ITU WORKSHOP 2000
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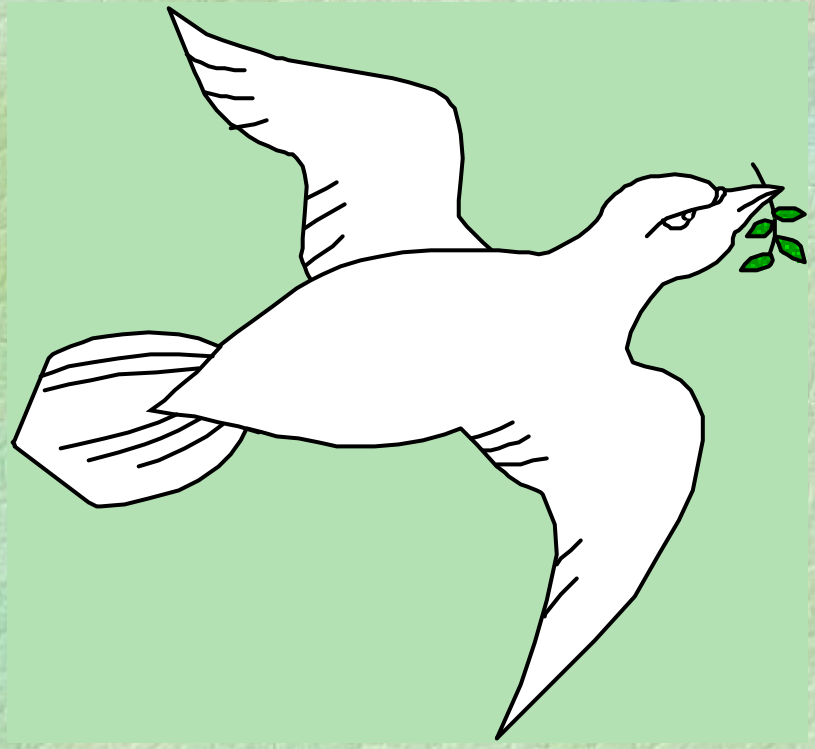
TAL COST MODEL



PURPOSE:

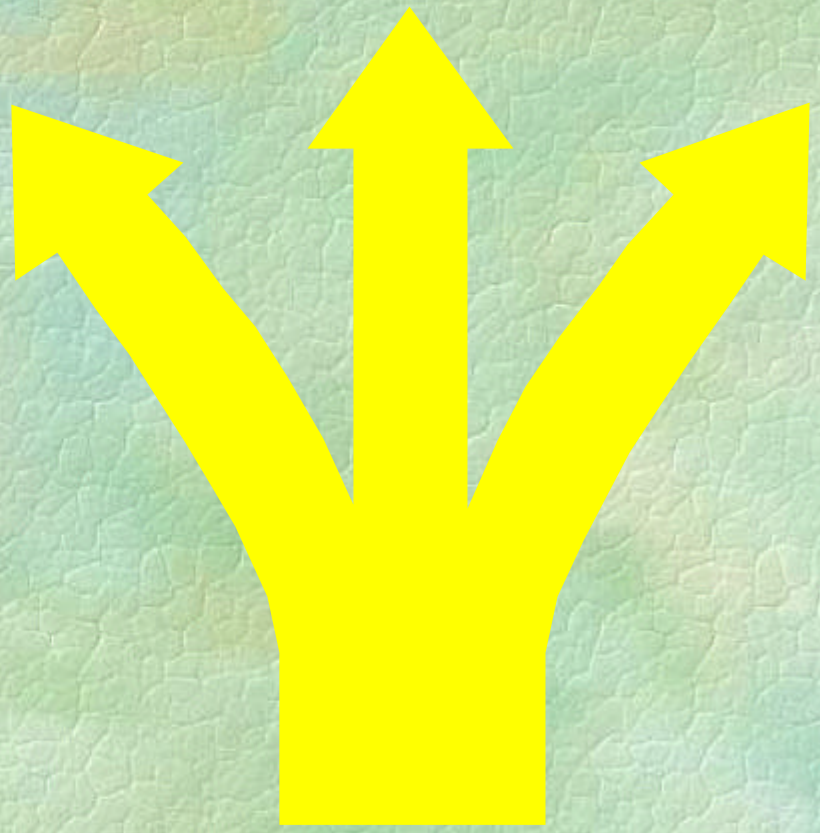
- To assess actual cost of IMTS
- To Assess Termination fee
- Flexible enough to establish interconnect charges

