



## **Best Practices for Telecommunications Reform May 2002**

### **I. The Worldwide Trend towards Telecom "Liberalization"**

Worldwide, there is recognition of the benefits of "liberalizing" the telecommunications sector through the introduction of competition and the privatization of telecommunications carriers. The main objective for this reform is to increase accessibility, quality and affordability of services. This immediate objective has broader societal benefits, because the availability and affordability of modern, reliable communications services are crucial to the ability of all sectors of an economy to attract foreign investment and compete in today's global markets and thus are essential prerequisites to overall national economic development.

There are three key elements of regulatory reform of traditionally monopolized and/or nationalized telecommunications services, preferably taken in the following order:

- Establishment of an effective independent regulator
- Introduction of competition
- Privatization of state-owned monopolies

This memo summarizes points from key international reference materials, listed at the end of this document, on telecommunications reform.

### **II. Best Practices for Telecommunications Regulatory Reform**

#### **A. General Principles**

- Governments should not be providers of telecom services, which are run more efficiently by private companies.
  - Government should be responsible for planning, structuring, and regulation.
  - The private sector should be responsible for management, investment, construction, and financing.
  - The transfer of responsibility to the private sector and the introduction of competition should be accomplished through transparent arrangements, (management contracts, capital leases, concessions, sale of assets and rights to operate).
- A transparent and predictable regulatory framework is a prerequisite to attracting investment.

- Government should create an independent, technically competent, and sufficiently funded regulatory entity to grant licenses, enforce competition, and protect the public interest.
  - A main goal of regulation should be the enforcement of competition.
- The success of universal access efforts will depend in large measure on the success of privatization and competition.
  - The most significant profitability factors for rural investments relate more to policy variables (especially interconnection and tariffs) than to risk and financial variables.

## **B. Competition**

Worldwide, the telecommunications sector is being opened to competition, in response to both technological developments and the failure of state-owned telecom monopolies to satisfy the growing telecommunications needs of users and economies.

The introduction of competition in telecommunications has brought measurable benefits to both consumers and operators.\* Competition provides consumers with greater choice of service operators, wider variety of services, significantly improved service quality, and lower tariffs. Competition prods incumbents to improve their efficiency and to invest in growth and innovation. For developing countries, added benefits include the attraction of badly needed investment, faster network deployment, and wider consumer access.

“Liberalization” does not mean de-regulation. The introduction of competition must be accompanied – indeed, should be preceded -- by the creation of National Regulatory Agencies, charged with the responsibility of facilitating market entry by new players, guarding against anti-competitive practices of incumbent operators and ensuring that the benefits of competition are passed on to consumers.

The 1997 WTO Reference Paper sets out basic rules for ensuring competition in the telecommunications sector, focusing on the competitive practices of "major suppliers" of telecommunications services. A "major supplier" is an entity that controls essential facilities for the public network that cannot reasonably be duplicated for either economic reasons, technical reasons, or both. The major points of the WTO Reference Paper are:

- 1. Enforcement of competition.** Governments must take measures to ensure that major suppliers do not engage in anticompetitive practices such as
  - cross-subsidies,
  - using information obtained from competitors, or
  - withholding needed technical information from competitors.
- 2. Interconnection.** Governments must assure that new entrants have a right to interconnect with a major supplier at any technically feasible point in the network. (See separate section below for more details.)

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\* There are some countries that have made great strides without competition – Costa Rica is an oft-cited example.

- The terms, conditions, and quality of interconnection must be nondiscriminatory (that is, no less favorable to the competitor than to the major supplier).
  - Interconnection must be afforded on a timely basis, and rates must be reasonable and transparent, taking into account economic feasibility.
  - Services must be unbundled so that new entrants do not have to pay for network components or facilities they do not need.
  - The terms for interconnection must be publicly available and enforceable on a timely basis.
3. **Universal service.** The WTO Reference Paper allows governments to maintain policy measures that are designed to achieve universal service. However, these measures must be administered in a transparent, nondiscriminatory, and competitively neutral way.
  4. **Independent regulator.** The regulatory body must be separate from the actual suppliers and must employ procedures ensuring impartiality for all market participants. (See below for more detail.)
  5. **Resource management.** Governments must use procedures for the allocation and use of scarce resources (including frequencies) that are timely, objective, transparent, and nondiscriminatory.

