

# **Regulatory Aspects of QoS/QoE- The Role of Regulators and Their Importance in QoS Issues**

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## Objectives of the Session

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- How decisions on interworking between different networks(e.g., mobile and fixed) can impact QoS
- How they assess the quality provided for telecommunications users
- How they monitor and assure the QoS delivered by the service providers
- How they face the future of NGNs
- Role of Regulatory bodies in a liberalised market



## Why is QoS/QoE important for Regulators (their role)?

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- o Lack of Perfect markets/competition: Protect consumers from market dominance and from paying more than they are getting in terms of quality
- o Ensure consumers have a choice on what services to buy depending on quality at a price they are willing to pay for the service
- o Ensure efficiency of operators (price regulation, Interconnection and QoS regulation (set appropriate standards))

- o Regulatory Priorities
  - Low prices
  - Infrastructure expansion and geographical coverage
  - universal access (availability, accessibility and affordability of communications services)
  - Attract investment (private sector participation)
  - Improved Telecom Facilities and service Quality



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## Factors that influence how Regulators view and set QoS/QoE

- Lack of Capacity: skills in regulation of telecommunications
- Best practices-Regulators want to adhere to best practices to ensure legitimacy and credibility but “there is no one size fits all”
  - *“This minimises resources and reinventing the wheel especially if a relevant case study can be identified. Emerging markets or developing countries often do not have the capacity to carry out tests and experiments to facilitate regulation of QoS”.*



## Factors Continued... (Why Network QoS and not QoE?)

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- For developing countries like Uganda, emphasis on quality of service inclined to network rather than user perceived QoS. Why?
  - Stage of Competition in the market: (Monopoly, Duopoly, Fully liberalised)
  
  - Culture and Society
    - Perception of quality (minimum is good enough regardless of what you pay for?)
    - User preferences-adoption of technologies varies across societies and users- beeping ,sending sms, etc
  
  - What drives economy? Information Vs Agriculture.
    - Agriculture is a major contributor to the economy of Uganda
  
  - Over 85% of population in rural areas, “over 83% of rural household heads fall in the lowest income group”
    - How does Regulator set QoS/QoE that meets the needs and expectations of this category of consumers



# Decisions on Interworking and networks that Impact QoS

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- o Interconnection Framework:
  - Is interconnection mandatory regardless of technologies, and services being carried over technologies
  - Are interconnection agreements concluded in time
  
- o Interoperability of networks: Type approval of Equipment that interfaces with PSTN and/public networks.
  - Regulators in countries where communication Equipment is imported have the challenge of ensuring the equipment meets industry and international recognised standards in addition to setting appropriate national standards
  
  - Can there be special agreements/mutually recognised between developing countries and developed countries in the area of standards and testing of equipment
  
- o Price control mechanisms: Relationship between interconnection rates and service prices and costs.
  - Does the regulator have the capacity to calculate price and QoS related costs



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## Role of a Regulator in a liberalised market

- o Achieve Telecom Policy objectives
- o Supervise developments in the Telecom. industry( act as referee, arbitrator)
  - light handed regulation- For developing countries, how long does it take for the Regulators to ease grip on regulation?
- o Encourage compliance
  - With time, Regulators get to know how best operators behave when it comes to compliance issues and put appropriate measures in place- 'move away from policing to encouraging compliance'





## Role of a Regulator in a liberalised market

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- o Protect, educate and empower consumers (affordability, availability, quality, informed choices):
  - The Regulator needs to play a role in translating technical aspects of QoS to a language, appropriately packaged to meet the needs of consumers. The diversity in tribes and languages, literacy levels, pose a challenge in consumer awareness
- o Promote fair competition practices:
  - If government has shares in a company that is a monopoly in a product market, how can the regulator independently enforce its decisions in dealing with anti competitive practices?



### o Legal Instruments

- Law and statutory instruments-
- Licence obligations-via network performance and service performance indicators, Performance bonds/guarantees
- Regulations/guidelines:
  - o Specifying QoS indicators in guidelines gives the regulator flexibility in reviewing the same

### o Publications of QoS/QoE Reports/Statistics

- What is considered confidential and public by the regulator?



# Measures in Ensuring, Assessing and Monitoring QoS

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- Enforcement tools-Penalties, fines for non compliance
  - How punitive are these tools and how timely is the enforcement?
- Providing consumer information on QoS
  - There is a challenge of reaching population which is in the rural areas
- Measures for assessing and monitoring QoS
  - Setting Network and service performance indicators
  - Use of analytical and assessment tools -carry out test drives
    - Most of the test equipment meets operator rather than regulator needs. It is also costly for the regulator to frequently upgrade the equipment.
    - Lack of research and test labs in developing countries is also a challenge for regulators :
  - Review and Analysis of Audited Reports:
    - What does it mean for a regulator to outsource this work?

- o Inspections of operator premises - spot checks and arranged inspections:
  - The regulator should be well versed with the networks and services that are being provided.
- o Involvement and consultations with stakeholders
  - Via surveys, studies and research
  - Complaints tracking
  - Awareness programs



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## How Regulators face the future of NGNs-challenges

- o Challenges faced include:-
  - Existing laws, policies-review tedious process
  - Behaviour of operators and consumers
  - Availability of resources (capacity, spectrum, numbers)
  - Dynamic sector-convergence, new technologies
- o How the challenges can be addressed:
  - Strategic planning-internally and externally build capacity, carry out market studies, research and consultancies



## How Regulators face the future of NGNs-addressing the challenges

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- Review of the Regulatory framework-
  - The need for timely interventions and implementation of proposed changes
  
  - Design of an appropriate market structure
    - licensing regime (incentives for operators to migrate to NGNs, how are licenses to be awarded), pricing issues etc
  
- Stakeholder sensitisation and awareness
  
- Learning from others



- Impact on QoS by Regulators determined by:
  - Priorities (where is the emphasis and why?)
  - Laws
  - Capacity( internal and external, human resources, tools etc.)
  - Competition, Consumer and operator behaviour
  - Decisions on interworking-technology imbalances and lack of internal manufacturing, test labs etc
  - Level of awareness of policy makers



- Assessing, monitoring and ensuring QoS
  - Appropriate laws, Regulations, guidelines
  - Appropriate analytical tools
  - Outsourcing testing, type approvals, auditing
  - Collaboration with and learning from others
  - Stakeholder involvement, participation and awareness
  - Timely reviews, enforcement



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THANK YOU FOR YOUR ATTENTION

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Any Questions?