

Interconnection Policies and Rates Setting

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Seminar on Costs and Tariffs in Africa

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Note: The views expressed in this presentation are those of the author and do not necessarily reflect the opinions of the ITU or its membership.



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Trends in Telecommunication Reform 2000-2001



Trends in Telecommunication Reform 2000-2001 "Interconnection Regulation" - 3rd edition, 2000

Regulators around the globe consider interconnection to be the single most important issue in the development of a competitive marketplace for telecommunication services. With the advent of convergence, the importance of interconnection has grown. Today, regulators must focus not only on the interconnection of traditional telecommunication networks, but the interconnection of all Information and Communications Technology (ICT) networks including mobile, Internet, IP-based networks, satellite and cable TV. We are living in an age which places increasing importance on "any-to-any" interconnection - that is, the ability of any network operator to establish connectivity with any other operator.

Although regulators and policy makers understand the importance of interconnection, they face many tough decisions in implementing interconnection regulations and policies. The third edition of Trends aims to identify the key issues raised by interconnection regulation and provide concrete examples of how regulators and policy makers around the globe have addressed these issues. *Trends 2000-2001* also includes key



Agenda

- **The importance of Interconnection**
- **Regulatory and technical issues**
- **Economic issues in Interconnection**
- **Interconnection with mobile networks**
- **Internet Interconnection**
- **International Interconnection**

The importance of interconnection

- **Key to developing competitive markets**
 - ⇒ **Interconnection is the main driver of growth and innovation in telecom market, it promote efficient infrastructure development**
 - ⇒ **But constructing a sound interconnection framework is no easy task**
- **Approaches to Interconnection Policy**
 - ⇒ **National approach – by 2000 101 countries had established interconnection regulatory framework**
 - ⇒ **Regional Approach – European Union (interconnection directive), CITELE (Guidelines and Practices for Interconnection Regulation), APEC (Recommended Principles for interconnection), TRASA(proposed interconnection guidelines)**
- **WTO Reference Paper on Regulatory Issues**
 - ⇒ **Puts forward a series of interconnection commitments:**
 - **provide interconnection at any technically feasible point**
 - **non discriminatory terms, conditions and rates**
 - **in a sufficiently unbundled and timely fashion**
 - **calls for transparency**

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Information

- [Regulatory Address Book](#) names and addresses of regulators and policymakers (web sites)
- [Legislative Information](#) Essential legislative details for ITU member countries
- [Regional & Country Profiles](#) regulatory information at regional & country levels
- [Documents & Reports](#) useful documentation on key subjects
- [Interconnection legislation and policies worldwide](#)

[ITU/BDT Annual telecommunication regulatory survey](#)

Internet

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Key Interconnection Rules in the WTO Reference Paper

Interconnection with “Major Suppliers” must be available	<ul style="list-style-type: none">- At any technical feasible point in the network- In a timely fashion- At cost orientated rates- On non discriminatory and transparent terms- On an unbundled basis- At non-traditional interconnection points if requester pays charges
Procedure	Procedures for interconnection to major suppliers must be made public
Transparency	Agreements of major suppliers’ model interconnection offers must be made public
Dispute resolution	An independent entity (which may be the regulator) must be available to resolve interconnection dispute within a reasonable time frame



Regulatory and technical issues

- **Policy makers must resolve such basic questions as:**
 - ⇒ **which carriers are required interconnection**
 - ⇒ **How the costs will be calculated and recovered, and**
 - ⇒ **At what points in the PSTN interconnection should occur**
- **Regulatory issues**
 - ⇒ **Establishing guidelines in Advance (without it, interconnection negotiation are frequently protracted, delaying the introduction of competition)**
 - ⇒ **Introducing competition require “dominant carriers” to interconnect with other carriers**
 - ⇒ **Cost orientation: excessive prices deter market entry, hinder competition, end user suffer and can provide a pool of revenue**
- **Technical issues**
 - ⇒ **Points of interconnection: incumbent operators permit interconnection with their networks at any technically feasible point**
 - ⇒ **Dialling Parity and Pre-selection: Call-by-call customer selection or Operator pre-selection by pre-subscription**
 - ⇒ **Quality of Interconnection Service**