### C. Independent regulator

The fundamental function of an economic regulator is to enforce competition and act as a surrogate for the marketplace where actual competition cannot, or does not, exist. The role of the regulator in new markets, therefore, will focus on facilitating the development of the marketplace and ensuring that the market power of previous monopolies, or dominant players, does not damage the prospects and opportunities for commercial development in the sector by the newer participants. The regulator also can play an important role in meting out limited resources, such as spectrum and telephone numbers, and generally creating a regulatory environment that protects the interests of consumers, service providers and investors.

When transitioning from a monopoly to a competitive environment, developing countries must establish credible and effective regulatory institutions that can inspire confidence in, and optimism about, the newly emerging market. While there is no one regulatory framework that suits every country, some organizational models and practices have proven to be more successful than others in fostering liberalized, privatized, and competitive telecommunications markets. Such regulatory frameworks generally incorporate the following principles for the establishment and operation of a National Regulatory Authority:

- A national regulatory authority (NRA) needs legal and functional independence from network operators and service and equipment providers.
- The NRA must be free from direct political pressure - the regulator must have a separate budget and the ability to hire and fire its own employees.
- The NRA must have adequate funding, expert staff, and the necessary support facilities.

- The NRA must establish administrative procedures to assure that decisions are transparent. Efforts to influence the regulator must be made a matter of public record. Transparency should include public reporting of communications between the government ministries and the regulator. Decisions must be justified and explained on the basis of the public record. The rules applied to operators must be clear and published.
- The NRA must have clearly identified authority and procedures for making and enforcing decisions on:
  - Licensing (including amending and withdrawing licenses);
  - Interconnection (including the reference offer, cost accounting systems, and dispute resolution);
  - Leased lines (in particular their availability on nondiscriminatory terms from the dominant operator);
  - Universal service (including monitoring the finance scheme);
  - Tariffs (including the ability to assure progress toward cost-based tariffs);
  - Numbering (including publication of a number plan and provisions for number portability);
  - Frequencies (including transparent methods for allocating spectrum and assigning spectrum licenses in procompetitive ways);
  - Granting nondiscriminatory use of rights of ways.
- Newly-created regulatory entities are frequently overwhelmed and have little expertise to drawn upon. On-site consultant support during the initial start-up phase is very useful.

NRAs must think globally. Every national regulator must have the capacity to work with other NRAs not only multilaterally (at the ITU, for instance) but also bilaterally.

#### **D. Interconnection – A Key Element of Competition**

Interconnection is the principle that any service provider should be able to connect with the network of any other service provider. Interconnection is the key to competition, since it enables consumers of one network to be able to successfully complete a call to a subscriber of a competitor. This is referred to as the any-to-any principle of interconnection. This requires the interconnection of networks, for example, allowing a cellular customer to communicate not only with other cellular subscribers but also with the fixed line telephone customers of the incumbent operator and vice-versa. New entrants must not only have access to the incumbent's networks, but access must be on terms and conditions that are fair, non-discriminatory, and transparent.

##### **-- The Elements of Interconnection**

A good basic definition of interconnection can be found in the Communications Act of the United States, which provides that incumbent operators have the obligation "to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the local exchange carrier's network-- (A) for the transmission and routing of telephone exchange service and exchange access; (B) at any technically feasible point within the carrier's network; (C) that is at least equal in quality to that provided by the local exchange carrier to

itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and (D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, ... ." United States Communications Act, section 251.

Interconnection is more than just access to connection points in the incumbents network. The US interconnection statute, which is codified at 47 United States Code Section 251, offers a good list of the elements of interconnection. The U.S. law imposes the following duties on all local exchange carriers:

(1) **Resale** The duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services.

(2) **Number portability** The duty to provide, to the extent technically feasible, number portability (the ability of consumers to keep their phone number as they change carriers).

