



ALTERNATIVES TO DEPLOY UNIVERSAL FIXED BROADBAND INFRASTRUCTURE: analysis of the options considered in Brazil

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Outline

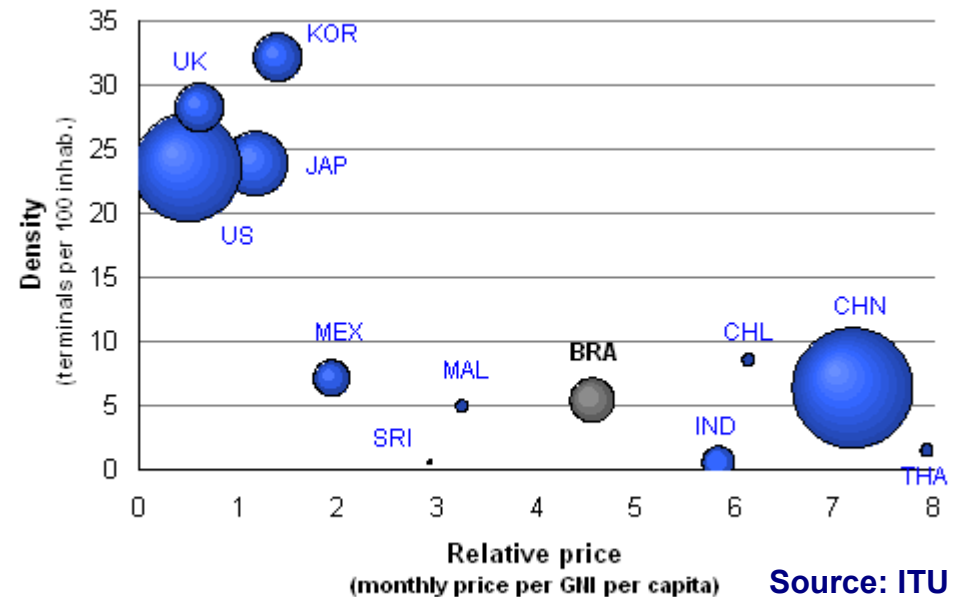
- **Overview of broadband infrastructure in Brazil**
- **Analytical framework**
- **Options considered in Brazil**
- **Recommendations**

Overview of broadband infrastructure in Brazil (1)

Background

- Regulatory framework was set in 1997.
- Main goals were competition and universal service for fixed phones.
- Convergence led to consolidation: from 28 companies to 4 groups.
- Broadband providers are not subject to unbundling or universal service obligations.

Density, relative price and number of fixed broadband accesses – 2009

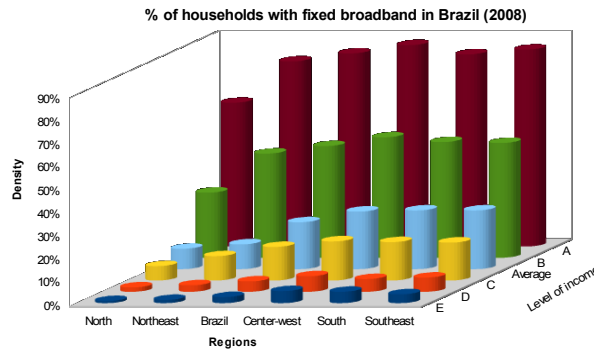
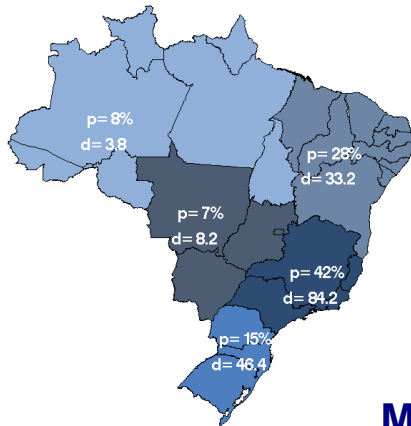


- Brazilian market is comparable to UK and Korea
- Density is 4 to 8 times behind advanced economies
- Relative price is 3 to 9 times higher

Overview of broadband infrastructure in Brazil (2)

Strong social and regional inequalities...

