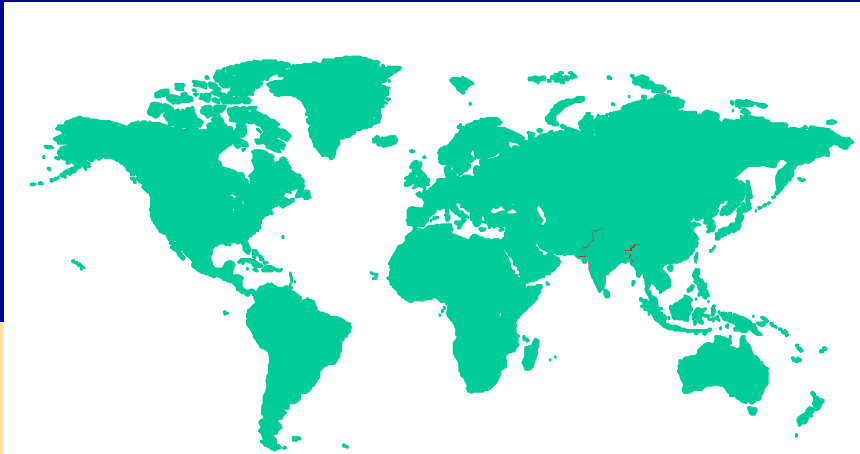


Making the best use of Wireless Technologies in the Developing World

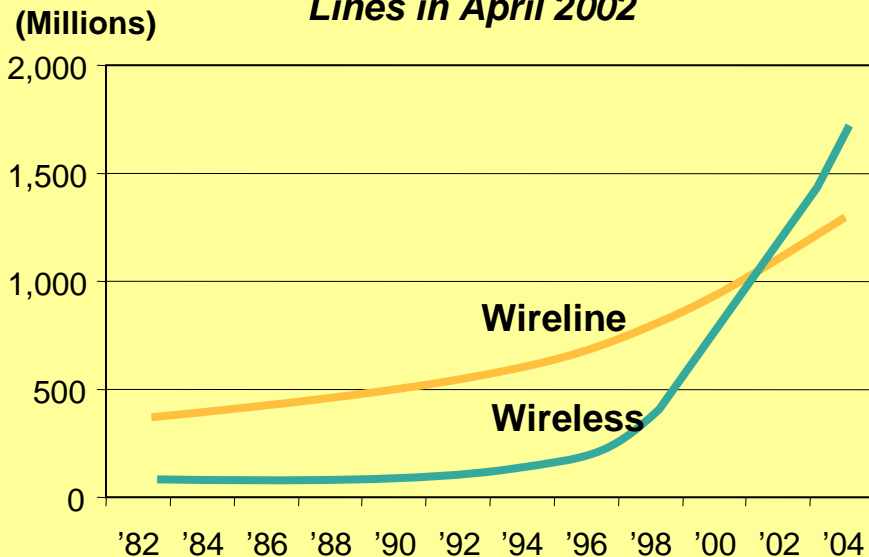


Bharat Bhatia
Regional Director,
Government Relations,
Motorola

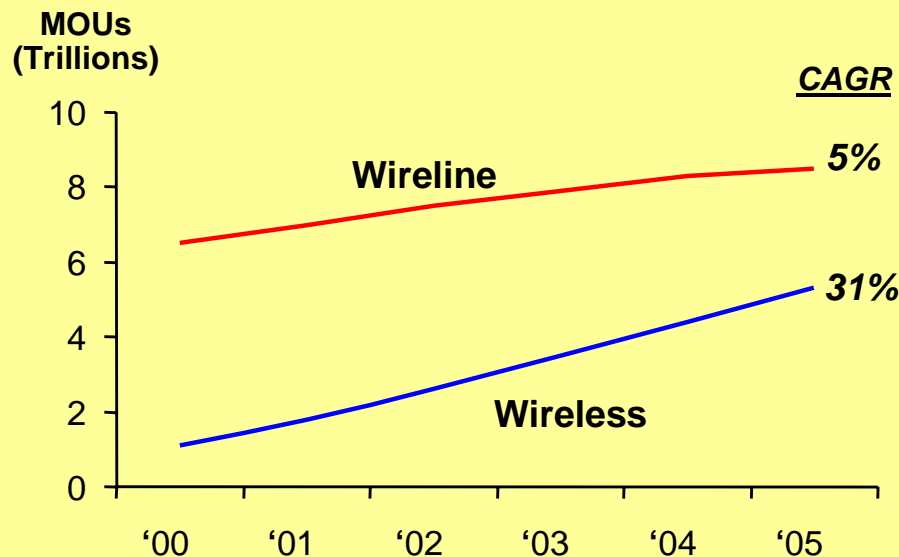


Wireless Leading Global Telecom Growth

Global Telephone Subscribers
Wireless Subscribers Surpassed Fixed Lines in April 2002



