AGENDA

- The Jai Group Profile
- Executive Summary
- Brazil
- Telecommunication in Brazil
The Jai Group

Company Profile Presentation

January 2012
Jai: Strategic Partner for first time entrants into emerging markets …

AREAS OF POTENTIAL STRATEGIC ASSISTANCE

Focus of incumbent consulting companies such as BCG, McKinsey

Large Companies

Mid-Sized Companies

Focus of Jai Group-Co-Management/Management Consulting

Focus of Jai Group-Management Consulting

Focus of Jai Group-Co-Management/Business Development

= High degree of Globalization in Emerging Markets

= Low degree of Globalization in Emerging Markets

Source: Jai Group Analysis
... with a good track record in the India- Brazil corridor ...

SOME CLIENTS WHO WORK WITH US TODAY
Repeat projects and long term relationships
JAI GROUP RESOURCES

### UNIQUE PROPOSITION
- Global strategy consulting firm dedicated exclusively to BRICS and emerging markets
- Over 40 engagements, corresponding to more than US $5 billion
- Experience, proprietary approaches and models in all sectors

### GLOBAL NETWORK
- Presence in India, Brazil, North America, South Africa, China and Mexico
- Superior access to political leaders, embassies and industry leaders
- In constant dialogue with investors and generators of opportunities

### PEOPLE AND KNOWLEDGE
- Consultants from first tier consulting firms and top executives of large BRICS companies
- iBRICS dedicated to the research, training and dissemination of business practices in BRICS
- Regularly published in newspapers and periodicals

### INSIGHT INTO EMERGING MARKETS
- Understanding of strategy, culture, practices, and main players in emerging markets
- Full support while presenting, discussing and working with local companies
… and acting as both Management Consultant and Management Contractor …

FOCUS ON INTERNATIONAL OPERATIONS IN EMERGING MARKETS

The Jai Group

Management Consulting

• Help emerging market multinationals
  – Structure and analyze complex issues involved in international expansion in emerging markets
  – Numerically and using hard facts validate intuitive hypotheses
  – Synthesize findings to evolve coherent strategy

Management Contractor Services

• Stand in as country managers until local operation attains critical size to build a local team
  – Implement strategies/structure partnerships
  – Coordinate investment projects
  – Recruit and manage other service providers
  – Provide basic infrastructure and logistical support

Source: Jai Group Analysis
GEOGRAPHIC COVERAGE

- Relevant experience
- Corporate partnerships / actively prospecting
- Permanent offices
- Alliance partners

Source: Jai Group Analysis
... in a variety of projects for several sectors ...

SCOPE OF ACTIVITIES

![Diagram showing industry and service breakdowns]

Source: Jai Group Analysis
MANAGEMENT TEAM

RAKESH VAIDYANATHAN – JAI GROUP’S FOUNDER AND MANAGING DIRECTOR

- Rakesh Vaidyanathan co-founded The Jai Group after years of experience in Management consulting first with late Dr. Jaikumar of the Harvard Business School in the United States and Mexico and later with McKinsey and Company in their Miami and Madrid offices and most recently with The Boston Consulting Group in their São Paulo office.

- A graduate from the Indian Institute of Management, Calcutta and MBA from The Wharton School, Raksh also holds an Electrical Engineering degree from the College of Engineering Guindy in Chennai India. In addition, he obtained an M.A. in International affairs specializing in Latin America from the University of Pennsylvania.

PRASHANTH NAYAK – PARTNER & HEAD INDIA OFFICE

- Prashanth is a partner of The Jai Group. Before, he had a long tenure with the Tata Group, in their auto component business. Part of the initial start up leadership team, Prashanth has held Group Head Positions of Human Resources and Business Planning and for four years, also ran the wiring harness JV (Indo Japanese Joint Venture) of Tata Group, as its CEO. He was based in Mumbai and Pune in India.

- Prashanth graduated from the National Institute of Technology at Surathkal, Karnataka in 1992. He has an MBA from IIM Calcutta in 1995 and was awarded the Bharat Chamber of Commerce Medal for most balanced and progressive outlook on Management Problems, on his graduation. He speaks English, Hindi, Kannada and Konkani fluently and understands Japanese.

