The impact of privatization on organizational information needs

Lessons from the Brazilian Telecommunications Holding Company

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Introduction
Much of what has been called in the Economics literature “natural” monopolies is now evolving into varying forms of open competition. Such development raises interesting questions for pricing, appropriate extent of deregulation, and in particular the use of market information by different stakeholders. Monopolies that depend on legislation to be sustainable, whenever deregulated, will face competitors that have at least as much technology and resources as the incumbent. This is the case with telecommunication companies in most third world countries[1], typically saddled with old infrastructure and lacking access to the capital needed to update it. Moreover, under the incumbent’s perspective, one of the problems in the deregulation process is the need to face a competitive environment incompatible with the older company culture where concern with potential competitors was nonexistent.

In this paper we analyze the impact of monopoly deregulation on the organizational information needs of Telebrás, the holding company of the telecommunication arm of the Brazilian Postal Telephone and Telegraph (PTT) system. We suggest that monopolies on the verge of deregulation may take advantage of competitive intelligence tools to more effectively vie for a strong position in the marketplace. Deregulation in Brazil was still unfolding as this paper was written; therefore the description is as complete as possible at this time.

In the next section we will present a brief discussion of the issues surrounding state owned monopoly deregulation. This will help us understand the changes in information needs of Telebrás as it is deregulated. Expectations

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for the future will also be described. Parallels with other countries in a similar situation will be drawn when appropriate.

**Deregulation in monopolies**

Scherer (1980, p. 42) states that:

> The most traditional economic case for regulation assumes the existence of natural monopoly – that is – where economies of scale are so persistent that a single firm can serve the market at a lower unit cost than two or more firms. Reasonably clear examples include electric power and gas distribution, local telephone service, railroading between pairs of small to medium-sized metropolitan areas, and the long-distance transportation of petroleum and gas in pipelines.

The natural monopoly problem increases in complexity when entry and exit involve costs and a temporal dimension is added to the problem (Braeutigan, 1991, p. 23): “Firms might have incentives to enter the market, charge a price in excess of the average cost to earn supernormal profits, and thereafter to reduce price to a very low level (even less than average cost) in the short run if any other firm should attempt to enter.” The resulting waste has often been mentioned as a reason for regulating markets.

Conspicuously absent from this list of natural monopolies is the complete set of telecommunication services, as well as other areas of economic enterprise that certain countries not only have instituted a monopoly but the state also owns the monopolistic service provider. This is the case with oil companies (production, exploration, and refinery) in some third world countries and PTTs in most countries. The key reasoning to protect these monopolies has been that “governments insist that they provide a universal service; serving remote areas is expensive; service providers therefore need to be compensated by enjoying a monopoly in lucrative areas and using those profits to subsidize their loss making services” (The Economist, 1995). In other words, in return for the occasional letter shipped to the Amazon or call made to a remote rural area that supposedly would not happen at a reasonable cost were it not for the monopolies, there has not been an open market in all other lucrative areas. In practice, the Greek and Spanish telecom monopolies, for instance, provide less than one third of their population with telephones, leaving some of this claim undelivered.

In most countries, foreign and domestic telecom concerns have stepped in to fully acquire or to compete with the local PTTs when deregulation legislation was enacted. The AT&T divestiture in the USA separated local from long-distance phone service and therefore allowed competition by other US long-distance companies such as MCI, Sprint and others. In Mexico, for instance, TELMEX was acquired by a consortium of three companies: Grupo Carso, a Mexican investor group, Southwestern Bell and France Cable et Radio (Petrazzini, 1995). On the other hand, in Korea, the first phase of liberalization in 1990 (Cho et al., 1996) included only domestic companies – in fact, the three groups of stakeholders described by the authors are major incumbents such as KT, Dacom and KMT; potential new entrants represented by Chaebols; and
government-owned public utility companies with telecommunications facilities for their own use. There were two further market restructurizations in 1994 and 1995, with a decrease in barriers to entry in all segments.

