COSITU

The ITU model for the calculation of costs, tariffs and rates for telephone services

COSITU

Overview

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AGENDA

- Introduction - Overview of COSITU Model
- Interconnection Concepts applied in the Model
- Network boundaries & interconnection concepts applied in the model
- Some Costing Concepts of the Model
- Promotion and use of COSITU in Africa
- Conclusion

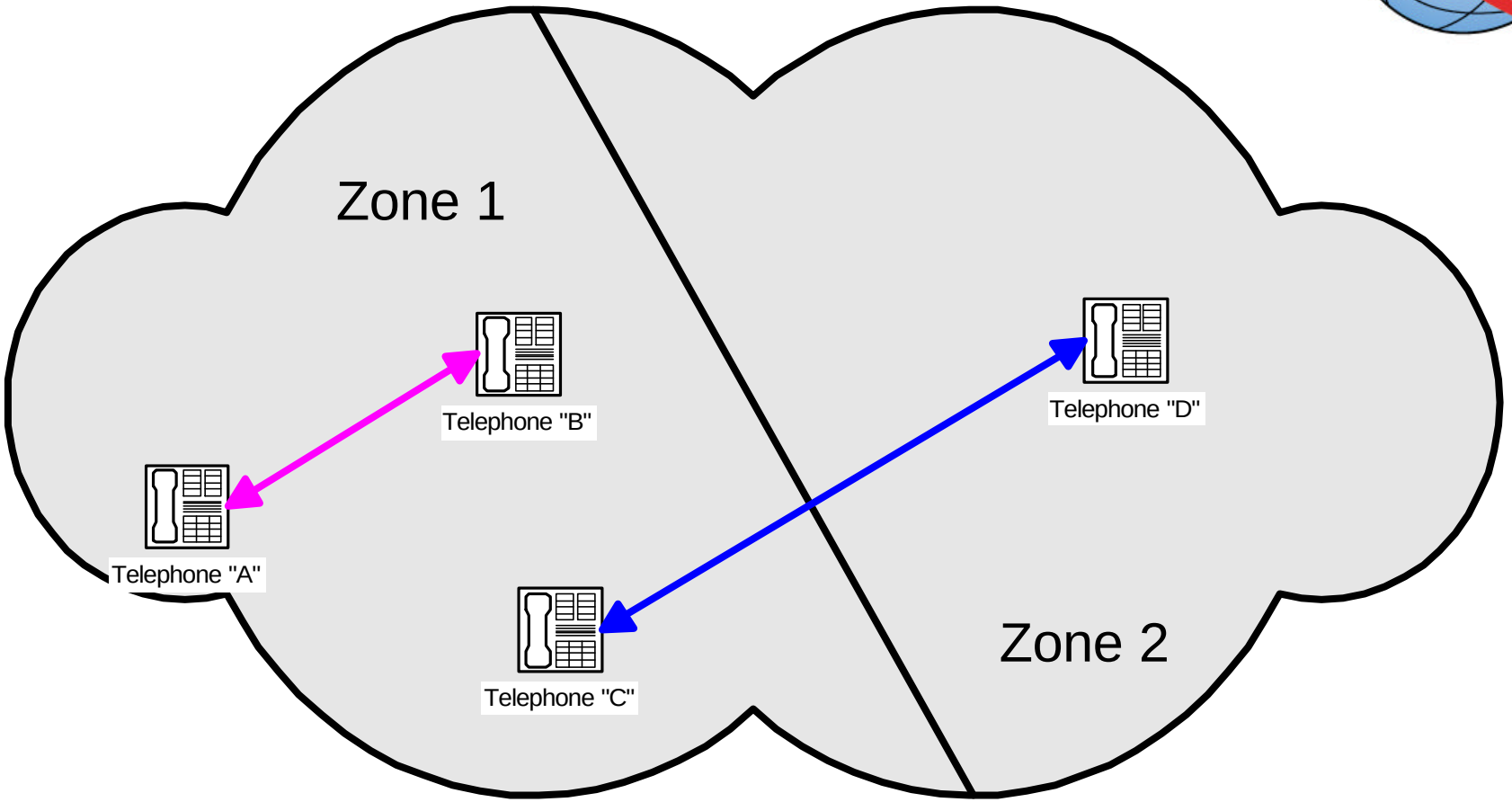
COSITU Overview

- **COSITU** is a **Model** for the determination of **Costs** and **Tariffs** (including Interconnection and Accounting Rates) for **Telephone Services**.
- COSITU is a stand-alone application using Windows Graphical User Interface
- COSITU is modelled based on a series of ITU-T Recommendations converted into a practical tool (a software) for the calculation of cost oriented and cost based tariffs.
- COSITU calculates the **endogenous** cost & tariffs.

