

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

BRAZIL
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


infoDev
www.infoDev.org

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

BRAZIL
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


www.infoDev.org

©2008 The International Bank for Reconstruction and Development/
The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org
E-mail: feedback@worldbank.org

All rights reserved

The findings, interpretations and conclusions expressed herein are entirely those of the author(s) and do not necessarily reflect the view of *infoDev*, the Donors of *infoDev*, the International Bank for Reconstruction and Development/The World Bank and its affiliated organizations, the Board of Executive Directors of the World Bank or the governments they represent. The World Bank cannot guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply on the part of the World Bank any judgment of the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to *infoDev* Communications & Publications Department, 2121 Pennsylvania Avenue NW; Mailstop F 5P-503, Washington, D.C. 20433, USA; telephone: 202-458-4070; Internet: www.infodev.org; Email: info@infodev.org.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2422; e-mail: pubrights@worldbank.org.

Cover design by Patricia Hord Graphic Design, Inc.
Typesetting by The Word Express, Inc.

TABLE OF CONTENTS

Abbreviations and Acronyms	v
Executive Summary	1
I. Introduction	3
II. The Country Background	5
II.1 The ICT/ICTE Sector	5
II.2 Legal and Institutional Framework	6
II.3 The Financial Sector	8
III. Issues In the Financing of ICT/ICTE Small Businesses	13
III.1 SME Financing Needs – The Demand Side	13
III.2 Issues in Accessing Financing – The Supply Side	13
III.3 The Financing Gap – Nature and Severity	17
IV. Conclusions and Recommendations	19
IV.1 Measures Aimed at Facilitating Access to Equity Financing	20
IV.2 Measures Aimed at Facilitating Access to Bank Financing	21
IV.3 Improving the Interactions between Supply and Demand	22

ANNEXES

Annex A – The ICT/ICTE Sector	25
A.1 Telecommunication	25
A.2 Internet Services	25
A.3 ICT/ICTE Activities	26
A.4 The Brazilian ICT/ICTE Clusters	28
A.5 Basic Indicators	30

Annex B – The Institutional Setting	31
B.1 Public Entities	31
B.2 Private Entities	32
Annex C – The Financial Sector	35
C.1 Banking Sector	35
C.2 Venture Capital	36
C.3 Other Financing Institutions and Schemes	38
Annex D – List of Entities Interviewed	45
Annex E – Profiles of SME Financing Organizations	47
Annex F – Profiles of ICT/ICTE SME	53

ABBREVIATIONS AND ACRONYMS

ANATEL	National Agency of Telecommunications – (<i>Agencia Nacional de Telecomunicacoes</i>)	ICTE	ICT Enabled
BNDES	National Bank for Economic and Social Development – (<i>Banco Nacional de Desenvolvimento Econômico e Social</i>)	IFC	International Finance Corporation
BPO	Business process outsourcing	IFI	International Financial Institutions
CAF	Andean Promotion Corporation – (<i>Corporacion Andina de Fomento</i>)	ISP	Internet Service Provider
CATI	Information Technology Board – (<i>Comitê da Área de Tecnologia da Informação</i>)	IT	Information Technology
CGF	Credit Guarantee Fund	MERCOSUR	Common Market of South Americas – (<i>Mercado Comum del Sur</i>)
CRM	Customer Relationship Management	MIF	Multilateral Investment Fund
ERP	Enterprise Resource Planning	MFI	Micro-finance Institutions
EU	European Union	MNC	Multinational Corporation
FINEP	Financial Institutions for Studies and Projects – (<i>Financiadora de Estudos e Projetos</i>)	MST	Ministry of Science and Technology
FMIEE	Mutual Funds for Investments in Emerging Enterprises – (<i>Fundos Mútuos de Investimento em Empresas Emergentes</i>)	R&D	Research and Development
IADB	Inter-American Development Bank	SME	Small and Medium Enterprise
IDRC/CRDI	The International Development Research Center	SEBRAE	Brazilian Service for the Support of Micro and Small Enterprises – (<i>Serviço Brasileiro de Apoio às Micro e Pequenas Empresas</i>)
ICT	Information and Communication Technology	SOFTEX	Association for the Promotion of Excellence of Brazilian Software – (<i>Associação para Promoção da Excelência do Software Brasileiro</i>)
		S&T	Science and Technology
		TOR	Terms of Reference
		VAS	Value-added Services
		VC	Venture Capital
		VoIP	Voice over Internet Protocol
		WB	World Bank

Exchange Rates

US\$ 1 = BRL 2.1799 (Average 2006)

EUR 1 = BRL 2.7383 (Average 2006)



EXECUTIVE SUMMARY

Brazil is home to a well-established ICT/ICTE sector—it plays the role of the IT hub in the region. The industry encompasses enterprises of very different natures and size. Some clusters, such as Sao Paulo/Campinas, Rio de Janeiro and Recife, are emerging as world-class IT-sites with several MNC having already established facilities there. The presence of important global leaders in the sectors of hardware and telecom has been of paramount importance for the nurturing and growth of a domestic IT industry. It has been important both in economic terms, i.e. through supply and outsourcing contracts, and for the technological upgrade, i.e. through the transfer of know-how. However, the origins of the Brazilian IT industry are also autochthonous, and date back to the period preceding the reforms of the 90s, which was characterized by strong import substitution policies. Software development is a more recent phenomenon, which is mainly linked to the diffusion of the Internet and the support of liberal policies. In 2006, the industry reached a total *turnover* of about US\$22.5 billion, including: US\$13.5 billion for hardware; US\$6.5 billion for software and ICT services; and US\$2.5 for ICTE and BPO services. Sales are largely concentrated in the domestic market, which has been growing fast in all segments over the past few years. Exports account for only 3% of the total (about US\$650 million), two-thirds of which is represented by hardware. In 2006, total *employment* was about 800,000–900,000 units. The exact number of active enterprises is not known, but is probably around 8,000–9,000 units (excluding cybercafés).

Due to a series of laws issued since the early 1990s, and to the establishment of a series of new agencies and boards, Brazil has a solid institutional and legal framework that provides substantial incentives to the development of the ICT/ICTE industry. The concrete measures available for hi-tech firms include: (i) supportive fiscal and customs policies; (ii) programs aimed at promoting excellence in

Brazilian software; (iii) programs designed for the semiconductor and microelectronics industry; (iv) grants and financing sources for R&D and innovation-oriented activities, etc. In addition to that, the Brazilian Government has supported the development of a vast network of business incubators and technoparks, which today include about 400 facilities nationwide.

The Brazilian financial system is relatively developed and diversified. The banking industry encompasses 134 institutions, operating altogether more than 50,000 facilities nationwide. The total assets of the banking system are in excess of US\$1,000 billion. There are also several private equity firms, mostly established over the past few years. Thus far this industry has mobilized about US\$6–7 billion on around 500 deals. The amount of capital raised for 2007 it is expected to be the highest ever, likely exceeding US\$2.0 billion. The number of active funds is in the 70–80 range. More than half of their capacity is financed with foreign capital. Another important source of capital is represented by the domestic pension funds. Sizeable resources have also been injected into the system from the state budget, especially in SME-oriented funds (FMIEE). Business angels networks are becoming more and more popular in Brazil. Three groups are already active namely in the States of Sao Paulo, Rio de Janeiro and Pernambuco, and two more entities are in the pipeline. Finally, the Brazilian financial system includes a relatively developed micro-finance and credit cooperative network, several leasing institutions and three credit guarantee funds. State-owned entities play a crucial role in facilitating access to financing for SMEs—and sometimes specifically ICT/ICTE SMEs. These state-owned entities are: (i) the *Financiadora de Estudos e Projetos* (FINEP); (ii) the *Serviço Brasileiro de Apoio às Micro e Pequenas Empresas* (SEBRAE); and (iii) the *Banco Nacional de Desenvolvimento Econômico e Social* (BNDES). Through a series of programs, such as INOVAR, PROSOFT, and Juro Zero, the public sector has promoted the establishment of mixed capital venture capital funds, credit lines at subsidized rates, and special financial measures for export, R&D and investments.

Despite the multitude and the variety of financing instruments available, the evidence indicates that medium-sized ICT/ICTE firms face severe difficulties in obtaining access to sources of financing. The causes of this financing gap are varied and include:

- **Financing Policies:** Banks have a distinctly conservative attitude, and there are no lending schemes specifically for the technology sector. With the exception of the state-sponsored FMIEE, venture capitalists are primarily oriented toward late-stage deals and established operators;
- **Lack of Seed Financing Facilities:** Financing options at the seed stage are very limited. Some initiatives are in the pipeline, but the demand is probably much greater;
- **Constraints on the Demand Side:** SMEs are often characterized by informality and lack of transparency on financial issues. Many entrepreneurs are largely unfamiliar with the various financial instruments available, and often have difficulties in setting up a quality business plan and defending it properly. They also display a certain degree of control aversion and risk aversion in their attitude vis-à-vis external financiers;
- **Understanding of ICT:** Bank officers, and to a lesser extent equity fund administrators, are largely unfamiliar with the various ICT/ICTE business models. Therefore, they are more inclined to reject requests of financing in this area.

In absolute terms, the financing gap ranges from US\$50,000–US\$1.0 million. It is more acute in the US\$150,000–500,000 region, which is where the demand concentrates and where the sources of financing are few and largely unavailable. However, the situation has significantly changed in recent times and further improvements are expected in the near future.

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

financing; and (iii) measures aimed at enhancing enterprises' capacity and improving interaction with financing sources.

In Brazil, there are relatively abundant opportunities in the field of private equity financing for well-established enterprises. By contrast, there is a clear lack of risk capital available for the lower tier of the IT industry. This means that interventions should focus primarily on redirecting part of the existing funds toward smaller and less-established enterprises, rather than on trying to set up new greenfield facilities. This can be accomplished through intervention in three main areas: (i) support to seed-schemes that combine financing and technical assistance; (ii) establishment of a mechanism aimed at alleviating the costs incurred by fund managers in the finalization of small deals; and (iii) support to the formation and operation of business angels' networks. In addition to equity financing, it is important to facilitate access of ICT/ICTE SMEs to debt instruments.

Bank loans remain the favorite source of financing for many SMEs, but banks' involvement in SME financing is still very limited. Some possible useful interventions involve the strengthening of credit guarantee mechanisms for ICT/ICTE SMEs. Particularly interesting is the possibility of establishing Credit Guarantee Societies as opposed to traditional CG funds—and to set up a facility of this type dedicated to the ICT/ICTE sector, either in the form of a branch of an existing scheme, or as a standalone facility.

One obstacle to SME financing is the limited ability of entrepreneurs to prepare quality projects and present them effectively to investors. Another obstacle is the limited understanding of the ICT/ICTE sector among most financiers. Some useful measures to tackle these problems would be: (i) to enhance the capacity of incubators and other intermediary organizations to provide assistance on financial matters, or to establish schemes dedicated to that task; (ii) to implement actions aimed at reducing the information gap on ICT/ICTEs—such as seminars, trainings, and publications—in collaboration with the various stakeholders.

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 reviews recent developments in the ICT/ICTE sector in Brazil, 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 Brazil (March 29—April 6, 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 some conclusions and recommendations.

The Study also includes a series of Annexes, providing 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 institutional setting for the ICT/ICTE sector;
- Annex C presents the salient features of selected banks and private equity firms;
- Annex D provides the list of entities and persons met during fieldwork;
- Annex E presents the profiles of some SMEs financing organizations;
- Annex F presents the profiles of small ICT/ICTE enterprises interviewed during fieldwork.



II. THE COUNTRY BACKGROUND

II.1 THE ICT/ICTE SECTOR¹

Overview: Brazil hosts the most developed ICT/ICTE industry in Latin America, and is emerging as one of the largest players at the global level. The overall *turnover* generated by this industry is about US\$22 billion. Hardware accounts for the slight majority—software and IT services (including BPO) account for 40% of the total. Sales are largely concentrated in the domestic market, which has recorded two digits growth rates in all segments over the past few years. Exports represent only 3% of the total (US\$650 million), mostly in the hardware industry. Total *employment* is not known, but is likely around 800,000–900,000. The BPO/Call Centers segment has about 250,000 workers, and nearly 40,000 are employed in the hardware segment. The number of active Brazilian ICT/ICTE operators is in excess of 8,000, the majority of which are represented by small software distributors and basic IT services providers. In addition, an estimated 6,000 cybercafés are reported.

Telecom: The liberalization of the Brazilian telecom market began in 1995, when the incumbent *Telebrás* was broken up into twelve different entities, most of which were sold to private operators (mostly foreign players). The breakdown was as follows: (i) eight mobile service providers, one for each telecom ‘district’; (ii) three fixed-line operators; and (iii) the Embratel Participações S.A. (Embratel), for the domestic long-distance telephone services. Currently, there are four major players in the fixed-line market: *Telesp*, *Telemar*, *Brasil Telecom* and *Embratel*. In addition, there are several small operators active at the local level. Over the past few years the penetration rate of wired telephony has been quite stable, at around 22%. By contrast, the mobile telephony segment is rapidly growing, and the penetration rate is estimated to be more than

50%. The market is currently undergoing a consolidation process. The four main operators—*Vivo*, *Claro*, *Oi* and *TIM*—account for more than 90% of the subscribers’ base.

Internet Services: Commercial use of the Internet started in 1995. Access was initially provided only by *Embratel*, but with the liberalization of the telecom sector, the Internet market opened to new players. The *Comitê Gestor da Internet*—CGI (Internet Board) supervises the development of the Internet sector. The CGI is a public-private mixed organization. According to the sector association, ABRANET (*Associação Brasileira dos Provedores de Acesso, Serviços e Informações da Rede Internet*), several hundred ISPs are active in the country, but most are small or micro-sized. The major ISPs are those linked to telecom operators, such as Brazil Telecom, Oi, and Telefonica. The small players often lament of unfair practices adopted by these big players. The recent trends indicate an increasing convergence among Internet, telephony and media. More and more Internet operators are able to provide voice-over-internet (VoIP) services to their clients. There are already players able to offer ‘packages’ including broadband, VoIP and cable-TV. Broadband has seen a rapid diffusion, and presently represents 65% of total Internet connections. Internet access is also provided by a vast network of cybercafés, including chains, franchises, and individual businesses. Their exact number is not known, but could be around 6,000–7,000 (including ‘LAN Houses’).

ICT/ICTE Activities: Brazil has a well-developed *hardware* industry. The majority of main global IT MNC has opened offshore manufacturing plants and/or domestic commercial branches to serve the huge internal market and the neighboring countries. According to the sector association ABINEE, there are at least 150 companies operating at various titles in this field. The overall turnover of this sector is estimated at about US\$13.5 billion, and employment is likely between 35,000 and 40,000 units. In

¹ A more detailed overview of Brazilian ICT/ICTE industry is provided in Annex A

2006, the growth rate was 20%. In 2007, it is expected to further accelerate to about 25%. This segment has particularly benefited from the issuance of the “Lei do Bem” (2005), which reduced VAT on IT equipment, and created financial facilitation for low-income persons to buy computers. The sale of PCs is the main source of income for this industry. In 2006, 8.3 million units were sold, recording an increase of 46% over the previous year. The Brazilian hardware industry is focused on the internal market, with export value accounting for a mere 3% of the total. Brazil has the most developed *software and IT services* industry in Latin America. It generates revenues estimated in excess of US\$9.0 billion. The sector is widely diversified. It includes nearly 8,000 firms active in various segments, ranging from sophisticated IP software development to sales and installation of branded products. The vast majority of enterprises are micro and small. Only 6% of operators have an estimated staff in excess of 50 units. The bulk of revenues are generated by the IT services segment—about US\$5.8 billion in 2006. The software segment accounts for the rest—US\$3.2 billion—with domestic-developed or customized applications accounting for nearly one-third of the total. This sector is markedly domestic-oriented, with exports accounting for less than US\$250 million. The *outsourcing* segment is one of the most dynamic sub-sectors of the Brazilian ICT/ICTE industry, with US\$2.5 billion turnover posted last year. It is estimated that the BPO/Call Centers industry currently employs 250,000 workers. There are 1,000 call centers in Brazil. Some of these have been established by big telecom operators. An example is *Atento*—an international chain of call centers controlled by the Spanish *Telefonica*, which manages several facilities located in the six main capitals of Brazil. *Atento* has a total employment-base in excess of 50,000 units.

II.2 LEGAL AND INSTITUTIONAL FRAMEWORK²

Overview: The Brazilian telecom sector was liberalized in the early 1990s. Since 1991, several pieces of legislation have been passed in order to provide the ICT sector with an adequate framework, and to remove distortion and possible obstacles to

market growth. In parallel, the institutional setting was deeply reformed, introducing an independent Authority for Telecom and establishing numerous agencies entrusted with the different aspects of the development of ICT/ICTE industry and market. These agencies include: (i) the IT Board (CATI); (ii) the Internet Board (CGI); and (iii) the Secretariat for IT Policies (SEPIN). The Brazilian Government also supports private sector hi-tech firms, through a series of fiscal incentives and financial measures for enterprises and innovation centers. Since the mid-1980s, the government has supported the establishment of a vast network of incubators and technoparks, which have contributed to the emergence of important IT clusters.

Regulative and Policy Framework: Over the past few years, Brazil has adopted a series of legal and policy instruments aimed at supporting the development of the local ICT/ICTE industry, and at nurturing its global competitiveness. The process began in the early 1990s, with the end of the policy of trade barriers and protectionism. Previously, the Brazilian industry had developed under a regime of import substitution and incentives to local production. The situation changed significantly with the liberalization of commerce. The priorities became attraction of foreign investments and expansion to overseas markets. An initial fiscal measure was adopted in 1991—*Lei de Incentivos Fiscais em Informatica*. This was followed by similar interventions, and that process has continued up to the present. Since 2000, three main pieces of legislation (which include several attached decrees and implementing regulations) have been passed concerning the ICT/ICTE sector. These are:

- The Law on Innovation (“*Lei da Inovação*”, no. 10.973/2004) is aimed at providing a comprehensive legal framework for scientific and technological development, and for support to innovation. The law is based on three pillars: (i) the establishment of a conducive ecosystem for partnerships among universities, technology institutions and enterprises—including the establishment of business incubators and technoparks; (ii) the participation of S&T institutions in innovation processes via the facilitation of the link between research and

² Brief profiles of the main public and private sector institutions involved in the Brazilian ICT/ICTE sector are illustrated in Annex B.

marketing (e.g. allowing scientific institutions to commercially exploit their products); and (iii) the provision of incentives to innovative enterprises, in terms of financial resources, as well as infrastructure and technical assistance—financial support could take the form of grants, equity participation, and loans.

- Subsequent to the Law on Innovation is the “*Lei do Bem*” (2005). Section III of the *Lei do Bem* reinforces some aspects of the Law on Innovation. In particular, it provides concrete incentives for enterprises active in innovative sectors, through measures such as fiscal incentives and grants for R&D activities.
- The “*Lei de Informática*” was initially issued in 1991, and subsequently modified in 2001 and 2004. This law provides a series of fiscal incentives to enterprises, with particular emphasis on the hardware segment. Under this law, benefits are extended to enterprises whose expenditures in R&D exceed 5% of the turnover. These companies will be totally or partially exempted from the production tax until 2014 (the extent of the exemption may vary). This law establishes a fund for support to the development of the ICT sector. It restricts the participation in public tenders for IT equipments to domestic enterprises.