Source: Jai Group Analysis
## COMMERCIAL REFERENCES

### Brazilian Executives / Authorities

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropico</td>
<td>Mr. Raul Delfiol</td>
<td>Chief Executive Officer</td>
<td>55 19 3707 3465</td>
</tr>
<tr>
<td>FCC</td>
<td>Mr. Valentino Reichert</td>
<td>President</td>
<td>55 54 2129 2200</td>
</tr>
<tr>
<td>Gerdau</td>
<td>Mr Ruy Lopes</td>
<td>Executive Director</td>
<td>55 51 3323 2339</td>
</tr>
<tr>
<td>Engevix</td>
<td>Mr. José Antunes</td>
<td>Partner</td>
<td>55 11 2106 0101</td>
</tr>
</tbody>
</table>

### Indian Executives / Authorities

<table>
<thead>
<tr>
<th>Company</th>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aditya Birla</td>
<td>Dr. Bharat K. Singh</td>
<td>Board Member</td>
<td>91 22-6652 5000</td>
</tr>
<tr>
<td>Tata International</td>
<td>Mr. Kaul</td>
<td>President, CEO</td>
<td>91 22-66652200</td>
</tr>
<tr>
<td>Bharat Petroleum</td>
<td>Mr. R K Mehra</td>
<td>Executive Director</td>
<td>91 22 2218 5144</td>
</tr>
<tr>
<td>Rajshree Sugars</td>
<td>Mr. Varadarajan</td>
<td>COO</td>
<td>91 42 2258 0981</td>
</tr>
<tr>
<td>TVS</td>
<td>Mr. Dinesh R</td>
<td>Executive Director</td>
<td>91 44 6679 3222</td>
</tr>
<tr>
<td>Torrent</td>
<td>Mr. H. Balakishna</td>
<td>Exec. Director of Mktg</td>
<td>91 97 9411 2222</td>
</tr>
</tbody>
</table>
### SAMPLE PROJECTS

- **Aditya Birla**  
  Opportunity landscape for investments in Latin America

- **Tata International**  
  Opportunity landscape for investments in Brazil

- **Bharat Petroleum**  
  Project 1: feasibility study for investments in ethanol capacity  
  Project 2: partner search and valuation of selected companies

- **Rajshree Sugars**  
  Feasibility study for investments in ethanol capacity, target search and valuation

- **TVS**  
  Partner search and negotiations to leverage Brazilian banking automation capabilities in India

- **Torrent**  
  Market entry strategy for Mexico

Source: Jai Group Analysis
AGENDA

- The Jai Group Profile
- Executive Summary
- Brazil
- Telecommunication in Brazil
Indian suppliers should focus on larger Telecom operators ....

## Executive Summary (1/3)

<table>
<thead>
<tr>
<th>Customer Segment</th>
<th>Market Realities</th>
<th>Technology Trends</th>
<th>Products purchased and Purchase Process ?</th>
<th>Implications for Indian suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large Telecom Operators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Consolidation in to three large and two mid sized operators (GVT and CTBC-ALgar) for fixed</td>
<td>Many operators were still focusing on 3G and attracting customers to basic mobile internet. LTE trials started in 2010, operators keen to get as much mileage out of their networks with HSPA+ upgrades before shifting to LTE. 4G spectrum auctions held in June 2012</td>
<td>Global Sourcing, standard sourcing across countries, decisions favors multinational suppliers</td>
<td>Opportunities: mobile phones, corporate virtual private network services; new revenue-generating mobile services; various broadband services; intelligent networks and services; services merging voice, data, and video; telemedicine equipment; security-related telecom equipment; and system integration services.</td>
</tr>
<tr>
<td>2.</td>
<td>Consolidation to four largest players in mobile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Reduced ability to invest by subsidiaries of European majors such as TIM, Telefonica and Portugal Telecom, Embratel being a strong player</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tie up funding from sources such as Exim Bank for getting orders from small Telecom operators and ISP providers

**Executive Summary (2/3)**

<table>
<thead>
<tr>
<th>Customer Segment</th>
<th>Market Realities</th>
<th>Technology Trends</th>
<th>Products purchased and Purchase Process?</th>
<th>Implications for Indian suppliers</th>
</tr>
</thead>
</table>
| Small Telecom Operators and Internet Service Providers | 1. Losing market share due to new technologies that overcome the dis-economies of scale (mobile broadband for example)  
2. Government trying to help them by providing greater interconnectivity with a back bone, by  
   a. Establishing its own back one (PNBL)  
   b. Lowering the cost of access with a private back bone by regulation | Low cost sourcing from Asian suppliers  
Very direct and informal, based on relationships, credit is often a major driver of sales | Opportunity: various cost effective broadband access related equipment/value added services for remote areas; Strategy: Low cost, direct access sales, lots of financing |
**Executive Summary (3/3)**