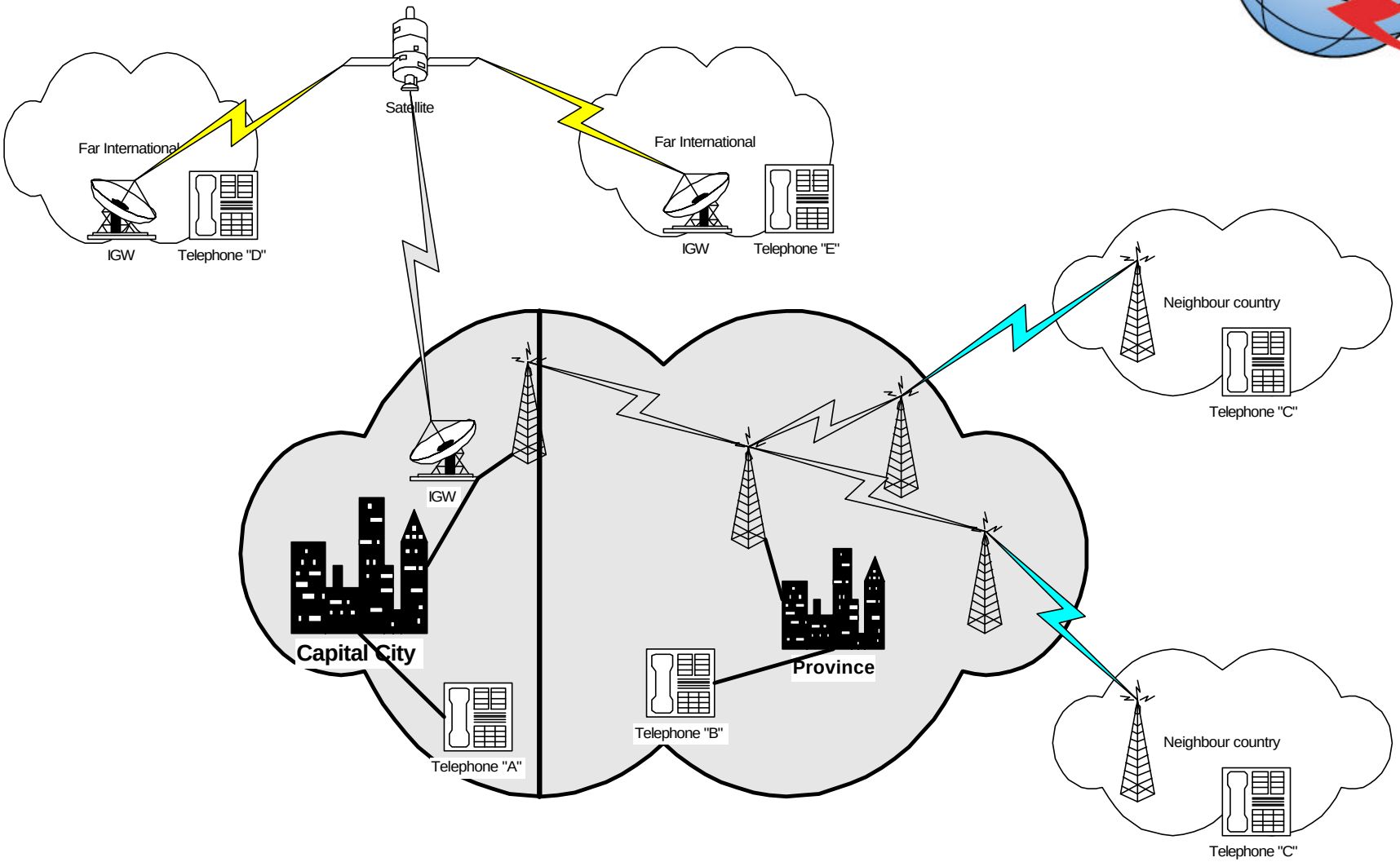
COSITU Overview

- COSITU computes, at a country level for a given operator, endogenous cost based/oriented tariffs for specific service streams (i/c & o/g) such as:
  - ***Urban***
  - ***Interurban***
  - ***International***
  - ***Sub-regional***
  - ***Interconnection***
- Costs are in local currency with provision for exchange rate to the SDR for benchmarking purposes vide a connection to the ITU server/database