FOUNDATION METHODOLOGIES

- The Ramsey method
- Incremental cost
- The TAS Model
- Fully Distributed Cost
- Marginal Cost

INPUT VARIABLES AND D.140 OF ITU-T

- D-140 Stipulates Main Cost Elements for IMTS:
- International transmission facilities;
- International Switching facilities
- National extension

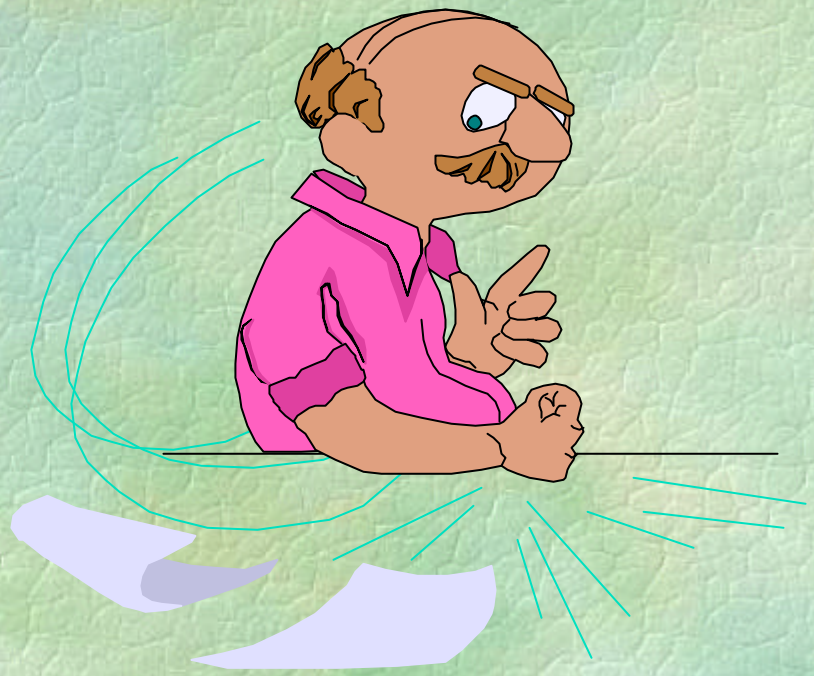


COST ASSESSMENT CRITERIA, D-140

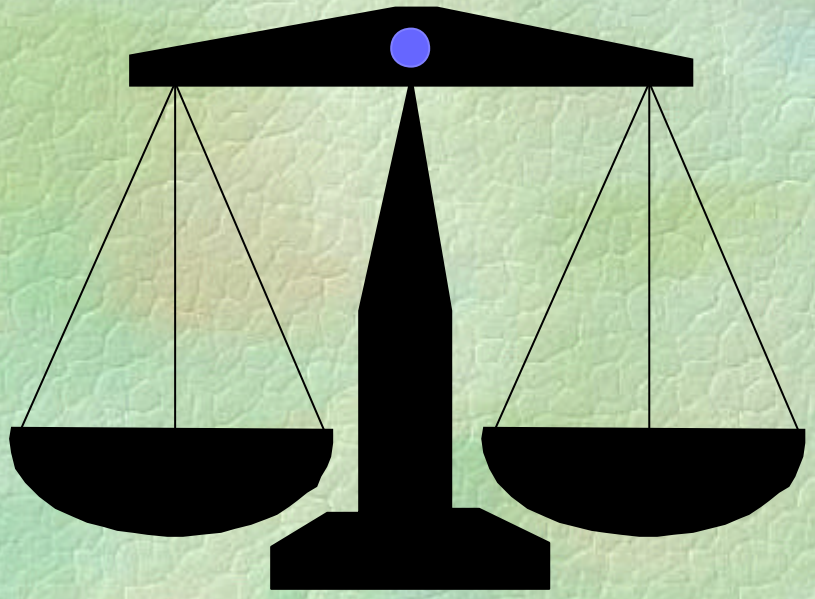
- Cost should be identified on the basis of wide-based accepted accounting principles in terms of direct and indirect cost.
- Provision made for indirect cost to include: general administration, management and accounting systems R&D and appropriate taxes; as well as other costs subject to bilateral agreement.

FUNDAMENT OF THE MODEL

- A cost model designed for a region must take cognisance of the socio-economic constraints common to those economies impact significantly cost production of goods and services.



