Massachusetts Office of International Trade & Investment

BRAZIL TELECOM/IT INDUSTRY

JUNE 2007

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Overview

The Brazilian Telecom Industry has been enjoying a period of outstanding growth, led by the mobile and broadband markets. The predominance of mobile phones over fixed lines, prevalent in all of Latin America, is expected to continue. On the other hand, local fixed-line telephony stagnates, despite low teledensity. In the broadband sector, Brazil is the regional Asymmetric Digital Subscriber Line (ADSL) leader, and market forecasts are generally promising. A major challenge for the country's future is the huge disparity between the rich and the poor: a large portion of Brazilian households cannot afford any kind of telecom service. Brazil has the largest telecommunications sector in Latin America. In 2005 the sector generated revenues of approximately US$35.6 billion, a 23 percent increase over 2004. Services, including carriers, accounted for US$27.8 billion of net revenue, while product suppliers (hardware & software) have generated US$6.8 billion. The broadcasting market represents approximately 10 percent of the total telecommunications market.

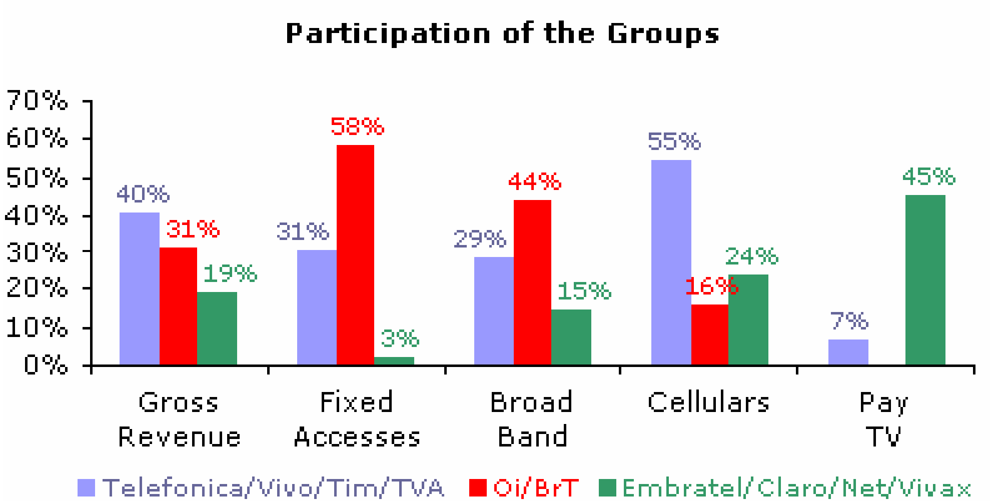
Regulatory Agency

The National Telecommunications Agency (ANATEL) is a governmental regulatory agency, whose nature is of a special autarchy. It was established to provide the telecommunications sector with an independent entity which would act to protect the interest of the State and of consumers, stimulating competition and promoting service universalization, technology development and quality improvement. Among the Agency's objectives, is the obligation to defend a free telecommunications market, making sure there is fair and wide competition between operators and acting in order to correct market imperfections and prevent anticompetitive abuses. The agency has rulemaking and regulatory functions as well as control, sanctioning and enforcement powers. Besides its responsibilities for technical regulation, the Agency must:

a) Control the incumbent's dominant market power;
b) Regulate access to network infrastructure;
c) Prevent anti-competitive practices.

The Players

Telefónica Group (Telefônica/Vivo/Tim/TVA)	**América Móvil / Telmex Group (Embratel/Claro/Net/Vivax)**	**Oi/BrT Group**
Telefônica – *Fixed lines*	Embratel – *Fixed lines*	Oi – *Mobile*
Vivo - *Mobile*	Claro - *Mobile*	BrT – *Mobile + fixed*
TVA – *Cable TV*	Net– *Cable TV*	
TIM – *Mobile*	Vivax – *Cable TV*	



Telefónica Group

Telefónica's largest fixed-line operation in Latin America is in Brazil where it provides broadband, local and long distance telephone services in the state of São Paulo. It also jointly owns the Brazilian wireless operator VIVO with Portugal Telecom. The Telefónica Group has been in the country since 1996 when it acquired CRT, a fixed-line and mobile operator in the southern part of the country. The landline division is currently part of Brazil Telecom.

The group presented in the 3rd trimester of 2006 the biggest revenue, but also the biggest debt. The debt Telefónica grew in € 23 Billion in 2006 with the acquisition of Group O2 composed by many mobile operators in Europe.