Global Telecom Voice MOUs
Wireless MOUs 38% of Total in 2005



Wireless Becoming Primary Phone in Emerging Markets and Replacing Wireline Demand in Developed Markets

Source: Motorola



Three Disruptive Forces

■ Digitization of Practically Everything



Three Disruptive Forces

■ Explosion of Broadband



Three Disruptive Forces

- Things Are Getting Smarter...A Lot Smarter... Really, Really Fast



Emergence of Third Screen

■ TV (Delivered Video)- the First Screen



Emergence of Third Screen

■ PC (Delivered Internet)- the Second Screen



Emergence of Third Screen

- “Device Formerly Known As Cell Phone”
(Delivers Seamless Mobility)



Best Use of Wireless Technologies in developing countries

Life Improving

- Providing greater access to communication and information to more people, in more places, worldwide
- Allowing developing nations to enjoy the same communication access privileges as wealthier countries
- Increasing forms of communication and entertainment – SMS, MMS, video messaging and gaming

Life Changing

- Mobile telephony is changing the very fabric of how we conduct our day-to-day lives
- Proximity is no longer key to communication and interaction
- There has been a complete shift to a mobile way of life
- Mobile phones have revolutionized the world of work, organizing your social life, sourcing information on the move and even dating!

Life Saving

- Mobile technology is offering individuals and health and safety organizations new applications for saving lives
- The mobile phone is now a key support application in emergency situations around the globe
- A means for parents to keep in touch with their children, particularly teenagers
- An increasingly important communication factor in emergency calls, particularly in isolated locations



Wireless is becoming a bearer of Convergence ?



Mobile TeleDocs

General Practitioners are using wireless Service to deliver healthcare and medical services to rural India



Rural Market Prices on the Move

Mobile Technology is being used to remove information barriers & allow the farmers to get best price for their produce



Fishermen Call in their Catch

Fisherman pass valuable information on their mobile phones as to where large shoals are available and for calling for assistance when calamity strikes



MOTOROLA
intelligence everywhere™

The real revolution has been the continuous growth of the low income group market

Issues to be addressed

Affordability

- Handset cost an entry barrier
 - All costs are dollar denominated and not in line with Purchasing Power Parity
 - Difficult for carriers to subsidise in a low / declining ARPU environment

Content & Application

Mobile Phone { *First Phone*
First Digital Camera
First Computer

- Content needs to be organised and Application developed to cater to the first digital device in the hands of the Indian consumer