Support to Private Sector Development: As demonstrated by the legislation in force, the government’s efforts in support of the ICT sector are multiple and diverse. The concrete initiatives implemented over the past several years include: (i) the “*Rede Nacional de Pesquisa*” (RNP), which constituted the first example of an Internet network, and supported the diffusion of the Internet, first among education institutions and later to the whole society; (ii) the program ProTeM-CC, which is aimed at creating synergies between the private sector, universities, and research institutions, in order to promote the commercialization of the results of research projects; (iii) the SOFTEX, which is aimed at promoting the diffusion of quality standards in the Brazilian software segment; (iv) the RDC-TIC, which has the objective of creating a network of institutions and stakeholders for the development of skills in ICT; and (v) the PNM Design, which is focused on the semiconductor and microelectronics industry. At the heart of most government interventions in this field is the *Comitê da Área de Tecnologia da Informação* (CATI), which

was established in 2002. It has been responsible for the implementation of several programs in support of the ICT sector. During its first two-years of activity, CATI launched five different programs in the area of incubation, capacity building, R&D, and free software development. Overall, these programs supported over 250 projects that mobilized resources for nearly US\$20 million. The funding of these programs was provided through the dedicated public fund CT-Info (*Fundo Setorial de Informática*), and channeled through FINEP (*Financiadora de Estudos e Projetos*) and the CNPq (*Conselho Nacional de Desenvolvimento Científico e Tecnológico*)³.

Another form of support to the ICT/ICTE sector is through business incubators and technoparks. This type of facility has been present in Brazil since the mid-1980s. Today the network includes nearly 350 incubators and more than 50 technoparks nationwide. The nature of these facilities is diverse: some are mainly public undertakings, while others have been founded by private sector entities—in many cases they are public-private partnerships. From the public side, the assistance is mainly provided by the Ministry of Science and Technology (through its various agencies) and by state authorities. Some Brazilian incubators have benefited from grants extended by the World Bank’s *infoDev* program under the “Business Incubator Initiative”. The recipients of *infoDev*’s support include: (i) the *Rede Mineira de Incubadoras* (Minas Gerais); (ii) the *Technological Incubator of Popular Cooperatives of the Federal University of Rio de Janeiro* (ITCP); (iii) the *Genesis Institute for Innovation and Entrepreneurial Action of the Pontifical Catholic University of Rio de Janeiro* (PUC-RIO); and (iv) the National Association of Institutions for the Promotion of Innovative Entrepreneurship (ANPROTEC). *InfoDev* grants amounted altogether to US\$450,000, and were used to finance a series of capacity building activities⁴.

E-Government: Brazil has a highly developed E-Government system. The first step was taken at the beginning of 2000, with the establishment of a working group coordinated by the Ministry of Science and Technology (MST). The working group was entrusted with the formulation of a comprehen-

³ Additional information on these financing schemes is provided in the Annex C.

⁴ For more information see the official *infoDev* website: www.infodev.org

sive strategy plan. The “E-Gov Policy” was issued in September 2000. One month later, the Executive Board for E-Government was created (CEGE). In 2003, eight technical commissions were created, with the objectives of developing policies and implementing concrete actions in various fields, including: (i) online services for citizens; (ii) G2G systems; (iii) integration of public administration IT systems; and (iv) development of infrastructure. A successful initiative in this field was the creation of the “ComprasNet” Internet portal for public procurement.

II.3 THE FINANCIAL SECTOR⁵

The Banking System: The Brazilian banking system underwent a radical reform after the launch of the Plano Real in 1994. This reform aimed to drastically reduce inflation and to promote financial stability. Until that moment Brazilian banks have flourished especially thanks to the collection of savings. As of 1994, there were 244 banks active in Brazil. Thirteen years later, after several M&A operations, they had been reduced to nearly half that number. The reform process involved not only consolidation, but also: (i) a stronger control for the Central Bank of Brazil (BACEN) over the banking sector; (ii) the privatization of several state-owned banks; and (iii) the removal of legal obstacles to the participation of foreign players in the domestic banking industry. Today, there are 134 banks in Brazil, including 103 commercial and universal banks and 31 investment and development banks. Together, they operate more than 50,000 banking facilities nationwide. Total assets are in excess of US\$1,000 billion, with commercial and universal banks accounting for the most with about US\$950 billion in assets. State-owned banks account for one-third of the total assets; national private banks account for 25%; foreign-controlled banks and branches account for 23%; and mixed national and foreign capital banks account for the remaining 17%. The Brazilian banking system is known for its high concentration: the ten largest banks are responsible for more than 80% of total assets and deposits. The system is very modern—virtually all banks are equipped for sophisticated electronic transactions. By contrast, the banks’ contribution to credit for the private sector is low: the credit/GDP ratio is only 27%. Moreover, the cost of financing is very high,

reportedly about 50% higher than in other emerging countries.

Venture Capital: The first example of a private equity firm in Brazil dates back to 1973, with the establishment of BNDES Participations (BNDESPAR). This is the private equity arm of BNDES (the National Bank for Economic and Social Development), which is the main state-owned development financial institution. However, for the 1980s and part of the 1990s, the economic environment of Brazil, characterized by hyperinflation and financial weakness, did not support the establishment of a real private equity industry. The situation started to change in the second half of the 1990s, due to supportive reforms in the legal framework and in the overall financial system. The VC sector continued to grow until 2000, when the volume of operations hit US\$1.5 billion, one-third of which involve the ICT/ICTE sector. This wave of equity operations was largely associated with a series of privatizations launched by the government in those years—the outcome, in terms of returns obtained by equity investors, has been at times relatively disappointing. In the first years of the 2000s, the volume of operations rapidly declined following an internal and international economic downturn, and only in 2004 did it start regaining speed. According to analysts, in 2007, the capital mobilized in this area will be the highest ever, likely exceeding US\$2.0 billion. The Brazilian VC industry currently encompasses 70–80 funds of various sizes and natures. There are a number of large private equity funds that are mostly focused on late-stage operations. Recently, several *Fundos Mútuos de Investimento em Empresas Emergentes* (FMIEEs) have emerged. According to the law regulating FMIEEs, these funds must focus on enterprises with an annual turnover of less than US\$50 million. In many cases, the beneficiaries of financing are much smaller. Typically, FMIEEs are public-private partnerships, managed by fund-administrating firms specializing in the private sector. Typically, they are jointly sponsored by: (i) IFIs (especially MIF); (ii) private sector investors; (iii) public financial institutions such as FINEP, SEBRAE and BNDES); and (iv) other institutional investors, such as pension funds and banks’ foundations. Normally, FMIEEs are smaller than 100% private sector

⁵ A more comprehensive analysis of Brazilian financial system is provided in Annex C.

funds—the corpus is generally between US\$5–10 million. They often have a distinct orientation toward the technology sector, as is the case with *RSTec*, *SCTec*, *Fundotec*, *SPTec* and *MVP Tech Fund*. Recently FINEP has proposed the establishment of a series of seed funds under the INOVAR program. The objective is to invest nearly US\$140 million over six years in about 300 innovative projects currently at the seed stage.

In summary, the salient features of the Brazilian VC industry are as follows:

- **Origin of Funds:** The Brazilian private equity industry is mainly dependent on funds provided by international investors, multilateral funds and IFIs. The foreign capital accounts for 55–60% of the total. Another important source of capital—especially for late-stage schemes—is represented by the domestic pension funds, which account for more than US\$1.0 billion (around 15% of the total). The contribution of government funds is US\$300–500 million (5–10% of the total). The remaining 15–20% is represented by Brazilian private institutional and individual investors.
- **Investment Policy:** Most Brazilian equity schemes are focused on well-established companies at more mature stages of development. This is particularly true of private-sector international VCs. According to the VC and private equity association ABVCAP, nearly one-third of players target deals over the US\$10 million mark. The FMIEE generally targets lower amounts—its transactions are typically around US\$1.0million. Among the very few schemes that venture below that threshold, are the CRIATEC seed fund by BNDES, and some initial rounds of financing by FIR. However, in the near future the situation is likely to change, due to the FINEP Semente initiative. The latter is expected to finance 300 projects at a minimum of US\$500,000 per project over the next six years. Regarding sector preference, ICT used to be a priority area for private equity firms in the early 2000s. Then, interest in this sector rapidly declined. Today, ICT is increasingly regaining the VC's interest, due to FMIEEs—which in many cases are specifically focused on this sector—and to the establishment of new IT global VC firms, such as DFJ.
- **Operating Modalities:** Most funds associate equity investments with quasi-equity financing.

Participatory loan instruments are frequently used, especially for early-stage investments. A hands-on attitude is quite common, with the exception of operators active at later stages. According to a report by the *Getulio Vargas Foundation*, one out of five operations aims at acquiring the controlling stake of the invested companies, and almost all VCs ask for at least one seat on the board of the company. In public-private schemes, the private-sector partners are often given some type of incentives. For example, under the INOVAR program, the private investors are sometimes insured against possible failures through the guaranteed reimbursement of the nominal amount of capital invested.

- **Performance:** Performances are difficult to assess, primarily because of the recent establishment of most funds. It is estimated that about 500 deals have been concluded thus far, and that 10–20% of transactions have involved the ICT/ICTE sector. The overall amount of capital mobilized since 1999 is in the US\$6–7 billion range.

Business Angels: Business angels are becoming increasingly popular in Brazil. Especially over the past few years, the involvement of angels in early-stage operations in the ICT/ICTE sector has multiplied. This has coincided with the emergence of organized BA groups, the most recent being the *Sao Paulo Anjos*, which was established earlier this year by 30 angel investors⁶. But the first and most well known example of an angels group in Brazil was *Gavea Angels*. This group was founded in Rio de Janeiro by 13 local investors at the *Pontificia Universidade Catolica* (PUC) in 2004. *Gavea Angels* is a non-profit organization whose goal is to promote the development of young national enterprises situated in the Rio de Janeiro region, by means of facilitating access to capital, and through other forms of assistance. The role of the organization is to scout enterprises with growth potential and present them to its members, which can then decide to individually or jointly make an investment. *Gavea Angels* does not manage a fund or perform transactions—its responsibilities are limited to the identification of interesting projects and the

⁶ Other angels' groups have already been established in the State of Rio de Janeiro and Pernambuco, and two more groups in Bahia and Minas Gerais are currently in the pipeline.

organization of presentation events (Angels Forums) with investors and promoters. *Gavea Angels* cooperates with business incubators to ensure a constant project flow, and is supported by experts from PUC for the assessment of proposals. BAs are attracted by innovative businesses, and ICT/ICTE enterprises are among the preferred options. The deals targeted are in the US\$200,000–500,000 range for a duration of about three years. However, even investments as small as US\$50,000 may be considered. So far, three deals have been closed by BAs connected to *Gavea Angels*, one of which involved an ICT/ICTE firm.

Other Financing Institutions and Schemes: Brazil is particularly rich in financing schemes and facilities for the financing of SMEs—often with a special focus on the ICT/ICTE sector. Most of these initiatives are promoted by a series of autonomous agencies linked to the central government in collaboration with the private sector (through the various business associations), and international organizations. In particular:

- ***Financiadoras de Estudos e Projetos (FINEP):*** FINEP represents the main instruments of the financial intervention of the public sector in technology-related fields. It operates through several programs which fall primarily under four categories: (i) support to enterprises innovation projects; (ii) support to S&T Institutions; (iii) support to cooperation between S&T Institutions and enterprises; (iv) support to specific S&T actions for social development. Of particular note is the INOVAR Project, which was launched in 2000 with the objective of supporting the development of technology SMEs through financial instruments tailored to their specific needs, especially risk capital. The project was implemented by FINEP with the support of several other national and international institutions, including IADB/MIF, SEBRAE, PETROS, and BOVESPA, BB-BI. The project is articulated in several components, including Risk Capital Fora, Incubation of VC Funds, and the recent INOVAR Semente, which is specifically focused on seed financing. A dozen FMIEEs have been created with the support of INOVAR, accounting for US\$250–300 million.
- ***Banco Nacional de Desenvolvimento Econômico e Social (BNDES):*** BNDES is the largest development financing institution in Brazil. In 2006, its financial contribution to the MSME sector—both through credit schemes and participation in equity funds—was about US\$3.7 billion for nearly 50,000 operations. BNDES is directly involved in ICT/ICTE financing, through the largest program currently existing in Brazil in this field—the *Program for the Development of the National Industry of Software and related Services* (Prosoft). Prosoft provides debt and equity financing at a minimum of US\$180,000, for projects presented by national companies active in software and IT services.
- ***Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (SEBRAE):*** SEBRAE is the Brazilian agency for the support of SMEs. The projects supported by SEBRAE involve risk capital, microfinance, and credit guarantee schemes. In the field of equity financing, SEBRAE co-sponsors several VC funds operating in the SME segment, including: (i) RSTec; (ii) SCTec (iii) SPTec (administered by CRP); (iv) REIF, FUNDOTEC; (v) Stratus VC; (vi) MVP Tech; and (vii) Rio Bravo Nordeste. The total participation of SEBRAE in these funds is nearly US\$20 million;
- ***Credit Guarantee Schemes (CGSs):*** There are three main CGSs in Brazil. They were established by public sector financial institutions in the second half of the 1990s. they are: (i) FAMPE, which is managed by SEBRAE; (ii) FUNPROGER, which is managed by the Banco do Brasil; and (iii) FGPC, which is administered by BNDES. Recently, a different type of CGS is emerging: the Credit Guarantee Societies. These are mutualistic organizations whose members are both lenders to and borrowers from the CGF. The most advanced example of this kind is provided by the *Associação de Garantia de Crédito da Serra Gaúcha* (AGC), which was created in 2003 in Caxias do Sul, with the support of Italian Cooperation and IADB;
- ***Ministry of Science and Technology (MST):*** MST is extremely committed to the provision of incentives and economic support to innovative startups and would-be entrepreneurs, through a series of financing measures and schemes. Most of these interventions are: (i) designed by the *Comitê da Área de Tecnologia da Informação* (CATI); (ii) implemented by FINEP and the CNPq (*Conselho Nacional de Desenvolvimento Científico e Tecnológico*); and (iii) provided with resources by the CT-Info (*Fundo Setorial de*

Informática). The five main programs supported by the MST have thus far encompassed more than 250 projects for a total amount in excess of US\$20 million;

- **Fundo para o Desenvolvimento Tecnológico das Telecomunicações (FUNTTEL):** The Fund for the Technological Development of Telecommunications is a financing scheme managed by the Ministry of Communications. Its objectives are: (i) to support innovation in the field of telecom; (ii) to facilitate access to financing for technology SMEs operating in this area; and (iii) to promote research projects.

International Donors and IFIs: Most of the government-led programs discussed above are implemented with financial and technical assistance from the donors community and IFIs. *IADB/MIF* is the primary international organization involved in the support to the Brazilian SME financing system. In particular, MIF has been partnering with local institutions such as FINER, BNDES and

SEBRAE, for the funding of seed and venture capital funds specifically targeted at innovative SMEs. Recently, MIF announced the approval of a US\$2.7 million grant for pilot ICT projects for SMEs in Latin America, within the framework of the ICT Innovation Program for E-Business and SME Development (ICT4BUS). The *Institute for Connectivity in the Americas* of IDRC co-sponsors the initiative with a contribution of US\$500,000. The World Bank Group is also significantly active in Brazil. As of 1Q 2006, through the WB's Country Assistance Strategy, the IBRD has disbursed a total of US\$4.5 billion to nearly 50 distinct projects. In parallel, the IFC has supported several initiatives in the field of access to finance and capital market development, through technical assistance projects and investment products. For example, in 2004, the IFC provided the *Banco Triangulo* (Tribanco) with a US\$10 million credit line to contribute to the bank's expansion strategy, and to the establishment of an SME-oriented lending line.



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

III.1 SME FINANCING NEEDS – THE DEMAND SIDE

The financing needs voiced by Brazilian ICT/ICTE SMEs reflect the variety existing in this sector, which encompasses recently established micro-enterprises working in niche markets as well as more established operators, already active in international markets. The amounts sought by Brazilian ICT/ICTE companies may range from as little as US\$20,000–30,000, for early-stage Internet VAS providers, to several million dollars for well-established BPO and IP-software developers that supply large MNC or have overseas offices. The rationale for these financing needs is also varied, ranging from the initial R&D expenses, to the building-up of working capital, the upgrade of the technology used, and the creation and strengthening of the commercial network. The Table 1 summarizes the features of the needs expressed by Brazilian ICT/ICTE firms at the different stages of development:

III.2 ISSUES IN ACCESSING FINANCING – THE SUPPLY SIDE

Issues in Accessing Bank Financing: As discussed in the previous section, despite recent improvements, the volume of credit extended by Brazilian banks to SMEs is relatively low. According to the World Bank's "Enterprise Surveys", only 10% of firms with less than 20 employees have obtained a loan from a bank to finance its investments.

Brazilian enterprises' perception of difficulties connected to accessing financing is well above the region average. The prevalence of bank lending in the overall financing structure of enterprises is also among the lowest (15%)⁷. According to SEBRAE, in nearly half of the cases of loan rejection, the lack of adequate securities is to blame⁸. The "Enterprise Survey" reports that the value of collateral required is on average 120% of the amount borrowed. This is not excessively high, relatively speaking, but the rigor applied in the appraisal procedure and the exclusion of certain assets from the acceptable collateral, makes the opportunities of access to banks loans for SME in practice extremely remote. More commonly, SMEs have recourse to other types of financial mechanisms, such as overdrafts, leasing, credit cards, and post-dated checks. To a large extent, small entrepreneurs have to go into personal debt or provide personal guarantees in order to finance their businesses. This is often true of ICT/ICTE entrepreneurs, whose businesses notoriously rely to a great extent on immaterial assets. Financing schemes specifically tailored toward the hi-tech sector are virtually non-existent, and, with the notable exception of a few banks, mainly state-owned. SME-dedicated loans are rare. Commercial and universal banks appear more interested in other types of credit instruments, such as consumer loans, mortgages, and short-term lending schemes. Among the banks displaying a certain orientation toward small businesses, it is possible to cite:

- **Banco da Amazonia** – operates the PROGEREN, a line of credit for firms with turnover up to US\$5 million, refinanced by BNDES. The maximum amount that can be borrowed is US\$230,000 on a three-year term. The interest rate is 7.5% per year (adjusted for inflation), and real guarantees equal to 130% of the amount lent are required;
- **Banco do Brazil** – administers several financing lines for SMEs and micro-firms, including the "BB Giro Rapido"—a collateral-free loan of up

⁷ Source: the Enterprise Surveys, Brazil (2003), www.enterprisesurveys.org
⁸ Survey carried out by SEBRAE on access to financing for SMEs, cited by Carlos Alberto dos Santos in "Credit Risk and Guarantees: Proposal for a National System of Guarantees in Brazil".

