

**Internet
Player
Brazil**

**Our Story
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**Business
Infrastructure
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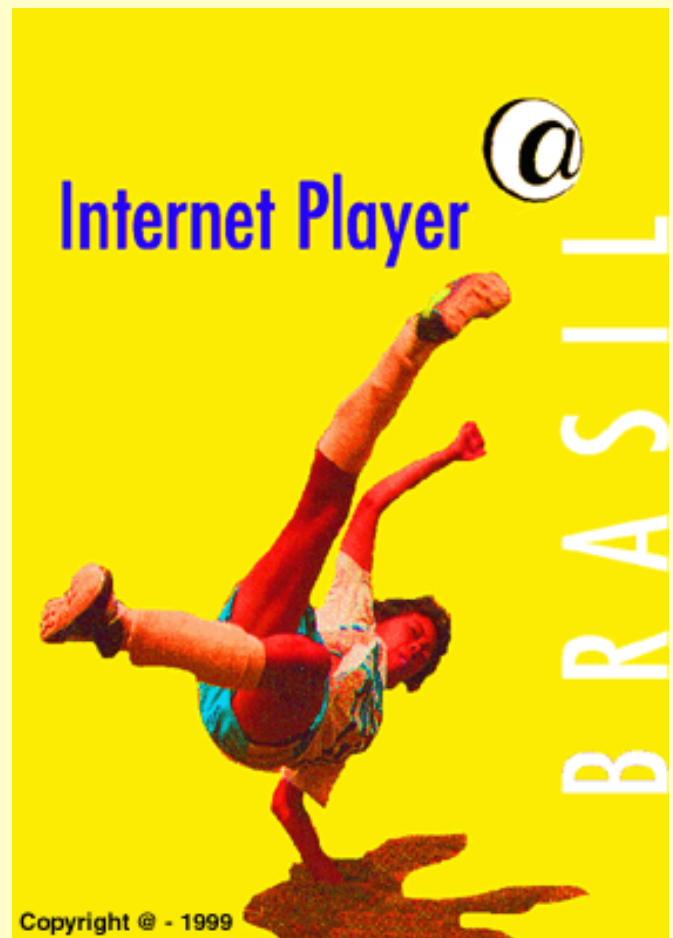
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Our Story

**Willi Bolle
Ben Cain
Gavriel Charalambides
Alejandro Gorodetzky**

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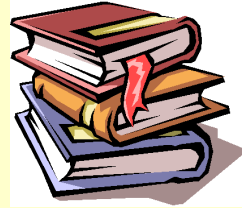


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Our Story

Four Stanford Students...
one brilliant new technology... the hyper integrated circuit
a revolutionary product... the widget
an unexplored market... Brazil
a visionary high tech startup... ewidgets.com.br

We met for the first time in [LAS194](#), a class about the Information Revolution in Latin America. Little did we suspect that this was going to be the beginning of an incredible adventure...

We were all students with different backgrounds, with a common interest of learning about the Internet's effect in a region poised for growth. After the first class we left the building and walked together for a long time. One topic led to another, until finally the idea begun to solidify in our minds, why not take our experience and skills and start a new company focused on e.commerce in [Brazil](#). After all, that's what every [Stanford](#) student ends up doing.

To start writing our business plan we needed to meet in a quiet place, a good restaurant where we could sit down and put some of our ideas in paper, a good Silicon Valley hub where we could start hanging out with the VC crowd that would give us the millions we would need. After checking our wallets we realized that this wasn't going to be that simple, so we ended up in [Burger King](#) in University Avenue...

Our first "power" lunch was very productive. We realized that the new technology we had developed, the [hyper integrated circuit](#), would allow us to produce [widgets](#) at a far lower cost than our potential competitors. Since we would patent this technology, we would have a sustainable competitive advantage that would translate into huge profits for all of us. We could soon start thinking about buying our [Porsche](#), houses in Portola Valley, and Rolex watches. We continued munching on our Whoppers...

To make our group more productive we decided to split the initial research among us. Each one would tackle a different area so that at the end we would have a better picture of the Brazilian market. Willi's background as a professor made him perfect for the [education](#) part. We needed to know whether we could count on homegrown talent to staff our high tech enterprise. Ben volunteered to work on the [labor](#) situation, since he was already somewhat familiar due to some classes he was taking. Gabriel's engineering studies made him the perfect choice to tackle the technical [infrastructure](#) of the country. And finally, Alejandro would use his newly acquired MBA skills to analyze the [business](#) climate.

We split up to do the basic research, and started to meet periodically in our new hangout to exchange findings and brainstorm about new questions. Pretty soon we would be able to write our business plan and start raising capital!!!

We also have a [slide show](#) if you would like to take a look at that.

Hyper Integrated Circuits



The widget





Education

"All the world's a stage"... The existence of the World Wide Web gives a new meaning to Shakespeare's words. Leaving [Burger King](#), I realized that my teammates from the US, Greece and Argentina helped me to see my country in a broader international context. I imagined a sketch of a screenplay:

Brazil in the global classroom

The first scene would be a test of Brazil's international performance. Based upon the data given by Nashua Forbes (in his presentation Technology Transfer to Newly Industrialized Countries), let's project some selected development indicators in education and in the related fields of communication, information, science and technology, in order to compare Brazil with two highly developed countries (the US and Germany) and a recent high-tech Asian country (Korea):

Communication, information, science & technology									
	per 1000 people					per 10000	per 1 million		
	Newspapers	Radios	TV Sets	Tel Lines	Mobil tel	PCs	Internet hosts	Sci & Eng	High tech exp
	1996	1996	1997	1997	1997	1997	1999	1985/95	% of mfg exp
USA	212	2115	847	644	206	406	1131	3732	44
Ger	311	946	570	550	99	255	160	2843	26

Kor	394	1037	341	444	150	150	40	2636	39
Bra	40	435	316	107	28	26	12	168	18

Brazil's performance is only fair in radio and TV; it is very poor in newspapers, which indicates a high rate of illiteracy. This phenomenon reappears in the country's low numbers of PCs and Internet hosts, devices which require literate people.

Education															
	Public expenditure on Education % of GNP		Enrolment ratio % of relevant age group				Percentage of cohort reaching grade 4				Expected years of schooling				
			Primary		Secondary		Males		Females		Males		Females		
	1980	1995	1980	1995	1980	1995	1980	1991	1980	1992	1980	1992	1980	1992	
USA	6,7	5,3	95	96		89						14	16	15	16
Ger		4,7		100		88							15		14
Kor	3,7	3,7	100	99	70	96	96	100	96	100	12	14	11	13	
Bra	3,6		80	90	14	19						09		09	

Forbes' statistics are from Unesco's World Education Report, 1998. It would be helpful if we could find them at the [Unesco](#) site in the same comparative and, thus, citizen-oriented format. Compared to international standards, the numbers for Brazil are alarming. Among the selected countries, it is the one that spends the least on education. While Korea has reached an educational pattern comparable to the developed countries, Brazil is far behind. In 1995, 10 % of the children were not schooled at all, and in 1993, according to the numbers found by our colleagues from [the other Brazilian research team](#), 63% of children did not finish primary school. As to secondary schools: while in the US, in Europe and Korea, they are attended by approximately 90% of the people, in Brazil this number hardly reaches 20 %. This diagnosis is confirmed by another outside view on Brazil's education. Charlie Shields, author of the study "[Information Technology in Brazil](#)", concludes that "education is an overwhelming weakness for Brazil", that "Brazil's level of illiteracy remains at one of the highest in Latin America" and that "the lack of skilled workers has resulted in foreign nationals being placed in Brazilian subsidiary operations, instead of local workers".

The point of view of two Brazilian institutions: the Federal Government

The second scene would begin with the following statement of the Minister of Education, Paulo Renato Souza, on the general [Educational Policy](#) :

1. “Inserção do Brasil em sistemas internacionais de informações e avaliação, permitindo o diagnóstico dos nossos avanços em relação a outros países.”
“96% das crianças de 7 a 14 anos estão estudando.”

2. “Informatização das Escolas Públicas. O programa teve início com o treinamento de 8 mil professores-multiplicadores, em 118 núcleos de tecnologia. O primeiro lote de 30 mil computadores para equipar 2.600 escolas já foi adquirido.”

3. “Expansão do Ensino Técnico. Financiado pelo MEC e Ministério do Trabalho, com o apoio do BID, o programa destina U\$ 500 milhões para reequipamento das escolas técnicas públicas e criação de uma rede de escolas técnicas comunitárias, em parceria com municípios, entidades sindicais e associações comunitárias.”

One cannot but welcome the idea of evaluating Brazil’s performance according to international parameters. If in 1998, 96% of the children between 7 and 14 years of age were enrolled in schools (unfortunately the corresponding numbers for secondary and higher education are not given in the same format) why do the foreign observers insist on Brazil’s weakness? The only way to know the objective facts would be an annual comparative evaluation of the country’s ranking in the Global Classroom. Since introduction of Information Technology in public schools is going on, we should soon have reports about it. Our team hereby invites the “professores multiplicadores”, as well as teachers and students of the public technical schools and community associations, to tell us about their experience.

... and São Paulo’s Research Foundation

Opportunities for significant improvement in education and technology do exist, at the state level, where the paradigm is [FAPESP](#), the Research Foundation of the State of São Paulo, as well as at federal level, at [CNPq](#), the Federal Research Agency. During the last three decades, Brazil has built up a contingent of scientists and engineers, who are working according to international standards.

FAPESP focuses categorically on innovation. Some programs emphasize the links between academic research and improvements in general public education. The Foundation also provides incentives for projects between public research institutions such as [Universidade de São Paulo](#) and small companies.

The most important programs are

- Inovação Tecnológica em Pequenas Empresas
- Parceria para Inovação Tecnológica

Compared to the US, and to the very special place called Silicon Valley, the number of projects is still modest, but is it very likely that the demand can be strongly increased and the models of cooperation be improved.

- Centros de Pesquisa, Inovação e Difusão
- Ensino Público
- Pesquisas em Políticas Públicas

While the first packet of projects focuses on the dialog between public research and private business, the second packet is concerned with the public sphere as a whole: schools at all levels, media technology, public policy, and citizenship. Web-page reports about the results of those publicly financed projects would be highly useful.

What are the Social Forces in IT-Education?

10 selected projects

Our third and last scene is a kind of panorama or traveling through the Brazilian landscape of Information Technology (IT)-Education. In order to get a feeling for what Brazilians are currently doing in this field, let's continue the already mentioned projects of the Brazilian Government and Research Institution FAPESP, by looking at a broader and more diversified spectrum of projects throughout the country. The main idea is to understand the driving social forces and also the main obstacles in the ongoing learning process. The ideal would be to gather the very paradigmatic sites. This choice is not more than a personal and provisional start up. Suggestions of more significant experiences are welcome.

1. Technical Schools, called [Centros Federais de Educação Técnica](#), exist in 17 states, such as [Minas Gerais](#). The Course of Information Technology there aims to

“Dirigir e desenvolver a execução de tarefas que envolvam a operação de micro e minicomputadores.” etc.

These are the market perspectives for **the high-tech labor force**:

Empresas de equipamentos computacionais e processamento eletrônico de dados.

Would it not be instructive, Ben, to compare Brazil's labor force training and [Labor Market](#) conditions to those of high tech Asian countries like Korea or Taiwan?

2. A project that aims to integrate IT in a broader social context is Programa Temático Multiinstitucional em Ciência da Computação, of **Research Foundation** [CNPq](#) :

“contribuir para mudar decisivamente o status da pesquisa e formação de pessoal qualificado em Ciência da Computação no país [...] promover efetivamente um amplo processo de cooperação nacional entre grupos de pesquisa e, entre estes e o setor industrial, através da realização de projetos temáticos multiinstitucionais em torno de temas/problemas nacionais.”

Among the projects are “Educação Baseada na Web” (PUC-Rio), “Uso da Internet na Educação” (UF-Santa Catarina), and “Ferramentas Aplicadas ao Ensino à distância” (UF-Ceará). This gives us an idea how active in IT are the **Education experts. I wonder how is the performance of the School of Education at [USP](#), compared to the Education Departments of other Brazilian universities.**

3. A very special [CNPq](#) project is **SOFTEX 2000 - Programa Nacional de Software para Exportação.**

“SOFTEX tem por missão transformar o Brasil em um centro de excelência na produção e exportação de software, tendo como objetivo permanente

situar o Brasil entre os cinco maiores produtores e exportadores mundiais.”

Wow! Brazil among the five maior world producers and exporters of software – that’s a very ambitious project! Hey, Alejandro, you as our Business expert, what do you think about it? First of all, tell us the numbers of Brazil’s current ranking.

4. Let’s look at Education and IT also from the “hard sciences” side. At [Instituto de Matemática e Estatística](#) we find the USP-Curriculum for Computer Science, as well as a list of all CS Departments in Brazil. The task to compare the USP-CV to the Stanford Curriculum should be left to a CS expert. As a layman, I only may draw your attention to the fact that the class “O Computer na Sociedade e na Empresa” is not obligatory, but only optional. Let’s compare it with the

5. Curriculum for Computer Science at [PUC São Paulo](#). In addition to the scientific and technological knowledge units of the CV, there is a class focusing on the relation between CS and Citizenship: “Desenvolvimento Científico e

Cidadania”, which intends to

“Despertar a atenção para as questões éticas como profissional e como cidadão.”

Here are more details:

“A informática como agente de transformação do sistema social (dos costumes, hábitos, paradigma, comportamento). Informática, democracia e liberdade. Trabalho e comunicação. As novas técnicas de administração do saber, o engenheiro de software - o elo estratégico da sociedade de informação. As teorias das organizações e suas implicações no paradigma da sociedade - as novas técnicas de administração - a ética e a cidadania.”

Techno-specialists or techno-citizens – which of these professional profiles will give better results for the country? Let me ask this question to Gavriel, the engineer in our team.

6. As important as the projects in the academic world, are basic projects, as “[Internet na Escola](#)”, a net community of teachers, schoolchildren, and their parents of 13 schools in different cities and states. Such projects may be started by individuals,

7. or by companies as Bradesco Bank, “[Uma Escola em cada Estado do Brasil](#)”.