<table>
<thead>
<tr>
<th>Customer Segment</th>
<th>Market Realities</th>
<th>Technology Trends</th>
<th>Products purchased and Purchase Process?</th>
<th>Implications for Indian suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazilian Governmen</td>
<td>1. Telebras is spearheading a mass access broadband project, expected to be complete by 2014</td>
<td>ABI Research recently pinpointed Latin America as the leading backhaul investment zone for the next five years. The real bottleneck is in outlying areas, where backhaul is either insufficient or lacking altogether</td>
<td>Prefer National suppliers where possible Brazilian Government has introduced a bill that will provide for up to 25% price advantage for local innovation through the temporary measure 495, Law number 12.349/2010, MPV 563/2012, and eliminating sales and excise duty for national manufacturers and service providers in the construction of the network</td>
<td>Opportunities: Optical networking equipment, E-Governance applications, antennas Strategy: Partner with local firms, to become part of their portfolio</td>
</tr>
</tbody>
</table>
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• Executive Summary

• Brazil

• Telecommunication in Brazil
In an uncertain world, western, democratic and with a large domestic market that is growing, Brazil is a very attractive proposition.

Brazil - Overview

- Brazil is a ~ 200 million people, 2.5 trillion economy
  - Sixth in the world, ahead of UK and breathing down France
  - Larger area than the continental United States
  - Democracy and private sector capitalism
  - One of the BRICS, relatively less affected by crisis

- Growth driven by:
  - Commodity trade, Rise of a new middle class
  - Strong Macro-economic fundamentals: fiscal surplus, trade surplus, inflation under control, lot of space to lower interest rates
  - Upcoming sporting events and huge Oil finds, ongoing investment cycle

- Problems exist, and have to be managed
  - Taxes and Bureaucracy
  - Corruption
  - Market Concentration

Source: Jai Group Analysis
Brazilian macro-economic indicators positive

MACROECONOMIC INDICATORS

PURCHASE POWER PARITY IN USD TRILLION IN BRAZIL

- Brazil is growing
- ... and trading more
- ... and despite the appreciation of the exchange rate, reserves are growing
- ... as the economy becomes stable

*Dollar reserves in December 2011 reached USD 354 bi

*CAGR**: 8%

**PPP rate** equals the purchasing power of different currencies in their home countries for a given basket of goods. Using a **PPP basis** is arguably more useful when comparing differences in living standards on the whole between nations because **PPP** takes into account the relative cost of living and the inflation rates of different countries, rather than just a nominal gross domestic product. **Brazil** is ranked number 9th as an economy in **PPP** terms. **Nominal GDP** is USD 1.6 trillion which puts Brazil in the 10th position. Only China, India, Japan, and the US have grown at higher pace over the last hundred years.

**Compound annual growth rate. *****Annualized 12 month moving average.

Source: Central Bank of Brazil
Brazil is a favorable destination for foreign direct investment and expected to remain so

**INVESTMENT TRENDS**

**OCTOBER, 2010**

<table>
<thead>
<tr>
<th>FDI Destination Ranking</th>
<th>FDI* (USD billion)</th>
<th>Driving forces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>10</td>
<td>* Favorable macroeconomic conditions</td>
</tr>
<tr>
<td>India</td>
<td>18</td>
<td>• Credit is growing</td>
</tr>
<tr>
<td>China</td>
<td>19</td>
<td>• Interest rate lowering</td>
</tr>
<tr>
<td>US</td>
<td>35</td>
<td><strong>Growing demand</strong></td>
</tr>
<tr>
<td>Brazil</td>
<td>45</td>
<td>• Growing population with rising income and huge housing deficit</td>
</tr>
<tr>
<td>China</td>
<td>48</td>
<td><strong>Growing supply</strong></td>
</tr>
<tr>
<td>Brazil</td>
<td>67</td>
<td>• Specific investment-heavy projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• World cup (2014)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Olympic Games (2016)</td>
</tr>
<tr>
<td>China</td>
<td>52</td>
<td>• Government-led programs and state-controlled company investments</td>
</tr>
<tr>
<td>Brazil</td>
<td>54</td>
<td>• Luz para Todos (Energy)</td>
</tr>
<tr>
<td>China</td>
<td>55</td>
<td>• Minha Casa Minha Vida (Housing)</td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td>• PAC (Civil Infrastructure)</td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td>• Petrobras oil platforms</td>
</tr>
</tbody>
</table>

Bloomberg provides a quarterly insight into how business men perceive markets for FDI*.