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

Lifecycle	Amount Sought	Comments	Examples from the Fieldwork?
Early-Stage	Up to US\$250,000	At the seed stage the business idea is conceived and developed. It is necessary to assess the feasibility, identify the necessary technology, analyze the market, conduct R&D activities, and prepare for the launch of operations. The subsequent startup phase entails the setting-up of the business structure and the starting of commercial activities. The financing needs at this stage are very limited, especially for highly immaterial businesses such as VAS providers, IT consultants, and software-customization businesses. What is most needed at this stage is 'smart money'—financing accompanied by technical assistance to help the entrepreneurs to make the right strategic decisions and to develop viable and convincing business plans.	<ul style="list-style-type: none"> ■ Next Ware – E-business, Internet VAS
Development	US\$250,000 to 1.0 million	The development stage presents the first real challenges for the enterprise's survival. Entrepreneurs have to rapidly enlarge their client base, while at the same time coping with the need of a product/service refinement. They need to support the growth with adequate staffing and premises. Unfortunately, cash-flow at this stage is still too limited to support all these activities, and entrepreneurs normally have to look for other sources of capital. In absolute terms, the amounts sought are still relatively limited, with the obvious exception of firms operating in segments such as the hardware industry and most call centers and BPO providers, especially those operating in international markets.	<ul style="list-style-type: none"> ■ Dr. SYS – IT consultancy, software development ■ Infoquest – Software and VAS for mobile
First Expansion	US\$1.0 to 5.0 million	The first expansion phase normally entails a diversification of the business—the introduction of new lines of activities, or an upgrade of the original product or service. The rationale for new investments at this stage includes: expanding the commercial network (including opening new branches), hiring new personnel, establishing new divisions, and upgrading the equipment. At this stage, many Brazilian software companies start seriously considering a regional or overseas expansion.	<ul style="list-style-type: none"> ■ LIGA – System Integration, Healthcare solutions ■ My Sky – ICTE services for air travel agencies
Second Expansion	More than US\$5.0 million	The second expansion phase represents a major change in the scale of operations. At this stage, many enterprises have already established some commercial relations overseas, and aim at consolidating their presence through branches and commercial offices. Companies having reached this stage are typically no longer SMEs.	<ul style="list-style-type: none"> ■ none

to US\$50,000 for enterprises with a turnover not exceeding US\$2.5 million. Interest rates are between 2.18% and 2.52% per month, and tenure is up to 18 months;

- **Caixa Economica Federal** – manages different schemes for SMEs as: (i) the “GIROCAIXA Recursos”, a financing instrument for loans of up to US\$50,000; and (ii) the BNDES’ PROGEREN, for loans up to US\$1.8 million for medium-sized firms.

A second major issue is represented by the relatively high cost associated with bank financing for SMEs. The monetary policies applied in Brazil since the mid-1990s have kept interest rates quite high. According to the Enterprise Surveys, the cost of financing is a severe obstacle for over 80% of entrepreneurs. Evidence from the fieldwork confirms

that this issue also significantly affects small IT firms, which typically prefer to live on their own resources rather than incur major debts that they may not be able to repay. The government has recently launched a zero-interest program (“Juro Zero”) in order to cope with these problems. The scheme is targeted toward innovative MSMEs with an annual turnover of less than US\$5 million. It provides loans ranging from US\$50,000 to 400,000, repayable in 100 installments at zero percent interest rate (adjusted for inflation). The program is managed by FINEP, and is channeled through a series of intermediary accredited institutions.

Issues in Accessing Equity Financing: The Brazilian private equity industry reached a peak at

9 A brief profile of the companies cited in this table is provided in Annex F.

the end of the 1990s, mostly due to a series of privatizations. This was followed by a downturn in the early 2000s. The industry is currently re-gaining momentum. Since 2004, the number of operators and the volume of capital mobilized have grown at a double-digit rate. This growth has been fueled by a renovated legal framework and an increased international confidence in the stability of the Brazilian economy. However, in absolute terms the capital market has not completely resolved its illiquidity problems, and the benefits of this scaling-up have not been enjoyed to the same extent by all entrepreneurs. The access to risk capital sources is still constrained by some endogenous and exogenous factors. For certain types of operators, obtaining equity financing is still far from easy. The endogenous factors contributing to frame this situation emerge from the interaction of the demand and the supply. They are determined by: (i) the characteristics of the demand—the quality of projects, the potential level of return, and the degree of control-aversion of entrepreneurs; and (ii) the policies and attitudes of the VC industry. In addition, market direction and performance can be affected by some exogenous factors, such as the legal, economic and social environment. In summary, the endogenous factors can be described as follows:

- **Investment Stage Policy:** Most Brazilian private equity players are keen to invest in companies at the expansion and late stages of development. In 2004, startups accounted for just 8% of all the transactions. This attitude applies to both domestic and international institutional operators, and reflects the fact that there are few VCs in Brazil with a high risk/high gains approach. These policies are certainly driven to a large extent by consideration of the lower IRR offered in the short and medium run by startups, as compared to well-established enterprises with a solid market position. At the same time, this is also related to the fluctuating macroeconomic performances of the past few decades, which continues to affect the country-risk perception of investors. The huge amount of transactions effectuated during the end of the 1990s wave, turned out to be relatively disappointing for several players. The low tier of the VC market is all but monopolized by government and IFI funded FMIEE, such as the CRP-managed ‘TEC’ series (*RSTec*, *SCTec*, and *SPTec*), the DGF’s *REIF*, and the FIR’s *Fundotec*. Private-

sector investors consider early stage investment in three ways: (i) through minority participation in FMIEE schemes (typically at least 20% of funds are provided by private investors); (ii) through typical business angels operations; and (iii) through dedicated closed funds (e.g. *Eccellera*), or strategic risk capital operation (e.g. *Intel Capital*). In absolute terms, these funds have provided little increase in the appetite for financing startups, because each fund has limited resources (rarely exceeding US\$10 million), and therefore, limited portfolios (10–15 companies on average).

- **Size of Operations:** Linked to the considerations above, is the issue of transaction size. At the end of the 1990s wave, the average size of private equity deals was extremely high—about US\$20 million. Then it started to decrease, and eventually settled at the current range of US\$7–10 million. Again, this reflects the nature of the Brazilian private equity industry, which is more interested in mezzanine, MBO, and PIPE operations rather than in genuine risk capital deals. Despite their SME-orientation, FMIEE tends to select deals of US\$0.7–1.0 million rather than below US\$0.5 million. The only exceptions are represented by CRIATEC, a seed fund set up by BNDES in 2007, and by business angels such as *Gavea Angels*. In either case, the deals targeted are between US\$200,000 and 500,000. However, the situation is likely to further improve with the prospected establishment of new business angels groups, and especially with the implementation of the INOVAR Semente program, which will mobilize US\$140 million over the next six years for seed financing schemes.

- **Attitude towards ICT:** In contrast to VCs in other countries with a sizeable ICT industry—such as India and Israel—Brazilian VCs appear only marginally interested in the ICT/ICTE sector. This is possibly due to the inward-orientation of the Brazilian ICT sector. The overwhelming majority of Indian VC operations in ICT involve cross-border operations and companies involved in the outsourcing and export of software and IT services. In India, the value of exports in this segment is about US\$17 billion—in Brazil it is still below US\$1.0 billion. According to the Brazilian VC Association, the share of private equity operations made in 2000 in the ICT sector was 33%; it dropped to 4% in

2002, and just 1% in 2003. A lack of understanding of ICT does not realistically seem to represent an obstacle. The decline of investments in this area appears more related to a worsened perception of the risks associated with these operations, and to an expectation of lower returns.

- **Constraints on the Demand Side:** The causes of mismatch between promoters' ideas and investors' expectations can be mainly ascribed to a number of factors. First, is the quality of projects: startups, in particular, often lack the ability to prepare convincing business plans to submit to VCs. Second, is transparency: many small entrepreneurs are hesitant to disclose information on the financials of their businesses. Third is control aversion: promoters have a substantial reluctance to give up control of their enterprises to external investors. In some cases this reluctance is more marked toward institutional VCs than business angels. Promoters tend to see business angels as more open and more trustworthy. Fourth is awareness: many small entrepreneurs rejected the idea of getting a VC on board, because they thought that the conditions would be too expensive. In general, entrepreneurs appear to have a lack of knowledge of VC financing mechanisms. This has been mitigated only partially by the recent communication initiatives set up by sector associations, business incubators, and other organizations.

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

- The market is mostly inward-oriented. The share of Brazilian ICT/ICTE companies active in US and European markets is much lower than that of other well-developed ICT/ICTE industries, such as those in India and the Philippines. Moreover, the presence of large global VC firms that are specialized in ICT/ICTE is relatively limited—although over the past two years some signs of improvement have been recorded. In particular, this issue affects the financing constraints faced by IT firms that have reached a certain degree of quality and capacity—enough to justify cross-boundaries ambitions;
- Over the past five years, capital markets have expanded, and the number of IPOs has multiplied. However, in absolute terms the opportu-

nity of exits on the stock market remains quite narrow¹⁰. Moreover, the domestic-orientation of most of the companies under consideration hinders the chances of successfully exiting through foreign stock exchanges;

- While the overall regulative environment for the VC industry has significantly improved in recent years, there are still some changes that are needed. First, despite the reform of the taxation system, there is still the risk of incurring double taxation if deals are not carefully structured. Second, the protection of minority shareholders' rights is still in need of improvement, regarding the legal ability to challenge boards' decisions and to impose audits and other financial inspections;
- The IT sector's ability to attract VC investments is seriously threatened by widespread piracy. The mostly affected sector is software development—in particular IP-based firms. Moreover, the procedure for registering patents is reportedly slow and cumbersome. Recently, the national law on protection of IP rights has been improved, but it is not clear if adequate enforcing measures have been taken.

Issues Related to Government and Donor

Schemes: In Brazil, public policies play a crucial role in mitigating the constraints to the access of financing for SMEs. As described in the previous section, the various government agencies, such as FINEP, BNDES and SEBRAE, are strongly involved in the implementation of a series of programs and measures providing financing to SMEs in the form of loans, equity financing and non-reimbursable grants. The array of solutions offered is quite diverse: (i) supporting R&D and innovation programs; (ii) implementing various fiscal measures; (iii) providing incentives for export; (iv) providing working capital and investment-oriented loans; (v) providing loans at subsidized interest rates; and (vi) offering seed and pre-seed financing schemes. An important financial support to public intervention in this field is provided by IFIs, especially IADB/MIF and the World Bank Group. However, it should be noted that with few exceptions, most of these initiatives are of a generalist nature, and ICT-dedicated instruments remain rare and bound to specific activities.

¹⁰ Over the past three years, only 10 IPOs were launched on average on an annual basis.

III.3 THE FINANCING GAP – NATURE AND SEVERITY

Overview: The available evidence indicates the existence of a substantial financing gap. Small and medium-sized ICT/ICTE firms with a significant growth potential, face severe obstacles in securing the necessary investment capital, especially in the early and development stages of maturity. As discussed in previous section, this situation is mainly caused by the attitudes and policies of the financial sector, and by the lack of preparedness on the side of promoters. In absolute terms, a financing gap can be registered for enterprises seeking from as little as US\$50,000 to as much as US\$1.0 million. It is more acute in the US\$150,000–500,000 range—that is where the demand concentrates, and the sources of financing are few and largely unavailable. However, the situation has significantly improved recently, and it is still in rapid evolution. A new generation of funds that are focused on small enterprises has been established over the past five years. More initiatives of this type are expected to materialize in the near future, especially regarding seed financing. These funds, as well as the launch of dedicated credit facilities for ICT, have just begun to make their impact felt, but in due course they are expected to significantly mitigate the gap.

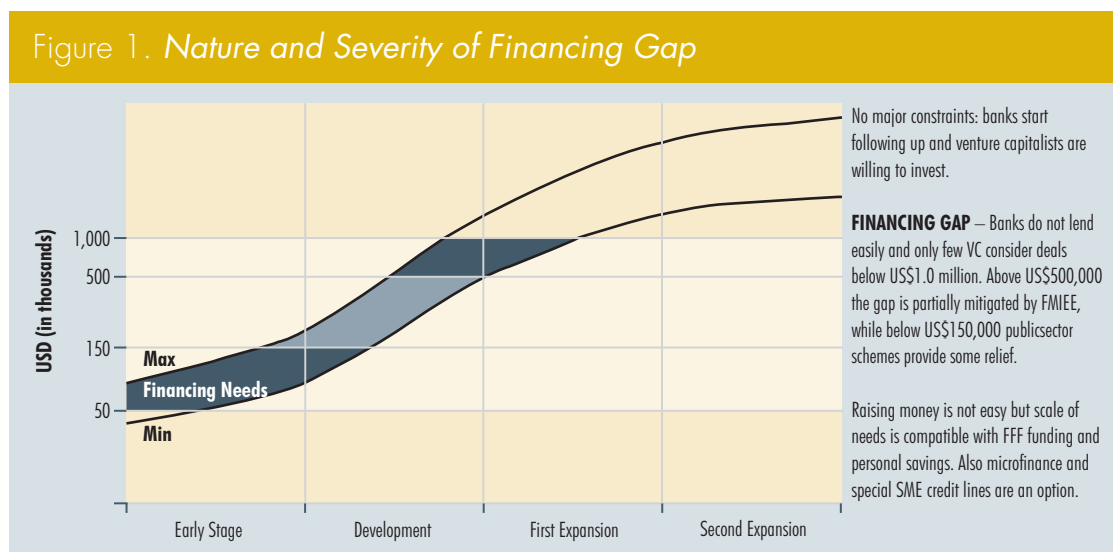
Financing Gap and Stages of Development. A summary presentation of the financing gap faced by

ICT/ICTE SMEs in their various stages of development is provided in Figure 1.

As indicated in Figure 1, financing constraints faced by IT companies are comparatively more serious in the early-stage and development phases—the situation is more nuanced in later phases. In particular:

- At the *early-stage*, most Brazilian entrepreneurs have recourse to personal savings and FFF support to establish their businesses. This strategy is viable when the resources needed are small (less than US\$30,000). In addition, entrepreneurs can ask for small loans from MFIs. When the financing needs rise above US\$50,000, the situation becomes more problematic, but entrepreneurs still can try to obtain financing from one of the SME credit lines made available by BNDES, CEF, and other public-sector financing institutions. For R&D activities, there is also the possibility of obtaining financing from the funds established by CATI and managed through FINEP and CNPq, or to apply for grants provided by the PAPPE program. The situation for equity financing is less than ideal: aside from CRIATEC, no other fund is interested at this stage. However, the situation is likely to improve soon, due to the implementation of the INOVAR Semente program. The latter will mobilize sizeable amounts of venture capital for seed stage

Figure 1. *Nature and Severity of Financing Gap*



investment. At the early stage, enterprises can also benefit from the valuable support provided by the numerous business incubators. Although these business incubators are not directly involved in financing, they can be essential in helping promoters to develop their business plans and to attract potential investors. Moreover, in the past few years several business angel groups have been established, or are in the process of being created. Although angels are typically interested in deals above the US\$200,000 mark, there are reportedly some that operate below this threshold.

- The **development stage** is probably the most critical phase for ICT/ICTE SME financing. The problems faced by startups in getting access to credit persist and even increase when the enterprise is in the growth phase and needs more sizeable injections of capital to sustain development. Some SME schemes are available, especially from state-owned banks, but the cost of financing is high, and real guarantees are almost always necessary. To cope with these problems, two types of initiatives have been devised. They are: (i) the “Juro Zero” (zero interest rate) program, which provides interest-free loans to innovative SMEs; and (ii) the establishment of Credit Guarantee Societies, which have the advantage of being more flexible in the evaluation criteria, and of reducing the risk of moral hazard and adverse selection. However, these initiatives are still in their infancy, and access to lending for enterprises at this stage remains a major issue. The opportunities offered by the private equity industry are also scarce. Most of the existing schemes for SMEs are the fruit of public-sector intervention. A healthy private-sector-led VC ecosystem has not yet been established. Nonetheless, the situation in this segment has significantly improved in the past four to five years. Public

agencies such as SEBRAE, FINEP and BNDES—with the support of IADB/MIF and the co-funding of various pension funds—have set up a dozen SME-oriented funds (FMIEEs). A number of FMIEEs are specifically addressed to the hi-tech sector. These include: *RSTec*, *SCTec*, *Fundotec*, *SPTec* and *MVP Tech Fund*. Although small, these funds represent an important first step that will likely have a multiplying effect in the near future. The difficulties in access to financing is exacerbated by the widespread attitude of many entrepreneurs, who prefer to stay small rather than share control of the company with an outside investor.

- At the **first expansion** stage, the situation starts to improve. Enterprises begin to have a solid structure and a business track-record—they thus become more interesting for both bankers and VCs. When financing needs go above the US\$1.0 million mark, these enterprises attract the interest of FMIEEs and 100% private VCFs such as *Ecellera*, *Votorantim*, *Latintech*, and *Pactual AM*. In addition, commercial banks represent an option, because the level of risk at this stage is much more acceptable, and the company usually has adequate assets to securitize a loan. Exporting firms may benefit from a series of financing measures, such as “Prosoft Exportação” (for software developers), export guarantee schemes, and other incentives in the framework of SOFTEX program. From the **second expansion** stage on, the framework for access to financing continues to improve. Several large international VC firms target well-established enterprises, and are willing to invest US\$5–10 million or more, especially in cross-border operations. The recent scaling-up of the Brazilian capital market—in particular the growth of the stock exchange—is making late-stage operations more and more viable.

IV. CONCLUSIONS AND RECOMMENDATIONS

Introduction: Brazil is home to a well-established ICT/ICTE sector, and in many respects it plays the role of the IT hub in the region. The industry encompasses enterprises of very different natures and sizes. Some clusters, such as Sao Paulo/Campinas, Rio de Janeiro and Recife, are emerging as world-class IT-sites, with several MNCs having already established facilities there. The presence of prominent global leaders in the hardware and telecom sector, has been of paramount importance for the nurturing and growth of a domestic IT industry, both in economic terms—through supply and outsourcing contracts—and in terms of technological upgrade—with the transferring of know-how.

The origins of the Brazilian IT industry are autochthonous, and date back precisely to the period preceding the reforms of the 1990s, which was characterized by strong import substitution policies. Thus far, the private equity industry has been supportive but not determinant to the IT sector, whereas public-sponsored initiatives have undoubtedly monopolized the supply side of the capital market for SMEs (including ICT/ICTE SMEs). Financial institutions such as FINEP, SEBRAE and BNDES have deployed an extremely articulated series of programs, measures and incentives for innovative SMEs from seed to more mature stages of development, and from loans at interest rates lower than market to VC schemes. The growth in this respect over the past five years has been especially impressive.

The special attention devoted by public policies to small IT entrepreneurship is beyond question, but what has seemingly been lacking thus far, is an analogous interest from genuine VC investors. Instead, they have proven to be quite tepid regarding

ICT/ICTE, and wary of investing in promising early-stage companies. Needless to say, the presence of a developed private-sector VC industry is a key-ingredient of a Silicon Valley-like ecosystem, as has been widely demonstrated by Indian cases like Bangalore and Mumbai, which have achieved world-class reputations. In Brazil, only in very recent times has it been possible to attract a substantial flow of capital from renowned global technology VCs. As a result, several emerging ICT/ICTE enterprises in Brazil see their growth hampered by the limited availability of VC financing, and the related assistance that expert technology VCs provide to their investees. Through the study it has been possible to ascertain the existence of a financing gap, which is more markedly perceived by enterprises at the early and growth stages of development than at later stages. It is felt by companies seeking as little as US\$50,000 up to those seeking US\$1.0 million, with peaks in the US\$150,000–500,000 range. This gap also has a geographical connotation. The bulk of investments are currently concentrated in the Sao Paulo-Rio de Janeiro-Minas Gerais triangle, while other regions, especially the North-East and the South, have been left behind. The Brazilian financial system is undergoing a rapid mutation—the establishment of several new programs and schemes has been announced over the past twelve months, which will likely have an impact on the items pointed out in this study. Therefore, the recommendations proposed in this section try to take stock of the likely developments that will occur in the near future, and to focus on the aspects that apparently would benefit the most from additional efforts.