REGIONAL DISECONOMIES OF SCALE



- Sub-optimal utilisation of switching and transmission facilities;
- Average teledensity below 25;
- Domestic tariff priced below cost;

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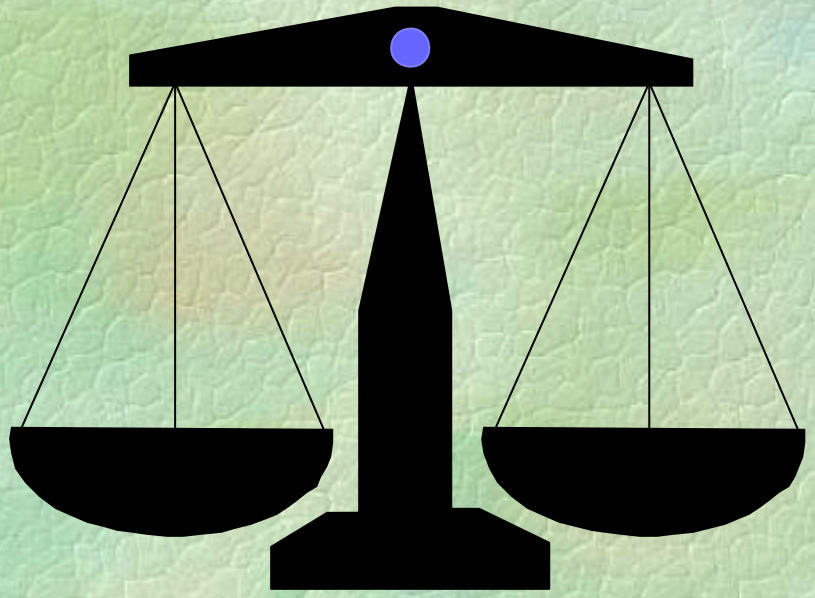
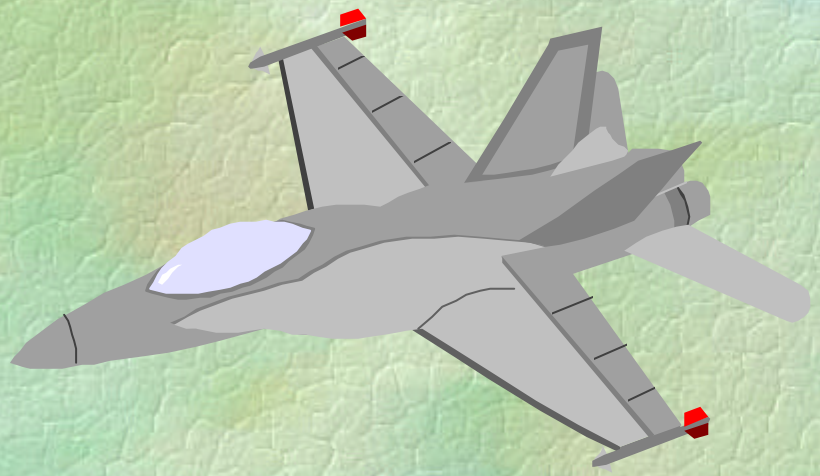


- Non-convertible national currencies;
- Interest cost on capital and procurement cost are relatively high;
- significant universal service obligation.

EFFICIENCY GAINS



- Model regards cost as a dynamic variable and given the move towards efficiency and thus lower telecommunication prices contingent on modernization in technology and management practices, telephone service