Economic issues

The economic issues involved in interconnection largely come down to question of cost: cost definition, cost measurement, cost allocation and cost recovery

- **How can interconnection costs be measured?**
 - ⇒ **Theoretical Frameworks (Historical, Fully Distributed costs, LRIC)**
 - ⇒ **Cost study Approaches (Top-Down, Bottom-Up, Outside-In)**
- **Interconnection charge**
 - ⇒ **Cost based charges**
 - ⇒ **Retail-based charges**
 - ⇒ **Price Caps**
 - ⇒ **“Bill and Keep” or “Sender Keeps All”**
 - ⇒ **Revenue Sharing**

Cost Model

OBJECTIVES

BUSINESS DECISION SUPPORT

- Pricing and Product Planning
- Investment evaluation
- Economics of direct/transit routing

FINANCIAL CONTROL

- Monitor actual performance and compare with plan and past trends
- Cost control
- Identify Cross Subsidy

REGULATORY COMPLIANCE

- Set D.140 as globally acceptable standard
- Rationalize tariff charges
- Derive TAR, USO

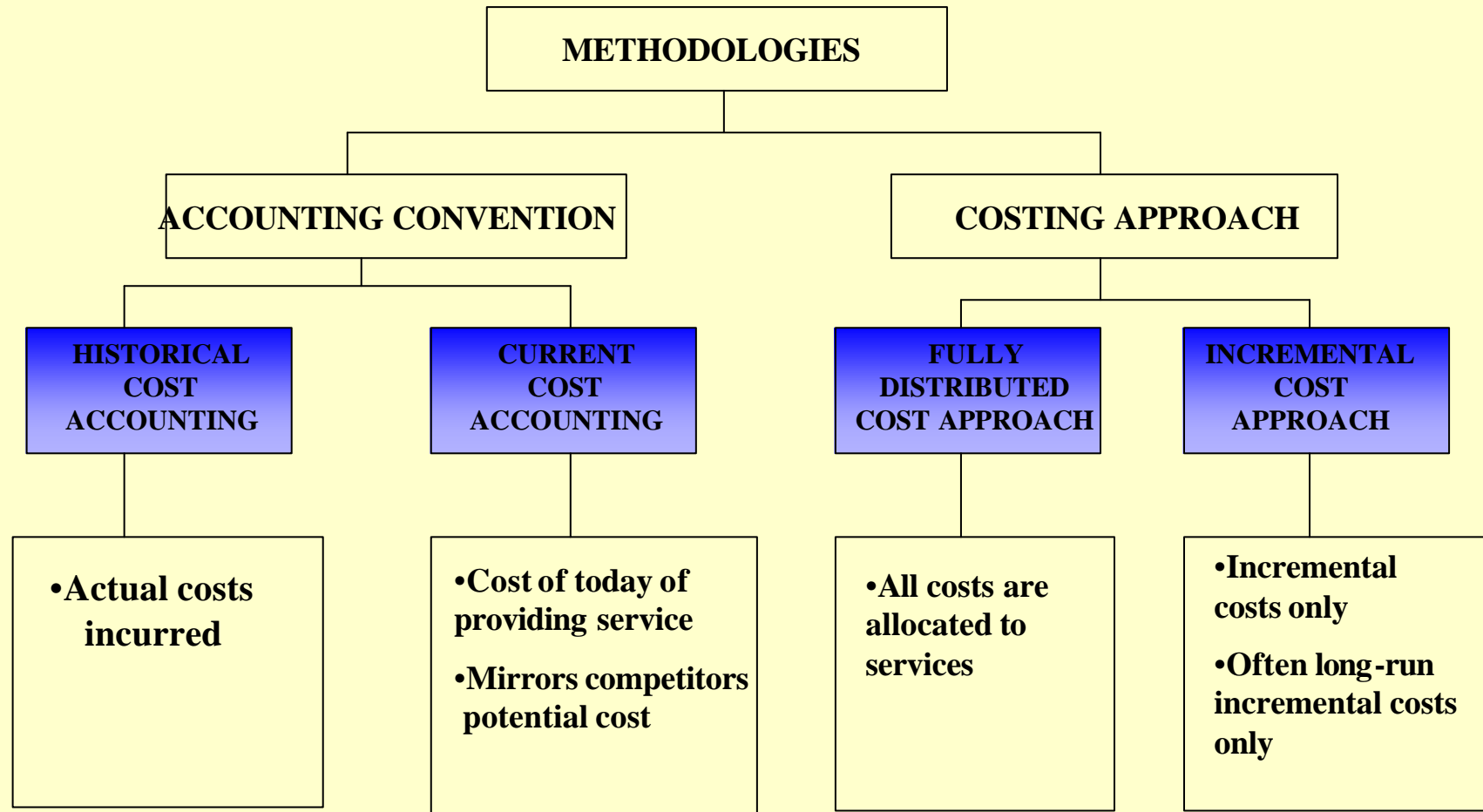
MARKETING

- Minimize opportunity for arbitrage
- Generate more revenue by increased traffic

TECHNOLOGY

- Enhancement towards global technology
- Long term cost/benefit of technology and options
- Impact of technology on global relations

Costing Methodologies





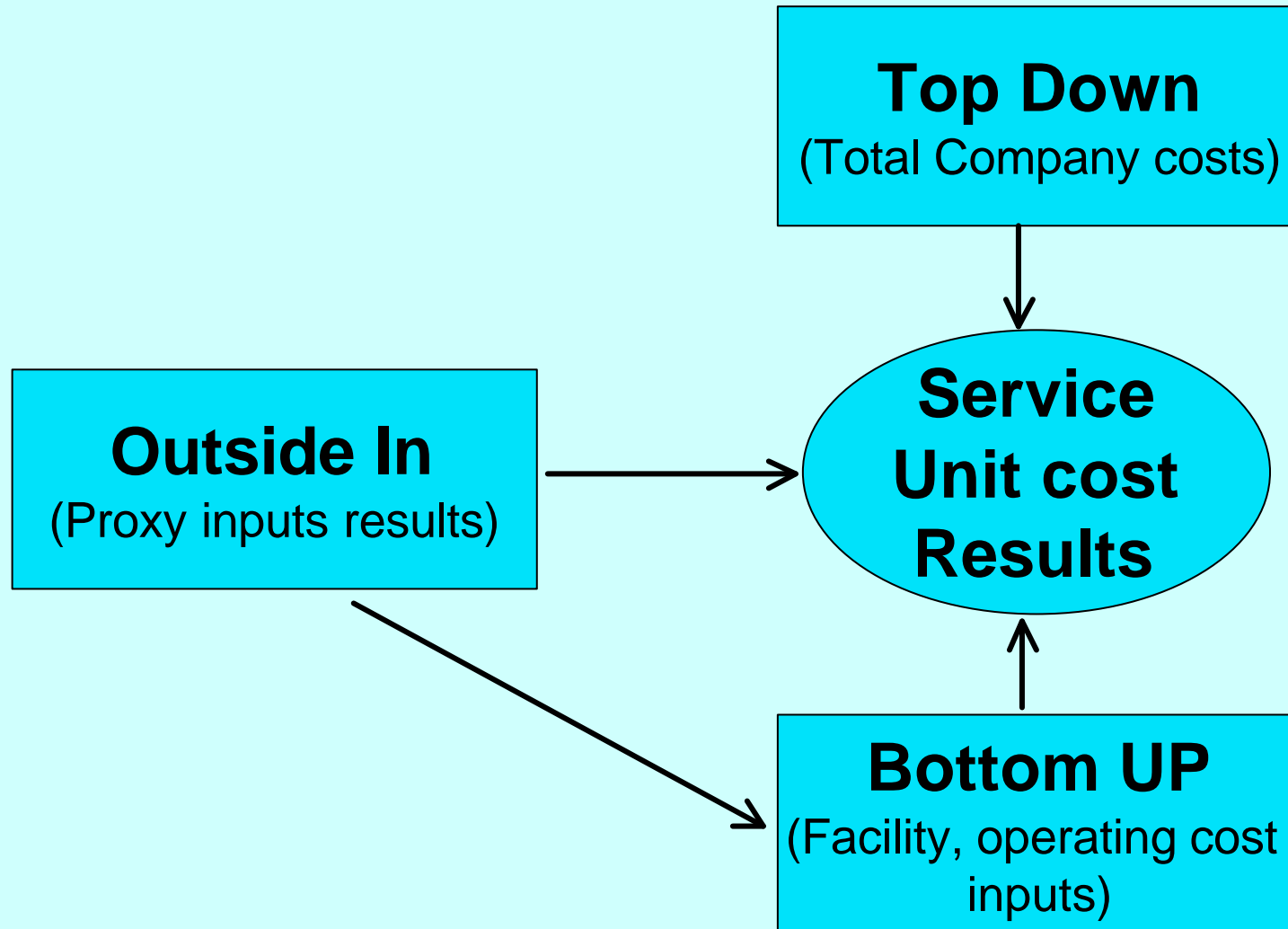
No much differences if...

