-stage enterprises active in the ICT/ICTE sector, in biotechnologies and in tourism. Size of deals is typically comprised between US\$50,000 and 350,000. Five out of the six investments made so far are in ICT/ICTE sector.		
Rajasthan Venture Capital Fund	3.5	n.a.
Established in 2000, RVCF is a small venture capital fund, which provides start-up and early stage financing in the form of equity, quasi-equity and in few cases debt. RVCF is largely financed by public sector through the Rajasthan State Industrial Development & Investment Corporation Limited (RIICO), the Small Industries Development Bank of India (SIDBI) and the Bank of Rajasthan, and is managed by a private company. The preferred sectors include ICT/ICTE, tourism, biotechnology and in general technology-enabled projects.		
Indian Private Equity Firms		
ICICI Venture	~2,000	~200
ICICI Venture is a private equity firm wholly owned by ICICI Bank, India’s largest private sector financial institution. Since its inception in mid 80s, ICICI has managed a number of equity and quasi-equity schemes operating at various levels, from early stage to mezzanine and later stage investments. ICICI tends to realize sizable operations investing preferably in established large firms. ICICI Venture is not sector specific, but it set up a couple of small funds specifically designed for software developers and other technology-related businesses. Today, there are 5 ICT/ICTE enterprises in its portfolio.		
IL&FS Investment Managers Ltd	~900	85
IIML is the equity financing arm of the Infrastructure Leasing & Financial Services Limited. Apart from IL&FS other IIML’s investors include IFIs and both domestic and foreign banks and investment companies. Operational since 1996, IIML figures today among the largest Indian equity firm with several funds under management, including generalist and sector-specific schemes, and a vast array of operation ranging from relatively small startups deals, around US\$1.0 million, as well as mezzanine and later stage multi-million investments. ICT/ICTE deals form 13% of IIML’s portfolio.		

(continued on next page)

TABLE 4. *Salient Features of Selected VC (continued)*

Denomination	Funding (US\$ m)	Deals
SICOM Capital	5	8
Sicom Capital is an early stage capital fund based in Pune. In 2000, it launched the Sicom Venture Capital Fund (SVCF) aimed at investing in IT, Engineering and Healthcare industries. Today the fund is entirely invested with deals ranging between US\$0.5 and 1.0 million, and one exit has been achieved. SICOM is currently raising capital from various Indian institutional and individual investors to set up a new US\$35 million fund denominated "SME opportunities fund" that will operate in the same sectors but targeting somewhat larger deals, (US\$1.5–2.0 million).		
Aavishkaar India Micro Venture Capital Fund	1.5	9
Established in 2002, AIMVCF, is a small fund oriented to micro VC operations. AIMVCF's deals are in the order of US\$20,000–100,000 and include primarily equity financing and, in a subordinated fashion, debt financing. AIMVCF invests in technology-based companies with the limit of operating exclusively in rural or semi-urban areas. To some extent the ICT/ICTE sector is involved. AIMVCF is a trust invested by individuals and institutions and held by Singapore's Aavishkaar International.		
Cross-border Schemes and International VC		
JumpStartUp	45	11
Founded in 2000, JumpStartUp is a technology VC fund investing in early stage businesses in India and the US, with a special focus on cross-country operations. JumpStartUp's investees are active in the field of software, semiconductor, services and communications. The fund is backed by various institutional investors from the US, Asia and Europe. Deals range from US\$2.0 million up to US\$10 million.		
Infinity	35 (I); 18 (II)	21
Infinity is a private equity firm established in 1999 by IT sector specialists. The company has established two funds: Infinity I & II (branded "E India Venture Fund"). The first is an institutionalized 'angel' fund capitalized by Indian and US individuals and corporations, which focuses mainly on IT startups with deal size of US\$2.0 million on average. E India VF is the result of a joint venture with another group and is involved in larger cross-border operation.		
Global Technology Venture	n.a.	8
Established in 2000, GTV is a technology holding company linked to an Indian large investment group and to global investing firms such as Bank of America Equity Partner. GTV focuses on VC operations in high-tech enterprises at various stages of development, including Internet service providers, software companies. GTV's deals typically range between US\$0.5 and 5 million, disbursed in subsequent phases.		
Swiss Technology Venture Capital Fund	25.5	17
Swiss Tech VCF is a Mauritius-headquartered fund which operates in India and Asian countries. Swiss Tech VCF is funded by the State Secretariat for Economic Affairs (SECO) of the Swiss Government, and managed by the private equity firm BTS Advisors. Swiss Tech VCF is a generalist facility which operates preferably with technology company in the fields of ICT/ICTE, biotechnology, textile and food processing. The fund targets development-stage enterprises and, under specific condition, startups, with deals in the US\$250,000 to 1.5 million range. Recently, BTS Advisors has raised US\$47 million to set up a new fund with the same characteristics of Swiss Tech VCF.		
MNC Venture Capital Fund		
Acer Technology Ventures Advisory (India)	260 (world-wide)	3 (India)
ATVA is an investment company belonging to the Acer Group. Headquartered in California, ATVA invests in US and Asia seeking for startups companies proprietary of innovative technology. ATVA's operations typically entails an incubating procedure which is necessary to adequately develop and nurture the business idea and transform it in a market success. The bulk of ATVA's investments are located in the US. The Indian branch has been involved in three deals so far. The typical size of investment, for the first round, ranges from US\$0.5 to 3.0 million.		

In conclusion, the salient features of the Indian VC Industry can be summarized as follows:

- **Origin of Funds.** According to a 2006 Report of the "South Asia Initiative", the breakdown of Indian VC funds in terms of sources of capital is as follows: (i) private capital, 29%; (ii) Government agencies, 8%; (iii) funds of funds, 34%; (iv) tax-exempted institutions, such as endowments, 17%; other, 12%⁵². Possibly between 80% and 90% of the overall capital comes from abroad. Nearly half of the

funds are headquartered in the U.S. And, in many cases, are directly managed from the Silicon Valley or the New York premises. Indian-incorporated facilities account for one third of the total, with main offices principally located in Mumbai or Bangalore⁵³. Several foreign VCF are incorporated in Mauritius or

52 Source: Rafiq Dossani (Stanford University) & Asawari Desai (TiE Inc.), "Accessing Early-Stage Risk Capital in India", published by South Asia Initiative, 2006.

53 Regarding the destination of investments Mumbai has recently passed Bangalore. In 2005, Mumbai attracted 37 deals worth US\$700 million while Bangalore-based operations has been 'only' 21 for US\$370 million.

in other tax-haven and are managed by advisory firms established in India.

- **Investment Policy.** The risk aversion instilled in VCs by the early 2000s recession, and the apparent dried up of viable opportunities in the startup segment, led over the past five years to a progressive concentration of equity transactions in well-established companies at more mature stages of development. This is particularly true for private-sector international VC. It is estimated that, after 2004, no more than 10% of VC's operations have focused on early stage enterprises. Connected to this issue, an upward trend has been recorded for the size of transactions. In 2006, 26 deals had a value that exceeded US\$ 50 million—nearly three times over 2005. 100 transactions have fallen in the US\$5–10 million range and less in the US\$2–5 million range. The average value of early stage transactions have soared up to above US\$5.0 million, due in particular to large international institutional investors which seldom venture in deals below US\$10 million. Few funds are left statutory addressing SMEs, though the definition is sometimes questionable, and seed financing appears largely neglected. Among the few SME-oriented schemes, it is worth to mention some renowned IFI-backed funds such as *Aureos* and SEAF, the majority of public-sector funds, and a handful of other schemes. However, early this year, new SME-funding schemes have been announced: such as the US\$140 million fund of *Helion Venture Partners*, the BTS fund which follows up on *Swiss Tech VCF*, and the US\$100 million *Yes Bank* and *Avigo CP* joint facility. It is maybe too early to claim that the trend has reversed, but undeniably a renewed interested in small-scale operations is emerging⁵⁴.
- **Operating Modalities.** The Indian risk capital industry offers the entire range of existing financing instruments. This is due to the formidable thickness of the industry itself combined with a substantial deregulation in this sector. Most of the schemes combine straight equity financing with various quasi-equity instruments: such as preferred stock, subordinated loans⁵⁵. In some cases, debt instruments can be extended, but in subordination to equity and invariably “under exceptional circumstances”. VCs tend to adopt an hands-on attitude, especially when providing smart money to startups, or when the project aims at leverag-

