Proposal for the design of the telecommunications market in Peru

Michael Kende

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Introduction

Access issues

Direct competition

Convergence

Conclusion

Analysys recently completed a project for OSIPTEL, with three main goals …

- Undertake an evaluation of the performance of the telecommunications sector in the post-reform period
- Establish priorities and policy goals for the next decade
- Reform the regulatory instruments in a way that is consistent with the priorities and goals identified

… and we focused on three main topics

- Increasing access, particularly in marginal urban areas
- Increasing competition, both service-based and facility-based
- Accommodating convergence, particularly voice-over-IP (VoIP)

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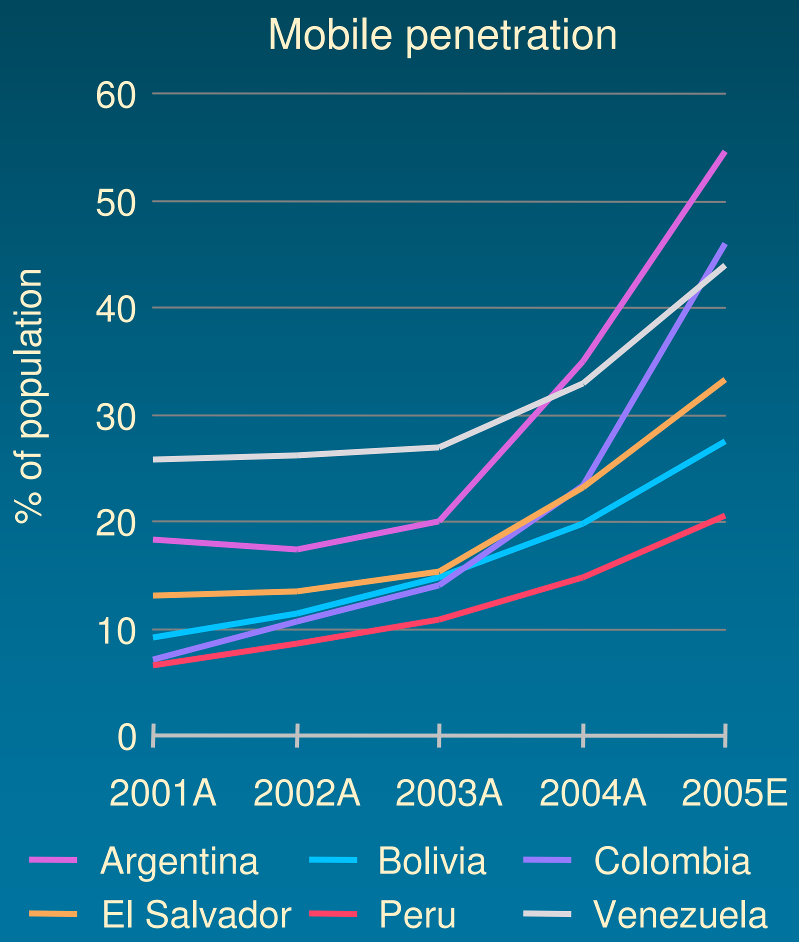
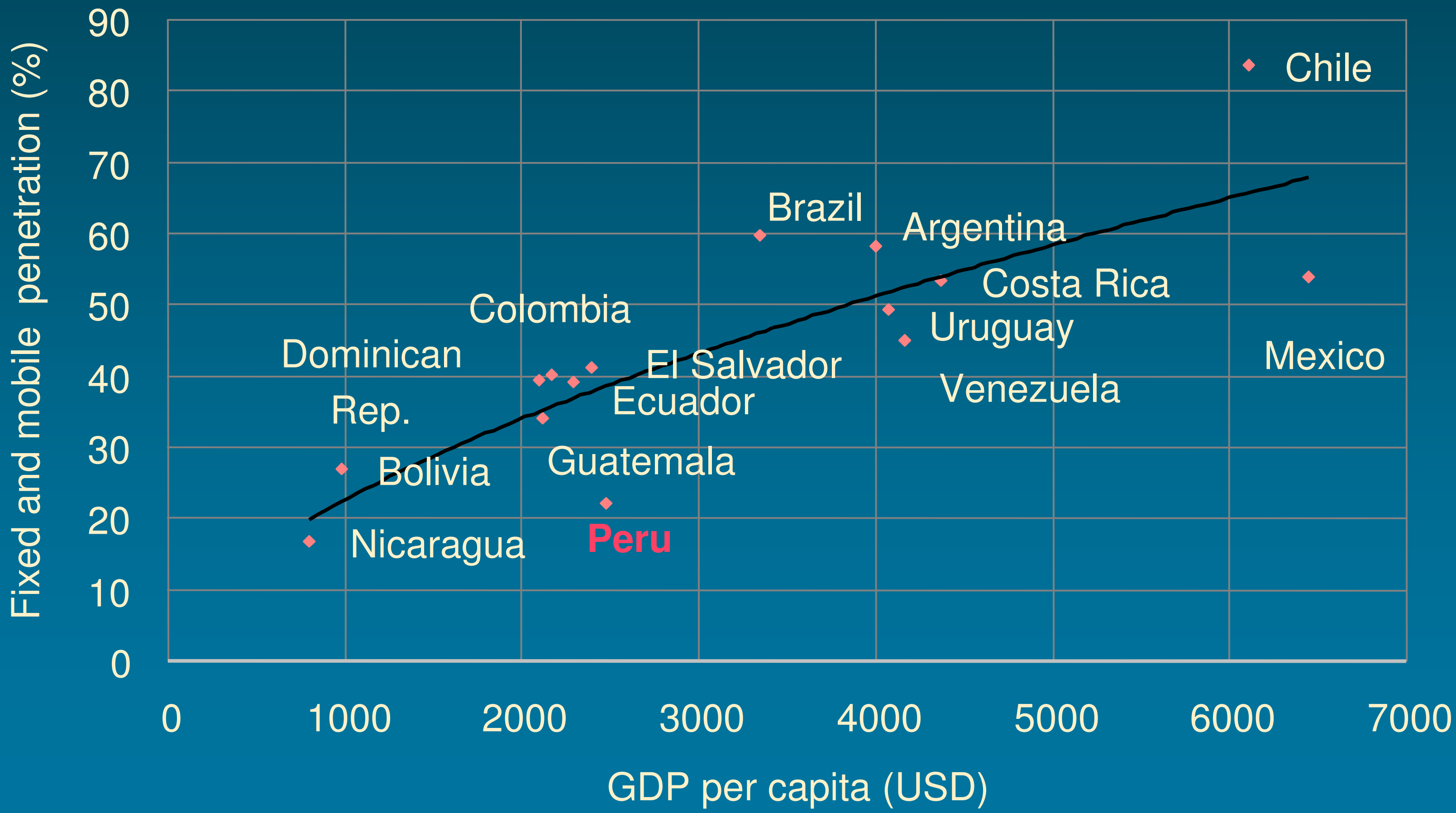
Mobile and fixed penetration have increased in Peru but still lag region