8. Newspapers, too, are very active in communicating through the net with the generation which is now going to school, e.g.: “[Estadão na escola](#)” and “[Projeto Aprendiz](#)”. Here we find a news about a recent debate concerning the uses of IT in Education:

“O Seminário Nacional de Tecnologia para o Desenvolvimento do Ensino Superior, nos dias 27 e 28 de outubro, em São Paulo, vai debater se a universidade poderá ser completamente online no futuro. O evento vai mostrar casos de sucesso usando o ensino à distância, como os da

Universidade Federal de Santa Catarina e da Univir, do Rio de Janeiro, assim como abordar o uso dos recursos de informática na melhoria do ensino superior. [...] O evento é voltado aos dirigentes de instituições de ensino superior e recebe inscrições pelo site www.tec-es.com.br.”

9. I think that the aesthetic factor in internet-communication is also very important. A good example of web-page design is the map of [ECA](#), the School for Communication and Arts at USP. The “palette”-icon is also a memento that real quality of everyday life in our society can only be reached if we learn from the artists and the writers.

10. It would be naive to consider Brazil as a harmonic concert of all its social forces. To make the portrait true, we have to look at the diversity and divergency of voices, at the political conflicts and social movements. A visit to the site of [MST](#) (Movimento dos Sem-Terra), shows us that they have their own concept of Education.

Conclusions

The inicial intention of this walk through the Brazilian IT-Education landscape was to contribute to the planning of an Internet Business startup thought up by my team. The perspectives are good or even very good. The Brazilian middle class is strongly committed to incorporating Information Technology into education and culture. I think that you could feel this atmosphere of learning by visiting the sites of scientists and engineers, business people and companies, teachers and media professionals, students, and specialized workers -- all of them driving forces in the ongoing changes.

The last site we visited draws our attention to a major problem. This portrait of Brazil would be very incomplete, if we left out those who are excluded, about 80 % of the population. If I had to give advice to a foreign visitor who wished to learn more about the country, I would recommend the movie [Central do Brasil](#), which is the story of a woman (Fernanda Montenegro) who earns her living by writing letters for illiterate people, and finishes by travelling through the backlands with one of the streetchildren. This story may remind us that the Information Revolution is also a Writing Revolution. Will this Revolution eventually exclude even more the already excluded? When we try to answer this question, we should remember that the only group of the Brazilian population that has made the country incontestably an international top player, although only in the "futebol" arena, has been precisely the excluded.



Labor

So as I left [Burger King](#) rushed down the streets of Palo Alto, dodging people and cars, a thought occurred to me: what *is* labor in Brazil? Where does one start? I decided to brainstorm a list of questions:

- [What is the unemployment rate in Brazil?](#)
- [What is the job growth, and in what sectors is it occurring? What about informal jobs?](#)
- [What is the level of education of the labor force?](#)
- [Is labor flight occurring?](#)
- [What are the salaries for skilled and unskilled labor?](#)
- [Conclusions](#)

Hitting the web, I started my research. Almost all the information below pertains to the metropolitan areas of Brazil. The tremendous disparity between the urban and rural areas of Brazil practically requires separate research for each area -- this report focuses on the metropolitan situation.

Unemployment in Brazil = Controversy

The reports on unemployment rates that I found on the Internet showed a high degree of disparity, depending on the methods used and politics which choose those methods. According to [government statistics](#), Brazil maintained an unemployment rate of roughly 5.5% between 1994 and 1998. This has increased since the so-called Asian Crisis, (no current sources). However, data collected by [DIESSE](#) (a non-governmental research organization) records an unemployment of roughly 10% for some of the same periods. The primary source of the discrepancies seems to be the differing classifications of unemployment, in particular the window of time in which a person was searching for employment. A [report by DIESSE](#) outlines some of these differences.

Job Growth - General, Sectorial, Informal

Between 1992 and 1996, the rate of [job growth](#) in Brazil as a whole averaged 2% a year. By far, the greatest growth was in service, which grew 14% in that time period, while the agricultural sector decreased almost 8%. Industry grew by less than 2%, but this growth was localized in non-metropolitan areas, as the majority of metropolitan areas actually experienced negative growth.

According to one [report](#), the number of Brazilians employed in the telecommunications field in 1996 was 108,000, increasing from 95,000 in 1995 and 83,000 in 1994. This represents an increase of more than 10% a year, and it is predicted that ongoing privatization will increase the number of full-time telecommunications workers by 40% over the next three years.

Informal labor is also a tremendous issue in Brazil. According to a [government report](#) on employment generation, the percentage of people working informally (as defined by being either self-employed or without working papers) was 48.0% in December 1996, up from 39.3% in December 1990. One explanation I found for this increase is connected to the growth in the service sector, which has a tendency to be easily informalized. As the industrial sector becomes increasingly competitive and mechanized, a greater number of the labor force chooses the service sector. In short, although jobs are being created by the economy, they are mostly being created in the tertiary and informal sectors.

Education in the Labor Force

Although [education](#) is more of Willi's area of research, I thought I'd look into education specific to the labor force. In Brazil, the [expected years of schooling](#) for the labor force is 9 years, as compared to 11 years in Venezuela and 14 years in Argentina. Reflecting the increasing competitive nature of the labor market in Brazil, the [greatest job growth](#) is occurring in jobs requiring greater levels of education.

Labor Flight

I have not yet found information about this subject.

Salaries

According to [government statistics](#) about Brazil's [Real Plan](#), salaries for self-employed and informal workers increased 56.24% and 36.47%, respectively, of their real income. There is also some information about salaries at this [site](#). A site about [Recursos Humanos em Informatica](#) (Human Resources in Infomatics) also has some interesting information.

Conclusions

There is increasing disparity between a decreasing number of high-tech industry jobs requiring highly trained and educated personal, and a growing service sector which is easily "tertialized" and given to informal labor.



Business Climate

I left [Burger King](#) very excited. This was the perfect business opportunity, with a great product in a market that's close to home. And if ewidgets worked in Brazil, what could stop us from expanding to other parts of Latin America. It was then that I began to worry about my assignment, how could I evaluate whether the Brazilian market was ready for this type of business proposition. As many of my professors taught me, it's a good idea to analyze the problem from different perspectives, so I sat down in a [Marguerite](#) bench and began to write my questions down:

- How many people are actually connected to the Internet and how is this number evolving?
- Who are these "connected" Brazilians? Are they connecting from home, school or office? What is their educational level? their income?
- Who are the main Internet players in Brazil? Can we partner with them?
- What's the potential for Internet commerce in Brazil? What are the trends?
- Where are the most attractive markets in the country?

People connected

It's hard to get good figures for the number of Internet users in Brazil, but we can get a pretty good idea from different sources. I looked at the [domain name registrar](#) and they have a good page with [statistics](#).

According to an IDC report from March 8, 1999, Brazil had 4.9 million Internet users representing less than 3 percent of the population. This number grew by 130% in 1998, and analysts predict 60 to 100 percent growth in the next three years. Another IDC report from December 1998 put the number at 2.35 million. So we have to be careful before establishing a real figure.

There's some very good information in the [Comite Gestor da Internet no Brasil](#). According to their [figures](#) there were 310,138 hosts registered in Brazil in July of 1999. This put Brazil in the 14th place in the world, third in the Americas behind the U.S. and Canada, and first in Latin America with three times the hosts of Argentina.

The number of ISPs and the cost of Internet access in Latin American countries were [examined](#) at the recent IABIN conference in Brazil on April of 1999. There are currently 215 ISPs in the region, according to the conference report. Brazil has the highest number of ISPs (48), followed by Mexico (45), Argentina (42), Colombia (16), while the Honduras and Chile each have 12 ISPs.

The average cost of Internet access was also reported at the conference, however, the cost of access was found to vary widely both between and within countries. IABIN sets the average cost of monthly access in Latin America at USD36.23. The average rate of access in Brazil is USD26.96.

According to an article in The New York Times (June 3, 1999), a user can get Internet access for a flat rate of USD20 a month, but they then incur additional local toll call fees of USD40 a month.

Description of Brazilian Internet users

According to a Forrester brief, average Brazilians are already accustomed to the electronic movement of money, which they used to cope with hyperinflation during the 1980s. In a sense, their way of living is closely related to their peers in other developed nations. According to a [report](#) published by the [Computer Science Department](#) at the [Universidade Federal de Pernambuco](#) the profile of a typical Brazilian Internet user is as follows:

- 71% are male, mostly 16 to 34 years old.
- 56% have an undergraduate or graduate degree.
- 54% work, 13% study, and 30% work and study at the same time
- 30% work in Computer Science, and more than 8% work in engineering.

Perhaps even more revealing:

- A typical Internet user's income is 10 times the minimum wage, and when you consider the household income, this figure rises to 20 times the minimum wage.

This report is the result of a survey of over 5,000 Internet users in 1998. The results make sense when you look at some income distribution numbers. A good place to go is the World Bank annual report. In the latest version, [World Development Report 1999/2000](#), we see that Brazil has one of the most inequitable income distributions, not only in Latin America, but also in the world.

Percentage share of income

Country	Highest 20%	Highest 10%
Brazil	64.2	47.9

Spain	40.3	25.2
Mexico	58.2	42.8
USA	45.2	28.5

A BCG report takes this issue even farther. The total cost of accessing the Internet includes not only the ISP access fee, but also the PC cost and the telephone service fee. Today most countries in Latin America charge a per minute fee for telephone calls, compared to a flat rate for the U.S. This makes the total cost of access extremely high.

Today only 3.8 million households in Brazil have potential access to the Internet. If the country were to move to a flat telephone rate, U.S. prices for Internet access, and reasonable PC leasing options, this number could increase to 8.8 million households. In percentage points, this change could move the potential market from 7% of the population to 17%.

Let's relate this result to the income distribution. How would a similar change affect other Latin American countries in percentage penetration:

Potential Internet market as percentage of population

Country	Current Situation	Change to U.S. model
Brazil	7%	17%
Argentina	16%	34%
Mexico	11%	18%
Chile	20%	35%

Even with this improvement, 83% of Brazil's population would be left out...

Internet players in Brazil

It seems like every Internet company is trying to get into the Latin American market, and in particular Brazil. Here are some examples:

Lycos recently [announced](#) that it would start a big push into this region.

Universo Online ([UOL](#)) is Brazil's largest ISP, boasting over 470,000 users. It recently [tried to sell](#) a 10% minority stake to raise US\$ 100 million to fund growth.

[Yahoo](#) launched [Yahoo Brasil](#) in June of 1999, an Internet guide for Web users in Brazil.

[America Online](#) and Venezuelan media conglomerate Cisneros Group launched their [Brazilian operations](#) on June 29, 1999. In a second phase slated for December, AOL will offer Internet access and other services.

[Starmedia](#) is probably the best known site with a focus on Latin America.

Internet commerce in Brazil

Brazil will account for 88 percent of online sales in Latin America this year, with 45 percent of the region's online audience, according to a [report](#) from the Boston Consulting Group (BCG). Revenue from online sales in Latin America is expected to reach USD160 million this year. According to this report, Latin American purchasing patterns are in keeping with those of the United States, with the notable exception of online grocery shopping, which is much more popular with Latin American consumers.

Ecommerce spending in Latin America will reach USD8 billion by 2003, up from USD167 million in 1998, according to IDC Research. The [report](#) estimates that the region's ecommerce market will realise a compound annual growth rate of 117 percent, between 1998 and 2003.

Online advertising in Latin America is expected to reach USD 51 million in 2004, representing 6.5 percent of worldwide revenue, up from 1.5 percent in 1999. An Argentinian consultant [estimated](#) that of the total figure for Latin America, USD30 million will be spent in Brazil, USD11 million in Mexico and USD2.5 million in Argentina.

Attractive markets

Forrester Research doesn't expect the region's potential for e.commerce to explode until the year 2008. This is eight years behind the U.S., and five years behind late adopters like France and Japan. Even though the country as a whole doesn't appear very attractive, urban centers hugging the coast provide a dense market of wealthy and well educated citizens. Sao Paolo and Rio de Janeiro are good examples of attractive markets to explore in a first wave of e.commerce.

Links

- [LAS194 homepage](#)
- <http://www.cg.org.br/>
- <http://www.american.edu/carmel/CS8329A/BRAZIL.HTML>
- [DIEESE - Departamento Intersindical de Estatística e Estudos Socio-Economicos](#) uma instituição sem fins lucrativos mantida pelas entidades sindicais brasileiras
- [Brazilian Gov's report on Labor Market and Employment Generation - 1997](#)
- Credit Lines and Services from BNDES [link](#)
- Extensive list of Banks/Investment Banks in Brazil, and also Stock Brokers [link](#)
- Has some good links to sources about investment in Brazil. (parent of above site) [link](#)
- Has some nice-looking reports about credit markets in Brazil, and other investment info. [link](#)
- A site courting investment in various areas of Brazilian infrastructure. [link](#)

Comments:

Comments

Tell us what you think about our web site, the Information Revolution, Brazil, or anything else that comes to mind. We welcome all of your comments and suggestions.

What kind of comment would you like to send?

Complaint Problem Suggestion Praise

What about us do you want to comment on?

Other:

Enter your comments in the space provided below:

Tell us how to get in touch with you:

Name

E-mail

Tel

FAX

Please contact me as soon as possible regarding this matter.



Comitê para Democratização da Informática

A Case Study of a Non-Profit Organization

Two kinds of Dreams

In the beginning, our team formulated two kinds of dreams:

- To investigate to what degree the gap of knowledge between a developing country, such as Brazil, and the high tech countries of the world could be diminished by the means of the Information Revolution [or is it really just dream, since Wilford Welch, Publisher of the *Information Society Index*, says that the gap is in fact widening...];
- Inspired by success stories of young Silicon Valley entrepreneurs, we imagined our own "story" to be that of a highly efficient business startup in the biggest Latin American e-commerce market...

We felt that these two dreams, the non-profit and the for-profit dream, should not necessarily be in conflict. To the contrary, wealth would permit greater possibilities for social development, and, at the same time, development of citizenship and educational equity would be the strongest driving force for general wealth, much stronger than merely technology.

We searched for Visionaries...