ing on strategic cross-boundary partnerships, typically between India and the Silicon Valley. The funds promoted by IT MNC evidently operate along precise industrial strategy lines, while a less participative approach is possibly found among certain late stage institutional investors. The price of the assistance provided by VCF's advisors is usually included in the management fee applied to investees. The cost charged is normally in the order of 1–2% of the amount financed, but a variety of models can be found on this subject. A deal normally comprises subsequent financing events. In other words, VCs typically inject capital into its investees following a multi-stage investment plan, in order to leave the door open to write off the investment after the first or second round if things are not going as expected. At the end of the investment period—which can range from 3 to 7 years—the majority of Indian VCs seek to realize their investments basically through sales. IPO is in fact an option only for few, due to the relatively scarce development of Indian stock market, at least if compared to its Asian neighbors.

- **Performance.** Overall, the Indian private equity industry has invested so far an estimated US\$ 15 billion. The share reserved to ICT/ICTE industry has been 30–40% of the total. To a large extent operations have concentrated on few large companies. In 2006 alone, half of the total equity capital invested has been deployed into 15 major deals. In general investors have an approach that tend to minimize the risk of losses and to focus on well-established firms, hence the rate of failure reported is quite limited. By contrast, at a smaller scale there persists a problem of exit strategy, which makes seed and startup operations comparatively less profitable. In 2006, 37 successful divestments were carried out by private equity firms including 19 via IPO. VCF proper accounted for more than one third of exits, but only in three cases through public offering.

Institutional and Legal Aspects. The first policy on VC was issued in 1988, titled “Guidelines for

⁵⁴ This is confirmed also by stakeholders met during fieldwork who forecast a significant reduction of the average size of operation to the US\$0.5–2.0 million window. Indeed, various seed and early stage vehicles have been also launched between end 2006 and early 2007, such as: *Erasmic Venture Fund*, *SeedFund*, and *Upstream Ventures*.

⁵⁵ See for instance the *Swiss Tech VCF* whose offerings in this regard appear particularly articulated.

Venture Capital Funds in India”. The main objective of the Guidelines was to provide a sort of institutional framework to an array of fragmented initiatives principally carried out by isolated individuals and development financing institutions, and propel the growth of a private sector-led VC industry. But this objective was largely frustrated, as the policy contained important restrictions regarding the nature of subjects which were allowed to set up VC funds. During the 90s, the legal and institutional framework changed: the *Security and Exchange Board of India* (SEBI) was established, and new guidelines were issued to address the issue of foreign VC investing in India, and to create a more conducive environment for VC operations. In 1999 SEBI set up a Committee whose tasks included detecting all possible obstacles to VC growth and proposing measures to overcome them. The Committee was chaired by an Indian entrepreneur from Silicon Valley and included various Indian and foreign VCs and experts from the private sector. Some of the recommendations elaborated by the Committee were soon adopted, for instance⁵⁶:

- VC funds registered with SEBI was granted a tax pass through in order to avoid double taxation;
- the existing regulation was modified to both encourage foreign VC investments and mobilize increasing amount of domestic capital, such as through mutual funds;
- restrictions and investment ceilings were removed or loosened;
- measures were undertaken to improve the overall infrastructure and R&D environment, for instance through incubators, linkages between academic and market, and matching of Government’s funding into privately-led schemes;
- the regulative activity was rationalized and competences were unified under the rule of SEBI.

Regarding the first point it must be said that the Union Budget for FY 2007–08 has limited the benefits of the tax pass through to determined industries, namely: IT hardware/software, biotechnology, nanotechnology, R&D in chemical sciences, seed research, dairy and poultry. The consequences of this curtailing will affect in particular domestic generalist funds, but it is also reported that the Government is planning to deploy similar measures for schemes operating in India from offshore tax-

havens (such as Mauritius). Other recent regulative initiatives put a cap on banks’ participation to VC funds. The authorization of RBI is now required for a bank to invest more than 10% in a VCF, and similarly banks are not allowed to acquire more than 30% of a firm’s equity. The likely consequence of these measures will be a drastic downscaling of banks’ role in VC industry from today dominant position.

Business Angels. India is home to numerous business angels. Their presence dates back to nineties and earlier, well before the institutionalization of the VC sector and the emergence of a structured and regulated industry. Evidently, at that time they were not yet defined as business angels but nonetheless these early players had lot in common with the present ones: (i) the condition of being high net worth individuals; (ii) an investment model which combines finance with assistance regarding business strategy (leveraging on previous entrepreneurial experience and/or thorough knowledge of the business sector in question); (iii) a certain degree of ‘visionariness’ and a marked inclination for high risk/high return operations. Compared to today BAs the then investors operated in a much less framed environment and used to keep their activities under cover. As the situation evolved in the second half of 90s many individual investors grouped and established institutional VC funds, often fueled by conspicuous funding coming from the US. The success gained by several non-resident Indians which migrated to Silicon Valley in those years played a major role in the process for two main reasons: (i) some came back to India having accumulated money and experience and directly contributed to the fledging Indian IT industry; (ii) others remained in US and helped building a relation upon which many cross-boundaries events were later built⁵⁷. Indian entrepreneurs migrated worldwide have also set up a network—“The Indus Entrepreneurs” (TiE) a non-profit organization whose mission is to foster global Indian entrepreneurship through mentoring, networking, and education programs (see Box 5).

The downturn of early 2000s affected in particular small-scale investors who reduced significantly their

⁵⁶ Source: L.K. Singhvi (SEBI), “India’s Evolving VC Regulatory Climate”, presentation at the 2001 Asian Venture Forum, India.

⁵⁷ Among the Indian entrepreneurs who made it in U.S. the most renowned is probably Sabeer Bhatia, who went to California in 1988 and few years later founded “Hotmail”.

BOX 5. *The Indus Entrepreneurs*

TiE was founded in 1992 in Silicon Valley. It is a network of entrepreneurs, professionals, and venture capitalists active worldwide in technology-related sectors, who share the same geographical and cultural origins. At present TiE can count on over 10,000 members subdivided into 44 chapters in 9 countries including among others U.S., Australia, U.K., Singapore, Emirates and India. Every year TiE holds a conference in Silicon Valley attended by numerous stakeholders from the IT industry. Although TiE is not directly involved in funding enterprises, it may provide important mentoring services to its affiliates and help would-be entrepreneurs in many ways such as: assistance to preparation of business plan, fundraising, strategic guidance, career counseling, etc.

operations. Recently, BA's activities have re-gained momentum partly due to the establishment in April 2006 of the *Band of Angel* (BoA). BoA is an umbrella organization that brings together entrepreneurs and high net worth individuals from both India and overseas with the aim of making joint investments in seed and early stage deals. In less than one year BoA have brought together more than 50 individuals and 3 institutions and closed 5 deals in ICT/ICTE and media & entertainment sectors. The BoA is organized around a Secretariat which coordinates the operations but also strongly leverage on the proactive commitments of its members regarding both project scouting and deals processing and monitoring. The BoA typically seek for transactions in the US\$100,000 to 1.0 million range but exceptionally may consider also investments above this threshold. Frequently BoA has acted as co-investors along with other VCs for larger operations⁵⁸. Within BoA all members operate in their exclusively individual capacity and are ultimately free on their investment decision. Interesting deals are proposed to the group by one BA acting as a mentor, or directly by the Secretariat. Those who are interested in going ahead with the investment then form a sub-group which will autonomously take its decision and finalize the operation. Normally, within a sub-group of angels the investments are made on a *pari passu* basis, but sort of premiums may be foreseen for members who devote consistent time and efforts in the provision of assistance to the invested enterprise. BoA seeks to exit after a 3 to 5 year period by means of an IPO, M&A or strategic sale. Beside BoA, there are evidences of a general restored interest in seed financing also by isolated Angels. These are typically senior executives of large

corporations who invest part of their savings in promising startups which have difficulties in obtaining financing from institutional VCs. A recent example is provided by *Moveo System*, a movie ticketing application on mobile provider, which secured in early 2007 an equity investment from an undisclosed Angel for setting up its sales and marketing team.