31% of the investment goes to heavily regulated industry (Electrical, Transport, Metallurgy, Mining, and Telecom)

* Poll is carried out among investors, analysts, and traders.
Source: Bloomberg, BACEN (Central Bank of Brazil), Link Investimentos
Strong and accelerating growth rate in the past, expected to accelerate

No international crisis has held it back in the last decade and Brazil is recovering smartly from this crisis as well.

Source: Brazilian Institute of Geography and Statistics (IBGE), Ministry of Finance.
BILATERAL TRADE WITH BRAZIL

USD MILLION (FOB BASIS) NUMBERS ARE NOT ON THE SAME SCALE

Trade with Asia increasing

Brazil to China
China to Brazil

CAGR* = 39%

Brazil to India
India to Brazil

CAGR* = 26%

Brazil to Europe
Europe to Brazil

CAGR* = 14%

Major Indo-Brazilian Joint Ventures

- Steel: Gerdau and Kalyani
- Auto Parts: COFAP and Endurance
- Buses: Tata and Marcopolo
- Automation: Perto and Lipi

All joint ventures have happened over the last 5 years

* Compound annual growth rate

Source: Unctad, Secex, Indian Department of Commerce, Jai Group Analysis

The Jai Group
Business Services for the BRICs Economies
Investors including emerging market ones continue to invest across diverse sectors in Brazil. ...
Brazilian challenges are similar to many emerging economies, but taxes and market concentration is a key area of concern ...

**BRAZILIAN CHALLENGES: ECONOMY AND DOING BUSINESS**

<table>
<thead>
<tr>
<th>Brazil faces several issues .....</th>
<th>... and businesses in Brazil are impacted by them</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Uneven income distribution, Poor public education</td>
<td>• Abundant low cost, low quality talent pool</td>
</tr>
<tr>
<td>• Significant imbalance of market concentration</td>
<td>• Entry in to mature sectors next to impossible</td>
</tr>
<tr>
<td>• Informal economy that hinders tax collection</td>
<td>• Multinationals face competition in unregulated sectors in asymmetric ways</td>
</tr>
<tr>
<td>• Tariff barriers, a complex custom system, overloaded legal system, heavy taxes, bureaucratic procedures and onerous product licensing raise costs for doing business in Brazil</td>
<td>• Regulation and Government costs however could also choke you</td>
</tr>
<tr>
<td>• The World Bank ranks Brazil 127 out of 183 economies in the world in terms of ease of doing business</td>
<td>• Brazilian entry has to be driven by opportunity INSPIRE of costs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Challenges on doing business .....</th>
<th>.... And Solutions have to be thought through</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bureaucracy</td>
<td>• Don’t spare on legal and administrative costs</td>
</tr>
<tr>
<td>• Poor Infrastructure</td>
<td>• Build redundancy, locate right for reliability and ease of access</td>
</tr>
<tr>
<td>• Corruption</td>
<td>• While being flexible, draw clear ethical lines</td>
</tr>
<tr>
<td>• Preference to Local Companies</td>
<td>• Be open to partnerships, JVs, local face strategies</td>
</tr>
<tr>
<td>• Heavy Import Taxes</td>
<td>• Source right, adopt creative taxation structures</td>
</tr>
<tr>
<td>• Labor taxes</td>
<td>• Minimize labor, plan for liabilities</td>
</tr>
<tr>
<td>• Unions</td>
<td>• Locate, manage</td>
</tr>
</tbody>
</table>

Source: Jai Group Analysis
Contrary to popular perception, growth is driven by the rise of the consuming middle class.

