Discovering Demand: Strategies for Increasing Internet Access in Developing Regions

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“L’information est la clé de toutes les portes…”

(Information is the key to all doors)

...woman using a telecenter in Timbuktu, Mali
Information: Key to Development

- “Information is the fuel of medicine. Here we have none. Year by year we are falling behind.”
  - Physician in Timbuktu

- “We have a saying: When the telephone rings, business is coming.”
  - Rural co-operative manager in China

- “We need information – masses of it. Without it, our culture will die.”
  - Inuit leader, Nunavut
The Information Connection:

- **Benefits of ICTs**
  - **Efficiency:**
    - Saving time and money
  - **Effectiveness**
    - Improving quality of services
  - **Equity**
    - Urban and rural; rich and poor; minorities; disabled
  - **Reach**
    - New markets, new audiences, new sources of supplies

- **The Role of the Information Broker or “Infomediary”**
  - Helping the illiterate or new user
  - Solving problems, finding answers
    - e.g. Uganda, Ecuador
Bad News: Internet Access

- Main Lines/100
- PCs/100
- Internet Users/100

Income Levels:
- Low Income
- Lower Middle Income
- Upper Middle Income
- High Income

World
Household Access: Telephone and TV

% of Households

Low Income Lower Middle Income Upper Middle Income High Income

Telephone
TV

Low Income
Lower Middle Income
Upper Middle Income
High Income
Pricing: Wireline Phone Subscription
Price as percent of per capita GDP
Price of Internet Access

Internet Price per Month (est. 20 hours)

Country Classification

Low Income
Lower Middle Income
Upper Middle Income
High Income

Internet Price for 20 Hours as % of GNI per Capita

Country Classification

Low Income
Lower Middle Income
Upper Middle Income
High Income
Investment Indicators

Country Classification
- Low Income
- Lower Middle Income
- Upper Middle Income
- High Income

Telecom Investment per Inhab.
- $US

Telecom Investment per Sub.

0 20 40 60 80 100 120 140
Fixed Networks: Need New Business Models

- Less international revenue
  - Perceived as “cash cow”
- Lower settlements
  - Revenue exceeding costs *may* be used to expand/upgrade infrastructure
- Competition from wireless
  - More wireless than wireline subscribers in many developing countries
- Competition from VoIP
Management: Part of the Problem?
Wireline Faults per 100 lines per Year

Country Classification
- Low Income
- Lower Middle Income
- Upper Middle Income
- High Income

Faults
- 0
- 20
- 40
- 60
- 80
- 100
- 120

Country Classification
The Revenue Gap:
Telecom Revenue as percent of GDP

<table>
<thead>
<tr>
<th>Country Classification</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Low Income</td>
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<tr>
<td>Lower Middle Income</td>
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<td>High Income</td>
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Implications of the Revenue Gap

- Average world telecom revenue is about 3.1% of GDP
- Telecom revenue in low income countries is only 1.8% of GDP
- Users in poor countries will spend less than those in wealthy countries, but if revenue could be increased to the global average of 3.1% of GDP in low income countries, an additional $14.3 billion per year could be generated
Good News: Mobile Access

Mobile Access by Region

- Africa
- Americas
- Asia
- Europe
- Oceania
- World

Mobile Access by Country Classification

- Low Income
- Lower Middle Income
- Upper Middle Income
- High Income

Cell subs per 100
Cell subs as % all sub
Cell CAGR % 1997-2002

Cell Subscribers/100
Cell Subs/All Subs
Cell Subs CAGR % 1997-2002
Mobile Sector Structure:
Low and Lower Middle Income Countries

- 79 countries (Mobile Competition)
- 15 countries (Mobile Monopoly)
Mobile subs vs. GDP per capita:
Mobile sector structure:
Competitive
Monopoly
Price of Mobile SMS Message

Country Classification

- Low Income
- Lower Middle Income
- Upper Middle Income
- High Income
Lessons from the Wireless Explosion

- **Competition** is key
  - Lower prices
  - Innovative strategies: e.g. prepaid, microloans, special services
- Demand may be much greater than assumed
  - Farther down the economic pyramid
- Old Distinctions no longer Relevant
  - Fixed vs. mobile:
    - Cellphones as first and only phones
    - Portable public phones: e.g. Bangladesh, Philippines, Uganda
    - Wireless public phones: e.g. South Africa, Uganda
  - What is E-mail?
    - SMS (short message service): Poor person’s (everyone’s?) e-mail?
  - Voice vs. data
    - What is voice?
      - (Some countries still have monopolies on fixed “voice”)
    - Bits are bits
      - VoIP Telephony
Prepaid Mobile Phone Service in Uganda...
Increasing Internet Access: Eliminating Bottlenecks

- Community access models
  - Payphones (PCOs), telecenters
- Resale
  - Phone shops, cyber cafes
- Legalizing Bypass
  - VSAT networks direct to end users
    - Businesses, schools, telecenters, etc.
  - Wireless for local access
    - E.g. WiFi (802.11) for local access
      - “hot spots” to cover villages, neighborhoods
- Other WLL options
  - IP Telephony
    - Inexpensive voice-over-data networks
- Reducing local barriers
  - Customs duties
  - Local fees and taxes
Resale: Phone Shops in Senegal
Community Telecenters in South Africa and Mozambique ...
Community Access: Indonesia and Vietnam
Policies for Extending Access...

- **Subsidies must be targeted**
  - High cost areas
  - Specific user groups
    - Schools, libraries, health centers, etc.
  - Incentive-based subsidies
    - Subsidies for users, not carriers/operators
      - e.g. Broadband vouchers
      - US E-rate: subsidy for schools, libraries, rural health centers
    - Subsidized users can serve as “anchor tenants” for communities
Conclusions: Strategies to Increase Investment

- Close the existing “revenue gap” in fixed services
- Restructure fixed networks to eliminate monopolies
- Eliminate restrictions on competitive services: e.g. satellite, VOIP
- Use targeted subsidies to encourage investment in broadband for anchor tenants such as schools, businesses, NGOs, etc.
Thank you.
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