(3) **Dialing parity** The duty to provide dialing parity to competing providers of telephone exchange service and telephone toll service, and the duty to permit all such providers to have nondiscriminatory access to telephone numbers, operator services, directory assistance, and directory listing, with no unreasonable dialing delays.

(4) **Access to rights-of-way** The duty to afford access to the poles, ducts, conduits, and rights-of-way of such carrier to competing providers of telecommunications services.

(5) **Reciprocal compensation** The duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications.

Incumbent local exchange carriers have additional obligations:

(1) **Duty to negotiate** The duty to negotiate with new entrants in good faith the particular terms and conditions of interconnection agreements.

(2) **Interconnection** The duty to provide to any requesting telecommunications carrier interconnection with the local exchange carrier's network--

- (A) for the transmission and routing of telephone exchange service and exchange access;
- (B) at any technically feasible point within the carrier's network;
- (C) that is at least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and

- (D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.

**(3) *Unbundled access*** The duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory.

**(4) *Resale*** The duty--

- (A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and
- (B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications service, except that a State commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

**(5) *Notice of changes*** The duty to provide reasonable public notice of changes in the information necessary for the transmission and routing of services using that local exchange carrier's facilities or networks, as well as of any other changes that would affect the interoperability of those facilities and networks.

**(6) *Collocation*** The duty to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if physical collocation is not practical for technical reasons or because of space limitations.

Similar requirements were a key part of the 1997 directive of the European Union on interconnection. Here is an excerpt:

"Notified operators shall meet reasonable requests for unbundled access to their local loops and related facilities, under transparent, fair and non-discriminatory conditions. Requests shall only be refused on the basis of objective criteria, relating to technical feasibility or the need to maintain network integrity. Where access is refused, the aggrieved party may submit the case to the dispute resolution procedure referred to in Article 4(5). Notified operators shall provide beneficiaries

with facilities equivalent to those provided for their own services or to their associated companies, and with the same conditions and time-scales."\*

### E. Universal Service

The process of privatization and the introduction of competition must be reconciled with the enduring goal of promoting universal availability of telecommunications services:

- The goals of universal service should be realistically defined over time. In some countries, the goal of bringing services to each and every village may be the right initial goal for universal service in rural areas.
- Telecommunication investments in rural areas can yield, on average, an adequate and even high rate of return.
- Servicing the remotest areas, however, represents higher costs per line and greater risk, and therefore may require a subsidy.
- Universal access funds have been successfully used in both industrialized and developing countries.
  - *In Chile, which is considered a best practice example for many aspects of liberalization, the size of the subsidies was actually quite small but provided considerable leverage to generate much greater telecommunications development in the rural sector. The subsidies were distributed competitively (ranging from 0 to US\$10,000 per line), using a least-cost approach with a one-time subsidy for capital, rather than for recurrent costs.*
- While getting phone services to villages is the preeminent need, introducing new forms of universal service such as Internet access remains an important challenge.
- Industrial countries use social institutions (schools and libraries) to provide communities with Internet access. This practice defines the delivery mechanism (and cost implications) of such measures more tightly than putting Internet access on the same level as phone service.
- If there is a transitional monopoly, it may be appropriate to allow exceptions for encouraging universal service. Even with performance goals, it may not be effective to rely solely on modernizing monopolies to build out to rural areas.
  - *In Poland, rural cooperatives have become an important source of network build-out. These cooperatives operate under the equivalent of a "build, operate, and transfer" agreement, that ultimately returns control to the monopolist but provides for compensation.*
- Consider franchising through the monopolist. In effect, this is what is being done with wireless services when local entrepreneurs buy and operate wireless phones for a village.