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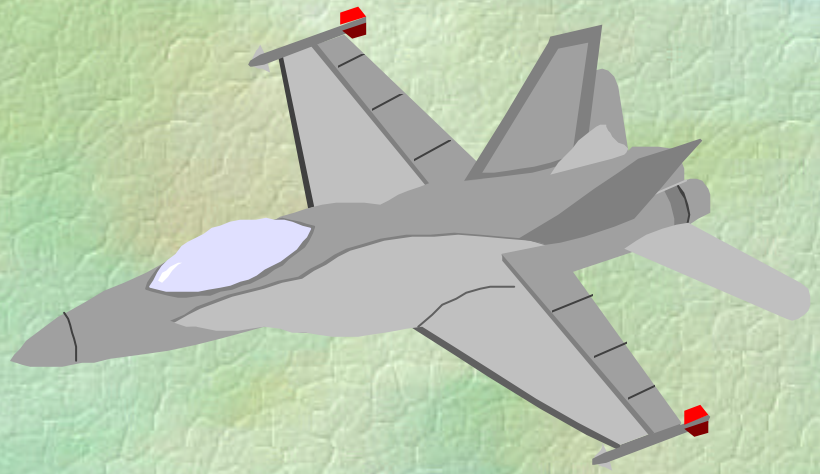
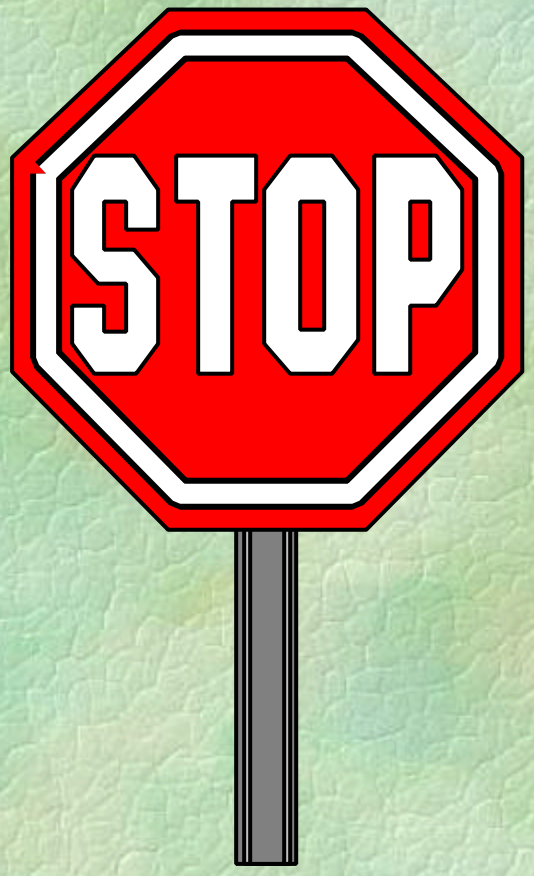


- Providers should pursue efficiency gains in production lines.
- Efficiency gains Coefficient is an estimate of Efficiency gains.

OTHER IMPORTANT COST FACTORS



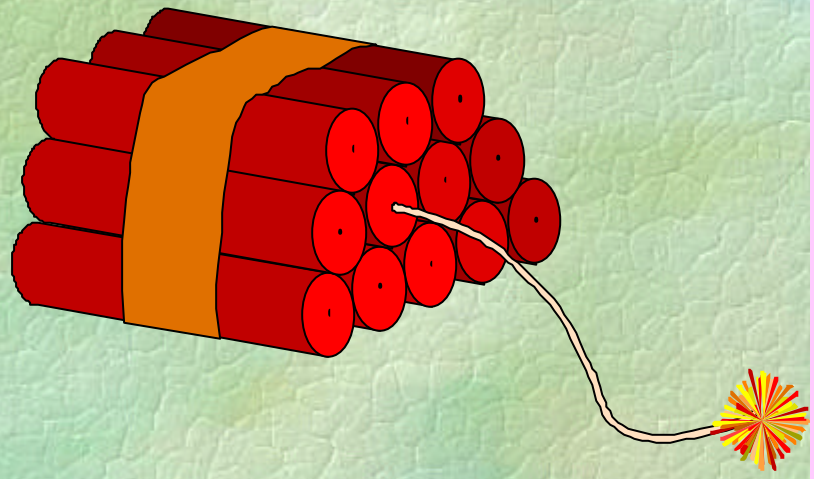
Cost elements do not include:

- Line installation, customer premises equipment, depreciation on land, and switching expenses for transiting traffic.

WHY?

- Line installation and customer premises equipment are normally covered by installation charges and rent.
- The land value seldom depreciates.
- Transit expenses should be covered by transit fees.

COST ALLOCATION



- Invariably telecommunication facilities are shared by multiple services, cost allocation should be applied to all cost elements.

EFFICIENT COST ALLOCATION

- Application of an efficient cost allocator is imperative.
- ABC method highly recommended

TAL COST FORMULAE

- 1.C= A/Mo-(Eg)
- 2.T=A/Mo-(Eg)
- Where:

VARIABLE DEFINITION

- C= Per minute cost of telephone service.
- T= Per minute Termination Charge.
- A= Weighted average direct and indirect Costs. Comprising:(Kn+Dn+ OMCn+R&Dn+And+T n).
- Mo= Total incoming and outgoing international minutes(capacity utilization).
- Eg= Efficiency gains
- USO= Per unit expenditure on network expansion, particularly in areas where network investment is uneconomic.

DEFINITION CONSTITUENTS OF A

- Kn= *Allocated investment cost:* either the debt service cost of investment or the opportunity cost in respect of capital invested, plus return to equity consistent with market rate of interest.
- Dn= *Allocated amortization/depreciation cost:* allocated annualized depreciation costs on capital goods(building, circuits, and equipment i.e total investment cost less net salvage divided by estimated life of plant.