Source: Pyramid Research

Combined fixed and mobile penetration lags accounting for income levels …

Combined fixed and mobile penetration versus GDP per capita



Source: ITU

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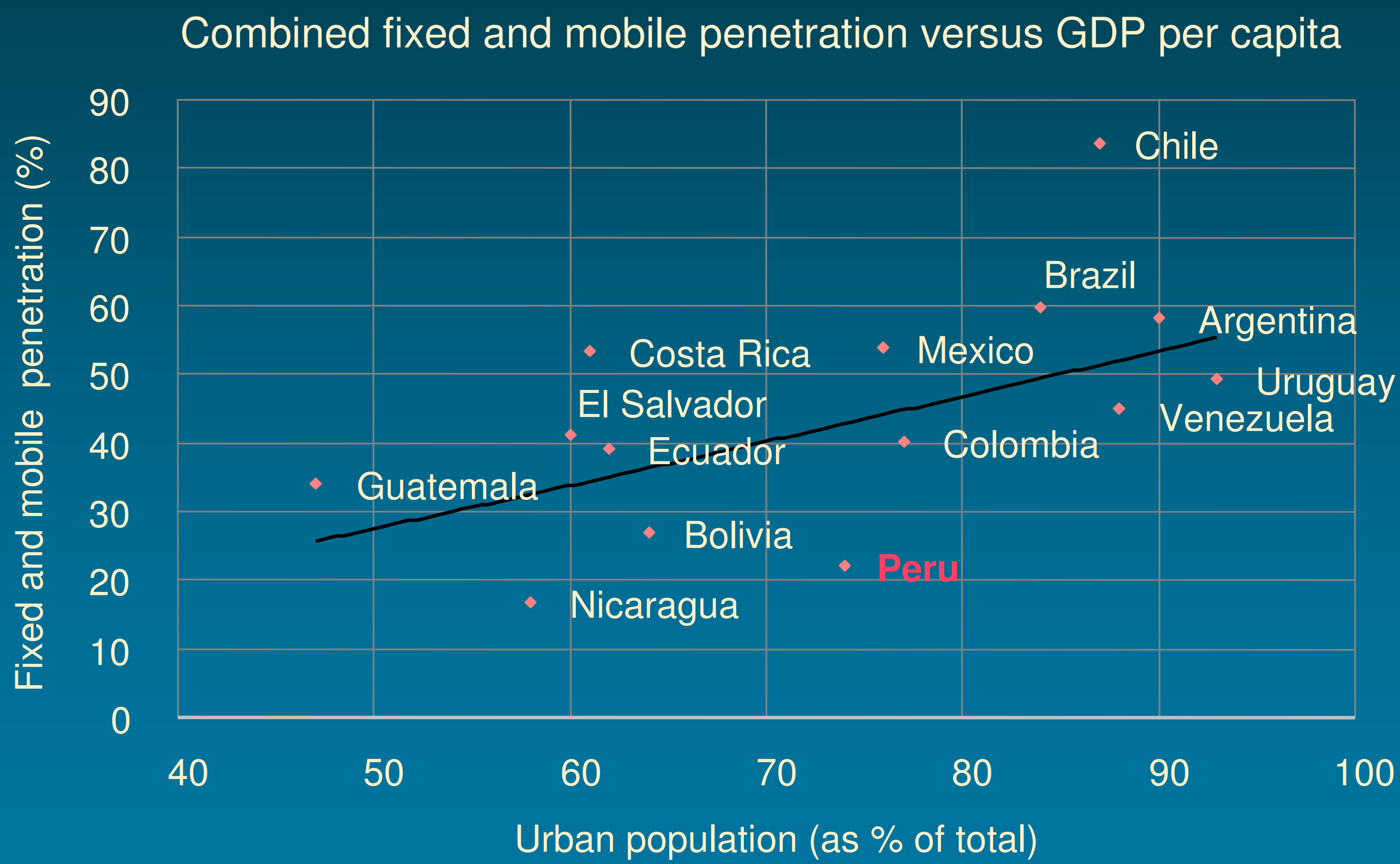
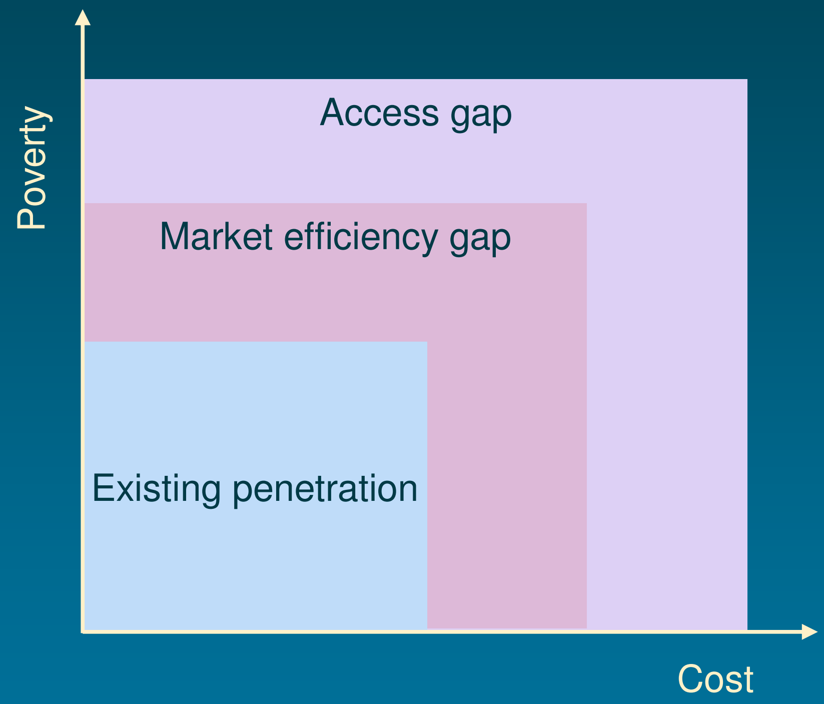
… or population density



Source: ITU

There are access gaps in areas with little or no telephone penetration

- There are two types of access gaps:
  - market-efficiency gap
  - true access gap
- There are two principal causes for these gaps:
  - low incomes (demand-side)
  - high deployment costs (supply-side)