This section presents a series of measures that would help to bridge the financing gap faced by Brazilian ICT/ICTE SMEs. In particular, three categories of intervention could be envisaged: (i) measures aimed at facilitating access to equity financing; (ii) measures aimed at facilitating access to bank financing; and (iii) measures aimed at enhancing enterprises' capacity and improving their interactions with financing sources. Given the nature of the *infoDev* Program, the recommendations put forward in the present section concentrate on 'soft' and

preliminary activities, useful for subsequent ‘investment’ operations that could be later funded through donors and IFIs.

IV.1 MEASURES AIMED AT FACILITATING ACCESS TO EQUITY FINANCING

Access to adequate sources of equity financing is widely recognized as a basic feature of a favorable business environment for ICT/ICTE enterprises. In the case of Brazil, it is not appropriate to speak of an absolute lack of private equity capital. Nonetheless, there is an evident shortage of risk capital available for the lower tier of the IT industry. Interventions in this field should primarily target the re-direction of part of the existing funds toward smaller and less-established enterprises, rather than trying to set up new greenfield facilities. Recently, several public-private partnerships have been created, that have led to the establishment of a series of small FMIEE funds focused on technology SMEs. It is too early to evaluate the performance of these funds in terms of returns. However, it is clear that they have achieved a first important success regarding fundraising. This demonstrates that with the right incentives –risk-sharing mechanisms and/or downside protection measures—it is feasible to attract private investments for small-scale operations. A further move toward this process could be provided through intervention in other areas. These include:

(i) support to seed-schemes, combining financing and technical assistance; (ii) establishment of a mechanism aimed at alleviating the costs incurred by fund managers in the finalization of small deals; and (iii) provision of support to the formation and operation of business angels networks.

Supporting the Establishment of Seed Schemes Combining Financing and Technical Assistance:

The various VC funds recently established with mixed capital from government agencies and private investors certainly represent a great opportunity for Brazilian ICT/ICTE SMEs. However, what is seemingly lacking at present is an adequate network of facilities operating specifically at the seed level. Reportedly, things are moving in the right direction, but it is not clear if the government-driven programs currently in the pipeline will actually match with the

existing needs in terms of both quantity and quality. Enterprises at the seed-stage need more than an initial inflow of capital—they also require assistance to set up the organization, to develop their products and services, to prepare a proper business plan, and to establish strategic relations. In other words, they need a combination of financing and technical assistance (smart money). In many respects, the vast network of business incubators and intermediary organizations existing in Brazil appears extremely well-positioned to act as the key referents for the implementation of projects in this segment.

There are three types of interventions that could prove useful. The first type would be aimed at strengthening the links between the incubating programs sponsored by the government, such as the FINEP’s PNI program, and the seed financing initiatives (e.g. INOVAR Semente). This could be undertaken with the support of international organizations. One way this could be accomplished would be through launching pilot projects that combine incubation and financial support. The second type of intervention would be aimed at leveraging the ability of incubators to operate in a multi-stakeholder environment that would include financial institutions, VCs and business angels. These interventions would be aimed at enabling incubators to act as facilitators between deserving promoters and potential investors. The third type of intervention would support the establishment of ‘twinning’ between incubators and institutional funds, where the former would act as providers of business services and technical assistance to the latter’s investees, through sort of integrated ‘package’. To make this mechanism attractive to investors, the costs of technical assistance could be at least partially covered through donor-sponsored programs.

Alleviating the Venture Capitalists’ Transaction

Costs Problem: Transaction costs related to the preparation, finalization, and monitoring of equity investment deals emerge as a significant barrier to the greater involvement of VCFs in the financing of small companies. This is especially true of ICT/ICTE firms, due to their particular characteristics. The impact that transaction costs make becomes proportionally higher as the value of the investment decreases. This makes deals under a certain benchmark—US\$500,000—particularly unattractive. Alternatively, small-scale VCs can recover these costs

by surcharging their investees, thus making this financing option uninteresting for entrepreneurs. Against this background, a transaction costs facility could be devised that would reimburse fund administrators for at least part of the expenses incurred in making small investments. For example, this could take the form of a flat fee that would be payable to VCFs for investments made in ICT firms below a certain threshold. Additional eligibility criteria could also be devised, in order to ensure that incentives go to specific types of operations. If the amount of the subsidy is not excessive, the risk of 'moral hazard' connected to such a mechanism could be effectively neutralized.

Supporting Business Angels Networks: As discussed previously, the financing gap appears to be especially harsh for young enterprises, and for amounts below the US\$500,000 benchmark. This is typically the area of operation of business angels (BA), which in mature ecosystems act as the *trait d'union* between initial informal sources of capital and subsequent institutional financing. The establishment of an organized network of BAs is beneficial in many respects. In particular: (i) information on investment opportunities could be disseminated among investors in a more systematic way, which would facilitate more productive interactions with promoters; (ii) the matching process could be streamlined through the periodic presentation of project events and pre-screening activities; (iii) acting as a group, BAs might exert more pressure on policymakers and thereby obtain the necessary improvements in the legal and institutional framework. In Brazil, the establishment of BA groups is a recent phenomenon, and it is partially incomplete. The process started in 2004 with the creation of *Gavea Angels* operating in Rio de Janeiro. An important step was taken last year, with the launch of *Sao Paulo Anjos*. Two more groups are under construction, which confirms that the interest in this model is growing. However, in practical terms, these groups remain highly informal, and the volume of investment realized thus far is extremely limited. Therefore, it could prove very useful to provide these groups with the necessary support to improve their organizations and to, scale-up their activities. For example, assistance could be provided in the form of small grants subordinated to the organization of matchmaking events, advocacy and awareness initiatives, and other operational activities, and for the establishment of a basic secretarial support service.

IV.2 MEASURES AIMED AT FACILITATING ACCESS TO BANK FINANCING

Despite the positive trends recorded over the past few years, VC financing still represents a minor financing option for the vast majority of ICT/ICTE SMEs. As discussed previously, this is due to the nature and the investment policies of VC firms, and also to the risk-wariness and 'control aversion' on the side of entrepreneurs. Direct interviews have confirmed that IT-operators are substantially unwilling to relinquish the control of their businesses to external investors, and mostly refrain from embarking on those costly and risky large-scale growth plans that are particularly appreciated by VCs. Conversely, entrepreneurs display a more open attitude toward banks, which remain the favorite source of financing for many SMEs. Probably, this has to do mainly with the relatively great familiarity that Brazilians have with banks. In fact, before the consolidation process occurred in the second half of the 1990s, Brazil had a huge number of banks, and the rate of people and enterprises having an account was among the highest in the region. However, the preference placed on banks as financing sources is not justified by the numbers: only 10% of the financing available for SMEs is provided by banks. This situation is connected with the lesser involvement of Brazilian banks in lending activities to all enterprises in general, in terms of aggregated lending over GDP, and it is also the consequence of the very conservative policies *vis-à-vis* the SMEs in particular. To cope with this problem, useful interventions could strengthen the credit guarantee mechanisms for ICT/ICTE SMEs.

Support to Credit Guarantee Schemes: Since the second half of the 1990s, the state-run financial agencies have promoted and implemented the establishment of credit guarantee funds, such as FAMPE, FUNPROGER and FGPC. These mechanisms have supported hundreds of projects over the past decade, and have the merit of raising awareness of this model. However, in practice, their functioning reproduced *de facto* the conservative appraisal methods applied by the banks. In fact, under these schemes, there is no direct relationship between borrowers and the fund, but all decisions are taken by the intermediary—the bank—which evidently applies its own evaluation criteria. In

addition, the fact that funds are provided by the state budget increases the risk of adverse selection and moral hazard¹¹. The existing CG funds have done very little for high-tech enterprises, because they are more oriented toward traditional productive and trade activities. Against this background, policymakers could study the possibility of an intervention centered on the support of the currently emerging Credit Guarantee Societies. The latter—in contrast to CG funds—are mutual schemes involving entrepreneurs both as lenders and borrowers. In particular, it could be worth analyzing the possibility of setting up a facility of this type dedicated to the ICT/ICTE sector, either in the form of a branch of an existing scheme, or as a standalone facility. Such a facility would certainly be useful to overcome the constraints associated to the bank appraisal method for technology firms. The risks of adverse selection and moral hazard would be minimal, as long as the money were to some extent sourced by the enterprises themselves.

IV.3 IMPROVING THE INTERACTIONS BETWEEN SUPPLY AND DEMAND

Interventions in the business environment have a less direct impact on the financing gap than the interventions discussed above. Nevertheless, they may yield important results—they could be especially helpful in the creation of a conducive ecosystem where ICT/ICTE entrepreneurship could nurture and grow. Two types of interventions can be envisaged. The first would be aimed at improving the understanding of ICT/ICTE. The second would be aimed at enhancing entrepreneurs' capability to deal with financing institutions.

Improving the Understanding of the ICT Sector:

The lack of understanding of the fundamentals of ICT/ICTE, often represents a major issue affecting investment decisions. In order to determine the real scalability of a project, a thorough knowledge of the business model proposed, as well as the market, is necessary. Today, there is an information gap on these matters among bankers and private investors. The opportunities to fill it in, through meetings, trainings, and publications, are still insufficient. Therefore, it appears useful to implement actions aimed at: (i) disseminating information on the

economic and financial aspects of these types of businesses; and (ii) promoting productive collaborations between the financial sector and the ICT/ICTE intermediary organizations. The various actors that should be involved in this process include: (i) VCs and bankers associations; (ii) BA groups; (iii) ICT/ICTE associations such as ABES, BRASSCOM, ASSESPRO, ABRANET, and ABINEE; (iv) technology incubators; (v) public-sector IT bodies; and (vi) universities.

Enhancing Entrepreneurs' Capabilities to Deal with Financial Institutions:

The problems in accessing financing are not entirely due to the attitude of bankers and investors—there are several constraints that originate on the demand side. Brazilian SMEs often display an informal character that can motivate distrust on the accuracy and reliability of financial data. The inadequacy of the financial management practices reflects on the ability of SMEs to prepare sound business plans, and to defend them *vis-à-vis* potential financiers. This is demonstrated by the extreme low ratio (0.2%) between projects presented to VCs and projects actually financed¹². The same problem exists in regard to accessing financing from banks. According to SEBRAE, less than half of loan rejections can be attributed to a lack of real guarantees by the borrower. The remainder are likely due to the inadequate quality of financial statements and mistakes made in the approach. Many small entrepreneurs appear unaware of the various financing instruments offered by the highly diversified Brazilian financial system, and make little effort to find out which are the best financing solutions for their companies. For the enterprises undergoing an incubation program, these problems are partially mitigated by the support that many incubators provide in the form of training or technical assistance. Additional useful interventions in this area could include: (i) programs that enhance the role and capacity of incubators and other intermediary organizations in improving the entrepreneurs' ability to present their business ideas and meet the quality standards requested; (ii) direct provision of technical assistance to ICT/ICTE SMEs on financial-related issues, through dedicated schemes.

¹¹ See C.A. dos Santos, "Credit Risk and Guarantees", paper presented at OECD Global Conference on Better Financing for Entrepreneurship and SME Growth.

¹² The figure refers to spontaneous candidature of enterprises to VC firms (2005). Source: Marcelo Billi, "Capital de Risco Cresce no Brasil", GVCepe.



ANNEXES



ANNEX A – THE ICT/ICTE SECTOR¹³

A.1 TELECOMMUNICATION

The process of reforming the Brazilian Telecom sector started in 1995. In 1997, the National Congress passed the General Telecommunications Law, which introduced liberalization into the system, and provided for the establishment of an independent regulator agency—the *Agência Nacional de Telecomunicações* (ANATEL). The sector was a monopoly until 1998, when the Telebrás System was restructured and privatized. The Telebrás System was split into twelve new holding companies as follows: (i) eight mobile service providers, one for each telecom district; (ii) three fixed-line operators; and (iii) the Embratel Participações S.A. (Embratel), for domestic long-distance telephone services. The privatization was one of the single largest operations of this kind ever seen, amounting to over US\$10 billion. In January 2002, the liberalization of the Brazilian telecom market was completed. There are no more restrictions on the number and nature of licenses that can be issued by ANATEL, and several new operators have emerged in the various sub-sectors.

Fixed-line penetration is about 22%—it has been increasing very slowly over the past few years. The major players in this segment are *Telesp*, *Telemar*, *Brasil Telecom* and *Embratel*. There are also several small operators active at local level. Conversely, the mobile segment is growing much faster—the penetration rate is currently estimated in excess of 50%. The market has recently undergone a consolidation process, and the four main operators (*Vivo*, *Claro*, *Oi* and *TIM*) together account for more than 90% of the subscribers' base. An overview of the main telecom operators is provided in Table 2 below.

A.2 INTERNET SERVICES

The origins of the Internet in Brazil date back to the early 1990s. The first connection between Rio de Janeiro and São Paulo was created in 1991—it was extended to Brasília two years later. In 1995, *Embratel* launched the access to the Internet as a fully commercial service. In the same year, the Ministry of Communications and the Ministry of Science and Technology provided for the establishment of the *Comitê Gestor da Internet*—CGI (Internet Board), with the aim of governing and supporting the development of the Internet in the country. Besides government representatives, the CGI includes members from the private sector and the civil society. The public sector's measures in the field of Internet access promotion were coordinated by the “Information Society Initiative”, launched in 2000 by the Ministry of Science and Technology. Today, Internet subscribers are about 14 million, while internet users are more than double. Broadband has seen a rapid diffusion, and presently represents 65% of the total connections.

The market for the provision of Internet access is fully liberalized. According to the sector association, ABRANET (*Associação Brasileira dos Provedores de Acesso, Serviços e Informações da Rede Internet*) several hundreds ISPs are active in the country, but most of them are small or micro-sized. The major ISPs are those linked to telecom operators, such as *Brazil Telecom*, *Oi*, and *Telefonica* (branded *Terra Lycos*). The recent trends indicate an increasing convergence among Internet, telephony and media. More and more Internet operators are able to provide voice-over-Internet (VoIP) services to their clients, and there are cases (e.g. that of TV Cidade and TVA) of offerings combining broadband, VoIP and cable-TV. These will likely lead to further consolidation, in the near future.

¹³ The data provided in this section are drawn from various sources including: (i) the *Agência Nacional de Telecomunicações* (ANATEL); (ii) the *Associação Brasileira dos Provedores de Acesso, Serviços e Informações da Rede Internet* (ABRANET); (iii) the *Associação Brasileira da Indústria Elétrica e Eletrônica* (ABINEE); (iv) *Associação Brasileira das Empresas de Software* (ABES); (v) *Associação para Promoção da Excelência do Software Brasileiro* (SOFTEX); (vi) *Associação das Empresas Brasileiras de Tecnologia da Informação, Software e Internet* (ASSESPRO)

TABLE 2. *Main Telecom Operators*¹⁴

Operator	Line of Business (subscribers – millions)	Comments
Oi	Fixed telephony (14.4) Mobile telephony (13.3)	Oi is the largest telecom company in Brazil. It is 100% Brazilian-owned and it is controlled by TNL. In the mobile segment, Oi started operations in 2002 as Telemar, and it was the first mobile phone carrier using GSM in Brazil. The company is also active in the internet segment, and recently launched a radio station: Oi FM Belo Horizonte.
Vivo	Mobile telephony (29.0)	Launched in 2003, Vivo is the largest mobile operator in Brazil and in South America. It originated from the merger of five mobile companies into a joint-venture evenly owned by Portugal Telecom and Telefónica. Vivo operates in both CDMA and GSM technology.
Brasil Telecom	Fixed telephony (8.3) Mobile telephony (3.6)	Brasil Telecom is the third-largest fixed line operator in Brazil. The company originated from the split of the national incumbent Telebrás in 1998. Formerly owned by Opportunity Bank, BT is today controlled by Citigroup and the Brazilian pension funds. In 2004, BT started operations in the mobile segment.
Embratel	Fixed telephony (n.a.)	Embratel is the second major Brazilian telecommunications company. Headquartered in Rio de Janeiro, the company used to be the long distance arm of Telebras, until it was bought by the US company MCI Communications in 1998. In 2003, it was acquired by Telmex. Embratel owns important infrastructure, including digitized microwave systems, fiber optic networks (including submarine cable systems), and five domestic communication satellites.
TIM Brasil	Mobile telephony (26.3)	Controlled by Telecom Italia, TIM is the second-largest mobile operator in Brazil. In terms of market share it controls today some 25.8% with growing by 2.3 over past year. Last year TIM distributed to its shareholders dividends in excess of US\$200 million.
Claro	Mobile telephony (24.6)	Claro is the largest mobile phone network in the Americas. It is owned by the telecom group América Móvil, which is the fourth-largest mobile operator in the world. Claro started operations in Brazil in 2003, and today is the third national mobile services provider.
Telefonica Sao Paulo	Fixed telephony (12.4)	Telefonica São Paulo (TELESP) is a company of the Spanish Telefonica Group. In Brazil it operates fixed-line services in the State of São Paulo. Mobile services are provided through “Vivo” a joint venture with Portugal Telecom (see above).
Intelig Telecomunicacoes	Fixed telephony (n.a.)	Established in 2000, Intelig Telecom is specialized in long distance national and international calls. It was formed by a consortium of foreign telecom operators including: National Grid (UK – 50% of shares); France Telecom (France – 25%); and Sprint (US – 25%).
Telemig Celular / Amazonia Celular	Mobile telephony (4.7)	Telemig Celular and Amazonia Celular are both controlled by Telpart Participações. They are regional mobile operators that originated via the split and privatization of Telebras. Telpart is a consortium comprising TIVW do Brasil Ltda., Opportunity MEM S.A., and a group of five Brazilian pension funds.

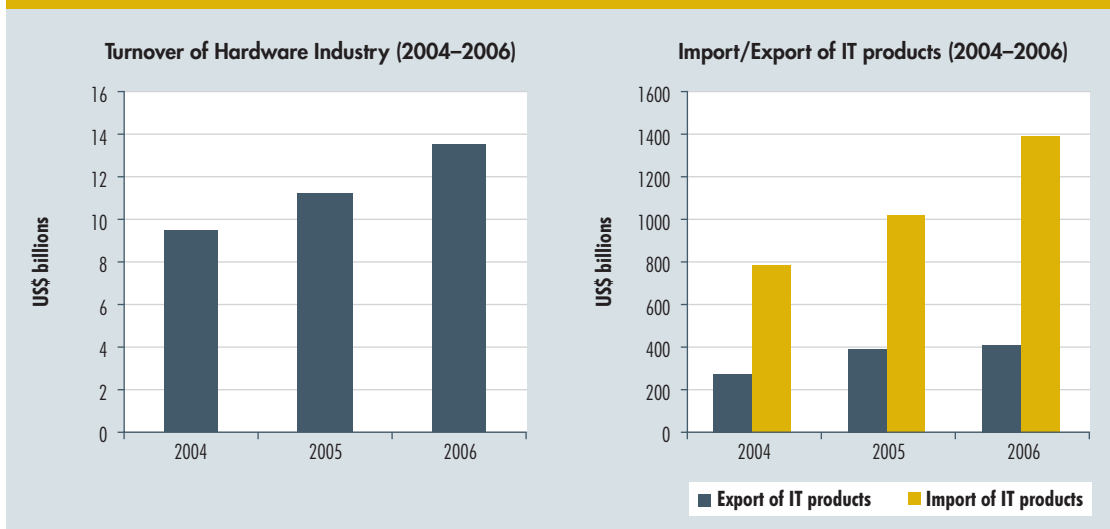
Internet access is also provided by a vast network of cybercafés, including chains, franchises, and individual businesses. These operations had their boom in early 2000, and over the past few years the market has been stable and profit margins are reportedly reducing. The number of cybercafés in operation is not known, but it is estimated that there could be 6,000–7,000, including LAN Houses¹⁵.

