QoS/QoE Strategies Monitoring in Senegal

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• QoS/QoE Strategies and Vision 2017/2020
• QoS/QoE legal framework
• QoS/QoE planned campaigns
• QoS/QoE management during major events
• QoS/QoE complaints management
• QoS/QoE data resulting from operators management
• Incidents which impact on the QoS/QoE management
• HR management
• The fallouts of the various QoS strategies applied
Introduction

- Network Performance and QoS/QoE improvement are key pillars of Senegalese government in the telecommunication sector;

- This vision is developed since many years ago but it is really boosted by the current General manager. Senegal is having a prominent position in this area in West Africa;

- ARTP is rolling out and supporting well established strategies and regulation rules to improve network performance and QoS/QoE.
• **Social**
  Consumers protection against poor QoS delivered by operators;
  Managing efficiently conflicting relations between consumers and operators.

• **Politics**
  Pursuing the PUMA project imposes more and more coverage in the border zones;

• **Economics**
  Reduce the economic losses caused by the problems bound to the QoS aspects

• **Cultural**
  The mobile phone became a "virtual indicator social ranking" (the more the terminal is expensive, the more we are sensible to belong to a high social category)
  The mobile penetration rate
• **Technology**
  - Monitoring devices types in the national market;
  - QoS monitoring 4G and LTE networks;
  - Get interest in IOT 5G, and Smart Cities QoS monitoring;
  - Technologies convenience will be a reality

• **Legal framework**
  - To update regularly the legal framework in QOS/QoE monitoring;
  - To Handle Technological and statutory scanning missions;

• **Ecology**
  - Being rigorous on the choice of the sites location

• **Demographic**
  - Reducing poor demographic coverage in some areas
**Social**
Consumers protection against poor QoS delivered by operators
Managing efficiently conflicting relations between operators and consumers

**Politics**
- Pursuing the PUMA project that imposes more and more coverage in the border zones

**Economic**
- Reduce the economic losses caused by problems bound to QoS aspects

**Cultural**
- The mobile phone has became a virtual indicator social ranking
- The mobile penetration rate

**Technology**
- Monitoring devices types in the national market
- QoS monitoring 4G and LTE networks
- Get interest in 5G, IOT and smart cities QoS monitoring
- Creating technology convergence as an opportunity

**Ecology**
- Being rigorous on the sites locations

**Démographic**
- Reducing poor demographic coverage in some areas

**Legal framework**
- To update regularly the legal framework in QoS/QoE monitoring
- To handle technological and statutory scanning missions
QoS/QoE legal framework

• QoS/QoE aspects are regulated by:
  2. Decision n° 004 / 201 / ARTP / COL on June 24th, 2013;
QoS/QoE planned campaigns

Each year, we are performing:

1. One coverage national campaign:
   This campaign is covering all the 45 departments and main roads and highways. We are measuring Indoor, Incar and Outdoor coverage with a special focus on Indoor coverage. It is done once a year.

2. One QoS/QoE national campaign:
   In this operation, we are driving also the 45 departments we are most focusing in the populated zones.

3. One national campaign on mobile data:
   This campaign is just targeting the 14 regional capitals.

4. One Regional ADSL campaign:
   This campaign is covering just the four departments of Dakar.
QoS/QoE planned campaigns for an example
QoS/QoE planned campaigns: Scenario measurements of Voice Call Quality
QoS/QoE planned campaigns: Statistics

- Measures Period: **October 20th, 2017**;
- Browsed distance: **41,19 km**;
- Average speed: **07,36 kph**;
- Sampling:
  1. Operator X: 117 calls;
  2. Operator Y: 117 calls;
QoS/QoE planned campaigns: Success rates results

Drive results

- Operator X: 97.56%
- Operator Y: 98.77%
- Operator Z: 97.53%
QoS/QoE planned campaigns:
Dysfunctions points of operator Z

Voice Call
- Call Fail (50.00%, 1)
- Call Drop (50.00%, 1)
QoS/QoE planned campaigns  Bad MOS  
Points of operator Z

MOS Result

MAUVAISE ( 100.00%, 8 )
• After each campaign, we proceed with two types of returns: a plenary with all operators to share the results and give general recommendations and an other one in bilateral to give specific recommendations to every operator.

• For the noticed network dysfunctions, we proceed to formal demands
QoS/QoE management during major events
QoS/QoE management during major events

• In Senegal, we have like 10 major events yearly where we have to deal with million of people in a place at one time.

• For this kind of event, we are proceeding like that:
  • Estimate the area QoS/QoE situation at least one month before the event takes place;
  • Ask to the operators to provide us the plan to set up for the event;
  • Doing another QoS/QoE assessment one week before the event;
  • Having mobile technical teams to alert the operators of their negligence in time real during all of the event period;
  • Implementing of a toll-free number;
  • At the end of the event, we proceed with a return under plenary form with all operators to share the results and give general recommendations for improvement for the events to come
QoS/QoE complaints management

• Complaints are coming from many different channels:
  • Email, mails, calls, toll-free number.....
  • We forward in real time all complaints to the concerned operator and we summon them to handle the complaint in compliance with the SLA;
  • When the complaint becomes recurring we send a mobile team on the spot to ask about the situation,
  • We always try to have the information feedback concerning the situation in order to close the trouble ticket;
  • We are also monitoring closely the most impacted services or areas;
• We are receiving monthly data from operators
• Coverage cards by technology; QoS KPI results, CDRS....
• We are always comparing operators data to ours and do reconciliation when there are some significant gaps:
Incidents which impact on the QoS/QoE management

• It is mandatory for operators to inform us in real time about all accidents on the Network;
• After the accident, they have to send us an incident report in which they have to highlight in details all impacts;
• They have also to provide a solution to avoid this accident to happen in the future.
HR management

• ARTP is taking QoS/QoE issues very seriously:
  • A direction is created just for Control and QoS/QoE and Network Coverage;
  • An entire department is dedicated to QoS/QoE and coverage;
  • Recruitment of talented people;
  • Acquisition of new equipment;
  • Ambitious training programs;
  • Active Participation of Senegal at the African and world meetings;
  • Senegal is hosting the next African Regional workshop on QoS/QoE in March 2018;
  • Benchmarking around the world.
The fallouts of the various QoS strategies applied

- These different strategies have many impacts on the Senegalese Telecommunication Landscape:
  - Build up and reinforce trust between Telco operators and Regulator;
  - To have an accurate estimation of QoS/QoE situation nationwide;
  - To be able to forecast the future targets in terms of QoS/QoE;
  - To build up strong and reliable Telecommunication infrastructures that can support the upper layers.
Thanks you