We searched for people in both for-profit and non-profit sectors. We looked for people who had a dream, a vision, and who had made it turn real and successful, and we were eager to get to know their stories and the reasons for their success. We choose two paradigmatic cases:

- Michael Dell, the creator of the number two PC company in the world, who developed the idea of

a direct relationship with the customer, through the internet; in November 1999, Dell opened his first manufacturing facility in Latin America, in Rio Grande do Sul, the southernmost state of Brazil;

- [Rodrigo Baggio](#), the creator of the [Committee to Democratize Information Technology \(CDI\)](#), located in Rio de Janeiro and based on the idea of fighting for social inclusion for those who are left out from the official modernization programs. His story is the story of the CDI-Team, the Computer Science and Citizenship Schools (EICs) and the underprivileged communities who direct and run these schools.

While Alejandro studied the for-profit case of Dell Company, Ben and Willi examined the non-profit case of Comitê para Democratização da Informática. By corresponding intensively with Caius Brandão, CDI's Program Coordinator, we were able to get detailed answers to our questions and a lot of additional information about the organizations' work. During our investigation, we imagined the utopia of a non-profit work for citizenship and social equity combined with the efficiency of a high tech for-profit organization, or, to say in the words of Baudelaire, "a world in which the Action could be the sister of the Dream".

CDI -- Committee to Democratize Information Technology...

Founded in 1995 by Rodrigo Baggio, in Rio de Janeiro, CDI is a non-governmental, non-profit organization that promotes educational and vocational training programs for children and young people at Computer Science and Citizenship Schools (EICs = Escolas de Informática e Cidadania), created and sustained by low-income communities. While the general objective is to fight for the social inclusion of those who are excluded from the ongoing process of technological development and modernization, the specific objective is to promote citizenship, human rights and non-violence, health, literacy and ecology, through information technology. There are currently 110 such schools in Brazil, having assisted 25,000 youths. If you would like to learn more about CDI, you can see this [slide show](#).



...What makes it so

Successful?

Self-Sufficiency: an Uncommon Approach to a Common Dream

A fundamental principle of CDI is to invest in the capability of communities to realize their social-educational project on their own. This investment in the self-sufficiency (administrative, financial and cultural) of the communities contrasts the old attitudes of paternalism and condescendence. The new attitude considers the other, the poor, not as a minor, but as an equal partner. Once a community decides to start a Computer Science and Citizenship School (EIC), CDI provides the installation of hardware and software, teachers for training local teachers, administrative support and educational methodologies in order to develop programs and curricula for the specific needs of the local community. Typically, the EICs are developed by a common effort of CDI and the communities. As a result, the role of CDI is that of a **catalyst, as opposed to a pushing force** (to use Fred Gibbons' terminology). This contributes to the likelihood of success, because the community itself determines the need, available resources and particular method of reaching it's goals. Another success-contributing factor is that the value-added components of the project (experienced teachers, empowered community leaders, a more organized community) originate and remain in the community itself.

Non-Separation of Technology and Social Development

When we asked CDI "How many of the EIC-classes are dedicated to Citizenship and how many to Information Technology?", we got this remarkable answer: the EIC-classes are seen to have no separation between technological and social contents. In the teaching-and-learning process, Citizenship and Technology are integrated. The pedagogical activities, i.e., the texts studied in the computer-skills-and-software training, are extracted from work developed in the communities themselves: issues of human rights, labor opportunities, health, sexuality and ecology. This combination of technological know-how and social issues produces **a new kind of knowledge**.

The non-separation of technology and social development is crucial, in so far as it gives us a critical understanding of the broader historical context in which we live: the reigning concept of modernization.

Deconstructing the Reigning Concept of Modernization

Modernity, according to the German philosopher Walter Benjamin (1892-1940), is the artistic and intellectual expression of a contradictory, non-accomplished and badly resolved historical project, called **Modernization**. Looking back, at the edge of World War II, at the 19th century, he observed:

This century was not able to correspond to the new technological possibilities with a new social order. The dominant ideas turned to be fallacious, phantasmagorical mediations between the old and the new. A key-word found by Baudelaire designates the world reigned by those phantasmagories: **la modernité**. (*The Arcades Project*, 1927-1940)

Unfortunately, Benjamin's diagnosis is still valid for the 20th century, which began with great expectations...

Studying the waves of **modernization in Brazil**, from the 18th to the 20th century, the social scientist Raymundo Faoro (author of *Os Donos do Poder*, 1958) comes to the following conclusion: "Imposed by elites favorable to their own interests, those modernizations keep the major part of the population distant from the elementary social benefits." (Src: A questão nacional: a modernização, in: *Estudos Avançados* 6/14, 1992: 7-22)

As a matter of fact, the guideline of Brazil's modernization waves in the 20th century has been the pact between the traditional oligarchy and the "competent forces" of Business & Technology, which aims at the exclusion of the "non competent" masses of the poor, the majority of the Brazilian people. (Src: Fernando Henrique Cardoso, *Dependency and Development in Latin America*, 1970)

In spite of these three critical analyses of the modernization process, the reigning concept remains the same. In President Fernando Henrique Cardoso's current telecommunications program, information technology -- not citizenship -- is still considered "the fundamental factor for economic growth and social development". As we remember, Martin Carnoy, in his lecture "The Critique of Techno Determinism" has presented very strong arguments which show that **technology**, in spite of being a very important factor, **is not the determining force in historical change**. (Not to mention that this was also Cardoso's point of view in 1970...)

While the Brazilian Government maintains the same model that has been practiced throughout two centuries, and which has left unresolved many immense social problems, CDI proposes an alternative and more efficient model for the country's development, a model which considers not just the privileged but the entire population.

Combination of Non-Profit and For-Profit: Social Entrepreneurship

A main key of CDI's success is the combination of the ideals of a non-profit organization with the organizational quality of a for-profit company. If Rodrigo Baggio and his team would choose to "make money", certainly they would be well placed in the competition. Their choice, however, has been social entrepreneurship.

The CDI Team is not just a group of "dreamers", but they are professionals who understand business. A good number of them comes from business backgrounds. As a strategy of self-sustainment, CDI offers professional services such a web site installation, software teaching and data organization to other NGOs, companies and government agencies. Another important detail: CDI team members receive, as Program Coordinator Caius Brandão told us, **competitive salaries**, which allows CDI to attract highly qualified personal.

How does CDI get support from for-profit companies? The traditional approach -- in which a for-profit company aligns with a socially committed NGO to improve their public image -- is combined with a new one. CDI is in the unique position that it shares a common goal with many for-profit companies: to get as many people as possible seated in front of a PC and navigating on the internet. Although CDI's motives are based on social development, while for-profit companies incentives are economic, the shared goal of connecting people to the Internet allows the two types of organizations to work together.

Institutional Partnerships

One of the reasons of CDI's success is its extensive network of [partnerships](#) with other Brazilian and

international institutions. At the same time, the diversity of partnerships seems to be a good guarantee for CDI's independence.

One of the most important roles of the partnerships is to provide sources of funding. The main source of funding (65%) are philanthropic organizations: The United Methodist Church, [The Ashoka Society](#), [Global Partnerships](#), Instituto C&A de Desenvolvimento Social, Network for Social Change, and Jurzykowski Foundation. 27% of CDI's funding comes from private businesses, which are the donators of hardware and software: [Alternex](#), [McKinsey](#), [Agencia Brasil](#), [IBM Brasil](#), [Microsoft](#), Swiss Re Brasil Servicos -- and, most recently, [Dell do Brasil](#). Government organizations contribute 8% to the funding.

In order to enable its multiple activities in the fields of human rights, labor, health, street children, ecology, and others, CDI maintains partnerships with other non-profit organizations. These include [IBASE - Instituto Brasileiro de Analises Sociais e Economicas](#), [Campo - Centro de Acessoria ao Movimento Popular](#), ChildHope, Se essa Rua Fosse Minha, and Campo - Centro de Acessoria ao Movimento Popular. CDI also partners with associations such as Assesspro - Associação das Empresas Brasileiras de Software e Serviços de Informática and SINTRACONST - Sindicato dos Trabalhadores da Construção Civil (Rio de Janeiro). They also have connections with the [UNESCO - INFOYOUTH network](#) and the Japanese non-profit internet provider JCA-Net. In its current campaign for connecting the Community Schools (EICs) to the internet, CDI has the support of 15 organizations and companies, especially internet searchers such as [Yahoo! Brasil](#), [Starmedia](#), [Cadê](#), and [Alternex](#).

Although it is a non-governmental organization, CDI realizes common projects with some government agencies: Secretaria de Educação do Estado do Rio de Janeiro, FIA - Fundação para a Infância e Adolescência, AAPCS - Associação de Apoio à Comunidade Solidária and Secretaria Municipal de Trabalho (Rio de Janeiro). Recently, there have been partnerships started with research foundations and universities (FAPERJ, UFRJ, PUC-Rio), providing scholarships for CDI teachers and internships for students in Social Services, Communication and IT Education.

Media Visibility

Due to the quality of its work, CDI has got very good media coverage. All important kinds of media have been reporting: newspapers, such as The London Times, Folha de São Paulo, Jornal do Brasil; magazines such as Time and Veja; Radios and TV channels, such as BBC, CNN, TV Globo; and Internet searchers such as Yahoo!Brasil, Starmedia, Cadê. The founder of CDI has been considered, in a report published by Time Magazine, as one of the 50 most important personalities for the future of Latin America. We would add: not only for the "future", but already for the **present**. This highly positive public image guarantees the organization's credibility and is crucial for getting funds. We also wonder if CDI should not ask the most popular Brazilian soccer players, such as Ronaldinho, Roberto Carlos, Rivaldo, and others stars, if they could sponsor Computer Science and Citizenship Schools.



The Multiplier Effect



Since 1995, there has been a rapid expansion of Computer Science and Citizenship Schools (a total of 110 EICs), of the Committee's regional offices (16 CDIs in 13 Brazilian states, see the CDI's map on the left) and of the number of students: 25,000. In addition, the CDI model is going to be exported to other Latin American countries.

Which are the reasons for this multiplier effect of the CDI model, in addition to the already mentioned?

It is not bound to a specific thematic content or

fixed upon an ideological program.

- It provides the general framework -- software, hardware, teachers, administrative, technological and methodological support --, the specific contents have to be elaborated by the community groups.
- It is greatly adaptable and diverse: each community is supposed to find its own solutions: favelas, religious groups, indigenous people, street children clubs, ecology groups...

Challenges for the Future

At the end of this diagnosis of the reasons for CDI's success, what are the main challenges for the future and what could be improved in the organization's work?

- **Infrastructure:** As CDI told us, there is an urgent need to improve the infrastructure of the organization's headquarters.
- **Maintaining the quality of support** to the Computer Science and Citizenship Schools (EICs) while coping with CDI's rapid growth.
- **Evaluation tools** are necessary in order to determine whether or not CDI is reaching its goals, especially the impact of the EIC's vocational training on the labor market. An evaluation study has been started recently, first results are expected for May 2000.
- **Method for alphabetization**, certainly one of the most urgent issues. We were informed that CDI has not yet its own method for alphabetization, but such a method is being prepared.
- **Access to the internet** for all the EICs should be provided. Currently only 7 of 110 EICs have it. However, there is a campaign at CDI's web site for promoting such access.
- **Voices of the EIC's students**, i.e., from the people of the communities should be more present at CDI's web site.
- **Partnerships with research foundations and universities** are incipient and should be strongly developed, because of the critical potential of those institutions and their opinion leaders.

The main challenge, however, is not so much for CDI, which has done admirable pioneer work, but for the Brazilian society as a whole: it is to use the **Democratization of Information Technology as an alternative model for the development of the country**. CDI has given a convincing example of **dialogue capacity**, which is worth being reproduced on a larger scale. CDI demonstrates the capacity for

and value of dialogue between non-profit and for-profit dreamers, as well as between the privileged and the non-privileged, who are the immense majority of the people.



The Case of Dell in Brazil

To understand how a U.S. company entered the Brazilian market, we decided to look into the [Dell](#) case. Here was a high tech company that had been extremely successful in leveraging the Internet to extend their direct business model, the question in our minds was: Could they translate their success in the U.S. to Brazil? What could we learn from them?

Introduction

Dell Computer Corporation, headquartered in Round Rock, Texas, near Austin, is the world's leading direct computer systems company. Company revenue for the last four quarters totaled \$23.6 billion. Dell is the No. 2 and fastest growing among all major computer systems companies worldwide, with more than 33,200 employees around the globe. The company ranks No. 1 in the United States, where it is a leading supplier of PCs to business customers, government agencies, educational institutions and consumers.

The company was founded in 1984 by Michael Dell, now the computer industry's longest-tenured chief executive officer, on a simple concept: that by selling personal computer systems directly to customers, Dell could best understand their needs, and provide the most effective computing solutions to meet those needs. Today, Dell is enhancing and broadening the fundamental competitive advantages of the direct model by increasingly applying the efficiencies of the Internet to its entire business.

[Dell Brazil](#) dedicated its first Latin American manufacturing facility and customer center at Eldorado do Sul, in the southern providence of Rio Grande do Sul, Brazil on November 3, 1999. Sales, technical support, marketing, finance, information technology, human resources and general administration departments as well as manufacturing will be housed at the Eldorado facility.

The company has 3.7 percent of the Latin American market, shipping 37,402 units in the second half of 1999, according to Dataquest Inc. Compaq, the market leader, had 23.6 percent of the market, having shipped 235,535 units during the period, while IBM had 8.7 percent and shipped 87,361 units.

Source of idea

Latin America is a very important market, and Brazil is the largest market in the region. High duties and tariffs makes it unattractive to import products, and perhaps more important, it's very hard to tackle this market from the U.S. without a local perspective. Most of Dell's competitors have been in the region for a long time.

Dell's need to grow made a move to Latin America natural.

Target market

Usually Dell is more focused on the corporate or relationship market, but recently the consumer market has increased as a percentage of sales. In the case of Brazil, both target markets are similarly weighted. In the case of the corporate market, Dell can leverage their relationships with multinational companies with operations in the region. The consumer market presents a different challenge because they have to build their brand from scratch. It's also hard to compete with other PC suppliers who usually dump the older models in Latin America. Dell, because of their direct model, are obligated to always provide the latest technology. This can cause an unequal competition in the price-conscious low end, that might be willing to sacrifice "specs" for a lower price.

Why Brazil? Why Rio Grande do Sul?

"We are honored to have Rio Grande do Sul become home to our first manufacturing and customer center facility in Latin America," said Michael Dell, chairman and chief executive officer. "Brazil and the Mercosur region represent a phenomenal opportunity for Dell, and Rio Grande do Sul is an excellent base of operations because of its *sophisticated labor force*, its *economic incentives to attract technology-manufacturing companies* to the region, and its *strategic location as an export hub to other South American countries*." Rio Grande do Sul is also strategically close to the region's largest market, the state of Sao Paulo.