A.3 ICT/ICTE ACTIVITIES

Hardware. Brazil hosts a well-developed electronic and hardware industry. The majority of main global IT MNCs have opened offshore manufacturing

¹⁴ Information is mainly drawn from telecom operators' official websites.
¹⁵ LAN Houses are sort of internet cafés specializing on gaming—especially on-line and network gaming.

Figure 2. *The Evolution of Brazilian Hardware Industry*¹⁶



plants and/or commercial branches in the country to serve the huge internal market and the neighboring countries. According to the sector association ABINEE, there are at least some 150 companies involved in the production of IT equipment and/or parts for this industry. The growth in this sector is supported by the incentives provided by the “*Lei do Bem*”—a law passed in 2005 providing for a significant reduction of fiscal pressure on technology enterprises, and the supply of economic subsidies to enterprises for R&D and innovation. The overall turnover of this sector is estimated at about US\$13.5 billion, and employment is likely comprised between 35,000 and 40,000 units. In 2006, the growth rate has been 20%, and for 2007 it is expected to further accelerate to about 25%. This dynamic is particularly underpinned by the significant increase in the sales of PCs, which in 2006 hit 8.3 million units, with a 46% increase over previous year. This segment also benefited from the “*Lei do Bem*” which reduced the VAT on these goods and created financial facilitation for low-income persons to buy computers. Another important fact is the decline of the grey market of PCs, from 73% in 2004, to 44% at the end of 2006. The Brazil hardware industry is particularly focused on the internal market. In 2006, exports accounted for a mere US\$400 million—a 5% increase over 2005¹⁷. Conversely, imports of hardware (including parts)

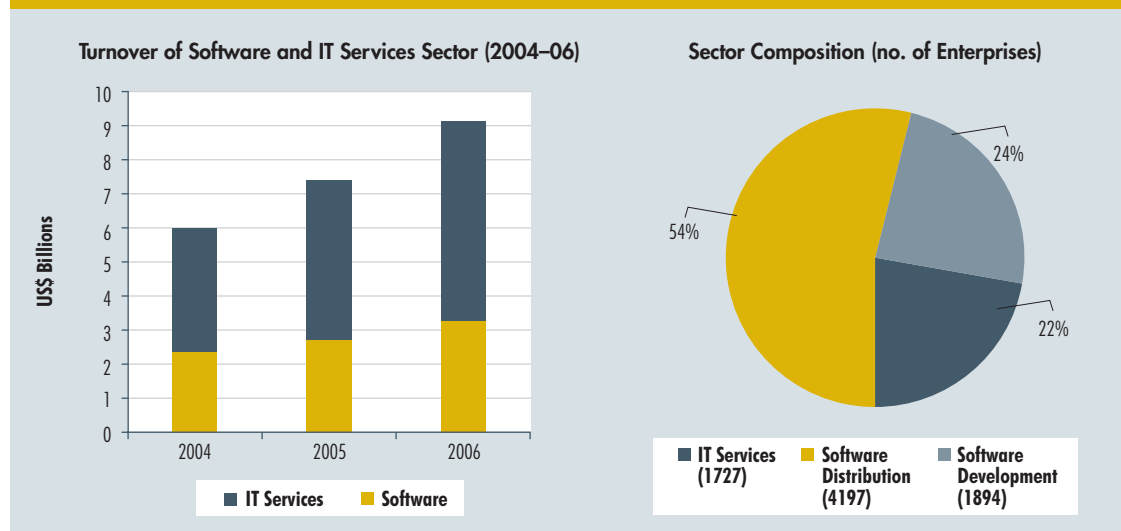
are much larger—about US\$1.4 billion in 2006, growing 37% over 2005. Figure 2 above illustrates the main trends in this sector.

Software and IT Services. Brazil is the core of the Latin American software sector. The industry started becoming established in the 1990s, but only after 2000 did it emerge as one of the global leaders. Today, Brazil hosts the 13th largest software and IT services industry in the world, which generates estimated revenues in excess of US\$9.0 billion—1.27% of the global share. The sector is widely diversified and includes nearly 8,000 firms active in various segments, including: development of IP software, customized ERP and other vertical-specific applications, sales of consumers software, internet-based solutions and services, basic sales and maintenance, systems integration, database management, e-commerce, and value-added services. However, more than half of the operators are mainly distributors—software developers proper are likely about 2,000, and a few less are IT service providers. In terms of size, the vast majority of enterprises are micro (less than 9 employees) or

¹⁶ Author’s elaboration on data drawn from ABINEE.

¹⁷ It must be said that while PC and IT equipments are mainly sold on the internal market, Brazil is a formidable exporter of mobile telephone and other telecom equipments. In 2006 export of these goods exceeded US\$ 3.0 billion, nearly trebling over 2004.

Figure 3. *The Brazilian Software and IT Services Industry*¹⁸



small (between 10 and 49). Medium-size enterprises (50 to 99 staff) are about 5%, while large firms (above 100) are less than 1% of the total. The software sub-sector in 2006 posted a turnover of US\$3.26 billion, growing by 19% over previous year. In particular, the value of sales of domestically developed software grew from US\$0.8 to 1.0 billion, accounting for nearly one-third of the overall software segment. With a turnover of US\$760 million, customized applications account for most of the internal production. Only one-quarter of software companies are active in foreign markets. The market of IT services grew even faster in 2006, moving from US\$4.7 to 5.8 billion. The largest revenues are posted by outsourcing services (US\$2.5 billion). Overall, the Brazilian software and IT services industry is mostly directed toward the domestic market. Despite the stunning growth recorded last year (+40%), the level of exports remains quite low in absolute terms—below US\$250 million. Three-quarters of exports can be ascribed to IT services. The outsourcing segment appears to be one of the most promising businesses for ICT/ICTE firms. This segment already encompasses some domestic champions, such as *CPM*, *Datasul*, *DBA*, *Itaotec*, *Politec* and *Stefanini*¹⁹—and multimillion contracts have started being awarded by foreign companies. MNC's captive operations are scaling-up, with several big players having

already set up outsourced service facilities in the country. These players include IBM, Unisys, HP, EDS, Accenture, Deloitte, Motorola, Intel and Nokia. Overall, it is estimated that the BPO/Call Centers industry employs 250,000 workers, whereas in 2001 the headcount was 50,000. There are about 1,000 call centers in Brazil, in some cases established by big telecom operators as in the case of *Atento*. The latter is a chain of call centers controlled by the Spanish *Telefonica*, which manages several facilities located in the six main capitals of Brazil, which has a total employment-base in excess of 50,000 units. Some salient features of the Brazilian software industry are illustrated in figure 3 above.

A.4 THE BRAZILIAN ICT/ICTE CLUSTERS.

The development of local ICT firms is supported through a network of business incubators and technology parks, with the 8 main facilities hosting

¹⁸ Author's elaboration on data drawn from ABINEE.

¹⁹ These companies are also the main founders of the Brazilian Association of Software and Services Export (BRASSCOM), with the main objective of promoting the export of IT services on the model of Indian software industry. More recently, a specific association for the outsourcing services providers (both for export and domestic market) have been created—denominated *Associação Brasileira de Provedores de Outsourcing*.

some 350 companies. The main IT clusters in Brazil are: (i) Rio de Janeiro ('specializing' on telecommunications); (ii) Sao Paulo/Campinas (hardware, software and R&D facilities); (iii) Porto Alegre (biotechnologies); and (iv) Recife (ICT/ICTE services).

Rio de Janeiro. Rio de Janeiro displays a favorable ecosystem for the development of telecommunication sector. Several major MNC have opened a presence here, including: *National Grid, Sprint, France Telecom, Nippon, Telefonica, MCI WorldCom, Embratel, Bell South, Canadian Telecom, Qualcomm, South Korea Telecom, Williams International and Portugal Telecom*. With 110 universities, enrolling more than 250,000 students, and more than 20,000 researchers, Rio de Janeiro offers an adequate and qualified workforce to this industry. On top of that, Rio de Janeiro is the headquarter of the SENAI (National Industrial Training Service) which offers several consulting, training, research, and human resources services.

Sao Paulo/Campinas. Campinas is approximately 1 and ½ hours from Sao Paulo. This area hosts some different industrial clusters which see the presence of big firms such as *Lucent Technologies, IBM, Nortel Networks, Lyondell Chemical and Metso Paper*. *Lucent Technologies* have a cell phones and parts manufacturing plant in Campinas. Also *Nortel Networks* has a manufacturing plant in the area since 1990. In addition, it operates some training facilities and an excellence center specialized on TDMA and CDMA technologies. IBM has set up a new technology center in Sao Paulo that focused on R&D activities in Linux environment.

Porto Alegre. This area hosts a well-developed biotechnology clusters. Some important MNC have opened their facilities in Porto Alegre, such as: *Glaxo-Wellcome, Smith-Kline, Novartis and Aventis*. This has supported the growth of an IT industry specializing on healthcare software and applications for the pharmaceutical industry.

Recife. This small port city has recently emerged as an important ICT/ICTE cluster thanks to the project "Porto Digital", and the significant investments from the State's budget. The development of ICT is fuelled by the presence of a well-educated workforce coming from the University of Pernambuco, and a labor cost some 30% lower than in Sao Paulo or Rio de Janeiro. The major MNC having setting up a presence in Recife are *Microsoft, Motorola* and *Ericsson*. A brief overview of the "Porto Digital" program is provided in Box 1 below.

BOX 1. *Porto Digital*²⁰

Located in northeastern city of Recife, Porto Digital is the largest hi tech park of Brazil. The project was launched in 2000 as a public-private initiative involving the State of Pernambuco's Government, the federal university and some private sector investors, with the aim to revitalize vast areas of the harbor area once used for commodities trade and for a long time dismissed. The State Government financed the Porto Digital initiative with an initial US\$ 18.3 million, while federal and local government contributed with fiscal and financial incentives to tenants. As of 2006, the enterprises established at Porto Digital have been nearly 100, for an overall 2,000 workforce, representing the principal facility of this kind in Brazil. The Government of Pernambuco has recently announced a new round of investment in the Porto Digital's facility, as well as the establishment of a credit guarantee fund dedicated to ICT enterprises, in the framework of the 'Juro Zero' (Zero Interest) Program.

²⁰ For more information refer to www.portodigital.org

A.5 BASIC INDICATORS²¹

	2000	Brazil 2004	Latin America & Caribbean 2004
Economic and social context			
Population, total (millions)	170	179	541
Urban population (% of total population)	81	84	77
Poverty (% of population below US\$1 per day)	9.9	8.2	9.5
GNI per capita, Atlas method (current US\$)	3,650	3,090	3,600
GDP growth, 1995–2000 and 2000–4 (%)	2.0	2.0	1.5
Adult literacy rate (% ages 15 and over)	88	90	89
Primary, secondary, tertiary school enrollment (% gross)	91	91	82
ICT sector structure			
Separate telecommunications regulator	Yes	Yes	—
Status of main fixed-line operator	Private	Private	—
Level of competition: international long distance	P	C	—
Level of competition: mobile	P	C	—
Level of competition: Internet service provider	C	C	—
Government prioritization of ICT (scale 1–7)	—	4.4	3.5
ICT sector performance			
Access			
Telephone main lines (per 1,000 people)	182	237	181
International voice traffic (minutes per person) ^a	—	11	—
Mobile subscribers (per 1,000 people)	136	367	324
Population covered by mobile telephony (%)	—	68	76
Internet users (per 1,000 people)	29	109	104
Personal computers (per 1,000 people)	50	86	75
Households with television (%)	87	90	88
Quality			
Telephone faults (per 100 main lines per year)	3.1	1.7	—
Broadband subscribers (per 1,000 people)	0.6	12.8	5.2
International Internet bandwidth (bits per person)	5	154	165
Affordability			
Price basket for fixed line (US\$ per month, residential)	11.4	7.4	9.0
Price basket for mobile (US\$ per month)	—	18.9	9.1
Price basket for Internet (US\$ per month)	—	28.0	31.5
Price of call to United States (US\$ per 3 minutes)	1.15	0.71	0.90
Institutional efficiency and sustainability			
Total telecommunications revenue (% of GDP)	3.7	4.0	3.3
Total telephone subscribers per employee	516	—	—
Total telecommunications investment (% of revenue)	39.8	30.8	—
ICT applications			
ICT expenditure (% of GDP)	5.6	6.7	5.3
Egovernment readiness index (scale 0–1)	—	0.64	0.39
Secure Internet servers (per 1 million people)	6.0	11.2	8.6
Schools connected to the Internet (%)	—	50	—

Notes: P = Partial; C = Competition

21 Figures are drawn from World Bank, Internet World Stats

ANNEX B – THE INSTITUTIONAL SETTING

B.1 PUBLIC ENTITIES

Comitê da Área de Tecnologia da Informação (CATI)²². This IT Board was created in April 2001 under the auspices of the Ministry of Science and Technology. It acts as the apex body for most of the programs in support of enterprises active in the field of IT and automation, with special focus on the R&D activities for ICT. Besides Government's authorities, CATI also involves stakeholders from organizations promoting research and innovation, academics and business associations. So far CATI has promoted five main programs funded with the resources of the CT-Info Fund, and implemented through FINEP and CNPq.

Secretaria de Política de Informática (SEPIN). The Secretariat for IT Policy is the body entrusted for the formulation of policies and programs in the area of ICT. The objectives of SEPIN's activities are the capacity enhancing of hardware and software industries and the attraction of foreign investments in this field. In particular SEPIN's tasks include: (i) supervision, coordination and implementation of policies and measures for the various ICT sub-sectors; (ii) policies in support of e-commerce; (iii) cooperation with other institutions for the development of the Information Society; (iv) provision of advisory support for the design of fiscal incentives and other instruments of support; (v) provision of technical assistance on IT-related matters to other Government's bodies.

Agência Nacional de Telecomunicações (ANATEL)²³. ANATEL is the national telecom regulating authority. Established in 1995 through the "Telecommunication Law", ANATEL is formally independent from any other public body

and enjoy a financial sovereignty thanks to the "Fundo de Fiscalização das Telecomunicações". ANATEL is *inter alia* in charge of: (i) the implementation of the national telecom policy; (ii) the elaboration of plans for universal access; (iii) the management of conflicts among telecom operators; (iv) the protection of consumer's right; (v) the management of licenses and concessions to operators; (vi) the establishment of tariffs for public telecom services under concession.

Comitê Gestor da Internet no Brasil (CGI)²⁴. CGI is the Brazilian Internet Board, a body encompassing Government agencies, business associations, civil society organizations, and the academic community. Established in 1995 by Presidential decree, CGI has four main objectives: (i) to promote the development of internet services; (ii) to elaborate guidelines and recommendation for the technical aspects of the internet network development; (iii) to manage the attribution of IP addresses and .br domain; and (iv) to collect and disseminate information and statistics on internet services in the country. The executive arm of the CGI is the *Núcleo de Informação e Coordenação do Ponto BR* (NIC), established in 2003 as a not-for-profit entity entrusted with the implementation of the decisions and projects deliberated by CGI. In particular, NIC is responsible for the following projects:

- *Centro de Estudos sobre as Tecnologias da Informação e da Comunicação* (CETIC) – the Center for studies on ICT is responsible for the production and diffusion of indicators and statistics on the internet in Brazil. It also issues periodical studies on the status of the development of the network in the country;
- *Registro.br* – the public registry of the .br domain, which manages the attribution of the new internet addresses;
- *Centro de Estudos, Resposta e Tratamento de Incidentes de Segurança no Brasil* (CERT) – this

²² For more information see the official website of the Ministry of Science and Technology, www.mct.gov.br

²³ For more information see www.anatel.gov.br

²⁴ For more information see www.cgi.br

entity is responsible for the management of the security issues related to the national internet;

- *PTTMetro* – a project aimed at promoting a better infrastructure for the direct interconnection of the metropolitan “autonomous systems” which form the Brazilian internet. PTT – Ponto de Troca de Tráfego stands for Traffic Exchange Points. Currently there are seven metropolitan regions concerned by the project, namely: Belo Horizonte, Sao Paulo, Rio de Janeiro, Porto Alegre, Brasília, Curitiba and Florianópolis;
- *Antispam.br* – a project aimed at providing useful information and best practices to protect against spamming.

Associação para Promoção da Excelência do Software Brasileiro (SOFTEX)²⁵. SOFTEX is an institution created by the Ministry of Science and Technology that is responsible for one of the largest promotional program of support to software development and commercialization in Brazil. SOFTEX is based in Campinas (Sao Paulo) but it is present nationwide through a network of affiliated agencies. SOFTEX activities mainly fall in three areas:

- *INSOFT-BH* – a program for pre-incubation and incubation of enterprises active in ICT sector. The program is supported by the public sector and is implemented in partnership with universities and other institutions.
- *Software Qualification Program* – an initiative aimed at increasing the competitiveness of Brazilian software firms through the adoption of global standard processes and certification. To this end a specific facility has been established which assists enterprises through capacity initiatives, loans and grants.
- *PSI-SW* – a program to assist export of software and IT services. The program is supported by the national export agency APEX. Some 100 firms are already involved in the program, whose activities include institutional representations, training, intelligence and commercial promotion.

B.2 PRIVATE ENTITIES

Associação Brasileira das Empresas de Software (ABES)²⁶. The Brazilian Association of Software

Enterprises is the main intermediary organization in this sector. Established in 1986, APES has today nearly 800 members representing an estimated 85% of the software industry in terms of revenues, and an aggregated 58,000 workforce. ABES’ activities includes: (i) juridical and fiscal consultancy for its associates; (ii) training courses on management related issues; (iii) advocacy for the reform of the legal framework; (iv) campaigns against software piracy, etc. APES has decentralized offices in 14 States of the Federation.

Brazilian Association of Software and Services Export Companies (BRASSCOM)²⁷. Established in 2004, BRASSCOM is the Brazilian version of the well-known Indian NASSCOM, a not-for-profit organization aimed at promoting the interests of the national software and IT services providers and exporters. Initially, BRASSCOM was set up by six leading Brazilian exporters namely: *CPM, Datasul, DBA, Itautec, Politec* and *Stefanini*. But later other players of different size and nature have joined in. BRASSCOM performs market research on various export-related fields, in order to provide its associates with the information needed for their expansion strategies. The association also maintains strong ties with public authorities of different levels in order to advocate for the formulation of conducive policies for IT exports. BRASSCOM is also directly involved in supporting Brazilian IT competitiveness, especially with reference to three main issues: (i) the qualification of the workforce (e.g. as regards foreign languages), and its quantitatively scaling-up; (ii) the adoption of international quality standards for software and software-enabled services by Brazilian operators; (iii) the creation of an internationally recognized “Brazil” brand in software.

