BWA Development and Deployment: the experience of SEE Countries (Case of Serbia)

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OUTLINES

- NGA DEPLOYMENT CHALLANGES
- DIFFERENCES BETWEEN DEVELOPED AND DEVELOPING COUNTRIES TOWARDS NGA DEPLOYMENT
- MODELS FOR NGA DEVELOPMENT
- ANALYTICAL FRAMEWORK FOR PPP
- EXAMPLE
- CONCLUSIONS

NGA DEPLOYMENT CHALLANGES

- NGN/NGA: The dominant trend in global e-communications sector
- Although technological requirements are known, NGA networks are looking for a new generation of users, sources for revenue and regulation.
- E-communication sector in developing countries meets new challenges in managing NGA deployment
- The way is very often based on developed counties experiences.
- However the differences between developed and developing countries in technological needs, market profitability and legislative framework are remarkable
- These differences can lead to the infrastructural digital divide instead of the digital inclusion.
- The mapping of those experiences is not always possible but can leads.

NGN RELATED CHARACTERISTICS IN DEVELOPED AND DEVELOPING COUNTRIES

Characteristics	Developed Countries	Developing countries
1. Country's policy and strategy for broadband	implemented with government support and funds	It is forseen in related strategic document but no funds for implementation
2. Fixed broadband penetration	above 28%*	5-10%*
3. Mobile broadband	above 20%*	below 10%*
4. Monthly cost of fixed BB in PPP$	28 PPP$*	289 PPP$*
5. Broadband (BB) access -NGA	Driven by new NGN services – like IPTV and multimedia communications	lack of BB access – lack of demands for new NGN services
6. BB access in rural areas	70+%, target 100%	<30%, target ? ?
7. Economy	ICT based	not ICT based
8. Drivers for NGN development	Competition and Operators Profit	*Not clear (Policy makers, Regulator, Operators, or Customers)*
9. Services	Quadro play, Triple play	Internet
10. New revenue stream/ ROI	Yes/ quickly	No/ slowly
11. Expected ARPU per NGN services	above 30 $ for triple play	below 10 $
12. Expected average bandwidth	8 – 20 Mb	<= 4 Mb
13. Technologies for today	Optics, 3G, transition to HSPD and LTE	Same but slow development, remain expensive
14. Spectrum for BWA	digital dividend, spectrum refarming	Usually limited or restricted
15. Approach to NGN	Evolutionary	no money for evolution, existing networks not ready for revolutionary approach
16. Customer behavior	size of innovators are bigger, time interval of early majority and late majority is longer	size of innovators are smaller, early adopters is larger, time interval of early majority and late majority is shorter than in DC
17. Time frame for NGA	2010 – 2020	2012 – 20x0

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DEVELOPED COUNTRIES EXPERIENCE

× TIPICAL MODELS APPLIED

+ a) *New Business Models*- Multilayer models (R. Friedrich, at al., "Digital Highways - The Role of Government in 21st Century infrastructure" Booz & Company, Sept. 2009)

+ b) Models of state participations

MULTILAYER MODELS

× Typically consisting of up to three different entities/layers:
  + Passive Equipment (PassiveEq),
  + Active Equipment (ActiveEq) and
  + *Service.*

× PassiveEq operations are the most capital-intensive, 12-15 years of ROI, face the least competition, allowing for low-risk, utility-like returns.

× ActiveEq entity, 5-7 years ROI, operates in middle competitive industry;

× *Service* entity, with 1-3 years ROI, operates in highly competitive industries, with higher returns but also higher risks.

× These new multilayer business models are increasingly being implemented globally in DC

MULTILAYER MODELS AND DEVELOPING COUNTRIES

× devCs, typically have vertically integrated sector, with operators owning and operating all elements of the network while also serving end-users.

× Functional separation in devCs requires serious regulatory steps and could be time consuming

MODELS OF STATE PARTICIPATION

× *Government with stimulate policies* (Sweden, Norway)

× *Government as drivers in deploying NGN* facilitating new business models (Japan, South Korea)
  + Nations that have adopted "driver" policies regarding their NGNBNs have much higher penetration rates

× Government as investor (USA, Australia)

× *Hybrid model* (investing in infrastructure, facilitating new business models, and stimulating demand)

MODELS OF STATE PARTICIPATION IN DEVELOPING COUNTRIES

- × They will fit in devC structure, but...
  - + Lack of government budget
  - + Lack of investors
  - + Slow regulatory adaptation for new market trends
  - + NGA regulatory regimes are still being defined
- × The Government role in deploying NGA is crucial in proposing the right approach because next-generation broadband access is a form of long-term national economic investment
- × Public Private Partnership-PPP
  - + PPP arrangement needs to be carefully drawn up to ensure distribution of risk and returns between the government and the private partners.