Availability

- Rural coverage to be enhanced – Only 1.5% Rural Teledensity achieved to-date

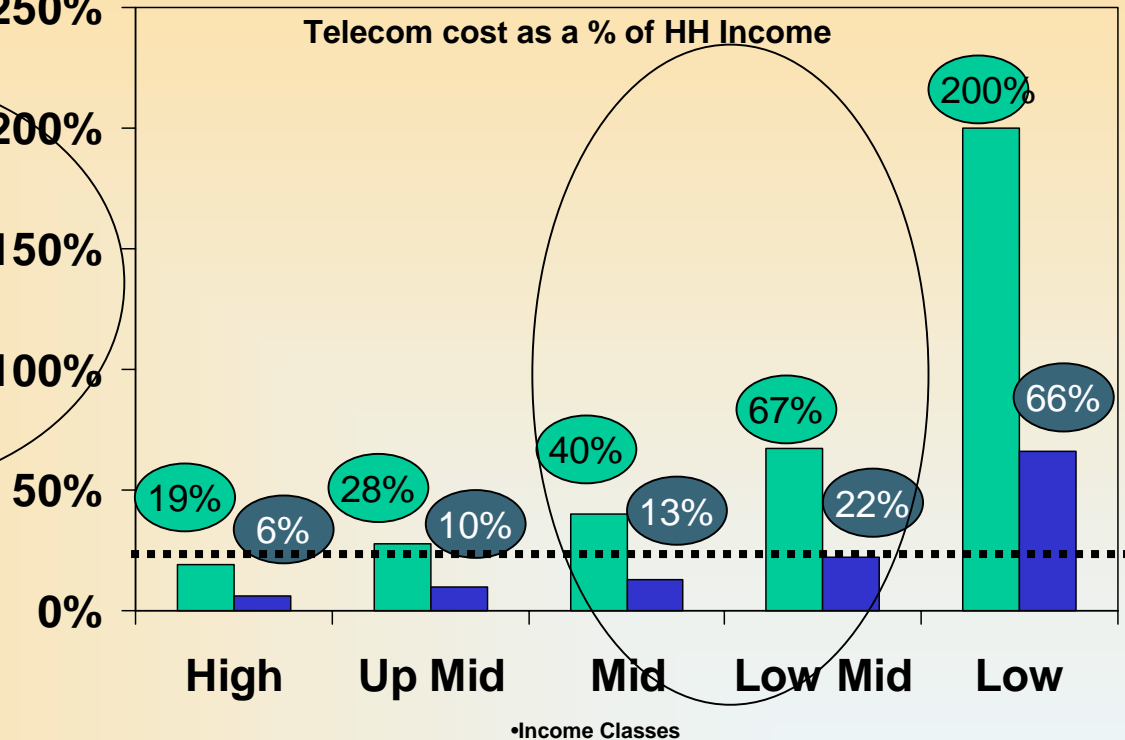
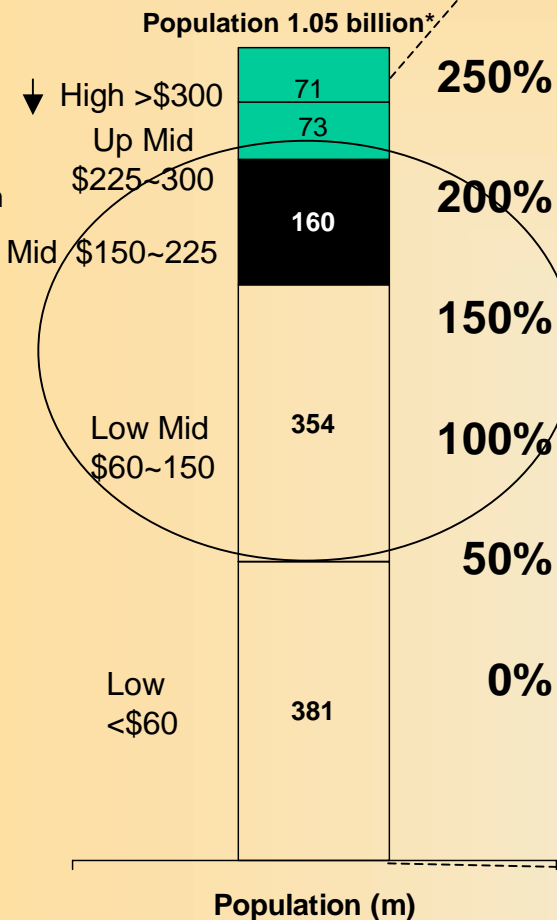


Many Developing countries have a huge Low Income population which can be served by Very Low Cost Wireless technologies

Telecommunications penetration is mostly limited to Upper income groups

High cost of telephone is the biggest barrier in penetrating the next tiers of consumers in developing countries e.g. India