Associação das Empresas Brasileiras de Tecnologia da Informação, Software e Internet (ASSESPRO)²⁸. The Brazilian Association of IT, Software and Internet Enterprises, was founded in 1976 by a group of electronic data processing companies. Today, ASSESPRO counts on over 1,200 members and 12 regional offices substantially autonomous. Member companies include a vast range of companies of different size and operating in different segment of the ICT market. ASSESPRO’s activi-

²⁵ For more information see www.softex.br

²⁶ For more information see www.abes.org.br

²⁷ For more information see www.brasscom.com.br/

²⁸ For more information see www.assespro.org.br

ties fall into two main categories: (i) actions aimed at developing the internal market; and (ii) initiatives to promote exports. Within these two lines of activities ASSESPRO is concretely involved in the following projects: (i) FENASOFT—a software exhibition held in Sao Paulo; (ii) COMDEX—the Brazilian version of the US-based “Computer Dealers’ Exhibition”; (iii) Prêmio ASSESPRO—an annual challenge for ICT entrepreneurs; (iv) the Programa SOFTEX—for the promotion of quality of software and IT services; (v) and a series of information and business services for its associates.

Associação Brasileira dos Provedores de Acesso, Serviços e Informações da Rede Internet (ABRANET)²⁹. ABRANET is a business association of internet access and value-added providers. Founded in 1996, its main objective is to help the development of internet sector in Brazil. ABRANET promotes the exchanges among the operators through the organization of *fora* and other events. It is also involved in the production of sector information, through market studies and research. Finally, ABRANET deals with the Government and the decision-makers to advocate for better legal framework and infrastructures.

Associação Brasileira da Indústria Elétrica e Eletrônica (ABINEE)³⁰. ABINEE is a not-for-profit

association representing the electric and electronic national industry. ABINEE was founded in 1963 and include most of the national and international companies operating in the country in sector diverse such as: Electronic Manufacturing, Telecommunications, Industrial Automation, IT Equipments etc. The association is organized in several directorates for each line of products. The headquarter is in São Paulo, but there are decentralized office also in Minas Gerais, Nordeste, Paraná, Rio de Janeiro, Rio Grande do Sul and Brasília.

Associação Nacional de Entidades Promotoras de Empreendimentos Inovadores (ANPROTEC)³¹. ANPROTEC is the national association of institutions promoting new and innovative ventures. It is active since 1987 with the objective of creating the conditions for the growth of business incubators, science parks, technopoles and other organizations similar facilities. ANPROTEC is a beneficiary of an *infoDev*'s grant of US\$150,000 in the framework of the Business Incubation Initiative. The main objective of *infoDev* intervention is to “strengthen the recently established Latin America Network of Science Parks and Business Incubators Associations (RELAPI) by supporting the consolidation of its mission and advancement of its objectives in the region”.

29 For more information see www.abranet.org.br

30 For more information see www.abinee.org.br

31 For more information see www.anprotec.org.br



ANNEX C – THE FINANCIAL SECTOR³²

C.1 BANKING SECTOR

The Brazilian banking system has changed significantly since the mid-1990s and, in particular after 2000. Since the 60s, Brazil has been characterized by high inflation rates, and this situation has resulted favorable to a certain type of banking operators which accumulated sizeable resources from savings. As of 1994 there were 244 active banks in Brazil. But with the implementation of the *Plano real* and the fight against inflation the situation changed radically, and ten years later, in 2004 only 164 banks have survived. In the meantime, the landscape has changed also under other respects. The Central Bank of Brazil (BACEN) assumed a stronger role and promoted several improvements in the regulatory framework as well as in the monitoring and transparency. At the same time a significant privatization of the State-owned banks occurred and the removal of obstacles to the participation of foreign players to domestic banking industry allowed several new international banks to enter: foreign banks increased their stake in Brazil (from 8.5% in 1995 to 39.0% in 2002). Today the presence of private and public banks is quite balanced: in terms of assets State-owned banks account for nearly 35% of the total, national private banks for 25%, foreign-controlled banks and branches for 23%, and mixed national and foreign capital banks for the remainder 17%. State-banks are particularly keen on the collection of deposits and have in general a more traditional approach while private banks have more diversified activities on the capital market. As of today there are 134 banks in Brazil including 103 Commercial and Universal Bank and 31 Investment and Development Bank. Altogether they operate more than 50,000 banking facilities nationwide. Total assets are in excess of US\$1,000 billion with

commercial and universal banks accounting for the most with some US\$950 billion assets. The Brazilian banking system is known for its high concentration: the ten largest banks are responsible for more than 80% of total assets and deposits. But its credit/GDP ratio is only 27%, much lower than many other economies³³. In addition Brazil is also home to a vast network of credit cooperatives, with more than 1,400 facilities nationwide. As of 1Q 2007, credit cooperatives altogether had assets in excess of US\$15 billion and the amount of deposits was in the US\$7.0 billion region.

Table 3 below provides the salient feature of the Brazilian top 5 commercial banks.

Leasing. As a financing instrument, leasing is rapidly expanding in Brazil in its various forms, and the number of operators active in this line in constant growth. The following types of operations are allowed under the Brazilian law:

- **“Domestic leasing:** a Brazilian leasing company leases a local or imported product to a Brazilian firm.
- **Domestic sale and leaseback:** a Brazilian asset owner sells the asset to a financial institution, which leases back to the seller. In the past this was allowed exclusively for the Brazilian National Economical and Social Development Bank (BNDES), but currently, such functions can be carried out by any qualified entity.
- **International leasing:** a foreign company leases foreign or locally produced assets to a Brazilian end-user or to a leasing company which sub-leases to the end-user. According to legislation,

³² The information provided in this section is mainly drawn from: (i) Carlos Alberto Do Santos, “Credit Risk and Guarantees: Proposal for a National System of Guarantees in Brazil”, SEBRAE; (ii) Marcelo Billi, “Capital de Risco Cresce no Brasil”, GVCepe; (iii) “Venture Equity Latin America”, Volume V, January 2006; (iv) ABCR, notes on the 3rd meeting of Administrators and Investors of Venture Capital & Private Equity, February 2005; (v) Flavio Viegas, “Anjos Inovadores”, January 2007; (vi) Forum Permanente das Microempresas e Empresas de Pequeno Porte, “Cartilha Informativa de Produtos e Serviços Bancários”; (viii) LAVCA, “Fund Managers Guide”, 2006 and “2007 Scorecard: Brazil”; (ix) the Brazilian VC and private equity association ABV-CAP; (x) PriceWaterhouseCoopers, “Brazil Banking Sector, Overview”; and (ix) the official websites of banks, VC and other stakeholders, and various articles appeared on the press.

³³ For instance in Chile is 86%, in Spain 135%, and in USA 64% (data of 2004 cited from PriceWaterhouseCoopers, Brazil’s banking sector overview).

TABLE 3. *Salient Features of Selected Commercial Banks*

Bank	Total Assets (US\$ billion)	Comments
Banco do Brasil	157	Banco do Brasil is the largest commercial bank. Founded in 1808, BB is one of the oldest banks in Latin America. BB is State-owned institutions and until the foundation of the Central Bank of Brazil it has operated as the highest monetary authority. In 1992 it was reorganized as a commercial bank. Branches: 4,000 Employees: 100,000
Banco Itau	122	Banco Itau started operations in 1945 under the name Banco Central de Crédito. Today it is the largest private commercial bank, thanks to a series of acquisitions the last one being BankBoston a subsidiary that Bank of America, purchased in April 2006. Branches: 2,500 Employees: 60,000
Bradesco	112	Founded in 1940 Banco Bradesco is the second-largest private sector banks in Brazil. It is completely owned by Brazilian capital, and it operates branches also in Argentina and in the US. Branches: 3,000 Employees: 70,000
Caixa Economica Federal	107	The Caixa Economica Federal (CEF) was established in 1961 in Rio de Janeiro, and used to be specialized on the collection of savings from low-income population. Today it is the second-largest public-sector financial institutions, entirely controlled by the Government. Its activities mainly include the financing of civil and construction projects. Branches: 2,000 Employees: 100,000
ABN AMRO REAL	63	ABN AMRO REAL is the result of the acquisition of Banco Real by ABN AMRO in 1998. Today it is the largest foreign-controlled institution in Brazil. In 2003, the bank completed the acquisition of Banco Sudameris. Branches: 1,000 Employees: 30,000

any asset that can be imported into Brazil under existing regulations may be the object of an international lease. Conditions for international lease are: minimum two-year term; total cost of leasing may not exceed the price of comparable import financing alternatives; and equal distribution of payments during the lease period.

- **Export leasing:** assets produced in Brazil are leased abroad by a Brazilian company. This is legal but not yet practiced.
- **Export sale and leasing:** a Brazilian company sells an asset to a foreign leasing company, which then leases it to a foreign firm.³⁴

According to the Brazilian leasing association (ABEL), in the first trimester of 2007 leasing contracts has grown by 50% over the same period last year hitting US\$4.0 billion. Computer equipments are among the most popular items purchased through leasing agreements.

C.2 VENTURE CAPITAL.

Background. The history of Venture Capital in Brazil began in 1973 with the establishment of BNDES Participations (BNDESPAR), the private equity arm of BNDES the main State-owned development financial institution. Following up on this experience, some private sector investors set up similar facilities, mostly in the form of on investment banks and assets management companies. The overall economic conjuncture of Brazil during the 80s and first half of 90s characterized by period of hyperinflation and high level of debt severely hampered the economic development (the 1980s are commonly referred as the 'lost decade') and slowed down also the growth of the private equity industry. A real VC industry has established only over the last decade, also thanks to an increasingly conducive legal and institutional

34 Source: Strategis – www.strategis.ic.gc.ca

BOX 2. *The INOVAR Project*

The INOVAR Project was launched in 2000 with the objective of supporting the development of technology SME through financial instruments tailored on their specific needs, especially risk capital. The project is implemented by FINEP with the support of several other national and international institutions including IADB/MIF, SEBRAE, PETROS, BOVESPA, BB-BI and others. The project is articulated in various aspects including Risk Capital Fora, Incubation of VC Funds and the recent INOVAR Semente, specifically focused on seed financing.

The INOVAR VC funds are run by professional fund management companies, selected through a tender mechanism, and at least 20% of the funding must come from private investors. A dozen funds are already operative altogether accounting for some US\$250–300 million. A new call for proposal has been launched in 2007 with the objective of creating 3–4 more funds.

The INOVAR Semente started operations at end-2005 with the objective of investing nearly US\$140 million over 6 year in about 300 innovative projects currently at the seed stage. In order to be more attractive for private investors the scheme will provide guarantees against the downside, reimbursing at the end of the period at least the nominal value invested.

Another successful initiative of INOVAR is the “Brazil Venture Forum”. Since its establishment in 2000, the VC Forums have contributed to the closing of no less than 130 deals (more than half of which in the field of ICT). FINEP has also created a new Special Credit line dedicated to the companies participating in the Forum. The financing available is up US\$70,000 and no real guarantees are requested.

framework. In this sense it can be cited for instance the decree of 1994 which opened the doors of private equity market to large national pension funds, and the reform of the regulation on corporate governance which improved the mechanisms of protection of minority shareholders³⁵. In 2000 the VC industry had a first peak, and then started declining as a repercussion of both internal and international economic downturn. The total amount of investments fell in fact from nearly US\$1.5 billion in 2000 to just US\$340 million in 2002, and started re-gaining speed in 2003. Over the same period the average size of deals significantly declined (i.e. from some US\$20 million on average in 2000 to US\$4 million in 2002) and then raised again in 2003 nearly doubling over the preceding year. The share of early stage financing remained quite stable during this phase at around 8–10% of the total while expansion-stage investments which in 2000 accounted for nearly 60% of the total dropped to 40% in 2003. Also the interest in ICT changed significantly over that period: in 2000 the investments in IT-related field (excluding communications and media) amounted to nearly US\$500 million, being one-third of the total, whereas in 2003 only US\$7.0 million has been invested in ICT, being just 1.5% of the total.

Overview of Brazilian VC Industry. To date the overall capital mobilized by private equity sector since 1999 is likely in the US\$6–7 billion region, with possibly 500 deals financed so far. There are an estimated 70–80 risk capital funds currently active, and several more schemes of various sizes and natures has been announced for the near future. According to analysts, in 2007 the capital mobilized in this area

will be the highest ever, likely exceeding US\$2.0 billion. Most of operations are based in Sao Paulo or Rio. No less than 90% of the fund administrators are headquartered in these areas which attracts also some two-thirds of investments. The popularity of this type of financing instruments is also rapidly increasing among promoters, as demonstrated by the well-in-excess 2000 applications received by fund managers on a yearly basis. State-owned financial institutions, along with IFIs and donors, play a critical role in the funding of vehicles for SMEs and the ICT/ICTE sector. These are known as *Fundos Mútuos de Investimento em Empresas Emergentes* (FMIEE) and according to the law they must focus on emerging enterprises with annual turnover below US\$50 million. Some of these funds such as *RSTec*, *SCTec*, *Fundotec*, *SPTec* and *MVP Tech Fund*, are oriented to technology sector and operates in only a single State of the federation, while others, such as *Stratus* and *REIF* have a nationwide scope. The total capital under management of these funds is typically relatively small, e.g. from US\$5 to 10 million, but there are also examples of larger scheme as for instance *Brasil 21* (US\$20 million) and *IP.com* (US\$30 million). The principal State's institutions involved in segment are FINEP, SEBRAE and BNDES. In particular FINEP is responsible of the program INOVAR which plays a primary role in the support to scaling up of VC operations in the country, especially with respect to seed and early stage financing. The salient features of INOVAR project are illustrated in Box 2 below.

³⁵ According to the World Bank's Doing Business Report, despite these improvements Brazil still ranks pretty low (60th position) globally as regards the investors protection. However in this respect it is slightly ahead of other regional economies. For more information see www.doingbusiness.org

As regards private sector operations, deals tend to concentrate on late stage operations. Most of the funds are mobilized by large foreign players, often operating at regional level. More and more U.S. IT-specialist firms are considering establishing facilities in Brazil or expanding the existing ones, for instance the Silicon-Valley leader *Draper/Fisher/Juerverston* is teaming up with the local FIR Capital Partner for the establishment of a US\$ 40 million funds. Also generalist private equity firms, specializing on late stage and secondary market operation are increasingly flowing to Brazil. Recently the US\$3.0 billion portfolio *Actis* has announced the intention of setting up a US\$300 million fund for operations in Brazil, and also Advent International is fairly active on this market³⁶. Foreign capital's flow to Brazil is also due to multilateral funds and IFIs investing both directly and in domestic fund. This is typically the case of IADB/MFI which co-sponsors most of the FMIEE along with State's financial institutions, and to a lesser extent of IFC which for instance has co-funded some GP Investimentos' schemes. Finally, Brazil is also home to funds and investment schemes set up by big MNC firms active in the ICT/ICTE sector. An example is provided by Intel Capital, which have mobilized since 1999 some US\$50 million for investments in promising Brazilian early stage ICT firms. The domestic private equity industry is somewhat less developed. Most of VC firms are just administrators of funds largely provided by the State's agencies FINEP, SEBRAE and BNDES, and pension funds. On average, domestic VC manage smaller funds, and therefore also the size of deals financed tends to be more limited than for foreign players. A brief profile of some selected VC operating on the Brazilian market is provided in Table 4 below.

Legal and Institutional Aspects. The legal framework and the business environment for private equity operations have sensibly improved since mid-1990s. The first important piece of legislation on this matter was in fact issued in 1994. This law drafted the overall regulative framework for the establishment and functioning of private equity funds and had the important merit of allowing pension funds to invest in this market thus contributing to a stunning increase of the liquidity available in the system. At the same time this law created the conditions for the subsequent establishment of the FMIEE, which today play a prominent role in the SME financing. According to the *Latin America Venture Capital Association* (LAVCA) Brazil is the

second-best country in the region as regards the adequateness of the environment for VC. Its annual "Scorecard Report" highlights the important steps forward made in this area as well as the weaknesses that still persists. In particular:

- **"Strengths:** Rapid expansion of fund formation under Instruction 391/03 of 2003 by the Securities Commission (CVM) proves the effectiveness of Brazil's legal framework for VC/PE funds. Brazil continues to improve tax incentives for VC/PE activity; foreign institutional equity investments are now largely exempt from income and capital gains taxes, with domestic rates reduced. A bankruptcy law enacted in February 2005 seems positive, with partner liability generally unproblematic. And though the CVM has not published results of voluntary corporate governance compliance reporting, there is increased adherence to international standards. Of Brazil's 33 IPOs since 2004, 23 were compliant with the strictest requirements of the Novo Mercado section of the Bovespa stock exchange.
- **"Challenges:** While IPOs are expanding rapidly due to growing market capitalization and reforms to capital market and corporate governance, the further development of Brazil's capital markets and feasibility of exits are impacted by high capital costs and limited access to traditional financing sources such as banks and debt markets. Brazil's intellectual property rights protection also remains poor"³⁷.

C.3 OTHER FINANCING INSTITUTIONS AND SCHEMES

Financiadoras de Estudos e Projetos (FINEP)³⁸. FINEP is the national Research and Projects

³⁶ Advent International has nearly US\$1.0 billion under management in Latin America. In 2005, successfully exited from an investment in the ICT firm "Microsiga Software", which is today the largest ERP software producer of Brazil.

³⁷ The LAVCA's Scorecard Report analyzes the environment for VC in 12 Latin American and Caribbean (LAC) countries. The evaluation is made on the basis of twelve distinct indicators which—combined—provide an overall score measured on a scale from 0 to 100. In 2007 Brazil's overall score was 65, that is, 6 points above previous year score. The analysis is carried out in partnership with the Economist Intelligence Unit (EIU). For more information see www.lavca.org

³⁸ For more information see www.finep.gov.br

TABLE 4. *Salient Features of Selected VCF*

Denomination	Funding (US\$ mn)	Deals
Government-Financed Schemes		
REIF	10	11
The Returned Entrepreneur Investment Fund (REIF) is a FMIEE fund managed by Decisão Gestão de Fundos (DGF) and sponsored by IADB / MIF; Banco Sudameris and SEBRAE. The REIF is a generalist scheme addressed to innovative firms set up by entrepreneurs who have returned to Brazil. De facto, ICT/ICTE and hi-tech companies account for the major part of the REIF's transactions. In terms of deal size, the maximum investment allowed is of US\$ 1.0 million, and the share of participation must be below 50% of the investee's total assets		
MVP Tech Fund	10	5
Established in 2002, MVP Tech Fund focuses on emerging technology firms in the state of Rio de Janeiro. Funded by O MIF, BNDES, SEBRAE and private and institutional investors, the fund is administered by Mercato Venture Partners. The operations have been concentrated on ICT/ICTE sector, and have regarded small business with annual turnover below US\$7 million.		
CRIATEC	36	n.a.
Established in 2007 by BNDES, CRIATEC is a seed financing scheme focused on ICT and other technology sector. The objective is to finance some 60 projects over a period of four years for amounts varying between US\$200,000 and 500,000. The eligible enterprises shall have annual revenues not exceeding US\$2.7 million. In particular, no less than 25% of funds will be invested in enterprises with revenues below US\$700,000.		
Private Sector Schemes		
GP Tecnologia	40	~10
GP Investimentos is an asset management company running a series of equity funds (GP Capital Partners – GPCP, GPCP II, GPC III, and GP Tecnologia Fund), hedge funds and real estate/mortgage backed. Since its inception in 1993 GP has managed total funds in the order of US\$1.6 billion, making GP one of the largest venture capital operations in Latin America. The sources of capital vary and include international investors (e.g. AIG Investment Corporation, Capital Group), IFIs (e.g. IFC), and local investors. GP Tecnologia is the technology fund of GP and is focused on internet and technology sector. Currently the GPT is under harvesting phase.		
ECCELERA	n.a.	~50
Established in 2000, ECCELERA is a fund management company, providing long-term financing through venture capital and network of equity funds. ECCELERA is the technology holding of the Cisneros Group of Companies (Venezuela). Investments include: (i) start ups, or companies that are not yet operating in the market but that have innovative ideas or leverage new technologies; (ii) established companies that are looking for an opportunity to accelerate their path to success; (iii) companies that already have strong local operations and are looking to expand beyond the region; and (iv) international companies looking to start operations in Latin America. Transactions are normally in the US\$1.0 to 2.0 million.		
FIR Capital Partners	13.5 (fundotec)	13 (fundotec)
FIR Capital Partners is a venture capital firm which invests in technology-driven companies at early and expansion-stage. FIR is a private scheme. The capital is provided by 14 limited partners. Typically, FIR invests US\$300,000 to US\$1 million initially and expect to invest US\$1 to 2 million over the life of the investment. The most recent facility managed by FIR is Fundotec, a FMIEE fund co-sponsored by SEBRAE and other public agencies which operate in the technology sector in the region of Mina Gerais.		
Votorantim Ventures	300	7
Votorantim Ventures (VV) is the VC arm of the large industrial Votorantim Group. The schemes focus on deals in the field of high-tech and biotechnologies. VV's targets include enterprises at different stage of development and the size of deals typically varies between US\$1 and 15 million.		
MNC Venture Capital Fund		
Intel Capital	50	17
The Intel Capital Brazil Technology Fund is VCF to promote technology growth in Brazil. The fund is active since 1999 and portfolio includes companies active in fields such as: hardware, services (including broadband infrastructure and mobile wireless solutions using WiMAX technology), local content developers/providers, digital health solutions, IT service providers and software solutions.		