"Brazil is an important market for Dell. By bringing the true direct model here, we're giving Brazilian customers a new and simpler way to buy computers directly from a company that designs and builds relevant, leading-edge systems," said Mr. Dell. "Dell recently moved to the No. 5 position in Latin America and sales from our Latin America Online Store have beat all expectations, confirming that our customers and potential customers are embracing both the Dell direct-to-the-customer approach and e-commerce."

Objectives

Dell Computer said it expects to become the leading seller of personal computers in Latin America within the next five years, as growing Internet usage in the region boosts demand.

The company hopes the plant will help it grab market shares in the [Mercosur](#) trade pact countries of Brazil, Argentina, Uruguay, Paraguay, as well as in Mercosur associate member Chile. Dell competes in

the region with such computer companies as Compaq Computer, IBM, Hewlett-Packard, and Gateway.

“We expect this will be a key hub location for selling our products in this area of the world,” Dell chief executive Michael Dell said.

Dell said the company will start selling computers from the plant in Brazil from its Brazilian Web site at www.Dell.com.br. Products will start being exported to the other countries in the region in the first half of next year.

Most of Dell's sales to the region are currently focused in Mexico and the Caribbean. The company said it expects sales growth of its personal computers in Brazil to be between 15 percent and 18 percent over the next two to three years.

Adapting the direct model to Brazil

Dell tries to stick to its principles of "being direct". This can translate into sacrificing some initial speed to market, by not using the traditional channels of distribution already in place in the region. On the supply side, Dell will try to leverage the international purchasing structure in Austin, and try to work with the suppliers to deliver direct to the factory in Brazil. Once the plant begins to scale up, it will be feasible for Dell's traditional suppliers to set up shop in the region.

Dell's use of the Internet

Dell uses the Internet in two ways in the selling process: web site for consumers and premier customized pages for their corporate customers. Both of these processes are affected by the state of the Internet in Brazil.

Web site for consumers

The Internet infrastructure in Brazil presents two challenges:

- To use the Internet to buy a computer you need to have access in the first place. This makes it hard to target first time users, which are the majority in Brazil. In the U.S. Dell is mostly targeting repeat buyers who already have a computer.
- Internet access in Brazil is still too expensive, and the penetration and quality of telephone access is still far from U.S. standards.

These factors affect all PC manufacturers, but it hurts Dell more because its direct model is more Internet dependent. This situation is expected to continue for another couple of years, and in the meantime Dell will probably need to rely more on other means of communication with their customers (phones).

Premier pages for corporations

The vast majority of the top 500 companies in Brazil have some sort of Internet connection. These connections have grown faster than in the consumer space, but they still lag the U.S. corporate rate of Internet adoption. Spending in Information Technology is still low, but it's getting better.

Tax challenge

Each state in Brazil has a different Value Added Tax, and sellers are supposed to include this tax in the price of the product. This presents a challenge for Internet vendors, since if they present a unique price for the whole country, the margins will vary according to the state of the purchaser. Dell has tried to solve this problem by stating their prices based on purchases in Sao Paulo, their largest market. To confirm the actual price, Dell has had to add an additional step to the online purchase process. A sales representative has to call the customer to confirm the final price.

Culture

Dell has to work on the consumers to develop a culture that trusts online purchases. This process took a long time to develop in the U.S., and nobody believes it will be easier in Latin America. There's no history of purchasing a R\$ 3,000 product from a company they don't know over an unproven media like the Internet.

In Mexico people are reluctant to receive a computer in their homes. Many are afraid that people might notice it and assume it as a symbol of their wealth. Since violence is a hot issue, most people prefer to buy it in a store and take it home in the trunk of their car. Since the direct model is still very new in Brazil, this issue might pop up.

These are just two of the possible cultural issues that Dell will face with its direct model, issues that they will have to address if they want to succeed.

Partnerships

Dell Computer Corporation and Universo Online Ltda. announced on November 18, 1999 a program where customers buying Dell Desktop PCs receive a free Internet test drive with bundled CD-ROM software. Customers can order Internet service as well as a Dell desktop PC in one simple call.

Dell will include a CD-ROM with software for accessing UOL's Internet service with every Dell DimensionÆ desktop PC order. Dell consumer and business customers will be able to test drive the UOL Internet service free of charge for 40 hours each month for three months. After the free usage expires, customers can sign-up for on-going services directly through the Brazilian ISP.

The new sales and marketing program simplifies the ordering process and provides an easy, end-to-end solution for Dell customers who want Internet access. The offering is expected to drive continued adoption of Internet services, and ultimately, subscriber growth while reducing the time and cost associated with customer order processing.

The labor market

Dell's assembly process requires very high skills and a sense of accountability from the workers involved. This is a key issue, and perhaps even more important than any tax incentives. In general the south has a better educational level than the north, and since its also the most attractive regional market

(Sao Paulo close by), Dell chose this location for their first Latin American manufacturing facility.

Dell is usually very involved in community development, so it's reasonable to assume that they will take an active interest in training and education, both for workers and for the surrounding area.

"There are many advantages that a Brazilian manufacturing and customer center will bring Dell. But equally important are the advantages that a Dell expansion will bring to Rio Grande do Sul," Mr. Dell said. "The thousands of technology jobs created by Dell and our suppliers would launch and stimulate a new sector of the Rio Grande do Sul economy. We hope that Dell's investments can have the same positive effect for Brazil that they've had for Central Texas and other regions where we are located."

The customer center is expected to employ more than 200 people before year-end and create 700 jobs within five years. According to a Price Waterhouse study on the economic impact of the IT industry in Latin America, for every direct job generated by IT industries, up to 5.5 indirect jobs are created locally. As Central Texas' largest private employer, Dell's direct and indirect economic impact is estimated by economists to be more than \$5 billion and 50,000 jobs. Several Dell suppliers are finalizing plans for their own Rio Grande do Sul expansions to support Dell's just-in-time manufacturing operations. These include Samsung and Krafoam to name a few.

Technical infrastructure

In general the infrastructure is worse than in the U.S. This is particularly true for the transportation sector, which plays a very important part in Dell's direct model. Even though you can use Federal Express for delivery to the customer, the level of service is lower and the cost higher when compared to the U.S. market. This problem hurts Dell both in the supply and in the delivery side.

Relationship with NGOs

To commemorate its entry into Brazil, the Dell Foundation, represented by Mr. Dell and Dell Computadores do Brasil Ltda, pledged its financial and corporate support to a local non-profit organization, Committee to Democratize Information Technology ([CDI](#)), for the promotion of computer literacy. The Dell Foundation grant will go toward the establishment of the first CDI office in Rio Grande do Sul. The CDI is a non-governmental organization working to further the educational, employment and civic advancement of economically disadvantaged children through the creation of community computer training schools.

In addition to the financial support, Dell will be donating computer equipment to CDI. Parceiros Voluntarios, also a non-governmental organization, will help CDI by providing volunteer instructors to work in the computer schools. Together with Dell Brazil, these organizations will work to create the first Dell Citizenship School (EIC-Dell) in Alvorada.

"This project is an important seed that will enable our younger generations to seek a brighter future," said Caius Brandão, CDI's Senior Program Coordinator. "Initially, the school will be able to train up to 300 students in the first year of its operation and we expect this number will grow exponentially as time goes on."

Challenges for the future

There are five main challenges for Dell in Brazil:

1. Increasing growth of Internet access and computer literacy: Dell's main customers are computer savvy, so any improvement in this area will increase Dell's customer base. Support for CDI's activities aims to attack this challenge.
2. Logistics: Need for better transportation and delivery systems. This problem will partially improve when Dell starts to scale up production.
3. Brand: Need to build a brand for the consumer market.
4. Technical service: Hard to find outside technical service providers in all the regions and train them.
5. Cultural issues: Are Brazilians ready for e.commerce?



Sources of Financing

As I returned home from our last meeting, I began to worry about our next steps. The strategy seemed clear, the product was there and we had determined that the Brazilian market was ready for such an innovation. The big question was how to get the money to fund the project. My stomach would not tolerate more Whoppers, I wanted to be able to afford real food.

I went back to my Corporate Finance books and read that there are three basic ways of financing a company:

- Internal funds come from the results of operations. Companies can take their earnings and use them to grow the company.
- In [debt](#) financing, the company issues a bond or takes out a loan, and promises to pay back the face value plus a specified interest rate. The creditors can feel pretty safe because they have priority to claim their money in case the company goes bankrupt.
- In the case of [equity](#), the company issues shares, and the shareholders get a piece of the company. This can be extremely good if the company goes well, because shareholders get to share on the upside. But if the company doesn't go well, shareholders can be left with nothing.

Loans to, or investments in, small business are perceived to be HIGH RISK. Some research indicates that 80% of new businesses will fail or cease to exist over their first 5 to 7 years. This is due to their newness, lack of financial depth (one or more bad breaks or decisions can put a small company out of business), and/or lack of management expertise. On top of all this, the business concept may be unproven or unworkable.

It may be interesting to note that loans are more risky than investments in Small Businesses. Both methods have the same down side (all the money is lost) while the upside is not the same for both (the return on a loan is limited to its interest but the return on an investment is unlimited). In other words, in a portfolio one good investment can reimburse the investor for a number of bad investments and still result in an acceptable return while the reverse is true for loans, where a large number of good loans are needed to reduce the impact of one bad loan.

As can be seen from this, the higher risks associated with financing small, new, and emerging businesses can best be offset through equity investments where investors (using a pooling or portfolio approach) can use a few winners to offset the financial impact of the losers. In addition, equity investments are more beneficial for the small business as equity relieves the company from the traditional principal and interest payments that must be made on loans. Further, a layer of equity, which stands ahead of debt, improves the small businesses' chances of qualifying for commercial loans.

A study by the [Banco Nacional de Desenvolvimento Economico e Social](#) (BNDES) confirms that companies in Brazil rely on equity issuance to a higher degree than was imagined, given the limited size and incipient nature of their equity markets. This form accounted for 48% of funding for the companies over the period 1989/96, and for 37% of the funding for the period 1985/91.

This same study found that a big source of funding comes from internal company resources. This can be explained in the Brazilian context, since the figure could result from the underdeveloped nature of external sources of financing, the high domestic interest rates, as well as the instability caused by inflation until 1994. At the same time, such a high degree of use of internal funding would explain the modest size of most domestic companies – that is, the use of internal funding allows companies to satisfy their basic financing needs, but is insufficient to allow them to evolve to a more appropriate size.

As I pondered over these facts, I wondered how easy would it be to get debt or equity financing in Brazil... About.com has a good [site](#) with information about the banking and financial sector in Brazil. Another great [site](#) for economic information belongs to the Ministry of Finance.

Debt Financing

Small and medium size business account for 26% of GDP and 60% of employment, yet they only receive 10% of the loans offered by private and public banks. The Servico Brasileiro de Apoio as Micro e Pequenas Empresas ([SEBRAE](#)) is working to help this sector to gain access to the credit market by offering information, consulting services and access to a network of banks.

In an article that appeared in the Journal of Financial Economics (Amsterdam; Jan 1999), Christopher Anderson concluded that economic volatility, high transaction costs and fragile institutions hinder financial contracting in Brazil. Yet a nascent corporate bond market thrives. Fifty Brazilian indenture agreements were examined, and it was found that sample debentures are characterized by:

1. features that mitigate inflation risk for investors
2. contingent-maturity mechanisms that provide periodic opportunities for exit or renegotiation
3. a paucity of covenants that restrict the debtor's investment, financing and dividend decisions, and
4. self-enforcement mechanisms that avoid reliance on inefficient institutions.

If this type of mechanisms are perfected, then there's a chance that the financing outlook will improve.

The BNDES is one of the main providers of credit, and from their latest [Economic Bulletin](#) we can see that their investment in the Infrastructure sector has decreased significantly from last year. This sector is the most relevant for technology or Internet related ventures.

DISBURSEMENTS – BNDES SYSTEM BY SECTOR (1)

in R\$ million

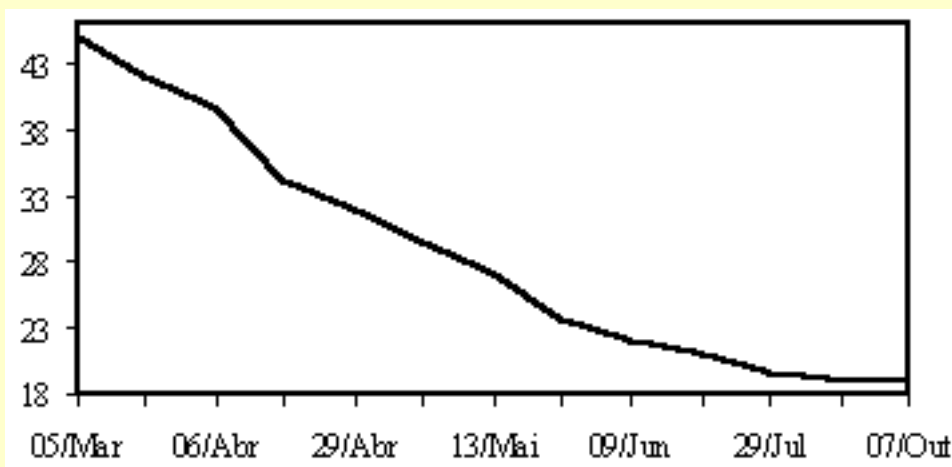
Sectors	1998	1999	% Change	% Share 1999
TOTAL	14251	10148	-28.8	100.0
AGRICULTURE	832	882	6.0	8.7
INDUSTRY-MANUFACTURING	5272	5314	0.8	52.4
METALLURGY	592	652	10.2	6.4
MECHANICAL	762	462	-39.5	4.5
TRANSPORT MATERIALS	1443	2098	45.4	20.7
PAPER AND PULP	317	231	-27.3	2.3
CHEMICALS	470	347	-26.1	3.4
FOOD AND BEVERAGES	802	792	-1.3	7.8
OTHER	885	733	-17.2	7.2
INFRASTRUCTURE	6888	2822	-59.0	27.8
SERVICES	1211	952	-21.4	9.4
OTHER	48	177	272.5	1.7

Source: AP/DEPLAN/GEPL/COEST.

