Regional Development Forum for the Asia Pacific Region
“NGN and Broadband, Opportunities and Challenges”
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NGN for Developing Countries

Juhee Kang
Junior Researcher
ITU
ITU instead of ITU-D
ITU, 24/07/2009
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ICT in Asia Pacific

- Within-region complexity in Asia Pacific
  - Most Populous, highest share of ICTs in the world
  - Mixed with 7 advanced countries, China and India, 13 LDCs, 12 SIDS, 10 Low-income countries

Fixed Broadband Subscribers in Asia Pacific, 2007

Widening regional Digital Divide!
ICT for Development

- ICTs play an important role in enabling social and economic development
  - Disseminating *information and knowledge* to anyone regardless time and distance
  - Improve *productivity* and contribute to *GDP Growth*
  - Improve *quality of life* through cost-efficient delivery of key services such as health, education, social programs etc.

- **UN Millennium Development Goal 8** states:
  "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications by 2015"

- **World Summit of Information Society** declared its goal for "Common Vision for inclusive information society"
# The Role of ICTs for MDG

<table>
<thead>
<tr>
<th>Goals</th>
<th>Role of ICTs</th>
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</thead>
</table>
| MDG 1: Eradicate extreme poverty and hunger | - Increase productivity by providing access to market information, reducing transaction costs  
- Create new source of incomes, Improve job skills |
| MDG 2: Achieve universal primary education | - Increase the quality of education  
- Supply of trained teachers via e-training  
- Provide education resources online |
| MDG 3: Promote gender equality and empower women | - Deliver education and literacy specifically to poor girls and women (Females outnumber males in e-Learning programs) |
| MDG 4, 5, 6: Health | - Provide remote diagnosis and medical supports  
- Deliver a enhanced health worker training  
- Enhance monitoring and information sharing on disease and famine |
| MDG 7: Ensure Environmental Stability | - Provide effective monitoring, management, and mitigation of environment risks via remote sensing technologies  
- Telework and video conferencing reduce pollution from travelling |

Global Information Society

2015
World Summit of Information Society

“Towards an inclusive information Society”

**WSIS Geneva in 2003**

- To connect villages with ICT and establish community access points
- To connect University, schools, research centers, public libraries, cultural centers, health centers and hospitals
- To connect all local governments and establish websites
- To adapt all schools curricula to meet the challenges of information society
- To ensure complete access to TV/Radio
- To encourage the development of content in all languages
- To ensure more than half of the world’s inhabitants have access to ICTs within their reach by 2015

**WSIS Tunis in 2005**

- Connecting all communities by 2015
- Reaffirmation of 2003 Declaration and action plans
- To build ICT networks and develop application that are; affordable, accessible to all, available anywhere, anytime, to anyone and any device
NGN Benefits for Developing countries

- **Cost-effective system**
  - Optimal network elements
  - Common network for many services
  - Lower operational and maintenance cost
  - Promoting innovation in service creation

- **Leap-frog with the latest technologies**
  - Fewer legacy networks
  - Lessons from countries which deployed NGN
  - Choose from various options
NGN Activities in Developing Countries

Malaysia

- Target to achieve 50% broadband penetration by 2010

Zone 1
High Speed Broadband (10 Mbps - 1 Gbps) for Selected high impact areas

Zone 2
Broadband for General Population (BBGP) (up to 2 Mbps) via ADSL, WiMAX, WiFi, HSDPA

Zone 3
Universal Service Funds for rural areas

- Government and Telekom Malaysia agreed to deploy Phase 1 of High Speed Broadband Network in Zone 1 in Sep 2008
- Government co-invest RM2.4 billion in RM11.3 billion project over 10 years covering 1.3 million premises
NGN Activities in Developing Countries

Bangladesh

- Target to achieve
  - 30% broadband penetration, 80% teledensity by 2015
  - 40% broadband penetration, 90% teledensity by 2018
- NGN as the main technology option
- Softswitch deployed by three international and two domestic gateway operators
- Government-owned operators, BTCL (PSTN) and TeleTalk (mobile), plan to install more NGN-based gateways, Toll Switches, and access switches
- Migration towards NGN as planned
NGN Challenges for Developing Countries

For Industry
- High CAPEX for building infrastructure
- Decreasing PSTN revenue and uncertain new revenue streams
- Large under-developed rural and remote areas with sparse population

For Users
- Currently demand for Broadband Services is low or latent *because*...
  - Low PC Penetration
  - High Prices for end-users
  - Lack of local contents
User barriers to access NGN

Households with Computers in Asia Pacific, 2002 and 2007

- Many people still don’t have PC to use broadband!

Fixed Broadband prices as a percentage of monthly GNI per capita, 2008

- Broadband is too expensive for many users in developing countries!