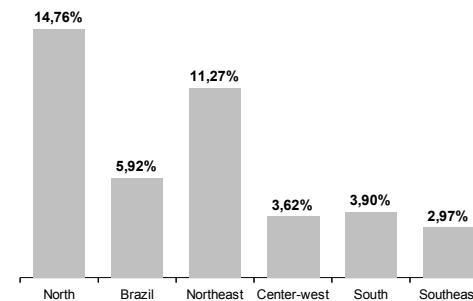
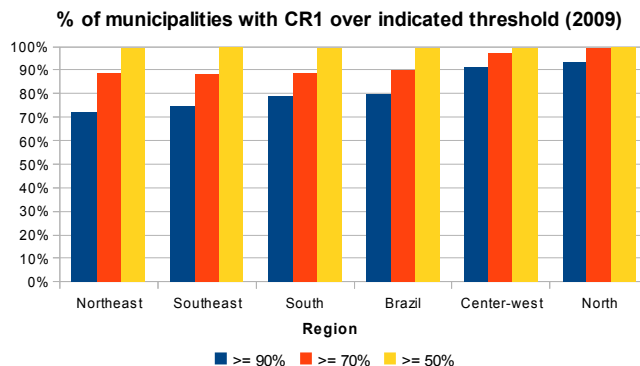
... are reflected in the density indexes.



Mobile broadband (3G) will be available to 2/3 of the population by 2016.

Market concentration explains...

... high prices, especially in farther regions.

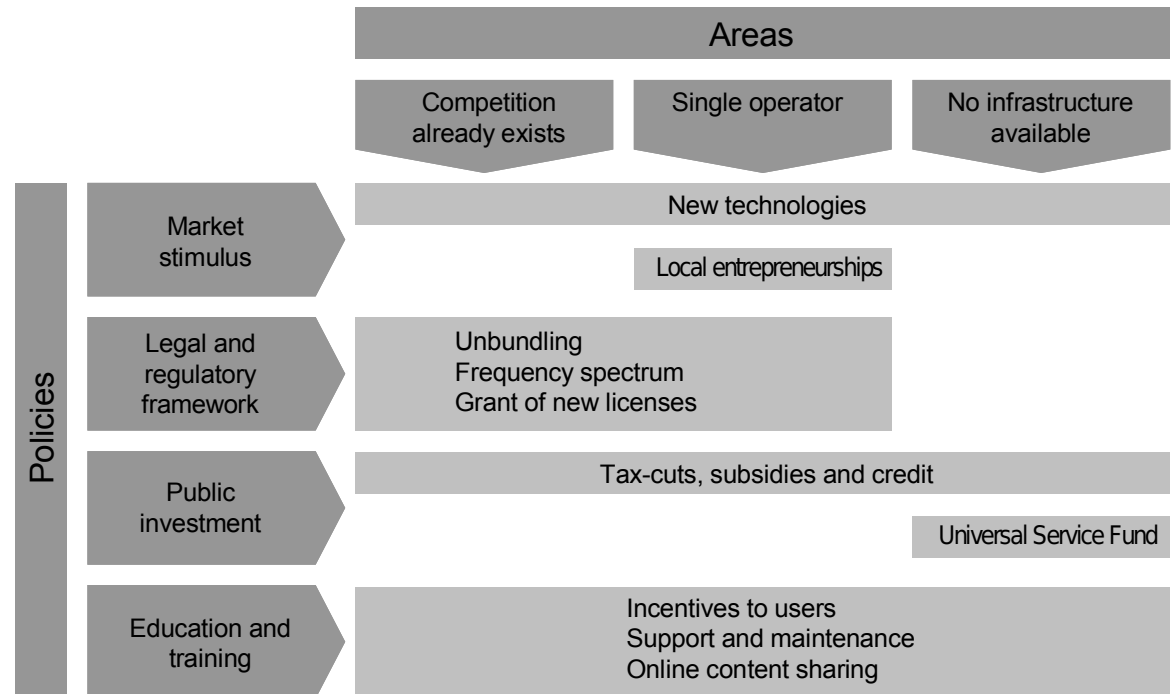


Analytical framework: two-dimensional analysis

Relationship between service areas and applicable policies

1) Market conditions:

- Competition in areas with higher economic densities
- Monopoly using existing infrastructure
- Unserved areas in rural and remote territories



2) Applicable policies:

- Incentive to competition (market stimulus & regulatory framework)
- Impulse on supply and demand sides (public investment & education)

Options considered in Brazil

1) State-owned company

- Employment of unused optical fibers
- Increase competition
- Direct control of rollout process
- Use of new technologies
- Dependent on local entrepreneurs

2) Public private partnership (PPP)

- Employment of unused optical fibers
- Uncertain result in competition
- Minimum public investment

3) Acceleration of deregulation

- Maintenance of current regulatory model
- Application of USF
- Tax cuts & subsidies
- Credit to invest in infrastructure
- Frequency allocation
- New licenses

The first option was eventually chosen by the President of Republic on May, 5th 2010.

Analysis of the options

- None of the options considered had a true comprehensive approach.
- Market concentration explains poor quality, low density and high price; hence, it should be defied by public policies.
- Two options addressed the issue of low competition, whereas the other relied only on public investment.
- None of them suggested education and training policies, which will probably return during next rounds of debate.

Rec. #1: Coordination of the central government

Pre-existing characteristics

- Structural heterogeneity
- Unequal distribution of income
- Regional differences
- Large territory

Results

Significant market failures:

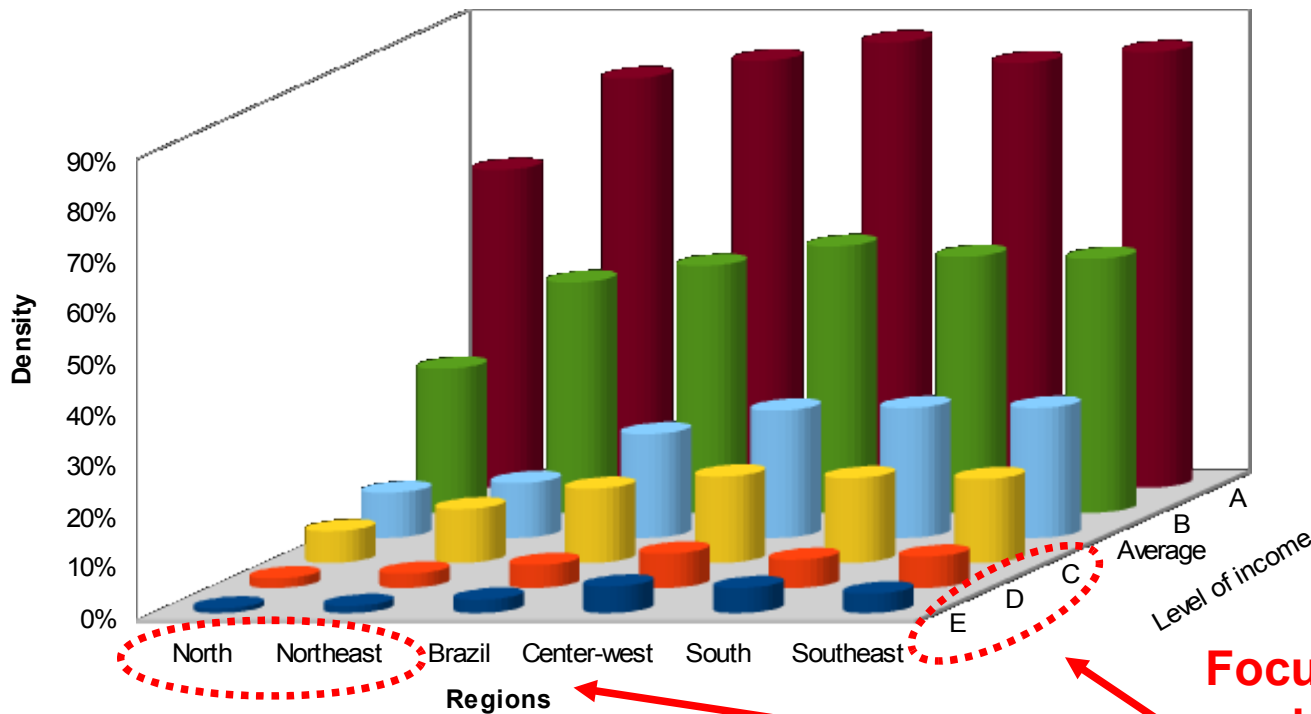
- **Low density**
- **High prices**
- **Poor quality**