Source: World Bank Discussion Paper 432, "Telecommunications & Information Services for the Poor: Towards a Strategy for Universal Access" by A. Dymond, N. Juntunen and J. Navas-Sabater, 2000

The categories have different implications for market intervention

- Market efficiency gap:
  - this is the gap between the theoretical reach of a service in an efficient market and what is actually achieved
- Solutions:
  - these gaps can be filled with private service provision if the regulator removes entry barriers
  - these gaps do not need to be filled with financial subsidies

- True access gap:
  - this is the gap that remains when the market efficiency gap has been filled
  - results when cost is higher than the affordability of the service
- Solutions:
  - these gaps cannot be filled without some form of regulatory intervention

Voice access is critical in Peru, whereas Internet access is secondary

- Voice provides critical connectivity for personal and business usage
- Mobile services can meet these needs:
  - prepaid mobile services are a cost-effective option for low-income households
  - in marginal urban areas, mobile services can be a more cost-effective option for operators

- Internet access is important, however, public access may be more critical than household/personal access:
  - personal computers are relatively expensive
  - broadband connectivity requires expensive fixed connections
  - new mobile technologies offer Internet access that may be sufficient

The market efficiency gap can be addressed by regulating with a light touch

- A market efficiency gap arises when services are not made available to customers who could otherwise afford them, as a result of regulatory barriers
- This could arise when the actual cost of providing new services is too high and/or when the costs are higher than consumers' demand
- Actual costs may be prohibitively high because of:
  - artificial barriers to investment
  - constraints on technology choice
  - cost of leased lines for backhaul
- The price of service may be prohibitively high because of:
  - taxes on mobile services

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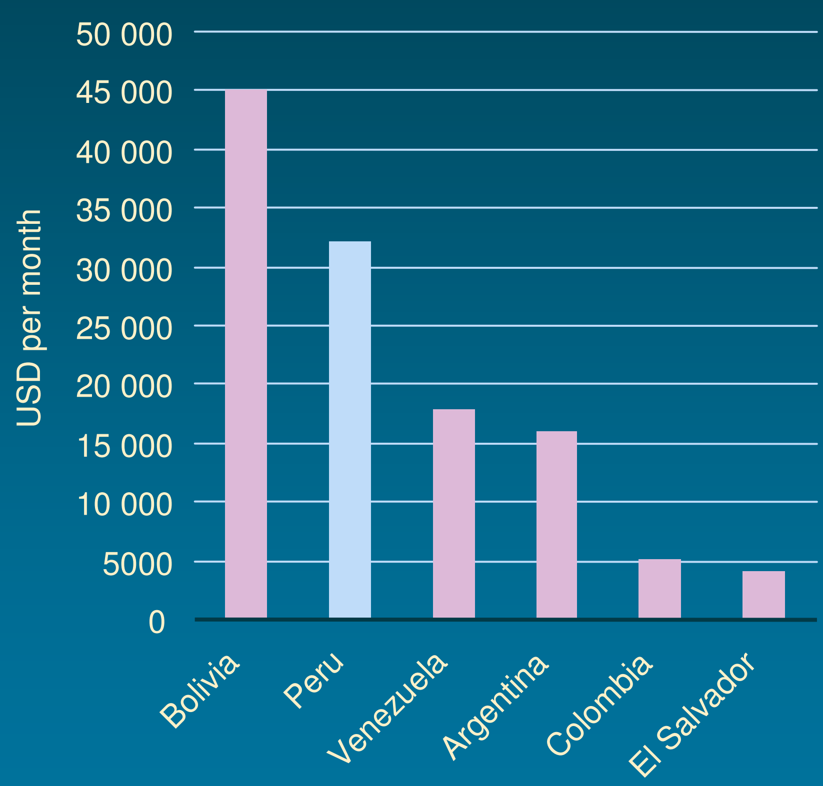
There are a number of ways to close the market-efficiency gaps with mobiles

- The returns on investment could be increased by:
  - providing tax credits on investments in marginal urban areas or lowering taxes on revenues from these areas
  - asymmetric mobile call termination rates already provide a significant subsidy
- There are spectrum and tower-siting issues:
  - any municipal/ regional barriers to tower-siting need to be reduced
  - spectrum fees need to be lowered, if possible
- allow infrastructure sharing for tower sites:
  - between different mobile operators
  - with electrical utilities

The cost of leased lines remains relatively high in Peru

- The cost of leasing an E1 connection in Peru is relatively high
  - Leased lines represent a significant expense for entrants in new areas
- Solutions
  - allow infrastructure sharing, for instance with electrical utilities
  - investigate imposing wholesale leased line obligations to reduce the cost of backhaul