When the government is the majority owner of the monopolistic service provider, there is need for little regulation on the duties of the incumbent (mostly on the commitment to “good quality universal service at affordable prices”) but more on what users can do with the equipment provided by the PTT. In a second phase, these rules start to be relaxed – a hallmark of market liberalization. A good example includes allowing third parties to supply handsets, as happened in the early 1970s in the USA. Up to that point, only a private monopoly provider (AT&T) supplied handsets which could be legally connected to the phone network.

When true competitors are allowed into the market, even if only as niche players, there is clearly a need for regulation enactment to define the way in which competition will happen. Therefore there is an apparent contradiction: although mostly referred to as deregulation, this situation in fact involves re-regulation (more rules). In this paper, although we would like to recognize this distinction, we still refer to this situation as deregulation to keep in line with the literature in this area. In fact, this means a complete set of rules on how the incumbent (if still existent) as well as the new competitors can interact with each other. What is different is the introduction of competition, although still subject to rules. These rules are typically enacted by regulatory agencies. This is the case with the FCC in the USA, the OFTEL in the UK, the ANATEL in Brazil, and similar agencies in other countries currently undergoing deregulation or liberalization.

Telebrás went through typical steps in the regulation–deregulation saga. In the early 1960s, there were about 1,200 telephone service providers, a situation fairly similar to the pre-AT&T era in the USA. However, about 60 percent of the terminals were in the Southeast and were serviced by a Canadian-owned company called Companhia Telefônica Brasileira, or CTB. The government intervened and bought CTB in 1962, creating a de facto monopoly, even though smaller providers were in business as late as 1972, when the last concession ran out. The objective of this intervention was to improve service, considered of very low quality at that point in time. In 1966 the rules were changed so that users themselves would finance the installation of telecommunication infrastructure, and telephone prices went up considerably. Moreover, the Constitution of 1967 gave the power and rights of telecommunication exploration exclusively to the government without the possibility of outsourcing to private companies. This was only changed in the 1990s.

In 1972, Telebrás – a holding company – was created to obtain the funding and manage the implementation of new phone services. It had 27 subsidiaries located in different states plus the long distance operator EMBRATEL. There were four independent companies owned by the respective state governments.
A discussion of information and intelligence needs

One of the key issues for the monopoly holder prior to deregulation is getting ready for the competition. In some cases, the input from the monopoly in the form of lobbying may help define which areas will be deregulated. In this way, the monopoly can try to influence the opening of the market in an area where it is particularly strong or conversely does not have strong interests. This presupposes strong situation analyses using competitive intelligence techniques (for instance, scenario analysis based on industry analysis crossed with SWOT analysis) and appropriate decision-making as a result. Competitive intelligence (CI) is the collection, analysis and internal dissemination of information about the suppliers, customers and competitors with the objective of creating competitive advantage. Examples of CI abound in almost all industries: banking (Landau, 1995); trucking (Kahaner, 1996); electric utilities (Mann, 1995); R&D (Ojala, 1993), among many others. Information can be collected from sources ranging from primary research to newspapers, trade unions or computerized databanks.

Typically the problem is not too little information, but too much. Therefore, part of the value added of this approach is to organize the information acquired for easier analysis using one or more techniques from a CI toolkit (Prescott and Grant, 1988). The resulting report or analysis has to be disseminated to the appropriate information users, which can prove to be challenging (Evaristo, 1992). Another concern is to avoid blind spots (Gilad et al., 1993; Zahra and Chapes, 1993) or situations that have not been clearly analyzed and missing out on significant events may occur. The first set of authors describes six potential blind spots or flaws:

1. misjudging industry boundaries;
2. poor identification of the competition;
3. overemphasis on competitors’ visible competence;
4. overemphasis on where, not how, rivals will compete;
5. faulty assumptions about the competition; and
6. analysis paralysis.

It is important to note that when the objective is full deregulation and privatization as in Brazil, there is a concentrated need for information before the actual sale of the monopoly. These information needs center on valuation of the monopoly as well as policy decisions to the format that the resulting enterprises will have. The Ministry of Communications developed a white paper (Comunicacoes, 1997) that explored these issues in detail. Some of the following discussion will be based on that white paper.

