

A spiral binding of a notebook, visible on the left side of the page, with the wire looping through a series of holes.

Business Models in Wireless for Developing Countries

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Why Wireless?

- 600,000 villages in India will not be connected any other way, essential for distance learning and telemedicine
- Better connectivity would have saved lives in the tsunami – to reach people on the beach and in boats, only wireless will work

Factors in a business model

- Earlier models: anything wrong with them?
- Making good technology choices
- Politics
- Timing

Existing Model: GSM

- Over a billion GSM phones sold in 200 countries
- Problems:
 - Technology not improving
 - Expensive: SMS costs \$2000/MB in India
 - Terrible billing
- 3G going nowhere – so what is the future?

The Politics of Telecom

- Telecom companies have political clout
- Politicians don't understand technology
- Industry dominated by “incumbent”, which handled policy, R&D, international coordination, long distance + local
- Even regulator staffed by people on deputation from the incumbent
- Example of skewed playing field: Net telephony

Paradigm Shift in Technology

- Telecom still essentially operates on the mainframe model: Users buy time
- The only company that remains from the mainframe computer era is IBM, which completely reinvented itself
- WiFi heralds the start of the decentralized, P2P era in telecom

http://www.telenor.com/elektronikk/volumes/pdf/3.2004/Page_045-054.pdf

Computer technology:

- Non-distributed
- Localised
- Professional

Telecommunications:

- Person-to-person
- Telephony
- Stationary

Society:

- Non-critical ICT dependency
- Physical vulnerability
- Simple responsibility chain

1994

2004

Computer technology:

- Distributed
- Ubiquitous
- Common

Telecommunications:

- Machine-to-Machine
- Data communication
- Mobile

Society:

- Critical ICT dependency
- Logical vulnerability
- Complex responsibility chain

Incumbents will resist, using political power....

- <http://www.netparadox.com/fccletter.html>
- “The telephone network's technological base, and the business model under which this old technology thrived, are obsolete. Recovery is not an option. ... we urge the FCC to: Resist at all costs the telephone industry's calls for bailouts. The policy should be one of "fast failure." ”

The Emerging Telecom Paradigm

- Long-distance business like “wholesale”, largely based on optic fiber
- Those who deploy cables for other purposes and have right of way, are at an advantage over telcos
 - Electricity distributors (“as the crow flies”)
 - Railways
 - Gas
 - Water (optic fiber inside the water pipes)

The retail telecom business

- Distribution of bandwidth from the nearest optic fiber to the consumer
- possibility to build on:
 - PCO
 - Cable Operator
 - Low power radio station
 - Post office
- Community Networks

GSM and WiFi will coexist

- Cheap phones will soon do both
- PC-based GSM switch will allow you to use your GSM phone for Internet Telephony
- WiFi will do to GSM what GSM did to Iridium: create cheap “hotspots”
- And WiFi will continue to improve, while GSM will not

Advantages of WiFi v/s GSM

- P2P -- robust
- Mesh networking
- Easy to install
- All Net applications available, not just voice
- Economical also where few customers
- Large number of manufacturers
- Large installed base, soon cars, factories,...
- No license fees

Components of Business Model

- Technology Choice: WiFi
- R&D component essential: we are only beginning to understand the potential of this technology (e.g. cars, houses, factories,...)
- Engage in the politics

A graphic of a spiral-bound notebook with a brown cover and a light beige page. The spiral binding is on the left side. The text is centered on the page.

Thank you!

Text of lecture at: <http://www.india-gii.org/wiki/index.php/Presentations/ICTP>