Note: (1) Through August of each year, at August 1999 prices – monetary correction by IGP-DI index.

The Monetary Policy Committee (Copom) announced that it would maintain the Selic rate at 19% per year, in line with the market's expectations. However, the market was surprised by the change in the neutral stance to the emergence of an outlook for lower rates. Thus, the Central Bank could possibly lower rates before the next Copom meeting scheduled for November 10. This would improve significantly the outlook for debt financing, even though a 19% rate is still way too high compared to rates in other countries.

SELIC OVERNIGHT RATE (%)



If we ever decide to ask for a loan, we might need to go and talk with some of the local banks.

Latinvestor has a great [listing](#) that might prove useful.

All in all, debt as a source of financing doesn't appear as a great solution. The cost of money is still too expensive for local entrepreneurs, inefficient institutions are obstacles in the way of an efficient financial market, and debt financing is probably not the best solutions for emerging companies. So we might as well look into the possibility of getting some equity financing.

Equity Financing

The equity financing game is a long and tortuous road. A company has to go through multiple rounds of financing with venture capitalists or angel investors before they can take the company public in an Initial Public Offering (IPO). This process can be very taxing, and many companies will never reach the end. The U.S. model works very well because the process is formalized and well known. Investors want to be sure that eventually they will be able to recuperate their money, and the IPO is a perfect exit strategy. After reading a good [article](#) in [latpro.com](#), I realized that this model didn't exist in Latin America. A second requirement for VC investors is clear corporate laws that will protect their investments. As we all know, Latin America is farther behind the U.S. in this aspect. The BNDES has written a good [study](#) about corporate governance, and how the country compares to international standards.

If we eventually want to take our company public locally, we'll have to trade our shares in Brazil's main stock market, the [Bovespa](#) in Sao Paulo. To understand a little bit better how the Capital Markets work in Brazil, I looked over an extremely comprehensive [study](#) written by Eucherio Lerner Rodrigues in [www.emgmks.com](#).

As a short term conclusion, going public in the Brazilian stock market is not a very realistic possibility. Most foreign investors would insist that the company be incorporated in the U.S. with american corporate governance laws, and access to the U.S. capital markets for possible public offerings. Starmedia' success has spurred other Latin American companies to try to list their shares in Wall Street. The two companies closest to doing so are [UOL](#) and [ZipNet](#).

So the best way to get equity financing for aspiring entrepreneurs is through the U.S. venture capital community, and more specifically with firms that target the Latin American market and have local expertise. One such firm is [explorador.net](#). Another alternative is to look for Brazilian VC firms, there aren't many of these, and most of them are private equity investors trying to get into the VC game. One example of a local VC is [BLM Venture Capital](#), based in Sao Paulo.

Conclusion

More and more Brazilian entrepreneurs are looking outside their country borders for funding. With a possible economic rebound on the way, Brazil appears as a very exciting growth opportunity for foreign investors that want to get a piece of the future Internet business.



The Brazilian Telecommunication Industry - A New Era

Introduction

The restructuring of the Brazilian telecommunications sector was accompanied by the privatization of the Telebrás system, a state monopoly organized into various subsidiaries, that provided services through an interconnected telecommunications network covering the whole of the country's land area.

The basic idea of the new model is to adapt the telecommunications sector to the new realities of economic globalization and technological progress within the sector, as well as to the new requirements for diversification and modernization of networks and services, in addition to granting universal access to basic services, in the light of the high level of unsatisfied demand within the country.

An aspect of this process should be mentioned. This is the fact that this privatization was preceded by the assembly of a detailed institutional model, the most significant feature of which was the creation of an independent and highly autonomous regulatory agency, the National Telecommunications Agency (*Agência Nacional de Telecomunicações* - Anatel).

The Assembly of the Regulatory Framework and Privatization

The Legal Framework and the Restructuring of the Sector

The restructuring process for the Brazilian telecommunications sector that culminated in the privatization of the Telebrás system, consisted of six stages, namely:

- Constitutional Amendment N° 8, of August 15, 1995, that eliminated the exclusive concessions for the provision of public services held by companies under public sector control, and that was the point of departure for a series of legal measures that were intended to introduce a competitive regime for the provision of these services;
- The 'Minimum Law of Telecommunications' (Law 9,295, of July 19, 1996), that had an emergency character in order to allow the establishment of criteria for concessions regarding services that were extremely attractive from an investment point of view, but that were, for the most part, still not exploited by the private sector, such as the 'mobile cellular service', 'limited services' (*e.g. trunking*), 'satellite-based

services' and 'value-added services' (e.g. *paging* and other services, that allow the construction of corporate networks). This law was particularly important, since it established the legal conditions for tenders of concessions for the B-Band cellular telephone service;

- The approval of the General Telecommunications Law (*Lei Geral de Telecomunicações – LGT*) (Law 9,472, of July 16, 1997) that established the principles of the new institutional model of the sector, and among other things, created and defined the role of Anatel, the principles of the new tariff model, a new classification for telecommunications services (in terms of interest, and form of operating regime), the non-exclusive character of concessions, and finally, the directives for the modeling and sale of publicly-owned companies;
- The approval of the General Concession Plan (*Plano Geral de Outorgas - PGO*), that set general parameters for competition within the sector, defining areas of operation for landline telephone service providers and setting the basic rules for the opening of the market, as well as the granting of licenses in the future for the provision of services;
- The profound restructuring of the Telebrás system, a public-sector grouping that was split into three large holdings for local landline telephone service concessionaires, in order to provide services in the different geographical regions defined by the PGO (Telesp, Tele Norte-Leste and Tele Centro-Sul), with Embratel kept in its traditional form, and an additional eight A-Band cellular telephone concessionaires created to operate services that had until then been provided by subsidiaries of Telebrás; and
- The competitive tendering of licenses to operate 'mirror companies' in the same areas of operation as the landline telephone service concessionaires resulting from the Telebrás system, due to the legal determination that such concessions should not be exclusive.

The restructuring of the Telebrás system was based on three points:

a) to create companies that were sufficiently large, in the light of the international context, to generate their own resources and carry out investments in all parts of the country;

b) to create conditions for various alliances with global players in the domestic market, where only one such partnership would have been possible had the system been maintained as a single company (even if some specialists pronounced in favor of this latter idea); and

c) to increase the efficiency of regulatory action by allowing comparisons between operating companies present in the market, and diminishing the prevalent pro-company information asymmetries, both conditions that would have been impossible to meet had a private monopoly been created.

TABLE 1
Characteristics of Local Landline Telephone Companies

REGION	LINES PER 100 INHABITANTS (April 1998)	PUBLIC TELEPHONES PER 1,000 INHABITANTS (April 1998)	SHARE OF GDP (%)	SHARE OF TOTAL POPULATION (%)
I. Tele Norte-Leste	8.01	2.76	42	55
II. Tele Centro-Sul	11.75	2.80	25	23
III. Telesp	16.70	5.10	33	22

The Regulatory Agency (Anatel)

One of the most important aspects of the reform of the telecommunications sector was the prior creation of the regulatory agency, Anatel, a special institution linked to the Ministry of Communications, constituted with characteristics that allow it to carry out its mission autonomously and independently, given the proposed stability of tenure of its directors and the autonomous powers over decision making and the budget assigned to it.

The effective independence of Anatel is of particular importance for ensuring the efficiency and credibility of regulatory policies. We may observe from international experience that in those countries where sector reform preceded the establishment of the regulatory body, a series of difficulties arose in connection with conflicts between market agents and institutions that inspected privatized companies, due to the latter's lack of legitimacy, or to the duplication of regulatory powers.

In addition, with a view to underlining the legitimacy of the body, the LGT stipulates a series of mechanisms that are intended to guarantee the transparency of Anatel's activities, such as the obligation to submit new regulatory acts to public consultation, as well as to submit an annual report on its activities for approval by Congress.

Privatization

In general terms, the tendering of the cellular telephone concessions, and the subsequent privatization of the Telebrás system companies were responsible for attracting international operators to the domestic market. With the exception of Tele Norte-Leste, the new companies acquired stockholders in their controlling group, whose principal activity is the provision of telecommunications services. Some consortia also include manufacturers of telecommunications equipment, as well as a number of international electricity companies, such as Iberdrola (Spain) and the National Grid (UK).

TABLE 2
Privatization of the Cellular Telephone Segment

A-BAND			B-BAND		
Area ^a		Company/Stockholders	Area		Company/Stockholders
1	São Paulo (Capital & Interior)	Telesp Celular Portugal Telecom	1	São Paulo (Capital)	BCP Bell South (US) Splice Oesp Saфра

			2	São Paulo (Interior)	Tess Telia (Switzerland) Lightel/Algar Eriline
4	Rio de Janeiro & Espírito Santo	Tele Sudeste Celular Telefónica (Spain) Iberdrola (Spain) NTT (Japan) Itochu (Japan)	3	Rio de Janeiro e Espírito Santo	ATL Lightel/Algar Williams International
2	Minas Gerais	Telemig Celular Telesystem (Canada) Pension Funds Opportunity	4	Minas Gerais	Maxitel Telecom Italia Vicunha
3	Paraná & Santa Catarina	Tele Celular Sul Italia Telecom	5	Paraná & Santa Catarina	Global Telecom Inepar DDI (Japan) Motorola Suzano
	Rio Grande do Sul	CRT^b Telefónica (Spain)	6	Rio Grande do Sul	Telet Telesystem (Canada) Bell Canada Citibank Pension Funds Opportunity
5	Acre, Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul, Rondônia & Tocantins	Tele Centro-Oeste Celular Splice	7	Acre, Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul, Rondônia & Tocantins	Americel Telesystem (Canada) Bell Canada Citibank Pension Funds Opportunity

7	Amazonas, Amapá, Pará, Maranhão & Roraima	Tele Norte Celular Telesystem (Canada) Opportunity Pension Funds	8	Amazonas, Amapá, Pará, Maranhão & Roraima	Inepar Splice Inepar
8	Bahia & Sergipe	Tele Leste Celular Telefónica (Spain) Iberdrola (Spain)	9	Bahia & Sergipe	Maxitel Telecom Italia Vicunha
6	Alagoas, Ceará, Paraíba, Pernambuco, Piauí & Rio Grande do Norte	Tele Nordeste Celular Telecom Italia	10	Alagoas, Ceará, Paraíba, Pernambuco, Piauí & Rio Grande do Norte	BSE Bell South (US) Splice Oesp Safrá

^aThe random listing in the table of A-Band areas is intended to make it easier for readers to see the regional duopolies.

^bCRT is an independent company whose privatization preceded that of the other companies.

TABLE 3
Privatization of the Landline Telephone Segment: Areas of Operation and Principal Stockholders

CONCESSIONAIRES		AUTHORIZED COMPANIES ('Mirrors')	
Operating Area	Stockholders	Operating Area	Stockholders
Subsection of Region I ^a	Tele Norte-Leste Andrade Gutierrez Inepar Macal BNDES Participações Banco do Brasil insurance subsidiaries	Region I	Cambrá Bell Canada WLL (US) Qualcomm SLI Wireless Vicunha

Subsection of Region II ^b	Tele Centro-Sul Telecom Italian Timepart Techold	Region II	Megatel Bell Canada WLL (US) Qualcomm SLI Wireless Grupo Liberman (Argentina)
Subsection of Region III ^c	Telesp Telefónica (Spain) Iberdrola (Spain) Banco Bilbao (Spain)	Region III	GVT Global Village (HOL) Com Tech (EUA) RSL (EUA)
Region IV	Embratel MCI (US)	Region IV	Bonari Sprint (US) France Télécom National Grid (UK)

^aWith the exception of sector 3 (operating area of Cia. de Telecomunicações do Brasil Central - CTBC).

^bWith the exception of sector 20 (operating area of Sercomtel-Londrina), 22 and 25 (operating areas of CTBC), 29 (operating area of Cia. Riograndense de Telecomunicações – CRT) and 30 (operating area of Cia. Telefônica Melhoria e Resistência – CTMR, of Pelotas/Rio Grande do Sul and surrounding area).

^cWith the exception of sector 32 (operating area of Centrais Telefônicas de Ribeirão Preto – Ceterp), 33 (operating area of CTBC) and 34 (operating area of Cia. Telefônica de Borda do Campo – CTBC).

Regulation of Competition

In the light of international experience, the chosen regulatory structure attempted to incorporate various safeguards against anti-competitive practices by service operators. The LGT established an important complementary role for Anatel in that it is also responsible for applying antitrust legislation (Law 8,884/95) within the telecommunications sector in conjunction with the Brazilian antitrust council, Cade (*Conselho de Defesa Econômica*). This implies, for example, that telecommunications companies must submit documentation to the regulatory agency on any act that may limit or damage free competition, or that may result in the domination of the market for a given good or service.

In this way, Anatel will be able to monitor market practices efficiently, and in particular, curb activities that can be classed as abusive of market powers.

Control of Mergers and Acquisitions

A crucial point is the fact that, in practical terms, the LGT delegates to Anatel the functions of the antitrust secretariat, SDE (*Secretaria de Defesa Econômica*), with regard to controlling, preventing and suppressing violations of economic interest. These consist of: *a*) the institution of legal proceedings in order to identify and suppress those violations laid down in Law 8,884/95, submitting the cases to Cade for judgement, *b*) to define conditions and sign agreements stipulating that such practices will cease; and *c*) to submit to Cade requests by companies to examine practices likely to lead to market concentration.

Following privatization, there has been a process of transfer of stakes between the new stockholders in the concessionaire companies. With a view to extending its capacity for accompanying these transactions, Anatel established rigorous mechanisms for supervising stockholding transfers between companies through Resolution 101/99, and at the same time, signed an agreement with the Brazilian Securities Commission (*Comissão de Valores Mobiliários* - CVM) to exchange information on company reorganizations.

Companies are obliged to submit documentation to Cade on any act that represents an increase in the concentration of a given market, doing so via Anatel, which will issue its own prior opinion as to whether this is the case. Anatel has wide-ranging powers to defend competition within the telecommunications sector (control of mergers, approval of acquisitions of stockholder control, curbing of abuses of power by dominant players, etc.), with it having the main task of acting preventively, while leaving *a posteriori* action to Cade on a case-by-case basis, with the latter acting whenever a sector agency sets a particular case in motion, and ruling whether the act in question does or does not constitute a violation of an antitrust nature.

