

## **Cooperative Research and Development Project between FUB/CDT and TERRACAP**

Technical and Economic Feasibility Study for  
Digital Capital Technology Park  
[Parque Tecnológico Capital Digital – PTCD]

### Product 5.5 – Marketing and Commercialization Plan

Clearance by University of Brasilia:

Date:

\_\_\_\_/\_\_\_\_/2012.

Acceptance by Terracap:

Date:

\_\_\_\_/\_\_\_\_/2012.

**Prepared by:**

**University of Brasilia – UnB**

**Technology Development Support Center – CDT**

**Laboratory for Decision Making Technologies – LATITUDE/UnB**

**FEDERAL DISTRICT GOVERNMENT**

**Agnelo dos Santos Queiroz Filho**  
Governor

**Tadeu Filippelli**  
Vice Governor

**Antonio Carlos Lins**  
President of Terracap

**José Humberto Matias de Paula**  
Director of New Ventures Office – Dipre/Terracap

**TECHNICAL TEAM**

**Christiane Freitas Nóbrega de Lucena**  
**João Alberto Legey de Siqueira**  
**Patrícia Mussi Sarkis**  
**Renato Castelo de Carvalho**  
**Rossini Dias de Souza**

**UNIVERSITY OF BRASILIA**

**José Geraldo de Sousa Júnior**  
Rector

**Luiz Afonso Bermudez**  
Director of the Technology Development  
Support Center – CDT

**Rafael Timóteo de Sousa Júnior**  
Coordinator of the Laboratory for Decision  
Making Technologies – LATITUDE

**TECHNICAL TEAM**

**Alexandre de Souza**  
**André Noll Barreto**  
**Andréia Campos Santana**  
**Ararigleno Almeida Fernandes**  
**Daniel Correia de Brito**  
**Daniel France Valadão**  
**Divanilson Rodrigo Campelo**  
**Edna Dias Canedo**  
**Egmar Rocha**  
**Fábio Lúcio Lopes Mendonça**  
**Flávio Elias Gomes de Deus**  
**João Paulo Carvalho Lustosa da Costa**  
**Jonathans Viana Oliveira**  
**Jorge Jaeger Amarante**  
**José Carneiro da Cunha Oliveira Neto**  
**José Renato Vieira da Silva**  
**Marcelo Pontual**  
**Márcio Mariano Lisboa**  
**Oswaldo Joaquim de Souza**  
**Rafael Timóteo de Sousa Júnior**  
**Renato Alves Borges**  
**Robson de Oliveira Albuquerque**  
**Saulo Daniel Monteiro Anacleto**  
**Ugo Silva Dias**  
**Valério Aymoré Martins**  
**William Ferreira Giozza**

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.2/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>5</b>
<b>2</b>	<b>SITUATION ANALYSIS.....</b>	<b>7</b>
2.1	GLOBAL LEVEL SITUATION .....	7
2.2	THIRD GENERATION SCIENCE AND TECHNOLOGY PARKS.....	9
2.3	THE REVOLUTION OF ICTS AND THE TECHNOLOGY PARKS.....	11
2.4	THE IMPACT OF TECHNOLOGY PARKS IN EMPLOYMENT GROWTH .....	13
2.5	SITUATION IN NATIONAL LEVEL.....	14
2.5.1	<i>Alfa Technology Park – PARqTEC ALFA .....</i>	<i>14</i>
2.5.2	<i>Bio-Rio Biotechnology Pole – Polo Bio-Rio.....</i>	<i>16</i>
2.5.3	<i>Porto Digital.....</i>	<i>18</i>
2.5.4	<i>Technology and Science Park of PUC/RS - TECNOPUC .....</i>	<i>19</i>
2.5.5	<i>UNIVAP Technology Park - PqTecUniVaP .....</i>	<i>22</i>
2.5.6	<i>Sao Jose dos Campos Technology Park – PqTecSJC Campos .....</i>	<i>23</i>
2.5.7	<i>Sapiens Park .....</i>	<i>25</i>
<b>3</b>	<b>SCENARIOS.....</b>	<b>28</b>
3.1	TECHNOLOGY DEVELOPMENT SCENARIOS.....	31
3.2	BRAZILIAN SCENARIO.....	31
3.3	LOCAL SCENARIO .....	33
3.3.1	<i>Training and Human Capital.....</i>	<i>33</i>
3.3.2	<i>The Economy of the Federal District .....</i>	<i>35</i>
3.3.3	<i>Population .....</i>	<i>36</i>
3.3.4	<i>Influence Areas .....</i>	<i>36</i>
3.3.5	<i>Short and Medium Term Investment Opportunities .....</i>	<i>37</i>
3.3.6	<i>Credit Incentives .....</i>	<i>38</i>
3.3.6.1	Constitutional Financing Fund for the Midwest.....	38
3.3.6.2	Machine and Equipment Financing.....	38
3.3.6.3	Pro-DF Program for Economic Development Areas.....	39
3.3.7	<i>Fiscal and Tributary Incentives .....</i>	<i>40</i>
3.3.7.1	FIES Tax Financing (BRB) .....	40
3.3.7.2	Greater Brazil Plan .....	40
<b>4</b>	<b>SALES/DISTRIBUTION.....</b>	<b>42</b>
4.1	APPLIED MODELS .....	43
4.1.1	<i>Innovative Enterprise Models .....</i>	<i>44</i>
4.2	MATURITY OF THE REAL ESTATE MODEL .....	44
4.3	INNOVATION SYSTEMS AND ROLES OF THE UNIVERSITY.....	45
4.4	PROPOSED MODEL FOR THE CAPITAL DIGITAL TECHNOLOGY PARK .....	46
<b>5</b>	<b>STRATEGIC MARKETS .....</b>	<b>47</b>

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.3/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
 É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

5.1	LARGE COMPANIES.....	47
5.1.1	<i>Foreign investment</i> .....	47
5.2	STARTUPS.....	48
5.3	VENTURE CAPITAL FUNDS.....	49
5.4	UNIVERSITIES AND RESEARCH CENTERS.....	50
<b>6</b>	<b>MARKETING STRATEGIES - ACTION PLANS .....</b>	<b>52</b>
6.1	POSITIONING.....	52
6.1.1	<i>Positioning Strategies</i> .....	54
6.2	PRICING.....	55
6.2.1	<i>Pricing Strategies</i> .....	56
6.3	LOCALIZATION.....	57
6.3.1	<i>Geopolitical Situation</i> .....	58
6.3.2	<i>Localization of the Capital Digital Technology Park - PTCD</i> .....	59
6.4	PRODUCTS/SERVICES.....	63
6.4.1	<i>Physical space;</i> .....	63
6.4.2	<i>Telecommunications</i> .....	64
6.4.3	<i>Shared spaces;</i> .....	65
6.4.4	<i>Customs clearance unity;</i> .....	65
6.4.5	<i>Surveillance and security</i> .....	65
6.5	PROMOTION.....	66
6.5.1	<i>Brand and Portal</i> .....	66
6.5.2	<i>Promotion Windows</i> .....	66
6.5.3	<i>Space-Time Guidelines in Advertising the Project</i> .....	67
6.5.4	<i>Printed and Digital Material</i> .....	68
6.5.5	<i>Roadshow</i> .....	68
6.5.6	<i>Article Publishing</i> .....	68
6.5.7	<i>Advertising on Television</i> .....	69
6.5.8	<i>Social Media</i> .....	69
<b>7</b>	<b>MARKETING STRATEGY MANAGEMENT .....</b>	<b>70</b>
7.1	STRATEGIC CONTROL.....	70
7.1.1	<i>Creed System</i> .....	71
7.1.2	<i>Limit System;</i> .....	72
7.1.3	<i>Diagnostic Control System</i> .....	72
7.1.4	<i>Interactive Control System</i> .....	72
<b>8</b>	<b>CONCLUSION .....</b>	<b>73</b>
	<b>REFERENCES .....</b>	<b>76</b>

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.4/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

## 1 INTRODUCTION

The Companhia Imobiliária de Brasília (Terracap), created under the law nº. 5.861, in December 12 1972, is a corporation that belongs to the Federal District Government. Governed by the law that created it, by means of the institution's social statute and by the legislation applicable to the societies by actions, Terracap aims at executing, by means of payment, all real state activities interest to the Federal District, including the use, acquisition, management, disposition, merger, encumbrance and disposal of assets.

According to law nº 4.586 of July 13, 2011, Terracap started to also play the role of the Federal District's Development Agency, by means of proposal, operationalization and implementation of economic and social development programs and projects interest to the Federal District, being even able to promote agreements between the public and private sectors, constitute Special Purpose Entities (SPE) and promote joint urban operations to implementation and development of enterprises considered strategic by the Federal District Government. In this context, Terracap is an important vector of public politics that are defined in the programs, which are being implemented by the current Federal District Government, especially when it refers to the Digital Capital Technology Park - PTCD.

Having in mind a cooperation among FUB and the Union's Assets Department – SPU, the Ministry of Planning, Budget and Management, which has been on since January 2009, with the coordination of the Decision-Making Technologies Laboratory – LATITUDE, UnB's Department of Electric Engineering, by means of three structuration projects of processes, methodologies and SPU's management tools, Terracap verified that the approach used in handling the Union's assets could be extended and applied to the District's assets, especially concerning the PTCD project management.

Besides that, the topics concerning the strategies of the PTCD implementation were approached in UnB's early studies, demanded by the GDF (Project FAPDF-FUB, 2008), giving conditions to subject PTCD management be handled with previous knowledge of the matter. Such experience gives support to the participation of the body the LATITUDE laboratory professionals in this new situation, considering still that the PTCD is an Information and communication technology park and in its feasibility study it will be necessary to bring answers to questions such as: types and size of ICT that can integrate the park, types of services and products of major potential, productive capacity,

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.5/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

necessities and existence of professional competencies (electric engineers, network engineers, computational engineers, production engineers, automation and control engineers, computer scientists, information engineers and technologists), academic unities able to research, innovate and transfer technologies to the park, etc.

Thus, and considering CDT/UnB's extensive experience in elaborating the studies on technical and economic feasibility (EVTEC), Terracap and the LATITUDE Laboratory, counting with the support of CDT/UnB, started talking about the possibility of putting the cooperative research and development project in practice; and, in the context of improving the district assets management and promoting strategic enterprises for the Federal District, looking forward to put the EVTEC in practice in reference to the PTCD.

As a result, it was established a contract between Terracap and FUB, having as object a technology and information services project that aims at supporting the implementation of the PTCD, acting in the elaboration of products that make part of the correspondent Technical and Economic Feasibility Study.

Among the deliverable products of this project, the “Product 5.5 – Marketing and Commercialization Plan Elaboration” is the object of this technical report.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.6/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

## 2 SITUATION ANALYSIS

Aiming at an adequate definition of the PTCB's marketing and commercialization guidelines, it's paramount to know the situation of the Technology Parks within the global knowledge economy and identify how the second and third generations of parks differ from its precursor.

### 2.1 GLOBAL LEVEL SITUATION

Reaching major expectations generated from creating Technology Parks worldwide still lacks systematic measuring. Similarly, it is still necessary to analyze whether the developing countries are right about the hope with which interventions of such nature will be able to generate innovation and creation of wealth.

Traditionally the word "park" used to bring to mind of people images of squares, flowers and gardens, of birds and animals, of amusement park and formal and informal sports park. However, the concept of park has evolved and extended so to include other significant themes of human life, particularly themes related to absorbing new technologies and its economic and social employment.

The concept now includes amusement parks, business parks, biotechnology parks, technology parks, and science parks. In sum, science, technology and, in fact, knowledge itself, emerged as priority themes to the parks.

Maybe the first signs of this evolution have appeared when the world of knowledge (universities) and the world of work (industry and trade) started to interact and converge. Both world, during centuries, existed in opposite extremes of a spectrum": The academy was a world of lofty and noble ideas which barely hid their despise towards the world of trade and its concern with material wealth.

The XIX century, with the industrial revolution triggered in Great Britain, some people started to make fortunes in cotton and steel companies. These citizens started to help financing the creation of universities in towns such as Manchester and Sheffield. These institutions started to integrate as much attention to education and researching as to the local industrial base, but they kept being exceptions. It was then just a century later,

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.7/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

in the second half of the 20th century, that the university-corporation partnership started to have a real impact on the higher education discourse.

In fact, the bridge between theory and practice was included in the core of the discourse. As it is known, theories evolved from practices and applications of value came from theories. However, it remained an implied assumption that the people involved in the world of theories were intellectually superior to the practioners. But, in the middle of last year, some great universities encompassed an innovative idea: They invited major industries interested in developing promising ideas.

What we currently conceptualize as Technology Park has its origin in the beginning of the 50's, when *Stanford Research Park* (1951) and the *Business Cornell & Technology Park* (1952) were inserted in the United States.

Such actions permitted academic institutions to continue engaged in cutting-edge research, as well as to promote technological applications in partnership with companies, which without a doubt, in case they opted to do it alone, it could be considered as a risky enterprise.

This innovative concept of “park” launched the bases to creating a legendary Silicon Valley: today, the *Stanford Research Park* hosts more than 140 companies in the areas of electronics, software, biotechnology and other fields of high technology, and employs over 23,000 people.

Thus, the Technology Parks started to represent a symbiotic relation between the academic and industrial world, offering industry the opportunity of relationship with some of the best research institutions in the world. Symmetrically, the science parks creators expected to include in such parks some companies created by local scholars so they could explore businesses coming out of their research.

The 70's witnessed the growth of the Technology Parks located in the UK universities, such as Heriot-Watt e Cambridge (1972). Until the end of the 20th century, the Cambridge Science Park hosted 64 companies and employed 4,000 people. They also stimulated the growth of a group of 1,200 companies that employed about 35,000 people in the 90's.

The extension of such phenomenon to the world, along with the rise of new ways of organization and management styles, brought to life a new generation of technology parks to the 21<sup>st</sup> century.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.8/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

## 2.2 THIRD GENERATION SCIENCE AND TECHNOLOGY PARKS

Annerstedt e Haselmayer (2004) classified parks in first, second and third generation.

The “first generation” began in the 60’s, inspired by Stanford University and the American universities. The first generation follows the pattern of university extension, which includes company incubators for startups, services for companies and innovation with academic research resulting technologies. The philosophy of innovation is defined as science push. These parks are deliberately separated from the urban context and are located in a specifically projected zone.

The “second generation” parks, according to Annerstedt e Haselmayer (2004), kept as an extension of the university (or research institutes). However, decisive energy comes from businesses, interested in the creation and growth of innovation-based companies. The park managers offered a mix of services and high-quality structures. These parks employ a philosophy called market pull and, because of that, they are not much worried about the initial exploration of scientific results, but rather about the final stages of the innovation process.

Just like the others, the “third generation” of parks introduces a new management philosophy. This one follows the model of an institution generated by innovation support specialists. The purpose is widen the richness of the community in which the park is located by means of promoting, in so many ways, the government-industry-science interaction (Leydesdorff & Etzkowitz, 1996). This type of park offers a more complete set of services related to innovation. A key difference of this generation of parks is its urban nature, which integrates the park to a wide range of socioeconomic and cultural activities.

The philosophy of a third generation park is the productive cluster-oriented interactive innovation. It is at the same time science push and market pull. This characteristic is described by Sousa (2004), with the support of the diagram in Figure 2.1, in terms of creating and transferring innovation to society, companies and government, by means of a two-way interaction: in one hand the technological innovations are adjusted to the existing needs or induced by the own innovation (deductive approach).