Cost of national E1 leased line over 300km



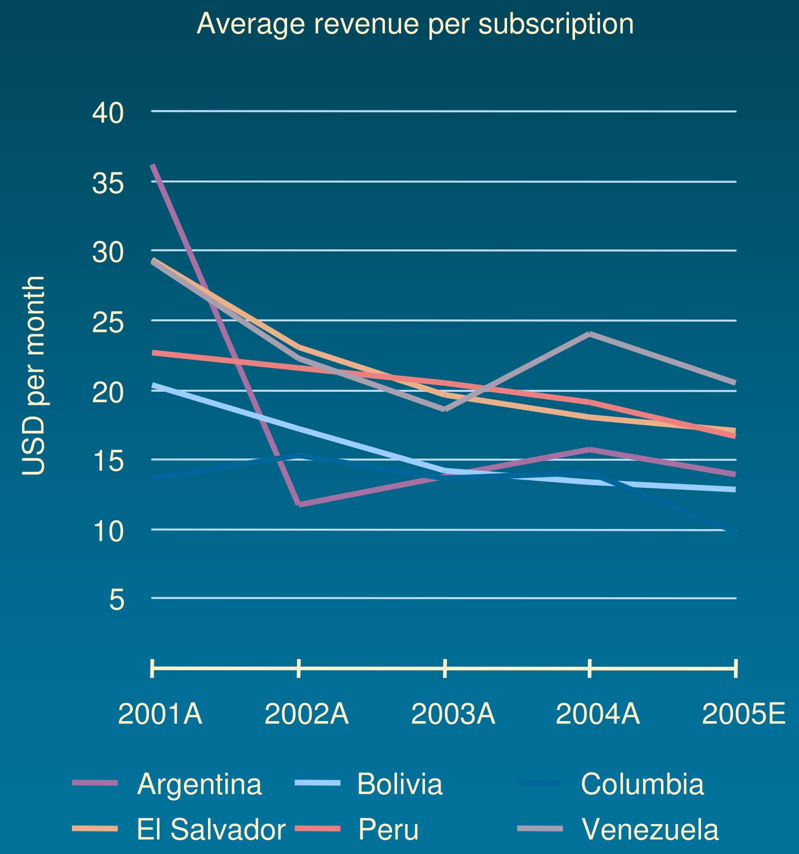
Note: Connection charges have been amortised over a period of 12 months

Source: Tarifica

The cost of owning and operating a mobile handset in Peru is relatively high

- Consider lowering taxes on mobile usage:
  - GSMA showed lowering taxes on mobile usage by 1% could boost subscription by more than 2% by 2010
  - London Business School noted that the removal of all sales and customs taxes on mobile handsets and services could increase mobile penetration up to 20% in general
- Peru has relatively high taxes:
  - taxes account for 29% of mobile handset cost (ranking Peru 9th out of the 50 countries)
  - taxes account for 19% of mobile service cost (ranking Peru 19th)
  - taxes account for 20% of total cost of ownership (ranking Peru 16th)

