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The Brazilian Way of Telecommunications Reform

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Until the mid-1990s, Brazil's attempts at modernization and change in telecommunications differed from those in other Latin American countries. The Brazilian approach was not to engage in privatization but rather to maintain control by a government monopoly. But in 1995, the new Cardoso government began transforming telecommunications, starting with the removal of the legal monopoly of the Telebrás companies. The government's priority was the liberalization of cellular telephony, satellite telecommunications, data transmission, and value-added services.

In November 1995, the government proposed a "minimum law" that was approved by both houses of the Brazilian Congress in 1996. This law regulates only four services: (1) cellular telephony (to operate on the B-band); (2) satellite communications; (3) data transmission (to closed user groups); and (4) value-added network services. The administration did not propose privatization (sale of assets) as a short-term objective, except for public operators who provided cellular telephony on the A-band. The government ordered that sales of assets would take place only after the implementation of other reforms, including tariff rebalancing, mergers of operators into regional groups, and establishment of management autonomy. The government also repeatedly stated that it did not seek to replace a public monopoly with a private-sector monopoly but rather to introduce competition.

17.1 The Lead-up to the Present Brazilian Reforms

A public-sector monopoly in Brazilian telecommunications developed in the late 1950s and early 1960s. The growing need for telecommunications in Brazil at that time exposed the technological and institutional fragility of the existing telecommunications system. A chaotic system of concessions was in force, in which foreign-controlled operators served the networks in the country's main capitals but hardly invested in expansion and modernization of their lines and equipment. This practice resulted in serious points of contention with the authorities granting the

concessions. In the interior of the country, the situation was even worse; the networks were operated by 800 concession holders, including local city halls, cooperatives, and small-scale private-sector companies. This fragmentation prevented expansion of service in Brazil, which had only 1 million telephone lines in 1960 (representing a line density of 1 line per 100 people). The system was also crippled by high pent-up demand and extremely bad quality of service; it was normal for a customer to wait several hours for his booked domestic long-distance or international call to be connected. Also, the governments of individual states and town halls exercised their power to grant concessions without effective means of estimating the major foreign company operator's costs. This exacerbated the political impact of new tariff negotiations.

Resolution of this impasse began in the early 1960s in two ways. One was the National Telecommunications Code (Law 4,117 of 1962). The other was a growing movement to nationalize the operating companies, which was first expressed when Governor Brizola, of Rio Grande do Sul state, decreed that the ITT subsidiary, CTN (Companhia Telefônica Nacional), should summarily become state property.¹ Soon afterward the government of Guanabara state and the federal government decreed intervention in CTB (Companhia Telefônica Brasileira), which was owned by the Brazilian Traction, Light and Power Company of Canada and served the nation's capital, Rio de Janeiro.²

The National Telecommunications Code of 1962 was the foundation of the Brazilian telecommunications system. On the technical level, an inspection and planning agency, CONTEL (Conselho Nacional de Telecomunicações), was charged with imposing national technical standards. A countrywide state-controlled operator Embratel was also created. In addition, the code laid down a surcharge on tariffs to fund the FNT (Fundo Nacional de Telecomunicações), designed to obtain extrabudget funding for the future state company. The system was completed by the creation of a regulatory Ministry of Communications (under Decree-Law 200) and of the holding company Telebrás, in 1972 (Law 5,792 of July 11, 1972).

Telebrás took over centralization, planning, and coordination of all the country's telecommunications activities, including the control of the long-distance carrier Embratel and the so-called hub companies—one in each state—that were formed by the acquisition of various existing smaller-scale concessions.

Between 1960 and 1970 several main players emerged in planning and implementing a telecommunications policy centered on development of the public monopoly. They were (1) the government (including managers of Telebrás); (2) the suppliers of telecommunications equipment; (3) the scientific community; and (4) the labor unions (though with a limited level of autonomy). The scientific community and the equipment suppliers were only strengthened when the state-driven development policy of import substitution in telecommunications equipment was put into practice, starting in the mid-1970s. The telecommunications labor unions, in turn, were extremely limited in terms of activities and attitudes by the restrictions imposed on the country by the military government (from 1964 to 1985).