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.9/77
--------------------------------------	------------------------	-------------------------------------------------------------------	----------

Confidencial

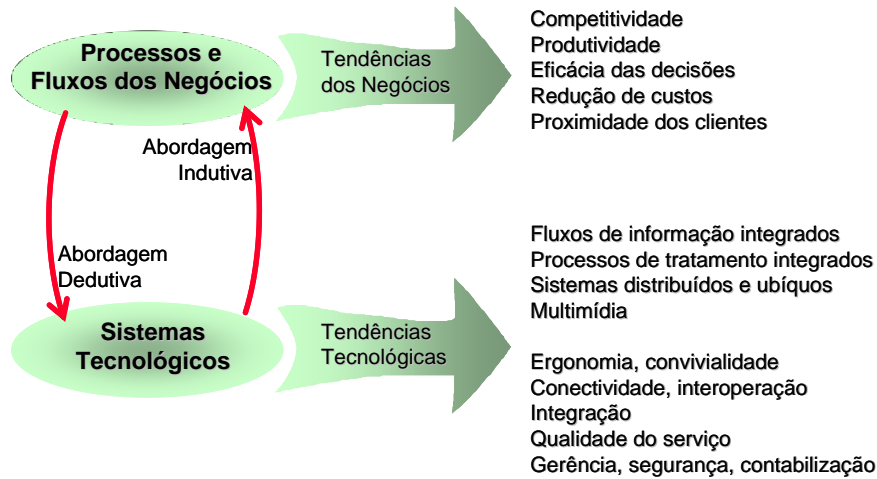


Figure 2.1: the two ways of Technology Innovation

An important aspect of the third generation is that the park leaves the linear pattern of innovation generation, in order to make more effective use of communication networks in the government-industry-science relationships. In this direction, Lacave and Iori (2004) stated that in the 80's, when the parks started to multiply, there was a big discussion to distinguish business park, office parks, science parks, technology parks, techno poles, research parks, incubators, innovation centers, etc. The approach had the tendency of being fragmented, corresponding to an idea that innovation was a linear process and that the different types of products had to be proposed in different stages of an entrepreneurial process (innovative): Incubators and research parks in initial stages; then, science parks, etc; and the business and office parks, projected for well established businesses.

Currently, the idea is that the parks should attend, at the same time, innovative companies based on knowledge, research laboratories and traditional companies. This assistance is done from an offer of a great variety of services, which are provided by a relatively large quantity of organizations connected in a network. Thus, the final objective of promoting the development from the innovation goes through the generation of knowledge intensive companies, the implementation of support strategies to the continuous development of consolidated technology-based companies, through the support to the transfer of university and research technology to companies, be them technology-based or traditional. By the way, establishing mechanisms of encouragement and support to traditional companies innovation is a milestone of the third generation model.

Parks which hold services structures that aim at allowing partnerships able to transcend their geographical and institutional boundaries, in search of resources necessary to innovation in their region, constitute what Cooke (1998) called national system of regional innovation.

On the other hand, such parks are places where people go not only to work, but also to relax their work stress away, appreciate nature and accomplish their businesses in more favorable environments. Such parks can incorporate tastefully elaborate offices and offer the newest tendencies of international lifestyle, cutting-edge technology service facilities (mobility, internet, video conferencing, etc), high-quality management systems, leisure options such as sports gymnasium, swimming pool, amphitheaters, with beautiful gardens and courts, as well as food court that offers a wide range of culinary options. In sum, such parks are conceived to a productive work, but, above all, with life quality and sustainability.

### **2.3 THE REVOLUTION OF ICTs AND THE TECHNOLOGY PARKS**

The revolution of the ICTs in the last decades of the 20<sup>th</sup> century transformed the paths the world had gone through, worked, thought and learnt. Knowledge, with its applications, is the key to human life currently.

Subsequent to the evolving waves of the production systems since manual agriculture, mechanization in the Middle Ages, the process of conceiving and manufacturing products in the industrial age, the world of the 21<sup>st</sup> century has been moving towards the central idea of service-based economy, an outstanding feature found in the current global economy.

In this context, traditionally, the knowledge management has kept being a role of the academy, the library and the university. However, with a great number of universities in the whole world struggling against resources crisis and cut down on research funding, many agencies felt the need of establishing innovative initiatives to respond to this situation. So, the Technology Parks creation is potentially an important initiative, if not indispensable to development. Such fact also started to have an impact on developing countries, where the creation of Technology Parks such as incubators of ideas provided and have provided the creation of products and processes that generate wealth.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.11/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

Technology Parks focused on ICTs emerged as business leadership in the developing world in the last decades of the 20<sup>th</sup> century. Here it follows some of the most remarkable examples:

- The China Science Park, which started their activities in mid-80s, contributed significantly to the economic development of that country and their indexes rapidly increased nationally and internationally: there are over 38,000 companies and almost 5 million of employees;
- The Haidian Science Par, the Chinese Silicon Valley, was launched in 1998. With the support of the central government in the form of preferable treatment and tax exemptions, became a leadership in innovation in the country and holds 138 research institutions, 6,000 high-tech companies and 400,000 employees;
- Launched in 1990, the Techno Park Kerala was the first of its kind in India, being supported by Kerala state government. More than 125 companies that employ over 17,000 professionals are located in this park, which answers for 70% of the state's exports. Provide reliable infrastructure and connectivity, highly competent professionals, incentives and a safe and productive environment;
- The Middle-East has many Technology Parks:
  - The Knowledge Oasis in Muscat, Oman was released in 2003 to facilitate the connections between the ICT-based industries and the academic community. In the case of the Sultan Qaboos University, also in Oman, aims at becoming a player in the global knowledge economy;
  - The Education City, located in the outskirts of Doha, is a variation of the concept of Technology Park. It offers world-class education and research facilities from kindergarten to post-graduation;
  - The Qatar Science and Technology Park, created in 2004, facilitates a threefold partnership of companies, governmental agencies and academy to promote investigations and innovation. The Technology Park is a free zone offering easy access to foreign companies.

Such examples confirm a tendency of Technology Parks, which genesis came from the north hemisphere, being each and every day more rooted in the new poles of global

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.12/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

development, including the south hemisphere. The denominations themselves already point out the emphasis given to the enterprises orientation: Techno parks, ICT Parks, Research Parks, Innovation Centers, Knowledge Oases, or even more evocative titles such as Knowledge Pearl (Hyderabad), Sapiens Parque (Sapiens Park), Porto Digital.

## 2.4 THE IMPACT OF TECHNOLOGY PARKS IN EMPLOYMENT GROWTH

Indeed, no matter what generation, the Technology Parks should aim at:

- Increasing employment;
- Improving support to new small companies;
- Tightening the relations of the academic institutions with the industry;
- Creating a cradle of innovation.

These are very attractive objectives to the developing world. However, the second generation of Technology Parks is still very young to present solid data that allow measuring its impact, which is even harder to third generation parks.

Nevertheless, before understanding the impact of this type of enterprise, it is interesting to look at some results about the first generation parks in the UK: In four years, between 1986 and 1990, among the research parks, there was a 71% increase in the number of jobs. Moreover the number of parks moved up from 3,317 in 1985 to 58,171 in 2004.

This is a substantial growth, even considering that many companies located in the parks were not new enterprises, but rather simply relocated existing businesses. A survey showed that two thirds of these companies had moved to the same city (Massey, Quintas, & Wield, 1992).

Other findings of the study characterize the impact of the Technology Parks in generating jobs in and out of their location:

- In the 158 parks surveyed in 1986, 40% of the employees were scientists and qualified engineers, 17% of other professional and management categories, 19% of the figures were secretaries or administrative technicians.
- Only one third of all vacancies were occupied by women. In the Aston and Cambridge Parks, only 10% of scientists and qualified engineers were wom-

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.13/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

en, 11% constituted professional and managerial staff and 87% of secretaries were women. Most of the local population located outside the park was working in low-level jobs, such as civil construction, janitorship, etc.

Such inequality of job opportunities can become very annoying to the local population, raising the question of what measures should the managers of the Technology Parks can take to avoid such situations: for example, the Digiport, located in Jamaica, offers programs that assist people who live around the park to develop specific skills that qualify them to apply for a position in the park.

## 2.5 SITUATION IN NATIONAL LEVEL

As we have pointed out in Product 5.2 – Market Analysis and Competitiveness, the topic of the “Technology Parks” is relatively recent in the country. It came up after the creation of a CNPq Program in 1984, aiming at supporting initiatives in this field. The inexistence of a culture focused in innovation and the reduced set of innovative enterprises at that time made the first projects of Technology Parks to originate the first incubators of businesses in Brazil. The effort was fruitful and the initiatives expanded rapidly, which led to the current significant number of over 400 incubators all over the country, hosting over 6000 innovative companies that came from incubators, universities and research centers.

In 2000, the idea of Technology Parks came back again to be an alternative to promoting technological, economic and social development, in way that in the end of 2011 there were more 60 projects, among initiatives in operation, implementation or planning stage.

The next sections present a survey of the situation of seven parks considered relevant in the national scenario.

### 2.5.1 Alfa Technology Park – PARqTEC ALFA

The Alfa Technology Park is operating since August 18 1995, being the first initiative of that nature to be an enterprised in Brazil.

Its manager institution is the Scientific and Technological Research Support Foundation in the State of Santa Catarina – FAPESC. Its territory has a total area of 100.000 m<sup>2</sup>.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.14/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The park's mission is to promote economic, scientific and technological development in the Big Florianopolis, by means of implementing politics of incentive and support to creating and strengthening technology-based enterprises, based on the synergically action among local government, business and academic institutions.

Regarding the local development, the park's objectives are the following: to improve the indexes of productivity and competitiveness of Santa Catarina State's economy; and changing the State's role as promoting politics of economic, scientific and technological development; besides of generating jobs and intensive technology activities and high added value.

As regards the country development, managers consider that the park's role should be of:

- Multiplier effect;
- High added value;
- Technology transfer;
- Synergy and partnership;
- Qualified jobs generation.

The Technology Park counts with a varied range of partners, including universities and institutions that foster the technological entrepreneurship of the State:

- Federal University of Santa Catarina – UFSC;
- State University of Santa Catarina – UDESC;
- Automation and Computer Technology Center – SENAI/SC;
- Federal Institution of Education, Science and Technology of Santa Catarina – IF/SC;
- Innovative Technology Reference Center Foundation – Fundação CERTI.

Both Technology Park's C&T&I anchor projects are the CELTA incubator, managed by Fundação CERTI – a 10,500 square meter building – and, TELESC/Brasil Telecom's research and development research center.

The companies in the park act in segments such as nanotechnology, energy, electronics, telecommunication and software.

The Technology Park offers the following facilities and services:

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.15/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Physical Infrastructure: that involves basically the CELTA building, with: 3 meeting/training rooms, 1 amphitheater for 100 people;
- Special services laboratory;
- Bar/cafeteria;
- Restaurant;
- Post-offices;
- Accountancy services;
- Photocopying and printing center;
- Computer supplies sale center;
- Bank of Brazil agencies (Banco do Brasil);
- Bank of the State of Santa Catarina agency (Banco do Estado de Santa Catarina).

### 2.5.2 Bio-Rio Biotechnology Pole – Polo Bio-Rio

The Polo Bio-Rio started its activities in December 6 1995. Its manager institution is the Bio-Rio Foundation.

It counts with a total area of 116,000 m<sup>2</sup> and its mission is to promote enterprises in the area of Biotechnology and Biodiversity in general, integrating several communities like science, technology, business and other partners and funding and support organizations, promoting technical, economical and social development in Rio de Janeiro, besides of producing innovative results to Brazil's society.

Rio de Janeiro has an excellent research ground and some companies commercially explore the most advanced knowledge available in Biotechnology. The Polo Bio-Rio has contributed for such advance by means of its resident companies which, as technology innovation local systems, allow transferring technology among the associate universities and the productive sector. A lot of them have been awarded, standing out in state and national scenario.

Currently, Biotechnology integrates the productive base of several sectors in Brazil's economy, with a market for Biotechnology products that reaches 3% of the GNP and also a part of Brazil's exportations already has some outcomes of Biotechnology processes and products. The Polo Bio-Rio is the first Technology Park in the Biotechnology segment of Latin America and it is one of the main national references of this segment.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.16/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The Polo Bio-Rio keeps partnerships with the following scientific institutions:

- Federal University of Rio de Janeiro – UFRJ;
- State University of Rio de Janeiro – UERJ;
- Pontifícia Universidade Católica do Rio de Janeiro – PUC-RJ;;
- Osvaldo Cruz Foundation – FIOCRUZ;
- University of Sao Paulo – USP;
- University of Campinas – UNICAMP;
- State University of the North of the State of Rio de Janeiro - UENF;
- Federal Rural University of Rio de Janeiro – UFRRJ;

As S&T&I (Science, Technology and Innovation) anchor project, the Polo Bio-Rio keeps the Bio-Rio incubator (source of graduation of companies to the Park) and project partnerships with CENPES/Petrobras and FIOCRUZ.

The companies located in the Polo Bio-Rio act mainly in the following sectors:

- Biotechnology;
- Natural Environment;
- Pharmaceutical;
- Biodiversity.

The main Companies or anchor Organizations located in the Park are:

- Cryopraxis;
- Usina Verde;
- ANVISA;
- Bioderm;

The Polo Bio-Rio provides the following services to the companies:

- Communication service via telephone and fax machine;
- Restaurant;
- Bank agency;
- Reception services;
- Security;
- Cleaning services;
- Garbage collection.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.17/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

In addition to the basic facilities provided by the Bio-Rio Foundation, the companies there have: electric power, swage, data network/internet, shared laboratory equipment and property tax (IPTU) exemption. It offers services of project management, business development, competitive intelligence service, consulting and trainings. ß

### 2.5.3 Porto Digital

The Porto Digital Management Center (NGPD) manages the park and it has been working since April 20, 2001.

It has an area of 11,000,000 m<sup>2</sup> and its mission is to structure, manage, and foster in the State of Pernambuco a world-class business environment, based on information and communication technologies, by means of integrating and cooperating governments, universities, private sector and third sector organizations.

The park works as an element of public policies implementation to develop the state's digital economy and it is product of excellence centers in shaping human capital in IT. It aims at developing the place where it is located and leveraging the ICTs GDP in the state from 3.6% to 10%.

It is a great implementer of projects supported by the federal laws, contributing to the national development, promoting the image of ICT produced in the country by means of accomplishments of its companies and of the Labor and Society Studies Institute – IETS, partners and focus of attraction of international investments due to its human capital expertise.

Among the 28 units of the Labor and Society Studies Institute – IETS, in Information Technology in this state, Porto Digital participates in a network of 13 of them, among which are the Federal University of Pernambuco – UFPE and the University of Pernambuco – UPE. In addition it is the partner of the following research centers: C.E.S.A.R., ITEP, Brazil Test Center Motorola, Dell, Instituto Samsung, Laboratório Cenas, Instituto Nokia e FITec Inovações Tecnológicas.

As S&T&I (science, technology and innovation) anchor projects held in the park, the CIN/UFPE, DSC/ UPE, Softex-Recife stand out, so as the C.E.S.A.R. and ITEP incubator and study centers, not to mention Brazil Test Center Motorola, Dell, Instituto Samsung, Laboratório Cenas e Instituto Nokia research and development centers.