Source: "Taxes and the Digital Divide," GSMA, 2005



Source: Pyramid Research

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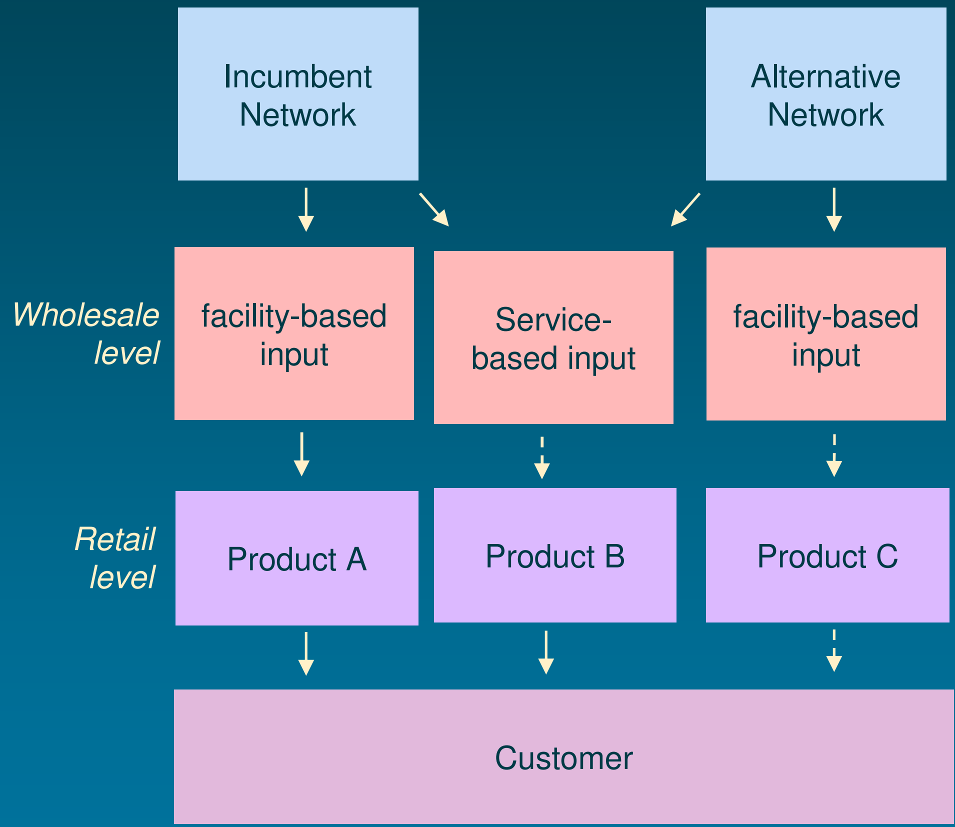
We have evaluated two different types of competition

- **Indirect competition:**
  - it occurs when new entrants compete with the incumbent for new customers
  - this is covered by the access issues
  - typically, it only requires interconnection and possibly leased-line access
- **Direct competition:**
  - it occurs when new entrants compete directly with the incumbent for existing customers
  - it can be distinguished into service-based versus facility-based entry

Direct competition can be divided into service-based and facility-based entry

- Retail competition may come from **service-based providers** using wholesale access to the incumbent's network (to sell Product B)
- Retail competition can also come from **facility-based providers** with alternative networks (to sell Product C)
    - this can take place between different infrastructures (wireless vs. wireline).
    - facility-based competition can also create wholesale competition



There are some differences between service-based and facility-based entry

- Service-based entry
  - has low investment requirements
  - requires a favorable access price
  - relies on access to the incumbent's network and may not allow much service differentiation
- Facility-based entry
  - is more expensive for new entrants
  - only requires interconnection with the incumbent
  - may lead to more vigorous competition because the competitors can provide their own innovative services

- The impact of service-based entry has been questioned
  - resistance of the incumbent is difficult to overcome
- Incumbents argue that cost-based access to existing infrastructure eliminates investment incentives
- Entrants argue that they need to build up a customer base before investing in facilities
  - the incentive to invest ultimately depends on access costs; ability to innovate, and other considerations

Direct competition requires wholesale and retail regulation

Wholesale regulation

- It enables entrants to use the incumbent's network to lower investment costs
- Wholesale services:
  - unbundled local loops
  - resale
  - interconnection
- The cost-basis for each wholesale service is critical:
  - retail-minus
  - cost-plus

Retail regulation

- It enables entrants to compete with incumbents on a level-playing field
- Retail issues include:
  - price regulation
  - number portability
  - restrict bundling
  - contractual transparency and fairness
  - restrict incumbent win-backs

Monitoring and enforcement of regulations are crucial

- Incumbents in every country vigorously oppose liberalisation
  - with wholesale obligations the entrants rely on the incumbent's network for access
  - competitors must also take retail customers away from incumbent
  - the incumbent has the advantage of greater knowledge about its network and its customer than the competitors or the regulator
- It is crucial to be able to rapidly detect anticompetitive actions and to impose sufficient penalties
  - must create a deterrence to prevent harmful actions
  - without monitoring and enforcement will be hard to attract capital to enter the market