3Q06 Billion Euros	Revenue	EBITDA	EBITDA Margin
Telefonica Espanha (Fixed)	3.0	1.5	48.7%
Telef. Latin America (Fixed)	2.4	1.1	48.0%
Telefónica Móviles	4.7	1.8	38.0%
Group O2	3.6	1.0	28.9%
Group Telefónica (Total)	13.7	5.4	39.6%

Source: www.teleco.com.br

América Móvil/Telmex Group

America Móvil is Latin America's biggest mobile operator, and one of world's largest, with presence in 14 countries and the United States. As of December 31, 2006, it had 124.8 million wireless subscribers and 2 million fixed wire lines in the Americas and revenues of $21 billion dollars last year.

Revenues in Billion of Euros

	3Q06	EBITDA	EBITDA Margin
América Móvil	4.3	1.6	36.8%
Telmex	3.2	1.2	38.7%
Total	7.5	2.8	37.6%

Joint Venture: Oi (Telemar) e BrT

The entrance of Telefônica in Telecom Italia intensified the discussion about a possible joint venture between Oi (Telemar) and Brazil Telecom (BrT). This joint venture would depend on:

- Changes in the regulation that forbids the joint venture of fixed telephony concessionaires.

- An agreement between shareholders of these companies, BrT, in special, would accomplished the sale of 38% of preferential shares belonged to Telecom Italia. With the regulation change, Telemar, América Móvil/Telmex and Telefônica could also run to get the control of BrT.

- Anatel and CADE's (Administrative Council for Economic Defense) approval that would analyze the economic concentration and could impose some restrictions to this joint venture.

In this situation the Group of Telefónica (Telefônica/Vivo/TVA) would keep leadership in gross revenue and cellular quantity, Oi/BrT would lead in fixed accesses and broadband and the group América Móvil/Telmex (Embratel/Claro/Net/Vivax) in Pay TV. Although they are strong in the Brazilian market, the group composed by Oi/BrT would be minor than the others. Oi/BrT's Net Revenue in 2006 was US$ 12.7 billions, around 1/3 of the net revenue of América Móvil/Telmex US$ 37.4 billions in the world. The revenue of Telefónica was € 52.9 billion in 2006.

Mobile Market

Although Brazil’s mobile phone industry is highly competitive and dynamic, there are concerns about its future, especially considering Brazil’s sluggish GDP growth and the low average income among workers, which could lead to early market saturation. The country has four major mobile operators (Vivo, TIM, Claro, and Oi) that hold 91% of the market. There are also another five smaller mobile companies. In January 2007, US investment bank Merrill Lynch was appointed to coordinate the sale of Amazônia Mobile and Telemig

Celular, which between them hold a 5% share of the mobile market. Claro and Vivo are considered the most likely buyers.