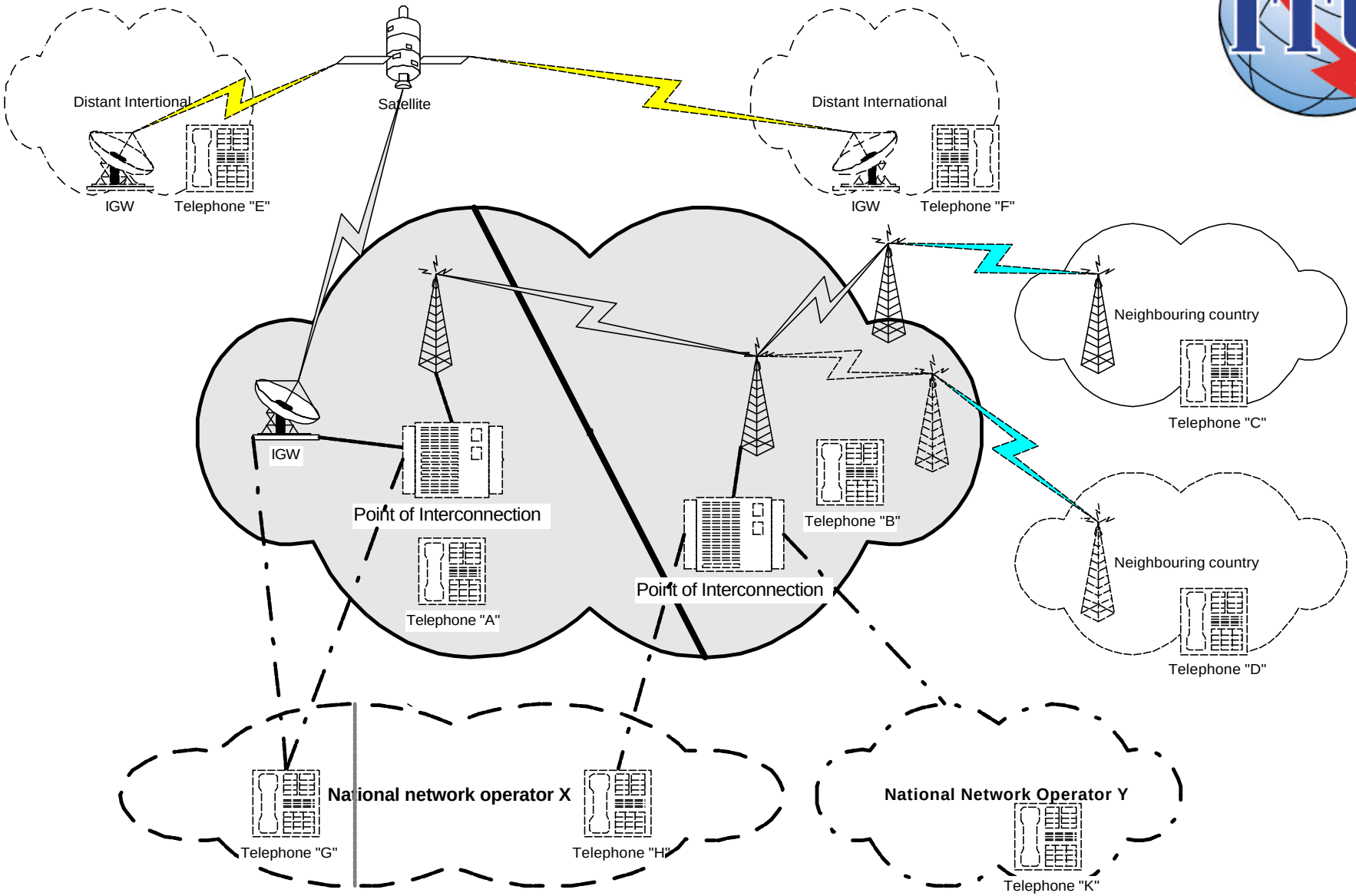
Urban & Interurban Services



International & Subregion Services



Interconnection services



COSITU Overview

- Geographic Correction Coefficient (GCC) is a tool provided in COSITU to take into account the relative unit cost disparities in urban and rural environments and adjust accordingly
- COSITU provides diverse traffic data estimation and/or capture methods for all circumstances
  - ***Manual Entry***
  - ***Ticket Analysis***
  - ***Affinity Matrix***
  - ***Revenue Analysis***
- Allows for the use of either General or Analytical Accounting cost capture/analysis methods

COSITU Overview

- Sequence of executions includes
  - ***Initiate the Software.***
  - ***Enter the general information,***
  - ***Input traffic information (Select the method),***
  - ***Input the cost data,***
  - ***Input the current prices,***
  - ***Analyze the results.***
- Provides and displays cost distribution matrix as a mechanism of cost allocation among diff. services
- COSITU produces various kinds of reports. They include traffic profiles, distribution of the cost elements among different services, cost evaluation data, unit costs, cost oriented tariffs, P&L as well as computation parameters

COSITU Overview

- COSITU identifies inefficiency costs and appropriately apportion the same such that other operators are not unfairly made to pay,
- Network efficiency is determined by taking into account of the following factors:
  - ***installed capacity;***
  - ***utilized capacity;***
  - ***average annual growth rate in number of subscribers;***
  - ***replenishment period.***
- Equipment price trends is taken into account in the model
- COSITU takes into account national taxation and USO policies and incorporates the same in the calculations

COSITU Overview

- Access deficit is deduced & allocated across other services if positive
- The computed tariffs are therefore based on:
  - ***Unit cost***
  - ***Taxes***
  - ***Payments (connection & monthly rental fees)***
  - ***Contribution to Universal Services***
- COSITU provides for simulation (say how a change in domestic tariffs would impact on other tariffs and access deficit)
- COSITU also provides for simulation on tariff rebalancing (say by progressively adjusting the prices of urban & interurban services until the Access Deficit is Zero)