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\* The 1997 Directive has been replaced. The new directive provides: "Operators of public communications networks shall have a right and, when requested by other undertakings so authorised, an obligation to negotiate interconnection with each other ... ." See [http://europa.eu.int/information\\_society/topics/telecoms/regulatory/new\\_rf/index\\_en.htm](http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/index_en.htm)

- *An example of how alternative arrangements for network expansion can help rural areas is microlending in Bangladesh for cellular telecommunications and Internet services that are organized by woman entrepreneurs in villages.*
- If dominant carriers are receiving subsidies to provide universal service, do not overpay, and consider the consequences for competition. The universal service subsidy benefits the company, not just those with low incomes.
  - *For example, the United Kingdom studied the net cost for British Telecom of providing universal service in Britain. The regulator concluded that the net cost to British Telecom would be tiny, for two reasons. First, the economically efficient cost of the subsidy was not that large. Second, British telecom would gain a significant competitive benefit through brand identification and network coverage as the one supplier available to everyone.*
- Better yet, introduce competition for universal service subsidies. Instead of giving a single carrier subsidies to provide universal service, competition will ensure that funds for subsidies are used more effectively.
  - *Chile is the pioneer in this area. Chile makes phone companies bid for universal service funds and thereby creates an incentive to get the most service for its monies. This method also helps assure that the funding is competitively neutral in its impact.*
- Best yet, fund consumers, not carriers. The problem of providing universal service, once a network is built, is income related. Households can make their own decisions about spending priorities. Vouchers for telephone services, whether they are used for prepaid calling cards or home phone service, allow for greater consumer choice. And they eliminate the distortion from pricing local services below cost to make them affordable.
- Create transparent sources of funding for universal service that draw on more efficient taxing principles. A value-added tax (VAT) or general treasury revenues are efficient sources of funding for universal service.

### III. Resources

"Does Sequencing Matter? Regulation and Privatization in Telecommunications Reform," by Scott Wallsten, World Bank (February 2002)

<http://www.worldbank.org/wbi/B-SPAN/docs/sequencing.pdf> -- An empirical analysis of whether it is better to privatize a state-owned telephone system before or after creating an independent agency to regulate telecoms. A review of data gathered from dozens of countries during the past decade shows that it is clearly much better to create the independent regulator before privatizing.

A good place to start is a short paper published by the World Bank: "Telecommunications Reform: How To Succeed" (1997) by Bjorn Wellenius.

<http://www.worldbank.org/html/fpd/notes/130/130summary.html>

World Bank, Telecommunications Regulation Handbook - perhaps the best summary available - in PDF, six modules:

- Overview of Telecommunications Regulation

- Licensing Telecommunications Services
- Interconnection
- Price Regulation
- Competition Policy
- Universal Service

<http://www.infodev.org/projects/314regulationhandbook/>

"Telecom Privatization And Liberalization," by William B. Garrison, The Kenan Institute of Private Enterprise, available at <http://www.gipiproject.org/telco/>

International Telecommunication Union, "World Telecom Development – 1998"

<http://www.itu.int/itudoc/itu-d/wtdc/wtdc98/docs/32.pdf> (48 pages) -- This comprehensive global overview of telecommunications reform covers countries in Asia, Africa, Europe and Latin America, and includes a chart listing major international and regional organizations' involvement in the reform effort. It also contains reference to "best practices," based on the World Trade Organization (WTO) Reference paper. The chapter on the Americas has a chart showing North and South American telecommunications reform legislation.

Center for International Private Enterprise, "Factors of Successful Reform in the Telecommunications Sector" <http://www.cipe.org/mdf1997/factors.htm> -- This short article examines five characteristics of successful reform in the regulation of the telecommunications sector.

ITU Workshop on Regulatory Aspects of Broadband, May 2001

<http://www.itu.int/osg/sec/spu/ni/broadband/workshop/> -- One slide presentation, Government Strategies to Encourage Broadband, <http://www.itu.int/osg/sec/spu/ni/broadband/workshop/presentations/kelly.pdf> provides concise summaries of national strategies for advancing the development of broadband.

The ITU conducted a Telecommunication Trade and Finance Colloquium for the Commonwealth of Independent States in St. Petersburg in February 1998. Unfortunately, the papers are not available online, but can be purchased from the ITU. The order form can be downloaded at <http://www.itu.int/itudoc/gs/subscirc/itu-d/253-8.pdf> -- The conclusion provides recommendations to CIS countries for reform of telecommunications regulation.