- Penetration of Cell phones: 43 million
- Landlines = 50 m



XX% \$75 phone as a % of Av Household monthly Income

YY% \$25 phone as a % of Av Household monthly Income

* Source: NCAER data on population, 2000 price levels

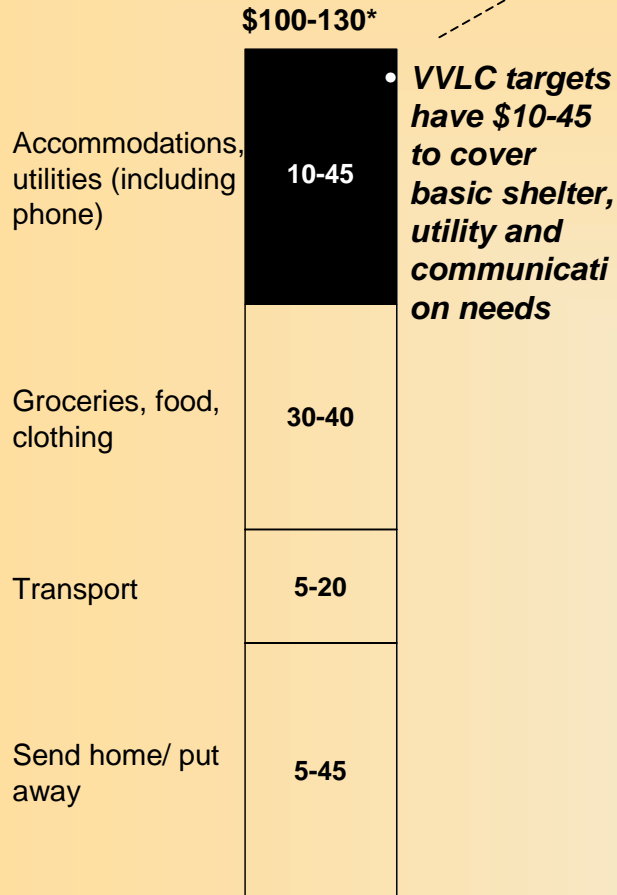
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A \$25 phone can target 500 Million Indian population

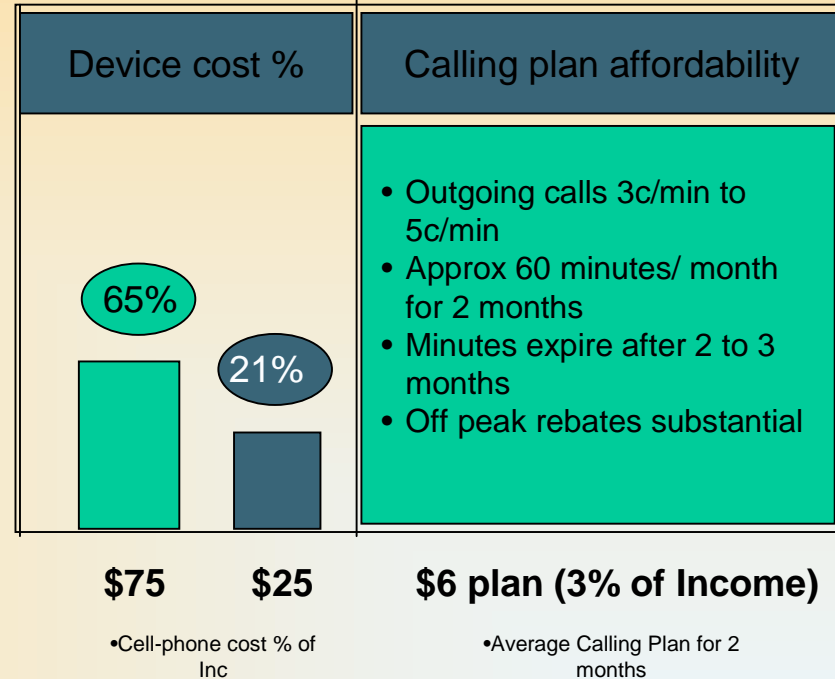
VVLC Target

Income USD/month



Device cost is more of a barrier to penetrating the next economic segment

Carriers are structuring Calling plans to attract lower segments



* Based on TNS VVLC consumer research

** Based on \$50 handset lasting 18-24 months

*** Approximate estimate based on VVLC consumer research

Source: TNS; VVLC consumer research; PCS Strategy



\$75 phone as a % of Av Household monthly Income

\$25 phone as a % of Av Household monthly Income

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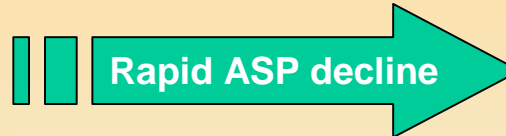
Value – for – Money

Consumers and Operators in many developing countries demand the lowest Capex/Sub

Developed Countries Needs

Handset

New gadget phones (~\$200)



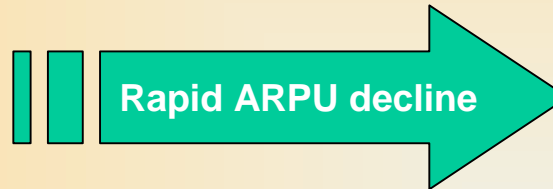
Developing Countries Expectations

\$20-\$30 Customer device capable of basic voice and SMS + internet access

3% >\$200	15% High Tier \$100-200	32% Mid Tier (\$50-100)	50% Low Tier (<\$30)
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Operators ARPU