### Brazilian Economy

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (US $)</th>
<th>GDP per Capita (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>500 Bn</td>
<td>2,800</td>
</tr>
<tr>
<td>2012*</td>
<td>2.6 Tn</td>
<td>13,300</td>
</tr>
</tbody>
</table>

Enhanced income distribution has added 29 million to the middle class (Class C).

**Note:** Monthly household per capita income by class at 2009 prices: Class A/B: more than R$ 4,800.00; Class C: R$ 1,115.00 – R$ 4,800.00; Class D: R$ 804.00 – R$ 1,115.00; Class E: up to R$ 804.00.

* IMF Forecast

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Evolution of Telecom Sector in Brazil

Brief History

Pre-Privatisation

- Construction of the Regulatory Framework
- Fixed: mainly analogue
  - Mobile: only analog
- Government monopoly
  - 26 integrated (fixed and mobile) operators and an LD
- Pent-up demand in fixed and mobile
  - Dial-up internet access only

Post-Privatisation

- Focus on universal access and service quality
- Fixed and mobile expanding
  - Platform clearly differentiated GSM Release
- Multiple players, after privatization
- Strong growth in the penetration of fixed and mobile
  - Top of wide-band Pay TV incipient

Present

- Focus on Competition
  - Convergence in the initial stage
  - Launch of 3G
  - 4G auctions done
  - Quadruple-play initiatives incipient
- Difficult in mobile; increase in broad-band, less intense in fixed consolidation Trends
- Market Maturity
  - Increase in the mobile market and broadband
  - Expansion Bundle services with the objective one-stop-shop
Telecom sector revenues are growing but price competition is increasing.
Clearly Cellular growth has dominated the last decade, broadband (fixed and mobile) will be the new star of this decade.

Gross Revenue by segment (R$ B)

Source: Telebrasil
Subscribers of telecommunications services

- **Subscribers growth in mobile broad band has doubled in the last year alone.**

- **The Jai Group**
  - Business Services for the BRICS Economies

- **Source: Telebrasil**
### Brazilian telecom operator market shares

<table>
<thead>
<tr>
<th>(% Share)</th>
<th>Mobile</th>
<th>Fixed</th>
<th>Internet</th>
<th>Television</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vivo/Telefonica/TVA</td>
<td>30.1 (1)</td>
<td>27.1%(2)</td>
<td>24.2 (3)</td>
<td>5.6 (3)</td>
</tr>
<tr>
<td>Claro/Embratel/Net</td>
<td>25.4 (2)</td>
<td>15.4 (3)</td>
<td>25.3 (2)</td>
<td>53.9 (1)</td>
</tr>
<tr>
<td>TIM</td>
<td>24.5 (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oi</td>
<td>19.5 (4)</td>
<td>50.0 (1)</td>
<td>35.1 (1)</td>
<td>3.1 (4)</td>
</tr>
<tr>
<td>CTBC</td>
<td>0.3 (5)</td>
<td>1.5 (5)</td>
<td>1.8 (5)</td>
<td></td>
</tr>
<tr>
<td>Sercomtel</td>
<td>0.04 (6)</td>
<td>0.4 (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aeiou</td>
<td>0.01 (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GVT</td>
<td></td>
<td>4.2 (4)</td>
<td>7.2 (4)</td>
<td></td>
</tr>
<tr>
<td>SKY +DirecTV</td>
<td></td>
<td></td>
<td></td>
<td>25.9 (2)</td>
</tr>
<tr>
<td>Abril</td>
<td></td>
<td></td>
<td></td>
<td>2.0 (5)</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>1.5</td>
<td>6.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Total Number of Connections</td>
<td>191,472,142 (82% of which pre-paid)</td>
<td>41,613,000</td>
<td>12,268,000</td>
<td>8,426,000</td>
</tr>
</tbody>
</table>

Source: Teleco.
Mobile market in Brazil is an oligopoly.

