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Telecommunications in Brazil

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1-INTRODUCTION

Living in a big city and being part of a supposedly modern society, we are certainly exposed to a daily bombardment of communication that brings us the most varied information. Also, considering the natural evolution of the worldwide economy to a more competitive stage, where the companies which survive will be those that demonstrate the greatest capacity to react to the changes in their respective markets, it becomes clearer and clearer that "information" exerts - and will exert - a decisive influence on societies and organizations in covering decades.

In this context, the telecommunication sector becomes more important among the main and more profitable businesses of the modern world. This trend is demonstrated by the growth of the telecommunication sector's share of the worldwide GNP, which increased from 1.8% in 1980 to 2.1% in 1985, and to 2.3% in 1990. Moreover, the recent research conducted by Trevisan Consultants among businessmen (figure 1) shows that telecommunications facilities weight more heavily than tax benefits or other factors offered by Brazilian States when companies are making decisions about building their factories.

FIGURE 1 - Decisions Process About Building Factors

%

	Good Roads	Basic Sanitation	**Telecommunication Facilities with great Centers and foreign countries**	Manual Work	ICMS Advantages	Tax Advantages
Not very Relevant	11	0	**0**	0	0	0
Quite Relevant	22	33	**0**	0	67	78
Very Relevant	67	67	**100**	100	33	22

Source: Trevisan Consultants

In addition, we should consider the financial and competitive advantages that the simple physical transmission of information provides the user.

Brazil, either because of the pressure of private groups or because President Cardoso's neo-liberal policies, is in a moment of important modifications in the telecommunications sector. Brazil no longer has a state monopoly in the telecommunication sector. The 1995 Bill no. 1.887, known as the "Minimum Law", deals with the telecommunication sector, its organization and its regulatory agency it was approved on 07/19/96 by the Federal Senate. The next step will be the publication of the legal bill forbids as well as the rules to be followed by the winning companies.

In this reality of an emerging Brazilian telecommunications market, agreements are being made between national and international companies interested in operating telephone services (mainly mobile in the south and south-east regions) in Brazil. It is known that there are already eight consortiums preparing themselves to compete in this new market. The TELEBRÁS system, that held the former monopoly, is working towards the same goal, concentrating all its efforts on preparations for the new environment of the competitive market.

The second chapter gives an overview of the telecommunications technological evolution. The third chapter describes the reality of the Brazilian telecommunications market : its emergence, its current situation, its implications and possible future scenarios. In another chapter, other countries' experiences in the formation of new models of telecommunication are analyzed. Finally, in the conclusion, we note some considerations about the whole process of privatization in the telecommunication sector in Brazil.

2 - TELECOMMUNICATION TECHNOLOGY ALTERATIONS

Until the 70's, the telecommunications sector was characterized by stability in the technological (mainly electromechanical technology) and economical (only one product - telephony) fields. However, since the late 70's, radical transformations in these basic dimensions of the sector were noticed.

2.1 Historical Overview Of The Telecommunication Technology Evolution

The telecommunication industry first emerged in the USA in the second half of the last century because of one innovation - the telephone. From this primary innovation, that was initially constituted by a communication instrument which was relatively rudimentary compared to present standards, the technological progress in the field of telecommunications equipment was extraordinary. The years after the telephone discovery were marked by : secondary innovations such as automatic switching and the increase of the transmission; capacity and additional improvements such as in the quality of transmission. This evolution enabled the formation of a telecommunications infrastructure that would become absolutely vital to the economic development of the twentieth century.

Years ago, telecommunications offered only one type of service, that was bound up with either the transmission of voice or the transmission of data at low speed through analogue lines. At that time, it was very common for the operators to provide everything, from the codification and transmission of the information to the telephone gear.

Since the post-war period, new telecommunication technologies have developed quickly. This development was initially concentrated in the field of long distance transmissions (transmission through microwaves and through communication satellites). In the 70’s and 80’s, the development took place in the field of electronic switching - besides the introduction of microprocessors in terminals - leading to the diversification of the services into the transmission of data, voice and image.

It’s worth highlighting that telecommunications registered a drastic change in the generation and use of new technologies, which developed an intense and dynamic process of innovation, centered in the digitalization of telecommunication networks. Micro-electronics is the central vector of this movement. Another aspect to be highlighted is the technological convergence among telecommunications, information technology and the audiovisual sector (television and entertainment). That fact facilitated the emergence of the so-called teleinformation communication networks and information Technology.

2.2 The Economic Change Resulting From The Technological Advance Of Telecommunication

The technological advance enabled an extraordinary diversification of new services, such as: VANS (Value Added Network Services), corporate inter-firm networks, supply of terminals, etc. With technological advance and diversification, besides the basic telephony, a great range of markets emerged to be commercially explored. In this market, the mobile telephone services are outstanding.

Another result of the emergence of the new and complex telecommunication services was the increase in the quality standards demanded by the users. Besides, the demand for the new services increased vertiginously. Telecommunications became not only an infrastructure of development, but also an instruments of competitive advantage (especially for the great multinational companies). With the increase in demand, the pressure of the large users for the reduction of the tariffs for the long-distance and other sophisticated services also increased.

We can give an example of a competitive advantage provided by telecommunications by transcribing a passage of the Stephen Kanitz article published in the magazine BCR-Brasil in June 1996. He says:

> "Patricia's is a typical case. She is very efficient. My friend *Carlos Monteiro* says that he will never work with anybody else. Patricia is a travel agent and an excellent operator. She knows her business well. She knows everything about cruises all over the world. She knows the best ones. She knows them like the palm of her hand and advises her clients as no one else. Just to give you an idea of her efficiency: the leaflets required arrive on the same day, the fax messages are sent on time, the telephone works and is always answered before the third ring, even by an answering machine. In the middle of a cruise in Finland, my friend received a note from a waiter:
>
> - I hope everything is fine on your cruise, etc... . Kisses, Patricia.
>
> PS: choose the best wine from the menu because the bill is on me. More kisses, Patricia.
>
> What strikes us about this true story, besides the amazing Marketing technique, is that the two protagonists (narrator - Stephen, and friend - Carlos) live in Brazil and the travel agent (Patricia) works in Memphis, Tennessee. She is an American travel agent that discovered a new market: Brazil. She has a lot of Brazilian clients and, what is best for her, she doesn't pay taxes here in Brazil (which wouldn't be possible if she were physically operating in Brazil)."