The Brazilian Telecom history is making a full circle – from mostly private to monopolistic to again mostly private by the end of this century. When the government intervened on CTB in the mid-1960s it was reacting to perceived low quality service in the most profitable area in the country. The information
Privatization and organizational information

needed to pursue that alternative was relatively simple: statistics on performance[2], availability of lines, number of lines/inhabitants, etc. As the monopolistic-to-be provider owned by the government took a stronger hold in the telecommunications in the country because of lapsing of other concessions, problems changed considerably. Investment was curtailed due to budget problems and transfer of revenues to other areas of the government. Therefore, service quality lagged original intentions in the monopolization decision.

In the mid-1990s, the government decided to create a model for privatization of Telecommunication Monopoly. It is interesting to note that both changes (first, to monopolize under the aegis of the state, and second, to relax and privatize the monopoly) were done with exactly the same objective in mind: to provide universal service (Mueller, 1997), and an increase in service supply (in quantity, quality, diversity and geographical coverage), all at reasonable prices. Other objectives of the second decision of monopoly privatization included an increase in participation of foreign and domestic private capital in Brazilian Telecommunications (exactly the opposite of the first decision in the mid-1960s); efficient use of the frequency spectrum, improvement of the telecom infrastructure, and avoidance of early obsolescence.

First step to privatization

The first natural niche for privatization was cellular telephony. This characterizes the scenario of partial deregulation in which Telebrás SA engaged in 1997 and early 1998. Cellular service technology made local service become less of a “natural monopoly.” Installation prices of a wired land-based telephone may be as high as US$2,000, whereas cellular phones can be installed for as little as $800. These amounts include the entire infrastructure needed for telephone operation. In addition, cellular networks can be easily and rapidly installed as long as enough capital is available. Due to higher per minute tariffs, return on investment is also much faster, therefore making this service very interesting to potential new entrants.

About six years ago, the monopoly operator started selling cellular phones in Brazil, using the so-called “A-band” analog frequency spectrum. Although a line was officially sold for about $350 plus the cost of the actual telephone, in practice, due to large repressed demand, users could buy lines on the black market for as much as US$3,000, a situation similar to land-based telephones. The government started liberalizing the “B-band” of digital frequency spectrum in 1997. It is expected that as many as 17 million new telephone lines will be installed between 1998 and 2005 in both “A” and “B” bands. Prices should fall concurrently with the decrease in waiting lines.

In April 1997, 15 consortia submitted their “B-band” proposals amidst extreme secrecy and some paranoia. Some proposals came in lead lined metal boxes to foil CI efforts by the competition (Rocha, 1997). Others brought their proposals in armored trucks; others yet had specialists in electronic bugging sweeping the premises where the final touches on the proposals were being made. Proposals were submitted separately for each of ten regions (see Table I).
Not surprisingly, area 8 (The Amazon Forest), with an expected demand of only 200,000 telephones, did not attract any bidder.

One could argue that the information that was being so strongly sought by the competitors was the proposal price being offered to the Brazilian government; a small difference on a given proposal could imply loss of large profits in the future. This is a great example of active CI and also extraordinary efforts in counterintelligence. Another example was the information needed by the monopoly to decide the geographical areas and the minimum price required for each of the ten regions. It included the expected investment in that area (see Table I) as well as the GDP, population, percent of population with telephone, and area size. The original objective was to create similarly sized markets with respect to these criteria. One of the Competitive Intelligence tools used was demand forecast, based on a host of information acquired and elaborated by the monopoly.

The final list of bidders included 15 consortia (see Table II) composed of 53 companies, with some firms participating in more than one consortium. US participation was high; eight of the 15 consortia included US companies or their subsidiaries. In similar behavior to other monopoly deregulation, all sorts of maneuvers happened. For instance, SK Telecom was disqualified because it