### Brazilian Market Players

- **Vivo**: 30%
- **Oi**: 19%
- **Others**: 0.3%
- **Claro**: 25%
- **TIM**: 25%

#### Financial Overview of Operators

<table>
<thead>
<tr>
<th></th>
<th>Vivo</th>
<th>TIM</th>
<th>Oi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Revenue</td>
<td>14287</td>
<td>11288</td>
<td>8148</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>10059</td>
<td>8032</td>
<td>5808</td>
</tr>
<tr>
<td>EBITDA</td>
<td>3240</td>
<td>2330</td>
<td>1965</td>
</tr>
<tr>
<td>EBITDA Margin</td>
<td>32.3%</td>
<td>29%</td>
<td>33.8%</td>
</tr>
<tr>
<td>Net Profit</td>
<td>1052</td>
<td>1229</td>
<td>1134</td>
</tr>
<tr>
<td>Investments</td>
<td>1383</td>
<td>1576</td>
<td>535</td>
</tr>
<tr>
<td>Net Debt</td>
<td>969</td>
<td>547</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: Teleco, Anatel, Epoca*
Despite this, in the region, Brazil is probably one of the most competitive countries in the region, which are full of monopolies.

**Market Share and Concentration, 3Q11**

The **Herfindahl index** (also known as **Herfindahl–Hirschman Index**, or **HHI**) is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them.

*Source: Informa Telecoms and Media*
Brazil has total of 42 Million Fixed Lines

Three groups dominate the fixed line market

- Brazilian fixed line market has been privatized since 1998 and is fully open to competition but the bulk of the overall market is divided into 3 groups
  - Spain’s Telefonica, which owns Telesp. Portugal telecom that controls Vivo
  - Mexican Telmex and American Movil, which are the owners of fixed line incumbent Embratel and Claro respectively
  - Oi, controlled by Brazilian investors; following its acquisition of Brazil Telecom in January 2009
- In order to create some competition, the Brazilian regulator, Agencia Nacional de Teleecomunicacoes (Anatel) auctioned in 1999 to “mirror companies” responsible for providing local and long distance telephony in competition with incumbents
- Oi with 52% is the market leader operator for fixed telephones in service, followed by Telefonica(27%) Embratel(15%) and GVT (5%)

Source: Teleco, Anatel, Bubblecom
Penetration of Telecommunication across sectors across Countries

**Fixed Line**
- UK: 100%
- Peru: 121%
- US: 70%
- Brazil: 77%

**Mobile Voice**
- UK: 137%
- Peru: 106%
- US: 88%
- Brazil: 125%

**Broadband Households**
- UK: 82%
- Peru: 75%
- US: 42%
- Brazil: 30%

**Pay TV**
- UK: 61%
- Peru: 87%
- US: 48%
- Brazil: 23%

Source: Anatel, Pyramid
Opportunities in LATAM Market

<table>
<thead>
<tr>
<th>Country</th>
<th>Mobile penetration (1)</th>
<th>Telefónica Relative Position* (1)</th>
<th>Banking level (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>137%</td>
<td>#2</td>
<td>40%</td>
</tr>
<tr>
<td>Peru</td>
<td>79%</td>
<td>#1</td>
<td>28%</td>
</tr>
<tr>
<td>Mexico</td>
<td>82%</td>
<td>#2</td>
<td>20%</td>
</tr>
<tr>
<td>Brazil</td>
<td>128%</td>
<td>#1</td>
<td>49%</td>
</tr>
<tr>
<td>Colombia</td>
<td>106%</td>
<td>#2</td>
<td>28%</td>
</tr>
</tbody>
</table>

Source: Telefonica Internal Analysis

The LATAM market opportunity

- High mobile penetration but only ≈ 35% of consumer are banked
- High costs of financial transactions for consumers and businesses
- Unprofitable for banks to serve the bottom of the pyramid
## E – Health Globally

### Services

<table>
<thead>
<tr>
<th>Remote Patient Management</th>
<th>RPM for Chronic patients</th>
<th>Spain</th>
<th>United Kingdom</th>
<th>Brazil</th>
<th>Chile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecare</td>
<td>“Help@Hand”</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td>Health IT</td>
<td>Health CRM/ Emergencies</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td></td>
<td>Digital Imaging</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td></td>
<td>Mobile productivity</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td></td>
<td>“Digital” Hospital</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td>eHealth B2C</td>
<td>Telecare</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
<tr>
<td></td>
<td>Telehealth</td>
<td>Spain</td>
<td>United Kingdom</td>
<td>Brazil</td>
<td>Chile</td>
</tr>
</tbody>
</table>

Source: Telefonica Internal Analysis
Brazilian Companies interested in launching an MVNO (*mobile virtual network operator*)