The main sector of the companies located in the park is:

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.18/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Information Technology;
- Software;
- Consulting services;
- Design;
- Knowledge services;

The main companies or anchor organizations located in the Park are the following:

- Assesspro PE/PB;
- C.E.S.A.R Studies Center;
- Sectma (State Secretary of Science, Technology and Natural Environment of Pernambuco);
- Softex-Recife;
- Procenge;
- Provider;
- Pitang;
- IBM;
- Microsoft;
- Dell Research Center;
- Samsung Research Center;
- Motorola Research Center;

In relation to the services provided to the companies, the park advises and support elaborating projects for funding and policies of the RSE, enables the access to venture capital, offers qualification courses, provides businesses incubators, qualified infrastructure of telecommunications and communication and integration tools, and promotes cooperating actions as well.

#### **2.5.4 Technology and Science Park of PUC/RS - TECNOPUC**

With its managing institution, the Pontifical Catholic University of Rio Grande do Sul – PUC/RS, the TECNOPUC started its activities in August 25, 2003.

It has a total area of 204 thousand square meters (15 hectares in the Viamao campus – 150,000 m<sup>2</sup> and 5.4 hectares in the Porto Alegre campus – 54,000 m<sup>2</sup>);

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.19/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

The park's mission is to create and strengthen mechanisms that promote entrepreneurship in the big Porto Alegre; identifying opportunities of businesses; and enabling the creating and development of innovative technology-based enterprises.

The TECNOPUC provides 2,500 jobs of high added value and, by means of integrating with PUCRS researchers, it develops knowledge and technology that support innovation of its companies' products and processes, which results in competitiveness among the companies.

The jobs made available have been better and life quality in the area has also improved, thus contributing to a better income distribution.

Currently it supports about 40% of P&D projects accomplished by the University, which gives an idea of the park's contribution to research development in the university and surrounding areas.

In the TECNOPUC view, a science or technology park should be an adequate place to innovation, which should make regional and national economies dynamic and add knowledge to it. In this context, it has being possible to generate high added value jobs and qualify business to be competitive in the international market. Besides, it has been generating synergy among companies, government and universities, which in turn assist the country to raise its development level.

The park has many anchor projects and businesses. In TECNOPUC there are large, medium and small businesses, especially in the areas of Information and Communication Technology, Physics, Energy, Biology, Health and Biotechnology. There are also in the park PUCRS Research and Development Centers which give support to the P&D relations with the partner business.

The main companies or anchor organizations located in the park are the following:

- DBServer Information Systems Counseling;
- Dell – Software Development Center;
- HP;
- 4G; Tiantic;
- Stefanini IT Solutions;
- Quantiza Systems;
- Softmovel;
- COM – Braxis;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.20/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- OZ Engeneering;
- Radiopharmacus;
- KW Computers;
- Travel Explorer Software;
- Novus Electronics;
- Comsat Commerce and Respresentation of Electronic Supplies;
- Toth technology development
- DBA;
- Datum I.T;
- Datacom (Teracom);
- AJE-POA – Young Entrepreneur Association from Porto Alegre;
- Assespro/RS – Counseling. Brazilian Companies Information Technology, Software and Internet from RGS;
- FAJERS – Young Entrepreneur Federation from Rio Grade do Sul;
- PMI-RS – Project Management Instituto Rio Grande do Sul
- Pensamento Digital Foundation;
- CEITEC – Center for Excellence in Electronic Technology;
- ABINEE/RS – Brazilian Electric and Electronics Industry Association;
- Liberdade Institute;
- Center of Research in Physics;
- Brazilian Center for Development of Photovoltaic Solar Energy – CB-Solar;
- Molecular and Functional Biology Research Center;
- Electric Engineering Research Center;
- Center of Excellence in Research in Carbon Storage;

Analytical Chemists Supplies Laboratory (LAIF).

The park also holds the RAIAR incubator, aiming at startup businesses.

The companies located in the park act mainly in the following sectors:

- Biotechnology;
- Natural Environment;
- Energy
- Electronics;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.21/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Information Technology;

TECNO PUC offers to its local companies and organizations a Service Center with pharmacy, post office, travel agency, copy and printing place, bookstores, hairdresser, stationary shop and convenience store, atms and the library of PUCRS. It also provides: A Sports Center with fitness center, heated swimming pool, tennis courts, football fields, and several indoor general purpose sports courts; Convention Center of PUCRS with modular infrastructure for events of up to 4,000 people with central air-conditioning, ambient sound, simultaneous translation booth, multimedia projectors and computers with internet connection. It also provides Virtual PUCRS services with videoconferencing rooms for meetings and distance education, with especial conditions to the partners of the TECNO PUC. Near the park are 12 restaurants and bars in several buildings of the campus, PUCRS's Sao Lucas Hospital with emergency service and ambulance available in the campus. It also provides to companies the research and laboratory centers of PUCRS available to companies by means of research projects development in partnership.

The TECNO PUC partners have privileged access to the services offered by LABELO, which include electric and electronic specialized laboratory calibration and tests.'In addition partners of the TECNO PUC just like PUCRS students can use all PUCRS facilities.

### **2.5.5 UNIVAP Technology Park - PqTecUniVaP**

The PqTecUniVaP is running since April 1st, 2005. It is a park managed by a private entity, the Valeparaibana Education Foundation – University of Vale do Paraíba. This park has a wide space of 1,754,564 m<sup>2</sup>.

PqTecUniVaP's mission is to stimulate the academic and scientific research integration with the business world, developing joint projects in different areas of knowledge so to substantially support the creation of new tech-based businesses.

Regionally, this park has adopted a role in strongly supporting the creation of new companies and new tech-based businesses, stimulating the integration among organizations, in way so to change ideas and knowledge into business, thus generating prosperity to its region and to the country.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.22/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Nationally, counting on its experience creating new companies and reinforcing existing innovative technology companies, the park aims at generating an expressive number of inventive projects, as well as a great deal of well qualified jobs everywhere in the country.

The park's main S&T&I organizations, anchor projects and companies are the following:

- Probes – Biomedical Engineering;
- UNIVAP Technological Incubators;
- UNIVAP-REVAP;
- UNIVAP Virtual;
- Clean Rooms for Aerospace Industry;
- Orbisat;
- Equatorial Sistemas;
- OnSet;
- Aircom;
- Ambra Solutions;
- Lifemed;
- Intercientífica.
- Services available to the park companies;
- Full infrastructure (meeting rooms, amphitheater, training and videoconferencing rooms);
- Intellectual property consultancy;
- Management consultancies;
- Access to researchers and P&D Laboratories of universities.

### **2.5.6 Sao Jose dos Campos Technology Park – PqTecSJC Campos**

This Tech Park is managed by the Town Hall of Sao Jose dos Campos, in the state of Sao Paulo. It is operating since December 4, 2006. It has a total area of 1,168,000 m<sup>2</sup>.

Its mission is to promote research and technological innovation, stimulate cooperation of research institutions, university and companies, as well as give support to develop knowledge intensive business activities as grounds to compete in the global business and to grow economically. It focuses on aerospace and energy sectors.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.23/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

It is important as an instrument to local and regional development so to boost the economic activity by strengthening existing productive chains, by creating new productive niches, by increasing commercial and exportation activities based on high-added value products and services, by generating jobs and income. All of these initiatives imply a scientific and technological support base, which is established or optimized, by means of formal organizational structures (creation of public universities, creation of research centers), by the dissemination of knowledge, innovation and production of wealth.

The park aims to support the development of national business competitiveness, making them able to compete globally, by means of promoting research and technological innovation, stimulating cooperation of research institutions, university and companies, as well as giving support to develop knowledge intensive business. It aims to improve professional qualification, create new jobs and enable positive social and economical impacts to the country.

The park has the following partners that help reaching its goals:

- Technological Institute of Aeronautics – ITA;
- Institute for Technological Research – IPT;
- Aeronautical Technology Center – CTA;
- Sao Carlos USP;
- National Laboratory for Scientific Computing – LNCC.

There are three campi that are being built in Sao Jose dos Campos Tech Park:

- Sao Paulo State University – UNESP;
- Federal University of Sao Paulo – UNIFESP;
- Technology College of Sao Jose dos Campos – FATEC.

The parks also has the following S&T&I anchor projects:

- Center of Energy Technology Development – CDTE – a partnership between the Town Hall of Sao Jose dos Campos and Cale Energy Solutions – research center focused on P&D energy generation technologies, specifically in environmentally sustainable generation and in the use of renewable energy sources.
- Aeronautical Technology Development Center – CDTA;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.24/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Center of Innovation in Information and Communication Technologies - CIT-IC;
- the University of Sao Paulo – USP – is in the city since 2007, as a result of an agreement between the Town Hall of Sao Jose dos Campos and the Federal Government, and offers Computer Science and Computational Mathematics majors, among others.

The companies located in the park act mainly in the following sectors:

- Aeronautics/Aerospacial;
- New materials;
- Energy
- Information and TelecommunicationsTechnology;

The park's main anchor projects and companies are the following:

- Embraer;
- Vale.

Services available to the park companies;

- By means of the Center of Competitiveness and Innovation of the State of Sao Paulo East Cone (Cecompi), there are support services mainly to the incubated companies and enterprises associated to the APL(s) Aerospacial and Information, such as the Business Office, congresses participation support as well as national and international events.

### 2.5.7 Sapiens Park

The Sapiens Park is managed by a Special Purpose Entity This SPE was set up in the format of a public limited company called Sapiens Parque S.A.

It is operating since January, 2007. It has a total area of 4,500,000 m2.

Its mission is to be a benchmark as an innovative park, promoting sustainable regional development by means of creating and implementing an ingenious Business, Institutional and Technological Environment, capable of holding and supporting cutting-edge businesses, science projects, technology, education, culture and natural

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.25/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

environment, and many state-of-the-art enterprises in the technology, knowledge services and sustainable tourism sectors.

The park aims to consolidate itself as a platform to call attention and set up the following initiatives:

- Benchmark projects in Science, Technology and Innovation;
- Innovative and competitive local, national and international companies;
- Promoting mechanisms of a new economy - the “knowledge and experience economy” - and changing Tourism, Technology and Services sectors of that region.

In addition, the park intends to contribute with conception, development and implementation of an Innovation Park which presents integrated and referential solutions in the following topics:

- Innovation environments to promote S&T&I;
- Strategies of urban occupation and sustainable regional development;
- Generation of innovative competitive companies and leaders in the Park's business segments.

The park is partner with the following Research Centers and Universities:

- Federal University of Santa Catarina – UFSC;
- State University of Santa Catarina – UDESC;
- CERTI Foundation;
- Sapiientia Institute;
- C Ventures;
- State University of Santa Catarina – UDESC;
- Petroleum, Energy and Gas Institute – INPETRO.

The park's main S&T&I organizations, anchor projects and companies are the following:

- Scientia Module (P&D institutes) – CERTI foundation;
- Petroleum, Energy and Gas Institute – INPETRO.
- Sapiientia Institute;
- Pharmaceutical Institute;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.26/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

- Experientia Module (knowledge and edutainment centers) – Sapiens School and Sapiens Circus;
- Artis Module (art and culture projects) – AnimaKing Animation Studio;
- Gens Module (natural environment and social development) – Natural Park, Ecologic Trail;
- Sapiens Community Project.

The companies located in the park act mainly in the following sectors:

- Energy
- Information Technology;
- Natural Environment;
- Bioengineering;
- Media and audiovisual;
- Toursim services;

The main Companies or anchor Organizations located in the Park are:

- CERTI Foundation – Sapiens Circus project and Park management;
- Sapientia Institute – Sapiens Schools and P&D in interactivity, education and “experience solutions”;
- AnimaKing – animation cinema and new media;
- Petroleum, Energy and Gas Institute – INPETRO – research in energy, petroleum and gas;
- SESI – “knowledge industry” project;
- Hoplon Infotainment – electronic media and games.
- Services available to the park companies;
- Tech-based businesses incubation;
- Access to technology;
- Network and articulation;
- Leveraging Resources;
- Basic operational support services.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.27/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

### 3 SCENARIOS

The seven parks previously cited make possible to envisage the current segment in which it is intended to insert Capital Digital Technology Park.

The planning and design of the PTCD up to this moment, make us believe that the entrepreneurship to be set up in the Federal Capital will not have partners in the national context, especially because of its geographical localization and the feature that are expected to be in its construction.

As delimited in the document Product 5.2 - Market Analysis and Competitiveness, the Technology Park target market should be composed of companies strong in research, development and/or production of knowledge- intensive goods and services, notably information and communication technologies (ICTs).

The last two decades witnessed the implementation of a great number of new and innovative services of ICTs. These ICTs services have been approved by the public in general and are important in the daily life. During this time, the ICT experimented an enormous development starting at the digitalization of infrastructure and telecommunication services, which promoted an intimate approximation of the computer and telecommunication worlds, substantially changing the culture of the latter and disseminating its effects to many other areas of the economic activity.

The new range of ICTs services also constitute a factor that contributes to the economical growth of most business segments. The increase in using ICT services is a direct result of the internet world proliferation and internet mobile devices connected worldwide anywhere, anytime. When this development is observed, we can see that science and technology had a mutual contribution in the process. Science generated new technologies and, technologies stimulated and enabled new scientific development. Both were quite marked by applications and market, in a paradigm, one can say complementation of technological forces and market, that is of *market pull* and *technology push*.

Service providers who offer their ICT services on the market – in times of tough world competitiveness, and opposed to traditional industries – operate in a market many times characterized by the motto “the-winner-takes-it-all”.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.28/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The diffusion of ICT services, from a small user base to finally be placed by all eligible users in the market, is many times characterized in a certain time in which the final result about the service providers competition, given the pre-conditions of the market considered, is very hard to predict. This phenomenon is known as path dependence (Arthur, 1989).

Even after been crowded, the market also tends to maintain a moment in time due to the occurrence of new disruptive services taking over the market ((Christensen, 2010). In this context, it is important to study the dynamics effects that contribute to the outcome of ICT service provider competition, in order to understand why some service providers are so successful, while others fail in the market (Arthur, 1989). The Internet is a representative example because it came not only because of a demand from the Science and technology community, but also, afterwards, because of its applications potential provided conditions to an extraordinarily development of technology in several areas.

Properties that strongly influence the competition in ICT markets include the effects of network, positive feedback and revolts. In this sense, the life cycle of ICT products are getting shorter, differently from more traditional areas like Agriculture and Transportation, which present longer product life cycle. An example is the cellphone devices, which are rapidly substituted for newer models, which in turn will be considered obsolete few months after launched on the market, most of the times influenced by the network effects. This dynamics makes new actors to appear, demands a faster return on the investment and, on the other hand, creates new business patterns to explore opportunities that unfold continuously.

These properties in the nature are dynamic and non-linear, which means that the stationary states of the market are hard to find. As the conventional economic theory is based on the negative feedback supposition, it does not capture these dynamic properties and has limited use in analyzing such markets. It is worth reminding that in the last years, the ICTs have been characterized by the weigh of the user in the process of conceiving the products. Nowadays, many people talk about user centric technologies, that is, technologies centered in the participation and the user-demand itself as an stimulating element of new solutions and in the creation of new products.

Modeling new dynamic markets, like the case of the ICTs, is extremely challenging, since the subjacent processes that determine the evolution of these markets are abundant.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.29/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

In addition to that, it is difficult to predict the impact of different processes. Sometimes, small events of insignificant effects can come to have a decisive impact in the outcome.