At the end of the 1980s, the main features of Brazilian telecommunications were a small-scale telephone network; excessive regional imbalances in distribution of telephone lines; insufficient quality of service and an excessive congestion ratio;

insufficient supply of advanced telephony and value-added services; the high cost of lines, the long wait for installation of new lines and the consequent formation of a speculative secondary market in telephone lines (with prices from three to five times the value of lines as sold by the hub companies); an unbalanced tariff structure; irregular and insufficient investment; a healthy financial structure, with a reasonable net margin of profitability, in spite of the low tariff; a good outlook for funding from the international financial market; a lack of incentives and adequate regulation for private-sector investments in the industry; absence of a consistent medium- and long-term planning system; a manager selection process based on political influence rather than technical criteria; spare capacity in the telecommunications equipment producing industry (especially in the large companies); and the absence of an industrial policy oriented toward competitiveness in this segment.

17.2 The Period from 1988 to 1994—the Sarney, Collor, and Itamar Franco Governments

During the second half of the 1980s, Brazil carried out its transition to a democratic regime after decades of authoritarian rule. In the macroeconomic area, there were several attempts to stabilize the currency (such as the Cruzado Plan of 1986), but practically all of them failed. In the political arena, the most important event for the consolidation of democracy was the approval of a new Constitution in 1988. Under this law, the legislature adopted exclusively public-controlled models for basic telecommunications operations—including telephony, telegraphy, data transmission, and the other public services in the area (Article 21, Subsection XI). In terms of regulation, the basic law of 1962 remained in effect. Thus, at the end of the 1980s, while other Latin American countries such as Argentina, Mexico, and Chile were preparing plans for privatization of their operators, Brazil reaffirmed—through its Constitution—the public monopoly on telecommunications. This meant that the recovery and modernization of the system (expansion of digitalization and the offer of new services) continued to be carried out under the aegis of the previous organizational model: a public monopoly.

One of the most important indicators of the progress of Brazil's system recovery was the rising level of investments, which rose to a level of U.S.\$2.5 billion annually from 1988 to 1993 (a growth of 127 percent in comparison with the period from 1983 to 1987). Another measure of great impact was the commencement of trading of Telebrás stock on the country's stock exchanges in 1989. These shares rapidly began to play an important role. Their trading today represents more than 50 percent of the stock exchanges' daily "spot" trading volume. The rise in the value of Telebrás PNs (nominal preferred) stock was a phenomenon of great significance, with the price rising from U.S.\$5 per thousand shares in mid-1990 to over U.S.\$35 per thousand shares one year later, in 1991.

The stock of Telebrás and the other public-sector holding companies (Petrobrás, CVRD, and the electricity companies) now account for the greater part of trading on the stock exchanges. From September 1994 to March 1995, the price of Telebrás stock declined (accompanying the fall in the stock exchanges of all Latin

America), from U.S.\$62.44 per thousand shares to U.S.\$27.04 per thousand shares. In March 1995, the price of Telebrás stock—now also traded via ADRs (American Depositary Receipts) on the New York Stock Exchange—began to rise again and reached U.S.\$64 in May 1996 and U.S.\$79 in July 1996.

As of 1996, the holding company, Telebrás, had both private-sector and public-sector stockholders, with the federal government holding 52 percent of the voting stock but only 24 percent of the total capital. This meant that, although the control of the voting capital was held by the government, the overall financial composition of Telebrás's capital was eminently private sector; it had already been privatized in fact, but without transfer of stockholding control.³

Telebrás, the world's twentieth largest operator, had 6.5 million stockholders in 1996, including people who received shares with their lines under the subsidiaries' expansion plans, as well as foreign investors who either bought shares on the local stock exchanges or bought ADRs. There was no legal limitation on foreign participation in Telebrás's capital, but the law required that the federal government maintain control over 51 percent of the voting capital. As of mid-1996, foreign investors held 36.7 percent of Telebrás's shares.

During the Collor government (1990–92), the initiative to privatize and deregulate telecommunications was very strong. The Collor government had a wide-ranging effect in acquiring equipment by eliminating the "reserve" of the market in geographical terms and opening the Brazilian economy, which extended to telecommunications equipment. In the transition government (1993–94) of Itamar Franco (the vice president who took over after Collor's impeachment) this theme was also extremely controversial, especially during the period of revision of the Constitution from the end of 1993 to early 1994. This period of revision ended in May 1994 without any decision having been made on telecommunications.

17.3 After 1994—the Cardoso Government

The Cardoso government ushered in a redefinition of the institutional organization of Brazilian telecommunications centering on opening the market and implementing privatization. In February 1995, the government put before Congress an amendment to the 1988 Constitution abolishing the state monopoly on telecommunications. This proposal, approved by the lower house in May 1996, was interpreted as a "flexibilization" of the telecommunications monopoly, as distinguished from a privatization (sale of assets) of Telebrás. The privatization per se was still in the political discussion phase.

