

IMT 2000 WORKSHOP TUNISIA
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Topic: Challenges hindering the
transition from 2G to 3G in Africa

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Background

- Africa's unique features:
 - Rapidly growing populations
 - youthful users,
 - large distances to be covered with communication lines
 - legal and illegal operators,
 - radio interference between different operators,
 - lack of access,
 - poor quality of services from telcos,
 - long waiting lists for connection among others.
 - very low bandwidths on the trunk and access networks,
 - poor copper infrastructure,
 - mobile is the predominant technology.

Transition possibilities

- Mobile operators in Africa are predominantly using GSM technology.
- There are two options to migrate to the 3G either:
 - GSM evolved Core Network in accordance ITU R 1741
 - ANSI evolved Core Network in accordance ITU-T Rec. 1742.2
- **Possible Transition Paths:**
 - GSM to GPRS to CDMA direct spread
 - GSM to EDGE to CDMA Direct spread
 - GSM to GERAN/UTRAN
 - GSM to IMT 2000 CDMA TDD
- **Requires upgrades**
 - BSC: Software upgrade to BSC+ to support TD-SCDMA
 - Connection of TD-SCDMA BTS to the upgraded GSM BSC
 - Abis upgrade to Abis+

1st Challenge

- There is lack of goodwill from several African governments towards the development of the ICT sector.
 - Telecommunications operations are still in the hands of the governments that are not willing to spend money on modernization of telecommunication infrastructure.
 - The priorities of the government may be in the health, education and military sectors and not ICT.
 - Some countries in Africa still do not even national ICT Policy to guide potential investors where to invest and how.

2nd challenge

- The regulatory authorities are part of the government and they cannot make independent decisions.
 - Politicians still interfere with the decisions of the regulators especially in matters appertaining to licensing and usage of the limited frequencies available for communication.

3rd challenge

- **Frequency hoarding is still a rampant practice in Africa**
 - the incumbent telcos and the government departments were allocated candidate IMT and UMTS frequencies in the **400 MHz, 600 MHz, and 800 MHz and 2GHz bands**. The mobile operators will not be able to migrate to these frequencies unless the current users surrender them.
 - frequency allocations have been haphazardly done resulting in **multiple ownership and frequency interference** between different operators.
 - **Some of the operators are unlicensed and such operators use above threshold EIRP** in order to reach their customers. This is common with TV broadcasting stations in the 400 and 800 MHz bands.

4th challenge

- **High CAPEX cost**
 - due to the huge investments that are foreseen in the hardware, software upgrade, Interfaces, transmission systems, databases, Radio Base systems, Terminals, security software, operating software. Consequently the cost of upgrade of Pr-IMT to IMT 2000 and UMTS systems has a high COST implication. Will operators in Africa be able to afford this high CAPEX cost. What will be the ARPU for the network and will the transition be economically justified.
- **Different licenses are issued for different applications**
 - such as voice, data communication, ISP, Television. In the converged world there is only one Core network that requires only one license.

5th challeng

- In order to upgrade Pre-IMT 2000 radio systems to IMT 2000 the following will be required
 - new frequency bands in either 400, 600, 800 MHz
 - New air interfaces
 - new integrated core and access network based on 3G standards
 - Inter-working interfaces
 - Software upgrade

6th challeng

- **All these changes will mean COSTS to the operator**
 - **There is low traffic in rural areas of Africa** and this does not look lucrative market for mobile operators. they may not be willing to upgrade the systems in those areas because the demand for multimedia services is minimal and the Average Return Per User (ARPU) may not be high enough to justify the transition
 - Operators and carriers in Africa still charge **relatively high tariffs** for services compared to Asia and Latin America. This prevents the citizens from communicating thus the ARPU is low.
 - Traffic from neighboring African countries in most cases is still being routed through two European countries. This is the case between Anglophone and Francophone countries where traffic goes via Paris and London before terminating to the neighboring. **a lot of money is being lost by African Countries in terms of interconnection fees**, money that could be used to buy medicines and provide water to African Citizens.

7th challeng

- **Lack of skilled technicians is another challenge for African countries .**
 - Africa does not have enough technical people who can operate and maintain modern communication networks.
 - **many proprietary systems across the continent.**
 - Integrating these systems to 3G systems will bring a problem since **the interfaces and software may not be able to work with each other**

Possible Solutions-1

- regulatory authorities in Africa should **free the spectrum in the 400, 600 and 800 MHz** for use by mobile operators who want to implement IMT 2000 systems such as WCDMA, CDMA 2000
- **Governments in Africa should consider ICT as a tool for development..**
 - The GDP of several countries depends on the degree of development of ICT infrastructure. Nobody will invest in a country with a poor ICT infrastructure and one where there is no clear cut ICT policy
- **The regulators should be independent**
 - to make decisions without being influenced by politicians with vested interests in the incumbent and operators.
- **The governments in Africa should divest from telecom companies**
 - in order to enable a level playing ground for operators and service providers

Possible solutions-2

- **New models for licensing**
 - are mandatory in a converged network where an operator can use one core network to provide to its customers voice, vide, Television, Internet, multimedia, Messaging and many other applications.
- **The license fee to be paid by the operators should be as low as possible**
 - considering the fact a lot of money has to be invested in the core network infrastructure for 3G network as well as Radio Access Network facilities.
- **Regional networks connecting African countries**
 - using optical fiber technology can tremendously improve connectivity within Africa.
 - this will ensure that the traffic originating in Africa destined for Africa is contained within the continent. Initiatives like SAT-#, WASC, Africa One and EASY submarine optical systems are encouraging since usage of satellite is more expensive due to high space segment fees.
- African countries should establish **Regional Internet Exchange Points** for internal routing of Internet traffic across the continent

Thank you for attention

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A New Model for Africa

- Disagree with beauty contest model
- Proposed Frequency Licensing model
 - Lodge application with regulator
 - Pay flat rate license fee
 - One license issued for:
 - Voice, data, ISP, TV, Messaging
 - Pay annual fee per megabyte
 - Pay to regulator a percentage of net revenue