Mobile Paradigm in Developing Countries

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Outline

• General trends in mobile communications
  » Sector growth and innovations
• Case studies
  » Guatemala, Uganda, Morocco
Telecom Sector

- Worldwide penetration in teledensity is growing
  » 1 billion lines in 2000
  » Disparities persist…
    • 375 million lines in Asia, but only 18 million in Africa
  » Developing country growth
    • Developing country CAGR for telecom revenue from 2002 to 2007 is 12%, compared to 4% for developed countries
Developing and Developed Country Forecasted Growth in Telecom Revenue

Developing | Developed

Forecasted Growth in Number of Connections

Developing vs. Developed

Source: Pyramid Research (November 2002) and WB

Mobile Overtaking Fixed Lines Worldwide

Number of Lines/Phones (log scale)

Fixed Lines

Mobile Phones

Source: ITU
Emerging Mobile Paradigm:
Economies where mobile phones exceed fixed lines

Developed Countries

United Kingdom
Ireland
Hungary
Iceland
United Arab Emirates
Taiwan
United States
Bahrain

Developing Countries

Portugal
Netherlands
Belgium
Singapore
Luxembourg
Ireland
Mexico

Source: ITU

Competition Paradigm in Mobile

Developed Countries

United Kingdom
Ireland
Hungary
Iceland
United Arab Emirates
Taiwan
United States
Bahrain

Developing Countries

Portugal
Netherlands
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Singapore
Luxembourg
Ireland
Mexico

Source: ITU

Competition

Competition in some areas
Single Provider

Source: WB
Competition in developing countries stimulates new services, such as pre-paid, that spill over to developed countries

US Prepaid Mobile Users as Percent of Total Mobile Users

Pre-paid subscribers represent over 75% of cellular subscribers, in Morocco, Egypt, Ivory Coast, Ghana, Estonia, Lebanon….

Source: WB

Deregulation

• Guatemala and El Salvador
  » Deregulated entry for wireline and wireless
  » Regulator resolves interconnection disputes
  » Radio spectrum is private property
    • may be sold, leased, and mortgaged
    • Given to any person that requests it
      » If others also want, then auction
    • Titles are for 15 years and renewable
    • All transactions registered with Regulator
Guatemala

<table>
<thead>
<tr>
<th>Service</th>
<th>1995</th>
<th>1999</th>
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<tbody>
<tr>
<td>Wireline Operators</td>
<td>1</td>
<td></td>
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<tr>
<td>Local Lines</td>
<td>10</td>
<td>60K</td>
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<tr>
<td>LD Prices</td>
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<td></td>
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<tr>
<td>Mobile Operators</td>
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<td>30K</td>
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<tr>
<td>Mobile Customers</td>
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<tr>
<td>Mobile Prices</td>
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<td>$0.11</td>
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<tr>
<td>ISPs</td>
<td>0</td>
<td>16</td>
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Competition with wireline

- Uganda
  - Only three operators allowed
    - Incumbent wireline
    - One cellular operator licensed in 1995
    - Second Network Operator (SNO) can provide both cellular and fixed line services
      - Chose to offer no fixed line service
    - Bushnet offers radio and wireless data
Uganda Results

- Before SNO:
  - Incumbent had 54,091 subscribers
  - Cellular operator had 12,500 subscribers
- One year after SNO, total increase 67%:
  - SNO had 36,500 mobile subscribers.
  - Cellular operator had 20,000 subscribers.
  - Incumbent had same number of subscribers
- Now:
  - Incumbent is about 1/3 of the market

Morocco Auction of 2nd GSM license: Incumbent’s Forecast (96)

![Number of GSM subscribers graph]

Source: ARNT and WB
Predictability of license terms

Terms of license = tender documents + bids

= +

(coverage, fees, QoS…)

Source: ARNT and WB

Bid evaluation criteria

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Grade</th>
<th>Notes</th>
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<tr>
<td>License Fee</td>
<td>60 points</td>
<td>60 pts to the best offer (BO1), the other offers BOi are graded according to [57 - 5xBOi / BO1]</td>
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<td>Tariffs Structure</td>
<td>15 points</td>
<td>Grade according to the reference terms</td>
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<td>Coverage and Network Quality</td>
<td>20 points</td>
<td>Grade according to supplement comparing to the minimum of the Tender Document</td>
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<td>Offer’s Coherence</td>
<td>5 points</td>
<td>Grade according to the coherence of the offers (Business Plan, employment, training, Know-how transfer…)</td>
</tr>
<tr>
<td>Total</td>
<td>100 points</td>
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</tbody>
</table>

Source: ARNT and WB
Subscription Results (2001)

Number of GSM subscribers

- Forecast 96
- Forecast 99 (bidders)

Source: ARNT and WB

Fee per population

FIGURE 1 PRICES PAID FOR SECOND GSM LICENSES IN RECENT TRANSACTIONS, 1994–99

GDP per capita (US$ thousands)

License price per inhabitant (US$)

Source: ARNT and WB
Conclusion

• Developing countries are setting patterns for the developed world
  » Innovations for service to the poor
  » Market solutions for spectrum management and other regulatory issues
  » Competition between fixed line and wireless
  » Importance of transparency and predictability in regulatory processes
  » Surprising demand for services that meet customer needs