C.3 OTHER FINANCING INSTITUTIONS AND SCHEMES

Technology Development Board (TDB). The *Technology Development Board* (TDB) is a body established under the Ministry of Science and Technology entrusted with the provision of support to the development and commercialization of indigenous technology and to the adaptation of foreign technology to the Indian context for commercial purposes. TDB may provide financial assistance to enterprises, research institutes and other entities active in this field through equity, soft loans, or grants. Loans are extended at the subsidized rate of 5% per year and are exempted from any other management charge. The quantum is limited to 50% of the total project cost and loans may have a term of up to 3 years. Regarding equity, TDB has teamed up with two VC funds, APIDC VCF (*BioTech fund*) and *UTI Ascent India Fund*, to invest in innovative startups and development stage enterprises. The total amount made available by TDB is about US\$23 million. In addition to that, TDB may also extend grants in exceptional circumstances. In such cases TDB may levy royalties from the grantees. So far, an overall 140 deals have been closed, one-tenth of which in IT sector for an average contribution per single deal of US\$0.5 million. Since January 2005, TDB co-sponsors the *Seed Support System for Start-ups in Incubators / Science and Technology Entrepreneurs Parks* (TBI/STEP) promoted by *National Science and Technology Entrepreneurship Development Board* (NSTEDB). In this framework, TDB will provide a total grant of US\$1.1 million over a three year period to selected TBI/STEP to be used for the establishment of

⁵⁸ An example is provided by the Delhi-based online DVD rental company *Madhouse Media* which have received a US\$220,000 equity investment from a group of investors including BoA and other Mumbai based Angels.

Incubator Funds for the financial assistance to incubatees⁵⁹.

The Small Industries Development Bank of India (SIDBI). Established in 1990, SIDBI is the main financial institution for the promotion, financing and development of small scale industries, such as investment in plant and machinery not exceeding US\$2.2 million. SIDBI manages various financing instruments including among others: (i) direct credit schemes—minimum loan of US\$100–200,000 with a variable duration, from 6 month to 10 years. SIDBI's loans can cover up to 75% of the project value; (ii) bills finance, 5 different instruments; (iii) factoring; (iv) equity financing—with two funds under the management of SVCL (see Table 4) and co-financing of other VC funds. In addition to that SIDBI contributes to one-fifth of the capital of the “Credit Guarantee Fund”, and has recently set up with *Intel* a scheme—denominated “SME-IT-Loans”—which facilitate SME's technology upgrade through loans in the US\$10–50,000 range specifically tailored for the acquisition of IT products and solutions. The “MSME Development Act” (2006) further strengthen the role of SIDBI in SME financing. The Government will in fact provide SIDBI with a grant for establishing a pilot Risk Capital Fund which will extend small loans to micro enterprises. In addition, SIDBI's presence nationwide will be enhanced with the opening of 30 new branches.

Small Industries Development Organization (SIDO). The *Small Industries Development Organization* (SIDO) is a development agency established under the Ministry of Small Scale Industries whose competences range from advising the Government for the policy formulation to the implementation of concrete measure in support of small businesses. Among the various schemes operated by SIDO it can be mentioned:

- “Small Industry Cluster Development Program”—to promote technology upgrade for clusters of SMEs active in specific industries;
- Participation in international fairs—subsidies are provided for renting of exposition space and exhibits shipment;
- “Purchase and Price Preference Policy”—under this policy, it is foreseen that Central Government have to buy 358 specific items exclusively from domestic SME.

In addition, SIDO is involved in credit guarantee schemes, microfinance and in direct assistance to intermediary organizations.

Credit Guarantee Fund Trust for Small Industries (CGTSI). The *Credit Guarantee Fund* (CGF) was launched in August 2000 by the Ministry of Small Scale Industries in order to enlarge access to credit for SME. The body entrusted for the management of the CGF is the *Credit Guarantee Fund Trust for Small Industries* (CGTSI). Funds are injected mainly by SIDBI and other Government agencies. So far the corpus of the CGF has attained US\$250 million, but the Government envisages enhancing the scheme to US\$500 million over the next 5 years. Guarantees can cover up to 75% of the value of the original loan with a cap at about US\$50,000 that will soon be raised at US\$100,000. There are 40 member lending institutions that include most of the main commercial banks, regional rural banks and other financing institutions like SIDBI and NSIC. It is also reported that CGTSI has considered to set up a specific scheme dedicated to IT sector in partnership with a private sector business organization, ASMEII, which would be entrusted with the technical assessment of the projects proposed. In the initial phase this initiative would operate in selected IT-districts, such as Bangalore, Chennai, Gurgaon, Hyderabad, New Delhi / Noida, and Pune. Two banks, *Central Bank of India* and *State Bank of India*, have expressed their interest to participate. It is however not clear if this project is still on-going or has been discontinued.

Technology Business Incubators and Science and Technology Parks. Indian technopreneurs based within one of the five selected Technology Business Incubators (TBI) and Science and Technology Parks (STEP) may access the seed-funding schemes, Incubation Funds, made available by the Business Incubators through a grant provided by the Department of Science and Technology. This is a pilot project launched in 2005 and active for three years. The initial amount

⁵⁹ Examples of TBD's operations include: a grant of US\$450,000 to Picopeta Simputers, a company involved in the development of Simple Inexpensive Multilingual People's Computers (Simputers) which appear to have a growing market inside and outside of India. The company was later acquired by the Internet products giant Geodesic. Another example is provided by e-Logistics, a Chennai-based company which received a US\$160,000 loan from TBD. The money was used to develop e-logistics' first product, named eTrack, which is a mobile assets tracking device, which reportedly has been installed so far on about 5,500 vehicles across the country. E-logistics has later received a US\$2.0 million investment from a BPO leading company—Financial Technologies.

of capital mobilized for this project was US\$1.0 million that translates into US\$200,000 per facility. The maximum amount per deal is US\$50,000 which can be employed for development of prototypes, market studies, product validation, training sessions. Innovative enterprises can also tap from the Innovation Fund which is

another public-funded scheme, sponsored by the Department of Scientific & Industrial Research, providing small grants up to US\$22,000 to individual innovators who aim at translating business ideas into commercially viable enterprises. These resources are channeled through selected business incubators.

ANNEX D – LIST OF ENTITIES INTERVIEWED

D.1 BUSINESS INCUBATORS

Indiaco

- Mr Rahul Patwardhan—President and CEO

TREC STEP

- Mr R.M.P. Jawahar—Executive Director

Society for Innovation and Entrepreneurship (SINE)

- Ms Poyini Bhatt—Chief Administrative Officer

D.2 FINANCIAL INSTITUTION

Small Industries Development Bank of India (SIDBI)

- Mr P. Rudran—Chief General Manager

SIDBI Venture Capital Ltd.