Currently the ICTs allow not only communication among everyone, but also the observation of new possibilities left open by communication among machines and objects (sensors and actuators), building up what is called “the Internet of Things”, one of the future internet envisages. Here the interactions between humans (H2J), between machines (M2M) and, also, between humans and machines (H2M and M2H) start to have a fundamental role in the evolution of the telecommunication sector. In recent times, the incorporation of ICTs in the most types of products and this possibility of communication create opportunities to renew more traditional sectors.

This evolution substantially changed the dynamics in the process of innovating telecommunication. Comparatively, we can say that in the past, 30 or 40 years ago, the P&D activity was centered in the big operators laboratories. Nowadays, after monopoly brake, it mainly occurs in the supply and software systems providers, as well as in the service developers. Yesterday, the innovation process was essentially a chain sequence - research activities were followed by development, prototyping, product engineering, manufacturing and sales. Today, these stages are superimposed with great interaction between P&D, engineering and market activities.

In the past, there was also a lot of closed and owner standards, and although the International Telecommunication Union – ITU elaborated its series of technical recommendations, nothing could guarantee that different manufacturer products, developed according to the same technical recommendations, could fully interoperate. Currently, on the other hand, there are global standards demands, interoperable, in fact with open interfaces that enable developing new applications. Before, innovation system was strict, with reduced actors and high entry barriers due to high investment needed to P&D activity. Today, innovation system is more open, flexible and with lower entry barriers. That made, in the past, the process of innovation very slow when compared to the current situation in which innovations occurs much faster.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.30/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

### 3.1 TECHNOLOGY DEVELOPMENT SCENARIOS

Examining the situation under a technological perspective, it is possible to identify three main vectors of development: Mobility, capacity (broad band) and user-centered technologies.

Mobility has shown, since the introduction of mobile telephone services, an extremely interesting and convenient attribute for the user, and it is currently one of the determining factors in the demand rhythm of technology innovation.

The second great vector that stimulates the technological development is the capacity; the growing need of transparent, unrestricted broad band connection at any type of media - voice, text and especially video.

The third vector, characterized by the user-centered technologies, demand new terminals and usability and security characteristics - required to ensure the user trust in using the ICTs services.

The enabling technologies, in attending these demands, go from technologies related to transport physical infrastructure, optical access and wi-fi access up to terminals with so intense connectivity as the IP protocol-based platforms allow, coming to surface issues of security, middleware to adapt applications and intensive systems of software.

In the mobility vector, the most emblematic technology is the wi-fi access. In the capacity vector, it relies the issues of access and optical transportation in the core of the network. Regarding user-centered technologies, the software emerges as the main technology families that has evolved to attend the flexibility required by the user.

### 3.2 BRAZILIAN SCENARIO

In the Brazilian scenario, it is possible to point out some achievements occurred in the last decades with the great scientific and technologic improvement. Brazil started to grow in 1970 not only in terms of scientific knowledge – scientific basis – but also in technological development, being widely established. In these decades the structuration of large programs of capacitation and P&D which built competencies in many areas. Brazil has today, people with a lot of competencies in these areas.

Regarding the tools, Brazil has created in the last 10 to 20 years, an important set of tools to support research and development, as for example sectorial funds, computer

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.31/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

law, law of innovation and mechanisms of subvention, which constitute in an arsenal, a portfolio of resources that can be moved to technological development.

On the other side, there are great challenges because it is still necessary to create a culture towards innovation, especially in the business segment, which its investments are still timid. The situation has been changing, but there is still a lot to be accomplished in this area. Brazil has a lack o engineers and technicians of all levels and profiles. One cannot intend to reach a solid development in ICTs without engineer degree in adequate quantity.

At last, it is necessary to mention the barrier of bureaucracy and attachment to formalism, incompatible with the nature of P&D activity and inadequate to the segment fast feedback dynamics, leads in many cases to programs managed without any objective in terms of outcome.

In today's Brazil, there are several opportunities to develop technology in ICTs. Some examples:

- The universalization of broadband internet access. In the last weeks, the federal government launched the National Broadband Plan (PNBL), an excellent opportunity to structure actions in the academic and business sectors aimed to promoting education and technology in Brazil. In the context of the PNBL, the talk about the State purchase power comes back again, which is a mechanism used by every developed country to strengthen industry and create wealth and competitiveness of their business segments. Brazil can make use of this mechanism to enter adequately in a competitiveness level similar to other leading countries in the world.
- Growing diversified economy. The Brazilian economy, highly diversified, fully growing and with high exportation potential, and with its broad territory create opportunities to local technological development.
- The use of ICTs in traditional segments. There are several opportunities of using ICTs in renewing traditional segments such as Agriculture, Transportation and Energy. The Smart Grid can be considered a structuring factor to Brazil's development because it aims to renew and introduce a new boost in electric power infrastructure within the models brought by ICTs. The Agri-

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.32/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

business segments, Logistics and Transportation have also been changing with the intensive use of the ICTs resources.

The global scenario is widely favorable to ICT-oriented enterprises in any level.

According to what was previously mentioned here, the Brazilian scenario does not differ from the international scenario. The country started to be recognized as owner of a large market and holder of indexes that take it to be considered as a safe place for investments, given its political and economical stability and its already established National System of Innovation.

### 3.3 LOCAL SCENARIO

As described in this section, the scenario to establish a Technology Park in Brasilia is highly favorable, considering the several socioeconomic aspects of the city and its surrounding municipalities, its wealth in intellectual, structural and relational capital, basic supplies towards a sustainable development in the Knowledge Society.

The Capital Digital Technology Park should play a facilitating role in these resources, when assisting the progress of interaction between knowledge producers and the University technology and the business and enterprises developers. The outcome is business and technology innovation.

The Federal District has the highest per capita income of Brazil, with 2.6 million inhabitants and the highest demographic density among the federation units. It confirms a demanding market and potential producer of all kinds of services. From top luxury goods to sustainable initiatives supported by waste recycling. From products and services base on knowledge, as the industry of information and communication technologies (ICTs) and the pharmaceutical, to the industry of light low environment impact supplies. From logistics service to civil construction focused on energy efficiency.

#### 3.3.1 Training and Human Capital

UnB was created in April 21, 1962. Currently, it has over 2 thousand professors, from which over 1,700 are Doctors. It has 2,512 technicians, 30,777 undergraduate students and 6,650 graduate students. It is constituted of 25 institutes and colleges and 25

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.33/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

specialized research centers. It offers 114 majors, being 29 taught night time and 14 distance education.

In addition there are 115 *strictu sensu* post-graduation courses and 62 *lato sensu* specialization courses. The courses are divided in 4 campi spread out in the Federal District: Plano Piloto, Planaltina, Ceilândia and Gama. To assist the activities developed at UnB, students, professors and technicians count on 400 laboratories, besides of support organizations like the University Hospital and the Central Library.

Just to give an idea of professional training in Brasilia, only in Engineering, 120 professional obtained their Masters or Doctoral degree in the Federal District in 2011. At UnB, over 150 engineers graduate every year.

The number of majored students tends to increase with the expansion of the Federal University campi to the Administrative Regions. In 2005, the University of Brasilia had 60 undergraduate courses, and three thousand students entered in that year; now, in 2011, 104 courses opened the doors for over 7 thousand students.

UnB has adopted an expansion politics of its campi to some Administrative Regions of the Federal District aiming at integrating itself into the regional development. The Planaltina campus was born in this strategy plan and offers today courses related to Natural Sciences, such as Agribusiness Management, Environment Management, Natural Sciences and Biology as distance education, all with the intent of collaborating with the economic competence of the region. The entrance exam attributes, for example, special scores that benefit the students who studied in the public schools of Brazlândia, Planaltina, Sobradinho and Sobradinho II in the Federal District - DF; Água Fria de Goiás, Cabeceiras, Formosa, Planaltina de Goiás e Vila Boa in Goiás; and Burity in Minas Gerais.

The Ceilandia campus offers courses related to Health Sciences, such as Nursing, Pharmacy, Physiotherapy, Health Management and Occupational Therapy. These courses followed the movement of change in college education of health professionals and the National Curricular Guidelines (DCNs) to major of generalist, humanist, critic and reflective professional training, all able to perform in all levels of health care.

Gama UnB, in turn is in charge of engineering areas. The activities in the campus started with the Engineering course, where students, after got in, choose what specialty they want to follow: Energy; Electronic; Automotive; or Software. All 4 courses offer

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.34/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

annually 240 vacancies. In addition, there are three graduate courses: *Lato Sensu* (specialization course) in Clinical Engineering; Masters in Biomedical Engineering; and the Masters in Integrity of Engineering Materials.

The Federal District also has the Catholic University of Brasilia, with 37 years of history in Catholic Higher Education and 16 years as University, being among the top 10 best private Universities of Brazil (IGC data MEC/2008). There are 39 undergraduate courses, 15 graduate programs (10 Masters and 5 Doctoral) and 26 specialized graduate courses. In the UCB's Distance Education there are 16 Undergraduate Courses, 27 Graduate Courses and 15 university extension courses. In 2009 it had around 770 professors and 13,500 students. In the last entrance exam run in the first semester of 2012, there were over 5,000 students participating.

The University Center of Brasilia – UniCEUB is another education institution pioneer in the Federal District. Since its foundation 43 years ago, the institution already graduated 90 thousand professionals. Currently, its professors are over 500 qualified professors and the students are around 18 thousand students.

In Brasilia there are many other higher education centers, specifically around 20 that graduate professionals in the areas of ICT.

### 3.3.2 The Economy of the Federal District

Exactly because of the services segment preponderance, Brasilia is starting a strong movement in search of sustainable industrialization. The challenge in the next 50 years is to change the composition of the GDP in the Federal District, in a way so to balance it with more participation of the industry and agriculture.

The region wealth calls attention by its numbers. The Federal District has the largest GDP per capita of Brazil, being around R\$ 46 thousand. According to the World Bank data, the Federal District is ahead of all Latin America countries and countries such as South Korea, Saudi Arabia, and Hungary.

If considered absolute terms, the Federal District occupies the eighth place among the greatest economies in the country. When the comparison is in terms of town, Brasilia is in the third position, behind Sao Paulo (SP) and Rio de Janeiro (RJ).

If considered as a town, the DF is the fourth most populous in Brazil and the population grows twice as much than the Brazilian average. Brasilia's consumer market is

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.35/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

among the most heated in the country. The concentration of high public servers salaries in the region open possibilities of investments and offers the growth of local business, which can consolidate in one of the major consumer centers in the country.

### 3.3.3 Population

Because it is a new city, the headquarters of the Federal Power, Brasilia is composed of a multicultural and diverse population that came and come every year from everywhere in the country. This gives the city an enormous cultural diversity, expressed in the leisure, culture and in the social life of the Brasiliense (that is how Brasilia inhabitants are called). There is room for every taste.

Just to have an idea about how the population is heterogenic population, in the first National Census, which included Brasilia in 1970, people born in the capital were 22.2% of the population. This figure has increased throughout the years: 31.9%, in 1980; 41.5% in 1991; 46%, in 2000. Recently, in 2008, the National Research for Home Sample (Pnad) pointed out that 48.9% of the population consisted of natives. Among the people who are in their 50s, only half of the population is estimated to have born in Brasilia. All this cultural diversity opens space to different initiatives and investments.

Triggered by the high-income rate of civil service, Brasilia is one of the best and most expressive consumer markets of Brazil. Around 90% of all Federal District economy relies in the Public Administration segments, commerce and services.

### 3.3.4 Influence Areas

A special characteristic of the Federal District is its areas of economic influence. The Mesoregion of Aguas Emendadas and the Integrated Region of Economic Development of the Federal District and Surrounding Municipalities constitute respectively in a differentiated mesoregion and metropolitan region situated in more than one state. They are specific spaces defined for federal public policies action, such as the National Policy for Regional Development and the Growth Acceleration Program (PAC).

The Mesoregion of Aguas Emendadas has 100 municipalities, being 23 in the State of Minas Gerais and 77 in the State of Goias. It has a total area of 191,063,05 km<sup>2</sup> and 2,180, 486 inhabitants (2010 Census). The Mesoregion has as a striking physical characteristic which is being situated in a region that puts together three large watersheds

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.36/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

(Tocantins watershed, Prata watershed, and Sao Francisco watershed) and having a beautiful landscape because of its natural parks and cultural and historical sites like the Historic Heritage Site and Kalunga Cultural Reserve.

Integrated Region of Development of the Federal District and Surrounding Municipalities (RIDE) is constituted by the Federal District, 3 municipalities of Minas Gerais and 19 from Goiás. They occupy a region of 55,434,99 square kilometers, being slightly smaller than Croatia and its population is about 3.9 million people.

In the center of the territory is the more dense area, which comprehends the Federal District, which stands for 69% of the population and its adjacent municipalities. There is a big conurbation in towards south BR-040 highway, in which includes the towns of Valparaíso de Goiás, Cidade Ocidental, Novo Gama and Luziânia which represent 12.3% of the RIDE-DF and Surrounding Municipalities overall population. Other municipalities which can also be considered part of the metropolitan area of Brasília are: Águas Lindas de Goiás ( BR-070 road side), Formosa (BR-020 road side), Planaltina (BR-010), Santo Antônio do Descoberto (BR-060). Just to have an overall picture of the RIDE economy, it is enough to say that its GDP is about R\$ 126 billion (about USD\$ 63 billion), which represents 4.35% of Brazil's GDP. Its GDP per capita is around R\$ 34,332,96 and it is larger than any other Brazilian state, but the Federal District.

### 3.3.5 Short and Medium Term Investment Opportunities

Brazil has been established in the last decade as a democracy that has looking forward to reduce social inequalities relying mainly in the population social ascension by means of the wage mass increment and the access to goods. This has strengthened its domestic market and made the country go through less turbulence in the 2008 global economic crisis. It is reminded here the importance of the new Brazilian middle class economic participation, known as Class C, which together with Classes D and E represent approximately 87% of the country's population. In the Mid-West region, the Class C, composed of family monthly income of 4 to 10 minimal wages, corresponds to 47% of the population.

The Brazilian economic growth demands from the next decades heavy investments in infrastructure, education and technological innovation. With everything said goes together one of the key words of the 21st century: Environmental sustainability.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.37/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

### 3.3.6 Credit Incentives

#### 3.3.6.1 *Constitutional Financing Fund for the Midwest*

The Constitutional Financing Fund for the Midwest (FCO) is a funding that comes from the 1988 Constitution to foster the economic development of the Midwest Region. Its resources come from the National Treasury reallocations, which come from collecting Income Taxes Revenues and from Industrialized Products Taxes. In 2011, the volume of resources from the Fund was approximately R\$ 4.6 billions, being R\$ 879 millions addressed to financing productive investments in the Federal District.

The fund is operated by the Bank of Brazil (Banco do Brasil). With deadlines, limits and special financial charges, the FCO has credit facilities addressed to companies that are dedicated to the productive activity in the following segments: Mineral, Industrial, Commercial, Services, Agroindustrial and Tourism in the Midwest region. Its program is segmented by productive sectors (business and rural), being the resources applied in the following programs:

- Program of Business FCO to Support Individual Entrepreneurs (EI) and to micro and small business (MPE);
- Program of Business FCO for Middle and Big Business (MGE);
- Program of Rural FCO;
- National Program for the Strengthening of Family Agriculture (Pronaf);
- Program of Business FCO for Reallocation; and
- Program of Rural FCO for Reallocation.

In September 2011, it was approved, in the realm of the FCO, a facility for strengthening Science, Technology and Innovation to all sizes of business. This facility has the objective of stimulating innovation in several economic business segments on the region.