In 1996 Telebrás subsidiary companies began planning a widespread restructuring (mergers, rebalancing of tariffs, etc.) as a preliminary step before privatization. Under consideration was a divestiture of the Telebrás system into perhaps five regional local companies, plus the long-distance carrier Embratel. New carriers could enter, and the Telebrás successor firms might enter each other's territories and services if their performance was satisfactory. Otherwise, a regulatory

agency would supervise the system, regulate prices in monopoly services (by price caps), and oversee some redistributive mechanism for universal service.

In addition to the elimination of the monopoly, in 1995 the government also put into effect other important measures:⁴

- An overall plan for telecommunications (Program for Recovery and Expansion of the Telecommunications and Postal system—PASTE). This plan envisages investments of U.S.\$75 billion (from both public and private sectors), of which half is to be invested in the first period of the plan (1995 to 1999) and the other half in the second period (2000 to 2003). The targets for service indexes are shown in tables 17.1 and 17.2.
- Tariff rebalancing. In 1995, the federal government adjusted telecommunications charges, including a reduction of the cross-subsidy. The basic residential subscription was increased by 513 percent, the price of the local meter unit by 67 percent, and the price of domestic long-distance service by an average of 21.3 percent. The government began a realignment of public-sector prices during a period in which inflation was relatively low and the economy less heated. The adjustment in telecommunications prices came shortly after the correction of electricity tariffs.
- Minimum law. In 1996, Congress approved a law to allow the rapid introduction of the private sector not only in cellular telephony (where there was great pressure from the private sector) but also in satellite transmission, data transmission, and value-added services. During the first three years after this new law, concessions for cellular telephony will be granted only to Brazilian companies, that is, those in which at least 51 percent of the voting capital is directly or indirectly owned by Brazilians. This limits foreign stockholdings to 49 percent of voting capital and 83 percent of total capital.⁵ Regarding privatization, the new law gives the present concession holders two years to spin off their A-band cellular divisions into independent companies which may be privatized.

In the short term, the major effect of these measures will be in cellular telephony. Ever since this service was initiated (later in Brazil than in other countries of the region), it has witnessed an astonishing expansion, with 2.0 million lines in 1996, expected to increase to 9.6 million lines in 1999. This field promises opportunities for a wide range of operators. Since 1995, foreign operators have been working with strong local partners in preparation to bid for the ten regional cellular licenses. These institutional changes were important and also necessary, but they were implemented without a clear definition of goals or an analysis of the financial, social, and regional impacts. This situation led some legislators to complain that they were giving a "blank check" to the executive.

Change was in the air. But in 1997, Brazilian telecommunications services were still provided by Telebrás, which is a holding company through its twenty-eight subsidiaries: twenty-seven local operators plus the long-distance carrier Embratel. Telebrás is responsible for overall planning to coordinate the operations of all these subsidiaries, but they are, in practice, more independent than the former Bell operating companies from the predivestiture era. The subsidiaries have specific

Table 17.1. Targets of PASTE Expansion Plan

Service	Units	1994	1995	1996	1997	1998	1999	2003
Fixed telephony	million lines	13.1	14.3	16.5	18.9	21.7	24.7	40.0
Mobile telephony (total)	million lines	0.8	1.9	4.8	6.8	8.2	9.6	17.2
Virtual telephony	million voice boxes	0.05	0.4	1.5	3.0	4.6	6.0	12.6
Public use telephony	thousand phones	360	400	460	540	660	800	1650
Data communications	million subscribers	1.0	1.5	2.5	3.8	5.2	6.51	6.1
Pay TV	million subscribers	0.1	0.7	2.0	3.7	5.5	7.0	16.5
Paging	million subscribers	0.2	0.4	0.7	1.0	1.2	1.5	3.9
Trunking	thousand subscribers	70	80	100	150	210	290	800

Source: PASTE plan (1995).

Table 17.2. Service Indexes—PASTE Expansion Plan

Service	Units	1994	1997	2003
Fixed telephones	lines/100 population	8.46	15.0	23.2
Mobile telephones (total)	lines/100 population	0.52	5.83	10.0
Public telephones	lines/1000 population	2.3	4.9	9.6

Source: PASTE plan (1995).

local concessions in individual regions, and Embratel operates nationally and internationally. Telebrás's basic role is to plan and coordinate financing, technology, and operations of the subsidiaries on a national level. It is the majority stockholder of all of them and is thus responsible for providing the necessary investment and technology for their growth.