CONTINUED

- OMCn= *Allocated Operation and Maintenance costs*:the proportion of total expenses on activities required to operate and upkeep the telephone plant that are generated directly by delivery of IMTS.
- R&Dn= the proportion of R&D cost attributed to the realization of efficiency gains.

CONTINUED

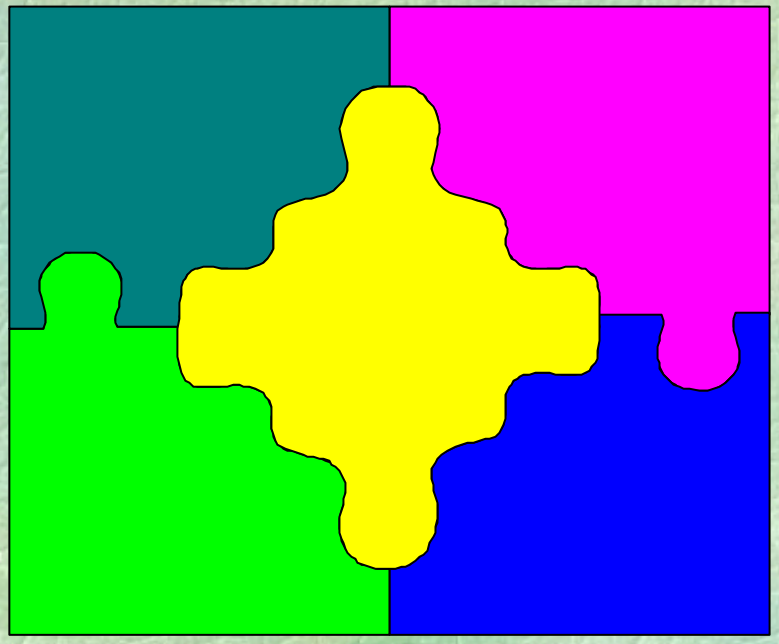
- Adn= *Allocated Administrative Cost*: the proportion of overhead expenses incurred to operate the plant in order to deliver per unit IMTS, but which cannot be directly appropriated through activity-based allocators. Costs include expenses related to management, planning,financial and human resource management, and legal input. Also included are investment support charges re: building, furniture, office equipment etc.

CONTINUED

- Tn= *Allocated Tax Costs:* comprises the relevant proportion of corporation and other taxes (value added taxes, ad valorem taxes etc).

ESTIMATING EFFICIENCY GAINS

- Efficiency gains (Eg) denote movement on the production possibility curve toward least cost production.
- Eg may be input- based (I_b), output based (O_b)or a combination of both factors.



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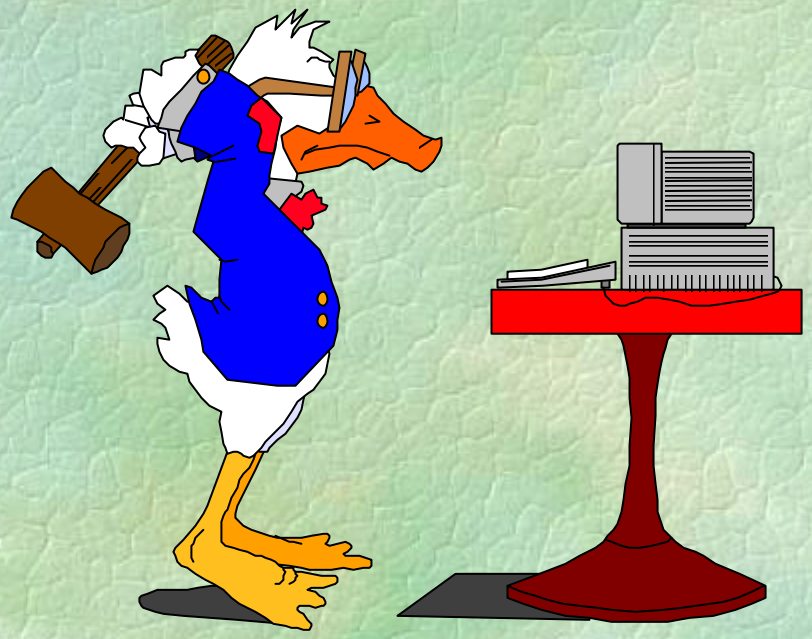
- Ib= significant reduction input/output ratio influenced by such factors as: technology, improved efficiency in use of physical and human resources, lower financial charges.