"The World Trade Organization Agreement and Telecommunication Policy Reforms," by Peter Cowhey and Mikhail M. Klimenko, University of California in San Diego, measures the progress of telecommunications regulatory reform in developing and transitional economies, provides a survey of effective practices for implementing reform in the telecom sector based on the principles of the 1997 WTO Reference Paper, and examines the policy challenges that still remain. Part Two analyzes the record of seven countries in Eastern Europe and South America in regards to the transition to competition. [http://econ.worldbank.org/files/1723\\_wps2601.pdf](http://econ.worldbank.org/files/1723_wps2601.pdf)

"Best Practices for Promoting Private Sector Investment in Infrastructure," by Sean M. O'Sullivan, Private Sector Development Specialist, Asian Development Bank. This paper is

mainly concerned with the infrastructure reform of power, water, roads, ports and airports. The same principles, though, are applicable to the communications sector.

<http://www.oecd.org/dev/pageliste/BAD/seanmosullivan.htm>

World Bank, "Dominican Republic-Telecommunications Regulatory Reform Project,"

<http://www.worldbank.org/pics/pid/do52736.txt>

The EU regulatory framework for communications services can be found at:

[http://europa.eu.int/information\\_society/topics/telecoms/regulatory/new\\_rf/index\\_en.htm](http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/index_en.htm) [Note – may work in MS Internet Explorer only, not Netscape Navigator.]

### **Resources on Interconnection**

- Two basic key documents on interconnection are the WTO Reference Paper and the 1997 EU Directive on Interconnection. The WTO Reference Paper is at [http://www.wto.org/english/news\\_e/pres97\\_e/refpap-e.htm](http://www.wto.org/english/news_e/pres97_e/refpap-e.htm) and the 1997 EU Directive is at [http://europa.eu.int/eur-lex/en/lif/dat/1997/en\\_397L0033.html](http://europa.eu.int/eur-lex/en/lif/dat/1997/en_397L0033.html). In 2000, the EU proposed a new directive on access and interconnection, which is indexed at <http://europa.eu.int/ISPO/infosoc/telecompolicy/review99/Welcome.html>
- The OECD has prepared a comparative study of interconnection laws, which is available in PDF form at <http://www.oecd.org/pdf/M00003000/M00003019.pdf>. By and large, it does not purport to choose which law is the best model, but it contrasts the approaches of several countries.
- One of the best discussions of interconnection principles can be found in Chapter 3 of the "Telecommunications Regulation Handbook" published by the infoDev program of the World Bank. Chapter 3 is online in PDF form at <http://www.infodev.org/projects/314regulationhandbook/module3.pdf>
- Asia-Pacific Economic Cooperation (APEC) Telecommunications and Information Working Group materials on interconnection from 1999: <http://www.apectelwg.org/apecdata/telwg/interTG/ATTZ2FG1.htm>
- The ITU has published a report entitled Trends in Telecommunication Reform 2000-2001 "Interconnection Regulation" - 3rd edition, 2000. It provides concrete examples of how regulators and policy makers around the globe have addressed these issues. Trends 2000-2001 also includes key interconnection reference materials - such as interconnection guidelines published by several regional regulatory organizations - and provides links to many other useful sources. It is not online, but can be purchased in hard-copy from the ITU <http://www.itu.int/publications/docs/trends2000.html>
- Links to laws and policies of a number of countries can be found at: <http://www.itu.int/ITU-D/treg/related-links/links-docs/interconnectlegisl.html> but some of the links are outdated.

The UK policy, for example, is now at <http://www.oftel.gov.uk/publications/1999/competition/gii799.htm> The German interconnection regulation is obtainable in PDF at <http://www1.oecd.org/dsti/sti/it/cm/news/de.pdf>

- The OECD has materials on the interconnection policies of its members at <http://webnet1.oecd.org/oecd/pages/home/displaygeneral/0,3380,EN-document-41-1-no-no-5001-0,FF.html>

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