Mobile Per Network Technology

GSM	64,567,422	64.11%
CDMA	25,853,004	25.67%
TDMA	10,236,885	10.16%
AMPS	59,830	0.06%
TOTAL	100,717,141	100%

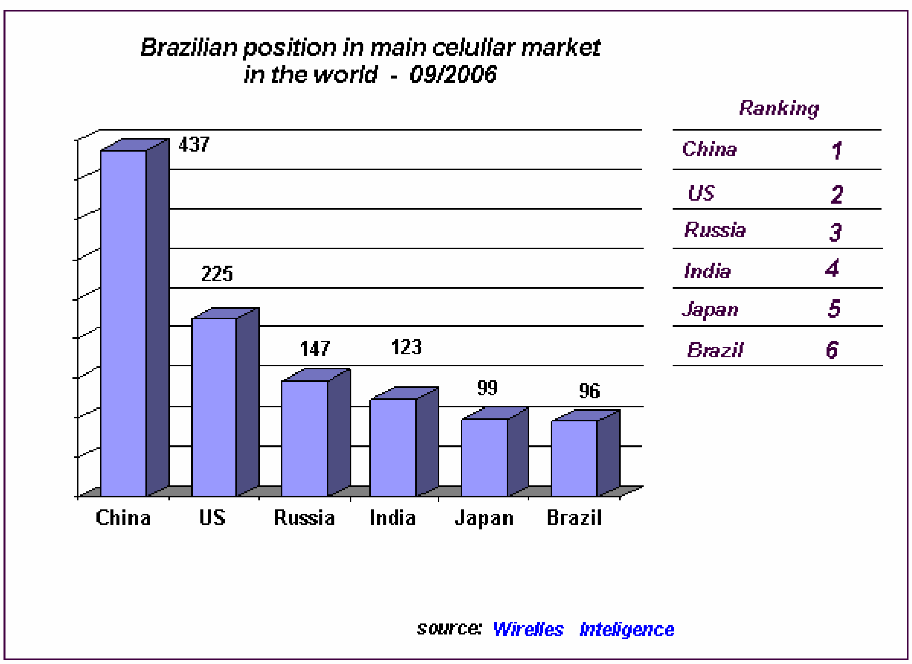
Source: ANATEL

Pre-paid and Post-Bill Users

Pre-paid	81,154,090	80.58%
Post-Bill	19,563,051	19.42%
Total	100,717,141	100%

Source: ANATEL

Youth drive Brazil to becoming 5th largest mobile population in the world until the end 2007. A research reveals that mobile ownership in Brazil reached nearly 80 million individuals in 2006, making it the 6th largest mobile population in the world (ranked after China, USA, India, Russia and Japan). Brazil will overtake Japan in 2007, rising to 5th in the world.



About VIVO

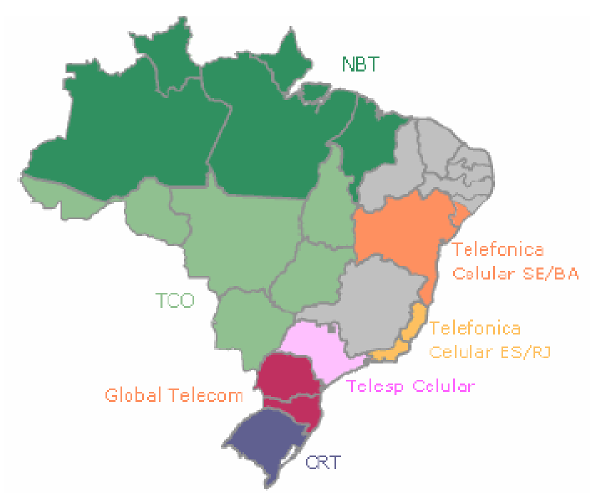
VIVO is a joint venture between Telefónica Móviles and Portugal Telecom, where 7 local operators where incorporated: Telesp Celular, Telefônica Celular, Global Telecom, Telebahia Celular, Telergipe Celular, TCO and NBT. Today VIVO is the largest mobile telephony operator company in the Southern Hemisphere.

Website: www.vivo.com.br

Headquarter: Av. Dr. Chucri Zaidan, 860 Morumbi, São Paulo, SP Brazil. CEP 04583-110
Geographic coverage: Vivo is present in 86% of the national territory, including the wealthiest states of São Paulo, Rio de Janeiro, Espirito Santo, Bahia, Sergipe, Parana, Santa Catarina, Rio Grande do Sul,

Networks: Vivo is the only carrier operating a 3G (Third Generation Technology) network in Brazil.
Network: TDMA,CDMA 2G, CDMA 1xRTT and CDMA 3G-EVDO (3G).

Vivo will invest US$490 million for a global standard for mobile (GSM) overlay. The joint venture between Telefónica Móviles and Portugal Telecom contracted Ericsson and Huawei to implement about 7,000 radio base stations using 850-MHz frequency in its licensed area (I.E., all of Brazil except Minas Gerais and the states in the northeast). Vivo justifies the need for GSM through roaming, lower device costs, reduced network costs, leveraging of the existing network and ease of evolution to WCDMA. The operator also emphasizes the knowledge of GSM by owners Telefónica and Portugal Telecom and their use of the technology in other markets.



About TIM

TIM is in Brazil since 1998 as an extension of Italy Telecom.

Website: www.timbrasil.com.br
Headquarter: Avenida das Américas, 3434, Barra da Tijuca 22640-102, Rio de Janeiro, RJ.
Geographic coverage: Covers 100% of the national territory.
Network: AMPS, TDMA*, GSM** (EDGE / GPRS)

About CLARO

Telecom Americas, a subsidiary of América Móvil, is a provider of wireless telecommunication services in Brazil. The company launched services under the brand name Claro in August 2003 and offers a variety of rate plans to its post-paid customers, as well as prepaid services in all of its markets. Claro owns and operates cellular networks using both GSM and TDMA digital technology.