<table>
<thead>
<tr>
<th>States</th>
<th>Area 1 São Paulo (metropolitan area)</th>
<th>Area 2 São Paulo (interior)</th>
<th>Area 3 Rio de Janeiro and Espírito Santo</th>
<th>Area 4 Minas Gerais</th>
<th>Area 5 Paraná and Santa Catarina</th>
</tr>
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<tr>
<td>Demand (in millions)</td>
<td>4</td>
<td>3.7</td>
<td>2.1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Minimum price (in US$ millions)</td>
<td>600</td>
<td>600</td>
<td>500</td>
<td>400</td>
<td>330</td>
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<tr>
<th>States</th>
<th>Area 6 Rio Grande do Sul</th>
<th>Area 7 DF, Mato Grosso, MS, GO, TO, RO &amp; AC</th>
<th>Area 8 AMAZONAS, AMAPÁ, MARANHÃO &amp; RORAIMÁ</th>
<th>Area 9 Bahia &amp; Sergipe</th>
<th>Area 10 Piauí, Ceará, RN, PB, PE, AL</th>
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<tr>
<td>Demand (in millions)</td>
<td>1.8</td>
<td>0.6</td>
<td>0.2</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Minimum price (in US$ millions)</td>
<td>330</td>
<td>270</td>
<td>200</td>
<td>230</td>
<td>230</td>
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<tr>
<td>Interested consortia</td>
<td>AV, BR, L, T, TL, B, VT, GT</td>
<td>AM</td>
<td>No proposal</td>
<td>AV, T, BS, AM, VT</td>
<td>AV, L, T, G, BS, AM, VT</td>
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**Table I.**

Cellular areas and minimum proposals

**Note:** Adapted from Rocha (1997)
used two other former names in their proposals, Korean Mobile Telecom Corp. and Korea Mobile Telecom Inc. The name had been changed to SK Telecom in April, 1997. Twenty-one appeals from other disqualified companies have also been denied, considerably delaying contract award.

The consortium that made the winning bid for the São Paulo B-band Concession paid US$2.6 billion, far more than even the highest expectations from independent analysts. The consortium included Bell South and Banco Safra, a Brazilian investment bank. Tess, a consortium led by Telia, the Swedish carrier, won the São Paulo state interior for US$1.326 billion, still twice the minimum bid. These large differences reinforce the need to have as good quality information as possible, both for the monopoly and for the bidders. The result would be higher bid prices due to the lower perceived uncertainty about the quality of the information, since bidders may employ some “padding” to minimize unknown risks. Likewise, the spread between minimum bids and winning bids should decrease.

Changes in information needs with increased privatization

Telebrás faces sure competition in partially deregulated and privatized areas such as cellular telephony, but as the incumbent it has a number of advantages. For instance, it has a network already installed, a fairly consistent cash flow, 100 percent market share to start, good knowledge of the market, and large economies of scale. On the other hand, it also has built-in inefficiencies that are difficult to eliminate (for instance, part of its network is technologically obsolete). The new entrants have their own set of advantages: the ability to focus on specific market segments, start service with the newest technology, and to react rapidly to new developments. This is where a tool like competitive intelligence may create value, providing better understanding of the capabilities and strategies of the stakeholders participating in the market, as well as improving market knowledge particularly for the new entrants (but also for the incumbent in the areas most likely to be predated by the new entrants).

Eventually, Telebrás will be completely sold to private concerns. At that point, the government will not be interested in understanding the market for purposes of competing actively in it. On the other hand, to avoid unfair

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<th>Acronym</th>
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<tr>
<td>A</td>
<td>Algar</td>
<td>HT</td>
<td>Hutchinson-Cowan</td>
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<td>Americel</td>
<td>L</td>
<td>Lightel</td>
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<td>AV</td>
<td>Avantel</td>
<td>M</td>
<td>MCom Wireless</td>
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<td>B</td>
<td>BCP</td>
<td>T</td>
<td>Tess</td>
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<td>BR</td>
<td>Brascom</td>
<td>TL</td>
<td>Telet</td>
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<tr>
<td>BS</td>
<td>BSE</td>
<td>TT</td>
<td>TT-2</td>
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<tr>
<td>G</td>
<td>GFTT</td>
<td>VT</td>
<td>Vicunha Telecom</td>
</tr>
<tr>
<td>GT</td>
<td>Global Telecom</td>
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Table II. Acronyms for interested consortia
competition or domination of the market by a certain set of actors, it still needs to deeply understand, monitor and regulate the market via the regulatory agency (ANA TEL), which will be described in the next section.