Lack of broadband policies

- Absence of universal service obligations
- Failure to use Universal Service Fund (USF)
- High telecommunication taxes (up to 63%)
- Poor competition conditions
- Outdated legal framework

Rec. #2: Focus on less developed regions and low income classes

% of households with fixed broadband in Brazil (2008)



Unequal distribution

Regional differences

Focus of public policies:

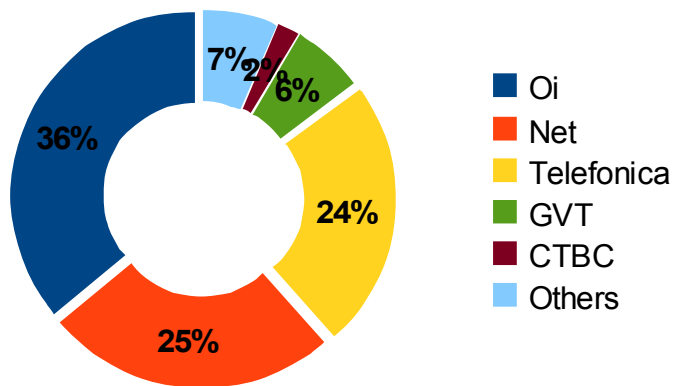
- suburbs
- middle & small cities
- rural areas

Criteria and data are critical to define priorities

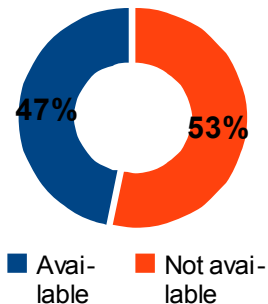
Rec. #3: Need to foster competition

Competition at national level

Market share of fixed broadband providers (2010)

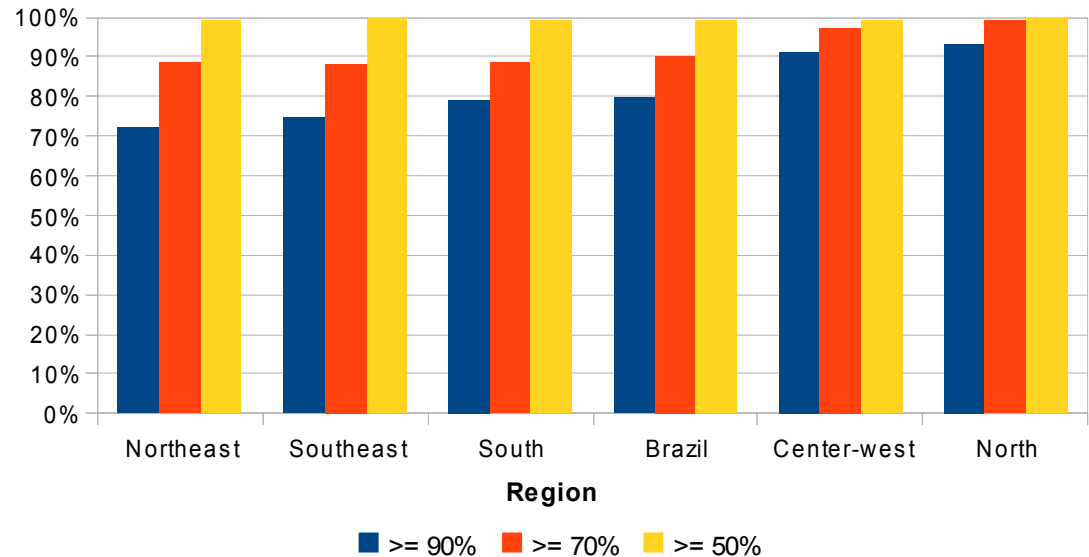


% of municipalities with broadband service



Competition at local level

% of municipalities with CR1 over indicated threshold (2009)