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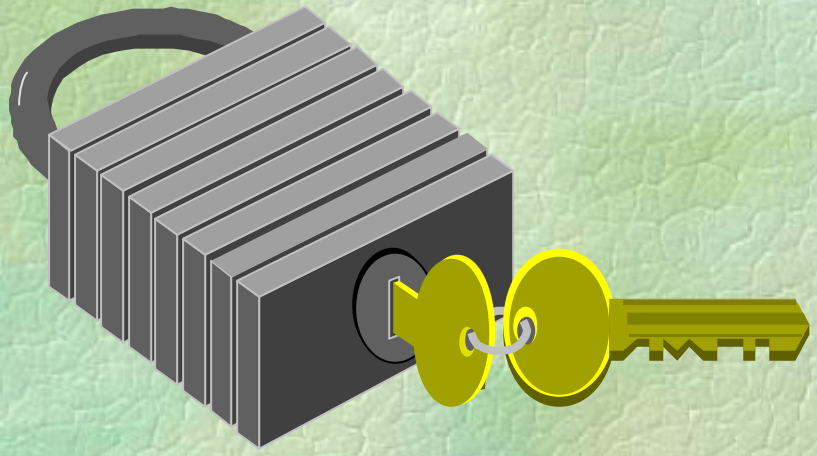
- Ob= reduction in input/output ratio without any significant change in the input index. Indicates increase in throughput (capacity usage).

QUANTITATIVE ASSESSMENT



- Ib and Ob are both measured in terms of variation in the ratio A/M where:
- A= index of costs
- M= Throughput index.

PROBLEMS OF QUANTATIVE ASSESSMENT OF Eg

- In a non competitive market the Regulator should approve/determine the Eg coefficient.
- Could be a very difficult exercise consequent upon:

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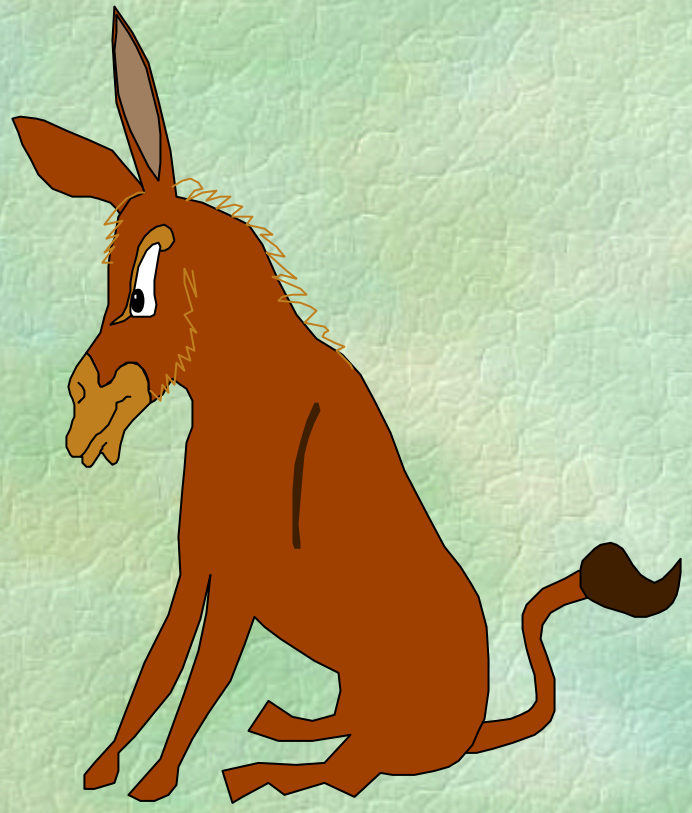
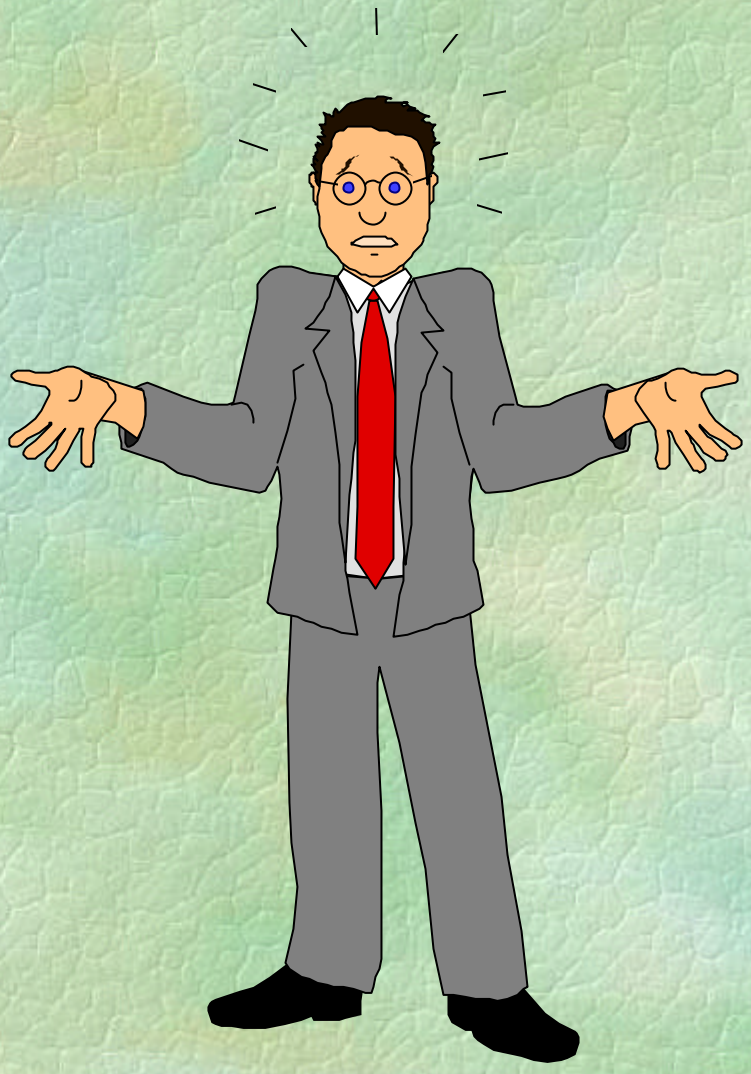
- Cooperation of the administration in providing data in a timely manner and in sufficient detail.
- Likely hood of administration to limit cooperation because of preference to convert gains into profit.