With the evolution of telecommunications, the Patricias of the world don't need to be physically in Brazil. Everything is electronic: the reservations, the fax messages, the payments by credit cards. Patricia, in Tennessee, is simply competing with the Brazilian travel agents.

The internationalization of telecommunications enables the major users, mainly the multinational companies, to pressure for the favorable conditions of one country to be repeated in others. Countries that offer cheaper international tariffs through cost reductions, as a consequence of the transition from analogue technology to digital technology or through cross subsidies, have obviously a more intense international interchange, either through normal channels or through *Call Back* . *Call Back* is a technique in which a computer in country "A", where tariffs are lower, answers and directs the call to the user in a country "B", where the tariffs are more expensive. By doing this, the call is totally paid for by the person in the country "A" with the cheaper tariff (that uses this mechanism of *Call Back*), imposing a loss in the income on the operator of country "B", where the tariff is more expensive. (ALMEIDA, 1994:p.146)

3- TELECOMMUNICATION POLICIES IN BRAZIL

3.1 Historical

The first telegraphic lines were installed in Brazil in 1852 and the telephony took off in 1877 when D.Pedro II, back from a trip to the USA and Europe, ordered the installation of telephone lines linking Quinta Boa Palace - the National Museum nowadays - to the residence of his ministers, as

he had promised Graham Bell (the inventor of the telephone) in Philadelphia. They talked using telephones made by Western Brazilian Telegraph.

We can divide telecommunications into Brazil in two distinct phases. One phase that we can call "Disordered" and another that we call "Ordered". The watershed between then was the creation of the *Código Brasileiro de Telecomunicações* (Brazilian Telecommunications Code), that was promulgated by law number 4.117 of August 1962.

Until that moment, there was no specific regulation of the telecommunication services. They were offered by private companies, most of them foreigners, which were considered responsible for the lack of telephone lines in the country. In the interior of the country, the situation was even worse. The networks were operated by about 800 concessionaires and had no systematic integration, which created "communication islands". The result of this fragmentation and disorder could be verified by the fact that only one million telephones existed in Brazil in 1960 (density of about 1 telephone per 100 inhabitants) . Furthermore, the services were very bad in quality.

During the "Ordered" phase, the Brazilian Telecommunication Code (which is still in effective) established the basis of the formation of the telecommunication system in the technical-normative, productive and financial fields. In the technical- normative field, the National Telecommunications System (SNT) was created. It enabled the integration of the telecommunication networks all over the country and created a federal organ with normative, audit and planning authority, CONTEL - National Telecommunication Council. In the productive field, a state operator company, EMBRATEL, was established; it started operating in 1965. In the financial field, the FNT - National Telecommunication Fund was created with the objective of obtaining extra-budgetary resources.

Proceeding with the consolidation of the telecommunications system, the Telecommunications Ministry was created on February 25, 967, by decree-law 200. The main objective of the Ministry was to offer the sector technical capacity, telecommunications administrative formation, and personnel training in electronics and telecommunications skills.

TELEBRÁS - Brazilian Telecommunications S.A. was created in July 1972 in order to establish the operational rules and planning of the national telecommunications public services, to coordinate and execute its programs, to obtain financial resources, to offer technical and administrative assistance to smaller companies of the sector, and to promote the unification of telecommunication activities. TELEBRÁS started controlling EMBRATEL and the state concessionaires, absorbing about a thousand operators spread all over Brazil, reducing then to almost one operator per state (called "pole" companies).

The telecommunications organization and hierarchy in Brazil can be drawn as shown in the organization chart below:

The Telecommunications Ministry (MINICOM) establishes the general development policies. An intermediate level, TELEBRÁS plans and coordinates the network expansion, the acquisition of equipment, the use of resources and technological development. In the operational basis are the "pole" companies (operating the urban and intra-state networks) and EMBRATEL (operating the international and interstate networks).

3.2- The TELEBRÁS SYSTEM

Classified among the 11 biggest operators in the world, TELEBRÁS is the biggest telecommunications company of the southern hemisphere and in Latin America. The great asset that TELEBRÁS has is its basic plant with : 15 million telephone lines, 2 million mobile subscribers, three domestic satellites, submarine and terrestrial optic fiber cables. Although there is a certain disappointment regarding the total level of digitalization, this telecommunications network can still be considered a plant of good quality. Through TELEBRÁS, the federal government controls 28 operator companies, 27 regional ones and 1 long distance carrier. Its subsidiaries hold 94% of all telephone stations and 91% of the local telephone lines in Brazil, as shown in figure 2 below:

FIGURE 2 - Local Operators Of The TELEBRAS SYSTEM
Installed lines (Thousands)

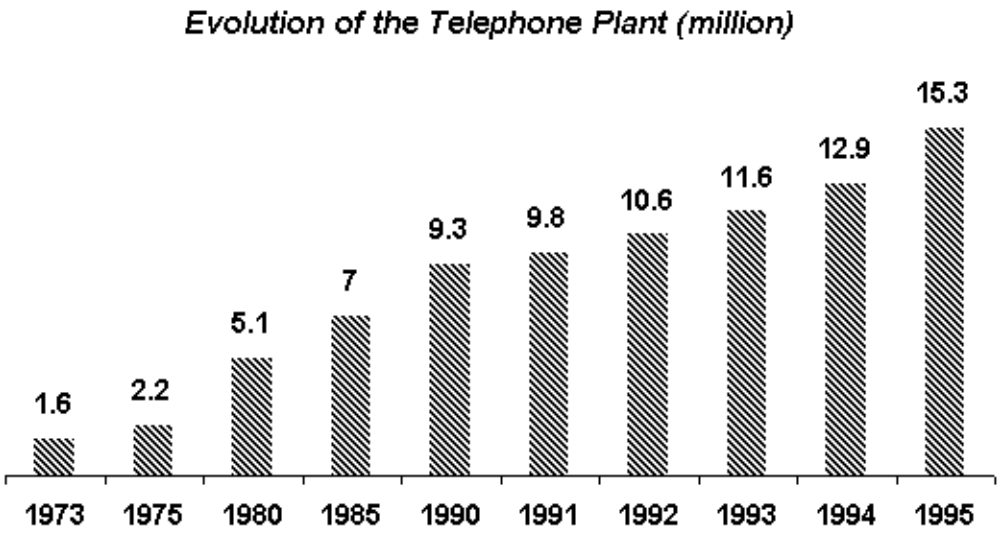
Operators	1994	1995
TELEACRE	30.2	32.1
TELEAMAZON	132.8	161.2
TELAMA	21.8	24.8
TELERON	66.6	73.3
TELEPARÁ	196.1	280.7
TELEAMAPÁ	26.0	41.2
TELMA	132.3	183.2
TELEPISA	104.0	123.1
TELECEARÁ	330.6	463.1
TELERN	111.4	148.6
TELPA	164.9	189.9
TELPE	285.4	320.0
TELASA	94.6	129.9
TELERGIPE	76.8	99.9
TELEBAHIA	675.4	871.5
TELESTE	263.0	290.7
TELEMIG	1,192.6	1,364.2
TELERJ	1,817.2	1,864.6
TELESP	4,387.2	5,008.2
TELEPAR	798.2	1,045.4