- Mr Ajay Kumar Kapur—Chief Executive Officer

IL&FS Investment Managers Limited

- Mr Dunil Diwakar—Partner

ICICI Venture

- Ms Bala Deshpande—Director Investments

Rabo Bank India

- Mr Sanjiv Bhasin—Chief Executive Officer

Aavishkar India Micro Venture Capital Fund

- Mr Vineet Rai—Chief Executive Officer

KITVEN Fund

- Mr Manish Kumar—Project manager

D.3 ICT/ICTE ENTERPRISES AND BUSINESS ASSOCIATIONS

Interactive Technology Software and Media Association (ITSMA)

- Ms Surbhi Sharma—Secretary General

VIT Infotech

- Mr Shrinivas Kulkarni—Development Manager

Gridlogics

- Mr Manish K Sinha—Chief Technology Officer

Intellivision

- Mr Deepak Gaikwad—General Manager

Verity Technologies

- Mr Anuradha Bansal—Joint Promoter and CEO

Visesh Infotecnic

- Mr Sanjiv Bhavnani—Chairman

KEEN Incorporated

- Mr Anil Gupte—President

D.4 PUBLIC INSTITUTIONS

National Science and Technology Enterprise Development Board

- Mr H.K. Mittal—Advisor

D.5 IFIS AND DEVELOPMENT ORGANIZATION

International Finance Corporation—IT Investment Division

- Mr Paul Asel—Senior Investment Officer



ANNEX E – PROFILES OF SME FINANCING ORGANIZATIONS

PROFILE #1 . *Infinity*

Salient Features

<i>Denomination</i>	Infinity India Advisors Pvt. Ltd (Infinity)
<i>Nature</i>	Infinity is an investment advisory company, running two investment funds, Infinity I and Infinity II
<i>Location</i>	Infinity is headquartered in Mumbai, India, and operates offices in Bangalore, New Delhi and New York
<i>Geographical Coverage</i>	Infinity I is a national scheme, while Infinity II is active in India and the US.
<i>Establishment</i>	Infinity was established in 1999 and the Infinity I fund became operational in 2000. Infinity II was established in 2000 under a different name (E India Venture Fund)
<i>Funding</i>	<p>Infinity is a private company, established by well known figures in the Indian IT sector. The capital of Infinity I fund was provided by angel investors from India and USA, including several leading corporations such as Laxmi Mittal group, Digital Century, and Tata Sons. Infinity II is an affiliate of Advent International and is participated by Comcraft, a Singapore-based manufacturing and service group, with interests in India. There is no involvement of IFI or donor organizations.</p> <p>Total funding is US\$53 million, of which US\$35 million for Infinity I and US\$18 million for Infinity II.</p>
<i>Investment Policy</i>	<p>Infinity I is an equity fund, specifically aimed at providing start-up financing to Indian technology companies. Deals average at US\$2 million, with smaller investments. Infinity II is a venture capital fund investing in cross-border operations, with larger investments.</p> <p>Both funds are specifically targeted at ICT/ICTE businesses, with a prevalence of investments in ICTE activities, outsourced collections and accounting services, on line trading.</p>
<i>Operations</i>	Overall, the Infinity group has invested in 21 companies, 17 Infinity I and 4 Infinity II, with a total of 8 exits and 5 failures.

Narrative Description

- Infinity I brands itself as India's "first institutionalized angel fund". It was established by a pioneer in the Indian computer industry, who managed to raise funds from a number of leading Indian companies and investors. Infinity II is the result of a sort of joint venture between the Infinity I team and a separate group who had established another IT-oriented venture fund incorporated in Mauritius.
- Apart from a clear focus on technology-based activities, the investment philosophy is characterized by a strong involvement in the management of investee companies, believed to be an essential condition for adding value to financial investments.
- Infinity I invested in 17 companies, of which: 2 were exited through IPO, 5 through trade sales and 1 through an MBO. The fund is still holding participations in 4 companies while 5 companies have ceased operations. Detailed data on returns are not available but available information suggests that the fund has been fairly successful, over a relatively short period of time.
- No exit has been realized so far by Infinity II.
- One of Infinity I (exited) investments is Avendus Advisors, an investment bank specializing in the ICT and ICTE industries.

Sources on the Web

- <http://www.infinityventure.com/index.html>

PROFILE #2. AIMVCF

Salient Features

<i>Denomination</i>	Avishkaar India Micro Venture Capital Fund (AIMVCF)
<i>Nature</i>	AIMVCF is a venture fund aimed at promoting development in rural and semi-urban India.
<i>Location</i>	AIMVCF is headquartered in Mumbai.
<i>Geographical Coverage</i>	AIMVCF is a national scheme, concentrating primarily on rural and semi-urban areas.
<i>Establishment</i>	AIMVCF was established in 2002.
<i>Funding</i>	AIMVCF is a private entity and funds have been made available by private investors. Total capital under management is about US\$ 1.5 million.
<i>Investment Policy</i>	<p>AIMVCF specifically aims at providing start-up and growth stage financing to technology companies, typically in the form of micro-equity participations. Equity and quasi-equity financing is sometimes combined with subordinated debt, but not exceeding 25% of the overall investment. Typically, AIMVCF funds are minority shareholders, 25% or more, and are in the US\$ \$20,000 to \$100,000 range. Typically, AIMVCF's investments have a tenure of 7 years.</p> <p>AIMVCF supplements the provision of financing with training and extensive strategic and operational hands-on management support to investee companies.</p> <p>AIMVCF invests in technology-based companies, including ICT, energy-efficient technology, bio-diversified and indigenous technology.</p>
<i>Operations</i>	Since inception, AIMVCF has invested in 9 companies, of which a couple can be regarded as ICT/ICTE firms, one providing transcription services and the other software localization/development. As of today, the 75% of the fund is invested. No exit has been realized so far.

Narrative Description

- AIMVCF was founded by trustees, Arun Diaz and Nilesh Mehta. The holding company of the trust is Avishkaar International, incorporated as a private limited company in Singapore. The role of Avishkaar International is to aggregate individual contributions and remit the funds to AIMVCF India. The company has a representative in San Francisco, CA.
- AIMVCF has since inception attracted following strategic partners—Indian Intellectual Capital Advisory Services, Rural Innovation Network, rural business incubator, and Ashoka India, global non-profit organization that invests in entrepreneurs with great ideas through stipends.
- Apart from a clear focus on technology-based activities, the investment philosophy is characterized by a strong involvement in training and management of investee companies, believed to be an essential condition for adding value to financial investments.
- Prospective investments are appraised on the basis of a 32% IRR. Lately, the level of activity seems to have slowed down and there have been no exits so far.

Sources on the Web

- <http://www.avishkaar.org/index.htm>

PROFILE #3. GTV

Salient Features

<i>Denomination</i>	Global Technology Ventures Ltd (GTV).
<i>Nature</i>	GTV is venture capital company, providing equity to technology-oriented companies
<i>Location</i>	GTV is headquartered in Bangalore, India.
<i>Geographical Coverage</i>	GTV operates at Karnataka State level, and in particular in the Bangalore and Mangalore areas..
<i>Establishment</i>	GTV was established in 2000.
<i>Funding</i>	GTV is a private organization, part of the Sivan Securities Group. It counts on a strategic partnership with Bank of America Equity Partners and Nomura International.
<i>Investment Policy</i>	GTV provides equity financing to high-tech start-up and later stage growth companies. The size of investment ranges between US\$500,000 and US\$5 million. At the start up stage, investments are typically in the US\$1 to 2 million range, and may be followed by additional injections at subsequent rounds of financing.
<i>Operations</i>	Overall, the GTV has invested in 8 companies, principally in ICT/ICTE sectors, such as Internet infrastructure, Software, R&D services and IT consultancy.