#### 3.3.6.2 *Machine and Equipment Financing*

It is a long-term financing facility from the National Bank for Economic and Social Development (BNDES) to purchase and produce of new machines and equipments made in Brazil, including freight vehicles. It is made available by means of associate financing institutions such as BRB and Banco do Brasil.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.38/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Finame is divided in Lines of Funding, with specific financial goals and conditions to better satisfy the demands of clients, according to the beneficiary company and fundable items.

### **3.3.6.3 Pro-DF Program for Economic Development Areas**

The Program of Promoting the Economic, Integrated and Sustainable Development of the Federal District (Pro-DF) is a pact between the state and the private company, in which the state, by means of benefits, foster the implementation of productive enterprises in the Federal District aiming at job generation, income and tax revenue.

The benefited company should implement the enterprise within due time and obey the rules of the Program. One of the benefits of Pro-DF consists of granting the lands by means of Grants of Real Right of Use with Option to Purchase, agreed between the interested company and Terracap. At the end, after complying with the norms and goals of the program, the company will be able to exercise the option to purchase the property.

In relation to the economic benefit, the procedure starts with fulfilling the consult letter by the interested, which should present it to the Economic Development Secretary. In this stage, it is checked the availability of the land in the size and areas indicated as priority. If positive, the SDE indicates a property in some of the Economic Development Areas (ADEs) designated in the consult letter, in which the company will at some point implement its enterprise. After the consult letter and the Economic and Financial Feasibility Project evaluation and approval, the company will be able to sign the contract with Terracap.

The ADEs were created for the development of the Administrative Regions (RAs) in its production sector, aiming at fostering a greater participation of the productive sector in the GDP of the Federal District (DF).

In the Pro-DF there are several measures to help the entrepreneur. The benefit consists of the credit incentive, which, together with reduced interests and 15 years grace period, funds up to 70% of the Tax on the Circulation of Goods and Services (ICMS) that the company needs to pay.

With the Supreme Federal Court's decision for unconstitutionality, the DF Government should have concluded until the end of 2011 a mechanism to substitute the tax incentives granted in the realm of the Pro-DF 1, aiming to define an equivalent incentive to new projects.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.39/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The same benefit that refers to ICMS also applies to the Tax on Service of Any Nature (ISSQN), which favors the capital service providers.

In relation to other tax benefits, the Pro-DF offers exemption from the Real State Transfer Tax (ITBI) and from the Property Tax (IPTU), with a reduction in the tax base up to 100%, and reduces the Taxes on Automotive Vehicles (IPVA) to transportation vehicles for two years and the Public Cleaning Tax (TLP) for 5 years.

The Program also establishes advantages for enterprises that prioritize projects aiming to preserve the environment.

### **3.3.7 Fiscal and Tributary Incentives**

#### **3.3.7.1 FIES Tax Financing (BRB)**

It is a credit line for financing federal, state and municipal taxes. This credit line is addressed to legal entities from the private sector and self-employed professionals that dedicate to commercial activities, industrial, service provision and similar activities with updated records.

#### **3.3.7.2 Greater Brazil Plan**

Instituted by the Federal Government, the Greater Brazil Plan establishes the policy for industrial, technological, services and foreign trade for the period of 2011 to 2014, focusing on stimulating innovation and national production to leverage industry competitiveness in the domestic and foreign markets. The country organizes itself to take more daring steps towards economic and social development.

The Greater Brazil Plan is organized in systemic and sectorial actions. The systemic actions aim to eliminate constraints and the raise of productive efficiency of the economy as a whole. The sectorial actions, defined from characteristics, challenges and opportunities of the main productive sectors, are organized in five blocs that organize formulation and implementation of programs and projects.

The Plan establishes a set of initial measures, which are complemented throughout 2011 to 2014, from the dialog with the productive sector. It can be highlighted the following: Tax relief on investments and exportations; Amplification and simplification from financing to investing and exportations; Increase of resources for innovation; Improvement of innovation regulatory milestone; Fostering the growth of micro and small business;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.40/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Strengthening of the commercial defense; Creation of special regimes for adding value and technology in productive chains; and regulation of the governmental purchases law to stimulate the production and innovation in the country.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.41/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

## 4 SALES/DISTRIBUTION

The Technology Parks around the world adopted diverse models to leverage enterprise, being found the following:

- University Park Model – financed with the universities own resources, by the professors or sponsor companies. It focuses on selling technologies developed in the university (Lalkaka, 2002).
- Industrial Park model with governmental financing – counts with local, state or federal financing to build or develop it. This model is established in the economically depressed areas with views to boost the local business development (Bhabra-Remedios & Cornelius, 2003).
- Venture Capital Model – counts with private investments offered by venture capital companies or big companies that invest in small companies with growth potential.
- Real estate model – for-profit, tends to concentrate in providing infrastructure, increasing property value and sharing services, leaving as plan b activities such as mentoring and network job (Barrow, 2001).

Most of the times, even if one expect that these enterprises generate profit or superavit, depending on the case, results coming from rent charges and usage taxes are most of the times below to what would be expected in a conventional market. The majority of the parks need the financial support of the government to keep running.

Studies have shown that specific services, such as mentoring and technical assistance by means of consultancies, periods of training and counseling, internal network interaction, sharing knowledge among tenants and the organized access to business networks of the business community are worth more than what is actually charged (Bøllingtoft & Uihøi, 2005).

While the park builds and feeds a business community environment, the interactions among the tenants can develop joint ventures and collaborative businesses or shared projects.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.42/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The first three models are already known and established worldwide. The fourth model, is the real estate – often employed in U.S.A., it has been established as a feasible business model, especially in supporting the parks.

#### 4.1 APPLIED MODELS

With rare exceptions, the North-American parks set up in the 80s and 90s show a tendency in following the same basic model: employing a part of the University's land, generally located in suburban areas, to install industrial and business parks with restricted use and regulated by agreements and project guidelines that focus on attracting P&D centers of big companies.

With cheap land and willingness of the State to fund infrastructure, such initiatives could be considered as a real estate business, and it is not a technology trading process emerged from academic research.

A great number of parks of that generation were located in suburban areas or even rural places which one would not consider ideal places to build corporative units. Many of these parks were initiatives of universities that started to invest in rural areas and already had authorization to make their technologies available by means of partnerships with American companies, especially in Agriculture and Engineering. These parks tended to be short buildings and a lot of open wide space between the buildings.

In fact, one of the factor that limited the success of this generation of parks was the adoption of the model used in the first parks: A plan of use of the land based on individual parcels, generally addressed to big companies and corporate stand alone structures; a model which showed to be very feasible in the 50s and 60s.

The exception for the plan of construction of the spaces for only one company was that many of these parks included initially a incubator and, in some cases, the funding of companies was done with the intention of helping to foster the growth of new companies situated in technology institutions.

Although the public funding of the facilities in parks was rare, most of the facilities in incubators benefited from public investments. Some of the oldest such as *Stanford*, *Cummings* and *Research Triangle*, have only recently created incubators within research parks.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.43/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The idea of a building for multiple tenants, like a type of facility within the center of the park, came later and it was slowly adopted. When the suburban parks noticed that the big companies investments would not be enough to occupy the spaces, managers decided to construct shared buildings. However, funding of the speculate shared buildings had shown itself very difficulty and became a concern.

#### 4.1.1 Innovative Enterprise Models

Despite of some exceptions in Europe, parks and technopoli tend to be urban and thus in smaller areas with a more dense and vertical development.

In Asia there are two type: eminently urban in places like Hong Kong or Madras, and in more remote areas of China and other territorially larger country.

While the big parks of the United States concentrate on real estate market, the European park models tended to concentrate more on elements of the innovation systems, focusing in innovation both in big companies as the development of new business, being an option to recruiting business already established on the market. If someone travels to Poland, Hungary, Baltic Countries, old Western Germany or Russia, is going to find the parks in small scale, sometimes composed of only one building of the University campus to which it is associated, and not always in good conditions.

The old economies with central planning discovered that the use of direct foreign investments (IED) has presented very difficult for this kind of enterprise. So these nations started to provide assistance to the formation of new companies. When no money was there to build new facilities, they reused abandoned buildings, especially in college campi, and started to occupy them with the enterprises of the University body of professors, as well as other innovators who were willing to put their business in the park. Most of these parks area truly incubators to develop and nurture knew knowledge-based companies. Currently, words such as innovation and collaboration permeates names of incubators and research parks from the Reno River to the Ural mountains.

## 4.2 MATURITY OF THE REAL ESTATE MODEL

Early 2000s the first parks which adopted the real estate model started to mature and the idea of insert models based on better use of academy innovation started to take shape.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.44/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Universities started to value and award applied research and development, starting serious programs of construction and facilities for this job.

In some places the criteria to take office and promote professors started to include patents (although this is still a narrow view of knowledge transfer) and started to develop an increasing literature and some experiences with payment of scholarships as incentive to creating innovation communities.

Public universities started to feel a pressure from the legislation and other instruments searching more visible and measurable impacts on regional/state economies.

The state-of-the-art partnership of university-industry-government started to mature.

In particular, complex regional alliances - many times involving one or more towns and one or more universities/colleges - started to form. Private incorporators of business parks started to look for technology parks and began an open competition with tech parks exclusively run by universities.

With more daring technology transfer operations, the universities started to widen their missions so to include at least some focus on technology transfer adopting several ways of licensing.

The number of parks focused in one or more science areas started to drastically grow. Most of these parks were originally from Biosciences and Biotechnology. Rare a few years, Energy and Natural Environment parks are starting in many places. There are also exclusively environmental technology parks. Where there is focus in technology, facilities of anchoring of academic investigation are been developed, many times with public funding.

Inactive industrial parks or in decline have been offered to universities for recovery, where tech and research parks are enterprised.

The small communities without a large university are also joining the game. In some cases, they are inducing a presence of a university to anchor a technology park.

### **4.3 INNOVATION SYSTEMS AND ROLES OF THE UNIVERSITY**

Typically, universities have used very little of their own capital funds to enterprise technology parks, though many of them have use their own funds to cover operational debts of the park management and marketing activities.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.45/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

Many times, the announcement of building a park increased the level of professors complaining about diversion of funds supposed to go to the main mission of the university to a real estate type of initiative which they do not see as linked to the institution's objectives.

This has been a prevailing concern relatively to the problem when it is the case of segregation of real estate to economic development of the research, innovation and their shock with the roles related to education.

Creating a partnership of truly successful development between a university and a private promoter is a very hard issue due to the several effects provoked in the academic environment because shock with the partners business culture.

#### **4.4 PROPOSED MODEL FOR THE CAPITAL DIGITAL TECHNOLOGY PARK**

The model proposed for the enterprise of the PTCD is based on the principle that the PTCD should incorporate details of the four models presented.

Based on the closeness with universities, it is important to have space to build laboratories and research centers that will be occupied by members of the academy. These spaces should be granted in a lending model to institutions that should fund the enterprise with their own resources or obtained by means of products and services that come from these laboratories or centers.

The Industrial park models with governmental financing, and venture capital should be incorporated into the real estate model, since all other occupants should finance the enterprise for the occupation of physical spaces and for the use of common areas.

It should be admitted companies already installed in other regions that want to create their laboratories or research centers in the PTCD. Medium or large industrial facilities should not be admitted, being tolerated pilot plants at most.

Startups and enterprises elected by venture capital funds should be privileged, counting with a greater number of offered units.

The choosing process of the park occupiers should predict public calls. The evaluation and approval criteria of enterprises that will occupy the PTCD should be defined in a document elaborated by the park's Manager Company properly approved in a meeting.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.46/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

## 5 STRATEGIC MARKETS

As strategic markets to call attention of investments and enterprises, the Capital Digital Technology Park should aim basically in three segments, namely: large companies; startups; Venture Capital Funds; and Universities and Research Centers

The choice of these segments is supported by the fact that they are large creators and promoters of innovation.

### 5.1 LARGE COMPANIES

Large companies often receive special treatment from some governments, because of their structure for greater production capacity and consequently creation of jobs. Usually, the difference is based on the number of employees or on the company's revenue. The special treatment can be characterized by charging fewer taxes or in the form of specific fiscal incentives.

In Brazil, companies with an yearly gross income of R\$12,000,00,00 (twelve million reais) are considered large-sized.

According to data from the Central Bank, Brazil has attracted foreign investment straight from large size.

Large companies that operate in the ICT segment are in general big investors in R&D&I (Research, Development and Innovation).

#### 5.1.1 Foreign investment

From January until May 2011, foreign investment on Brazilian large companies, with inversions over US\$ 1 billion, reached 29.3% (US\$7.758 billions) from a total of US\$ 26.499 billions of entries to the participation in the capital of companies.

In 2010, the intakes over US\$ 1 billion also led this type of investment, reaching 32.2% of the total (US\$ 15.635 billion). In 2009, climax of the international financial crisis, the participation of the entries of large sized was in 5.6%, after the 18% in 2008.

The direct foreign investment is an important phenomenon related to the economic globalization process. Multinational companies (EMNs), main conductors of the world IED, intensified their relevance in the international scenario in the last decades. If in the

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.47/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

beginning of the 90s there was 37 thousand multinationals, followed by 175 thousand subsidiaries, in 2007 these figures reached respectively 79 thousand and 790 thousand.

Currently, the international trade between headquarters and branches represent 60% of the world total. Multinational companies also dominate great part of private research and development (P&D), besides of producing and controlling most part of the world high technology.

The internationalization of sales and production, by means of direct investment, is a phenomenon already consolidated. However, in the case of technological activities – especially P&D – this internationalization movement, boosted by multinational companies, has stand out more recently. Several analyses suggest that multinational companies area internationalizing their innovative activities, moving them to developing countries.

## 5.2 STARTUPS

According to Steve Blank's definition (2010), one of the greatest men of international entrepreneurship, the concept of startup corresponds to a temporary business organization designed to search for a scalable business model.

Currently the entrepreneur who is creating a startup is doing so because of a variety of reasons like searching for a bossless job, lack of better job options, or, in contrast, his efforts could be boosted by the desire of keeping or improving his income, or increasing his independence; in other words, entrepreneurs start their business to envisage an opportunity on the market.

Usually these entrepreneurs are employed in large companies and working with technology. From their work, they start to conceive solutions that could be developed outside the company's environment.

In the last years, there has been a large movement of large corporations in the sense of stimulating their collaborators to start their own business as soon as they notice two features: management capacity and innovative spirit.

There are also in the Brazilian legislation (IT law) expected fiscal incentives to companies that invest in enterprises incubated in public universities. In this context, some large company initiatives have generated some startups.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.48/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

### 5.3 VENTURE CAPITAL FUNDS

Venture capital came up in Brazil much longer than what it has been noticed. On this topic is possible to discuss almost 40 years of history.

In 1974, the BNDE (still without the “s” for social), created three entities with the only purpose of launching venture capital projects (Ibrasa, EMBRAMEC e FIBASE) (Baltin & Bell, 2001). These companies first activities were similar to venture capital. However, the investments were temporary (less than a year) and did not have a lasting impact.

In 1975, a group of French and Brazilian investors created Brasilpar as a fund for venture capital. Unfortunately this fund was close two years later, due to a combination of hyperinflation and lack of adequate legal basis to regulate this specific activity.

In 1982, the CRP (Participations Company from the State of Rio Grande do Sul), a pioneer company, came up to exclusively make venture capital investments. This company worked actively to obtain the first Brazilian legislation to regulate the venture capital and entrepreneurship activities. They accomplished it with the Decree-Law 2,287/85. This law included fiscal incentives like fiscal exemption for capital profits over venture capital investments. However in 1988 this law was revoked. It was an event that represented the end of the activity in this sector for years.