VIABLE ALTERNATIVE

- Derive a proxy coefficient of Eg on the basis of an index the following indicators:
- price trend on the global market for IMTS;
- price trend reduction in the TAL region for IMTS.



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- network expansion
- growth trend in IMTS for the country.
- national economic policies and programmes in the country.

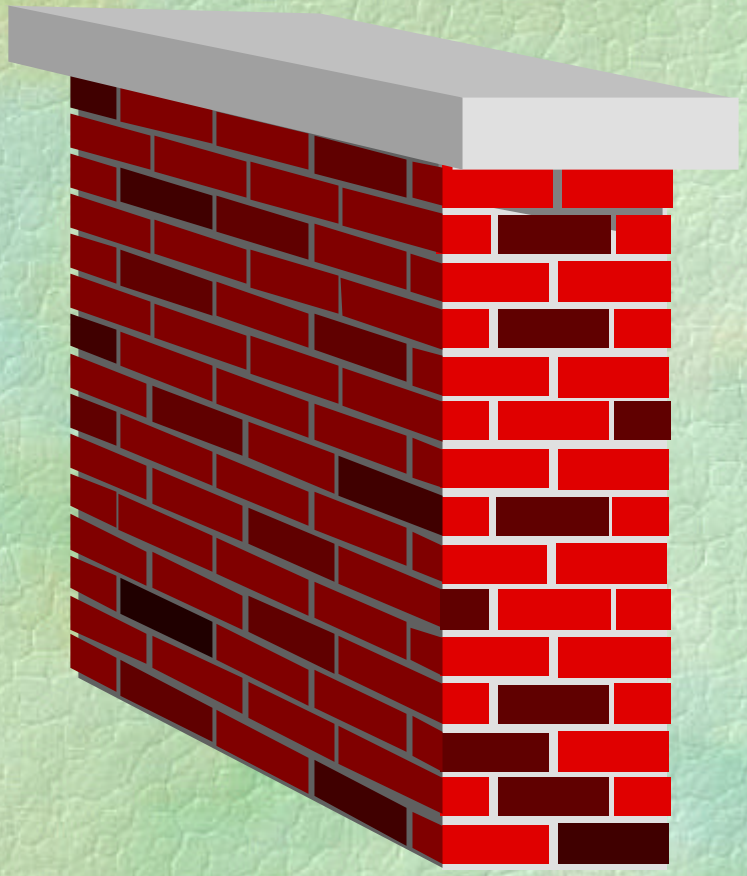
ESTIMATING USO

- USO= B/M_1 where:
- B is the projected additional cost to attain nationally prescribed level of teledensity in year $n+1$.
- M_1 is projected incremental minutes associated with network expansion in year $n+1$.