Preventive Action by Anatel

Independently of the structure established to regulate competition, Anatel took a series of preventive measures based on sector legislation, in order to impose restrictions, limits and conditions on private groups with regard to the obtaining and transfer of concessions or licenses for landline and cellular telephone services. The object of these measures is to inhibit any increase in market concentration in the different segments of the telecommunications sector, namely:

- A ban during the first five years of operation, on the ownership by a single company within the same cellular telephone sub-frequency range (i.e. either the A or B-Band) of a 'first class' concession (Areas 1-4 for Band A, and 1-6 for Band B) and a 'second class' concession (Areas 5-8 for Band A, and 7-10 for Band B), even if a single company is permitted to own two concessions in different frequency sub-ranges within the same 'first class' concession area, provided that there is no geographical overlap of these areas;

- A ban for the next five years on mergers between recently privatized concessionaires of landline or cellular telephone services;
- A ban on direct stockholding control or ownership of significant stakes by a single group in concessionaires that operate in different areas of the PGO;
- A ban on the vertical integration of local and long-distance services; and
- A ban on the participation by any landline telephone concessionaire in any tender for 'mirror company' operational licenses within their area(s) of activity.

Rules of Interconnection

In keeping with the international trend, Brazil has placed great emphasis on regulating interconnection, with a view to creating a competition-friendly environment within the telecommunications market. The contractual interconnection obligations imposed on concessionaires establish general rules for negotiating agreements with other market agents, with a view to preventing the following practices: tariff subsidies for the artificial reduction of tariffs, unauthorized use of information obtained from competitors, omission of technical information, obstruction, coercion or insistence on abusive contractual terms, etc.

Interconnection tariffs were established in the concession contracts. The cost of interconnection for the Band A mobile networks was set in Ruling 505/97 of the Ministry of Communications, that took effect from January 1, 1998 onwards, and that adopted the basic principle of cost of use. The B-Band interconnection tariffs, on the other hand, are differentiated according to the winning proposal in each of the concession tenders. Finally, interconnection tariffs for calls from land line telephones were not established until July 1998, when Anatel's Resolution 33/98 suspended the previous criterion of proportional sharing of revenues between operators on the basis of well-established cross-subsidies. The new Resolution establishes that all the revenue from a long-distance call between landline telephones will be kept by the carrier company, that will remunerate the two local operators through the local network usage fee.

In addition, no operator of a network that provides public telecommunications services may give preferential treatment to clients that request it. The same operators must also provide access to their competitors, by making available unbundled components and/or alternative points in their network.

All such transactions will be judged by Anatel, which will nominate an Arbitration Commission to resolve eventual conflicts, a point that underlines the importance of having previously established an autonomous and independent agency for the sector.

By means of the 'Regulations for Interconnection', Anatel made it obligatory for all local service concessionaires to allow users to use the national or international long-distance carrier of their choice on a call-to-call basis by June 1999 at the latest. In order to make this choice possible, each landline telephone operator has a specific code that was drawn on a random basis by Anatel.

The Regulation of the Cellular Telephone and Broadcasting Segments

The Cellular Telephone Segment

The modeling of the cellular telephone segment originated in a duopolistic model, in which it was hoped that balanced competition would be rapidly established between the existing concessionaires (Band A operators) and the new entrants (Band B operators). There are good reasons for believing that the model has been confirmed in practice: firstly, entry into the market has been facilitated by the technological characteristics of the service, which unlike landline telephone services, do not entail investments with heavy sunken costs; and secondly, competition between companies is promoted by their freedom of action, considering the flexibility of the private regulatory regime that governs this service, that is defined as non-essential.

Indeed, as may be observed from Table 4, in all regions where new entrants have established themselves, competition between operators of the A and B-Bands has tended to be well balanced. In addition, from 2000 onwards, operators of cellular telephone service concessions will face a new competitive challenge: the entry of operators of the Personal Communications System (PCS) service. In practice, the companies have responded to competition by aggressive price-cutting and diversification of services, such as the introduction of the pre-paid system that is very popular in Europe and the United States.

TABLE 4
Share of the Cellular Telephone Market

Area	BAND A		BAND B	
	Company	%		
São Paulo (Capital)	Telesp Celular	54.62	BCP	45.38
São Paulo (Interior)	Telesp Celular	97.99	Tess	2.01
Rio de Janeiro & Espírito Santo	Telefónica Celular	84.17	ATL	15.83
Minas Gerais	Telemig Celular	97.61	Maxitel	2.39
Paraná e Santa Catarina	Tele Celular Sul	99.71	Global Telecom	0.29
Rio Grande do Sul	Telefónica Celular	100.00	Telet ^a	0.00
Distrito Federal, Goiás, Tocantins, Mato Grosso, Mato Grosso do Sul, Rondônia & Acre	Tele Centro-Oeste Celular	76.75	Americel	23.25
Amazonas, Pará, Roraima, Amapá & Maranhão	Amazônia Celular	100.00	Splice/Inepar ^a	0.00

Bahia & Sergipe	Telefónica Celular	78.35	Maxitel	21.65
Piauí, Paraíba, Rio Grande do Norte, Ceará, Pernambuco & Alagoas	Tele Nordeste Celular	80.32	BSE	18.93

^aOperators that have not yet initiated the provision of service in their concession areas.

The Broadcasting and Cable TV Segment

The LGT does not deal with broadcasting and cable TV services, with Article 211 establishing that the awarding of concessions for such services falls outside the jurisdiction of Anatel. This is a negative point, since the ideal would have been to adopt the models applied in the US and certain European countries (such as Italy), where the regulator has regulatory authority over all three of the telecommunications, media and leisure sectors, and is thus able to accompany the technological trend towards the convergence of these services. This would increase the efficiency of its regulatory actions, given that corporate strategies have tended to consist of horizontal acquisitions between the segments, in order to take advantage of the economies of scale involved. We should also remember the existing potential that cable TV operators have for contesting the monopoly of operators in the local telephone sector.

Having said this, the LGT itself provided some latitude for reducing these limitations in practice, establishing that certain attributions that the Cable TV Law (Law 8,977/95) grants to the federal government should be transferred to Anatel, such as the holding of tenders for cable TV operating concessions, the management of the frequency spectrum in general, and the elaboration and maintenance of the respective stations' channel distribution plans, as well as the inspection of transmission stations. These attributions allow Anatel, for example, to modify parameters and technical specifications, allowing it, for example, to allocate more broadcasting stations.

The need for a single regulatory agency to deal with all segments of the telecommunications sector together is illustrated by Anatel's imminent authorization for cable TV companies to offer access to the Internet, a move that will be yet another potential factor that could alter the duopoly in landline telephone services, given the technical possibilities of providing telephone services via the Internet.

In addition to the fact that these requirements impose a growing need for the regulation of the television and broadcasting segments, they also strengthen the case for a "National Communications Agency", that is, with Anatel also incorporating the remaining communications services. The obligatory requirement for public tender processes with heavy participation costs for all operating licenses, should eliminate the usual and traditional practice of political bargaining, and thereby strengthen the technical regulatory criteria for these services.

Regulatory Asymmetries for the Promotion of Competition and the Provision of Universal Access to Services

One of the most important characteristics of the restructuring of the Brazilian telecommunications sector was the adoption of a regulatory instrument with strong asymmetries that favored new entrants. Such policies aim to reduce

the market power of the existing operators, to encourage the entry of new operators, and to produce a more competitive market structure.

TABLE 5
Characteristics of Operators in the Landline Telephone Segment

	EXISTING OPERATORS	NEW ENTRANTS
Advantages	<p>Network already installed.</p> <p>High level of cash flow generation.</p> <p>Large economies of scale.</p>	<p>Opportunity for operating in the more lucrative market niches.</p> <p>Opportunity for exclusive use of state-of-the-art technology.</p>
Disadvantages	<p>Operating inefficiencies.</p> <p>Outdated technology not completely written down.</p>	<p>Dependence on existing operator's network for access to the customer.</p>

Regulatory Asymmetries

We may distinguish six criteria of regulatory asymmetry used by Anatel in the regulation of the landline telephone segment, namely: the form of operating regime, the specification of the operating area, prohibitions on expansion of activities, incentives to provide universal services, prohibitions on diversification of activities, and finally, the use of new technologies.

The first asymmetry relates to the definition of the operating regime for service provision: while established operators are subject to the rights and obligations of the public operating regime, new entrants will receive authorizations for private operating regimes. The main implication of these different criteria is that only the established operators are subject to tariff controls and the universal access provision targets, with such companies obliged in the short term, to meet the cost of these from their own revenues. It is nevertheless important to observe that the terms of authorization of the mirror companies also include the observation of price ceilings for services, as well as the meeting of targets by the same companies, even if in a far more flexible way than is demanded of the existing concessionaires, since these were criteria that were taken into account in selecting the winners of operating license auctions.

TABLE 6
Comparison between Public and Private Service

REGULATORY ASPECTS	TYPE
--------------------	------

	Public	Private
Conditions of Market Access	Requires previous concession, through a tender process.	Simple authorization.
Prices and Tariffs	<i>Price Cap</i> regime for at least 3 years.	Pricing freedom.
Obligations to Provide Universal Access	Provision and funding (in the short term) of these services.	Only in exceptional cases.
Inspection	Rigorous compliance with the contract, with obligations to provide information to Anatel.	General principles of economic activity as laid down in the Constitution.
Length	20 years, extendable for a further period of the same length.	Undefined
Acquired Rights	Established in the concession contract.	None.

The second asymmetry refers to the definition of the area of operations. As previously observed (Table 3), unlike the mirror companies and Embratel, the other landline telephone service concessionaires operate in subregional groupings. In addition, a company or group of companies may hold a stake in more than one authorized operator by region.

The third asymmetry may be seen from the authorization criterion for the expansion of activities. Table 7 shows that the LGT established a differentiated transition period, during which the established concessionaires (until December 31, 2003) and the authorized mirror companies (until December 31, 2002) will be prohibited from widening or diversifying their activities. In this case, there is also an asymmetry with regard to new entrants that receive authorization after 2001, given that these will not be subject to any restriction on activity.

TABLE 7
Timetable for the Opening of the Telecommunications Market– 1999-2004

SEGMENT	1999	2000	2001	2002	2003 ^a	2004 ^b
Landline Service						
Local	Regional duopoly formed by the three local concessionaires and mirror companies.			Free entry authorized into any segment or type of service (the entry of the concessionaires and mirror companies will be permitted provided that all the companies operating within their concession regions have met their targets in advance).		
Intra-regional	Competition between the three local concessionaires and mirror companies, Embratel and its mirror company.					

Inter-regional	Duopoly between Embratel and its mirror company.	
International	Duopoly between Embratel and its mirror company.	
Mobile Service	Regional Duopoly (A and B-Band operators)	Free entry authorized for provision of PCS services (except in Area 8)
Other Services^c	Competitive	

^aFrom 2003 onwards, authorized operators will be allowed to enter any segment of the service market, provided that they meet all the service provision and expansion objectives established in their contracts.

^bFrom 2004 onwards, concessionaires will be permitted to enter any segment of the market or area of services, provided that they meet all the service provision and expansion objectives established in their contracts.

^cValue-added Services.

The fourth asymmetry refers to the incentive to provide universal access to services. Entry permission into other market segments will be contingent on the meeting of targets in each area of the PGO, although the original delay before the granting of this permission may be reduced in the event of the concessionaire in question meeting its commitments in advance. Having said this, in practice, this incentive should only apply to authorized concessionaires and to Embratel, since these operate alone in their regions. In the case of the other concessionaires, in each region, at least one 'large' telecom company and one independent operator are present. These are likely to become 'hostages of each other' within their region, considering that only when all companies in a region achieve their targets will any of these be allowed to expand their frontiers.

Another relevant asymmetry relates to the scope for diversification. In addition to being conditional on the meeting of targets with the associated incentives described in the previous paragraph, concessionaires, unlike operating license holders, may not acquire cable TV companies.

The final asymmetry refers to the use of new technologies. With a view to balancing operating conditions between established operators and new entrants, Anatel created a temporary market reserve (until 2001) for the new entrants for Wireless Local Loop (WLL) technology. Until this date, unless new entrants into the landline telephone segment for the respective region fail to show any interest in the technology, established concessionaires will not be allowed to use it. With this clause, that is included in the concession contracts of these agents, Anatel is providing evidence of its bet on the technological potential of WLL technology to challenge the market position of the established operators.

The combination of these asymmetric rules should have two consequences: the first is to encourage operators to

meet the targets for providing universal service access, improving the living conditions of the population by extending the coverage of telephone services; and the second is the entry of new agents, which should encourage the practice of *'cream skimming'*, since in practice, established operators will be obliged to finance the achievement of their targets through cross-subsidies, doing so by taking advantage of the flexibility of the tariff regime to which they are subject, as will be described below.

In addition, an analysis of the restrictions and incentives created for market agents illustrate the regulatory objective of promoting competition in the local telephone segment. This is the justification for the greater ease of entry into this segment granted to Embratel and to the mirror companies authorized to operate concessions, as well as the ban on the provision of cable TV services by established local telephone service operators. With specific regard to the last point, it is important to highlight the widespread bet that within the short term, cable TV operators will become competitors of the established local landline telephone service operators.

The temporary practice of *cream skimming* may be desirable as a way of permitting the entry of new agents into the telecommunications market. Competition will only effectively occur, however, if there is a regulation that imposes asymmetric charges that lead to equilibrium in the relations between established operators and new entrants.

At the same time, the adoption of an asymmetric regulatory model does not imply that the economic and financial equilibrium of the established operators will be compromised, nor that undefined incentives will be granted that promote the entry of inefficient companies into the market. The regulatory policy in question is highly complex, and requires detailed scrutiny of the development of market dynamics, in order to determine the ideal timing for the maintenance of asymmetric policies, in order to avoid undesirable influences on sector efficiency.

Tariff Controls and Universal Access to Services

As mentioned in the previous item, landline telephone service operators are obliged in their concession contracts to meet general conditions of interconnection, tariff controls, to provide universal access to services, and to meet certain standards of telecommunications service quality.

Definition of Tariffs

Services provided under a public operating regime are subject to mechanism of tariff setting known as *price cap*, whereby the firm's average prices are subject to a ceiling that is corrected by a consumer price index (in this case, the IGP-DI) minus a percentage that is equivalent to a productivity factor.