In 1991, the Securities and Exchange Commission authorized foreigners to enter the stock market through BOVESPA. No investor was interested to get in the national market until 1993, when the GP Investments was created and attracted institutional investors, offering them several portfolios, which combined stocks of many expanding industries. The American banks which had already branched throughout South American countries dominated this stage. However, most part of the investments was applied as private capital in opportunistic cases, without a strategy and only with the expectation of profiting (without any concern for the country or the industry).

The next stage in the venture capital case and private equity in Brazil started in 1998 when the Federal Government ran a privatization campaign, ending the monopoly of telecommunications, with the Telebras System being divided into 12 local companies, made private for the amount of US\$19.300 billion.

In 1998, besides the privatizations the Brazilian market was reinforced by increasing phenomena of pontocom companies, preceded by a series of market studies, which

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.49/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

predicted an exponential growth of the online business in South America. This combination was the actual boost for the venture capital funds in Brazil.

In the same year, the Science and Technology Ministry established the Studies and Projects Financer - FINEP as its venture capital branch - in a governmental attempt to develop and institutionalize the venture capital industry and stimulate entrepreneurship.

FINEP has been showing itself as very relevant in funding the creation of laws for technological development, reinforcing simultaneously new companies launching. The main result of FINEP's work in this segment can be seen in the INOVAR program, which has been actively promoting venture capital by offering training and even offering guarantee loans together with other institutions.

In 2000, a group of institutional investors got together to create the Brazilian Association of Private Equity & Venture Capital (ABVCAP). Today, this group has 26 members and consists basically of institutional investors, governmental agencies and universities. The ABVCAP's mission is to develop and stimulate a new legislation to improve the business atmosphere for the venture capital industry in Brasil.

In 1997 and 2002, foreign investors reduced their participation in new capital commitment. During the period of 2003 and 2006, the foreign investors came back to act intensively, especially in 2006 when they reached 65% of all commitments of the new capital commitment in Brazil's industry.

Given the history previously presented, one can consider that the Venture Capital Industry and the Private Equity are mature enough in the country to be considered as relevant part of the target market in the Capital Digital Technology Park.

## 5.4 UNIVERSITIES AND RESEARCH CENTERS

The relationship University-Industry goes back to the 17th century when Germany flourished in a well-balanced partnership with the University and the Pharmacy schools.

In the middle of the 19<sup>th</sup> century, still in Germany, another successful example involved Justus Libig and the fertilizer he used to sell.

Since ever after, the idea of developing products in partnership with industries was progressively disseminated in the academic realm and in the end of the 19<sup>th</sup> century this philosophy was particularly successful in Harvard and MIT, which became known as innovation poles.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.50/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Thus it was the beginning of the second revolution of Universities that started to incorporate economic and social development to its mission. The first academic revolution made research an academic role associated to education. Today the emerging business university integrates knowledge capitalization, technology transfer and new companies launching (spin-off) as additional missions.

The current profile of the academic scientist and also entrepreneur came up during the 70s and the 80s, while several successful biotechnology academic implemented companies. They were example to new applications.

The business scientist makes a bridge between research and use of his research findings. Consequently, several companies around universities reached the industrial segment through technology transfer and the university knowledge and its researchers.

This relation passed and still passes through several levels of involvement from direct transfer of theories and techniques up to total unacknowledgement of its inventors

It is worth observing, however, that currently scientists are getting actively involved in transferring knowledge generated in the research. This has been happening by means of consultancies and providing services.

More recently the relation University-Industry has involved the multiplication of resources with the participation of academic researchers in the creation of new companies or introducing University research items that may interest industry.

Finally, nowadays the relation university-industry is supported by funding and support organizations making the “threefold propeller” where University, Industry and Funding Governmental Organizations are integrated.

In conclusion, the Universities changed and expanded their goals and thus they are contributing to a better quality of life and wealth generation, which resonates the goals designed for the Capital Digital Technology Park.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.51/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

## 6 MARKETING STRATEGIES - ACTION PLANS

### 6.1 POSITIONING

The Technology Parks designed as 3<sup>rd</sup> Generation Parks, which is the case of the Capital Digital Technology Park, has a big challenge. This challenge relies in the positioning that they will adopt before the factors presented by the global market.

These factors can be established as (ABDI & ANPROTEC, 2009):

- The process of world globalization, which promoted an exceptional integration among countries, economies and people;
- The speed of access to information and knowledge, made possible by the advance in the processes of communication;
- The formation of a new global economic structure, with the appearance of big trade blocs, of emerging economies and the global mega companies.
- The growth of the socioenvironmental critical conscience, with the movements, entities and organisms formally oriented to defending natural environment and reducing inequalities.

That said, there is only one conditioning: the emergence of a new economy, base on knowledge, in the context of a new society, supported by concepts and logics of global relationships.

This new scenario should take Technology Parks to identify and occupy a role in which they take advantage of the opportunities presented. Thus a new concept of Park emerges, a lot more synchronized with a reality of "Knowledge Society" than "Industrial Society". Such scenario has been making the parks to act in the following areas (ABDI & ANPROTEC, 2009):

- Systemic or platform: set of systems, competencies and agents organized in an intelligent and efficient way;
- Institutional: Integration of actors with representativeness; management capacity, legal personality, etc.
- Strategic: positioned in the environment, well planned, competitive, recognized and acclaimed;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.52/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Operational: endowed with team capacity, physical and operational infrastructure, resources and systems;
- Innovation promotion: support to processes of technology transfer, stimulation of P&D on businesses, etc.
- Entrepreneurship: foster and support to creating new companies, support finding finance and access to market.

The specter of action on Tech Parks widens, in way that new objectives are absorbed and old functions are reinforced and thus start to adopt positions that have the following characteristics (ABDI & ANPROTEC, 2009):

- Integrating academy and business sector by means of innovative strategies and mechanisms such as mobilizer projects, excellence center in priority segments to the country/region, cooperative projects, etc;
- Offer Infrastructure and professional world-class services, as in hard business services (infrastructure, telecommunication, transportation, human resources and favorable environment) as in soft business services (expertise in management, access to financing, business network, legal support, intellectual property, etc.)
- Hold and support “innovation cluster”, differentiated and competitive. In other words, the Technology Parks can and should establish themselves as spaces for running the strategy of sectorial development of priority business segment to the country/region;
- Facilitate the creating and growth of innovative companies, fostering entrepreneurship and incubation of startups;
- Promote the economic development and competitiveness of regions and cities, taking advantage of their skills and advising the growth to new tendencies;
- Guide the urban development process, offering new opportunities for the growth of cities and for the opening of new fronts of public and private investments.
- Establish references for the economic, social, environmental and technologic sustainable development, offering concrete examples of projects and bal-

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.53/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

anced initiatives that promote progress, respecting the human being and preserving nature.

This new way of positioning makes these enterprises to be seen as a new mechanism of development promotion, because it takes advantage of emerging companies that consolidate the emerging “knowledge industry”, at the same time they enable new technologies and innovation.

### 6.1.1 Positioning Strategies

With positional strategies guidelines, the present proposals are:

- a) To elaborate Development Plan containing clear growth goals for the next fifteen years;
- b) Search financing sources that have the potential of reducing public resources dependence, mainly on its implementation process.
- c) To take full advantage of experience in planning and real estate management acquired by Terracap;
- d) To include in their basis a set of professional able to manage financial resources in consonance with the rules adopted on the Capital Market;
- e) To foresee in its rules the creation of a scientific council with the presence of academic leaders;
- f) To define its area of operation to avoid fads that come to repeat in the creation of "innovation bubbles" and in on innocuous efforts regarding regional/national development;
- g) To establish mechanisms that take advantage of "knowledge assets" produced in universities and research centers with potential to generate innovations;
- h) To synchronize the implementation strategy of the Technology Park with regional and national priorities, as well as with the international tendencies;
- i) To establish clear rules, with proper legal support, to intensively attract private capital;
- j) To participate actively in defining a National Policy of Support to PCTs clearly establishing several actors role: Government, Universities, Private Sector, Finance System, etc.;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.54/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- k) To execute plan, until July 2012, of marketing campaign to launch the Capital Digital Technology Park (as support to the process of selecting private associate, by the attraction of possible competing candidates to the partnership);
- l) To promote the park during the Confederations Cup 2013 and the World Cup 2014 to attract enterprises to the Technology Park;
- m) Take advantage at this point the important impact seen on the urban landscape of the Federal District by the Bank of Brazil's Datacenter, located at Ground Area 3 of the park, as well as the inaugural event of this enterprise, as to the positioning and marketing action that highlights above all the partnership format public-private of the enterprise. Thus, it will put in focus the fact that the Capital Digital Technology Park has already effectively started.

## 6.2 PRICING

To define the price, it is necessary to shed light over some questions related to the type of companies to which the Capital Digital Technology Park will drive its efforts. Such questions address to taking decisions about:

- The park should or should not aim already established companies, which innovate and have significant volume of production and sales, and therefore have financial capacity to pay expensive rent;
- There is interest or not in holding innovative small companies with not so expressive sales volume, which is a characteristic of most new technology-based companies;
- Would it be possible to come to a solution that covers a larger specter of large, medium and small companies.

The answers to these inquiries are crucial to define good price strategies.

Considering the large size of the companies profile to be attracted, and starting with the premise that the land addressed to the enterprise is well located and with urban attractive features, the reasoning of the real estate market seems able to facilitate the buildings and occupation of the park with the existing rules in the local legislation.

In case the profile of the companies to be attracted is technology-based small companies, or a composition among large, medium and small companies, the

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.55/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

incorporation engineering has to be able to manage attractive feedbacks for the real estate investments and the productive investments.

In the case of the latter, it is necessary to solve the conflict between the role of funding the park with the necessity of producing positive economic and financial results. It will be necessary to make compatible the rent value with the paying capacity and the profit expectations of the companies intended to attract.

This circumstance would necessarily take the development of innovative processes of incorporation, because the reasoning of the real estate market will start working as a repulsing force for small and medium innovative companies.

The best alternative to make this kind of scenario possible is to combine the investments portfolio with public and private resources, addressing buildings with the support of public resources for "condominiums of new technology-based companies" that have lower rent paying capacity. As soon as they increase their production and sales capacity, a migration of these enterprises can occur in the private area, with more expensive rents, opening space in the public area so that new companies have the opportunities to go to the Technology Park (Horacio, 2009).

### 6.2.1 Pricing Strategies

Given the conditions presented previously and in search of a solution as more adherent to the objectives of the Capital Digital Technology Park as possible, it was proposed a pricing scale to rent the rooms that will hold companies, according to **Erro! Fonte de referência não encontrada.** below:

Table 6.1 Pricing strategy for the PTCO

Companies	Area (m <sup>2</sup> )	Monthly Price	Yearly Price
Small and Micro Companies	45	1,765,13	21,181,57
Medium-sized Companies	500	19,612,56	235.350,75
Intermediate-sized Companies (medium/large)	2000	78,450,25	941,402,99
Large Companies	4000	156,900,50	1,882,805,99

The square meter average amount is about R\$ 39.22. Just to make a comparison, it is important to demonstrate the average amount practiced in the Federal District, conveyed in **Erro! Fonte de referência não encontrada.** below:

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.56/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Table 6.2 Average renting prices in the Federal District (data surveyed by this project's team in Mar/2012).

Localization	Rent (R\$)	Area (m2)	Price/ m <sup>2</sup> (R\$)
Setor Bancário Norte – Qd. 01	80,000	900	88.89
Setor Com. Norte - Ed. Varig	55,000	630	87.30
Setor Hoteleiro Norte – Qd. 02	6,200	73.53	84.32
Setor Com. Norte - Brasília Shopping	60,000	800	75.00
Setor Hoteleiro Sul – Qd. 02	3,400	48.05	70.76
Setor Comercial Norte – Qd 05	68,320	976	70.00
Setor de Autarquia Sul – Qd. 04	80,000	1,144	69.93
Comércio Local Norte – Qd 316	150,000	3,198	46.90
Setor de Rádio e TV Sul	1,200	28	42.86
Setor Bancario Sul – Qd. 02	80,000	2,000	40.00
Taguating Shopping	14,400	400	36.00

The set of information referring to rental pricing in the PTC D are presented only under the light of the economic feasibility study and in way of guaranteeing enough conditions to make the PTC D possible.

However, it is worth signaling that the manager entity of the PTC D can adopt a posture more or less aggressive in pricing, since the values employed and estimated in the feasibility study leave a significant margin of maneuver. The PTC D manager can also explore the scaled pricing structure, privileging the MPEs with smaller cost until they reach a value more suited for the large company market.

### 6.3 LOCALIZATION

Besides of attending the local public, the choice to enterprise and produce in Brasilia provides an easier access to other consumer centers of the Midwest, Northeast and North regions, and at the same time, maintain the connection with the markets from the South and Southeast regions. The logistics ease of being in the country's geographical center makes a company in the Federal District (DF) to produce products and services to all national consumer market.

Brasilia is located in the center of the country, being a strategy point to distributing goods, supplies and products. The city is linked to all Brazilian regions by means of large highways, the federal roads BR-020, BR-040, BR-050, BR-070 e BR-080. The BR-020 road links Brasilia to the Northeast of Brazil through Bahia. BR-040 connects the DF to

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.57/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Belo Horizonte and Rio de Janeiro. BR-050 links the capital to Sao Paulo. BR-060 crosses Goiania and reaches the border with Paraguay in the city of Bela Vista in the State of Mato Grosso do Sul. BR-070 reaches Caceres in the state of Mato Grosso, borders with Bolivia, crossing all west Goias. BR-080 connects Brasilia and Uruaçu in northwest Goias. In this location it links to the Transbrasiliiana Road (BR-153), also known as Belem-Brasilia. BR-153 crosses the North of the country, passing through the states of Goias and Tocantins, crossing the Araguaia river going up to Belem, capital of the state of Para.

In addition, Brasilia has an International Airport and a Dry Port to facilitate the traffic and goods clearance.

As a converging point in national aviation, Juscelino Kubtscheck International Airport of Brasilia has non-stop flights to all main places of Brazil and eight non-stop international flights (one to Europe, three to the U.S. and four to Latin America). The terminal is the third busiest aircraft and passenger movement transit and the fourth in cargo volume transit in Brazil. About 38 thousand passengers embark and disembark over 400 flights daily.

### 6.3.1 Geopolitical Situation

The DF is situated in a metropolitan region with 3.9 million inhabitants. In the influence area of the Brasilia-Anapolis-Goiania axis there are approximately 4.3 million inhabitants. Until 2030, this corridor will reach a population of 6,5 people, according to projections based on the average growth of the last 10 years. Currently, this axis is responsible for 4% of the national GDP.

When it comes to human capital, the DF has a population with the biggest average in the amount of years of study among Brazil's federal unities: 8.6 years of education. Year by year, over 4,000 people graduate from college in the Federal District. The percentage of people with college degree in relation to the total population reaches 15%. The University of Brasilia (UnB) is among the best and larger in the country, training highly qualified professionals in several areas of knowledge. Since 2006, UnB has implemented its expansion strategic plan, building advanced campi that aim not only the expansion of vacancies in the Federal District and Surrounding Municipalities higher education, but also the implementation of college courses committed to the regional development. The University of Brasilia (UnB) has been recently classified as the fourth best university in the

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.58/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

country and eleventh best in Latin America, according to the QS Top Universities ranking. Taking into consideration only Brazilian federal universities, UnB's rank position goes up to second place.