- **Current cost accounting is used**
 - ⇒ **FDC=Historical Cost is no more relevant**
- **Costs of efficient services provision is used**
 - ⇒ **this should be the aim of all operators**
 - ⇒ **spare capacity (legitimate if transparency)**
 - ⇒ **Disagreement on time horizon to achieve this**
- **Principle of cost causality is applied (ABC)**
 - ⇒ **Common cost must be attributed to the service on the basis of the causality principle**
 - ⇒ **However an exhaustive application of an ABC approach may be very costly**
- **Need for cost recovery realised appropriately**
 - ⇒ **IC approach should contain a markup**

Agreed General principles

- **Principle of transparency** : *The open availability of information used in the cost deviation process in order to allow comprehension of the final rate from the vantage point of an external analyst*
- **Principle of practicability** : *The ability to implement a costing methodology with reasonable demands being placed on data availability and data processing in order to keep the costing exercise economical, yet still useful*
- **Principle of cost causality** : *The demonstration of clear cause-and-effect relationship between service delivery on the one hand and the network element and other resources used to provide it on the other hand, taking into account the relevant underlying cost determinants (cost drivers)*
- **Principle of reasonable contribution to common costs** : *Costing methodologies should provide for a reasonable contribution to common costs*
- **Principle of efficiency** : *The provision of a forecast of cost reductions that result from a more efficient combination of resources*

Cost Study Methodologies





Cost model resolves every things?

- **Accounting rate is established by negotiation**
 - ⇒ Rates need to be agreed upon in negotiation
 - ⇒ Market-determined prices put pressure upon negotiation
- **Need to back up its claim for a charge**
 - ⇒ By showing the price of a comparable competitively offered service
 - ⇒ Or for monopoly by providing relevant cost data
- **“Costs” = tools for negotiation, “costs” do not fix automatically the level of prices**