The road to privatization continues
Although the sale of cellular concessions started the process, more is needed to complete the privatization of Telebrás. The government has recently formally announced the creation of nine independent A-band cellular operators that will compete with the ten B-band operators. In addition, it has also created three regional telecommunication providers to handle fixed lines (numbered from I-III in Figure 1), and has kept Embratel to manage long distance and international services. The 13 entities will be sold separately starting as early as mid-1998.

Increasingly critical will be the role of government as the regulator of competition among all these entities. The National Agency of Telecommunications, or ANA TEL, was created with this objective. Basically, it is intended as a tool to reduce the market power of any single competitor and forces the players to invest also in social projects. The initial obligations to be fulfilled by the competing entities, are:

- service continuity - the operators cannot interrupt service unless extraordinary events occur;
- providers need to keep expanding their networks in such a way that customers may request service on reasonable price and wait times;
- universal service - with a fairly complex cross-subsidy proposal that includes the management by ANA TEL of a fund in which all companies participate and pay off the providers who is less profitable because of the nature of its market;
- rate supervision; and
- accounting separation, allowing regulators to easily inspect for the existence of intra-company cross-subsidies.

These obligations will be removed when the competition heats up.

Figure 1.
Brazil and the new regional Telecoms
ANA TEL will also manage the concession process, the frequency spectrum, rate revisions, public bidding processes, fines, checking for concession contracts fulfillment, field inspections, and authorization of service providing to private companies.

Critical in all this effort is the recognition that the new entrants need to have a number of qualities in technical, financial and managerial aspects to be able to engage successfully in such a market.

Concurrently, Embratel is making extraordinary efforts to improve quality to meet competition in a partially deregulated environment. It hired consultants and embarked on a restructuring effort, eliminating regional management, offering employees early retirement packages, and embracing a Total Quality Programme. This behavior is typical of companies on the verge of open competition. Embratel is slated to be sold by the end of 1998. Embratel is currently seeking to know, for instance, how Embratel and the local telephone service providers may be able to compete with the successful B-band bidders using the previously monopoly allocated A-band cellular spectrum. There is an interesting asymmetry of intelligence needed both by the incumbent as well as by the potential new entrants. The new entrants have been involved in this business for a long time, and have experience resulting from previous efforts in other countries. Therefore, they have a good understanding of each other’s capabilities, in addition to their own operational data. On the other hand, the incumbent not only has to learn about its own capabilities in a deregulated market, but also what the competitors are doing abroad and the significance of those efforts.

Conclusions and future research
In this paper we depicted the privatization process that Telebrás, the Brazilian Telecommunication monopoly holding company, started in 1997. We described events such as the mid-1960s monopolization of telecommunications and the 1990s de-monopolization of telecommunications. Along this trajectory, Telebrás’ information has changed as well. The initial state-owned monopoly evolved into a liberalized telecom company with the partial privatization of cellular service, and is moving toward full deregulation and divestiture. This process deeply affected the intelligence needed: first, to understand the market needs under the monopolistic viewpoint; second, to follow the market needs as competition increased with the cellular concessions awarded to private companies; third, to monitor all the market with the purpose of regulating open competition.

The changes in information and intelligence needs along these different phases of deregulation of the Brazilian Telecommunication monopoly are not just a matter of increasing volume, but also of type and quality. Part of the findings include an examination of the information and intelligence needs in these different phases. It was suggested that a tool such as competitive intelligence may be helpful in this process.
Notes
1. Notable exceptions exist in Asia. For instance, in Vietnam the infrastructure is almost 100 percent digital and much capital has been invested (Petrazzini and Bui, 1995); China has had strong capital access and the absence of old infrastructure resulted in technology leapfrogging.
2. People would be hired to hold the phone off the hook until there was a dialing tone (which could indeed take a long time), when they would pass the phone to the person who actually wanted to use it.

References
Petrazzini, B. (1995), The Political Economy of Telecommunications Reform in Developing Countries - Privatization and Liberalization in Comparative Perspective Praeger, Westport, CT.