When it comes to technical education, there is the Federal Institute of Education, Science and Technology of Brasilia (IFB), which has unities spread in Brasilia, Planaltina, Taguatinga, Gama and Samambaia. Each of them has courses in several areas such as: Agribusiness, civil construction, logistics, fashion, furniture production, information technology, among others.

Many people with good college education migrate to the DF because they got selected to work in several college level jobs. They make part of a demanding human capital as potential collaborators of companies that need qualified intellectual workforce, as the ones based on Information and Communication Technology, lawyer offices, research companies, biotechnology and pharmacy companies too.

Just like it happens in the rest of Brazil, qualification of workforce continues to be a challenge in the capital. Thus, the Federal District is the only unity of the Federation in which more than half of the population has at least 10 years of formal education.

About 25% of the populated finished high school and almost 15% finished college. 91.7% of the 15 to 17 year-old teenagers are in a Federal District school. This is the highest percentage of the country. The national average is 85.2%.

The Federal District is the Federation unity that most invests in basic education (Elementary to High School) per year: over R\$ 4.8 thousand per student in public schools. In the Program for International Student Assessment (PISA), applied in 2009, the DF students had the best average among 20 thousand students in the country.

### **6.3.2 Localization of the Capital Digital Technology Park - PTCD**

The Capital Digital Technology Park will be located next to the Granja do Torto, one of the official houses of the nation's president, in the North Exit of Brasilia.

It is a region with easy access to it, provided with great traffic ways to those who get into and out of town.

In the main road that is aside the park, the EPIA road gives access to the most important federal roads that cross the Federal District: BR-040, BR-020 E BR-060. In this

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.59/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

same road, about 15km South, there is the Interstate Bus Terminal of Brasília. The distance from the park to the Juscelino Kubitschek International Airport is about 20 km.

The park area is adjacent to the airplane-shaped polygon characteristic of the Pilot Plan (Plano Piloto) of Brasília, being the proximity to the center of the power very significant: only 9 km from the Federal Capital center, 10 km from the Buriti Palace, headquarters of the Federal District Government, 10 km from the Ministries Esplanade, 12 km from the Planalto Palace and National Congress. Figure 6.1 shows the localization of the park in the context of the Federal Capital. Other remarkable points in the landscape are:

- Neighborhood of National Park of Brasília, westward, and Mineral Water National Park, south, which are important natural reserves;
- The Torto and Bananal faucets, as well as Lake Paranoa;
- The closeness to EMBRAPA, CENARGEN and UnB;
- Closeness to the North Sector Hospitals (Setor Hospitalar Norte);
- Proximity to shopping centers and shopping malls at the end of Asa Norte (North Wing) and entrance of Lago Norte (Lake North);
- Closeness to elementary and high schools in Asa Norte;
- Neighborhood of the Farming Exhibitions Park of Brasília.

Figure 6.2 shows the park polygon, as well as the definition for the more significant neighboring areas. The land plant with its specific ground areas is presented in Figure 6.3.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.60/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

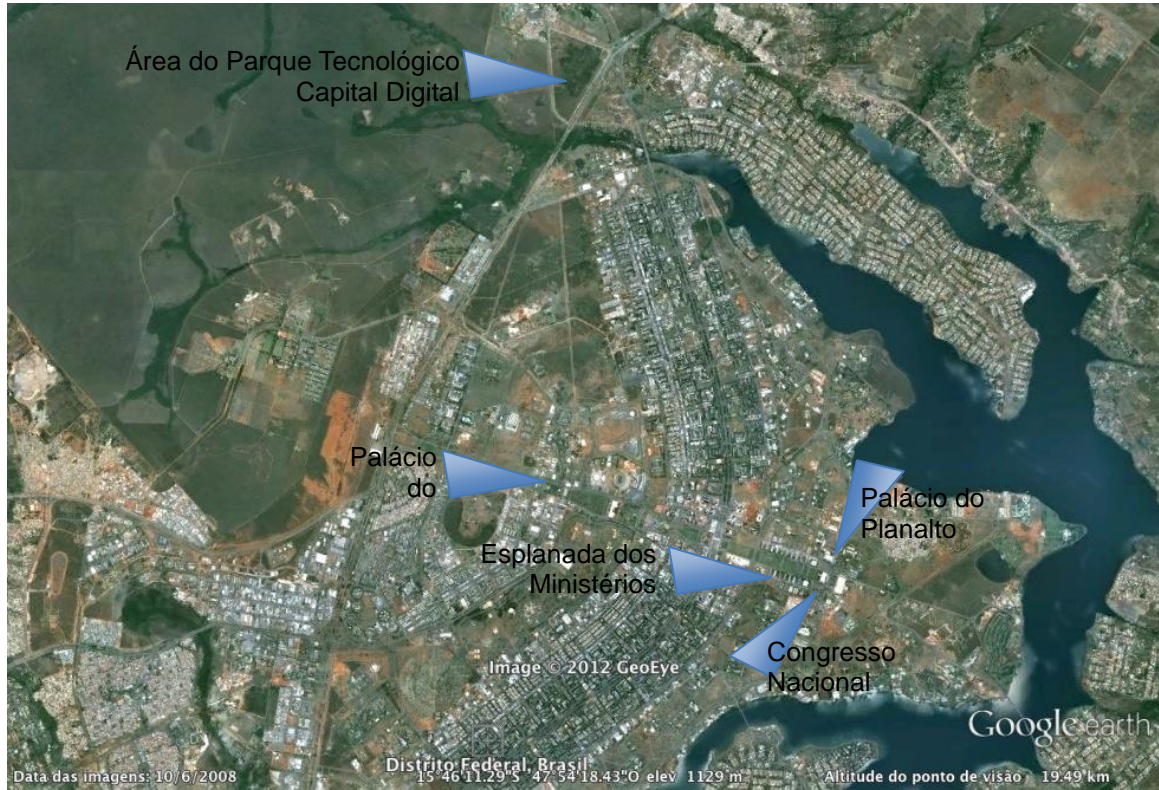


Figure 6.1 PTCD localization

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.61/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

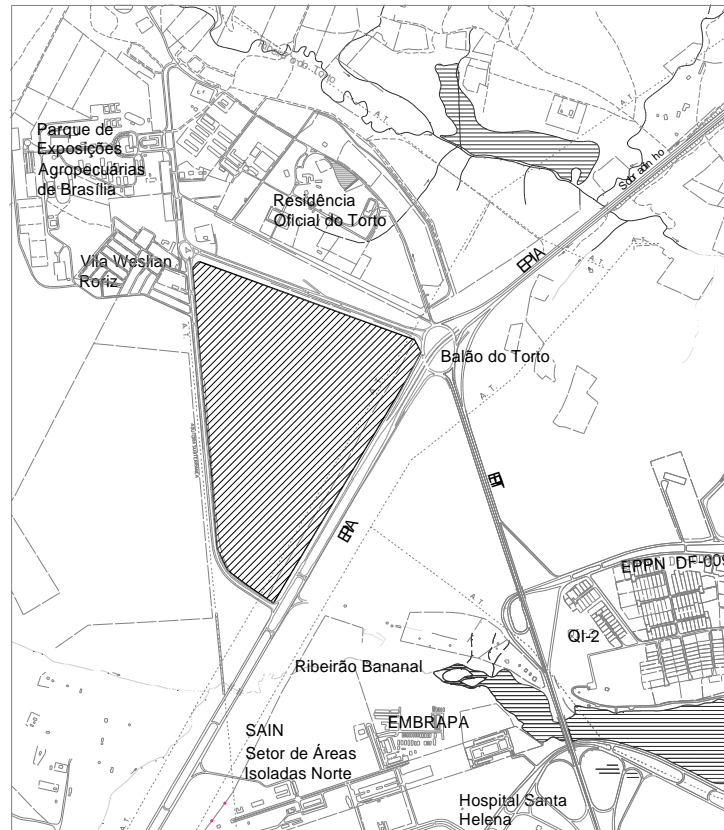
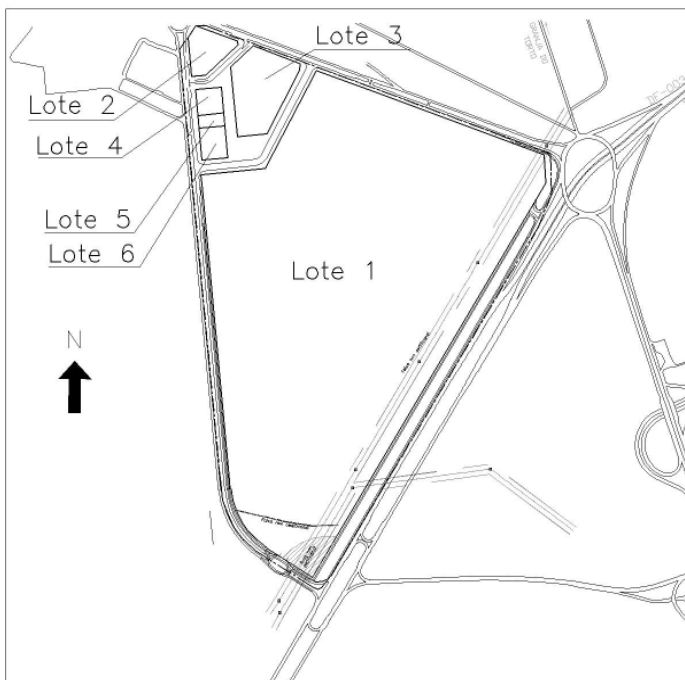


Figure 6.2 Park polygon detail



Caption:

Ground area 1 – PTCD total area of 958,898 m<sup>2</sup>;  
 Ground area 2 – Technical School (Public School) total area of 14,064,11m<sup>2</sup>;  
 Ground area 3 – Capital Digital Data Center – Bank of Brasil and CEF: area 40,000m<sup>2</sup>;  
 Ground area 4 – FAP: 6,400 m<sup>2</sup> ;  
 Ground area 5 – Technical School (Private School) total area of 3,200 m<sup>2</sup>;  
 Ground area 6 – CEB substation with total area of 8,000 m<sup>2</sup>;

Figure 6.3 PTCD ground area details

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.62/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
 É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

## 6.4 PRODUCTS/SERVICES

The Capital Digital Technology Park will offer its companies several services provided from the Manager Company, or by means of outsourced companies.

Among the services available, there will be necessarily the following:

- Physical space rental;
- Telecommunications (telephoning, internet, videoconferencing);
- Shared spaces;
- customs clearance unity;
- Surveillance and security.

### 6.4.1 Physical space;

The Capital Digital Technology Park area was defined by the Complementary Law 741, in October 10, 2007, in the Attachment I of the Decree 19,071 of March 6, 1998, and by NGB 002/07.

According to the NGB 002/07, the occupation rate is defined as the ration between the horizontal projection of the built-up area and the ground area multiplied by 100. By the norm, the maximum occupation rate cannot be greater than 30% of the Ground Area 1.

The total area of the PTCD is 1,230,000 m<sup>2</sup>, from which 958,898 m<sup>2</sup> makes Ground area 1, which in turn its built-up space corresponds to 30% of the ground area, or 287,669,4 m<sup>2</sup>.

The total built area cannot be greater than 958,898 m<sup>2</sup>, or one time the total area of Ground area 1. The buildings located in the higher part and the middle part of Ground Area 1 can have up to 15 meters, while those located in the lower part of the ground area cannot have more than 7.5 meters. Water tanks and lifts machine houses do not take part in the maximum height calculation.

For the built-up area it is necessary a building of 21,309 vacancies total, which will demand a 291,189,78 m<sup>2</sup> total area. As a proposal, 2% of the Ground Area 1 go to vacancies in level – which would consume – for a vacancy of 12 m<sup>2</sup>, 19,177,98 m<sup>2</sup>.

From the limits of the NGB and with a hypothesis that the blocs will have a horizontal projection of 4,000 m<sup>2</sup>, a total of 72 blocs is estimated.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.63/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

From that estimate, 886 rentable physical space unities area project as presented in the following table:

Table 6.3 Estimate of physical space use.

Size of the Companies	Area (m2)	Unities
Small and Micro Companies	45	712
Medium-sized Companies	500	117
Intermediate-sized Companies (medium/large)	2000	37
Large Companies	4000	20
TOTAL		886

#### 6.4.2 Telecommunications

The services of telecommunications offered by the Technology Park will provide the minimum requirements of functionality and assured access. To do so, the park will employ a solution that covers the following:

- Installing redundant high-capacity links by using optical fiber;
- A redundant high-capacity radio link for first contingency;
- A satellite link to operate in second contingency.

Backbones are responsible, among other factor, for the connection with external circuits of internet servers. Core routers will be installed and configured so to make part of the park's internal network.

Switches and firewalls will also be installed and configured together with routers and servers aiming to logical and physical network operation, as well as their protection against attacks from external and internal networks of the park, including possibly an automation network.

The solution should cover the following communication services:

- Data network;
- Ultra broadband connection;
- Wireless broadband connection;
- Corporate telecommunication;
- Videoconferencing;
- CFTV;

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.64/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

- Site, content and email hosting;
- Datacenter, storage, network management and support.

### 6.4.3 Shared spaces;

The PTCD will offer spaces that may be shared by companies hosted there, such as meeting rooms, classrooms, videoconferencing room and auditorium.

The use of these spaces will be previously scheduled.

The Park's Headquarters will provide these services. The building will be able to choose a great deal of services to the companies which have ordered them. When necessary, there will also be provided support services, like room adaptation, audiovisual montages, receptionists, simultaneous translation, catering, answering machine, etc.

The meeting rooms should have the capacity for 8 and 15 people. There will also be available a conference room with 130 people capacity, equipped with sounding system, audiovisual resources and simultaneous translation, and an exhibition room.

### 6.4.4 Customs clearance unity;

To improve customs clearance of the park companies' imported products, as well as exporting products from PTCD, an advanced unity for customs clearance will be created.

This unity should have at least 9,805,76 m<sup>2</sup>, being 9,000 m<sup>2</sup> addressed to warehouses and 805,76 m<sup>2</sup> for the offices area.

### 6.4.5 Surveillance and security

Surveillance and security services should cover the following requirements:

- i. Integrated System for Security Information Processing (SIPIS):
  - a) surveillance camera system;
  - b) Communication system for security agents; and
  - c) Telephone center for users.
- ii. Internal security of buildings and parking lots;
- iii. Common areas security;
- iv. Ostensive surveillance; and
- v. In case of serious incidents, contact and forwarding to Police of the Federal District.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.65/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

The security agents involved in items (ii), (iii) and (iv) should preferably hold non-lethal gun. In case of lethal gun necessity, such equipment should be used by the minimum amount of employees as possible. In all events where those responsible for the SIPIS judge necessary to send the armed team to the spotted problem, the Federal District Military Police (Polícia Militar) should be contacted simultaneously with the private security team.

## 6.5 PROMOTION

Firstly the basic elements on the efforts of promoting: brand and web portal creation, promotion window, space and time guidelines.

That said, the main strategies employed to promoting are production of printed and digital material, roadshow, publishing articles in national and international newspapers and magazines, announcing it in television and on digital social media.

### 6.5.1 Brand and Portal

It is not conceived anymore, especially in the ICTs sector, to propose a brand and consequently to expect it to be absorbed by the market if the represented entity does not have a significant brand and an interesting portal on the web. Generally, every form of institutional advertising by any media convey the brand and the localizer pointing to the portal. Thus, in the ground of all PTCD promotion, and with previous condition, the conception and development of these two items should be carried out.