Interconnection with mobile networks

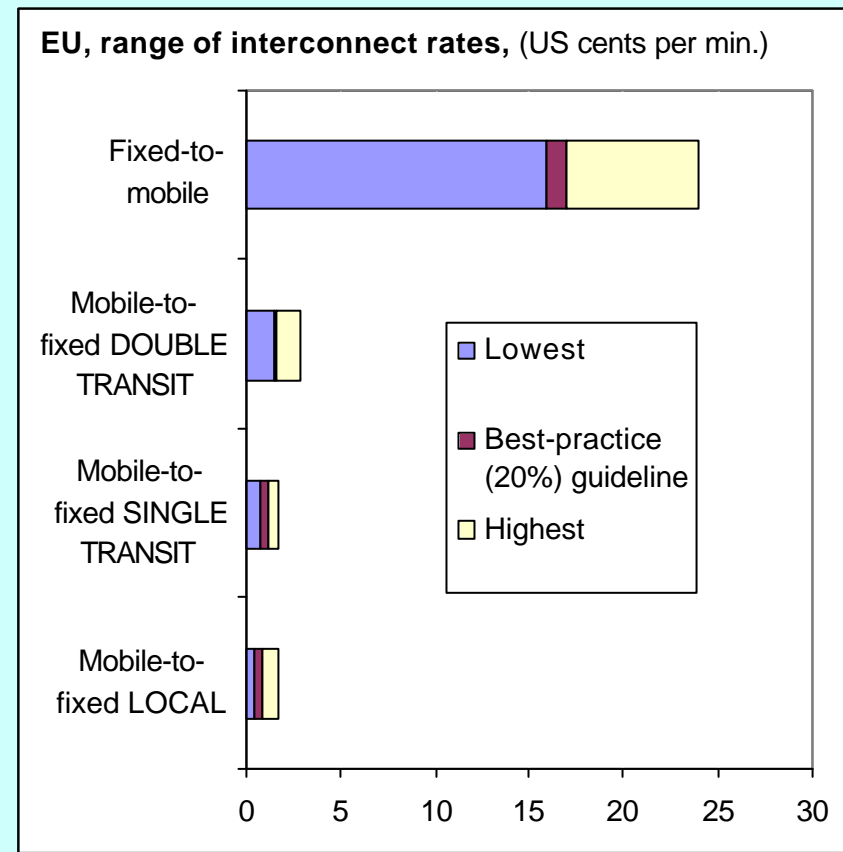
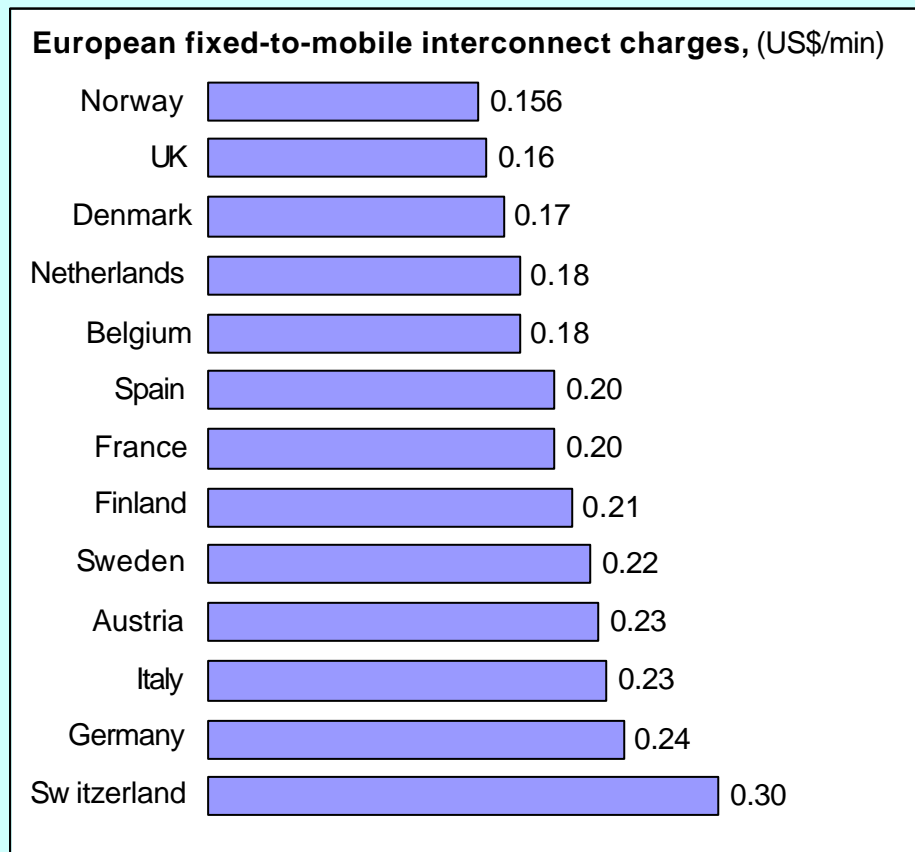
- **key regulatory issues involving interconnection with mobile networks. These issues include:**
 - ⇒ **The role played by market structure and competition in setting mobile interconnection rates;**
 - ⇒ **The asymmetry of retail prices for fixed-to-mobile and mobile-to-fixed calls, stemming in part from asymmetrical interconnection rates;**
 - ⇒ **Difficulties in obtaining technical interconnection, including quality-of-service problems;**
 - ⇒ **The lack of transparency in setting prices for fixed-to-mobile and mobile-to-fixed calls; and**
 - ⇒ **The design of appropriate interconnection arrangements for Short Messaging Services (SMS) and General Packet Radio Service (GPRS)—and emerging mobile Internet access in general.**