TELESC	427.9	529.1
CTMR	61.5	85.1
TELEBRASÍLIA	543.2	646.6
TELEGOIAS	317.9	479.9
CTBC	385.3	408.1
TELEMS	158.4	201.1
TELEMAT	145.5	184.2
TELABRÁS TOTAL	**12,938.9**	**15,250.5**

Source: TELEBRÁS

The TELEBRÁS system currently uses 71 terrestrial stations, 23,800 kilometers of microwave trunk lines and 1,983 kilometers of optic fiber cables that link Brazil to Mercosul, Europe and North America. The local Brazilian telephone network has more than 200 thousand kilometers of optic fiber cables.

In the period between 1973 and 1995, TELEBRÁS enjoyed a growth of more than 850% of its telephone plant. Nowadays its telephone plant is considered the eleventh biggest of the world.



Source: TELEBRÁS

This telephone plant generated operational gross earnings of US$ 12 billion in 1995, 9.2% higher than in 1994, mainly due to the increased demand for services and the increased supply. Net profit increased 18.3% from US$ 720 million in 1994 to US$ 900 million in 1995. Net assets increased from US$ 23 billion to US$ 25 billion. For 1996, an even bigger increase of these economic indicators is expected due to a significant expansion in the number of mobile subscribers.

TELEBRÁS shares are the most negotiated shares on the Brazilian Stock Market. It represents about 51% of the volume negotiated on the Stock Market of São Paulo. An interesting fact is that

10% of the shares of TELEBRÁS are hold by 6 million small shareholders. It is a consequence of the self-financing policy adopted since the 70s as a way to solve the lack of financial resources. Following this model, which differs from that of other countries, the users finance a significant part of the installation cost of their telephones, receiving the installation and TELEBRÁS shares in exchange. Since November 1995, TELEBRÁS shares also started being negotiated in New York in the form of ADRs. After two months, 199,539.6 million ADRs were negotiated, representing a total value of US $ 1.8 billion.

Following (figure 3) are some of the main indicators of the TELEBRÁS system.

FIGURE 3 - The TELEBRÁS SYSTEM

INDICATORS	1994	1995
CONVENTIONAL ACCESSES INSTALLED (MILLIONS)	12.03	13.31
CONVENTIONAL ACCESSES IN SERVICE (MILLIONS)	11.20	12.10
MOBILE ACCESSES INSTALLED (MILLIONS)	0.72	1.53
MOBILE ACCESSES IN SERVICE (MILLIONS)	0.57	1.26
PUBLIC TELEPHONES IN SERVICE (THOUSANDS)	343.60	367.00
LOCAL TRAFFIC (BILLIONS OF MINUTES)	55.60	58.70
NATIONAL LONG DISTANCE (BILLIONS OF MINUTES)	15.90	20.40
INTERNATIONAL LONG DISTANCE (BILLIONS OF MINUTES)	199.00	286.40
DIGITALIZATION OF THE TELEPHONE NETWORK	35.70	46.70
NUMBER OF EMPLOYEES (THOUSANDS)	95.60	92.50
EMPLOYEES PER 1000 ACCESSES	7.80	6.10
LOCALITIES SERVED (THOUSANDS)	17.50	18.90
TOTAL INVESTMENT (US $ BILLIONS)	4.26	4.66

Source: TELEBRÁS

3.3 - Actual Market

3.3.1 Important Aspects of Brazil's Situation

Before we start analyzing the current situation of the Brazilian telecommunications market, it is necessary to highlight some important aspects of Brazil's reality. The country is a territory of continental dimensions (8,000,000 km^2) with several areas of low inhabitant density per square kilometer, a very bad income distribution, and a large share of the population (about 30%) without the minimum conditions to consume telecommunication services.

Figure 4 shows the telephone density and the income per capita in each state of Brazil, which demonstrate the direct relation between income and the number of telephones. Also it demonstrate the concentration of income and terminals in the states of the south and south-east regions .

FIGURE 4 - Telephone Density X Income Per Capita (1994)

STATE	TELEPHONE DENSITY	INCOME PER CAPITA (US $)
Rondônia	5.33	808
Acre	6.75	1,301
Amazonas	5.85	2,167
Roraima	9.27	1,532
Pará	3.50	898
Amapá	8.24	1,076
Maranhão	2.,59	934
Piauí	3.67	568
Ceará	5.80	892
Rio Grande do Norte	4.38	997
Paraíba	4.95	772
Pernambuco	3.,82	1,381
Alagoas	3.60	988
Sergipe	4.91	985
Bahia	5.34	1,408
Minas Gerais	8.08	3,014
Espírito Santo	9.51	2,768
Rio de Janeiro	13.42	3,744
São Paulo	14.90	4,192
Paraná	10.10	2,784
Santa Catarina	8.99	2,476
Rio Grande do Sul	8.13	2,699
Mato Grosso do Sul	3.58	3,706
Mato Grosso	6.65	986
Goiás	7.21	2,067
Distrito Federal	26.35	3,095
Brazil	**9.15**	**2,541**

Source: TELEBRÁS

The more wealthy states, such as São Paulo, have an average of 15 lines/100 inhabitants, which is almost 60% above the national average. In spite of that, internally the states also have similar inequalities of supply, showing great deviations in relation to the average. The state of São Paulo, for example, shows an extremely contrasting situation: in a prime region of the capital the density is 120 lines/100 inhabitants, which can be compared to cities such as Washington; in poor areas in the interior of the state, , there are practically no telecommunications services.