Narrative Description

- GTV also offers its investees the option of establishing within the Global Village—a Technology Park located in Bangalore which provides a series of shared-office and incubating facilities. A similar initiative is currently in the pipelines in the Mangalore area. Both facilities are an initiative of Tanglin Developments, a GTV's invested company.
- Apart from a clear focus on technology-based activities, the investment philosophy is characterized by a strong involvement in the management of investee companies, believed to be an essential condition for adding value to financial investments.

Sources on the Web

- <http://www.gtvld.com/>

PROFILE #4. INDIA – ICICI Venture

Salient Features

<i>Nature</i>	ICICI Venture is one of India's largest venture capital company, involved in the management of a network of equity funds.
<i>Location</i>	ICICI Venture is headquartered in Bangalore, with an operational office in Mumbai.
<i>Geographical Coverage</i>	ICICI Venture is operating at the national level.
<i>Establishment</i>	ICICI Venture was established in the mid 1980s.
<i>Funding</i>	<p>ICICI Venture is a subsidiary of ICICI Bank, the largest private sector financial services group in India. Funding for its funds is provided by a wide network of third-party investors including domestic investors, public sector banks, financial institutions and insurance companies, international funds, and international financial institutions (IFC).</p> <p>Total funds under management in excess of US\$2.0 billion, with private equity schemes accounting for US\$400 million.</p>
<i>Investment Policy</i>	<p>ICICI Venture is involved in all types of equity financing deals, from start-up financing to expansion deals, and from MBO to mezzanine financing. The size of investments appears to vary, depending on the nature of specific funds, but no details are available on the subject. Two ICICI Venture funds, ICICI Econet Fund and ICICI Software Fund, have a strong orientation towards ICT/ICTE activities, totalizing altogether US\$30 million. Other investments in these sectors are occasionally made by other.</p> <p>Most of ICICI Venture investments appear beyond the SME threshold, but in the case of ICT/ICTE activities the company appears to have invested in relatively small businesses. Early stage investments are about one third of the total deals.</p>
<i>Operations</i>	Total number of investments made since inception appears to exceed 200, with 100 successful exits. The current portfolio includes 50 companies, five of which in the ICT/ICTE sector.

Other information

- India Advantage Fund: launched in 2004, with a US\$245 million capital, the fund invested in existing Indian companies and India-related companies, providing dedicated expansion finance, buy-outs and mezzanine funding. Today, the fund is entirely invested and as of end 2006, the firm launched a further round of investment with a capital provision of US\$810 million.
- ICICI Econet Fund: launched in 2001 with a US\$20 million capital, the fund focused on businesses based on Internet and other related technologies. Part of the financing was provided by Compaq. This strategic alliance has helped ICICI Venture to leverage the technology skills and global alliances required to enhance the value of investments.
- ICICI Equity fund: with a capital of US\$150 million, entirely contributed by ICICI Bank, the fund invests in mid-sized Indian companies, including entities purchased by financial institutions following bankruptcies or reorganizations.
- Emerging Sectors Fund: launched in 2002, with a US\$80 million capital, the fund invests in small and medium-sized Indian Companies across a variety of fast growing sectors, excluding ICT and ICTE.
- ICICI Software Fund: launched in 1997 with a US\$10 million capital, the fund aimed at providing financing to companies engaged in the business of computer related products and services with primary focus on software products and services.
- Vecaus Funds: they were set up in collaboration with the publicly-owned IVCF, another pioneer in India's venture capital industry, with the objective to promote new technology in SME (Vecaus I Fund, launched in 1988, Vecaus II Fund launched in 1990, Vecaus I (R) launched in 1994), with a total funding of over US\$50 million.
- TCW ICICI Fund: with a US\$50 million capital, the fund is a joint venture with TCW, another venture capital company, established with the objective of investing in medium sized, late stage companies across sectors. The fund has been financed by leading investors including International Finance Corporation, Sun America, AMP Life Limited, Kleinworth Benson Limited, Phoenix Homelife Mutual LIC, Kuwait Investment Authority, Singapore Technologies (P) Limited, TCW ICICI Investment Partner and Kuwait Financial Center

Sources on the Web

- <http://www.iciciventure.com>

PROFILE #5. IIML

Salient Features

<i>Denomination</i>	IL&FS Investment Managers Ltd (IIML), where IL&FS stands for Infrastructure Leasing & Financial Services Limited
<i>Nature</i>	IIML is an asset management and venture capital company, active in the management of a network of private equity funds
<i>Location</i>	IIML is headquartered in Mumbai, with an office in Bangalore, and other presences nationwide through IL&FS network of branches.
<i>Geographical Coverage</i>	IIML is active in India as well as in other Asian countries.
<i>Establishment</i>	IIML was established in 1989 as the Credit Capital Venture Fund. In 1996, it was acquired and renamed by the Infrastructure Leasing & Financial Services Limited (IL&FS).
<i>Funding</i>	<p>IL&FS is IIML's main shareholder. Other shareholders include the Asian Development Bank, International Finance Corporation, and various Indian banks, financing institutions and large corporations. The States of Gujarat and Tamil Nadu also participate in locally implemented schemes. IIML is listed on Mumbai, Bangalore and National Stock Exchanges.</p> <p>Total funds under management are around US\$900 million. The funds committed to the two ICT/ICTE oriented funds are around US\$7 million.</p>
<i>Investment Policy</i>	IIML provides all forms of equity financing, from start-up to later stage financing and MBO. IIML manages a number of Funds, operating across a variety of sectors, such as: Technology, Media, Retail, Consumer Services, Manufacturing and Infrastructure. Two funds, Information Technology Fund, Tamilnadu Infotech Fund, are specifically targeted at ICT/ICTE activities, but other ICT-related investments have been made also by some of the other funds. The size of investments varies depending on the nature of specific funds under management. In the case of larger, generalist funds, or real estate facilities, investments have been in the order of US\$5–10 million or above. In other cases deals of US\$1–2 million prevails. The ICT/ICTE oriented funds, Information Technology Fund, Tamilnadu Infotech Fund, investments appear to be well below the US\$1 million threshold. Investees in IT and related fields currently account for 13% of IIML's portfolio.
<i>Operations</i>	Altogether, IIML funds have invested in over 85 companies, of which possibly 10 to 12 in the ICT/ICTE sector. Overall, there has been 30 exits so far both through IPO and other instruments, with an average IRR of 26% per year. The Information Technology Fund performances appear fairly successful, having distributed dividend equivalent of the 90% of the committed value.

Narrative Description

- IL&FS, IIML's mother company, was incorporated in 1987, and commenced its operations in May 1988 as a subsidiary of Central Bank of India (CBI). The initial shareholders were the Unit Trust of India (UTI) and the Housing Development Finance Corporation Limited (HDFC). From 1993 to 2001, IL&FS has seen a progressive induction of new shareholders, including: the IFC, ORIX Corporation (Japan), Crédit Commercial de France, the State Bank of India (SBI), and Indinvest Pty.
- The IL&FS Group covers a wide range of activities and operates in the financial areas through IL&FS Mutual Fund and IL&FS Investment Managers.
- AIG India Sectoral Equity Fund (AISEF): launched in 1997, with a US\$91 million capital, the fund, focuses on Infrastructure, New Technology, and Growth Sector, making investments on equity, quasi-equity and, other equity-related instruments. Fully committed, with a total of 10 investments.
- South Asian Regional Apex Fund (SARA Fund): with a US\$24 million capital,, the fund focused on information technology & media, biotech, distribution and manufacturing, operating in the South Asia region. A total of 17 investments.
- India Project Development Fund (IPDF): launched in 2000 with a US\$20 million capital, the fund focuses on infrastructures, and operates in India. Two investments were completed, worth about US\$3.5 million.
- India Auto Ancillary Fund (IAAF): set up in 1998 with a US\$15 million capital, the fund focuses on auto components sector, plus some forays in the information technology and biotech sectors. Fully committed, with a total of 8 investments
- Tamilnadu Infotech Fund (TIF): with a US\$5 million capital, the fund focuses on high-tech sectors in the State of Tamil Nadu. It has completed 5 investments.
- Information Technology Fund (ITF): with a US\$ 2 million capital, now fully committed, the initiative focuses on Information Technology.