### 6.5.2 Promotion Windows

On the other hand, it is worth observing the existence of promotion window, that is, periods of time in which – because of the occurrence of an event or because of some sudden interest of the target audience – it is particularly efficient to advertise a brand, a project or an enterprise.

In this context, it seems to have an interest in starting a PTCD launching marketing campaign as support to the process of selecting the private associate, by the attraction of possible candidates to this partnership, in way that the campaign should be addressed to pension funds, embassies and consulates, large contractors and likewise.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.66/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Such campaign should be extended in time and space, and rigidly to a wider audience, to cause an impact in advertising during the Confederations Cup 2013 and the World Cup 2014 to attract enterprises to the PTCD.

In the same way, to launch the BB Datacenter - already consolidated enterprise in the Federal District - offers an important occasion to the public-private marketing, conveying that the PTCD has already started in fact.

Exploring such opportunity windows should put in evidence the governmental action side, committing to the GDF and its role to creating enterprises and jobs, providing an economic and social development.

### **6.5.3 Space-Time Guidelines in Advertising the Project**

It is worth observing the question of coverage of the advertising and promotion in the space-time relationship, from the internal environment of the organization (endomarketing) even the global environment, going through neighborhoods immediate and of medium and long distance.

From all evidences, even not having an institutionalization or formal organization, the need of the PTCD internal sales approach is already imposing, together with the actor that currently compose the operating forces in structuring the Park, namely: Terracap itself, the District Government Cabinet, the Science, Technology and Innovation Secretary as well as the Finance and Economic Development and the state-run one, and the Autarkies. In each case, the materials and ways of approaching should be adequate to the mission of each organization.

It is also necessary to come with a specific approach to immediate neighborhood, especially for partners of the productive sector and the academy, in this case, in the way of a technical-economic clarifying work, without the fuss of a public campaign that would have the risk of causing the opposite effect of what desired.

To more remote neighborhood, national and even global, it seems adequate to count with specific professional support to advertising the brand and the project.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.67/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

#### 6.5.4 Printed and Digital Material

The printed material includes folders, booklets, business cards, descriptive brochures that may support and complement the other methods of promotion. It is important to also produce posters even in billboards, especially in the Park's area.

It is suggested that the material should be produced in Portuguese and English with QR-Code with advertising information of the PTCD and Brasilia.

It is still suggested to produce specific supporting material to flashdrive, so that these devices carry the PTCD logo produced specifically for that.

#### 6.5.5 Roadshow

The Roadshow will have a program with several events organized worldwide. In its organization should participate agents of the District Government and the Federal Government. This activity should still have partnerships with institutions like APEX, ABDI, CNI e SEBRAE.

The Roadshow events will last one morning and its schedule will cover the PTCD project presentation and the opening of a question-and-answer board. The language for each event should be the respective host country's. The audience should vary between 50 and 500 people, majorly composed of directors and managers of companies related to ICTs.

#### 6.5.6 Article Publishing

Always as possible the park's communication team should look for publishing contents in the printed communication media in Brazil and abroad.

It is strongly indicated the use of unpaid articles, in spontaneous news in the communication media.

Occasionally and punctually, it should look for publishing advertising material search the park's brand consolidation.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.68/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

### 6.5.7 Advertising on Television

Punctually, and in places previously chose, especially those with great potential of generating tenants for the park, should be chose to advertise the park by means of TV advertising pieces.

This resource should also be used abroad if the circumstances allow to do so.

### 6.5.8 Social Media

To advertise social media the strategies will be traced on the basis of the following stages:

- Analysis;
- Target audience definition;
- Activation (putting into practice the actions in the plan with season definition);
- Monitoring and Assessment;
- Adapting before the analyses carried out.

For these actions and strategies there will be promotional campaigns by means of social media, such as the following examples:

- Twitter;
- Orkut;
- Facebook;
- Lindein;
- YouTube;
- Blogger.

A frequent assessment will provide capacity to analyze the status of the determined actions so that the plan reaches its goals.

The indexes that should be used for the assessment and advertising can be divided into two categories:

- Production Indexes – measure production straight from the people in charge for the action plan;
- Result Indexes – measure the effects of achieving the communication actions.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.69/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

## 7 MARKETING STRATEGY MANAGEMENT

For the marketing strategy management it should be considered that the control activities involve monitoring and assessment of people and other resources used on the enterprise operations to assure that the goals will be achieved.

The control is to raise awareness whether the goals proposed in the project are being reached. This includes the use of incentives and other rewards that motivate workers to reach the goals. The control can be divided in three types: strategic, tactical or management and operational control.

The strategic control, according to Mosimann and Fisch (1999), consists of verifying the company relations with the environment; comparing to strategic guidelines and decisions in changing the objectives to environmental changes, which generate threats and opportunities to the company; checking badly run business; or yet investigating false premises in elaborating the strategic guidelines.

The tactical control or managerial is a verification and follow-up tool of more general measuring in unit level. It has the function of evaluating managers in intermediate levels of the company by means of qualitative and quantitative measures. Tactical control consists of a set of indexes and goals that allows verifying whether the objectives are being reached (Catelli, 2001).

The operational control, according to Weslch (1973), can be defined as being an action needed to assure achieving the objectives, plans, policies and established patterns.

In sequence, the strategic control will be more detailed.

### 7.1 STRATEGIC CONTROL

Simons (1995) developed a structure for strategic control, by which it is aligned to multiple definitions of the strategies and to the intended and emerging aspects of its development. The author defines the formal management control systems as being routines and procedures based on information, by which managers test standards to organizational activities, and then they keep or change them.

Thus the author reinforces that the company should work on four basic variable of strategic control: central values, risks to be avoided, strategic uncertainties and

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.70/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

performance critical aspects of performance. The operationalization happens by means of four systems, called control lever.

The four control levers are aligned even when working simultaneously in different tasks. The central idea in this strategic structure of control is the balance of innovation necessities and different interests. The creed system is used to highlight the core values related to the business strategy and inspire searching for new opportunities, emphasizing the key values of the organization. The limit system reduces the risks on adjusting the limit of undesirable strategic behavior. By means of the diagnostic control system, the critical factors of success are communicated and monitored. Finally, the interactive control system is used to discuss strategic uncertainties and learn with the results in an environment in constant change. When the creed systems and the interactive control system are used to stimulate the innovative behavior, the limit systems and diagnostic control systems are employed to verify how the workers behave following rules and pre-established plans.

According to Kaplan and Norton (2011), the organizations also need a solid internal control system to backup critical assets, for example box, storage, equipment, and information –even data bank – bookkeeping and client records. In several organizations, the performance measuring systems concentrate only in these internal control tasks. Although important, the exclusive focus on internal controls confuses observation of norms and regulations with accomplishment of the mission and attainment of results. The internal controls will not be discussed in this work, being possibly object for future study.

### 7.1.1 Creed System

This system is composed of a philosophical set of definitions in a document the company establishes, delimiting its purpose and values. It consists of mission statements, vision, central values, creeds and purposes, among other statements. These documents stimulate and guide the search of opportunities by workers, which come from the effort of their commitment.

Kaplan and Norton (2001) state that the creed system is an explicit set of documents transmitted to workers, which provides the basic structure for values, purposes and organization's evolution.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.71/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

### 7.1.2 Limit System;

It's about a system that restricts acceptable behavior for the company workers. Through this lever limits are established in search for opportunity, which minimize risks. It can take shape of conduct codes, ethical codes, rules, manuals, penalties and performance measures. They are used to protect organizational secrets, reputations and to avoid legal problems.

Kaplan and Norton (2001) describe that besides disseminating the great purpose of the organization, the managers should announce the behaviors and attitudes acceptable or not to run the mission. Companies need a limit system that designs acceptable and unacceptable actions. Thus, the limits system constitutes of legal restrictions and conduct codes that clearly identify the actions and the range of acceptable behaviors.

### 7.1.3 Diagnostic Control System

This system aims to monitor the outcomes or incomes of a company, being essential to implement the intended strategies and reach a successful result. In a positioning strategy the company can compete based on costs, differentiation or focus. An example of diagnostic system is formed by the key factor of success, among them are the price, cost, quality, time and innovation.

### 7.1.4 Interactive Control System

Through this system standard the follow-up and measuring of performance are produced, which enhances the emerging strategies. Through the system strategic or environmental uncertainties are monitored, which correspond to assumptions that affect the fundamental premises of the strategy. The Budget, the Tableau de Bord and Balanced Scorecard are examples of tools used in an interactive control system.

The Capital Digital Technology Park should use the four lever system in its marketing strategy management.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.72/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

## 8 CONCLUSION

Based on the study of models of parks in Brazil and in the world, the PTCD was conceived in this project to have its implementation by means of the creation of a Special Purpose Entity – SPE. The latter will be responsible for the investments necessary to implement the PTCD, in an estimated cycle of 35 years. Thus, the Capital Digital Technology Park in Brasilia will have a set of competitive advantages described in the precedent documentation in this Terracap-UnB project.

In this report, the marketing strategy was thought in way to adapt to the PTCD client necessities and that address the competitors strategies, that is, the other national or international technology parks.

The definition of clients, the analysis of competitors, the services offered and the products produced in the Capital Digital Technology Park, as well as the position that the park intends to occupy in the national and world context, will consolidate the marketing strategies to be employed by SPE.

First, the target audience for the implementation of the Technology Park is composed of companies, groups, consortia, pension funds, formalized investment funds and other investor, who associated or separately will participate in the selection process, by means of bidding process to associate to Terracap, aiming to create the SPE, manager of the Park. This process is an important action of the Federal District Government - GDF.

After the selection process, the target audience of the PTCD consists of companies, several funds, research institutes, development and innovation, education institutes, therefore all the components to the S&D&I chain in the information and communication technology sector.

The market analysis contained in the Product 5.2 - Market Analysis and Competitiveness document, together with the market situation analysis and the scenarios presented, originated the proposed strategies and elaborated in the part of the study, which the results are found in this document.

Methodologically speaking, the PTCD enterprise is feasible, under all perspectives, including pricing. Such situation recommends that the initiative should be carried out.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.73/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

By means of a coordinated work and interdependent among Terracap and UnB teams, the activities in elaborating the Product 5.5 were planed, discussed, carried out and documented.

The activities involved in this stage formally observed the execution of the methodology steps chosen to the project management, PMP/PMI.

The UnB team considers that had access to all information needed to good execution of the works and the availability of the information here presented by Terracap's team, just as the joined activities of analysis and discussion, did a good work in the project stage.

Brasilia, March 30 2012.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	<b>Pág.74/77</b>
--------------------------------------	------------------------	-------------------------------------------------------------------	------------------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.



## REFERENCES

- [01] ABDI, & ANPROTEC. (2009). Parques Tecnológicos no Brasil – Estudo, Análise e Proposições. Brasília, DF, Brasil: ABDI.
- [02] Annerstedt, J., & Haselmayer, S. (2004). Third generation science parks. Why do the science parks ‘go urban’ within the globalizing economy? XXI IASP World Conference on Science and Technology Parks. Bergamo: IASP.
- [03] Arthur, W. B. (26 de Nov de 1989). Positive Feedbacks in the Economy. Scientific American, pp. 92-99.
- [04] Bøllingtoft, A., & Ulhøi, J. P. (2005). The Networked Business Incubator-Leveraging Entrepreneurial Agency. Journal of Business Venturing, 265-290.
- [05] Baltin, M., & Bell, P. (2001). Venture Capital in South America - Unlocking the Potential for Venture Creation in an Emerging Market. Wissenschaftliche Hochschule für Unternehmensführung, Otto Beisheim Graduate School of Management. Val-lendar: Wissenschaftliche Hochschule für Unternehmensführung.
- [06] Barrow, C. (2001). Incubators - A Realist's Guide to the World's New Business Accelerators. Chichester, UK: John Wiley & Sons Ltd.
- [07] Bhabra-Remedios, R. K., & Cornelius, B. (2003). Crack in the Egg: Improving performance Measures in Business Incubator Research, Refereed Paper. 16th SE-AANZ Conference (pp. 6-10). Vic: University of Ballarat.
- [08] Blank, S. G. (2010). Not All Those Who Wander Are Lost: Posts from an Entrepreneurial Career. Sunset Books/Sunset Publishing Corporation.
- [09] Catelli, A. e. (2001). Controladoria – Uma Abordagem da Gestão Econômica – GECON. São Paulo, SP, Brasil: Atlas.
- [10] Christensen, C. M. (2010). The Innovator's Dilemma. Book Review, pp. 2-6.
- [11] Cooke, P. (1998), Origins of the concept. In Braczyk, H.J., Cooke, P. e Heidenreich, M. (Eds.), Regional
- [12] De Sousa Jr., R. T. (2004). Introdução à Gestão de Tecnologias da Informação – Notas de Aula, do Curso de Especialização em Gestão de Tecnologias da Informação. Departamento de Engenharia Elétrica, Universidade de Brasília.
- [13] Innovation Systems. UCL Press, Londres, pp. 2-25.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.76/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.

- [14] Horácio, F. (2009). Delimitando o Framework de implantação de um parque tecnológico. O Desafio de Implantar Parques Tecnológicos, pp. 3-11.
- [15] Kaplan, R. N. (2001). Organização Orientada para a Estratégia. Rio de Janeiro, RJ: Campus.
- [16] Lacave, M., & Iori, A. (2004). Corporate location in Europe and Italy. New trends in corporate and science park. XXI IASP World Conference on Science and Technology Parks. Bergamo: IASP.
- [17] Lalkaka, R. (2002). Technology Business Incubators to Help Build an Innovation-Based Economy. Journal of Change Management , 167-176.
- [18] Lewis, D. A. (2001). Does Technology Incubation Work? A Critical Review. Reviews of Economic Development Literature and Practice , 11, 4-22.
- [19] Leydesdorff , L., & Etzkowitz, H. (1996). Emergence of a triple helix of university-industry- government relations'. Science and Public Policy XXIII.
- [20] Massey, D. B., Quintas, P., & Wield, D. (1992). High-tech Fantasies: Science Parks in Society, Science, and Space. London: Routledge.
- [21] Mosimann, C. P., & Fisch, S. (1999). Controladoria. São Paulo, SP, Brasil: Atlas.
- [22] Phillips, R. (2003). Application of the technology and innovation park concept in the developing world: Dimensions and considerations. Knowledge, Technology & Policy , 46-60.
- [23] Radicati, G. (2009). Instant Messaging Market, 2009-2013. The Radicati Group, Inc. Palo Alto: The Radicati Group, Inc.
- [24] Shapiro, C., & Varian, H. R. (1999). Information Rules - A strategic guide to the network economy. Boston, MA, USA: Harvard Business Scholl Press.
- [25] Simons, R. (1995). Levers of Control – How Managers Use Innovative Control Systems to Drive Strategic Renewal. Boston, MA: Harvard Business.
- [26] Welsch, G. A. (1973). Orçamento Empresarial. São Paulo, SP, Brasil: Atlas.

Projeto: 2011 TERRACAP EVTEC PTCD	Emissão: 30/03/2012	Arquivo: 015 - Product 5.5 – Marketing and Commercialization Plan	Pág.77/77
--------------------------------------	------------------------	-------------------------------------------------------------------	-----------

Confidencial

Este documento foi elaborado pela Universidade de Brasília (UnB) para a TERRACAP  
É vedada a cópia e a distribuição deste documento ou de suas partes sem o consentimento, por escrito, da TERRACAP.