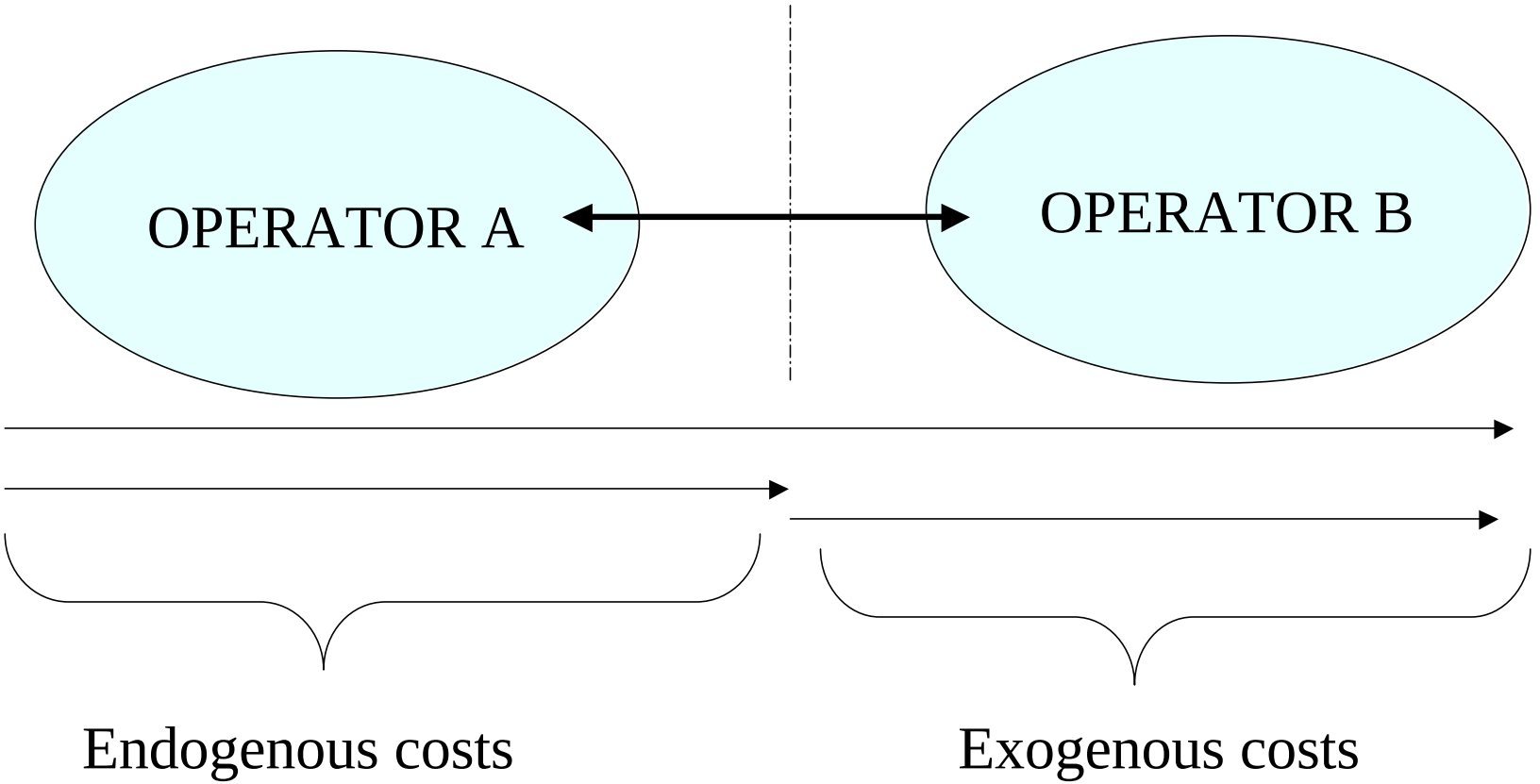
Summary of the various Stages of model

•Cost of network components •Operation and maintenance costs •Service traffic	•Amortization rules •Equipment price trends •Cost of capital	•Cost of functional support •Identifiable direct and indirect costs •Other common costs •Routing table •Cost distribution	•Unit endogenous cost of services •Tax components •Universal service obligations	•Cost-orientated endogenous tariffs •Tariff rebalancing •USO simulation

Network boundaries & interconnection concepts of the model

- Within a given jurisdiction, the interconnection points set the network boundaries.
- Costs incurred within the boundaries of a network are endogenous costs, which the operator is itself at liberty to improve.
- Except for transit charges which are identified as transmission costs, payments to other correspondents for terminal traffic are exogenous costs which are not taken into account in determining costs within a particular network boundary.

Network boundaries & interconnection concepts of the model



“Bottom-up” or “Top-down”

- The difference between these two methods lies in the way the cost of network components is determined:
  - ***Bottom-up (“scorched node” or “earth node”): a fictitious network is worked out from an an estimate of traffic needs based on statistical data;***
  - ***Top-down: the existing network is the source of all information.***
- COSITU accommodates both, the initial stage for the bottom-up method being completed outside the model.

Full costs or incremental costs

- The fully distributed costing method allocates all costs to all services,
- The incremental costing method allocates a cost variation to the variation,
- In terms of strict compliance with the rules of cost orientation, the incremental costing method requires complete rotation on all services and an additional allocation of common costs to balance operation (real or fictitious); in which case it is much the same as fully distributed costing.

Full costs or incremental costs

- In a market where several players are competing, it is in the interests of a service provider to apply the incremental costing method, without rotation, to a given service if that provider is already competitive in the other services (“value chain” theory),
- Costing a service by the incremental costing method without rotation amounts to transferring the fixed costs of that service to the other other services (cross-subsidy!),
- But economically speaking it is acceptable as long as it produces neither an increase in the price of the other services nor anti-competitive arbitrage, which makes the market less efficient.

Full costs or incremental costs

- Whatever the methods used to determine costs and traffic, the COSITU model can accommodate them,
- COSITU has, however, been optimized for use of real information from the accounts and technical data of real network operators with a view to equitable allocation of costs to the services that generate them, collectively or separately,
- COSITU is unaffected by technological choice, addressing directly the services sold – retail or wholesale.
- Linear depreciation is the rule most widely applied in the accounts of telecommunication operators.
- It is however possible to take into account the evolution of equipment prices in a specific market and adjust the depreciation accordingly.