Another aspect to be focused on is the price structure of the sector. The local calls and the subscriptions are characterized by their extremely cheap prices, while the long-distance and international prices are among the highest in the world. This configures what is called "cross subsidy". Demonstrating this theory, figure 5 shows the cost of a range of telephone services in several countries, proving that Brazil registers the lowest basic tariff, while the cost of long-distance calls is among the highest, surpassing countries such as the Unite States (New York), Mexico and England.

FIGURE 5 - Telephones in The World - In US $ (*)

Country	**Installation**	**Subscription**	**Local Call per/ min.**	**Long-distance Call per/ min.**
USA (N.Y)	-	29	0.162	0.70
Canada	33	157	-	0.93
Germany	41	185	0.144	1.24
France	47	87	0.135	1.01
Australia	117	91	0.168	0.75
Italy	146	73	0.093	0.93
Spain	253	138	0.083	0.92
England	255	143	0.231	0.54
Brazil	**449**	**11**	**0.018**	**0.81**
Mexico	525	112	0.137	0.68
Japan	602	154	0.083	1.10
China	866	38	0.018	0.16
Argentina	894	114	0.095	1.14
Average	*326*	*102*	*0.105*	*0.83*

(*) Source: Siemens and Gazeta Mercantil

3.3.2 The Changes Introduced by the "Minimum Law"

Brazil is opening its telecommunications market to competition and privatization. Brazil has stepped from the phase of discussion about what would be the best model for the country, state monopoly or not, to the phase of defining how to make this transition, which rules will guide this process of opening, and how an independent organ will be created to follow and control the process of deregulation. Based on this philosophy, Bill nº. 1,287-D was recently approved by the Federal Senate. That Bill, known as the "Minimum Law", was produced to regulate the concession to private enterprises of the mobile telephone services, satellites, limited services (private networks) and value-added service (complementary services to telephony). Furthermore, the new law introduces the following changes:

- Opens the market of mobile telephony to private investors and to competition. Nowadays the frequency of channels for mobile telephony are divided into two halves: "Band A" that is explored by the state monopoly and "Band B" that is still not used but will be reserved for private firms.

- Besides the mobile telephony, the market is also open for satellite services, value-added services (such as internet) and the limited services (as for trucking).

- It establishes that concessions for operating mobile services, transportation of signs via satellite, value-added and limited services will be granted only to companies constituted under Brazilian laws, with headquarters and administration in Brazil. In the first three years following publication of the new law, the "Executive Power may adopt, when convenient to the national interests, limitations regarding the composition of the funds of the concessionaire companies of these services" in a way to "assure that at least 51% of the capital belong, directly or indirectly, to Brazilians".

- It creates public mobile telephony companies in "Band A", in a way to establish competition between the two "Bands". These companies will be privatized later.

- It assures the interconnection between the already installed telephony and the new private concessionaires.

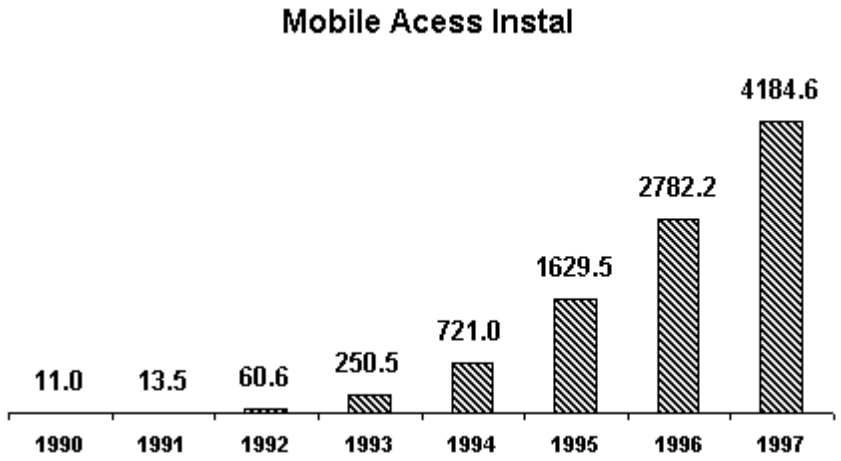
- It creates the CNC - National Council of Communications, that will be regulated in six months. During this period the regulatory body of the sector will be the Communications Ministry itself.

- It determines that the State can charge to grant the concessions.

One of the present concerns is how to gather enough investment resources to finance the expansion and modernization of the plant and the services of the country. The Brazilian government says that the necessary investments to raise the national telephone network to international levels by 2003 are estimated at US $ 75 billion. To reach this goal, the TELEBRÁS system operators, as well as the private companies, have substantial programs of investments for the coming years.

3.3.3 The Mobile Sector

With the opening of the market, mobile telephony is the most sought after service. Nowadays there are 85 million mobile telephones around the world. In the year 2000, there will be almost 350 million. By then, the Brazilian demand showed reach 10 million units, 8 million more than there are today in the country. According to Mark Schult, vice-president for development and international operations of the American company AT&T, "it is the biggest Latin American mobile telephone market" (EXAME magazine /3rd July, 1996 p.89). With 5.5 million mobile users spread around the planet, AT&T considers Brazil its number one priority. AT&T is just one among the 20 companies that are starting to form the partnerships to compete in "Band B".



3.3.4 The Long Distance Telephone Sector

Another area considered to be a telecommunications a "gold mine" is the long-distance telephony sector. This sector traditionally controls long-distance and international calls, but its importance has increased considerably with the emergence of the Internet and of the communication of data (the market for transmission of data and satellite release is also being opened). Today, EMBRATEL, the company that holds the Brazilian monopoly in this field, has been losing market share in international telephony for services like electronic mail and to foreign companies that complete calls solicited by any phone in Brazil through the "call back" system, discussed above.

3.3.5 The Local Telephone Sector

Finally, in the analysis of the current market, we have local telephone service. In Brazil it is controlled by the 27 concessionaires that are part of the TELEBRÁS system (Telebahia, Telest, Telerj, etc.) and 5 other companies (private, municipal and state). In this field, the federal government has been using the price constraint for several years as an anti-inflationary instrument, which means it for not been remunerating this sector correctly. Due to the opening of the market and to the eminent privatization of the telecommunications sector, it is expected that this situation will change. In other words, the "cross subsidy" (see pg.13) will end.

