Research and Action Agenda for a National Broadband Initiative - Technological Developments

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Our common vision: The world connected in 2015

Universal access to information and communication technologies boosts the economic and social development of nations
Universal access requires consumer understanding

Affordability

Access

Competence

Motivation

Source: Marja-Liisa Viherä (adapted)
Market maturity drives operator focus

Today’s strongest opportunities for growth:
Voice for rural population
Mobile broadband for urban dwellers
In India as well, Broadband uptake will be driven by wireless services.

3G/HSPA will drive broadband in India.
Cell Range gets Shorter at Higher Frequency and with TDD

- WiMAX has shorter cell range due to TDD duplexing and higher frequency
- Outdoor fixed antennas can be used to improve the link budget for fixed wireless solution

Suburban indoor

- WiMAX 3400 TDD
- WiMAX 2500 TDD
- HSPA/LTE2500 FDD
- HSPA/LTE2100
- HSPA/LTE900

Downlink: 1 Mbps
Uplink: 64 kbps

8 x more sites required than with HSPA2100

Assumptions:
- Suburban area
- 50 m BTS antenna
- 15 dB indoor loss
- 95% location probability
- Correction factor -5 dB
- 1.5 m terminal antenna height
Cost of Broadband deployment in India

• In latest BSNL tender, mobile 3G access network cost per subscriber was depending on area from 110 USD to 120USD.

• Whereas, fixed line cost depends on area much more widely. In dense urban area cost is low, but in suburban and rural area cost will be very high.

• Low frequency gives wider reach in cell radius and lowers initial investments for mobile broadband.

➢ Government should auction 700Mhz band for rural broadband

• USO = Universal Service Obligation fee like x% of operator revenue can be used for financing rural digital dividend area network build out.
Optical CAGR

< 2008 based on Source: A.RInck Analysis

x2 in 5 years ~ 1.15 per year

15% (1/4th Moore’s Law)
Summary

Countries missing out on opportunity to add hundreds of billions to their national revenues

Government should auction 700Mhz band for rural broadband

Connectivity increasing but utilisation not

Affordability is the key factor - we need to work on TCO

Key stakeholders need to come together to make this happen.