OSIPTEL should not focus on introducing direct competition

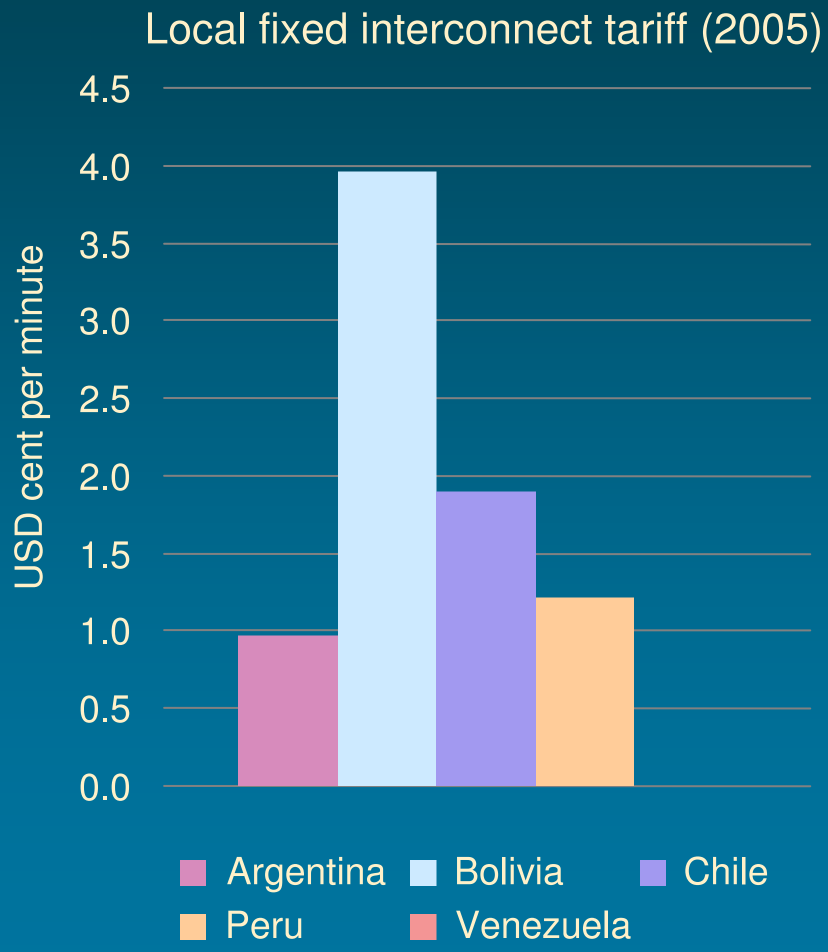
- It is difficult to mandate wholesale access because of the reluctance of incumbents to share their networks with competitors
- It is unlikely that many companies will invest significantly in duplicating the existing facilities of Telefónica del Perú (TdP)
- Retail competition rules are also required
- OSIPTEL should focus instead on introducing indirect competition:
  - we believe that the most immediate issue in Peru is access
  - it should be more attractive to enter markets where there are no operators
  - interconnection regulations are still important

Regarding indirect competition (access), interconnection is critical

- In order to provide telephony services, competitors must be able to complete calls to or from all existing subscribers (under all conditions):
  - direct or indirect competition
  - any type of technology, including fixed or mobile, PSTN or VoIP
  - in the short and long run
- Unlike wholesale access, however, significant market power (SMP) is not held entirely by the incumbent :
  - the incumbent must also provide access to the customers of its competitors
  - the overall traffic flow is often balanced even if the sizes of the networks are not balanced:
    - in these conditions, bill-and-keep is an option

The current interconnection rate in Peru is within the range of benchmarks

- Reaching a meaningful comparison of interconnection rates is not straightforward
- However, a high-level assessment of local interconnection tariffs from the incumbent operators in the benchmark countries indicates that Bolivia has the highest cost of interconnection, where those rates are not cost-based



Source: Regulators' websites

It may be worth investigating alternative forms of interconnection in the long run

- Capacity-based systems have some advantages:
  - they simplify billing and planning
  - they allow for flat-rate dial-up Internet access
- Capacity-based systems also present some challenges:
  - the cost of interconnection must be determined
  - the incumbent still can leverage SMP
- Bill-and-keep is a long-term option:
  - it reduces many costs of billing and negotiating interconnection
  - it allows for a transition to IP-based systems (voice and data)
  - it is unlikely in the short run given TdP's SMP

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What is convergence?

Definition: Convergence of voice, video and data services over Internet-enabled facilities using a variety of devices including mobile phones, personal computers and television

IP over everything:

- xDSL over copper
- Cable modem service
- Powerline communications
- 3G and WiMAX

Everything over IP:

- VoIP
- IPTV

What is the impact of convergence?

- It triggers an increase in competition:
  - facility-based broadband competition
    - cable modem
    - wireless
    - powerline
  - service-based competition from VoIP:
    - e.g. Skype and Vonage
    - allows service-based entry without wholesale access
- Problems for regulators include clashes between different operators:
  - entrants versus incumbents
  - service-based versus facility-based competition
- Opportunities for regulators:
  - increased competition
  - increased incentives to invest

A number of steps can promote VoIP deployment and usage

- Steps to promote broadband deployment will create a market for VoIP
  - create competition between DSL and cable
  - ensure technological neutrality vis-à-vis new technologies (e.g. WiMAX, NGN)

- There are a number of steps to promote VoIP usage
  - require the incumbent to offer standalone DSL
  - allow number portability between the PSTN and VoIP users
  - impose net neutrality rules to prevent companies from blocking VoIP traffic
  - clarify rules regarding numbering, emergency access, consumer privacy etc.