- Facilities-based vs. service-based competition
- Wholesale vs. access markets

Rec. #4: Taking advantage of idiosyncratic conditions

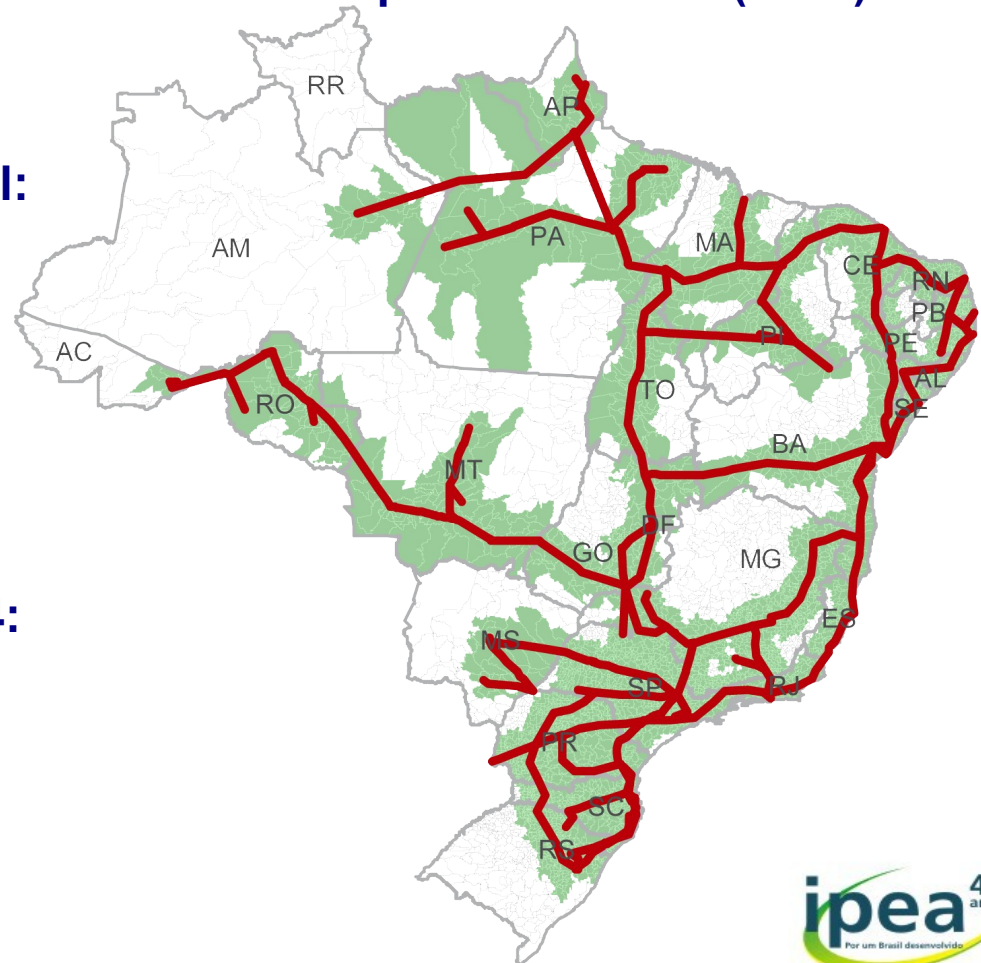
Opportunities generated by unused optical networks in Brazil:

- reduce need of public investment
- hasten implementation timelines
- increase competition in wholesale market

Full deployment expected in 2014:

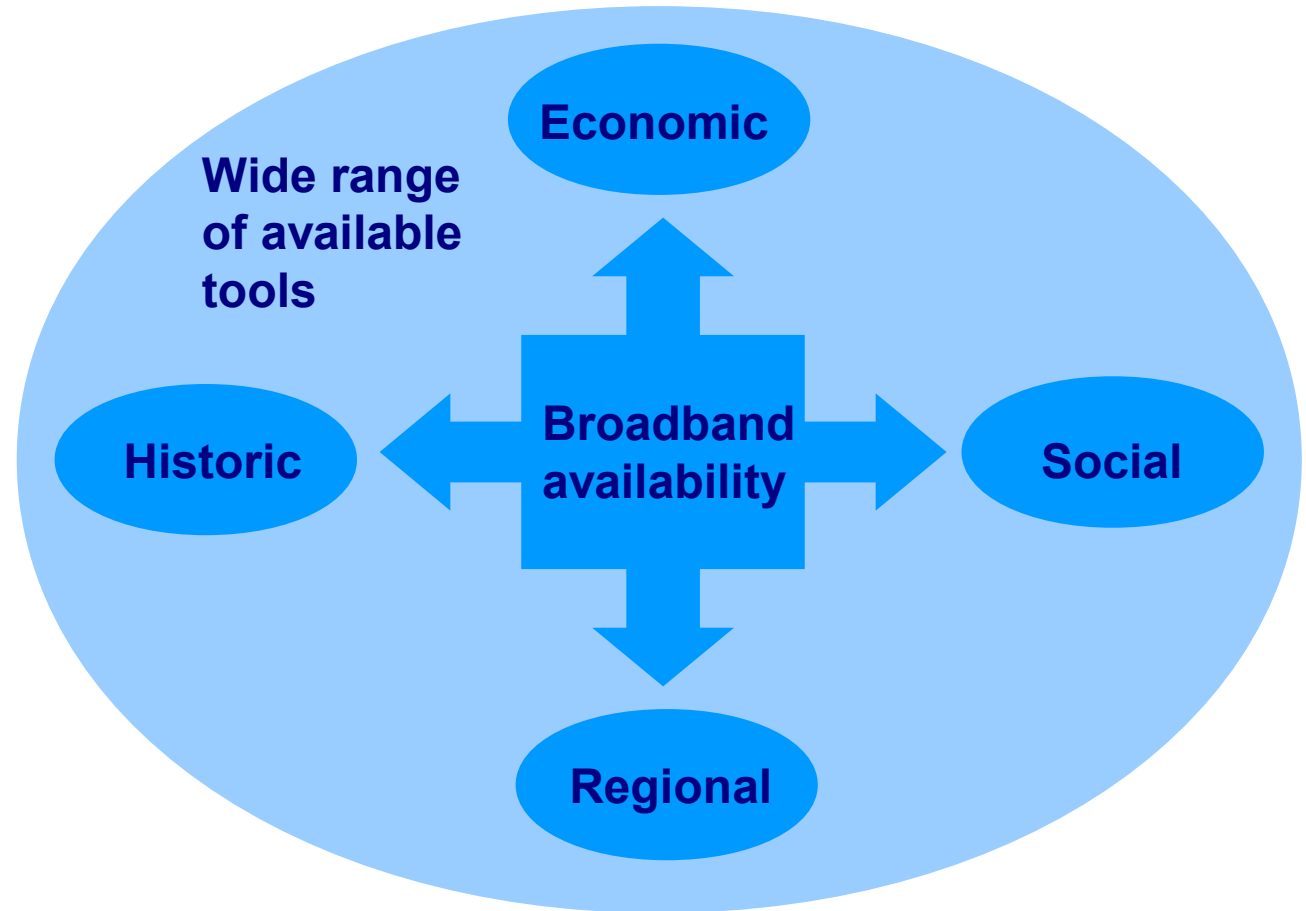
- +30,000 km optical fiber network
- all but one of the States will be covered

Planned public network (2014)



Rec. #5: Combination of policy instruments

The problem of promoting broadband is extremely complex. Therefore, policy ought to be comprehensive.



A single solution does not fit all issues.

Thank you!

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