Website: www.claro.com.br
Headquarter: Rua Flórida, 1970 Brooklin - São Paulo, SP -CEP 04565-001

Geographic coverage: Claro is present in 77% of the national territory. States of Rio de Janeiro, São Paulo, Espírito Santo, Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul, Acre, Rondônia, Tocantins, Pernambuco, Paraíba, Rio Grande do Norte, Alagoas, Ceará, Piauí, Sergipe, Bahia, Paraná, Santa Catarina, Rio Grande do Sul.

Network: TDMA*, GSM** (EDGE / GPRS)
18 States operating GSM network Acre, Bahia, Ceará, Distrito Federal, Espírito Santo, Goiás, Mato Grosso, Mato Grosso do Sul, Paraná, Pernambuco, Rio Grande do Norte, Rio Grande do Sul, Rio de Janeiro, Rondônia, Santa Catarina, Sergipe, São Paulo e Tocantins. 6 States operating TDMA network Alagoas, Espirito Santo, Paraiba, Piauí, Rio de Janeiro and São Paulo.

About OI

Oi is the wholly owned PCS subsidiary of fixed line operator Telemar Norte Leste. Launched in July 26, 2002 “Oi” was the first operator to use the GSM network in Brazil.

Website: www.oi.com.br
Headquarter: Rua Humberto de Campos, 425 - 8º andar, Leblon, 22430-190 Rio de Janeiro/RJ

Geographic coverage: Oi's concession covers 16 states: Rio de Janeiro, Minas Gerais, Espírito Santo, Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, Sergipe, Amapá, Amazonas, Pará e Roraima.

Network: GSM (GPRS)

IT Market

With growing data retention requirements and greater amounts of data being generated through business automation, secure backup/recovery solutions are becoming mandatory for companies. To meet these requirements, many Brazilian organizations are extending their Storage Area Networks (SANs). Recognizing no single extension solution is appropriate for all applications; Brazilian companies are investing in cost-effective technology solutions. It is important that US companies planning to introduce its technology in Brazil understand their needs and find the best niches in this huge IT market.

Identified as the major potential market for US companies, banks operating in Brazil make constant investments in storage that ranges from small storage devices to complex storage vault-buildings to host the most advanced technologies in terms of information storage. The Brazilian Central Bank requires that all banks keep records of all of their operations for at least 20 years, the strictest among the sectors. Therefore, banks represent today the biggest storage technology customers in the country representing almost 30% of the market, worth in approximately US$ 330 Million yearly. The majority of the small and medium-sized businesses have deployed a SAN (Storage Area Network) or NAS (Network Attached Storage) solution. These companies are citing the rapid expansion of the Internet, an increase in the number of branch offices, and growing databases as storage-solution become more needed. Onsite storage and back-up for individual PCs on external HDDs, CD/DVD drives or zip drives are the most common solution. However, increased storage concerns are resulting in a proliferation of more sophisticated networked solutions, and a majority of these companies have the required LAN (Local Area Network) infrastructure in place.

According to IDC (International Data Cooperation), IBM is the market leader with 39% of the local market share, some other companies competing with IBM are HP, EMC, Hitachi, Network Appliance, Storagetek and Sun, although IDC does not reveal the share of the competing companies

Broad Band Market

The connections of Broad Band internet available in Brazil are offered by service providers that have Anatel's SCM (Multimedia Communication Service) authorization. It can be classified in:

- ADSL, offered by fixed telephony operators using telephonic cables. ADSL (Speedy, Velox and Turbo)
- Pay TV, offered by Cable TV operators using cable modem or wireless through MMDS operators.
- Other SCM operators that use direct radio connection to the client or even to the houses where it is spread through local network.
- Providers that offer Broad Band through Satellite.

VoIP Market

There has been a rapid growth in the market for Voice over Internet Protocol (VoIP) services in Brazil. The large growth in Internet Based Services, along with the desire among the corporate market and consumers to cut telecommunications costs, will lead to vast expansion in the market for VoIP services in Brazil in the upcoming years. It is also expected a great expansion in VoIP traffic for long distance services (ILD and DLD) for the next few years. This expansion, coupled with technology upgrades in the industry should lead to a surge in demand for newer VoIP equipment and services. To provide VoIP services in Brazil, foreign companies have two options: 1) Open a company in Brazil and purchase a license provided by Anatel; 2) Partner with a Brazilian company that has already the license to provide this service. There are several small players with license that would take great benefit of jointly pursuing business opportunities with complementary players.