Financing entity, also known as the Brazilian Innovation Agency. It is a State-owned company subordinated to the Ministry of Science and Technology. FINEP was founded in 1967 with the purpose of supporting economically scientific and technological research and education activities of Brazilian universities, as well as R&D projects developed by private-sector operators. Today,

FINEP represents the main instruments of financial intervention of public sector in technology-related fields. It operates through several programs which mainly fall under four categories, namely: (i) support to enterprises innovation projects; (ii) support to S&T Institutions; (iii) support to cooperation between S&T Institutions and enterprises; (iv) support to specific S&T actions for the

social development. In particular, as regards the financial support to private sector ICT firms, FINEP is currently implementing the following programs:

- *Juro Zero* – Loans at ‘zero rate’, with reduced administrative burden and without real guarantee for productive and commercial operations. Destined to the SMEs indicated by the Industrial, Technology, and Foreign Trade Policy (PITCE).
- *INOVAR Semente* – Seed capital program for the start-up of technology enterprises.
- *INOVAR Incubadora de Fundos* – To foster the establishment of new VCF for innovative enterprises.
- *INOVAR Fórum Brasil Capital de Risco* – Initiative stimulating through matchmaking events the scaling up of risk capital operations for technology SMEs.
- *PAPPE* – Grant program for the financing of early-stage R&D, i.e. development of products, elaboration of business plans, market intelligence, etc.
- *Pro-Inovacao* – it provides financing at subsidized rates to enterprises for the implementation of R&D programs.
- *APGEFOR* – it provides financing at subsidized rates for projects in the field of energy production through renewable sources.
- *PNI* – The national program for support to Incubators and Technoparks.

In addition to that FINEP also extends fiscal incentives to companies participating in the Program for the Development of Industrial Technology, and conducts private equity operation, both directly and through the various VCF that it co-sponsors.

Banco Nacional de Desenvolvimento Econômico e Social (BNDES)³⁹. The National Bank for Economic and Social Development was created in 1952 as a federal organization linked to the Ministry of Development, Industry and Foreign Trade. BNDES is a development financing institution aimed at providing long-term financing for projects that can contribute to the country’s development. BNDES is involved as well in the development of the capital market, the trading of machines and equipment and the financing of exports. The “BNDES System” includes also two side institutions: (i) FINAME (a special agency for the

industrial sector financing); and (ii) BNDESPAR (BNDES Participations) which invests in the stock exchange market. BNDES operates both directly and through accredited financial institutions, and manages various types of credit, guarantee and equity instruments. In 2006, its financial contribution to the MSME sector has been of some US\$3.7 billion for nearly 50,000 operations, being about US\$74,000 per deal. BNDES is directly involved in the field of ICT/ICTE financing through the largest program currently existing in Brazil in this field—the *Program for the Development of the National Industry of Software and related Services* (Prosoft). The program is articulated into three components:

- *Prosoft Empresa* (enterprise) – This is a financing instrument for investments and business plans presented by national companies active in the field of software and IT services. Financing is available in the form of both loan or equity participation, and the scheme is directly operated by BNDES in partnership with SOFTEX. In case of loan, up to 85% of the value of the project can be financed but not below US\$180,000. Besides current interest rates, BNDES asks for a remuneration fee of 1% of the total for SMEs and 3% for large players. In the case of private equity financing, BNDES’ participation can amount to no more than 40% of the enterprise capital stock, with minimum investment of US\$180,000. At the same time a ‘rescue fund’ will be created with company’s profits to mitigate the downside risk.
- *Prosoft Exportação* (export) – This is a financing facility for the export of software and IT services developed in Brazil. Funding is provided indirectly, i.e. through Accredited Financial Institutions. Financing instruments include: (i) pre-shipment credit schemes (up to 100% of the value of the operation can be borrowed); and (ii) post-shipment instruments (e.g. bill discounting, factoring, and buyer credit). In both cases the transaction can be partially secured with guarantees issued by the BNDES’ credit guarantee fund.
- *Prosoft Comercialização* (commercialization) – This is a scheme addressed to all economic operators for the financing of the acquisition, of software and IT services developed in Brazil. This is an ‘indirect’ support scheme that

39 For more information see www.bndes.gov.br

refinances operations performed by Accredited Financial Institutions.

Since its establishment the *Prosoft Empresa* has disbursed nearly US\$40 million. In 2006 alone the capital committed has amounted to some US\$9 million, for overall 15 operations, being some US\$600,000 per deal.

Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (SEBRAE)⁴⁰. SEBRAE is the Brazilian agency for the support of SMEs. It is a not-for-profit intermediate organization gathering around 350 national public and private institutions, including central and local Governments, business associations, educational and research institutions and other stakeholders. SEBRAE was established in 1972, and to date can count on nearly 600 offices spread in all 26 States of the Federation. There activities carried out by SEBRAE are aimed at creating a supportive environment for the numerous small businesses existing in Brazil, irrespectively of their sector of operation. For instance, its activities include: (i) the organization of training, seminars and other events; (ii) the promotion of entrepreneurship and of business associations; (iii) the organizations of fairs and exhibition; (iv) the elaboration of policies for SMEs; and (v) the provision of several other business services. SEBRAE is also deeply involved in the provision of financial support to SMEs. The entity entrusted with this type of activities is the *Unidade de Acesso a Serviço Financeros* (UASF). The SME financing projects supported by SEBRAE involve:

- *Risk capital* – SEBRAE sponsors several VC funds operating in the SMEs segment as for instance: (i) the local technology funds RSTec, SCTec, and SPTec administered by CRP; (ii) REIF; (iii) FUNDOTEC; (iv) Stratus VC; (v) MVP Tech; and (vi) Rio Bravo Nordeste. The total participation of SEBRAE in these funds is of nearly US\$20 million;
- *Microcredit* – support to MFI and credit cooperatives;
- *Credit guarantee schemes* – SEBRAE is the founder of the credit FAMPE (Fundo de Aval às Micro e Pequenas Empresas) which provides credit guarantees to SMEs (see below).

Credit Guarantee Schemes⁴¹. Brazilian SMEs often miss credit opportunities for lack of real guarantees

to offer to institutional lenders. To this end some credit guarantees schemes have been established by public sector financial institutions mainly in the second half of the 1990s. In particular:

- *FAMPE* (Guarantee Fund for Micro and Small Businesses) – Established in 1996 and managed by SEBRAE, FAMPE provides guarantees typically up to US\$40,000 (but in case of exporting firms and enterprises the limit is variable), on a maximum eight years term. Normally the guarantee can cover up to 50% of the value of the loan, but in some special cases the limit can be raised to 80%. There are four financial institutions having established a partnership with FAMPE namely *Banco da Amazônia*, *Banco do Brasil*, *Caixa Econômica Federal* and *Agência de Fomento de Goiás*. This entities act in practice as the Fund's agents as the decision to ask for FAMPE's guarantees is up to them.
- *FUNPROGER* (Guarantee Fund for the Creation of Employment and Income) – Created in 1999 by the Ministry of Work and Employment with resources from the Fund for Workers' Protection, it is currently managed by the Banco do Brasil. FUNPROGER has been designed to support the implementation of the PROGER Program—an initiative for the financing of development plans of SMEs, cooperatives, individual professionals and informal businesses. Guarantees can cover up to 80% of the loan value.
- *FGPC* (Guarantee Fund for the Promotion of Competitiveness) – FGPC started operations in 1999. The funds are provided by the National Treasury and administered by BNDES. The scheme is designed for exporting firms which benefit from some specific BNDES' lines of credit. Guarantees can cover up to 70% or 80% of the loan value depending on the type of operation. Over the past two year some 500 operations have been made for a total amount of nearly US\$50 million.

The three CGF illustrated above represent undoubtedly important instruments to facilitate SME financing, however their performances do not appear at the level of expectations. This is due to two main factors that can be summarized as follows: (i) all

40 For more information see www.sebrae.com.br

CGF leave the decision on the use or not of these instruments to the intermediaries (bankers). Therefore the evaluation of the creditworthiness of the would-be borrowers remains on the financing institution, which will apply its standard criteria; (ii) the public origins of funds could facilitate problems of ‘moral hazard’. Against this background new type of credit guarantee schemes are emerging, i.e. the Credit Guarantee Societies, which are mutualistic organization whose members are both lenders to and borrower from the CGF. This type of organization reduces the information asymmetries between the demand and the supply side of financing, therefore reducing the risk, and can evidently contribute to the mitigation of the moral hazard problem. The most advanced example of this kind is provided by the *Associação de Garantia de Crédito da Serra Gaúcha* (AGC), created in 2003 in Caxias do Sul. AGC is a joint project of SEBRAE, the Government of Rio Grande do Sul, the regional Chamber of Commerce and several municipalities. The initiative received technical assistance from some Italian partners, and financial support from IADB. AGC is not full operational yet, but it is

expected that over the first five years it will provide guarantees to some 4,600 micro and SMEs (with turnover below US\$7 million) for a total amount of some US\$50 million.

Ministry of Science and Technology. As seen in previous section the MST is extremely committed in the provision of incentives and economic support to innovative startups and would-be entrepreneurs through a series of financing measures and schemes. Most of these interventions are designed by the *Comitê da Área de Tecnologia da Informação* (CATI) and implemented by FINEP (*Financiadora de Estudos e Projetos*) and the CNPq (*Conselho Nacional de Desenvolvimento Científico e Tecnológico*), with resources provided by the CT-Info (*Fundo Setorial de Informática*). Some examples of these initiatives are provided in Table 5 below.

Recently the MST has announced a new commitment of nearly US\$70 million destined to small technology enterprises operating in the fields of biotechnology and ICT. The funds will co-finance at a variable extent the execution of specific R&D

TABLE 5. *Initiatives financed by the MST in the field of ICT*

Program	No of Project Supported	Total Amount Disbursed (in US\$ million)	Comments
<i>Fomento Empresarial em Tecnologia da Informação</i> <i>Categorias: Pré-incubação e Transferência de Tecnologia</i>	29	1.6	Program for the support to entrepreneurship in ICT: Pre-incubation level. Focused on public and private universities and research institutions. Managed by FINEP
<i>Fomento Empresarial em Tecnologia da Informação</i> <i>Categorias: Incubação e Graduação</i>	51	3.6	Program for the support to entrepreneurship in ICT: Incubation and Seed. Focused on private enterprises. Managed by FINEP
<i>Programa de Apoio à Capacitação de Recursos Humanos nas Empresas de Tecnologia da Informação – PAETI</i>	14	1.0	Program for the support to workers’ qualification for ICT firms. Managed by CNPq.
<i>Programa de Apoio à Pesquisa, Desenvolvimento e Inovação em Tecnologia da Informação – PD&I-TI</i>	38	9.0	Initiative in support of research centers active in the field of ICT. A joint program of FINEP, CNPq and SEPIN/MST.
<i>Programa de Pesquisa e Desenvolvimento para Capacitação de Pequenos Grupos Acadêmicos na Área de Tecnologia da Informação – PDPG-TI</i>	67	2.9	Program focused on academics carrying out R&D projects in the field of ICT. Managed by CNPq.
<i>Programa de Apoio à Pesquisa e Desenvolvimento Tecnológico em Software Livre</i>	59	2.8	Program in support of applied research for the commercialization of application developed in Free Software environment. Jointly launched by FINEP and CNPq.

project, under the form of non-reimbursable grants. The resources are destined to enterprises with annual turnover below US\$5.0 million and the value of grants will be of US\$150,000 on average. It is estimated that about 500 projects will be financed through this scheme over the next two years. This initiative, implemented within the framework of the Law of Innovation is the first of its species. Funds will be channeled as usual through the FINEP.

Fundo para o Desenvolvimento Tecnológico das Telecomunicações (FUNTTEL). The Fund for the technological development of telecommunications is

a financing scheme managed by the Ministry of Communications whose objectives are supporting innovation in the field of telecom and facilitating access to financing to technology SMEs operating in this area, and promoting research projects. In particular, risk capital financing instruments are being used in the case of SMEs operating in telecom sector to finance R&D and innovation projects. Funds are sourced from the FISTEL (the telecom fund managed by the regulating authority ANATEL) and from charges levied from the telecom operators income, and are managed by the two main public financial institutions FINEP and BNDES.



ANNEX D – LIST OF ENTITIES INTERVIEWED

D.1 BUSINESS INCUBATORS

RMI Rede Mineira de Inovação

- Christiano Becker

Instituto Generis PUC Rio de Janeiro

- Alberto Aranha

Programa para o Desenvolvimento da Indústria Nacional de Software e Serviços Correlatos

PROSOFT (BNDS)

- Mauricio Guedes – Director of the Incubator COPRE
- Gonzalo Guimaraes – Director Popular Cooperatives from the Incubator COPRE

D.2 FINANCIAL INSTITUTIONS

FUMSOFT

- Daisy Melo
- Mauro Lambert

Financiadora de Estudos e Projetos – FINEP

- Eduardo de Costa
- Ada Gonzalez

FIR Capital

- Christiano Moysès

Angel Investros from PUC (Pontificia Universidade Catolica)

- Ernesto Neber

Serviço Brasileiro de Apoio às Micro e Pequenas Empresas – SEBRAE

- Paulo Alvim – Technology Manager

D.3 ICT/ICTE ENTERPRISES AND BUSINESS ASSOCIATIONS

ICP

- Valeria Braga

LIGA

- Luiz Antonio Normanha

DR. SYS

- Alexander Prado

NEXT WARE

- Tulio Animi

MY SKY

- Uriel Santiago

INFO QUEST

D.4 PUBLIC INSTITUTIONS

Agencia Nacional de Telecomunicacoes (ANATEL)

Associação para Promoção da Excelência do Software Brasileiro (SOFTEX)

Fédération des PME/PMI Minas Gerais

Secretariat of Science and Technology Minas Gerais



ANNEX E – PROFILES OF SME FINANCING ORGANIZATIONS

PROFILE # 1 . BRAZIL – GP Investimentos

Salient Features

<i>Nature</i>	GP Investimentos is an asset management company running a series of equity funds (GP Capital Partners – GPCP, GPCP II, GPC III, and GP Tecnologia Fund), hedge funds (Petropolis Plus FI Multimercado) and real estate/mortgage backed funds (Aetatis I & II, GP Development FIP).
<i>Location</i>	GP Investimentos is headquartered in São Paulo, Brazil.
<i>Geographical Coverage</i>	GP Investimentos is a national scheme, with the intention to expand operations to other countries in the region.
<i>Establishment</i>	GP Investimentos was established in 1993. Investment operations started in 1994.
<i>Funding</i>	GP Investimentos is a private company. The source of capital of GP funds is varied and include international investors (e.g. AIG Investment Corporation, Capital Group), IFIs (e.g. IFC), and local investors. Since its inception GP has managed total funds in the order of US\$1.6 billion, making GP one of the largest venture capital operations in Latin America. GP Tecnologia has a total capital of about US\$40 million. In 2007, GP announced the closing of its GPCP IV fund, with a capital of US\$1.0 billion.
<i>Investment Policy</i>	GP Investimentos investments are made by way of short and long-term private equity. While in the initial phases GP funds were open also to early stage financing, recently the focus is strictly on mature enterprises with annual revenues above US\$50 million. Apart from finance, it provides networking, strategic and marketing management support and technical assistance as well, with the objective to make the company grow rapidly. GP Tecnologia is largely focused on internet and technology sector. Other funds have no specific sector orientation and invest in all lines of business.
<i>Operations</i>	GPCP, GPCP II, and GP Tecnologia are in the harvest phase. Of the 30 deals financed 27 have been divested fully or partially, while three are still in the portfolio. The GPCP III fund has invested so far in 6 companies.

Other information

- GP Investimentos invests in growth and late stage companies with strong commitment to the country (Brazil) and Latin America. Beside ICT/ICTE GP also invests in retail, commerce, entertainment, real estate and transportation and logistic businesses. Financial structuring is done on a case-to-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 strategic and marketing management of investee companies, believed to be an essential condition for adding value to financial investments.
- The earlier GPCP and GPCP II fund totaled some US\$1.3 billion, the GP Tecnologia fund raised the equivalent of some US\$75 million, while the most recent fund GPCP III, launched in 2006, has closed with US\$250 million of committed capital.

Sources on the Web

- Website: <http://www.gp.com.br/english/index.asp>

PROFILE #2. BRAZIL – CPR

Salient Features

<i>Nature</i>	CRP is a fund management and financial advisory company, currently managing five venture capital funds, namely: (i) CRP fund, (ii) CRP Caderi fund, (iii) RSTec fund, (iv) SCTec fund, (v) SPTec fund; (vi) CRP VI Fund.
<i>Location</i>	CRP fund is headquartered in Porto Alegre, Brazil.
<i>Geographical Coverage</i>	Initially, CRP funds operated in its home region (Rio Grande do Sul) but activities have gradually expanded to other regions in Brazil.
<i>Establishment</i>	CRP was established in 1981.
<i>Funding</i>	CRP is a private organization, established by Ary Burger, widely regarded as the pioneer of the venture capital industry in Brazil. The capital of investment funds managed by CRP is provided by private organizations, other venture capital companies, (Brazilian and international) banks, public sector financing institutions and IFI (Inter-American Development Bank group and IFC). The size of CRP and CRP Caderi funds (which have been fully invested) is not known. The more recent RSTec, SCTec, SPTec funds have resources in the order of US\$5 to 10 million each. CRP VI Fund has a capital of some US\$30 million.
<i>Investment Policy</i>	CRP funds provide early stage financing, typically in the form of minority equity participations or of convertibles bonds. Typical investments are in the US\$100–500,000 range, except for CRP VI Fund which invests some US\$1.0 million since the first round. CRP supplements the provision of financing with extensive hands-on management support to investee companies and post-investment assistance. Earlier CRP funds (CRP proper and CRP Caderi) had no sector orientation, although there were cases of investments in ICT. The funds of the 'Tec' series are specifically targeting high tech and innovative firms, with a strong orientation towards ICT/ICTE businesses.
<i>Operations</i>	CRP has administered and realized more than sixty investments in companies to date. The current portfolio includes 23 companies, of which at least 15 can be regarded as ICT/ICTE.