- **Telecoms**: GVT, Lebara, Virgin Mobile
- **Financial**: Banco do Brasil, Banco Real Santander, Itau, HSBC
- **Retail**: Carrefour, Casas Bahia, Pao de Acucar, Walmart
- **Sports**: Sao Paulo FC, Santos FC, S.E. Palmeiras, Gremio FBPA, Corinthians, CR Vasco de Gama
- **Others**: Correios, Ipiranga, Globo

Source: Sisteer, Datora, Informa Telecoms and Media
Online Activity Brazil

- **Social**
  - 67% Express Opinion
  - 59% Take of someone else's opinion
  - 86% are active social network users

- **Live**
  - Follow live any single event
  - Multiscreen, anytime, anywhere
  - Live video is killer content on the internet

- **Video**
  - Class A/B: 96% watch videos online, 87% offline
  - 15-30 yrs: 31% watch TV series online, 27% offline

- **Music**
  - 2nd reason to have a home computer (internet is 1st)
  - Digital is the first income revenue for music industry in Brazil

.. Or consumer oriented internet applications

.. Brazilians Surf 
41 hours Monthly

- 86 %
  - Access Social Networks
- 82%
  - Watch Videos Online
- 60%
  - Access Terra

- 5h 20m
  - Doing Social Activity
- 11h 35m
  - Reading News
- 7h 07m
  - Reading News
Mobile clearly is the preferred broad band vehicle

Type of access to high bandwidth

<table>
<thead>
<tr>
<th>Year</th>
<th>Other (radio)</th>
<th>Cable TV</th>
<th>ADSL</th>
<th>3G handsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>40</td>
<td>203</td>
<td>993</td>
<td>0</td>
</tr>
<tr>
<td>2004</td>
<td>50</td>
<td>342</td>
<td>1,907</td>
<td>0</td>
</tr>
<tr>
<td>2005</td>
<td>75</td>
<td>629</td>
<td>3,152</td>
<td>0</td>
</tr>
<tr>
<td>2006</td>
<td>115</td>
<td>1,200</td>
<td>4,341</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>375</td>
<td>1,753</td>
<td>5,590</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>420</td>
<td>2,589</td>
<td>7,007</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>570</td>
<td>3,132</td>
<td>7,678</td>
<td>4,091</td>
</tr>
<tr>
<td>2010</td>
<td>1,000</td>
<td>3,824</td>
<td>8,976</td>
<td>14,614</td>
</tr>
<tr>
<td>2011</td>
<td>1,350</td>
<td>4,710</td>
<td>10,440</td>
<td>33,240</td>
</tr>
</tbody>
</table>

Source: Operators, ABTA and Teleco, does not include satellite and dedicated IP. Data before 2008 did not include 3G broadband.
BROAD BAND PROVIDERS AND THEIR MARKET SHARE

1934 providers of Internet
80% connections by the
six major providers

Fixed Broad Band:
Oi (36 %), Net (26 %), Telefonica (24 %), GVT (8%)

Cable TV:
Embratel TV

Mobile Broad Band:
Vivo, Claro, Oi

Source: CGI.BR – Pesquisa TIC Provedores 2011
Small operators prefer Asian equipment

### Asian Equipment sourcing

<table>
<thead>
<tr>
<th>Operator</th>
<th>Core</th>
<th>Access Equipments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vivo</td>
<td>Ericsson</td>
<td>Ericsson and Huawei</td>
</tr>
<tr>
<td>Tim</td>
<td>Ericsson</td>
<td>Ericsson Huawei and Nokia-Siemens</td>
</tr>
<tr>
<td>Claro</td>
<td>Ericsson and Nokia-Siemens</td>
<td>Ericsson Huawei and Nokia-Siemens</td>
</tr>
<tr>
<td>Oi</td>
<td>Nokia-Siemens</td>
<td>Nokia-Siemens and Huawei</td>
</tr>
<tr>
<td>CTBC</td>
<td>Huawei</td>
<td>Huawei</td>
</tr>
<tr>
<td>Sercomtel</td>
<td>Huawei</td>
<td>Huawei</td>
</tr>
</tbody>
</table>

Source: Teleco
Recent crisis in Brazilian Telecom Industry

- Anatel the regulatory agency prohibited some cell phone operators from selling new lines until they present a investment plan which would put the sector back on track
  - TIM was most affected by the decision, suspended in 18 states
  - Oi in 5 States
  - Claro in 3 states
  - Vivo escaped

- 7 out of 10 companies that provide the worst service to consumers are from Telecom Industry
- Top complaints, service offered in call centers and bad billing
- 380 Billion reals of investment needed, increasing by 80 % all investments made in the sector
  - 240 billions to implement 4G
  - 140 billions to take broad band and IPTV to 30 Millions of Households in Brazil

... this could intensify with recent crisis of customer dissatisfaction in the Telecom industry
... which was caused by stagnant or falling investment as subscriber base kept growing much faster than GDP.