Tariff controls are to be based on the price of a basket of services, although after three years, Anatel may shift to an entirely deregulated regime. It should also be emphasized that interconnection tariffs are also subject to a tariff ceiling, and that the regulator is aiming to bring these into line with international standards through the use of productivity factors (termed ‘transfer factors’ in the concession contracts).

In general terms, and in accordance with concession contracts, tariff ceilings should be reduced in a differentiated fashion between the various landline telephone segments, in such a way that at the end of 2005, the year in which the current landline telephone service contracts expire, the basic basket of local services should show an average real reduction of 4.9%, long-distance services a reduction of 24.8%, and international services a reduction of 66% [Herrera (1998)]

TABLE 8
Annual Factors in the Real Reduction of Tariffs for Landline Telephone Services: 1998-2005

TARIFF ITEM	1998	1999	2000	2001	2002	2003	2004	2005
Local Basic Basket	0	0	0	1	1	1	1	1
Long Distance Service	2	2	2	4	4	4	5	5
International Service	5	5	15	15	15	15	15	15
Local Network Usage Tariff	0	0	0	5	10	15	20	20
Long Distance Network Usage Tariff								

The Obligation to Provide Universal Access to Services

The obligations that landline telephone service concessionaires have to provide universal service access are established in the concession contracts, in accordance with the General Target Plan for Universal Access to Services (*Plano Geral de Metas para a Universalização - PGMU*), and the General Plan for Quality Targets (*Plano Geral de Metas de Qualidade - PGMQ*). These plans, that were introduced before privatization, define the obligations that the concessionaires must fulfill with regard to expanding the number of individual access lines, as well as collective access lines (pay ‘phones – TUP) in service, in addition to fixing specific service provision objectives for rural zones, physically disadvantaged individuals, hospitals and schools.

These targets are of both a quantitative and a qualitative nature, must be met on an annual basis, and will remain in force until December 31, 2005, when the concession contracts expire.

The quantitative targets are directed towards the standardization of access to and the quality of the switched

landline telephone service throughout the whole of Brazil, regardless of geographical region. Tables 9, 10 and 11 show that until 2001, the fulfillment of existing contracts should guarantee the activation of 11.4 million new installed lines, as well as the installation of 381,900 functioning pay telephones (corresponding to a density of 8 per 100 inhabitants). The meeting of these targets will ensure that all regions of Brazil are equally capable of satisfying individual demand in all locations with more than 300 inhabitants, as well as providing public pay telephone coverage in all locations with more than 100 inhabitants [Herrera (1998)].

The qualitative targets, for their part, aim to guarantee the speed of expansion of the lines serviced, and are intended to function as variables for adjusting demand. In other words, due to the unpredictable nature of demand, the stipulation of maximum waiting times for the installation of individual lines should allow operators to correct any errors that may arise from the underestimation of demand within the quantitative targets, since independently of the established physical targets, there will be a maximum deadline for attending to individual access demands that concessionaires will be obliged to meet [Herrera (1998)].

TABLE 9
General Plan for Universal Access to Services: Lines Installed – 1997-2001

BRAZILIAN STATE BY REGION	LINES INSTALLED (Thousand Lines)		LINES INSTALLED (Annual Growth) (%)			
	1997	1998 ^b	1998	1999	2000	2001
Region I						
Rio de Janeiro	2,068.7	2,558.8	23.69	16.58	14.88	13.10
Minas Gerais ^a	2,053.4	2,367.6	15.30	14.29	12.93	11.16
Espírito Santo	295.0	363.1	23.08	20.09	17.20	15.07
Bahia	809.9	885.3	9.31	21.65	20.15	18.24
Sergipe	94.1	106.7	13.41	22.75	20.61	17.72
Alagoas	153.0	157.3	2.81	21.42	19.37	17.11
Pernambuco	431.5	582.3	34.95	7.33	19.20	17.32
Paraíba	206.4	227.1	10.00	14.51	13.08	11.56
Rio Grande do Norte	173.5	190.3	9.67	21.40	20.35	18.35

Ceará	578.1	635.3	9.90	9.39	5.18	3.42
Piauí	147.7	156.6	6.01	21.34	19.47	18.06
Maranhão	190.8	210.8	10.50	21.42	20.31	18.18
Pará	282.9	354.5	25.30	21.59	20.19	18.34
Amapá	43.7	49.3	12.77	13.64	10.71	9.68
Amazonas	167.8	194.5	15.93	21.83	19.83	18.31
Roraima	27.7	37.8	36.46	11.11	9.52	6.52
Total Region I	7,724.2	9,077.3	17.52	16.19	15.36	13.66

Region II

Santa Catarina	648.8	750.0	15.60	13.46	12.93	11.03
Paraná ^a	1,178.8	1,366.4	15.91	15.05	13.68	11.92
Mato Grosso do Sul ^a	242.3	289.4	19.44	12.65	13.50	11.89
Mato Grosso	245.8	265.1	7.84	13.56	11.96	10.39
Tocantins	57.0	62.7	10.00	19.62	20.00	16.67
Goiás ^a	553.0	608.1	9.96	11.49	10.03	8.45
Federal District of Brasília	583.6	640.4	9.73	11.81	10.34	8.61
Rondônia	80.9	144.7	78.83	23.04	20.22	18.22
Acre	48.8	54.7	12.15	20.59	19.70	17.72
Rio Grande do Sul ^a	1,248.7	1,418.6	13.61	14.41	14.66	12.95
Total Region II	4,887.7	5,600.1	14.58	14.03	13.29	11.58

Region III

São Paulo ^a	6,207.8	6,898.1	11.12	18.39	17.52	15.63
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Total Region III	6,207.8	6,898.1	11.12	18.39	17.52	15.63
Total Brazil	18,819.7	21,575.5	14.64	16.34	15.54	13.79

^aIncludes the independent companies of the former Telebrás system.

^bEstimate.

TABLE 10
Public Telephones (TUP) in Locations Without Individual Access to Landline Telephone Services – 1999-2005

ALL LOCATIONS WITH MORE THAN: (Inhabitants)	DECEMBER 31,:
1,000	1999
600	2001
300	2003
100	2005

TABLE 11
General Plan Targets for Universal Access to Services: Maximum Waiting Times for Meeting of Individual Access Requests

STARTING	REQUESTS FROM THE GENERAL PUBLIC	REQUESTS FROM SCHOOLS AND HOSPITALS	REQUESTS FROM AUDIOVISUALLY IMPAIRED INDIVIDUALS
12/31/1999		1 week	12 weeks
12/31/2000			6 weeks
12/31/2001	4 weeks		3 weeks

12/31/2002	3 weeks		2 weeks
12/31/2003	2 weeks		1 week
12/31/2004	1 week		

The Expansion of Targets for Universal Access to Services

The LGT makes provision for decisions by the Federal Government to expand targets or to anticipate the meeting of existing targets, as there are a series of situations in which the PGMU does not foresee the meeting of demand from end-users. In order to cover the portion of the cost that relates to the expansion of these targets for the provision of universal access to services that cannot be recovered through the efficient operation of the service, the LGT proposes the creation of a Fund for the Provision of Universal Access to Telecommunications Services (*Fundo de Universalização dos Serviços de Telecomunicações - Fust*), that will be underwritten by all market agents, regardless of whether they are subject to the rules of a private or public operating regime.

As seen previously, the targets for the provision of universal access established in the contracts that run until 2005, must be internally funded by the concessionaires themselves. In the case that such targets are expanded before the legislative implementation of the Fust, there is a legal opinion that concessionaires will be permitted to apply cross-subsidies between different kinds of services or user classes, or to charge an amount in addition to the limits imposed on interconnection tariffs.

Having said this, in the event that these regulatory artifices are used, they will have an undesirable inhibitory effect on competition in the local telephone market. This situation will arise from the fact that concessionaires will have limited opportunities to apply cross-subsidies, as this will encourage the practice of *cream skimming*, while the possible alternative, additional charges for interconnection tariffs, will hinder the access of competitors to the local market. The twin goals of 'universal access to services' and 'stimulation of competition' must be maintained, and this will not occur if the established operators are obliged to meet their commitments by charging the new entrants higher fees.

Since future targets for the provision of universal access to services must be constantly revised and expanded in the light of technological advances and the economic development of Brazil itself, it is essential that Brazilian legislation takes account of the international tendency to accept that the funding of the provision of universal access to services through cross-subsidies is unsustainable on a longer-term basis, in the light of the distortions in the competitive environment that this will provoke.

It is desirable that the future regulation of the Fust, as a neutral fund that will be underwritten by all agents, will guarantee its use purely for the meeting of future targets. The internal funding of the obligations defined by the PGMU that are exclusive to concessionaires, will have an important role to play in the creation of regulatory asymmetries that make possible the entry of new players. At the same time, in the medium term, the Fust will have an essential role in ensuring universal access, without compromising the competitive potential of established concessionaires, given that there should be greater symmetry between competitors.

Outlook

The Brazilian telecommunications sector is expected to develop in such a way as to present ever greater challenges to Anatel. The growing complexity and diversity of services and market agents will demand an increase in the scale of the regulator's operations, whose activities will be increasingly directed towards the regulation of competition, and that will be required to monitor the behavior of sector companies, most of which will be subject to the strategies of global players, with complex planning and decision-making mechanisms with regard to alliances, human resources policy, purchase of equipment, etc.

In particular, Clause 15.8 of the current landline telephone service concession contracts establishes the obligatory choice of national equipment manufacturers, where these are able to fulfil orders under similar price and quality conditions to foreign manufacturers. While important, this incentive will be insufficient in itself to create the necessary conditions for capacity building among national manufacturers, a role that could be undertaken by the Fund for the Technological Development of the Telecommunications Sector (*Fundo para o Desenvolvimento Tecnológico das Telecomunicações* - FDT), that is proposed in Article 77 of the LGT. The FDT will have the objective of 'promoting research into and development of new technologies, as well as of promoting human resource capacity building and job creation, in order to increase competition in the telecommunications industry'.

Defense of competition activity is fundamental, since the sector's ability to meet the principal regulatory aims established by the LGT, competition and universal access to services, will depend on the emergence of operators whose market power is sufficiently symmetric to permit competition with each other, and consequently, to promote the desired degree of diversity, and reduce the cost of services.

At the same time, this task will not be easy. The North American and European experiences point to an incessant search on the part of operating companies for strategic alliances and mergers, not only to increase the synergies that make innovations and investments feasible, but also as defensive moves against other competitors.

The LGT contains a range of creative instruments for the achievement of equilibrium between agents, both established concessionaires and new entrants, that should make possible the desired competition between these (obligations in concession contracts, monitoring and arbitrage of interconnection transactions, control of mergers and acquisitions, etc.).

The competition within the Brazilian telecommunications sector should reflect international trends and also involve a few large groups simultaneously exploiting various service packages such as telephone, broadcasting, cable TV, Internet, etc. This oligopolistic structure will, on the one hand, cause an increase in the complexity of regulatory activity, as a result, among other factors, of the information asymmetry regarding the costs and risks of imposing cross-subsidies on these different services, as well as of discrimination in access to transmission networks and the use of predatory practices against new entrants. On the other hand, by dismantling entry barriers, the offer of multi-service packages will promote the use of the new digital technologies and of integrated service digital

networks, that could result in important economies of scale and scope, in addition to increasing the competition between operators to the benefit of end-users.

In order to permit Anatel to keep pace with this new context, and to carry out its role with greater efficiency, it is fundamental that it be granted as rapidly as possible the legal authority to act in all areas of telecommunications that are currently separated by artificial institutional barriers.

The increase in the intensity of competition within these markets, with the resulting and expected introduction and dissemination of technological innovations, will also require special attention from the regulator with regard to the standardization and interconnection of the equipment, systems and networks of the various telecommunications operators, in order to prevent the occurrence of economic inefficiency and technical incompatibility that lead to loss of peace of mind on the part of the end-user. This concern is already expressed in Anatel's 'interconnection regulations', but will require the agency to perform the role of arbiter. Examples of incentives that promote the creation of cooperation channels between the various operators, such as those in the United Kingdom, could also be adopted within Brazil.

At the same time, even if Anatel has an extensive list of cases of intervention in the defense of competition, it should not overlook the important mandatory regulation of performance, namely: price controls, expansion and service quality targets. While the public sector legacy of concessionaires may be the cause of some end-user complaints, another portion of these could be due to excessive reductions in maintenance operations (incentives for redundancies, outsourcing to companies that do not have the necessary technical qualifications, etc.). This will demand an effort on the part of the regulatory agency, principally since this kind of inspection makes heavy demands on resources, and will require an increase in the agency's headcount. Another alternative, albeit one that carries the risk of partial loss of autonomy, would be an agreement with the regulatory agencies of individual state governments. It should also be highlighted that, despite its noble aims, the LGT could lose part of its social legitimacy, should Anatel not devote more effort to the regulation of short-term performance.

Well aware of this point, Anatel has established in appendices to concession contracts, a protocol for commitment to the meeting of emergency targets before 1999 (the first year in which the PGMU makes provisions for monitoring). An analysis of these demands shows that several concessionaires have failed to meet the performance targets in the commitment protocol appendices to the concession contracts that they signed in December 1998.

In the light of this situation, Anatel decided that such companies had until May 31, 1999 to meet these targets, under the threat of fines and other penalties. In addition, clauses were imposed that obliged concessionaires to abandon claims to revenues, where they had failed to deliver lines that end-users had already paid for in expansion plans. This applies to Telesp and five subsidiaries of Tele Norte-Leste, while auditing investigations will be carried out into Telerj and Teleamazon, in order to establish whether reductions in headcount in these companies had an impact on the performance of indicators.

While such measures by Anatel are necessary, they are insufficient in themselves to ensure, in the short-term, the quality of service to end-users. Indeed, almost all operators registered high levels of requests for repairs, complaints of errors in telephone bills, and of a poor rate of call completion, facts that point to congestion within the physical network, and low general service quality. It is desirable that the enforcement of performance, in terms of meeting physical expansion targets, be balanced by the maintenance and improvement of the existing network.

It is thus necessary for Anatel to develop a broad public opinion campaign in order to disseminate the targets for the provision of universal access to services, as well as of the rights of users that are established in concession contracts. Cooperation with consumer protection agencies will reduce the regulatory costs, and will appear as an

auxiliary element in the mandatory regulation of the performance of concessionaires.