Sources on the Web

- www.ifsindia.com
- www.ilsinvestmentmanagers.com/iimlnew/index.htm

PROFILE #6. KVCF

Salient Features

<i>Denomination</i>	Kerala Venture Capital Fund Ltd (KVCF)
<i>Nature</i>	KVCF is an asset management company, providing venture capital funding.
<i>Location</i>	KVCF is headquartered in Kochi, State of Kerala, India.
<i>Geographical Coverage</i>	KVCF is a regional scheme.
<i>Establishment</i>	KVCF was established in 1999 and KVCF became operational in 2001.
<i>Funding</i>	<p>The capital of KVCF fund was provided by public institutions such as the Kerala State Industrial Development Corporation Ltd. (KSIDC), Kerala Financial Corporation (KFC) and Small Industries Development Bank of India (SIDBI).</p> <p>Total funding is US\$4.7 million.</p>
<i>Investment Policy</i>	<p>KVCF is a 10 year, close-ended venture capital fund. KVCF investments are made by way of equity and or quasi equity/convertible instruments, specifically aimed at providing start-up and/or growth financing to the State of Kerala companies. KVCF fund is specifically targeted at ICT/ICTE, bio-technology and tourism businesses. KVCF does not take a majority stake in a company and, at present, restricts its equity stake to 40% of the equity base of the Company. The timeframe does not exceed five years. Deals are typically in the range of US\$50,000–350,000.</p> <p>Beside finance, KVCF provides networking, management support and technical assistance, with the objective to make the company grow rapidly.</p>
<i>Operations</i>	Overall, the KVCF has invested in 6 projects, the majority of which in ICT/ICTE sector, but no exit has been realized so far.

Narrative Description

- Kerala Venture Capital Fund (P) Ltd. is a private asset management company which has managed Kerala Venture Capital Fund since 2001. KVCF, a close-ended venture capital fund, was conceptualized by the Kerala State Industrial Development Corporation Ltd. (KSIDC), Kerala Financial Corporation (KFC) and Small Industries Development Bank of India (SIDBI).
- KVCF invests in start-up companies with strong commitment to the region, the State of Kerala, with a special emphasis on sectors in which the State of Kerala has a competitive advantage, such as IT and biotechnology. Financial structuring is done on a case-by-case basis keeping in view factors like risk perception, growth potential, equity base and market condition.
- Apart from a clear focus on technology-based activities, the investment philosophy is characterized by a strong involvement in the management of investee companies, which is believed to be an essential condition for adding value to financial investments.

Sources on the Web

- <http://www.keralaventure.org/home.html>

PROFILE #7. RVCF

Salient Features

<i>Denomination</i>	Rajasthan Venture Capital Fund (RVCF)
<i>Nature</i>	RVCF is an investment fund managed by Asset Management Company Pvt. Ltd.
<i>Location</i>	RVCF is headquartered in Rajasthan, India.
<i>Geographical Coverage</i>	RVCF is a scheme covering the State of Rajasthan.
<i>Establishment</i>	RVCF was established in 2000.
<i>Funding</i>	The RVCF's size is US\$3.5 million. The capital was injected in the fund mainly by public entities, such as the Rajasthan State Industrial Development & Investment Corporation Limited (RSIDCO), the Small Industries Development Bank of India (SIDBI) and the Bank of Rajasthan, and to a lesser extent by private investors.
<i>Investment Policy</i>	<p>RVCF has the mandate to finance technology-enabled projects, with a focus on IT, biotechnology, retail, tourism and entertainment. RVCF provides early stage and expansion financing, typically in the form of equity or quasi equity, optionally debentures and, in exceptional cases, loans may also be considered. Investment size are compatible with SME needs, ranging from US\$50,000 to 700,000, with terms varying from 3 to 7 years.</p> <p>RVCF funds supplement the provision of financing with extensive strategic and hand-on management support to investee companies.</p>
<i>Operations</i>	Details on the deals financed so far are not available. The presumably latest operation dates back to August 2006, with an early stage financing of a business intelligence and analytic software provider. The financing instruments chosen is a mix of straight equity and convertible debentures.

Narrative Description

- RVCF is managed by a private company—the Rajasthan Asset Management Company Pvt. Ltd. (RAMC), while the definition of policy and the supervision is carried out by a third-party: the Rajasthan Trustee Company Pvt. Ltd. (RTC).
- RVCF typically invests in locally registered, private technology-based companies. RVCF operates on a strictly commercial basis. Equity investments are often combined with quasi equity and/or debt financing, to reduce the potential risks.

Sources on the Web

- <http://www.rvcf.org>

PROFILE #8. *Swiss Tec VCF*

Salient Features

<i>Denomination</i>	The Swiss Technology Venture Capital Fund (Swiss Tec VCF).
<i>Nature</i>	Swiss Tech VCF is a private equity fund.
<i>Location</i>	Swiss Tech VCF is headquartered in Mauritius and operates in the offices of Mumbai and Zürich.
<i>Geographical Coverage</i>	Swiss Tech VCF is a regional scheme, with particular focus on India.
<i>Establishment</i>	Swiss Tec VCF was established in 1997. Since 2000, it is managed by the Mumbai-based BTS Advisors.
<i>Funding</i>	Swiss Tech VCF is a private equity fund, sponsored by the State Secretariat for Economic Affairs (SECO) of the Swiss Government. The initial capital was of US\$22 million. In 2003 SECO added up US\$3.5 million more.
<i>Investment Policy</i>	<p>Swiss Tech VCF is a 10-year, close-ended equity fund. Swiss Tech VCF investments are made by way of equity and quasi equity, specifically aimed at providing growth financing to the Indian technology companies. In exceptional cases startups may be considered, provided that they are subsidiaries or have entered any long term partnership with well-established Indian or foreign firms. The favorite financial instruments are preference shares, such as cumulative convertible preference shares, optionally convertible preference shares or redeemable preference shares. The Fund normally invests between US\$250,000 and US\$1.5 million. The preferred sectors for Swiss Tec VCF's investments are: IT and software services, biotechnology, textile, manufacturing and food processing.</p> <p>Apart from finance, Swiss Tec VCF provides networking, strategic and marketing management support and technical assistance with the objective to make the company grow.</p>
<i>Operations</i>	Swiss Tech VCF invested in 17 companies, of which: 3 were exited through stock market, 2 through trade sales and 1 through buy out. The fund is still holding participations in 11 companies. Detailed data on returns are not available but available information suggests that the fund has been fairly successful.

Narrative Description

- Swiss Tech VCF is a private equity fund, sponsored by the State Secretariat for Economic Affairs (SECO) of the Swiss Government. Seco has selected BTS Investment Advisors Limited (BTS), based in Switzerland and part of BTS Belvoir Trust AG as its exclusive advisor for investment opportunities in India. BTS, a Swiss company, takes advantage of the strength and stability of the Swiss financial service industry to develop and manage investment products and services.
- In 2006 BTS has launched a new VC fund denominated BTS India Private Equity Fund, which has so far raised US\$47 million out of the targeted 80 million. This fund is the ideal successor of the Swiss Tech VCF and will be implemented along the same lines.
- Swiss Tech VCF invests in start-up and growth companies with strong commitment to India and with a special emphasis on sectors in which India has a competitive advantage, such as IT, biotechnology, healthcare and food processing. Financial structuring is done on a case-by-case basis keeping in view factors like risk perception, growth potential, equity base and market condition.
- Apart from a clear focus on technology-based activities, the investment philosophy is characterized by a strong involvement in the network of activities and strategic management of investee companies, which is believed to be an essential condition for adding value to financial investments.