DISAGGREGATED TAL FORMULAE

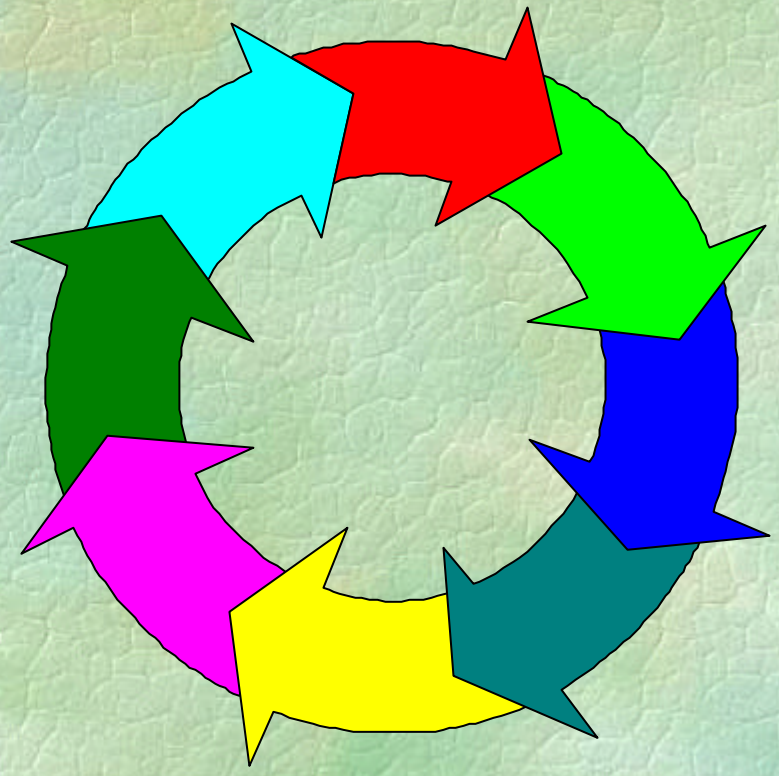
- $C=\sum(K_{N,}D_{N,}OMC_{N,}R\&D_{N,}AD_{N,}T_N)/M_{ON}-EG_{(N+1)}$

- $T= C+B/M_1$



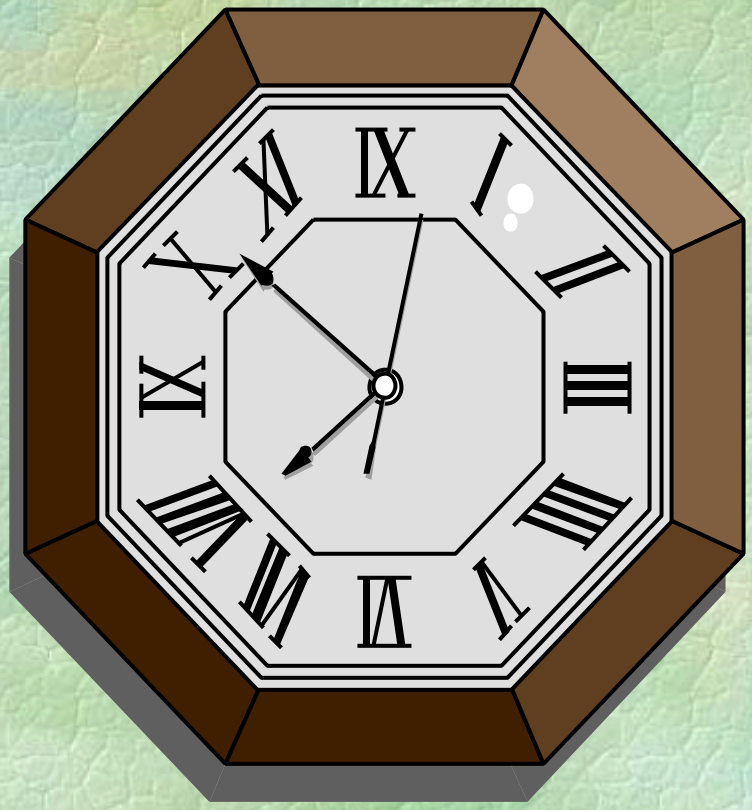
FLEXIBILITY OF MODEL

- The model permits the country the flexibility to calculate cost elements on the basis of current cost or historical cost.
- A variant of cost allocators can be applied to appropriate cost.
- Cost methodology of choice can be applied.



STATUS OF TAL MODEL

- Approved by the TAL group of countries.
- Endorsed at the ITU
- Forms part of the group of models that are being studied by the Rapporteurs group of Study group 3, ITU-T
- Subject of further revision to capture dynamic environment.



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