3.3.6 TELEBRAS SYSTEM Goals for the New Environment

The TELEBRÁS system has been preparing for this new environment for several years, concentrating its efforts in areas such as:

- Improving the quality of services, which currently include a high quality telecommunications plant, but deficiencies in terms of customer services.

- Improving its investment plans, prioritizing projects responding to real market necessities, and also providing safe financial returns and adequate solutions.

- Improving its personnel by means of re-training and preparing them for the new competitive atmosphere.

4- THE BRAZILIAN GOVERNMENT'S PLANS FOR THE FUTURE OF TELECOMMUNICATIONS

According to Érvio Alberto Zilli, the Minister's Telecommunications Adviser, the challenge to the telecommunications sector in Brazil lies in outlining new areas in which the country can improve its infra-structure and attain social and economic development. To achieve this aim the government will adopt a new model for the telecommunications sector (RNT - Revista Nacional de Telecomunicações; June '96, p.32).

The government's plan for restructuring the Brazilian telecommunications sector was to be carried out in two stages. In the first stage, which was put into practice by the "Minimum Law", the market was opened up to competition in certain sectors deemed to be most appropriate for private capital, such as: cellular telephone services, satellite services, data transmission and value-added services in general. In the second stage, basic services will be opened to competition and the institution responsible for regulating the sector will also be made more open.

According to the government, four basic principles were fundamental in the restructuring of the industry:

1. The introduction of fair competition. Currently, the TELEBRAS system has several factors that hinder it in the effective management of its resources. Among the main problems of state-run management are:

    - excessive taxation;

    - limitations on investments due to the government's financial policies;

    - bureaucracy, due to the excessive number of bodies created to control state-owned companies;

    - outdated prices as a result of several years of using price restraint as an anti-inflationary instrument.

1. The withdrawal of the state from its role as the producer of goods and services, leading thus to the privatization of TELEBRAS.

1. The strengthening of the state's regulatory functions.

1. Respect for the rights of minority shareholders (as we mentioned previously, many TELEBRAS shares are in the hands of small shareholders, as a result of the self-financing policy).

5- INTERNATIONAL EXPERIENCES

Just over a decade ago, 150 telephone companies around the world were state-owned monopolies. With the onset of privatization, there are now 600 firms competing in the international market. It is estimated that there will be a thousand by the end of this century. In this chapter we try to describe the process of opening up the telecommunications market in several countries.

5.1 The U.S. Case

Until the break-up of AT&T in 1984, three major phases occurred in the organizational and institutional development of the telecommunications system in the USA: a) the formation and constitution of a private monopoly (1878-1974); b) the consolidation of the private monopoly (1934-1956); c) the challenge to the private monopoly (1956-1984).

Until 1984, AT&T retained a private monopoly in telecommunications, operating 83% of the country's telephone lines, with the being operated by small independent firms. AT&T ran a small well-organized group of companies organized into a single corporate structure. They consisted of a Research and Development center - R & D (Bell Laboratory), a telecommunications equipment manufacturer (Western Electric), and an operator (Bell Company).

The first action taken against AT&T's private monopoly was the so-called "Consent Decree" in 1956, the result of a case initiated by the Justice Department. The main result of this case was that AT&T was prohibited from operating in the international market and from entering the information technology sector, which became an important problem for the company with the emergence of telecomputing. This decree also forced AT&T to make Bell's Lab's patents available (and at accessible prices).

First the Consent Decree, the AT&T monopoly suffered two further setbacks: first at the end of the '60s, with the development of telecommunication regulation; and second, in 1974, with the restrictions that the country's Anti-trust Law placed upon the company.

Regarding the first, the opening of the market in the following three key areas must be mentioned: a) terminal equipment and local distribution; b)long-distance transmission - microwave and satellite; c) switching. An overview of the main changes in these areas follows:

a) Regarding terminal equipment and local distribution, the use of certain types of telephone terminals (initially vetoed by AT&T) was allowed, as was the use of microwave channels for telephone transmissions (known as the 1959 ABOVE 890 - FCC Decision) as long as it was solely for the companies' own use.

b) In regard to long-distance transmission, in 1969 the Federal Communications Commission (FCC) granted rights to a new operator, Microwave Communications Inc. (MCI), enabling it to offer long-distance telecommunications services using microwave

technology. On the other hand, in the ‘60s, satellite transmission began being developed in a more commercial form.

c) In the area of switching, the FCC initiated a process to try to distinguish between communications services and data-processing services. The first round of these discussions took place in 1971 (Computer Inquire I), but it was only in 1980 (Computer Inquire II) that the distinction was made between basic services, which remained subject to the regulations, and "value-added" services, which could henceforth be offered without legal restrictions.

The other major setback suffered by AT&T was the enactment of the 1974 Anti-trust Law. After that, the US Justice Department started formal proceedings against AT&T (based upon the Anti-trust Law) due to its size and its huge power in the market. The size of the company can be seen in the following chart:

FIGURE 6 - The Largest US Companies In 1970

COMPANIES	**Assets (US $ billion)**	**Net Profit (US $ billion)**	**Number of employees (thousands)**
AT&T	53.3	2.6	1004
Standard Oil	19.2	1.3	143
General Motors	14.2	0.6	700
Ford	9.9	0.5	432
IBM	8.5	1.0	269
General Electric	6.3	0.3	397

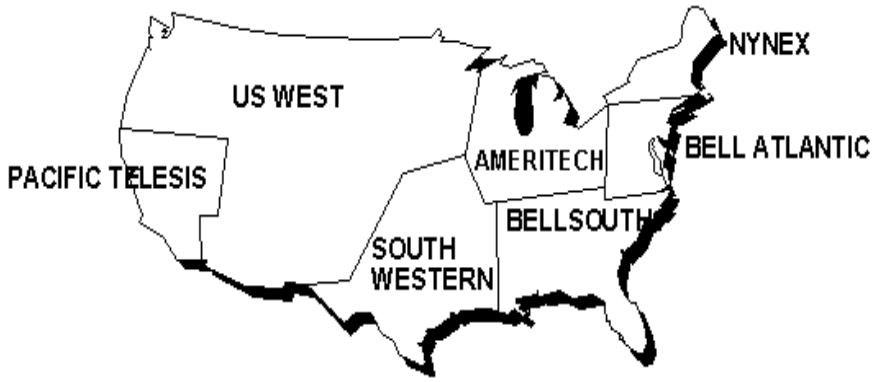
Source: Fortune magazine (May 1970) in Almeida (1994, p.160)