Sources on the Web

- <http://www.swisstecvcf.com/>
- <http://www.btsadvisors.com/>

PROFILE #9. SVCL

Salient Features

<i>Denomination</i>	SIDBI Venture Capital Limited (SVCL)
<i>Nature</i>	SVCL is an investment, management and advisory subsidiary company, established as a subsidiary of the Small Industries Development Bank of India (SIDBI), which is in turn linked to the Ministry of Finance.
<i>Location</i>	SVCL is headquartered in India.
<i>Geographical Coverage</i>	The VC funds managed by SVCL are national schemes. Part of the investment can be however utilized for investment in opening overseas branch offices/subsidiaries, provided that the investment is beneficial to the parent Company in India.
<i>Establishment</i>	SVCL was incorporated in 1998. The NFSIT fund became operational in 1999, while the SME Growth Fund was established in 2004.
<i>Funding</i>	<p>SVCL is currently operating two funds:</p> <ul style="list-style-type: none">■ the National Venture Fund for Software and Information Technology – NFSIT (about US\$22 million);■ the SME Growth Fund – SGF (about US\$110 million). <p>The capital for NFSIT fund was provided by SIDBI in association with Ministry of Information Technology, and the Industrial Development Bank of India Ltd (IDBI), while in the case of SGF sponsors have been again SIDBI and other leading commercial banks such as Punjab National Bank, State Bank of India, Bank of Baroda, Bank of India, Central Bank of India, Union Bank of India, Oriental Bank of Commerce and Corporation Bank.</p>
<i>Investment Policy</i>	<p>SVCL's funds basically provide smart capital to startups and early stage companies active in various sectors, such as life sciences, retailing, light engineering, food processing, information technology, infrastructure related services, healthcare, logistics and distribution. Special emphasis is put on SME units. SVCL investing instruments are of equity nature. Size of deals is generally comprised between US\$0.5 to 5.0 million. SVCL sometimes co-invests along with other VCs or helps the promoter to raise additional capital from other investors during subsequent rounds of financing. SVCL usually takes one seat within the board of invested companies but its stake is limited to a maximum of 40% of the equity base of the investee. The tenure of deals is typically of 3–5 years.</p> <p>Of the two funds currently under management: the NFSIT is specifically dedicated to ICT/ICTE firms and invest in business line such as BPO/ITES, multimedia, software services and Internet and telecom value-added services; the SGF—which is the largest domestic fund for SME—has a broader scope but maintains a special focus on technology-based operations.</p>
<i>Operations</i>	Overall, the SVCL has invested in 39 companies, 30 NFSIT and 9 SME Growth Fund, with a total of 5 exits.

Narrative Description

- SVCL is a subsidiary management company established by Small Industries Development Bank of India (SIDBI), which is an independent organization that is related to the Ministry of Finance established in 1990. SIDBI is the main financial institution for the small scale sector, and has been playing a primary role in the development of VC in India. Besides SVCL, SIDBI has funded several other SME-oriented VC funds, such as: India Leverage Fund, India Advantage Fund, India Development Fund, and other publicly-financed funds established by States' Governments at the local level.
- SVCL also co-invests with other Venture Capital funds, an example being the recently exited ECAD Technologies—a firm active in the design, simulation and testing of Printed Circuit Board. ECAD was invested in 2001 jointly by NFSIT and another publicly-financed VC fund—KITVEN, for respectively US\$0.45 and 0.22 million. At the liquidity event, the operation recorded a profit of 150%.

Sources on the Web

- <http://www.sidbiventure.co.in/>
- <http://www.sidbi.in>

PROFILE #10. KITVEN

Salient Features

<i>Denomination</i>	Karnataka Information Technology Venture Capital Fund (KITVEN)
<i>Nature</i>	KITVEN is a close-ended Venture Capital Fund, managed by Karnataka Asset Management Company Private Ltd.
<i>Location</i>	KITVEN Fund is headquartered in Bangalore, India.
<i>Geographical Coverage</i>	KITVEN fund operates primarily in the State of Karnataka.
<i>Establishment</i>	KITVEN was established in 1998.
<i>Funding</i>	The fund was established with a US\$3.3 million capital and a 10-year life. The sponsors are entirely from the public sector and include: Karnataka State Industrial Investment and Development Corporation Limited (KSIIDC) with 25%, Karnataka State Financial Corporation (KSFC) with another 25%, and Small Industries Development Bank of India (SIDBI) with 50%.
<i>Investment Policy</i>	KITVEN Fund is principally aimed at investing in the ICT/ICTE industry. Financing instruments include straight equity, redeemable/convertible preferred shares, convertible/non-convertible debentures and other. The investments undertaken by the fund are typically in the range of US\$100,000 to 300,000, with a time horizon of 3–5 years. The majority of operations concern small businesses at the early stages. KITVEN Fund then act as a smart money providers as investments are typically accompanied by support services in the area of financial strategies, business strategies, internal controls, management information system etc.
<i>Operations</i>	So far, the fund has invested in 17 companies with 6 liquidity events. Four deals were very successfully exited, while for the other two the original investment was merely recouped. On average the returns posted so far generated a 200% profit return on the initial investment.

Narrative Description

- KITVEN often acts as co-investor along with other institutional and individual partner. For instance, in January 2006, KITVEN participated with other two individual investors to a US\$10 million financing round in favor of the e-learning company 24 X7 Learning.
- As KITVEN is largely dependent on capital sourced by domestic banks, it is being affected by the NRI's decision to put a 10% cap on banks' investment in private equity or VC funds. The norm also limit to 30% the stake that a bank can held in equities of an invested firms.
- In late 2006, KITVEN announced the intention to launch a second Fund with a US\$11 million capital. This new fund will not stick to ICT/ICTE sector as the previous one, but will expand its scope of operation to biotechnology, pharmaceutical industry, healthcare and other knowledge-based industries. Possible sponsors are the same investors of the first fund.

Sources on the Web

- <http://www.kitven.com/index.htm>

ANNEX F – PROFILES OF ICT/ICTE SME

VIT

Operations

Established in 2001 in Bangalore, VIT Infotech is a fast-growing IT services company that provides a full portfolio of technical services through consultation and software solutions to clients in India and abroad in the areas of wireless communications, networking, graphics and embedded system solutions. Recently, it has also started to operate in the Business Process Outsourcing market.

VIT provides offshore development and on site consulting services to its clients around the world. The staff can count on a pool of engineers with deep experience in J2EE, NET platforms, Networking, IT-Enabled services, and more. VIT started its activity as a graphical software development company and as of today it has improved internal skills for web development with 60 staff in Bangalore and 11 in Pune. Among others, the company provides services to Corel Corporation, American Multiplexer Corporation and MCI Worldcom.

Financing

In the start up phase, VIT was financed by the founders' private capital. It built almost immediately a good network of clients, mainly interested in the development of software services. One of the most important was Corel Corporation, for whom the Chief Executive Officer of VIT had been previously working, that allowed the cash flow to be positive from the very beginning. Corel still remains a main client, but not any longer essential to VIT growth. For the time being, IndiaCo has not invested in the company.

Comments

While financing does not seem to be the main issue, having proper infrastructures and facilities, as well as a good network of business organizations that can support the acceleration is the main priority for a fast growing company like VIT.