The VoIP Technology in Brazil is expected to grow 800% until 2009 with an annual growth of 62% in the number of active users. Some experts say 68% of the Brazilian companies will implement the new technology in 2007. Seven companies that provide VoIP services and related products in Brazil announced in March, 2007 the formation of an industry organization for voice service providers in that country.

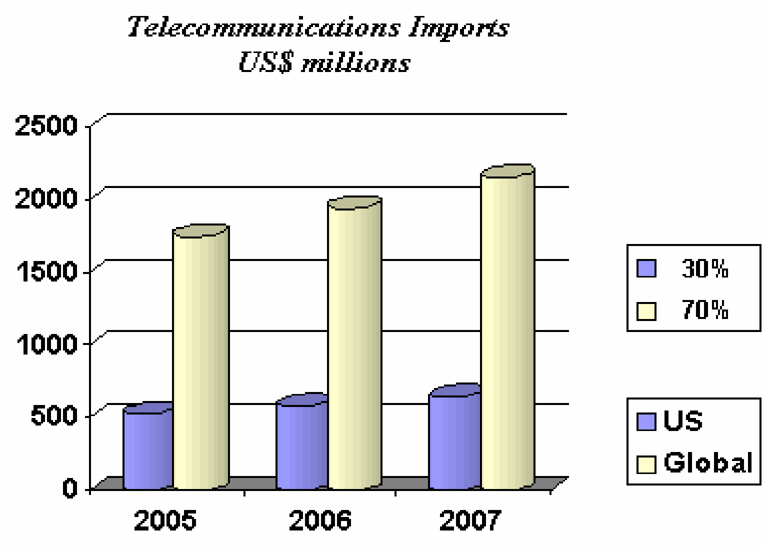
Founding members of Brazilian VoIP Peering Federation are:

- *Tellfree*, IP telephony provider that serves corporate and residential markets
- *iVoz.net*, provider of value-added VoIP services for corporate and residential markets
- *GlobalNova*, telecom company focused mainly in pre-paid phone cards, and residential/corporate VoIP
- *Conceito Telecom*, VoIP and telecom services provider
- *Easytone*, telecom company with national coverage using an MPLS network.

Business Opportunities

Good opportunities for U.S. companies will be found in the wireless market since a significant increase of wireless data applications is expected with the deployment of the 3G licenses, auctioned by ANATEL in the first half of 2006. Trends continue to be toward convergence, i.e., adding telecommunication services, to maximize the benefits derived from investments and efficient operations.

Cellular telephones are expected to be the single biggest end-use market for the telecommunications equipment market in Brazil. Major cell phone manufactures such as Motorola, Nokia, Samsung, Sony-Ericsson, Siemens, LG Electronics and Gradiente are gearing up production to supply growing markets in Brazil and the South American Region and are even exporting to North America. Other best prospects include IP New Generation Networks (IP NGNs); Corporate and Virtual Private Network Services (VPNs); new revenue-generating mobile services (preferably based on the existing network); broadband multiple services; intelligent services networks; new services merging voice, data, image and sounds; telemedicine equipment; security telecom equipment (alarm receivers and transmitters); and system integration services.



Source: trade/industry resources

Though the Japanese digital television standard won out recently against U.S. and European competition, most U.S. OEMs contacted for this report mentioned that they can provide products independently of the standard adopted. Most of the US companies active in the sector like Harris Corporation, Broadcast Corporation (BE), Chyron Corp., and Avid Technology, Inc. already have a presence in Brazil through distributors/representatives.

Market sources estimate that HDTV (High Definition Television) sets sales may reach US$65 billion in ten years (at US$1,000 per set). Investment by the broadcasters in codification hardware, multiplexes and digital modulators may reach US$2 billion in ten years. Investment in transmitters, antennas and cabling may reach US$ 1.2 billion. On the industry side HDTV sets manufacturers will have to invest about US$ 100 million in production lines, workers training and licenses fees. Brazil produces quite a large number of TV receivers and also exports to other Latin American countries. In 2005, the country produced approximately US$9.5 million in equipment for local consumption. Most other broadcast equipment is imported. Mobile TV remains one of the hottest topics of debate in both the broadcast and mobile sectors. Convergence strategies are gaining popularity in Brazil, and several companies have adopted the triple play strategy. Fixed-line incumbents Telemar and Brasil Telecom launched broadband TV (IPTV) in 2006.
Best prospects in the Telecom/Broadcasting market include: Set-top decoder boxes; transmitters for digital radio and TV, encoders, multiplexes, automation systems, studio TV cameras, video servers, IPTV solutions, digital transmitters for High Definition Television (HDTV), wireless technologies for radio studios, microwave systems among others.