Brazilian Telecom as a % of GDP

Operators are constrained by their parent company problems,
3 of the 4 largest operators are subsidiaries of European companies with significant financial problems in head quarters.

Repatriation of dividends between 2010 to 2011 doubled from R$ 1.1 billion to R$ 2.5 billion, vis-à-vis profits of each operator below and investments, that is a big jump.

Orders for the 4G equipment that need to be ready by 2014 for the soccer world cup have not yet been placed.
Despite this, Telecom one of the largest investors in the last decade …. 

Sector Wise Investments 2001-10

Total Investment 2001-10

- Waterways: 3
- Ports: 9
- Airport: 13
- Rail Transport: 37
- Sanitation: 129
- Road Transport: 135
- Electric Energy: 280
- Telecommunications: 293
Brazilian National Broad Band Programme

Government has stepped in, in the meanwhile to invest in a backbone of its own

Households (milhões)

Monthly Price (R$)

- 10
- 20
- 30
- 40
- 50

10.2 mi Domicílios R $ 96 (Media, 2009)
19,800 households Projection of R $ 58 average without PNBL
35 200 household s $ 35 average with PNBL
39,800 households $ 15 PNBL and reduction in tax

---

Monthly average fixed broadband postpaid 1 Mbps in the combo (phone and / or TV) and PNBL

R$ 45.85
R$ 34.36

jun/11 ago/11 nov/11 jan/12

Fora do PNBL PNBL

Several measures are being taken to ensure price, coverage and speed to the end consumer

What Matters to Customers Most

- General Plan Competition
- Regulation EILD
- Reduction Value terminal
- Submarine cables

- Bid of the 450 MHz band
- Telebrás: National Backbone
- Geostationary Satellite
- Decree Joint Implementation and Right of Way
- General Law of Antennas

- Quality of broadband
- Bid Band 2.5 GHz
- Bid Band 3.5 GHz
- major events coverage (live)
Independent of this, Brazilian Telecom sector is large by any standards for most vendors at around USD 23 Billion per annum.

ICT Global Market and BRIC Share

Share of BRIC countries in 2009 Global ICT Market

- USA, 29%
- EU5, 19%
- Rest of world, 23%
- Rest of EU, 8%
- China, 8%
- India, 2%
- Russia, 2%
- Brazil, 1%
- Japan, 9%

Worldwide ICT market 2010:
2523 Bn (+4.7%)

Source: EITO, IDC, PAC, and Idate, EITO (2011)
ICT Segment Share

ICT Market Segments by Market Share

- Telecommunications, 43%
- IT Services, 18%
- TV Radio, 12%
- Sound Receivers, 5%
- Test and Measurement Equip, 2%
- Industrial Process Control, 0%
- Compute, telephony and communication, 8%
- Electrical Material, 4%
- Electronic Material, 2%
- Office equipment Manuf, 6%
- Office equipment rental, 0%

Telecom equipment is almost half of this.....
Developing a greater array technologically

Typical network of a large operator and projects planned at each level ....

BSS / OSS
SDP
VoIP  SMS  MMS  VMAIL  IN  OTT

IMS  Control NGN MSS  SSw  IPTV  7IP  Control TDM MSC  TDM Sw

Transport IP
SGSN  OLT  AGW  DSL  FTTx

Transport TDM
OLT  AGW  DSL  Radio / Sat  FTTH  4G  WiFi  3G  2G

Voip scale for all segments
increase to 25%
local content caching
broaden the optical Backbone to support increased data traffic
to expand the mobile customer
FTTN 1.5m to implement more customer Velox
over 2.5 m of homes with FTTH and IPTV catapult

The Jai Group
Business Services for the BRICs Economies
Some Telecom Equipment Companies of Brazilian origin
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