Feed back from the questionnaires : a few striking points

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Preliminary point

- ➔ Not a poll, nor a quantitative survey
- ➔ 6 questionnaires back :
  - Inovtel
  - Nokia Siemens Network
  - TNO
  - Isocel
  - Huawei
  - WWRF (130 members organisations)
  - Orange Uganda

Their favourite technologies for the next 3 years… no clear choice !

- WiFi
- WiMax 802.16d/16e / WiMax Fixed Wireless Access / WiMax
- WiFi Fixed Wireless Access
- 2.5G EDGE
- UMTS/HSPA fixed Wireless Access / HSPA / UMTS
- 1x EV-DO
- 3G HSDPA
- 2G/IP backhaul (especially for rural areas)
- WCDM/HSPA (384 kb to theoretical 1mb) => HSPA (1mb to theoretical 3mb)
- GPRS edge (40kb to theoretical 128 kb)
- Low Cost 5Ghs PMP BWA
- MPLS and VPLS

Convergent and divergent answers regarding the technological choice (1/3)

- One main point of discussion :
  - Should we focus only on mobile connections or is fixed access still to be promoted ?
  - After the “all mobile” period, the question of fixed broadband access is making a coming back

- One point of convergence :
  - No main difference between the short term (3 years) perspective and the mid term one (5 years).
  - LTE, LTE advanced, IEEE802.16, WCDMA are mentioned when talking about mid and long term.
  - They all have e wide footprint and support several frequency bands, which provides flexible access and global roaming
  - Both WiMax and UMTS/HSPA will evolve to all IP networks, offering higher data rates and capacity at lower cost, difference between the 2 will become smaller.
  - Expectation about what might come up in the next call for IMT advanced access technologies in 2010.

Convergent and divergent answers regarding the technological choice (2/3)

- ➔ Pending questions :
  - Satellite :
    - will satellite and its recent evolutions (Ka band usage) allow it to be competitive with other solutions, in terms of pricing and QoS ?
    - Some consider that satellite remains the only option to connect remote sites in rural areas.
  - Backhauling :
    - There is a discussion between microwave and optical fiber, some arguing that only optical fiber will provide the capacity required to bridge the digital divide. A mixture of solution is promoted, according to the type of broadband connexion downstream and to the distance between users, population density etc.
  - Mesh networks :
    - mentioned by a few questionnaires, but with not clear vision of its value and imbrications with other technologies => is it a marginal solution ?

- ➔ One main issue missing : infrastructure sharing (contrast with India approach)

Convergent and divergent answers regarding the technological choice (3/3)

- The need for a geo segmentation : some questionnaires provide different answers for urban areas, medium size towns and rural areas.

- The cost of technological choice includes :
  - Cost of site construction
  - Cost of site electrification
  - Cost of backhauling

- From the operator viewpoint, capacity to upgrade from 2G to 3G network at a reasonable investment cost also has to be taken into account.
- Cost reduction also has to take into account an inclusive approach of accessibility: price and availability of handsets (handsets with data application capabilities should be the first choice), adaptation to internet kiosk needs (IP connection…)
- The importance of power issues
  - Most questionnaires underline the importance of getting rid of diesel generator solutions.
  - Not only for cost reduction, but also get rid of power fluctuations => Power grid solutions are not reliable
  - Combination of solar (PV arrays) and wind energies is promoted.
  - Power saving technologies on the overall network level are important
  - Necessity to include a power controller into the management system.
  - Necessity to elaborate together with banks, banks funding solutions which offer CSPs power as a service (monthly fixed fee for power at the site) => reduction of capex.

Having a two fold approach in terms of marketing offers and reach affordability

- ➔ Market segmentation :
  - Address the high income population, which have needs and financial capacities similar to western countries ones
  - Have a specific approach to address middle or low income populations, in order to reach affordability. Some (Nokia) focus on people with an income of USD 2 to 3 per day.
  - Specificity of the consumption and spending behaviours in this segment : I spend what I have in my pocket and I need to perceive immediate value of services => incremental offers with very small prepaid amounts.
- ➔ Affordability also means to adapt offers to the specificity of the environment taking into account
  - The necessity of proximity to access internet
  - The need for help of peers, not only for illiterate people.
  - The importance of shared access, which will dominate as long as affordability of devices and services will not reach a sustainable business case for consumers, not only through internet cafés but also including on 2.5 and 3G access.
  - The importance of “word of mouth” as the most influencing factor in consumers adoption of new products, therefore quality being of most importance

A proper public regulation (1/2)

- ➔ All questionnaires which have tackle the question of public institutions responsibility insist on the fact that the role or regulators should be strengthen and that market forces can not solve all problems in all areas, state intervention might even be needed to deploy basic infrastructure => a major change
- ➔ Spectrum is discussed in most questionnaires. But the issue of unlicensed spectrum remains unclear :
  - WiFi solutions are costless thanks among other things to the absence of license
  - In countries where spectrum remains unlicensed, should it remain open to help services blossom or should it be licensed, in order to guarantee a quality of service ? Some call for an urgent allocation, but also for the deployment of the necessary control tools which go along. Some argue that WiMax in License exempt will gain importance in the long term for residential broadband.
  - Actors seem to want the license without the fees… !
  - Other defend a reduces of new frequency licensing but linked to an obligation of coverage for the operators => cross subsidies between rich and poor areas.
  - Also a call for technology-neutral licenses (let the market decide)
  - In any case, a call for a transparent process of allocation of frequency

Regulation (2/2)

- Necessity to
  - get rid of monopolies,
  - of VoIP prohibition,
  - have an open and competitive market,
  - get national service provider license,
  - open access to international gateways
  - Lower the charges to access the national backbone
  - Drive down the cost of international traffic
  - Have a transparent policy towards content creation and usage in order to enable the establishment of a content ecosystem in merging markets.
  - Have policy to ensure universal data communication services, with a focus son SMS based services and low data services, particularly public ones.
  - A more efficient use of universal service funds when available
  - Have pro active policy to face the lack of well trained service personnel
  - An adequate taxation policy (to be defined)

A major common conclusion

- Technology is not so much the issue *per se*, and most actors use a various range of technologies
- No “magical solution” to reduce the technological cost : existing technologies already have low cost (WWRF), and all new technologies require heavy investments, which are not compatible at least in the short term with low income populations
- The consumer is totally indifferent to the access technology chosen but sensitive to quality.
- Therefore the key levers to lower the cost of access to broadband are :
  - A regulation of cost all along the value chain, from technology to contents, in order to create an ecosystem
  - Affordability and segmentation of offers
  - A proper and inclusive regulation