In 1982, AT&T and the US Justice Department settled on a break-up agreement known as the MJF - Modified Final Judgment, replacing the 1956 Consent Decree. The main points of this agreement, which became effective in 1984 were:

- AT&T would no longer offer local services, although it would continue to operate long-distance services and it would retain its equipment manufacturing decision (Western Electric) and its research division (Bell Lab).
- AT&T would be free to operate in markets other than telecommunications (such as information technology) and to expand abroad.
- Local services would be offered by independent companies, each operating as a monopoly in a specific area. These became known as the Baby Bells, "offspring" of the

Bell system, organized into seven regional holdings: Pacific Telesis (based in San Francisco), US West (Englewood), Southwestern (St. Louis), Ameritech (Chicago), Bellsouth (Atlanta), Bell Atlantic (Philadelphia) and Nynex (New York), each with a revenue of about US $ 10 billion in 1984. Figure 7 shows the Baby Bells' regional monopolies in the United States.

FIGURE 7 - Regional Division Of The Baby Bells



- The Baby Bells, apart from not being permitted to offer long-distance services, were also prohibited from manufacturing telecommunications equipment and from offering technological information services (such as value-added services).

The main results of the American regulation include:

- the end of the overall monopoly, a subsequent increase in local calls, and a decline in long-distance calls. Local services increased at a rate of 3.1% p/a from 1983 to 1989, while long-distance calls decreased at a rate of 4.2% p/a (ALMEIDA, 1994 p.166).

- Long distance services clearly acquired characteristics of an oligopoly (AT&T controls about 70% of this market).

- AT&T diversified into information technology and its international operations became important. The inverse has also been true, with IBM, for example, diversifying into the telecommunications sector.

- The Baby Bells began to operate internationally on a large scale.

The USA has begun to pressure foreign markets to open. The opening of its own market has had a strong demonstrative affect upon foreign governments with neoliberal tendencies.

Currently, the market is undergoing another change: long-distance companies can operate general services and vice-versa.

5.2 The Case of Argentina

The privatization process in Argentina gained impetus when the State Reform Act was approved by Congress on August 17th, 1989. The Act, proposed by President Menem, granted the Executive full power to proceed with privatization by means of presidential decree. Armed with this legislation, and anticipating strong resistance to privatization from both within and outside the government, president Menem acted quickly. On September 12th, 1989, he issued a decree which modified the essence of the 1972 National Telecommunications Law. This decree enabled the start of the privatization of the National Telecommunications Company (ENTel). Immediately after issuing the decree, the president appointed an inspector to ENTel, who was responsible for supervising the privatization process and assisting in the preparations for the sale.

It is interesting to note that the later privatization, especially those in industries concerned with oil, natural gas, electricity and ports, were not initiated by presidential decree but by bills passed in Congress. Although legislative approval held up the schedule of these privatization, the negative impact of this delay was minimized by the success of the experiment which took place in the telecommunications industry. In fact, this experiment's success - more political than economic - was the most important factor in establishing the Menem government's commitment to privatization.

The document outlining the terms of the privatization of ENTel was released in January 1990. It established that the company would be split in two sections: the northern company and the southern company. Each of these firms would be licensed to provide basic telecommunications services, exclusively, for a period of seven years with the possibility of a three-year extension if certain performance-related goals were achieved. The document established that 60% of the stock of these companies was to be sold at a public auction, 25% floated freely on the market, 5% sold to cooperatives and 10% transferred to ENTel employees.

Simultaneously, two companies were created with a license to operate, exclusively and for a limited time-span, international telephone services and special communications services (data transmission, telex and naval radio transmission). The stocks of these companies were divided equally between the northern company and the southern company.

The minimum prices for the sale of the northern and southern companies were established at the end of February 1990. Part of the payment was to be in cash (approximately 5% of the total value) and part in government bonds.

Seven consortiums qualified for the last part of the auction and three submitted proposals. The consortium headed by Telefonia de España and the one headed by France Cable et Radio and the Italian STET submitted proposals for the North and the South. The Bell Atlantic consortium presented a proposal only for the northern company.

Although Telefonia de España presented the best proposal for both companies, the regulations of the privatization would not allow the whole industry to be controlled by a single consortium. Consequently, the Bell Atlantic consortium was initially selected as the buyer for the northern company. However, Bell's financial backer, the Manufacturers Hanover Bank, failed to raise the necessary funds. The consortium had to declare its withdrawal. Following this unexpected development, the Argentine government contacted the Franco-Italian consortium which presented an alternative proposal and thus won the right to purchase the northern company.

The final revenue from the sale of 60% of ENTel was US $ 214 million plus US $ 5 billion in Argentinean government bonds. As the bonds' value was set at 19 cents to the dollar, the final price of the 60% of ENTel was only US $ 1 billion and 169 million: US $ 630.8 million for the southern company, which became known as Telefonica, and US $ 538.7 million for the northern company, which became known as Telecom.

The regulatory framework was the subject of great uncertainty, political clashes and constant changes. The Argentinean government decided that the privatization process would go ahead without the clear establishment of the regulatory framework controlling operations within the industry. Priority was given to the quick sale of ENTel and, thus, details of regulation were to be defined later.

The document which established the terms of ENTel's privatization outlined the main elements of the regulation process, namely the rules governing the readjustment of prices in the two years following privatization and the decision that the Communications Department of the Public Works Ministry would be responsible for preparing a decree creating a regulatory body.

As the Department was influenced by corporate interests and many of its members were opposed to the privatization process, the work on the decree was not given priority. Finally, just before the public auction of ENTel, the decree was issued. However, those participating in the auction had no knowledge of who would run the regulatory body or who its members would be. Only after the auction did the Communications Department announce that it was to become the Commission Nacional de Telecomunicaciones (CNT), the industry's new regulatory body.

The CNT was composed of five commissioners selected by the president for a five-year term with the possibility of renewal for one further term. The president was also responsible for choosing which of the commissioners would be chairman of the CNT. The funds for the CNT's operations would come from part of the revenue from taxes on telecommunications (0.5%).

