ENABLING ICT DEVELOPEMNT IN AFRICA: CONFORMANCE AND INTEROPERABILITY INFRASTRUCTURE

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Preamble

For a number of reasons, historical or otherwise, some of the ICT systems deployed in emerging markets have either been obsolete in the country of origin or just facing imminent obsolescence with some production lines having been closed. Besides the burden of e-waste thus created, the existence of such systems with their attendant limited compatibility with state of the art systems and with accepted practices curtail the extent to which the affected countries can access global ICT wealth.

This paper reiterates the urgent need to implement NGN test centres in Africa.

1.0 INTRODUCTION

1.1 Observations

- Link between ICT diffusion and development is extensively well documented
- Affordability of ICT services is imperative in emerging markets if meaningful contribution of ICT to human development is to be realised
- Human capacity is equally critical
- Ease of use of ICTs for end users is necessary even if the ICTs are affordable
- Responsive policy and regulatory framework is crucial for the diffusion of ICTs; e.g. policies that attract investment in the sector

1.2 Background

- The quest for conformity and interoperability has been and is still a key issue
- ITU has taken a lead in this area as is evidenced in the following Actions in Africa as follows:
    - Regional development forum (Kigali, 2007) with the theme: Bridging the Standardization Gap in Developing Countries. The forum reiterated the importance of standardization and proposed some of the steps to be taken to bridge the standardization gap between African and the rest of the world e.g. by active participation in the standardization (ITU-T) activities (see also http://www.itu.int/ITU-D/connect/africa/2007/summit/pdf/s4-BridgingICTchairpersonsreport.pdf)

- Regional development forum (Accra, 2008) on the same theme and as part of the input to WTSA 2008
- Regional development forum (Lusaka, 2009) which bought out the urgent need to have an NGN conformance and interoperability test bed in Africa to address the perennial problem of dumping of obsolete technology

1.3 NGN Conformity and Interoperability Challenge

- Lack of technical and operational compatibility among ICT systems negatively impacts the development of ICT in Africa and curtails its contribution to human development in the continent
- No NGN Test infrastructure
- Inadequate human capacity for the test centres

1.4 Need for Conformance with Standards

- ITU Standards exist and others are continuously being developed in collaboration with industry players

- vendors/technology providers may be complying with the standards. However, there is need for a means of confirming this compliance in real multivendor network implementation – hence the need for a test centres particularly in the realm of NGN.

- Benefits of NGN can partly be realised if the systems under the NGN robustly exhibit the following attributes among others:
  - Affordability of capital equipment: most cost efficient technology in terms of total cost of ownership, TCO (CAPEX and OPEX efficiency)
  - Seamless interoperability between them to afford the consumers the freedom of choice on service offerings and service provider

2.0 MULTI-STAKEHODER APPROACH TO NGN CONFORMANCE

Various stakeholders in ICT have important roles in the realization of NGN conformance and interoperability

- *Policy Makers*
  - Forward looking policies that are flexible and adaptive to the dynamic ICT sector

  - Monitoring and evaluation framework for the implementation of the ICT policies

Regulator

— *Enforcement of compliance with NGN Standards*
  - Some of the areas in which the regulator can ensure conformance are:
  - Type approval of equipment and systems based on efficient technology in terms of utilization of scarce resources such as frequency spectrum
  - Enforcement of compliance with standard equipment in ICT networks
  - Ensuring demonstrated interoperability
  - Promotion of standards compliant access to ICT

— *Consumer protection*
  - Quality of service
  - Promotion of safe use of ICT services and equipment
  - Cyber security activities
  - Pricing of ICT services and intervening in case of market failure
  - Educating the public on the rights regarding ICT

Role of Consumers

- The consumers are the essence of any service and ICT is not an exception; in this regard, consumers should not settle for anything less than:
  - Quality services
  - Security while using ICT services
  - Fair pricing
  - The consumers should demand and require these from their service providers and seek redress from the regulator in case these minimum requirements are not met by their service providers.

Role of technology providers/Vendors

- multi-operator environment, which characterizes most(if not all) the service providers and network operators in emerging markets
- need to deepen collaboration while at the same time competing on other fronts such as speed of delivery of solutions and after sales support.
- Operators and services providers in Africa continue to use a lot of resources to ensure that systems from different vendors interoperate (such additional costs are usually passed on to the end user of the services).

3.0 DISCERNING THE LINKAGE BETWEEN CONFORMANCE AND ICT DEVELOPMENT

- perennial problems that have been experienced and continue to be experienced due to lack of standardization leads to ….
- lack of seamless interoperability of ICT systems in African telecommunication networks, we need…
- test centres to ensure conformity to standards which leads to interoperability of the systems in African networks with ultimate aim of reducing or eliminating the need and cost of mediation devices and interworking equipment and functions; ultimately...
- This would in turn impact the costs of equipment leading to more affordability.

3.1 Some of the Network Problems in Emerging Markets

- Multi-vendor networks with the need to deploy interworking equipment
- Obsolete ICT systems due to various reasons
- Need to continue building human capacity to maintain different/disparate ICT systems
- Non uniform O&M platforms

- Investment in interworking functions to achieve some level of services across different network elements which can be avoided if appropriate test beds existed.
  - Interworking functions and mediation devices push CAPEX up and bring with them increased operational costs; this in turn leads to high prices which impacts affordability and thus access to the ICTs by most of the population in emerging markets hence the need for standardization. (see also http://www.itu.int/ITU-D/connect/africa/2007/summit/pdf/s4-BridgingICTchairpersonsreport.pdf)

3.2 Benefits of NGN conformance and interoperability

- conformance to standards to be achieved through NGN test centres and interoperability among ICT systems will contribute to the development of ICTs in Africa in the following ways:
  - Reduction of dumping of obsolete systems in the African market
  - Significant reduction in operating costs of ICT networks because the operations and maintenance platform will have acceptable levels of uniformity arising from higher levels of standardization hence a reduction of OPEX associated with operating incompatible systems in the network.

4.0 CONCLUDING REMARKS

Given the accelerated pace of adoption of open standards for NGN, it is reasonable to suggest that seamless NGN network and service platforms hold the future of ICT diffusion in Africa and in other markets globally since ICT plays an important role in all facets of human development endeavor such as in education, health, government, environment etc. Specifically,

– Pitfalls associated with legacy ICT systems such as lack of interoperability needs to be avoided from the beginning by ensuring NGN conformance tests

– Claims of conformance to standards without verification (through tests) will be addressed because the experience in Africa is that vendors may claim that systems conform to ITU standards but the actual realizations may vary from vendor to vendor. In this case, the test centre can flag out possible shortcomings which can then be addressed prior to delivery of the systems

• By having the test centres in the Africa region, human capacity will be developed to enable the operation and deployment of NGN networks and associated services

• NGN test beds will partly address the problem of e-waste where unnecessary equipment will not result from the dumping of obsolete electronic technology equipment

• Consumers will be protected from potentially high prices arising from inefficiencies in ICT systems resulting from costs which should not have been incurred by the service provider in the first place thanks to conformance

- **Supporting Infrastructure-**In order to realise the NGN test beds there is need for institutional infrastructure to operationalise the NGN conformity and interoperability programme. Besides this, investment funding for the NGN test centres needs to be worked out in order to realise the test infrastructure.
- human capacity building is equally crucial to ensure that there are qualified people in the region to operate the NGN test centre

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