PROPOSED MODEL INCLUDING PPP

THE ANALYTIC FRAMEWORK FOR PPP MODEL FOR NGA (FIXED BA & WBA) IN DEVC
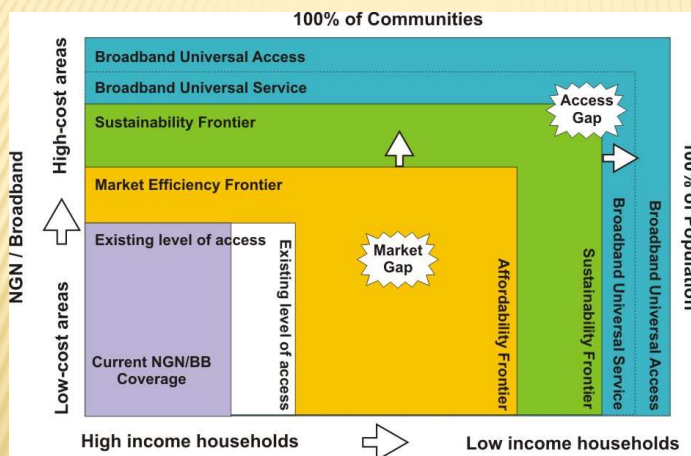
Source: www.ntiaa.doc.gov.com/broadbandgrants/exparte/BroadbandModelOverviewDNTA2 accessed Nov. 2009.

THE ANALYTICAL FRAMEWORK

× To transform the proposed framework into a model for the particular devC, it is necessary:
  + To determine the existing level of access,
  + To determine frontiers of market efficiency, and
  + Financial feasibility in terms of customer (household) income and sustainability as well as the cost to potential investors

STRUCTURAL FRAMEWORK COMPONENTS

× Structural components of the model require to determine the following:
  + Detailed input data related to market-specific features;
  + Algorithms that represent the process of building the infrastructure, based on geography, population, and penetration;
  + Assumptions about the cost; income; and
  + Calculation of the net profit

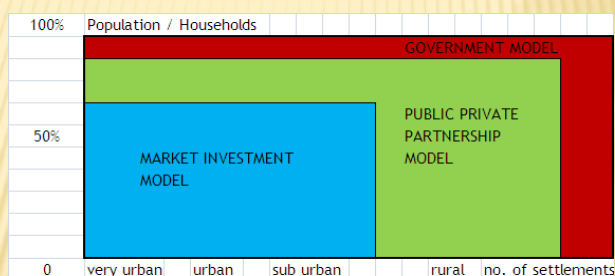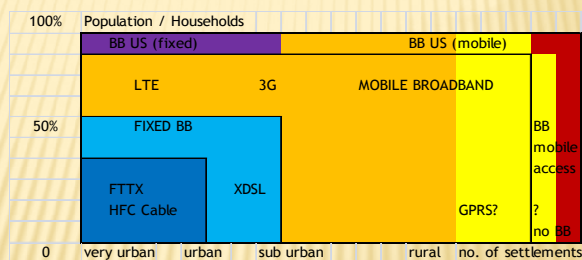
Model decomposition: Population vs. income/ARPU
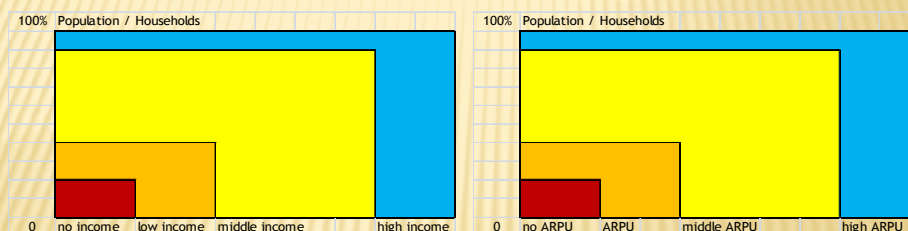
Model decomposition: Population vs Settlements
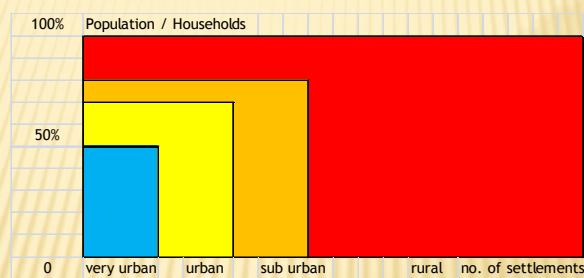
Model decomposition: Investment options

Model decomposition: NGN Access per technologies

RECOMMENDATION

+ Develop the project to define frontiers and data

+ Pilot project to test this framework

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APPLICATION OF ANALYTICAL FRAMEWORK IN SERBIA -EXAMPLE

- Research into the Serbian territory covered by ADSL and 3G services indicated that market oriented methods lead to good coverage in urban areas and poor coverage in rural areas.
- The frontier for the existing level of acceptance is set to 600 € and the affordability frontier at 300 €. (The average monthly income of households in Serbia in 2009 amounted to around 500 €; for illustration, the average net salary in Serbia in February 2010 amounted to 322€).

CONCLUSIONS

- There are substantial differences between developed and developing countries in deploying BB (Wired and/or Wireless)
- The tendency for partial NGA deployment will to increase the existing digital divide and indicates the need for devCs' governments to proactively plan out their PPP for coverage in rural areas
- Costs and financial feasibility are vital and cannot be ignored.
- An analytical framework for NGA development in devCs is proposed as a guideline for national project or policy.
- Before using the framework, the frontiers between the effective market, self-sustainable areas, and non-sustainable areas should be determined
- The PPP is probably the only way to solve the financial problem in DevC in deploying NGA

THANK YOU FOR YOUR ATTENTION !

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