The CNT was responsible for the technical and administrative regulation of the telecommunications industry and the control, supervision and inspection necessary to ensure that the rules established by the government were being complied with properly. Among its responsibilities were: i) The issuing of licenses and authorization other than those which were decided upon during the privatization of ENTel; ii) the revision and approval of investment plans, with the aim of guaranteeing the quality of services provided and the interconnection of communications networks; iii) the setting of service prices that had not been previously defined in the operating licenses; iv) and the approach taken towards dealing with customer complaints.

Although the functions and responsibilities of the CNT were relatively well-defined from a legal and administrative point of view, in practice very little was done to make the new commission's action effective. An atmosphere of great uncertainty surrounded the companies operating in the industry. In fact, the CNT team was formed exclusively by former employees of the Communications Department and ENTel. Its chairman was the Secretary of Communications himself. Not only did this team lack experience in the field of regulation, but it was also politically associated with groups whose interests were not best served by the success of the privatization process.

After a considerable accumulation of problems stemming from the CNT's inefficiency, president Menem intervened, replacing the five commissioners with an auditor and four sub-auditors. Although Menem had the power to dismiss the members of the CNT, he chose not to create such a precedent and opted instead for the audit, to make it clear that it was an exceptional situation. The audit's objective was to make the CNT an effective regulatory body. For this purpose, a group of international consultants were contracted and, along with part of the CNT team, they reformulated the operating rules.

The intervention in the CNT reduced, but did not eliminate, the problems in the telecommunications industry. The temporary aspect of the intervention and the appearance of new problems between the firms and the auditors meant that there was still considerable uncertainty regarding the regulatory framework, but general improvements proved to be sufficient to stimulate investments by Telefonica and Telecom. These investments have surpassed the targets established initially and have resulted in a considerable increase in the number of telephone lines and an improvement in the quality of the services.

The case of Argentina's telecommunications illustrates not only the relationship between political-institutional variables and the regulatory framework, but also the affect upon companies' performance of uncertainty about their framework. There are signs that if the regulatory framework had been clearer and there had been more competition at the time of the sale of ENTEL's stock, the benefits generated for society would have been much greater. In fact, according to a recent estimate by the World Bank, the total net revenue obtained by Argentinean residents corresponded to less than half of the gross revenue generated by the telecommunications privatization process.

5.3 - The Case Of The United Kingdom

The reform of telecommunications in the U.K, carried out by the conservatives, can be divided into two phases: the opening of the market (occurring under the conservative government of 1979 to 1983); regulation and privatization (occurring during the second conservative mandate from 1983 to 1987).

Until 1981 the postal and telecommunications services were operated by the state-owned British Post Office, which retained a monopoly within the industry. Changes within this sector began in the mid-70s when the Labor government of the time, spurred by the British Post Office's poor performance, established an investigating committee, chaired by Professor Charles Carter, to suggest and assess options for improvement. This study was carried out and its findings were reported to the Labour government in 1977 in the so-called Carter Report. This report stated that the relationship between the Department of Trade and Industry and the British Post Office were badly defined. It went on to propose radical institutional changes, including the formal separation of the postal services and the telecommunications services. These changes, however, were implemented only in 1981 under the conservative government by means of the Telecommunications Act. This law apart from separating the two industries, also opened up the market for operators on basic network services, suppliers of terminal equipment, and providers of special telecommunications services. The Department of Trade and Industry retained responsibility for licensing new operators for both the basic network services and the special telecommunications services.

Despite not having been part of the initial plans of the Thatcher government, the privatization of British Telecom - BT (formerly British Post Office) - became a reality in mid-1981 when the government began having problems funding the company's major investment plans, aggravated by the recession occurring at that time. Besides, the government had already convinced itself that BT, being a state-owned company: could obstruct the liberalization process, since the public services responsible for putting the changes into practice did not have sufficient technological know-how to override BT; and BT would not operate efficiently and, thus, privatization would enable a restructuring of the company leading to an improvement in services.

To BT's surprise, in July 1982, the government published a white paper entitled "The Future of Telecommunication in Britain" (Department of Trade and Industry, 1982) announcing its intention to privatize the company. This paper stressed the importance of market forces and consumer choice, greater competition within the industry, and the necessity of generating revenue. The paper also outlined the creation of a regulatory body known as OFTEL (Office of Telecommunication).

In November 1982, the proposal came before Parliament where negotiations were complex and strongly debated. Outside Parliament the issue was controversial. The figures involved were very high (almost 4 billion pounds sterling). Questions were raised about whether: the stock market could absorb an operation of this nature, the operation should be split into phases, monitoring should take place, and it would be advisable to break up the company as occurred with the American AT&T. Finally the Act was passed on April 12th 1984 (TEIXEIRA, 1995: p.28).

The Act was opposed by various sectors such as the Labour Party, the unions and equipment manufacturers. The Labour Party was against privatization on the grounds of preserving the public interest and supporting British industry. The unions argued that salaries and employment rates would probably be decreased, apart from the fact that unprofitable services, such as rural telephone services, would, in their opinion, be threatened if rates were based upon costs. Finally, the manufacturers of telecommunications equipment argued that the government was transforming a state-owned monopoly into a private one. They also feared BT's power, both as a competitor, since it was continually diversifying its operations, and as a customer since BT, responsible for 95% of demand, was the largest and practically the only corporate purchaser of telecommunications equipment.

Another controversial issue was regulation. Within the framework there were controls over prices but not over profits. In other words, a ceiling was established for prices, but there were no limits on profits made. As to OFTEL, its main functions were regulating prices, dealing with customers complaints, ensuring that companies operated within the terms of their licenses, and promoting competition within the industry.

In 1984, BT was finally privatized. Although the privatization was considered a success by the government - to the extent of serving as a model for later privatization - several criticisms have been raised. Among these, the main ones are:

- Undervaluation of stock, reducing the revenue raised for the Treasury.
- Excessive costs of promotion, publicity and financial mediation

- Weakening of the government's long-term financial position.

Currently, BT's performance is typical of a large private company in the information technology sector, although it remains regulated in certain operational areas. In 1991 it was one of the most profitable companies in the corporate world. Meanwhile, privatization in the UK has benefited large users, especially multinationals, a sector heavily represented in the industry (ALMEIDA, 1994 p.182).