Final Considerations

The definition of a prior institutional model was a fundamental prerequisite for ensuring the efficiency of reforms within the telecommunications sector. In particular, the constitution of an independent and autonomous agency is a crucial step in guaranteeing the meeting of obligations in private contracts, as well as in regulating inter-company transactions, and protecting the interests of end-users.

The LGT makes a clear bet that the best way of seeking the objectives of providing universal access and modernizing telecommunications services will be through the promotion of a competitive market environment. In order to achieve this, a set of regulatory instruments was developed, whose most important characteristics are the application of antitrust legislation within the telecommunications sector, and the imposing of a series of asymmetric rights and obligations on established operators and new entrants into this market.

Since the Brazilian telecommunications market is likely to follow the international trend towards the development of a complex oligopolistic structure, it is very important that Anatel also develops the capabilities to perform an efficient role, in collaboration with the Cade, defending competition, monitoring the behavior of agents, curbing anti-competitive practices, and preventing actions that lead to the concentration of the market.

In parallel to such factors, Anatel also needs to guarantee in the short-term that the mandatory regulation of performance by concessionaires takes place, so that expansion and service quality targets are met, and hence, that the social legitimacy of reforms is guaranteed.

Src: A substantial Amount of Information was obtained from a paper by Jose Claudio Pires " The Restructuring of the Brazilian Telecommunications Sector"



Government Policies

Let's imagine a small, foreign, "garage-sized", four person e-commerce company coming into the Brazilian market in order to make a business startup. The first thing that they will need to know is what are the Brazilian Government policies related to Internet development in the country:

- What are the general legal regulations?
- Which kind of tax incentives are offered?
- What about copyright, patent, and other intellectual property laws?

Here is a **short guide** to answer these questions.

First Contacts & Sources of Information

Information about Government policies may be found at these sites:

1. www.american.edu/carmel/CS8329A/government-policies.htm

This study **in English** about "Information Technology in Brazil" offers an overview about the Brazilian Government's General Information Technology (IT) Policy, Government Priority Programs, and Legal Instruments for International Competition.

2. www.cg.org.br = Comitê Gestor da Internet no Brasil

The Committee for Internet Affairs in Brazil was created in 1995 by the Ministry of Science & Technology (MCT) and the Ministry of Communication (MC). It has eight members: a Net Specialist, and representatives from MCT, MC, Federal Research Foundation CNPq, Academic Community, Entrepreneurs, Service Providers, and the Community of Users.

The objectives of the Committee are: to foster development of internet services, to recommend patterns & proceedings, to coordinate interconnections and registration of domain names, and to organize information about internet services. The Committee's **Information Service** is very useful. You find there a list of **the most common questions** and a good number of links to answer them, including

www.fapesp.br = Research Foundation of São Paulo (which provides **domain registration** in Brazil),
www.assesspro.org.br = Associação das Empresas Brasileiras de Software e Serviços de Informática,
 and www.abranet.org.br = Associação Brasileira dos Provedores de Acesso, Serviços e Informações da Rede Internet. At the last two sites you may merge into **the e-business atmosphere** and get all kinds of up-to-date information.

3. www.mct.gov.br/legis/info.htm = Ministério da Ciência e Tecnologia

The site of the Ministry of Science & Technology (MCT) provides information about the Legislation. These are the main issues: General Laws for Information Technology, Tax Incentives, Intellectual Property & Copyright Laws, International Treaties.

General Laws for Information Technology

INFORMATICS LAW (Lei da Informática).

Law n.o 8.248, Oct 23, 1991. **Integral text** (4 pages): www.mct.gov.br/legis/leis/8248-91.htm. See also the complementary Regulamentations and Decrets listed on the Info-page of the same site:

(Decretos n°s 792, de 05.04.93 e 1.070, de 03.03.94)
 (Portarias MCT n°s 108, de 07.04.93 - 42, de 05.04.94 - 214, de 09.12.94 - Ato Decl. Normativo SRF n° 15, de 17.04.95 - Portaria MCT n° 67, de 26.03.98 e IN SRF N° 69, de 21.07.98)
 (Medida Provisória n° 1.858-10, de 26.10.99, que prorroga por trinta dias o prazo de que trata o art. 4° da Lei n° 8.248/91 e Portaria Interministerial MCT/MF n° 495, de 27.10.99)

Summary and Comment:

In the 1990's Brazil started a new industrial policy, replacing import restrictions and protectionism with the idea of global competitiveness. This is the general context for the Informatics Law, which aims to promote the capacitation and competition by:

- eliminating the customs restrictions on import and production of IT goods and services
- stimulating industrial activity and technological innovation in Brazil
- creating a high-tech labor force.

In order to stimulate the implementation of the new policy, the Government, in the same Informatics Law, created the following tax incentives.

Tax Incentives

Law n.o 8.248, Oct 23, 1991 and complementary Regulations and Decrees (see item above), especially Decree n.o 1.070, Mar 2, 1994. **Integral text** (32 pages): www.mct.gov.br/legis/decretos/1070-94.htm

Summary and Comment:

Government gives the companies Exemption from Tax on Industrialized Products (IPI) and Reduction of Income Tax (IR). The following summary in Portuguese (source:) is provisional and will be substituted by an English version:

- "Isenção do IPI [...] para os bens de informática e de Telecomunicações fabricados no País de

acordo com o processo produtivo básico e a busca da qualidade conforme os padrões internacionais, com a implantação de sistema de gestão da qualidade, em conformidade com as normas NBR 19.000 (ISO 9.000)."

- "Dedução [...] de até 50% do Imposto de Renda devido dos gastos em atividades de pesquisa e desenvolvimento."

On the other hand, the companies have the following obligations:

- "As empresas ficam obrigadas a aplicar no mínimo 5% do faturamento em atividades de pesquisa e desenvolvimento em informática."
- "Dessa aplicação, no mínimo 2% devem ser através de convênios com universidades e institutos de pesquisas."

These obligations seem to be reasonable, since public research foundations such as CNPq and FAPESP foster joint programs between research institutions and private companies.

Intellectual Property and Copyright Laws

SOFTWARE LAW (Lei de Software).

Law n.o 9.609, Feb 12, 1998. **Integral text** (5 pages): www.assesspro.org.br/leisoft.htm

See also: Decreto n.o 2.556, de 20.04.96

Summary and Comment:

The law protects intellectual property rights on computer programs and their commercialization in Brazil:

- The regime of protection is the same as that given to literary works. It is valid for 50 years.
- Guarantee of these rights is given not only to Brazilians but also to foreigners, as long as their country guarantees equivalent rights to Brazilians.
- Although legal protection does not depend upon registration, explicit registration can be done.

Black future for pirates? By approving the Software Law, the Brazilian Government has promoted the first Intellectual Property Law (IPR) in e-commerce in Latin American, in which 75% of all software programs loaded on computers are pirated. It remains to be seen to which point law enforcement will actually occur. The inclusion of a software lawsuit case in one of the recent very popular *telenovelas* is a signal for a new conscience. The country has begun to be on track with international IPR standards.

International Treaties

Among the number of international treaties listed in www.mct.gov.br/legis/tratados.htm, such as peaceful uses of nuclear power, hydroelectric energy, space technology, etc., Brazil is also bound to the chief international document of Intellectual Property and Copyright Laws, which is the Bern Convention for Protection of Literary and Artistic Works (Paris, July 24, 1971, amended September 28, 1979).



Technological Infrastructure

As I was leaving the meeting at [Burger King](#) one thought was in my mind, " I know that a venture like that would have no Technological barriers in the US but how about Brazil? What are the differences, strong points, weak points, barriers, special features of this country regarding its IT and Telecommunications Infrastructure that could prevent or probably help the team succeed in its mission - to sell Widgets!!!".

I decided that the best way forward would be to break my work up in phases. The first phase being to collect data about the Technological and Telecommunication infrastructure of the Country and then using these data we will try to infer conclusions and extrapolate, as much as we can, into the future. The following issues form the basis of what I think is most vital for us to know:

- *Telecommunications Sector*
- *Number of PC's in the country (capable of hooking up in the Net) & Internet Users*
- *ISP's, Portals and Internet Hosts*

Telecommunications Sector ([the Telecommunication](#))

Industry in BRAZIL - A new Era)

Fixed Telephones -

By the end of 1999 around **24.7 million fixed telephone terminals** (15% of the total population approx.) should be installed (according to the Brazilian Embassy). This is a dramatic increase from 9.86 million fixed telephone lines in 1996 (according to the World Development Report)

Simultaneously, by the end of 1999 the substitution of approximately 1 million analogical terminals for digital terminals must be carried out, thus reducing the currently installed analogical commutation base from 9 million to approximately 8 million.

Mobile Phones -

By the end of 1999, **9.6 million mobile telephone terminals**(6% of the total population) should be installed in the country, representing an 8.8 million increase in mobile telephones -- a network thirteen times the size of that of 1994.

Public telephone Services - Local Public telephones, Long Distance Calls, Toll Free etc.

By 1999, **800 thousand public telephones** will be installed. The installation of public telephones will be increased preferably equipped to use PhoneCard Technology.

Virtual Telephones

This is one of the services supplied through the Public Messaging Service Center. By the end of 1999, **6 million boxes** will be installed. The large scale installation of this servivce aims to popularize the alternative voice and fax service at a low cost.

Data, Texts and Images

This includes the linkup of personal and business computer systems; text transmission, fax; access to multimedia services and multi-service installations; the link between databases and Internet type Networks. By the end of 1999, **6.5 million users** will have access to the above.

The connection Network project developed by Embratel, that will finish by the end of 1999 must also be taken into consideration. Firstly, this project aims to link Florianopolis in the South to Fortaleza, in the NorthEast of the country, through the utilization of Long Distance Optical Systems _ in order to increase reliability and availability. To achieve this aim underwater optical cables and landlaid cables were used.

Simultaneously, the project will implement links within states, through optical systems using OPGW cables. Not only will this process increase the number of towns served, but will also enable the interconnection of nets.

These systems work with transmission speed of between 622 Megabits and 2.5 Gigabits using synchronal digital hierarchy (SDH) transmission equipment. This transmission equipment has already been prepared to accomodate the implementation of the Integrated Supported Systems (CMN).

Each pair of fibers has capacity to transmit 30240 voice channels or 30240 data circuits, equivalent to 64Kbps.

Satellite Telecommunication

The national Satellite communication Network of Brazil is modern, and provides voice video data and text to the most remote regions of the country. The system serves almost all of 4,974 of Brazil's cities and towns. There are 66 earth satellite stations (1994).

Number of Personal Computers & Internet Users

According to the World Development Report (1998/99) the number of Personal Computers in the country is ***18.4 machines for every 1000 people in 1996***. The number of Personal Computers in the country could be much higher due to a thriving smuggling era until 1990, however, the PC's of that time are not able to "hook up on the net". I believe that the amount represented here 1.84% is a reasonable enough. Let us not forget that the values presented here are for 1996, I expect a significant increase for the years upto 1999.

The number of Internet users in the South American Region is 7.5 million for this year (***3 to 4.8 million users for Brazil*** - there are no concrete information on the exact number of Internet users in Brazil), and it is expected to reach ***19 million by 2003***. The cost of Internet access can be as low as ***10 USD*** (according to Prof. Viola, in the University of Brasilia). Some more data on the number of Internet users in Brazil and typical costs of connection can be found under the Business Climate section of this site.

ISP's, Portals and internet Hosts

The number of *ISP's in Brazil is 48*, the largest of any other country in Latin America.

According to the World Development Report the number of *Internet hosts is 4.2 per 10,000 people for 1997*.

Companies including yahoo, Microsoft, Star Media Brazil' UOI, AOL, upstarts such as Yupi.com and Argentina's El Sitio are all struggling for a strong position in the brazilian Market. the reason is simple, you have only one country and at the same time more than half of Internet use in Latin America.

Our Team

[Willi Bolle](#), born in Germany, the country of Gutenberg and the Reading & Education Revolution, is a Brazilianist, teaching Comparative Literature at Universidade de São Paulo, he is taking care of the issues of [Education](#).

[Alejandro Gorodetzky](#). is from Argentina (remember that in soccer the classic games are the “amistosos” between Brazil and Argentina), he is an electronic engineer and is finishing his MBA at the Stanford Graduate School of Business in the art of getting silver, gold and plata, which makes him our consultant for [Business](#).

[Gabriel Charalambides](#) is a Civil Engineer, from classic Greece, the country of Daedalos, Ikaros and Ulysses, great inventors and navigators, he is responsible for [Technology](#).

[Ben Cain](#), the sunny boy in our team, is from high tech and blue sky state California, USA; he has dedicated his undergraduate academic efforts to a rather unlikely combination of as a Latin American Studies and Computer Science. Also interested in Health and [Labor](#) issues, he also is our WebMaster and teaches how to surf on this web-page.

Our Dream

We are engaged in collecting data in the fields of [Business](#), [Education](#), [Labor](#), and [Technological Infrastructure](#), concerning the Information-Revolution in Brazil, in the global context. But we are not just collecting, which is a task machines can accomplish much better than humans. The challenge is how to select, interpret and assemble the data in a creative way. In order to deal with this major problem, we consider the following question:

To what degree can the gap of knowledge between a developing country such as Brasil and the leading high tech countries of the world be leapfrogged or at least been diminished by the means of the Information Revolution?

This is, of course, a Herculeanean task, but we think that we can give a small contribution. As we consider that “revolutions” occur first in individual minds, followed by the mentality of communities, we would like to organize our efforts around a very simple and every-day-life question:

How has the Information-Revolution transformed or is going to transform your life and the life of your group?

Please tell us your story (or your dream) in the same way as we are telling our story here. Thus, this website is open for three purposes:

1. An anthology of stories about how the Information Revolution is acting on individual minds and group mentalities;
2. A data-collection (not exhaustive, but selective and paradigmatic) about the Info-Revolution in Brazil: [Business](#), [Education](#), [Labor](#), and [Technological Infrastructure](#).
3. A interdisciplinary forum of interviews and debates focusing on the stories, the data, and the “leapfrog” hypothesis.

By doing this work we hope to contribute to the better understanding and interacting of a more general screenplay, which is the ongoing history of the Information Revolution in Brazil, in Latin America, and all over the World.