Global trends in telecom development

Seminar in Niamey, April 2001

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Global trends in telecom development

- The state of the industry
  - Fixed-lines
  - Mobile
  - The Internet

- The state of the market
  - Increasing competition
  - Private sector participation
  - Independent regulation

- Situation in Africa
  - Addressing the digital divide
  - Traffic and tariffs trends
  - Tariff rebalancing
A Mobile Revolution

Fixed Lines vs. Mobile Users, worldwide, Million

Source: ITU World Telecommunication Indicators Database.
Domestic fixed-line revenues, 59.2%
International revenues, 8.8%
Mobile service revenues, 21.2%
Other (incl. Internet, leased lines, telex), 10.6%

1998 Telecom service revenue. Total = US$724b

Projection of revenue growth (US$bn)

<table>
<thead>
<tr>
<th>Service revenue (US$ bn)</th>
<th>Actual</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Telephone/fax</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>Int'l</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Mobile</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Other: Data, Internet, Leased lines, telex, etc</td>
<td>100</td>
<td>300</td>
</tr>
</tbody>
</table>

Source: ITU.
Internet users, millions
Annual rate of change

Source: ITU.
Inter-regional Internet connectivity

Asia / Pacific

USA / Canada

Europe

Latin America

Africa

0.4 Gbit/s

18 Gbit/s

56 Gbit/s

3 Gbit/s

0.5 Gbit/s

0.2 Gbit/s

0.1 Gbit/s

Note: Gbit/s = Gigabits (1’000 Mb) per second.
Source: ITU adapted from TeleGeography.
Increasing competition

- Around two-thirds of telecom subscribers now have a choice of operator
- More than 99 per cent of mobile and Internet subscribers now have a choice of operator

Dominantly private-ownership

- 19 out of top 20 top public telecom operators are partially or fully private-owned
- Of the top 20 mobile operators, 16 are fully-private, 3 are partially private, 1 is state-owned

Independent regulators

- There are currently 89 independent regulators (only 12 in 1990)
Degree of competition by service, 1999 (ITU Member States)

Source: ITU Telecommunication Regulatory Database.
Degree of competition in basic services, 1999, by region

Source: ITU Telecommunication Regulatory Database.
Increasing competition: By no. of countries, by service, 1995-2005

Source: ITU Telecommunication Regulatory Database.
Percentage of outgoing international traffic open to competition

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Countries</th>
<th>Percentage of Outgoing International Traffic Open to Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>4</td>
<td>35%</td>
</tr>
<tr>
<td>1995</td>
<td>14</td>
<td>46%</td>
</tr>
<tr>
<td>1998</td>
<td>29</td>
<td>74%</td>
</tr>
<tr>
<td>2005</td>
<td>48</td>
<td>85%</td>
</tr>
</tbody>
</table>

Note: Analysis is based on WTO Basic Telecommunications Commitments and thus presents a minimum level of traffic likely to be open to competitive service provision. Source: ITU, WTO.
## Recent privatisation transactions

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td></td>
<td></td>
<td>Armenia</td>
<td>Brazil</td>
</tr>
<tr>
<td>Cape Verde</td>
<td></td>
<td></td>
<td>Australia</td>
<td>Denmark (2)</td>
</tr>
<tr>
<td>Cuba</td>
<td></td>
<td></td>
<td>Cote d'Ivoire</td>
<td>France</td>
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<tr>
<td>Czech Rep.</td>
<td></td>
<td></td>
<td>France</td>
<td>El Salvador</td>
</tr>
<tr>
<td>Indonesia</td>
<td></td>
<td></td>
<td>Greece</td>
<td>Finland</td>
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<tr>
<td>Mongolia</td>
<td></td>
<td></td>
<td>Hungary</td>
<td>Guatemala</td>
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<tr>
<td>Portugal</td>
<td></td>
<td></td>
<td>Indonesia</td>
<td>India (MTNL)</td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td></td>
<td>Ireland</td>
<td>India (VSNL)</td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td></td>
<td>Israel</td>
<td>Poland</td>
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<tr>
<td>Peru</td>
<td></td>
<td></td>
<td>Italy</td>
<td>Puerto Rico</td>
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<tr>
<td>Portugal</td>
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<td></td>
<td>Kazakhstan</td>
<td>Romania</td>
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<td>Singapore</td>
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<td>Panama</td>
<td>Switzerland</td>
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<tr>
<td>Venezuela</td>
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<td>Portugal</td>
<td>Senegal</td>
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<td>Serbia</td>
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<td></td>
<td>South Africa</td>
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<td></td>
<td>Sri Lanka</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Spain</td>
</tr>
</tbody>
</table>