Other information

- In the early days CRP investors were private owned companies and development banks operating in southern Brazil. Over time, CRP has been joined by international investors such as Inter-American Investment Corporation and International Finance Corporation. The list of investors in CRP funds is provided in Annex C.
- CRP typically invests in locally registered, private companies. The investments are made through the underwriting by the funds managed by CRP, of convertibles bonds or stock emitted by the investee. Its activities have spread from the South of Brazil to the other regions of the Country and South America, though concentrating preferably in the Southern Cone.
- CRP funds operate on a strictly commercial basis and its investors search for investment opportunities that can yield significant gains, over 25% a year. Therefore, applicant companies' selection and appraisal for investment are rigorous.
- Examples of investments in ICT businesses:
 - NUTEC/ZAZ** – Software manufacturer located in Porto Alegre and founded in 1987. CRP Caderi invested in Nutec in 1991 US\$280,000, acquiring 16% of the voting shares equities. At that time, Nutec developed UNIX platform applications and was the Brazilian market leader. It sold 6,000 copies of its main software, N'Office. In 1991, its revenues came to US\$450,000. Since 1994, Nutec has turned to the Internet market and has become one of the largest access providers in Brazil. The owners and CRP sold their shares in 1996 to RBS Group for US\$1,060,000. After three years, Nutec became part of Terra Networks group, after being sold to Telefónica de Espanha.
 - DIGITAL ELECTRONIC INDUSTRY** – Manufacturer of equipment for data communications located in Porto Alegre and founded in 1978. In 1985, CRP made an investment representing 23% of Digital's capital. The company's revenues went from US\$2.8 million in 1984 to US\$38 million in 1998 making the company the market leader in Brazil and an exporter to several countries including the USA. CRP became Digital's shareholder and, afterwards, coordinated the entrance of other institutional investors such as Arbi, Citibank and Investec (Brasilpar), and BNDSPAR. CRP sold its participation in 1996.

Sources on the Web

- Website: <http://www.crp.com.br/>
- Website SPTec: <http://www.sptec.com.br/>

PROFILE #3. BRAZIL – ECCELERA

Salient Features

<i>Denomination</i>	ECCELERA
<i>Nature</i>	ECCELERA is a fund management company, providing long-term financing through venture capital and network of equity funds.
<i>Location</i>	ECCELERA is headquartered in São Paulo, Brazil.
<i>Geographical Coverage</i>	ECCELERA investment operates in Latin America and to a lesser degree in Spain and Portugal.
<i>Establishment</i>	ECCELERA was established in 2000 as the technology holding of the Cisneros Group of Companies (Venezuela).
<i>Funding</i>	The capital under management by ECCELERA is mainly provided by the Cisneros Group of Companies which is funding partner and strategic anchor. Other investors include the Brazilian National Development Bank, Finep and Sebrae.
<i>Investment Policy</i>	ECCELERA provides early stage and expansion financing, typically in the form of venture capital and equity participations. ECCELERA invest in different types of ventures, including: (i) start ups, or companies that are not yet operating in the market but that have innovative ideas or leverage new technologies; (ii) established companies that are looking for an opportunity to accelerate their path to success; (iii) companies that already have strong local operations and are looking to expand beyond the region; and (iv) international companies looking to start operations in Latin America. Transactions are normally in the US\$1.0 to 2.0 million. The provision of capital is supplemented with extensive support as regards management and development strategy. ECCELERA specifically targets technology based companies, with several operations in ICT/ICTE sector.
<i>Operations</i>	Since inception it has made approximately 50 investments.

Other information

- ECCELERA was established in 2000, as a private investment company by the Cisneros Group of Companies (Venezuela) holding. The Cisneros Group of Companies is active in the Telecommunications, Media, Entertainment and Internet Industries. With revenues of US\$4 billion in 2000, the Cisneros Group is at the forefront of these sectors in Latin America.
- Unlike other venture and equity investors, ECCELERA extends significant pre and post investment support to investee companies, in the form of hands-on technical assistance, network development activities (i.e. identification of clients, suppliers, etc.) and training. Assistance is provided directly by company management teams on a day-to-day basis. Each investee is supported by two Business Directors, which provide strategic guidance and various business advices.
- Examples of investments in ICT business include:
 - **Impactools**: supplier of technology solutions to the financial industry (banks, insurance companies, and pension funds) based in São Paulo. Impactools was established in 1997 and enter ECCELERA's portfolio in mid-2000.
 - **Aberium Systems**, offers professionally IT and Internet solutions based on open source software platforms to the corporate world. The company has received US\$1 million in funds from ECCELERA in 2001.

Sources on the Web

- Website: <http://www.eccelera.com>

PROFILE #4. BRAZIL – *Decisão Gestão de Fundos*

Salient Features

<i>Denomination</i>	Decisão Gestão de Fundos (DGF)
<i>Nature</i>	DGF is a risk capital and private equity funds manager firm. Since 2001 DGF administer the REIF – Returning Entrepreneur Investment Fund, an investment scheme for emerging Brazilian SMEs.
<i>Location</i>	DGF is headquartered in São Paulo.
<i>Geographical Coverage</i>	DGF operates nationwide.
<i>Establishment</i>	DGF was established in 2001.
<i>Funding</i>	The DGF-administered REIF is funded by: (i) IADB / MIF (50,0%); Banco Sudameris (18,2%); Sebrae Nacional (25,0%); Sebrae SP (6,8%). The total capital under management is of some US\$ 10 million. DGF is currently raising capital for a second fund – denominated DGF Tech Fund, which will have a projected corpus of US\$ 6.5 -9.0 million.
<i>Investment Policy</i>	DGF mainly focuses on SMEs. Its mandate provides that 75 percent of investments should focus enterprises with annual sales below US\$5.0 million. DGF does not operate though at seed stage but preferably with firms ready to debut on the market or already commercializing their products. Other favourable items are a strong growth potential and an orientation to export. The REIF is a generalist scheme addressed to innovative firms but de facto, ICT/ICTE and hi-tech companies account for the major part of the activities. In terms of deal size, the maximum investment allowed is of US\$1.0 million, and the share of participation must be below 50% of the investee's total assets. DGF's financing instruments include the purchase of ordinary shares, redeemable debenture, warrants and other quasi-equity instruments. Possible exit strategies include IPO, strategic sale, MBO. The targeted IRR is of 30 percent p.a.
<i>Operations</i>	So far, DGF has invested in 11 enterprises out of which 8 are active in the ICT/ICTE sector.

Other information

- Beside the administration of the REIF, DGF is also active as a financial advisory firm. In this capacity, DGF carries out operations such as: (i) company financial assessments; (ii) business value analysis; (iii) structuring of business and financial plans; and (iv) business intermediation.
- The REIF's funders are:
 - Multilateral Investment Fund (MIF)** – created in 1993 by IADB with a capital of US\$1.3 billion. Through the MIF, IADB aims at supporting small investment project throughout Latin America and Caribbean.
 - Banco Sudameris** – part of the large Sudameris Group, Sudameris Asset Management is one of largest of its kind in Brazil with a corpus of some US\$4.0 billion. In 2003, it was acquired by ABN AMRO.
 - Sebrae Nacional** – The Sebrae (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas), is the national agency for the support and promotion of micro and small enterprises. It is organized as a non-profit organization, formally independent from the State administration.
 - Sebrae-SP** – this is the local chapter of Sebrae Nacional active in the State of São Paulo. Although it is a part of the Sebrae Nacional, it enjoys a wide autonomy from the central institution.
- Some examples of ICT/ICTE deals financed under REIF:
 - Neovia** – established in 2001 it is a data network operator which adopts wireless technology to provide access to broadband internet for residential and corporate clients.
 - Direct Talk** – emerged from the fusion of two small software companies, it is currently involved in the development of solutions for customer relations through chat, e-mail and voice.
 - Bry Tecnologia** – created in 2001, it focuses on electronic security solutions. In particular, it is involved on items such as digital certification, e-identity, and protection of digital documents.
 - Image Technology** – a typical software development and IT solutions company, with a vast range of solutions e.g for business intelligence and E-training.
 - Rede Camp** – established in 1991, the company operates mainly in the field of mobile-based products and services with two main lines of business: (i) security tools for personal properties enabled with mobile technology devices; (ii) mobile and fixed-phone interfaces for internet navigation, fax sending etc.
 - DH&C** – founded in 2000, is one of the leading BPO providers of Brazil. It operates both for national and international clients and has 70 employees.

Sources on the Web

- <http://www.dgf.com.br/>

PROFILE #5. BRAZIL – FIR

Salient Features

<i>Denomination</i>	FIR Capital Partners
<i>Nature</i>	FIR Capital Partners is a venture capital firm which invests in technology-driven companies at early and expansion-stage.
<i>Location</i>	FIR is headquartered in Belo Horizonte, Brazil.
<i>Geographical Coverage</i>	FIR invests almost exclusively in Brazil.
<i>Establishment</i>	FIR was established in 1999.
<i>Funding</i>	FIR is a private scheme. The capital is provided by 14 limited partners. The most recent initiative launched by FIR, the Fundotec Fund, closed with a capital of US\$ 10 million.
<i>Investment Policy</i>	FIR provides early stage and expansion financing (especially Fundotec fund). FIR's investments range in size from as little as US\$100,000 to as much as US\$1–3 million. Typically, FIR invests US\$300,000 to US\$1 million initially and expects to invest US\$ 1 to 2 million over the life of the investment. FIR supplements the provision of financing with extensive strategic, tactical and operational hands-on management support to investee companies. FIR funds have specific orientation and focuses on information technology, life science and bio-medical technology companies.
<i>Operations</i>	FIR Capital's portfolio includes some 20 companies, a couple of which already successfully exited. ICT/ICTE companies represent half of the portfolio.

Other information

- The ICT/ICTE portfolio of FIR includes the following enterprises:
 - MINER** – created in 1997 by a group of students and professors from the Federal University of Minas Gerais, MINER is an advanced Internet search engine. In 1999, MINER was acquired by Universo Online (UOL), Brazil's largest Internet service provider, for a two-digit multiple of the initial investment.
 - Akwan Information Technologies** – this is an internet research tool for Brazil-based searches. Akwan has been later acquired by Google.
 - Escol@24Horas** – based in Rio de Janeiro, this is an e-learning portal and a developer of education contents for the web.
 - Syst** – a software development firm which provide applications operating with Metasys technology—a system that allows to use Windows and Linux operating system at the same time on the same machine.
 - ISM** – pioneer of internet access for corporate clients, ISM is currently specializing on solution for the mangement of internet contents.
 - Leme Informática** – this is a firm operating in the healthcare vertical, providing resource management solutions and other application for healthcare institutions.
 - Meantime Mobile Creations** – a value-added services provider, specializing on information and entertainment. It is based at C.E.S.A.R. – Centro de Estudos Avançados do Recife.
 - Most** – operates in the field of database management solutions, developing tools for commercial enterprises for the remote information exchange with the sales force through palmtops.
 - Newstorm** – based in Recife, this is an software developer which specializes on content management systems.
 - Smart Price** – a software company whose activities include vast range of solutions for e-transactions including e-commerce, auction on-line, brokerage etc.

Sources on the Web

- Website: <http://www.fircapital.com/>



ANNEX F – PROFILES OF ICT/ICTE SME

INFOQUEST INFORMATICA LIMITADA

Operations

Established in 1998 and located in Belo Horizonte in the State of Minas Gerais, the company operates in the software services sector and specializes in applications for palm devices. It produces software for mobile phones in three areas: (i) marketing; (ii) business and (iii) media. The company was initially settled in an Incubator that offered various facilities. Currently, it counts on a team of 7 members.

Financing

The company has reached annual revenue of some R\$1.5 million.

In the start up phase, *Infoquest* financed its operations with the owner's own savings and further on by using revenues from sales. As already mentioned, being located in an Incubator translated in a number of facilities, considering that the company had only to afford the staff costs and thus operations were sustainable. When the firm had to leave the Incubator and cope with higher costs, profits declined. At any rate, as it was doing quite well there was no need for external funding, thus neither bank loans, nor venture capital were considered. External financing was not considered even when the company started to grow and had to make investments to increase the production scale. According to the interviewee, as they did not want to lose the full control on management they preferred reducing the staff (from 20 to the existing 7 employees) rather than asking for external funding. Currently, *Infoquest* is estimated to have some 10% of the

market share and its main aim is to become the 7th company of the sector in terms of sale. In order to reach this objective it would need an investment of approximately R\$ 5–6 millions and the proprietorship is more inclined to look for a bank loan from the BNDS, rather than addressing to VC funds. Anyhow, considering the intangible nature of its services, the company is aware that access to credit might be very difficult.

Comments

- *Infoquest* is a small, but fast growing and dynamic company, which till now preferred to stay small. Difficulties in accessing bank loans and reserved attitude towards VC funds (mainly due to lack of information concerning the opportunities it could offer in terms of growth and expansion) have obviously had a determinant role in its life cycle.
- The firm was initially born in an Incubator. Besides other facilities, this also provided a good image, recognition and visibility in the market. But still this was not enough to attract external financial funding. The interviewee thinks the model of Incubators, in general, lacks financing resources to support the firm growth.

LIGA

Operations

The company was created in 1995 with the founder having previous experience in the computing science sector. Initially *Liga* was developing and offering software products for administration issues in the health sector. In a second moment, to better exploit the potential of the market, the company modified its final product and began elaborating devices for the connection between electronic instrumental and PCs, always in the health sector. The device generates a flow of information managed directly by the machine without the intervention of personnel, who is only in charge of the monitoring process. This resulted a very successful operation and helped *Liga* quickly expand its clientele and as a result the revenues.

Financing

Since its establishment, the company has only counted on the founder's own financial resources to cope both with operational and patent costs. The owner has tried to access bank financing, but due to very high interest rates and to the fact that in case of a positive answer, the bank would have owned 50% of the property rights, the tentative were not successful. The company was also contacted by an Investment Fund, but the deal was never concluded, because the owner did not want to loose the control of the company and saw the excessive lucrative aim of the fund as a negative factor.

The need for external financing remains determinant for the company's growth. According to the interviewee, they need to develop a commercial unit and expand the personnel dedicated to R&D activities. This would also translate in further costs to enlarge the working premises and set up a certification process for their products. The company also needs external consultancy to elaborate and improve the strategic plan and visibility in the market. Considering the difficulties of bank credit, the entrepreneur is thinking of developing *ad hoc* software products, tailored on the specific needs and requirements of clients. This would permit to limit the costs due to the competencies the firms already has and assure an extra profit source. The company is also preparing in collaboration with other firms a project to be presented to the FUMSOFT in order to enter the CCOMP program (*Centro de Competencia FUMSOFT em MPS.BR e CMMI*). In this case, the company would have access to certifications which in the market place have a higher cost by paying only R\$30,000.

Comments

- The company has experienced operating under an incubators' umbrella and has benefited of support and facilities in many aspects. According to the interviewee, the missing point in the services an incubator offers is assistance in accessing financing sources.
- The company pointed out the difficulties and failed tentative to access bank credit. On the other hand, the owner accepts his own limits in understanding and considering the possibility of venture capital as a successful mean for the company's growth.

NEXT WARE

Operations

The company was established in 1999 in Belo Horizonte as a result of a market research on the ICT market. According to the study, e-business services demand was growing at a sustained rate in Brazil and the newly created market had enormous growth potentials. Anyhow, mainly due to the lack of an e-commerce culture in Brazil, the business was not successful as expected, thus in 2002, with the assistance of a business incubator, the company changed the final output and started developing internet solutions according to the specific, *ad hoc* requests of the clients. Since the Brazilian software industry also lacks qualified human resources, *Next Ware* has also developed a spin-off dedicated to the implementation and organization of training courses during which products developed by the company are used.

Financing

The company was financed by the owner's private investments as well as the support of FUMSOFT and the CNPq (*Centro Nacional do Pesquisa e Desenvolvimento*) which offered scholarships for researchers.

Currently, the main financial source of the company is the clientele. The growth strategy is founded on alliances to develop value added projects.

MY SKY

Operations

Originally established in 1992 in Bello Horizonte for the development of computer graphic applications, the company has changed many times its business orientation (e.g. in 1999 began to work on internet tourism services and developed a spin off for internet games; in 2000, in the framework of an incubator, started developing software products for hotels). Finally, since 2001, after ending up the previous activities, and including three PhD students in the core team, the company is oriented towards the elaboration of software solutions for the aircraft sector. The main clients are VAS Providers. The company also has some foreign clients in Angola and is working on

various requests for companies in Croatia and Florida.

Financial

The company started the activities with financing from the founder's own savings. Nevertheless, over the years it has received financial support in many occasions: (i) from Finep (R\$100,000 for the development and commercialization of its products and for hiring of human resources); (ii) FAPEMIG (R\$150,000 for the development of the internet system); (iii) CNPq (R\$40,000 for additional high specialized human resources).

To date it has also received assistance from the IEL (*Instituto Euvaldo Lodi* from the Chamber of Industry of Minas Gerais) and is working on two funding requests addressed to Finep (*Programa Juro cero*) and SOFTEX for support to exports (first translations, commercial missions, etc).

Comments

- The company is well positioned and has very good growth potentials in the domestic market. Currently, it is working to expand and be competitive in the foreign market, as well. In order to gain international visibility, *My Sky* is preparing a business plan for VC Funds as FIR.
- According to the interviewee, they have had two offers from foreign companies (from Argentina and France) for the acquisition of the company but since the conditions were not favorable, the deal failed.
- The company participated to a Venture Capital Forum organized by Finep that aimed at providing financial support to a group of selected firms, but could not pass to the second round of the selection phase.

DR. SYS

Operating

The company was established in 1995 as a result of the collaboration between two university students from Minas Gerais University and a professor from the Entrepreneurship Training Program. While doing a business plan for the course on entrepreneurship, they elaborated a programming tool that

resulted to be very attractive if developed in a proper business.

In 1996, *Dr. Sys* entered the Incubator of FUMSOFT and a couple of years later it developed the first successful product: a tool for business management. In 2000, the company split and the property rights of its software product were sold to another firm. The original founders then teamed up with a professor from the University of Minas Gerais and developed a new product: a software tool for the redaction of business plans.

This is actually the main product of the company accounting for 15,000 licenses in ten different countries. Currently, the company is working for the development of a new project on e-learning with the support of Finep and FUMSOFT.

Financing

The company financed its initial operations with the owners' private resources, and the financial cycle was as follows:

- Own savings
- Sales of the first products
- Development of new products
- Creation of the new business and new clients
- Growth capital coming from public programs

The firm has a very conservative financial management. According to the interviewee, the company would need external financing, but is not interested either in bank loans, or VC funds. The owners judge the latter as very conservative in evaluating the business and aggressive with the negotiation about the participation in the company. If they could choose, they would definitely prefer an Angel Investor, because they are considered more open to innovations and less aggressive concerning conditions related to the company's management.

Comments

- Small, but very innovative company that has preferred to stay small
- In case it decided to expand, it would preferably join a new venture with other small companies in order to develop big projects, it would not be capable of managing otherwise.

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.

For more information visit www.infoDev.org or send an email to infoDev@worldbank.org