Cost of capital Concepts

- Combined effect of debt and equity
- Creditors demand interest
- Owners demand dividends
- Investors often demand a return in keeping with conditions prevailing on the international financial market.
- The Capital asset pricing model (CAPM) gives an indication of how to determine a minimum return on equity in a given market

Cost of capital Concepts

- However the CAPM is useful in calculating expected returns on equity only if there is abundant and reliable data pertaining to the market in question.
- COSITU therefore does not rely only on this approach, given the specificities of developing countries,
- It has an additional approach, which is essentially a comparative one,
- COSITU is able to calculate, assuming a preponderant risk of inflation for telecommunication companies in developing countries (sector risk ~ market risk -> BETA ~ 1), the essential components of the cost of capital as adjusted to local conditions.
- Thereafter the traditional formula for the cost of capital applies.

Cost of capital Concepts

- Markets in developing countries are exposed to adverse circumstances of all kinds, the effects of which are, for the most part, measured in terms of monetary risk,
- Most loans on these markets (in the telecommunication sector) are in convertible currencies,
- New investors in these markets also have investments in international financial markets,
- The rate of interest on hard currency debts must be adjusted for the risk premium of the issuing markets and for local conditions using the currency depreciation rate,
- The expected rate-of-return must also be adjusted, on the basis of indications from the international financial market or the owners' market of origin.

Promotion of COSITU in Africa Through COE Nairobi

- Between October 2003 and February 2005, COSITU Team offered direct training and installation assistance to 9 Countries, 56 Organizations and trained 247 people in COSITU. They include the following operators:
  - ***Telecel, Zimbabwe***
  - ***Econet, Zimbabwe***
  - ***Net One, Zimbabwe***
  - ***Tel One, Zimbabwe***
  - ***Namibia Telecom, Namibia***
  - ***MTN Swazi, Swaziland***
  - ***Swazi Telecom, Swaziland***
  - ***Rwandatel***

Promotion of COSITU in Africa Through COE Nairobi

- *MTN Uganda*
- *Uganda Telecoms Ltd*
- *Safaricom*
- *Gambia Telecom*
- *Telkom Kenya*

- Regulators Trained include:
  - *Uganda Communications Commission*
  - *Communications Commission of Kenya*
  - *POTRAZ –*

    POTRAZ has gone a step further to encourage it as a standardization tool.

– Details of training activities are as follows:

COSITU TRAINING AND INSTALLATION SUPPORT CONDUCTED FOR ENGLISH SPEAKING REGION TO DATE

Country	No. Participa-ting Organi-sations	No. People Trained	No. From Fixed Operator	No. From Mobile Operator	Regulator/ Ministry	Operators who received Installation Support	Remarks
1. Gambia	**4**	**15**	**6**	**8**	**1**	**-**	Ministry
2. Nigeria	**16**	**68**			**1**	**-**	
3. Mozambique	**19**	**38**	**21**	**13**	**4**	**-**	
4. Swaziland	**2**	**14**	**7**	**7**	**0**	**2**	
5. Kenya	**1**	**8**		**8**		**1**	
6. Zimbabwe	**7**	**36**	**14**	**15**	**7**	**4**	2 Data companies
7. Namibia	**1**	**8**	**8**			**1**	
8. Rwanda	**1**	**30**	**30**	**-**	**-**	**1**	RwandaTel
9. Uganda	**5**	**30**	**2**	**3**	**1**		
	56	**247**	**88**	**54**	**14**	**9**	

Conclusions

- COSITU is a simple and extremely useful tool that can helps both regulators and operators to conform to both national and international regulations such as those pertaining to accounting rates and interconnection and pricing
- Other important uses of COSITU includes the following:
  - ***It helps to define and harmonizes various types of services***
  - ***It helps in defining and estimating traffic volumes for each of the service streams***
  - ***It provides for the level of usage of the various network elements (routing table)***
  - ***It provides the overall costs for the various elements (access, switching, transmission)***
  - ***It helps to clearly identifies the relevant network components applicable for interconnection traffic***

Conclusions Cont'

- *It provides the unit costs for the various service streams*
- *It provides the cost distribution among the various network and service elements of each of the services*
- *It provides the unit costs for each of the services at a particular level of traffic*

- COSITU is an alternative if not a standard costing model recognized internationally

http://www.itu.int/ITU-D/finance/COSITU/