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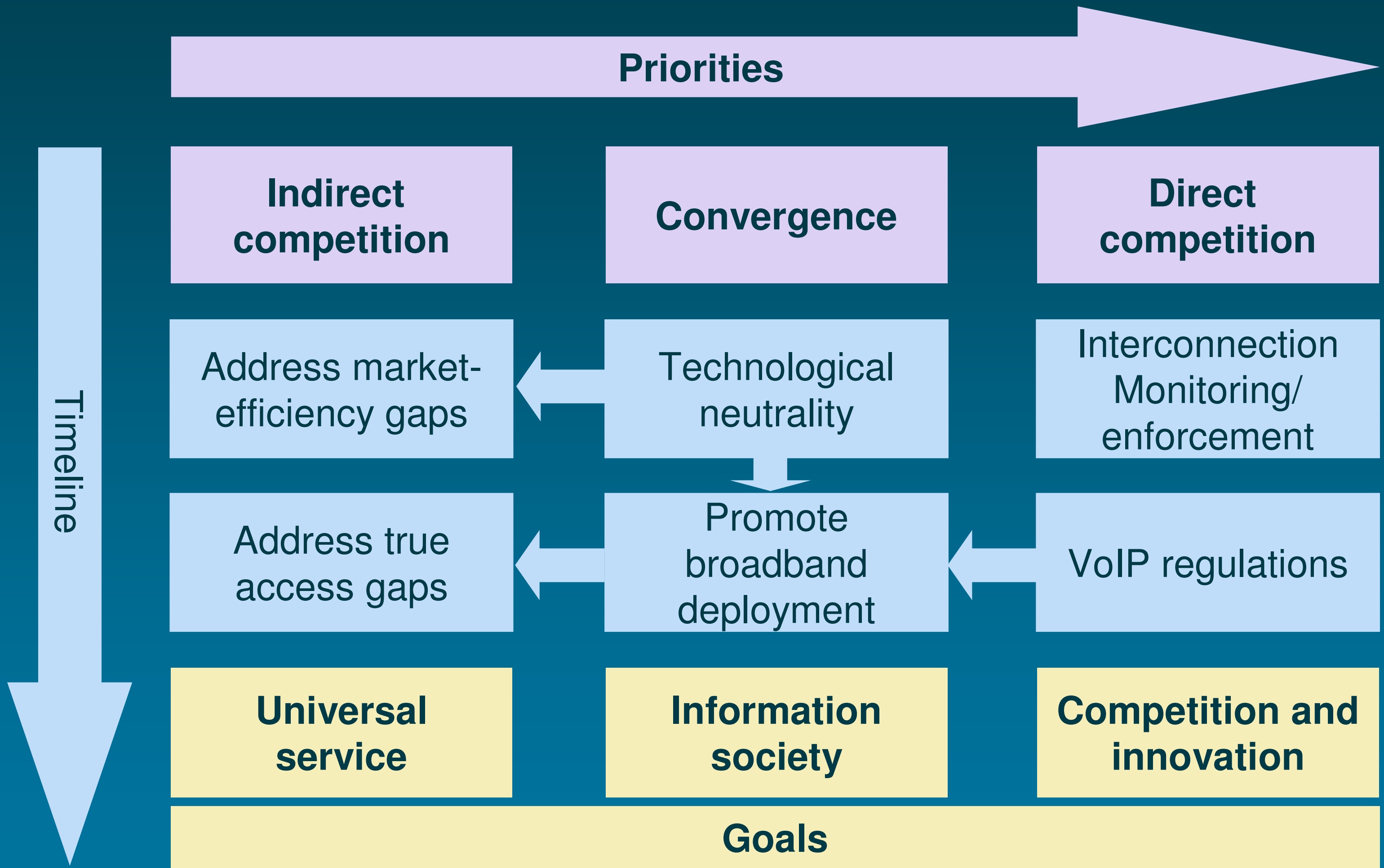
Priorities and goals



Michael Kende

Michael.Kende@analysys.com

Analysys Consulting Limited

Washington DC

www.analysys.com