- High ARPU

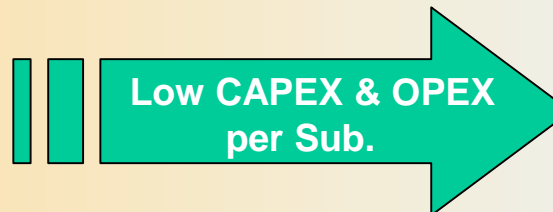


Ability to be profitable at ARPU \$5-8; minimize Capex/Opex

High end Mobile ARPU >\$20	Mobile and LMWA ARPU \$3-\$5
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Infra Vendors

- Sell “bells & whistles” to offset Price decline & slow transition to 3G



Need Low tier solutions - Limited Mobility, no need for high speed handoff & minimal roaming requirements, voice + basic data

2.75G /3G Mobile High Capex	VLC Mobile/LMWA Capex \$15-20/sub
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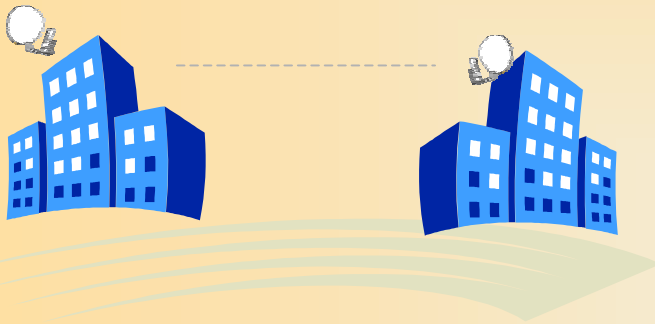
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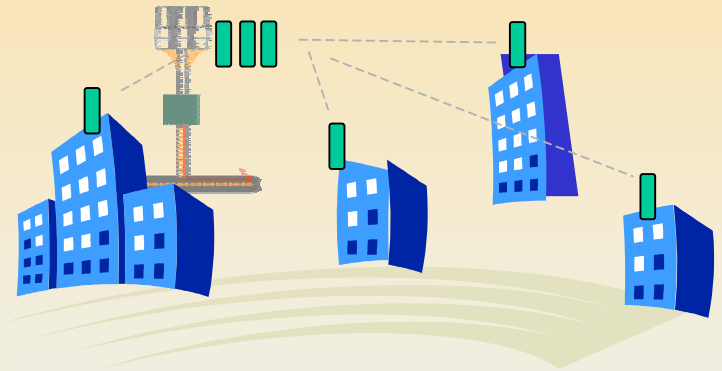
New Wireless Broadband Technologies are the best solution for expansion of Internet.

Motorola Canopy BWA can provide very high band width at very low cost in rural areas

As a Wireless Bridge



As a Wireless Network



- Low-Cost, High-speed Data Connectivity
- Installation & Maintenance is Easier than Traditional Wireless or Broadband Solutions
- Reaches Unreachable Areas

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Application Possibilities of Canopy BWA:

In a Single Network

Canopy - A Motorola Technological Breakthrough That Significantly Improves Wireless Broadband: very low terminal and infrastructure Cost – provides Deep, Continuous Metro-wide Wireless Coverage Affordable Provides 4 Mbps Download/ 2 Mbps Upload Speeds



- Business & Consumer Internet Access
- Distance Learning
- Tele-Medicine
- Tele-Commuting
- E-Government
- Agriculture
- Public Safety
- National Security
- Tourism
- Applications for Persons with Disabilities

- Enterprise Connectivity
- Voice and Data Backhaul
- E-Commerce
- Emergency Response
- IP Telephony
- Campus Connectivity
- Remote Surveillance
- Utility Control & Monitoring
- WiFi Hot-Spot Backhaul

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Making Best use of Broadband Wireless Access Examples

A Dhaka, Bangladesh Based Service Provider Brings Reliable Broadband Internet Service to an Area Notorious for Downtime

In Nanjing, China, Canopy Broadband Wireless Access Provides Needed Bandwidth & Stable Internet Service

China's Largest Producer of Crude Oil Takes Advantage of Wireless Broadband to Increase Efficiency & Solve Management Issues

A Large Citrus Grower Deployed Motorola's Canopy Wireless Broadband Solution To Monitor Every Aspect Of Its Orchards

An Asian Police Deploys Canopy to Provide Stringent Security Coverage

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Motorola -75 Years of Transforming Ideas into Reality



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