For the time being, VIT's strategy is quite cautious and any development is demand-driven by an important customer such as COREL or today ORANGE. It is still to be evaluated whether this business model will be enlarged to include a riskier autonomous product development. Should this scenario be verified, the need for risk capital will grow and in this context, the proximity with IndiaCo with its own network could be of great support.

GRIDLOGICS

Operations

Gridlogics started its operations due to a pre-incubation service obtained from IndiaCo and an agreement with the University of Delhi to develop a new technology that was established in 2003. It offers innovative business applications, products and services based on data mining and grid computing technologies, mainly devoted to medium size companies operating in the financial sector.

Currently its personnel counts 6 employees and serves 3 main clients.

Financing

Gridlogics started its activity with a small capital of US\$20,000 financed by the owner's private capital. After the first two years, the company experienced a good progress and worked for several important customers.

The need to quickly develop new technical solutions obviously required new financing sources. In March 2006, due to its project portfolio and the quality of its products, Gridlogics obtained a first round of

funding of US\$600,000 from IndiaCo, which could be evaluated in the 15–33% range of the shares according to the performance by the end of the year. It would have been rather difficult to obtain loans and/or other forms of credit, considering the limited amount of the initial equity and the fixed assets owned by the company.

Comments

Gridlogics is a typical example of a start-up based on a new product idea that has a worldwide potential market. After the previous experience for two software system companies, the founder of Grid Logics decided to establish his own company for the development for a new system for grid computing.

During the initial phase, the activity was sustained by IndiaCo that made available its premises for the market research and got, in turn, a share of the company (2%).

Related to the needs in the start-up stage, the interview expressed his concern with reference to: (i) financing; (ii) lack of facilities, such as PCs at low prices; and (iii) support in performing market research.

K.E.E.N. INCORPORATED

Operations

Established in 2004, K.e.e.n. Incorporated is a local subsidiary of a large US-based corporation founded in 1997. The core business of K.e.e.n. is the development of IP-based software for the content delivery through digital video and the Internet. K.e.e.n. has 11 main clients and owns 5 US patents. The company offers a wide range of services, varying from LAN & WAN networking/consulting, to customized application, to database management. The parent company has recently spin off several new companies and brands, such as maxNetwork, GeoLocus and coming soon, Layer Three Media.

Financing

Since its establishment in India, K.e.e.n. Incorporated managers tried to find venture capitalists to invest in their activity. The attempts were not successful and so far they have financed their activity with a mixture of own savings and friends' borrowing, US\$140,000 all in all. They also

contacted IndiaCo, which is currently hosting them inside the incubators and providing facilities and support in searching for loans and/or grants, as well as for the selection of the management team.

Comments

The two main issues mentioned during the interview, concerned the need for financing and for qualified managerial staff. Regarding the former, what the company needs a small investment during the initial phase. They mentioned the Small Business Administration Express loans—loans without collateral for the amount up to US\$25,000—as a possible good practice for India. Whereas, concerning the later, difficulties in finding capable managerial staff, are to be attributed to the limited financial sources that do not permit to offer competitive salaries.

VERITY TECHNOLOGIES

Operations

Verity Technologies is a new generation company established in 2000 with its headquarters in Bangalore, India's IT capital. The company specializes in providing development and consulting services to global clients in the area of wireless data services for mobile devices. Verity provides network carriers, the technology services necessary to drive the design and development of mobile data applications and content in a controlled setting enabling them to increase their service offerings. The company counts 42 employees and has a clients' portfolio that includes the Sweden Mobile Metrix, Grey Matter India, Motorola India Electronics, Nazara Technologies.

Financing

The company was established mainly with personal savings, about US\$200,000, and a small bank loan, US\$12,000. After 3 years, when the business started producing profits, they contacted VC for further investments in the company.

Eventually they manage to receive an equity investment from IndiaCo and from Duke Equity Partners, a venture equity fund, based in Dubai, primarily set-up to invest in companies having focus in the information technology, telecommunication and security sectors.

Comments

Started as a service company, Verity Technologies has waited 5–6 years before entering into the product development phase. This was mainly due to the lack of seed capital that obviously challenged for a number of years the ambitions of the entrepreneurial team. In 2006, the company signed an important contract for the rights of a well known Indian broadcasting TV, *Malgudi Days*, and will soon launch various types of mobile contents, such as caller ring back tones, ring tones, true tones, wallpapers, on leading mobile operators.

INTELLIVISION

Operations

IntelliVision is a US-based company in San José that started operations in India in 2005. The company is focusing on “Video Intelligence and Automated Monitoring” solutions for security, surveillance and safety markets. IntelliVision offers video solutions based on self-learning technologies. Its products have been deployed at customer sites since early 2003.

Among its products it can be mentioned *Intelligent VideoTM*—an advanced solution that performs video analysis and monitoring. It automatically tracks and identifies objects, analyzes motion and extracts video intelligence. This allows customers to detect exceptions in real-time, enabling them to respond effectively. IntelliVision has an excellent track record of deploying its products and technologies with leading companies. IntelliVision currently employs 20 people and provides services to 50–60 customers.

Financing

Management had its own finance of US\$2 million to start the company in the US. In India they do not have enough resources to build their own building and infrastructure so they are now looking for a new financing of US\$2 million (VC or a bank loan).

Comments

The main concern regards the difficulties in finding bootstrapping money, as an indication between US\$25,000 and US\$100,000. As a result, many companies continue to provide only outsourcing services. Again the SBA Express loan without collateral was advocated as a possible measure.

VISESH INFOTECNICS

Operations

Established in 1989 as an ERP Software Products Company, Visesh Infotecnics Ltd. Software development processes at Visesh respect ISO 9001:2000 Standards. The company offers several products in different sectors, telecommunications, financial, tourism, manufacturing, and serves currently more than 1,000 large and medium sized corporations including several leading multinationals and overseas clients, and various departments of the Indian Government and other authorities and associations. The company has alliances with 3 COM, Acer Computers, Cisco System, Compaq, Computer Associates Inc., Hewlett Packard, IBM India Ltd., Ingram Micro India Ltd..

The company can count on 175 highly skilled and experienced professionals. Personnel reached 1,500 employees in 2006, compared with 200 in 2004.

Financing

Visesh started its activity as a self financed company and “real money” came in during IPO when with a turnover of US\$1.5 million, the company raised to US\$ 2–3 million of equity.

Today the company has entered a different phase and given its very fast growth is looking for Venture Capital. The company is a stock exchange listed organization and its main investors are IndiaCo and Duke Equity Partners.

Comments

In line with other interviewees’ comments, seed capital and lack of professional managers seem to be the main concern for Visesh.

Visesh has experienced an impressive sustained growth during the last years, particularly since 2004, year in which the new management team took over. The revenue growth was reported to be 123%, whereas the net profit growth was 465% for 2005–2006. Due to these excellent results achieved, Visesh was ranked among the most successful companies of the Deloitte Technology Fast 500 Asia Pacific Program for both 2005 and 2006.

About *infoDev*

infoDev is a partnership of international development agencies, coordinated and served by an expert Secretariat housed at the World Bank, one of its key donors and founders. It acts as a neutral convener of dialogue, and as a coordinator of joint action among bilateral and multilateral donors—supporting global sharing of information on ICT for development (ICT4D), and helping to reduce duplication of efforts and investments. *infoDev* also forms partnerships with public and private-sector organizations who are innovators in the field of ICT4D.

infoDev's mandate is to help maximize the impact of ICTs in global efforts to achieve the internationally-supported Millennium Development Goals. These include improving education and health services, making public institutions more efficient and transparent, supporting rural livelihoods, and contributing to economic growth by supporting small and medium-sized enterprises that use ICT for their business.

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