<Source: ITU Information Society Statistics Profiles 2009, Asia Pacific>
Possible Solutions

- Active expansion of international and domestic backbone network
- Encouraging competition and innovation
- Universal service funding to promote broadband access
- Private-Public partnership to encourage ICT access in rural and remote areas
- Infrastructure sharing to reduce deployment costs
- Strategic use of technologies:
  - FTTH for urban, wireless broadband for rural areas
  - Multimedia services (IPTV) for new revenue opportunity

However, the problem still remains in low demand for NGN services among low-income and rural users

→ Need to create demand!
Shifting Paradigms 1

- User demands drives NGN services designs

Technology innovation will be appreciated and naturally diffused... ➔ Services are designed to meet user needs for the initial stage!

- Users increasingly in demand for faster speed broadband, rich multimedia contents, extensive mobility, converged and ubiquitous access that increases convenience

⇒ NGN is the answer to meet those needs
Demand exists among the poor and the new market can be created if services can meet the demand
- Bottom of Pyramid (C.K Prahalad, 2004; Stuart Hart, 2005)
- Mutual benefits for both 5 billion BoP users and industry

What BoP users want?

- **Affordability**
- **Accessibility**
- **Relative Usefulness**
- **Innovation**
Creating New Demand: Case 1) Mobile Voice Service

- **Mobile communications**
  - Pervasive diffusion even among low-income and rural people

- **Success Factors**
  - Cost-Effective networks
  - Affordable devices
  - Flexible pricing (i.e. pre-paid, cost tracking)
  - Latent demand for telephony

- **Implication for NGN services**
  - Affordable device is crucial
  - Give users a choice in prices
Creating New Demand: Case 2) Mobile Banking

- Mobile Banking
  - Person-to-Person money transfer or SMS-based mobile banking is increasingly popular in some developing countries (Kenya’s M-PESA, Philippines’s G-Cash/Smart, South Africa’s Wizzit)

  - Deposit cash at local agencies (i.e. kiosk)
  - Send SMS to payee
  - Payee receives SMS
  - Show it to the agency and cash it out

- 6 million M-PESA users in 2 years
- Expected growth of ‘Banking the unbanked’ movement
- New revenue for mobile operators
- Using mobile other than talking: basis for further data services

Growth of M-PESA Customers, GSMA 2009

Yogyakarta, Indonesia, 27-29 July 2009
Creating New Demand: Case 2) Mobile Banking

Success Factors

- Mobile phone is an accessible and familiar platform
- Latent demand (Lack of banking service)
- Cheaper and easier than alternatives
- Service is relevant to their everyday life activities

Implication for NGN services

- Customized services can fill the gap of non-ICT infrastructure and create new demand among the poor
- Catalyst for further demand for advanced NGN services

<table>
<thead>
<tr>
<th>Source: World Bank 2008 ITU, 2009</th>
<th>Bank Branch per 100,000 People</th>
<th>ATM Per 100,000 People</th>
<th>Mobile subscription per 100 inhabitant (ITU, 07)</th>
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<tr>
<td>Bangladesh</td>
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<td>Philippines</td>
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<td>5.31</td>
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</tr>
</tbody>
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Yogyakarta, Indonesia, 27-29 July 2009
Creating New Demand: Case 3) Affordable Hardware

- **Internet Cafes and Telecenters**
  - Internet cafes are increasing in urban areas while telecenters have been established in rural areas.
  - Provide end-user sharing of hardware and affordable access to internet/broadband services.
  - Experiences can trigger home adoption.

- **Affordable Devices**
  - Low-Cost PC (i.e. OLPC, Intel, Simputer, IQ PC)
  - Low-Cost Smartphone (i.e. Sirius, VillagePDA, FonePlus)
  - Shared OS (i.e. HP 441, Microsoft’s Shared PC project), Low-power, solar-powered PC

- **Implication for NGN services**
  - Provision of affordable hardware prerequisite to universal NGN and it requires innovation!
Creating New Demand: Case 4) Local Contents

- Contents and services relevant to everyday life
  - Local language contents and local-specific services are essential to drive the demand for broadband

- Specifically designed ICT for Development programs can provide the initial experiences with ICTs
  - ITU e-health activities: connecting 13 remote village clinics with hospital in Nepal
  - e-agriculture: delivering price information, farmer training

- Implication for NGN services
  - Developmental programs can create requisite impetus for NGN adoption among digitally disadvantaged group
Summary

The migration to NGN needs to consider:

1) Provide inclusive services to all citizens
2) Trigger user demands for NGN services in developing countries
3) Provide affordable end-user devices (i.e. affordable PCs, shared access, use of mobile phones)
4) Develop services and applications meaningful and relevant to users, particularly digitally disadvantaged groups
THANK YOU!

Juhee Kang
ITU, Asia Pacific Office
Michigan State University
Department of Telecommunications, Information Studies, and Media
kangjuhe@msu.edu
Jkang2020@gmail.com