The services offered by the Telebrás companies include local, domestic long-distance and international, cellular mobile, public telephone, and data and video communications services, as well as the previously common services such as telex and telegraph services, and new services such as rapid dialing, automatic redialing, toll-free numbers, paid intelligent-network ("900") service, and card-operated public telephones. In December 1996 the Telebrás group of companies had 17.7 million lines, of which 14.9 million were fixed lines and 2.8 million were cellular lines, as shown in table 17.3. Telebrás has 91 percent of the total telephone lines in Brazil; a small percentage is still in the hands of four independent local operators (one of which, CTBC, is private).

The Telebrás group's two largest companies are the long-distance carrier Embratel and the São Paulo state operator Telesp. The local service operators (subsidiaries of the Telebrás group) are restricted to operating in specific geographical areas, and their operational performance varies as greatly as their economic indicators. Quality telephone service is concentrated in the southeastern and southern regions of the country. The revenues from the five subsidiary com-

Table 17.3. Aggregate Figures for the Telebrás Group of Companies

Service	Units	1972	1995
Fixed lines	millions of lines	1.4	14.9
Total mobile lines	millions of lines	—	2.8
"Virtual" lines	millions of voice boxes	—	1.5
Public telephones	thousands	10.3	433
Localities served	thousands	2.5	20.9
Data transmission	million users	—	1.5
Telephone companies			
Telebrás	No. of companies	9	29
Others	No. of companies	927	4
Pay TV	million subscribers	—	0.7
Paging	million subscribers	—	0.4
Trunking	million subscribers	—	80

Sources: Telebrás "Blue Book" (1994) and PASTE (1995).

panies in these regions plus the revenue from Embratel represent 73 percent of the total income from services of the entire system.

Telebrás offers high technology in telecommunications equipment, material, and software developed by its research and development center (CPqD). This research center is considered to be the largest in the southern hemisphere. It provides knowledge and technical support to the company and to the domestic telecommunications industry. The most important research and development projects include the Trópico central switching system, fiber optics, and inductive system phone cards. In 1996, 47 percent of the Brazilian telecommunications system used digital equipment, and this percentage is increasing rapidly. The main suppliers of Telebrás are multinational companies (with manufacturing plants in Brazil) such as Ericsson, Siemens/Equitel, NEC, Alcatel, and Pirelli, and numerous domestic firms such as Promon, Inepar, and others.

The outcome of the ongoing transformation of Brazilian telecommunications is not yet clearly defined. It is not certain how Brazil will emerge in the global telecommunications market, but the country possesses several key strengths that would allow it to respond to foreign competition. These strengths include the size of Brazil's domestic network as the eleventh largest in the world, the potential for applied research at CPqD, and the existence of a significant telecommunications equipment manufacturing plant. Brazil could use its existing resources to internationalize its public operators by fostering partnerships with similar companies in other countries or with other public-sector companies in Brazil. Such a move would certainly support Brazil's advancement into the international arena.

At the end of 1996, a proposed Brazilian General Law of Telecommunications would reform the telecommunications sector of Brazil. A regulatory body would be established (Agencia Brasileira de Telecomunicações), the twenty-seven operating companies would be merged into four or five regional companies, and these operators and Embratel would then be privatized. The final step would be to open the market to competition in basic services, but no decision has been made yet to implement all of these measures.

Notes

1. The expropriations of telephone companies at this time were approved by the respective regional military commands. The National Security Council (Conselho de Segurança Nacional) issued a note in December 1961 in which it made quite clear its support for federalization of the telecommunications networks (Maculan 1981, p. 39).
2. In addition, CTB provided the telephone service in the states of São Paulo, Minas Gerais, and Espírito Santo—operating, in total, some 70 percent of all the country's telephone lines.
3. In comparative terms, the financial structure of Telebrás is more "privatized" than the financial structure of NTT of Japan (which was officially privatized in 1985), since the government of Japan still held (in July 1994) 64.8 percent of the total capital of NTT.
4. The new directives for the activities of CPqD, the research arm of Telebrás, were established in 1995 and result from reactions in the 1990s to the previous situation. These directives no longer refer to import substitution, as they did in the 1970s, but to applied research projects. These include: targeting technological development to the needs of the

Brazilian public network, in terms of technical specifications, network architecture definitions, and so on; selecting the development of new products; providing wider and more direct technological support to manufacturers; and developing software jointly with operating telecommunications companies for the automation of operations, planning, and development of networks.

5. Under Brazilian law, a minimum of one-third of a company's capital must be in common shares (with the right to vote), and a maximum of two-thirds must be in preferred stock (without the right to vote).

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