Market Access

Advanced technologies and high quality products are always excellent entries for multinational telecom companies in Brazil's market, but this does not necessarily mean that it will be easy for foreign companies to export to Brazil. Before entering the market, a foreign company has to observe and address issues including: law and policy changes, forced technology transfer, and certification of products. The average import duty for telecommunications equipment is 15-18 percent, but this amount may go down to zero in cases where Brazil does not manufacture similar products. There is also a federal tax on industrial products (IPI), with an average of 4 percent, and an average State Sales Tax (ICM) of 18 percent. Local manufacturers also pay the IPI and state sales taxes.

Statistical Data

Telecommunications

US$ Millions	2005	2006*	2007*
Market Size	7,186	7,976	8.854
Local Production	5,442	6,041	6.705
Exports	2,832	3,144	3.489
Imports (Global)	1,744	1,936	2.149
Imports from US	520	577	641

Source: trade/industry resources. US$1 = R$ 2.15
*Statistical data are unofficial estimates from trade sources *2006/2007 figures are estimates*

Total Broad Band Connections in Brazil

Thousands	3Q05	4Q05	1Q06	2Q06	3Q06	4Q06
ADSL	2,811	3,152	3,432	3,685	3,997	4,307
Pay TV	528	629	789	914	1,057	1,200
Others(Radio)	60	75	80	92	105	115
Total	3,399	3,856	4,301	4,691	5,159	5,622

Note: Do not include satellite and IP dedicated

ADSL - Broad Band

Broad Band Connections, main ADSL operators (in thousands)

Thousands	1Q06	2Q06	3Q06	4Q06	1Q07
Telemar	896	970	1,046	1,128	1,182

BrT	1,084	1,155	1,252	1,318	1,384
Telefônica	1,300	1,378	1,480	1,607	-
GVT	79	95	117	137	162
CTBC	73	87	102	131	N/A.
Total ADSL	3,432	3,685	3,997	4,321	N/A.

Estimate by Teleco

Pay TV – Broad Band

Thousands	1Q06	2Q06	3Q06	4Q06	1Q07
Net (Vírtua)	452	532	630	727	830
Vivax	96	106	121	135	154
TVA (Ajato)	N/A.	N/A.	N/A.	62	N/A.
Others	N/A.	N/A.	N/A.	N/A.	N/A.
Total ABTA	789	914	1.057	N/A.	N/A.

*Source: Operators, ABTA and estimate by Teleco**

Telecommunication Industry Profits – In Brazilian currency - Reais
Exchange rate as of May 16, 2007 – 1 USD$ = R$ 2.0

RS Thousands	2001	2002	2003	2004	2005	2006	2007*
Telecom	11,431	7,431	8,760	13,006	16,451	16,742	16,240
Computer Science	14,732	13,391	16,701	20,624	24,437	29,418	36,949
Total electronics	58,200	56,400	63,948	81,601	92,814	104,083	121,413

** Abinee magazine Mar/07*

Trade Shows

Futurecom Trade Show
The event takes place annually in October in Florianopolis at Centro de Convenções Centro Sul
Florianopolis, SC - Brazil
http://www.futurecom.com.br

Telexpo Trade Show
The event takes place annually in March in São Paulo at Expo Center Norte
São Paulo, SP, Brazil
http://www.telexpo.com.br

ABTA – Trade Show & Conference - Brazilian Pay TV Association
The event takes place annually in August/September in São Paulo at ITM Expo in São Paulo
http://www.abta.com.br

What We Can Do for Massachusetts Companies

Massachusetts companies interested in entering South American markets or attending/visiting local trade shows, please contact the Massachusetts South America Office in Brazil at massbrazil@massbrazil.com.br.
Phone: +55 11 3051-9080

Resources

- Brasil Telecom: www.brasiltelecom.com.br
- Business Américas: www.bnamericas.com
- ANATEL: Brazil Telecommunications Agency - www.anatel.gov.br
- Brazil's Ministry of Communications: www.mc.gov.br
- International Market Research: http://strategis.ic.gc.ca
- Teleco: www.teleco.com.br
- National Software Testing Labs: www.nstl.com
- Paul Budde Communication: www.budde.com.au
- USCS: Trade Reports - www.focusbrazil.org.br