Source: ITU Telecommunication Regulatory Database.
Note: Some countries made sales in several tranches (e.g., Spain)
Ownership status of the incumbent

Source: ITU Telecommunication Regulatory Database.
Separate regulatory bodies, worldwide, 1998

Source: ITU Telecom Regulatory Database.
“The future is here, it’s just not evenly distributed” William Gibson

Source: ITU World Telecommunication Indicators Database.
Digital divide = Telecoms divide

User distribution, by income group, Jan 2000

Internet users: 280 million (82%)
Mobile users: 490 million (69%)
Telephone lines: 912 million (58%)
Population: 6 billion (15%)

Source: ITU World Telecommunication Indicators Database.
The digital divide is shrinking, but also shifting

Share of low and lower-middle income countries in:

- Telephone main lines
- Mobile subscribers
- Estimated Internet Users

Source: ITU World Telecommunication Indicators Database.
LDCs falling further behind:
Share of worldwide Internet Users

- LDCs
  Share of world population = 10.6%
  Share of Internet users = 0.1%

Graph showing the increase in the share of worldwide Internet users for China and Other low & lower-middle income countries.
Africa Traffic

![Graph showing millions of minutes for Africa Traffic and percentage of market volume share from 1995 to 1999]

- **Africa Traffic**
- **Percentage of the Africa Traffic in respect of the World Traffic**
Share of the USA in the International telephone market
Evolution of the Average Settlement Rates
Settlement rates versus Retail prices in the Africa Region
Long distance market share

<table>
<thead>
<tr>
<th>Year</th>
<th>NCCs (Japan)</th>
<th>Clear (NZ)</th>
<th>Optus (Aust.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>1992</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>1993</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
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<tr>
<td>1994</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
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<tr>
<td>1995</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>1996</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Long distance prices

Index, 1993=100

<table>
<thead>
<tr>
<th>Year</th>
<th>Japan</th>
<th>New Zealand</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1994</td>
<td>95</td>
<td>95</td>
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<td>1995</td>
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<td>90</td>
<td>90</td>
</tr>
<tr>
<td>1996</td>
<td>85</td>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>

As competitors gain market share ...

Long distance prices come down ...

Rebalancing in action (1):
Iceland Telecom, price of 3 minute, peak-rate call, includ. tax

Source: Iceland Telecom, OECD.
Rebalancing in action (2):
SwissCom, price per minute of local call and call to US

Swiss call prices.
US cents per minute.
Source: ITU.

Call to USA

Local call

[Graph showing the decrease in call prices from 1995 to 2000]
Rebalancing in action (3):
Average trends in 39 major economies, in US$

Source: ITU World Telecommunication Indicators Database.
Rebalancing in action (4):
Trends in Thailand, in US$

Source: ITU World Telecommunication Indicators Database.
Rebalancing in action (5):
Trends in price per minute of an international call to USA

Average retail price of one minute call to USA. US$

Source: ITU adapted from FCC and national data (34 countries).

Forecast
Degree of competition in cellular services, 2000 by region

Source: ITU/BDT Regulatory Database
Degree of competition in basic services in Africa, 2000

- Local
- Long distance
- International
- Cellular

- Monopoly
- Duopoly
- Competition
Separate regulators in the World

Source: ITU/BDT Regulatory Database
Separate regulators by Region 2000, Total: 102

Europe: 30%
Afrique: 28%
Asie-Pacifique: 13%
Etats arabes: 6%
Amériques: 23%
Conclusion and Recommendation

- Erosion of traditional system of accounting rates for exchange of international traffic
  - Domestic interconnect fees will be dominant mode
- Major price cuts in international calls
  - Availability of new infrastructures
  - Impact of Internet pricing model (distance and duration independent)
- Mobiles exceed fixed-line phones worldwide by 2002/03
  - Introduction of “third generation” mobiles after 2001
  - Generational shift, as new users reject fixed-lines
    “Interconnection and tariff rebalancing”