5.4 The Case Of France

Until the mid-70s, telecommunications services in France were fairly poor, with a low density of users (8.2 lines per 100 inhabitants in 1970) in comparison with other European countries (e.g. Britain had 16.6 lines per 100 inhabitants in the same year), and a waiting period for telephone installations for up to 5 years. In summary, France had a telecommunications network that was quite outdated in terms of both size and technology, and totally unsuited to a developed society.

In the restructuring of the French telecommunications system, a monopoly was retained in regards to basic network services, at a national and international level, while the VANS sector and the supply of terminal equipment were opened up to competition. In the cellular phone sector, however, a duopoly was created. (TEIXEIRA, 1995 p.33)

The restructuring of the telecommunications system in France can be said to have started with the government's VII Economic plan (1976/1981), where telecommunications were given a specific plan called the PAP (Plan d'Action Prioritaire no. 04). This plan had two main aims:

> a) to double the number of existing telephone lines, from 7.5 million in 1975 to 15.5 million in 1980.
>
> b) to reduce the installation time for telephones to three and a half months, by 1980, and to improve the quality of services.

In order to implement this plan, the body specializing in the operational side of the telecommunications sector, the DGT (Direction Generale des Telecommunications), was authorized to invest a sum of around 94 billion Ffr during the time covered by the plan. These investments allowed France to establish a telecommunications network that is one of the most sophisticated, and which has one of the highest rates of digitalization, among developed countries. The growth rate of new lines was extraordinary, achieving a level of about 2 million lines per year during the period from 1977 to 1982, which was much higher than rate during the early 70s, when it was 300 thousand lines per year (Curien et Gensollen, 1992 p.163). Thus, in 1984, France achieved a telephone density of 39.2 lines per 100 inhabitants, reversing the situation in relation to Britain in this aspect (37.0 lines per 100 inhabitants in 1984). It is worth noting that during this period when large investments were being made in French telecommunications, investments in telecommunications in other countries were decreasing due to the oil crisis (1973/1974).

The success of the VII plan was, among other reasons, mainly due to:

- the well structured financial side, notably the creation of the CNT (Caisse Nationale de Télecommunications), which enabled access to financing inside and outside France.

- the development of the DGT into a well-organized firm in both the management and commercial aspects.
- skillful political articulation, which formed the basis for the implementation of the reforms.

In 1988 the DGT became known as France Telecom - FT. This change was merely a commercial move by the firm, which was adopting new marketing strategies with no concurrent changes in the legal sphere.

At the end of the 80s, there was a wide-reaching discussion on the subject of telecommunications, involving all the main sectors and interests connected to the country telecommunications. Besides FT, of course, the main unions, equipment suppliers, ministries and consumer groups participated.

As a result of these discussions, on the 31st of July, 1989, Hubert Prevôt delivered a report, which became known as the Prevôt Report, to the Telecommunications Minister of the time (Paul Quilet), highlighting five fundamental issues raised in the talks. These were:

- the refusal of the unions to accept the privatization of the infra-structure.
- the necessity of safeguarding public services when confronted by competition.
- the autonomy of future operators who should each have a separate legal entity.
- the separation of the operating and regulating sectors.
- greater freedom of management for employees, but with the maintenance of already existing guarantees for employees.

Finally, in 1991, France Telecom was approved as a public company, with responsibility for its own accounts, independent administration, and with the obligation of:

- assuring public telecommunications services;
- developing and operating the public networks necessary for such services;
- supplying the other telecommunications networks and services, including the distribution networks of cable television services, respecting the rules of fair competition.

This whole process of restructuring French telecommunications, which began in the mid-70s, enabled France Telecom - FT to occupy a position of eminence among its international counterparts, characterized by the development of projects in cooperation with large-scale users.

In 1992, FT’s revenue was Ffr 121.5 billion, its total number of lines reached 30 million and it had 155.3 thousand employees. At the end that same year, 88% of urban circuits were digital. These improvements contributed to a high quality of service, which is currently among the best in the world.

5.5 Summary Of Other Countries

5.5.1 Germany

The basic and long-distance telephone service is still state-owned. Private competition is permitted only in the cellular telephone market. However, Deutsche Telekom should begin to be privatized in 1998. The sector is still regulated by the executive, but the European Union is discussing the creation of an autonomous regulatory body.

5.5.2 Mexico

With the recent privatization of Mexico's telecommunications sector, investments have increased from US $ 700 million to US $ 2.1 billion per year. Telephone density has increased from 6.3 lines per 100 inhabitants to 9.3. Local rates have increased by 12.0%, but international rates have fallen by 14.5%. The current breakdown of revenue between international and local calls is 26.6% and 70.4%, respectively.

5.5.3 Canada

All services are operated by private companies. The Canadian Radio and Telecommunications Commission, an independent body like the American FCC, is in charge of the sector. Its role and procedures are practically the same as the FCC's, the only difference being that, in extreme cases, its decisions may be subject to a review by a ministerial council.

6-CONCLUSION

The end of the state monopoly over telecommunications in Brazil is already a fact. However, we must not forget that the success of any privatization program should be measured by the benefits it generates for society as a whole, both in terms of the revenue raised by the sale of the state's assets and the way in which the services are operated by the new owners.

In this respect, certain points should by carefully analyzed in order for the whole of society to benefit from these reforms. These points are:

1. A well-defined regulatory framework. The importance of the regulatory framework is linked to its capacity to affect the combination of risk and returns on investments made by private enterprise. The more clearly defined the regulatory framework, the safer investments will be in the telecommunications sector in Brazil and more investors will be interested in the privatization process. This will all have a direct affect upon the sale price of the controlling stock of the public enterprise. An appropriate regulatory framework is one which effectively promotes good relations between: **a) the companies and consumers**, in such a way that establishment of price levels, subsidies and investments are guided by socially desirable criteria; **b) the companies and the government**, encouraging an atmosphere of stability and security.

1. The necessity of strengthening the TELEBRAS system in such a way as to ensure fair competition, building on its assets in the event of a possible privatization.

1. The importance of focusing on strategy. Apart from a clear long-term strategical outlook, it is necessary to develop medium and short-term proposals which are not merely isolated actions taken as a result of pressure from political or private groups, but actions which are part of a socially-inclusive, nationally-integrated development process, increasing the competitiveness of the Brazilian economy.