Interconnection Rates in selected European countries under CPP (in US \$ / minute)

	Fixed-to-mobile interconnect rate	Mobile-to-fixed interconnect rate LOCAL	Mobile-to-fixed interconnect rate SINGLE TRANSIT	Mobile-to-fixed interconnect rate DOUBLE TRANSIT
Austria	0.23	0.017	0.017	0.022
Belgium	0.18	0.008	0.014	0.018
Denmark	0.17	0.008	0.011	0.016
Finland	0.21	0.013	0.013	0.024
France	0.20	0.006	0.012	0.018
Germany	0.24	0.008	0.017	0.021
Greece	n.a.	0.018	0.018	0.025
Italy	0.23	0.009	0.015	0.021
Ireland	n.a.	0.010	0.015	0.021
Luxembourg	n.a.	0.015	0.015	0.015
Netherlands	0.18	0.009	0.013	0.016
Portugal	n.a.	0.009	0.015	0.024
Spain	0.20	0.009	0.015	0.028
Sweden	0.22	0.008	0.011	0.015
UK	0.16	0.005	0.007	0.016
Switzerland	0.30	n.a	n.a	0.020
Norway	0.156	n.a	n.a	0.018
Average	0.21	0.010	0.014	0.020

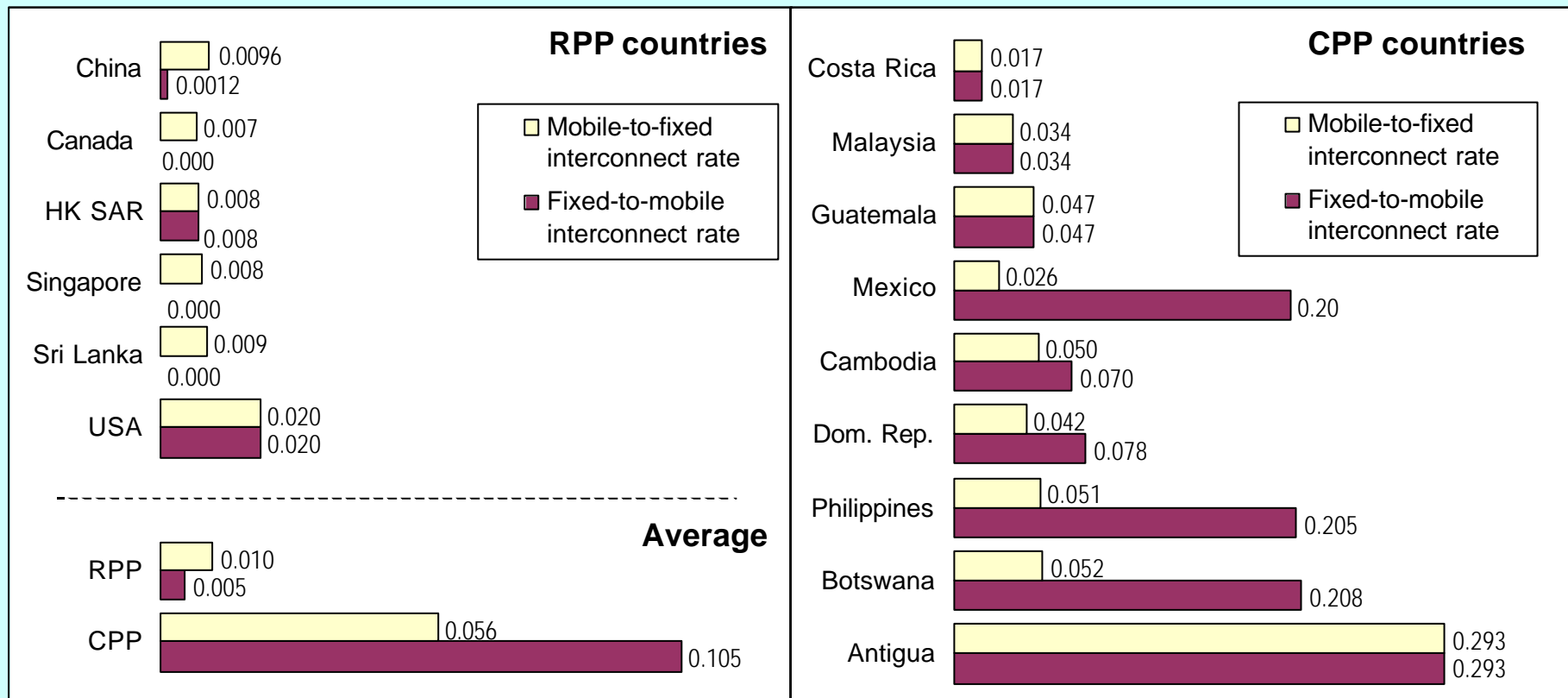
Interconnection Rates in Selected European Countries

Calling Party Pays (CPP). In US \$ per minute.



Interconnection rates in selected non-European countries

Calling Party Pays (CPP) vs. Receiving Party Pays (RPP). In US\$ per minute.



Internet Interconnection

- **Internet Interconnection has slightly different meaning. Historically Internet interconnection has involved simply different Internet networks.**
- **This Internet Interconnection policies have proved increasingly inappropriate in a commercial industry.**
 - ⇒ **Many operator with larger networks often charge smaller ISPs a traffic-based interconnection fee**
 - ⇒ **Many backbone providers have begun offering transit service networks.**
- **Different type of Interconnection Arrangements**
 - ⇒ **ISP Relationships with customers: usually via a dial-up**
 - ⇒ **ISP-ISP Interconnection: peering or bilateral agreement**
 - ⇒ **Multiple ISP Exchanges when several ISPs need to interconnect in a same city (use of an IXP)**
- **International Regulatory Development**

Recommendation D.50

The ITU-T,

recognizing

the sovereign right of each State to regulate its telecommunication, as reflected in the Preamble to the Constitution,

noting

- a) the rapid growth of Internet and Internet protocol-based international services;
- b) that international Internet connections remain subject to commercial agreements between the parties concerned; and
- c) that continuing technical and economic developments require ongoing studies in this area,

Recommends that


administrations involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements enabling direct international Internet connections that take into account the possible need for compensation between them for the value of elements such as traffic flow, number of routes, geographical coverage and cost of international transmission amongst others.



Guide on Managing and Developing Network Connections and Interconnections to the National Internet Nodes

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International Telecommunication Union



Telecommunication Development Bureau (BDT)

Geneva, June 2000



International Interconnection

- **Accounting revenue division procedure**
- **Termination charge procedure and Settlement rate procedure (Recommendation D.150)**
- **Transitional Arrangements (Recommendation D.140, Annex E)**
- **Cost Methodologies**
- **IP Telephony**
- **Transitional arrangements after 2001**